

Consultant physicians working with patients

The duties, responsibilities and practice of physicians in medicine

Revised 5th edition 2013 (online update)



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- 1 Physicians in the NHS today
- 2 The work of the specialties
- 3 The Royal College of Physicians: supporting the delivery of high-quality care

The Royal College of Physicians

The Royal College of Physicians plays a leading role in the delivery of high-quality patient care by setting standards of medical practice and promoting clinical excellence. We provide physicians in over 30 medical specialties with education, training and support throughout their careers. As an independent charity representing more than 28,000 fellows and members worldwide, we advise and work with government, patients, allied healthcare professionals and the public to improve health and healthcare.

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Foreword

The revised fifth edition of *Consultant physicians working with patients* is more relevant than ever, as it coincides with the major change in commissioning arrangements in England. I hope that the information contained here on service organisation and standards, workload, job plans and the role of the Royal College of Physicians in supporting these activities will also be of particular value to clinical commissioning groups as they take up their new role.

To support the commissioning process, the RCP has developed a clinical commissioning hub on its website, containing all the elements of its work that can contribute to commissioning decisions – clinical guidelines, audit results, quality improvement programmes, and information relating to all 30 medical specialties covered by the RCP. Each specialty chapter of this book contains major recommendations specifically for commissioning hub can be found on our website (www.rcplondon.ac.uk). This information is also relevant to the planning processes in the devolved nations.

Consultant physicians working with patients will also help individual physicians and clinical teams demonstrate how the structures and resources described here will result in high-quality patient care, which is vital at a time when the NHS faces major financial constraints. We underline the importance of multidisciplinary team working, not just within the hospital, but stretching out across primary, community and social care, to support integrated care for patients and bring care 'closer to home'.

I am enormously grateful to all those who have contributed, and in particular to our clinical vice-president Dr Linda Patterson OBE, and to Urooj Akhtar, who has quietly and efficiently put it all together.

June 2013

Sir Richard Thompson President, Royal College of Physicians

Abbreviations

A&E	accident and emergency		
AACs	Advisory Appointment Committees	KBA	knowledge-based assessment
AMUs	acute medicine units	LAT	locum appointment for training
ARCP	Annual Review of Competence	MAU	medical admissions unit
	Progression	MDT	multidisciplinary team
CCGs	clinical commissioning groups	MINAP	Myocardial Infarction Audit Project
CCST	Certificate of Completion of Specialist	mini-CEX	mini clinical evaluation exercise
	Training	MMC	Modernising Medical Careers
CCT	Certificate of Completion of Training	MRC	Medical Research Council
CEEU	Clinical Effectiveness and Evaluation	MTAS	Medical Training Application Service
	Unit	NCGC	National Clinical Guideline Centre
CESR	Certificates of Eligibility for Specialist	NHDs	notional half days
	Registration	NHS	National Health Service
СМО	chief medical officer	NICE	National Institute for Health and Care
CMT	Core Medical Training		Excellence
CPD	continuing professional development	NSFs	National Service Frameworks
CQC	Care Quality Commission	NTN	national training numbers
DFID	Department for International	OoHMT	Out-of-Hours Medical Team
	Development	PAs	programmed activities
DGH	district general hospital	PACES	Practical Assessment of Clinical
DH	Department of Health		Examination Skills
DOPS	directly observed procedural skills	PbR	Payment by Results
EWTD	European Working Time Directive	PCN	Patient and Carer Network
GIM	general internal medicine	PGDs	patient group directions
GMC	General Medical Council	PIU	Patient Involvement Unit
GPwSI	general practitioner with a special interest	PMETB	Postgraduate Medical Education and Training Board
GSF	Gold Standards Framework	PwSIs	practitioners with a special interest
HDU	high dependency unit	RITA	Record of In-Training Assessment
HES	Hospital Episode Statistics	SAC	specialist advisory committee
HIU	Health Informatics Unit	SAS	staff and associate specialists
HPA	Health Protection Agency	SPAs	supporting professional activities
HWDU	Health and Work Development Unit	StR	specialty registrar
ICUs	intensive care units	WHO	World Health Organization
IOG	Improving Outcomes Guidance	WTE	whole-time equivalent
JRCPTB	Joint Royal College of Physicians Training Board		

Note: this edition uses the terminology specialty registrar (StR) to update the term specialist registrar (SpR).

1 Physicians in the NHS today

The unique skill of the consultant physician is the ability to diagnose and make clinical decisions in difficult, complex and uncertain circumstances. Development of this skill takes comprehensive and thorough learning, time and experience. It is more than a collection of competencies. It reflects, individually and collectively, a culture of striving for excellence that has been built up over centuries.

The Royal College of Physicians (RCP) supports this practice with education, training, continuing professional development (CPD) and quality improvement. It sets and measures standards and works with other bodies to ensure that consultants practise the highest standards of medical care and constantly strive to improve practice.

The RCP has a vision of doctors educated and trained to the highest standards delivering care to patients that is of the highest quality. The objectives of the RCP include:¹

- championing the values of the medical profession
- improving standards in clinical practice
- supporting physicians in their practice of medicine through education and training
- promoting patient-centred care
- engaging the government, the public and the profession, and providing leadership on health and healthcare issues.

Leading for quality: the foundation for healthcare over the next decade¹ was published by the RCP in March 2010 to set the framework of the policy themes that underpin our vision of a modern health service which is committed to continuous improvement. A leading theme is of better clinical integration and collaboration whereby doctors, in partnership with their patients and in collaboration with other health professionals, lead the planning and implementation of services that cross traditional organisational boundaries, particularly those of primary and secondary care, and social care.

We are committed to a strong and sustainable medical workforce, so that the right numbers of physicians are trained to the right standard, to deliver the care that is needed by our patients. We are also committed to reducing harm, from alcohol, tobacco, obesity, health inequalities and climate change.

Consultant physicians have several roles. We are pre-eminently clinicians working with individual patients. We practise in clinical teams both as leaders and as members. We learn, teach and research. As doctors our main responsibility is to our patients. But it is the exercise of additional activities and roles that supports standards of excellence.

*Doctors in society: medical professionalism in a changing world*² describes the moral and ethical context of medical practice:

Medical professionalism signifies a set of values, behaviours, and relationships that underpins the trust the public has in doctors. Medicine is a vocation in which a doctor's knowledge, clinical skills and judgement are put in the service of protecting and restoring human well-being. This purpose is realised through a partnership between patient and doctor, one based on mutual respect, individual responsibility, and appropriate accountability.

In their day-to-day practice, doctors are committed to:

- integrity
- compassion
- altruism
- continuous improvement
- excellence
- working in partnership with members of the wider healthcare team and with patients.

These values, which underpin the science and practice of medicine, form the basis of a moral contract between the medical profession and society. Each party has a duty to work to strengthen the system of healthcare on which our collective human dignity depends.

The RCP has developed the thinking in *Doctors in society* to further discuss the role of physicians as we look forward over the next 30 years. *Future physicians*³ looks at the changing relationships between physicians and their patients. Society is changing. The population

in the UK is ageing. Citizens want to be more involved in decisions about their care and make greater demands for more personalised care. Scientific and technological advances are moving rapidly, but healthcare has to be supported by the economic wealth of the country, with a need for more co-management of health by patients and self-reliance if the costs are not going to overwhelm the national budget. This scenario was well described by Wanless in his report.⁴ Social trends of increasing obesity and excess alcohol consumption, along with rising chronic disease in the population, are proving challenging, and health inequalities between different sections of the population and in different localities need to be tackled.⁵ The Marmot report calls on the medical profession to lead on all these issues, with leadership based on the values of professionalism, working in partnership with others.⁵

In 2013, Robert Francis published his report on the Mid Staffordshire NHS Foundation Trust public enquiry. The RCP was an invited participant in the enquiry. The findings, of a need for an overall cultural change to really put patients at the heart of care and to ensure that they are always treated with dignity and kindness is a challenge to all parts of the system. The RCP will be looking at all the recommendations and restating our commitment to clinical leadership at the bedside, based on professionalism and also wider engagement with the system to ensure that quality of care is always put first.⁶ See the RCP website (**www.rcplondon.ac.uk**) for the RCP's response to the Francis Inquiry report.

Quality improvement

The quality spiral shows how the RCP sets standards and encourages physicians to measure against those standards, to undertake improvement by implementing change and then to go on improving.

There is a programme of work at the RCP that has been developed to encourage and support physicians to evaluate and improve their clinical practice and hence improve patient care. Physicians are able to draw on resources from the RCP at all stages of the 'quality spiral' (Fig 1). The RCP has published its quality strategy to direct the quality improvement work of the RCP.⁷ It describes quality in seven domains:

- 1 safety
- 2 patient experience
- 3 effectiveness
- 4 equity



Fig 1 The RCP quality spiral.

- 5 efficiency
- 6 timeliness
- 7 sustainability.

The quality improvement work of the RCP is organised to support improvements in all these domains which underpins the professional practice of doctors. The RCP supports fellows and members, and the organisations and teams in which they work, to improve the quality of clinical care that they deliver to patients by: medical training and examinations; education and training programmes; developing clinical guidelines; conducting national comparative audits; quality improvement projects, facilitating data and informatics improvements; undertaking invited service reviews; and supporting members preparing for appraisal and revalidation.

The production of clinical guidelines and best practice by the RCP is supplemented by the work of specialist societies who work on additional detailed guidance for their own specialty. Practice can be audited against those standards both locally and by participating in national clinical audits, many of which are led by the RCP. The results of the national clinical audits are published so that individual units can learn about their own performance and undertake programmes to improve care. Specific details of the RCP programmes are outlined in Chapter 3 and on the RCP website.

Health policy

In the 21st century, the context of clinical practice has changed radically. While the four countries that make up the UK have always had different administrative structures for health policy, the differences in healthcare are increasingly stark since devolution in the late 1990s. The parliaments and assemblies in Scotland, Wales, Northern Ireland and England each have responsibility for health within their own country. As time has gone on, the policy context is becoming more divergent.

In England, the white paper, *Equity and excellence: liberating the NHS*,⁸ published in July 2010, with the stated aim to 'increase clinician and patient involvement in NHS decision-making, raise quality by focusing on outcomes and reduce unnecessary bureaucracy'. The Health and Social Care Bill, the legislative framework for the reforms, was tabled in January 2011, but was the most controversial piece of legislation of the coalition government. Its progress through parliament was paused in April 2011 to allow a group of experts to suggest how the reforms should be amended, after considerable criticism from stakeholders.

One major change after the pause was the decision that local commissioning groups should have a board which includes specialists and nurses as well as other clinicians - previously it was stipulated that only GPs should make local commissioning decisions. However, this specialist clinician has to come from outside the area, a requirement which was contested by the RCP. The primary care trusts that used to purchase care for their local population have been abolished, as have the strategic health authorities that oversaw this process. A National Commissioning Board, now known as NHS England, has been created to raise quality in commissioning, undertake specialised commissioning and oversee contracting for primary care. It has also taken over some national functions from the Department of Health. All NHS hospital trusts are required to have foundation trust status and are regulated by Monitor.

The functions of Monitor have changed, after the pause, to be less focused on promoting competition and to have a duty to promote integration. The main duty of Monitor is to protect and promote the interests of patients. This is done by 'promoting the provision of health care services which is effective, efficient and economic, and maintains or improves the quality of services'. This will be done by assessing NHS trusts for foundation trust status and licensing foundation trusts to ensure they are well-led, in terms of quality and finances. The licence enables Monitor to:

- set prices for NHS-funded care in partnership with the NHS England
- enable integrated care
- safeguard choice and prevent anticompetitive behaviour which is against the interests of patients, and
- support commissioners to protect essential health services for patients if a provider gets into financial difficulties.

Other reforms include the transfer of public health functions to local authorities. Health and wellbeing boards have been established in local authorities, and will draft an annual health and wellbeing strategy for the area, based on the joint strategic needs assessment (a measure of health and wellbeing of people in the area). This must be considered when local commissioning decisions are made. There will be increased emphasis on patient choice and competition between providers, with local commissioning groups able to contract with 'any qualified provider', which may be an NHS institution or a private sector provider.

The Health and Social Care Bill has been enacted from 1 April 2013, and is now known as the Health and Social Care Act 2012.

The other nations of the UK have had their own reorganisations in recent years.

In Northern Ireland, in April 2009 four new organisations were established by the local health minister:

- 1 A single Health and Social Care Board replaced the existing four Health and Social Services Boards.
- 2 A Public Health Agency incorporated and built on the work of the Health Promotion Agency.
- 3 A Business Services Organisation provides a range of support functions for the whole of the health and social care system.
- 4 A single Patient and Client Council replaced the health and social services councils.

The role of the Health and Social Care (HSC) Board is to commission health and social services for 1.7 million people from five trusts. Each of these HSC trusts manage and administer hospitals, health centres, residential homes, day centres, and other health- and social care facilities. In Wales, there was also a reorganisation in 2009. Before the reorganisation there were 22 local health boards (LHBs) and 16 NHS trusts responsible for primary and secondary care, respectively. In addition, the LHBs were responsible for the commissioning of secondary care services for their population from the NHS trusts. Specialist and tertiary services were commissioned via a body of the Welsh Assembly Government (Health Commission Wales). Processes, systems and tensions were similar to the purchaser and provider split in England.

In October 2009 NHS Wales started a structural reorganisation, the purpose of which was to engender a collaborative and integrated provision and delivery of world-class health services for the population of Wales. The reduction in corporate overheads and management costs was also an objective of the reorganisation.

The outcome is that NHS Wales now delivers services through seven health boards and three trusts. The health boards represent a merger of previous primary care organisations (health boards) and secondary care trusts (responsible for hospital services). The intention is that commissioning is replaced by service planning and delivery by the health boards representing seamless working between primary and secondary care. Social services remain outside the NHS in Wales. Specialist and tertiary services are now planned collaboratively by these organisations through a body called the Welsh Health Specialised Services Committee.

In Scotland, the ultimate responsibility for the NHS (NHS Scotland) has been with the Scottish Parliament. The Scottish Government Health Directorates have strategic responsibility for NHS Scotland as well as directing and implementing health and community care policy. They provide the statutory and financial framework and hold NHS Scotland to account for its performance. Currently 14 NHS boards plan and provide services and concentrate on strategic leadership and performance management across the local NHS. There is not the sharp distinction between purchasers and providers that exists in the English NHS, so there is no internal market or commissioning in healthcare in Scotland. Seven special health boards provide services nationally for such things as training Scotland's workforce (NHS Education Scotland) or quality standards (Healthcare Improvement Scotland). Community health partnerships have been set up to manage primary and community health services and

forge partnerships with local authorities and the voluntary sector – every board has one.

The Royal College of Physicians of Edinburgh and the Royal College of Physicians and Surgeons of Glasgow work on professional issues in Scotland and seek to influence health policy there. Together with the Royal College of Physicians of London they form the Federation of the Royal Colleges of Physicians of the UK, which oversees the training of doctors.

The systems in the different parts of the UK are increasingly different, but the RCP is committed to working for high-quality care in whatever system is provided. Although commissioning/planning arrangements are different in different parts of the UK, the principles of a quality service will be the same.

The descriptions of the specialties in Chapter 2 can be modified to apply to the different parts of the UK.

Even if there is no formal separation of the purchaser and provider, services still have to be planned and the principles of a high-quality service applied.

New ways of working

One development in all parts of the UK has been 'Care closer to home',⁹ with some services moving from hospitals into the community. Where there has been active partnership between commissioners/planners, GPs and consultant physicians, evidence suggests that these initiatives have been productive in developing new services for patients and new ways of working for the future.¹⁰

Financial environment

After a decade of growth in funding, the NHS is facing future years of austerity, as the settlement on the health services will amount to zero growth. As there have always been upwards of 3% year-on-year increases for the health service budget, this means that, in order to cope with inflation and rising demand, £20 billion of efficiency savings have to be made in England over the next 3–4 years. This will prove very challenging, and need all the resources of professionals, working closely with managerial colleagues to redesign systems of care which are more efficient and less costly. Services that are patient focused, have less duplication and less waiting can be more cost-effective but this is a huge challenge – the alternative is indiscriminate cuts and a lowering in quality.

Medical education

Arrangements for medical education have recently changed. Regulation of postgraduate medical education has been moved to the General Medical Council (GMC) from the Postgraduate Medical Education and Training Board (PMETB). The application system for medical trainees and the allocation of trainees to training programmes is now running more smoothly, after the debacle of the original implementation of Modernising Medical Careers. The recommendations of the Tooke enquiry¹¹ have been implemented and the RCP has led the way in making access to training in the medical specialties a smooth and fair process. In England, a new body called Health Education England has been established, with local education and training boards. It is important that the medical workforce and education is planned with an overall national strategy and the RCP will be closely involved in trying to ensure that any new arrangements do not lower the quality and effectiveness of medical training.

In the last decade, the number of graduates from UK medical schools has increased. There have been changes to immigration rules which have cut the numbers of foreign non-EU graduates allowed to work and train in the UK. This has led to some staffing difficulties as well as denying training opportunities to overseas doctors, which the NHS has always offered in the past. However, there is now the potential, for the first time, for the UK to have a self-sufficient medical workforce, which offers the opportunity of moving towards a fully consultant-delivered specialist service. However, to achieve this, numbers of medical staff and consultants must not be cut.

Continuing professional development

Until now consultants who are fellows or members of the RCP have been required to demonstrate that annually they have achieved 50 hours of CPD activity, half of which must be external to their employing trust, and in a 5-year cycle of 250 hours, 25 of those credits must be non-clinical activity. It is likely that this requirement will remain, for revalidation, but that the demonstration of having taken part will be expanded upon, by requirements to demonstrate reflection and appropriate change of practice in response to the learning event.

As part of the terms and conditions of service for consultants, there is a national agreement which stipulates a minimum time allowed for study and professional leave with funding, and it is expected that all employers should honour this agreement. Details may be negotiated locally as employers get more autonomy, as in foundation trusts, but access to appropriate levels of CPD in order to keep up to date and ensure ongoing quality of the medical workforce is essential for good patient care.

Revalidation

Following the Bristol and Shipman enquiries,¹² Sir Liam Donaldson, then chief medical officer in England, completed a review of medical regulation and published his recommendations in the report, Good doctors, safer patients.13 This was followed by the white paper, Trust, assurance and safety,¹⁴ and by the report of the chief medical officer for England's Working Group, Medical revalidation: principles and next steps.¹⁵ These documents provided an outline for the development and implementation of revalidation for doctors. This is a mechanism to show that all doctors are up to date and fit to continue practising. The RCP is working closely with the GMC, other colleges and partners to develop the system of revalidation for physicians. Revalidation is the responsibility of the GMC but the RCP has made a major contribution to pilots and the detailed work to make the system transparent and fair. From 2012 there has been a national requirement for all practising doctors to revalidate every 5 years.

The medical royal colleges have responsibility for setting and maintaining specialist standards. Following wide consultation by the GMC,¹⁶ revalidation is now a single process combining the original concepts of relicensure and specialist recertification. The proposed process has also been streamlined, so that the minimum requirements are to be five satisfactory annual appraisals, maintenance of CPD requirements, colleague and patient feedback, audit and quality improvement activity, and a review of critical incidents, complaints and compliments. The appraisal process itself has been strengthened and is being extensively piloted.

Changing environment

Healthcare is now delivered within the context of a rapidly changing society that is ageing and multicultural, and has pockets of extreme affluence and poverty. There are rising health inequalities, related to social inequalities. Society also needs to address diseases caused as a result of excess and abuse in lifestyle: obesity, alcoholism and smoking. Tackling these diseases needs change from the government, society and the healthcare sector. The RCP is making major contributions to these efforts, with our reports, education and attempts to influence the policy of the government.

Our population is growing and getting older, with the accumulation of chronic conditions and diseases strongly associated with older age - for example, rising incidences of cancer, dementia and frailty. Supporting care for frail older people is a wider societal issue and provision of services to support people as long as possible in their own homes, living productive independent lives, requires close integration between health services, social care and the voluntary sector, recognising that most support to older people is given by family and friends. The rising number of older patients, and of patients with chronic conditions, obesity and damage caused by excess alcohol ingestion, means that all physicians must have the skills to deal with these people, who may present with a wide variety of presentations and illnesses.

There is also a need for consultant physicians to be involved with patients who are on the surgical wards, offering expertise in the management of their medical conditions which may deteriorate when they undergo surgery.¹⁷ Consultant physicians and doctors in training are often called to deal with medical problems arising in pregnant women who are in the hospital. There is a need for physicians who do not work directly with pregnant women to know more about the interaction between the conditions that they are treating and pregnancy.¹⁸

The RCP has published an analysis of the challenges facing the acute medical services, *Hospitals on the edge?* (www.rcplondon.ac.uk/projects/hospitals-edge-timeaction), and has commissioned the Future Hospital Commission to come up with solutions to make care more patient-focused, deploy the workforce in a different way and deal with the rising workload in the acute sector. This will report during 2013.

The training and development of the consultant physician

The reality for many healthcare professionals has involved coping with continuous change and rising workload, with more complexity in the patients whom they see. The ability to cope with repeated reorganisations of healthcare, at a time of rising expectations from patients and the public, needs to be nurtured and supported, with flexibility of approach and a constant reference to the underlying values of the profession and focus on the quality of care.

Clinical practice is enabled and regulated within frameworks that are common to all consultant physicians in the UK:

- The GMC is ultimately responsible for registration and regulation.
- Most physicians in the UK work for the NHS, and will be employed by an NHS organisation, usually a hospital or trust, which determines the environment in which we practise.
- The departments of health set strategic objectives responding to the requirements of the governments in the devolved administrations.
- In addition, there are regulators and inspectors of practice, research and education, all of which require attention and performance in their area of activity.

Most medical consultants are employed by the NHS in hospital and community trusts, but the arrangements differ in the four nations.

They are all accredited specialists. Consultant physicians hold the Certificate of Completion of Training (CCT) previously awarded by the PMETB, now by the GMC. They are, with few exceptions, fellows or members of the Royal College of Physicians of London, Edinburgh or Glasgow. Their training and development will have been supported in whole or part by one of these royal colleges.

At one time all consultant physicians were classed as 'general physician with a special interest', for example consultant physician with a special interest in cardiology. However, as specialist subjects developed and expanded they reflected an increasingly complex body of knowledge within individual disciplines. There are now an increasing number of individual specialist societies associated with the RCP. Now, some consultants work as generalists with a special interest. Others, an increasing number, work solely in their specialty and do not do general medicine or take part in the general medical intake of patients. As the numbers of hospital admissions are rising, and there is an ageing population, there need to be enough physicians who are able to look after the patients admitted on the unselected medical intake and manage their care during their hospital stay. Patients may be transferred to specialty wards after they have been assessed, but many people have a number of chronic conditions and do not neatly fit into one specialty. There is a need for physicians to be able to treat patients with a number of interacting conditions, and be skilled in delivering care to older people, who may have cognitive impairment and frailty. People over the age of 65 comprise about 15% of the population but account for 60% of acute hospital admissions. Skills in dealing with these patients need to be developed in all specialties.

There are also cross-cutting issues, applicable to patients in many specialties. Obesity, alcohol and tobacco dependence, and lack of exercise are common. Malnutrition in hospital patients is common (about 35% of patients are malnourished). Many physicians will need to have appropriate skills to deal with these issues.

The GMC is undertaking a review of training to deal with these issues, 'The shape of training', which will report in 2013 .

The employment of a consultant physician

Consultants are employed within the NHS on national terms and conditions of service. A new contract of employment was introduced in 2003 resulting in a majority of job plans being based on a 40-hour (10-session programmed activity (PA)) contract. These broadly require 7.5 sessions of 4 hours to be devoted to clinical care and allow up to 2.5 sessions for supporting professional activities (SPAs). This is a time-sensitive contract, rather than a contract driven by responsibility. Not all clinical sessions are 'hands on' with individual patients – they include discussions with relatives and carers, writing notes and clinic letters, and communicating with other healthcare professionals.

A directorate job plan is used in many trusts. Roles, responsibilities and tasks are detailed for the directorate,

and individual job plans are created to fulfil these requirements. Some clinicians work more than 7.5 sessions of clinical practice, others less and some take on a greater teaching or research load. This is good practice and ensures that the directorate and individual clinicians play to their strengths. Not everyone needs or benefits from a standard, fixed allocation of clinical and supporting activities.

The current contractual arrangements for doctors allow alternatives to the standard 8-hour, 5-day week. This flexibility can mean longer days, shorter days, or less-than-full-time 10 PA working. Some doctors work more than 10 sessions and are paid accordingly, though sessions above 10 do not generate NHS pensionable income. Local and specialty needs may require weekend or night-shift work on the hospital site by the consultant; details of likely requirements are included in the relevant specialty sections in Chapter 2. On-call commitments are paid through complex, but transparent, nationally agreed arrangements.

Those doctors who begin work on a full-time contract and who later, perhaps because of increased childcare needs, wish to work less than full time can request to do so. That request must be considered by their employer, but may not necessarily be granted as service demands may not allow it. However, negotiation and compromise are often in the long-term interest of both parties and generally produce sensible and acceptable outcomes.

Some consultants are on annualised hours contracts, which gives flexibility over the whole year – work patterns may vary from week to week.

There is mounting evidence that patients who are admitted as emergencies at weekends and on bank holidays have a poorer outcome than those admitted during the week, when hospitals are more fully staffed.¹⁹ The RCP therefore issued a statement in December 2010 stating that patients deserve better care in hospitals in the evenings and at weekends.²⁰ Many hospitals do not have enough senior doctors present to care for patients out of hours and at weekends, so new working patterns would be needed in future.

The RCP has recommended for the first time that any hospital admitting acutely ill patients should have a consultant physician on site for at least 12 hours per day, 7 days a week, who should have no other duties scheduled during this time. All medical wards should have a daily visit from a consultant; in most hospitals this will involve more than one physician.

Because many consultant physicians are already working longer hours than their contract stipulates, the recommendation means that, instead of increasing the amount of hours worked overall, job plans will need to change to reflect the different working patterns and must include arrangements to ensure adequate rest. The statement builds on previous RCP surveys, audits and reports on acute medicine, which have led to improvements in the way acutely ill patients are cared for.

Additional areas of work undertaken by physicians to promote personal and professional excellence are categorised as SPAs. Such activities include teaching, research, audit, self-development, management, quality improvement and wider contribution to the NHS. This work done in SPAs has expanded in nature and complexity. One example is the new arrangement for the education and training of junior doctors, which requires that consultants who have junior staff should set aside about one hour each week to supervise, educate and train each junior doctor. In a large team that is the equivalent of one half day a week.

In a standard working week of 10 sessions usually 7.5 of them will be devoted to clinical care and 2.5 to SPAs. Not all consultants will have 2.5 SPAs. Others with substantial educational, managerial quality improvement or research activities will have more. Many roles held at regional or national level should attract additional SPAs; this happens in some trusts, but not others and is a contentious issue that is currently under discussion nationally. Consultants are strongly encouraged to ensure that SPAs are recognised and paid for appropriately, but also to recognise that 2.5 SPAs are not a right and have to be justified.

Excellence over and above just fulfilling contractual obligations to a satisfactory standard can be rewarded by the Clinical Excellence Awards scheme.²¹ Discretionary points can be allocated by local trust management. Bronze, silver, gold and platinum awards can be allocated by a national process, to reward excellence in service delivery, quality improvement, teaching, research or management. About 30% of all consultants are in receipt of some sort of award, either local or national. The number of physicians who receive national awards is proportionally higher than in other medical disciplines. The scheme is under review and may be changed after a period of consultation. The RCP has submitted its view that the scheme does reward excellence and encourages the delivery of high-quality care and excellence in teaching, research, management and clinical care.

The changing role of the consultant over time

The role of the modern consultant is expected to develop and change during a professional lifetime. Consultants usually have three phases to their professional lives:

- 1 establishment of clinical practice and vigorous involvement in it
- 2 new responsibilities and roles within their own hospital
- 3 leadership roles at local, regional and national level, for some.

As part of this wider development some clinicians take major roles in clinical service development, quality improvement, management, research or education. These roles may be at local, regional or national level. Although not always of direct and immediate value to the employing trust, they are important for the wider service and add greatly to national strategic direction and support the drive for excellence.

Additional duties that may be undertaken include:

- work on advisory panels for employment of other consultants
- lead for undergraduate education
- royal college tutor
- clinical tutor
- director of postgraduate medical education
- manager or director of service
- leadership of quality improvement processes
- clinical audit lead/governance lead.

Within the health economy, activities can include:

- sessional commitments to primary care organisations or regional bodies
- educational leads for undergraduate and postgraduate education within the deanery
- RCP regional advisers (RAs).

Nationally they may include roles in the following organisations:

- medical royal colleges
- GMC
- Care Quality Commission
- Departments of Health
- National Institute for Health and Care Excellence (NICE)
- British Medical Association (BMA)
- National Clinical Assessment Service (NCAS).

Supporting staff and facilities

All consultants require an office base with secretarial support and a pager or mobile phone. Some also need computer and internet access at home for results that may include radiology.

The details will vary according to the specialty. 'Hot-desking' and computer-sharing can function well in some situations; the real question is whether the arrangements enable high-quality work.

Some specialties work closely with scientists, specialist nurses and therapists, all of whom contribute to the extended clinical team and high-quality patient care. These staff often have additional skills contributing to management, research teaching and audit.

Doctors work very closely with nursing colleagues on the hospital wards. It is essential that there is strong clinical leadership for the overall care of patients, and that accountabilities are clear. A nurse should be present on the ward rounds conducted by consultants, to ensure that all issues are addressed.²² Future management plans for patients need to be discussed between doctors and nurses, as well as other members of the healthcare team and the patient, with excellent communication, so that everyone is working towards the same goal.

Physicians have a duty to keep good records and to collect clinical information so that it can be used for monitoring their own performance and that of the team, thus leading to improvements in care. Accurate information also enables better planning and monitoring of services. This information must be accurately coded and the aggregate results fed back to clinicians so that they can work to improve care to patients. The accurate collection and coding of clinical information needs a partnership between physicians, coding and information staff, with adequate administrative support.

The changing medical workforce

Over the past few years the medical specialty workforce has undergone quite dramatic changes and the coming years are likely to be as tumultuous, albeit in a different way. The consultant body has continuously increased and 11,810 doctors are employed as consultant physicians across the UK according to the RCP's 2011 census.²³ This expansion has been as a result of huge financial investment into the health structure of the UK which has given hospitals the freedom to develop their services. Acute medicine has grown considerably in this period of time (82.1%) with a total of 295 consultants, which reflects the importance of the specialty and the increased need for acute physicians by most UK hospitals. Stroke medicine has grown the most (160 current consultants), although this was not difficult as there were only seven self-declared stroke specialists in 2007.

The consultant workforce remains predominantly male although this predominance is steadily changing with each year, as the large female trainee workforce attains consultant posts. There is a wide variation in the proportion of female consultants between specialties, from 9.6% in clinical pharmacology and therapeutics to 71.3% in palliative medicine. The proportion of consultants working less than full time is 16.6%, an increase from the previously recorded 13.2%, which may well reflect the increasing female consultant body and therefore may well continue to rise.

There remains a considerable difference between large and small medical specialties and between different regions in England, and the different nations of the UK in terms of successful appointments of consultant posts. Most specialties have no problem appointing consultants in the south-east of England but this becomes harder in other parts of England, Wales and Northern Ireland. Many smaller specialties are currently struggling to fill both consultant posts and training posts and these specialties need to be carefully monitored and planned nationally.

The number of specialty registrars has remained steady at 6,726 with 48.1% being female (with a wide variation between specialties).The large number of specialty registrars has significant implications for the future of these doctors. If all attain their CCT, taking on average 7 years to do so, consultant expansion would have to be 6–8% to accommodate them. However, it seems very unlikely in the current financial climate that consultant expansion will continue at the same pace as it has done for the past few years and already there are considerable concerns about the creation of a new grade of specialist, instead of traditional consultant posts. Diabetes and endocrinology have already seen a problem with their trainees getting posts and in some parts of the UK over a third of trainees have left the country once they have obtained their CCT.

The national framework for specialist workforce planning has also changed considerably in England over the past few years with the creation of the Centre for Workforce Intelligence (CfWI) to replace the Workforce Review Team. This organisation is an information source to allow workforce planning locally, but despite good intention there remains considerable anxiety about the quality of the data on the current workforce, let alone the models used to plan the future workforce (which do not take into account financial constraint). The medical specialties, the RCP and the CfWI need to work together over the next few years to ensure that uniform data are used and that sensible predictions are made to plan training numbers.

Since the last edition of Consultant physicians working with patients, the European Working Time Directive (EWTD) has come into full force for junior doctors, reducing the number of hours that can be worked per week to a maximum of 48. This has had a major impact on the provision of healthcare by doctors in hospitals across the UK and has cancelled out any benefit that could have been gained by the increased size of the workforce. Furthermore, the restrictions that the EWTD has applied have resulted in the loss of on-call working for most junior doctors and the creation of full shift rotas for nearly all bar consultants. It is interesting to note the impact this has had on consultants such that, in the 2011 census,²³ 42.5% reported that they often had to do jobs that would have previously been done by junior doctors.

New arrangements are coming into force in England for specialist commissioning and for local education and training boards. Together with the huge savings that are needed over the next few years, the medical specialty workforce will also face considerable difficulties. Within the next few years the UK will, for the first time, become self-sufficient for medical graduates. With this comes the ability to fulfil the aspirations of achieving a world-class NHS with a highly trained and motivated medical workforce.

The future medical service will be consultant delivered rather than consultant led. In some of the very acute specialties this raises the possibility of full-shift working and round-the-clock presence of a consultant. This is because consultant-delivered care is better for patients and the hours worked by junior doctors are reducing substantially as a result of the EWTD and new training requirements for doctors in training. The EWTD reduced the working week of the junior doctor from 56 hours to 48 hours in 2009. There is a requirement now for more structured teaching programmes for doctors in training, with 4 hours of protected teaching time each week and additional time for formal assessment and feedback, which takes a further hour of both the junior doctor and the consultant. The New Deal was negotiated by the BMA to give adequate rest time for junior doctors and to structure rotas around the 56-hour working week. The rotas are now 48 hours a week.

The consequence of these reductions of junior doctors' hours of work has been that they are less in evidence during the day and at night. The result of these changes has been a gradual erosion of the consultant-led team of junior medical staff. This has had effects on access to training and to continuity of care for patients. One particular concern is that the wards during the day may not have adequate junior doctor cover, if the junior medical staff are on night rotas at that time. There are moves to renegotiate the New Deal, to increase flexibility. There are also discussions in Europe about changing the application of the EWTD to junior doctors. No one wants to see a return to fatigued junior doctors working very long hours, but delivering training and good-quality patient care is proving to be very difficult with the current inflexible arrangements about hours of work.

The workload of the medical registrar has become very heavy and changes need to be made to have more doctors on the wards and dealing with the emergency intake (**www.rcplondon.ac.uk/sites/default/files/ future-medical-registrar_1.pdf**).

Moves to community care and the development of *Teams without walls*,²⁴ which encompasses new

relationships between specialists and GPs, will probably require more and not fewer specialists coupled with new contractual arrangements.

There is also an increased need to be aware of the health of a local population and the incidence and prevalence of particular diseases to best plan patient pathways involving primary care and specialist care, as well as public health medicine.

Changing delivery of medical care

The delivery of acute medical care has gradually changed. The new specialty of acute medicine is providing more of this service. The traditional role of the consultant general physician in acute medicine has reduced in recent years. However, the rising number of medical admissions and the increasing number of frail older people with a number of different conditions means that we have to think seriously about the best way to care for the acutely ill medical patient and the best balance between specialists and general physicians with an interest in a specialty.

There is also a need for more specialist centres to give highly specialised care to a population, eg thrombolysis in stroke, because every hospital dealing with acute medical admissions may not give this treatment. As technology advances, there are merits in grouping expertise together in specialised centres that cover a bigger population than a local hospital. These developments may drive the need for reconfiguration of hospitals.

Working with patients

Patients, relatives and carers are knowledgeable. They ask questions, and expect and require answers. They want to be more involved in making decisions about the pattern of their care. Many now communicate with their doctors by text and email, asking questions derived from internet searches. The doctor–patient relationship is evolving towards a more open, honest and equal partnership from which we all benefit. Physicians increasingly involve patients and their carers in strategic plans and developments as well as decisions about their individual treatment and care. There is increased emphasis on shared decision-making between patients and their health professional – the RCP is taking this work forward in partnership with others, The RCP has appointed a clinical fellow in Shared Decision Making and supportive self-management to take this agenda forward.

Many physicians also work with patient groups to inform the development of services and there is much evidence of that in the specialty sections of Chapter 2.

As revalidation becomes a reality, individual patient feedback to clinicians will become routine. The next step, where this does not already happen, will be to gain understanding and feedback from patients and carers about the totality of the clinical service and to use this information to guide further developments.

There is a need for future work on how best to work with patients and the public, to involve them as true partners in service development and to learn from their perspectives to improve clinical care and services.

The RCP has a well-established Patient Involvement Unit. The role of this unit is to encourage and promote patient, carer and public involvement in RCP activities, and to ensure that all plans and decisions made within the RCP have been considered in collaboration with patients, carers and the public before implementation. In addition to employed staff the unit has a lay patient and carer chair as well as an RCP officer. Over 60 patients and carers are members of the Patient and Carer Network. Network members are recruited through open advertisement in a variety of media, including the *Big Issue*. They complete an application and interview, and references are taken up before confirmation of appointment for a 3-year tenure, with the option to extend by a further year.

The lay chair is responsible for chairing the Patient and Carer Steering Group where the strategic aims of the unit are discussed and developed. The lay chair is also a full member of Council.

The RCP has worked hard to ensure that patient and carer involvement is integrated into all areas of its business. Every specialty medical committee/board has two patient/carer members. This involvement has been a key tool in ensuring that the RCP has considered and acted upon first-hand patient expertise and experience. All patient care pathways and chapters of this book have been considered and contributed to by the members of the RCP Patient and Carer Network members via these work streams.

Patients and carers with long-term conditions have many opportunities to observe what systems work and what systems could be improved within healthcare service delivery. The RCP document, *Teams without walls*,²⁴ highlighted the need to break down barriers (both physical and virtual) to improve healthcare services resulting in improved care. Patients and carers supported the production of this report, and are working hard to ensure that the content is embedded into working practice.

Members of the Patient and Carer Network have been able to inform the RCP on both where they feel areas of good practice exist and where there could be improvement to patient care.

The content of this book is a testament to the improvements that have been made in approaches to patient and carer services and healthcare delivery. The widespread introduction of multidisciplinary teams, and work to remove barriers between different parts of the health service and different agencies have improved patient care. The future development of new approaches to education development and training, patient and carer involvement, advanced patient care pathways, and patient and carer feedback will continue to inform future developments and improved patient care.

It is essential that there is strong patient and carer involvement in future commissioning and service development arrangements, if the needs of patients and carers are to be met appropriately. The mechanism for this in England is unclear at present, with the changes of the new health Act, but it is essential that there is a strong patient and public voice in the development of future services.

Academic medicine

The Cooksey report, published in 2006, introduced changes to the way in which UK research was structured and funded.^{25,26} In the NHS the value of research is judged increasingly on perceived health and societal needs rather than scientific expertise alone. The National Institute for Health Research (NIHR) has developed an infrastructure through which the research-active physician should be able to contribute to this vision. Despite this, challenges remain. Cultural

changes in the NHS place an increasing emphasis on clinical service over teaching and research.

The potentially conflicting demands of employers (eg NHS, universities, industry and grant-awarding bodies), those who fund research (eg national awarding bodies and charities), and training and regulatory institutions (eg royal colleges and the GMC) need to be reconciled.

The move towards a consultant-delivered clinical service and the workload relating to clinical governance, revalidation and CPD may mandate new ways of working, and achieving a balance between clinical and academic training, and geographical mobility will be needed.

Through a series of working parties and associated publications, the Academic Medicine Committee (AMC) of the RCP has attempted to address these issues. First, it has held workshops and published position papers concerning routes of entry and training systems in academic medicine.²⁷ The need for a transparent career structure up to and including properly structured and supported consultant posts has also been debated.²⁸ Second, the AMC has been an integral part of the RCP's Medicines Forum, leading the workstream relating to translational research. Specifically it has identified ways in which the RCP can act as a link between national agencies and the research-active physician, thereby facilitating the UK research agenda. Finally, the AMC has provided evidence to a number of investigations, consultations and reports, the most significant of which has been the 2011 report of the Academy of Medical Sciences into the burden of regulation impacting on UK research and clinical trials.²⁹

Summary

The context of clinical practice has changed rapidly since the millennium and is set to change further. Revalidation, changes in medical education and research, and the expansion of the potential portfolio of the consultant coupled with a move towards a consultant-delivered service and service reconfiguration, pose challenges and unrivalled opportunities. There is a need for clinical leadership in management, quality improvement, and commissioning and planning of services.

Better planning, support, education and training of the consultant workforce are now needed to ensure that we

can positively influence these changes and ensure that patient care not only remains at the centre of our endeavours but continues to improve.

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2 The work of the specialties

This chapter describes the work of the specialties, written to a structured format. Each submission has seven main sections followed by specimen work programmes, consultant job plans and key points for commissioners:

- 1 Description of the specialty
- 2 Organisation of the service and patterns of referral
- 3 Working with patients: patient-centred care
- 4 Interspecialty and interdisciplinary liaison
- 5 Delivering a high-quality service
- 6 Clinical work of consultants
- 7 Opportunities for integrated care
- 8 Workforce requirements for the specialty
- 9 Consultant work programmes/specimen job plans
- 10 Key points for commissioners

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1 Description of the specialty

I have heard the fear expressed that in this country the sphere of the physician proper is becoming more and more restricted, and perhaps this is true; but I maintain . . . that the opportunities are still great, that the harvest truly is plenteous, and the labourers scarcely sufficient to meet this demand.

Sir William Osler, 1897

Acute internal medicine

Acute internal medicine (AIM) is defined as 'that part of general internal medicine (GIM) concerned with the immediate and early specialist management of adult patients suffering from a wide range of medical conditions who present to, or from within, hospitals, requiring urgent or emergency care'.^{1,2} All physicians participating in the acute medical intake should have the skills to manage any patient presenting with an acute medical problem for up to 72 hours, whether they practise AIM as a sole specialty or GIM with another specialty. However, consultant physicians specialising in AIM - acute physicians - are expected not only to participate in the delivery of acute care but also to lead in the organisation of care for acutely ill patients. Acute physicians should provide the clinical and organisational lead for the assessment wards and the acute medical unit (AMU) and often now act as the lead clinicians for the organisation of acute care throughout the hospital, particularly in the context of hospital at night and the out-of-hours medical team $(OoHMT).^2$

General internal medicine

There remains a need for most physicians who have continuing responsibility for inpatients, other than those on the AMU, to have the skills to manage patients suffering a variety of common disorders or having complex needs. Although many hospitals admit patients with acute illnesses to the most appropriate specialties soon after their admission, there are still circumstances where this cannot or does not take place. This may occur where the patient's illness does not fit the criteria used to define the appropriateness of specialty care or in smaller hospitals where specialty care is not always practicable and patients remain under the care of the admitting team. This inpatient work, together with the management of the acute take, defines GIM.

All the curricula, both in AIM and in GIM, are based on the symptoms with which patients present, emphasising the critical part that diagnosis plays in delivering good patient care.³ The majority of current trainees in AIM are dually training with GIM, which offers flexibility in career progression, and many aspire to accreditation in intensive care medicine as well.

2 Organisation of the service and patterns of referral

Traditionally, the acute medical intake has been managed by general physicians with an additional interest in a particular specialty, and such physicians are likely to continue to provide the majority of the consultant workforce in this situation for the immediate future. However, increasing numbers of acute physicians are being trained and appointed to lead the service and to develop alternatives to orthodox care.

Most hospitals have now created specific units for the assessment and treatment of acute medical emergencies – a strategy supported by the National Confidential Enquiry into Patient Outcome and Death (NCEPOD).⁴ The Royal College of Physicians (RCP) recommends that the term AMU now be adopted for these facilities² and the report of the RCP's Acute Medicine Task Force provides a detailed description of the rationale and requirements for AMUs.² Although small hospitals may function successfully without such units, it has been shown that, in larger hospitals, AMUs can enhance the quality of care for the acutely ill medical patient and focus attention on the admission process itself.⁵ All

AMUs should have a designated clinical lead^{4,6} and where an acute physician is in post this should be part of his or her duties. Some hospitals have developed facilities combining the assessment of both medical and surgical patients in a single multispecialty assessment unit. Where this occurs, the functions of the AMU should be subsumed into such units.

Patients may present as referrals from primary care, from emergency medicine (the accident and emergency department) or from within the hospital inpatient population. The majority of patients will be elderly, many with a number of comorbidities, frailties and dementia. Direct admissions to AMUs are encouraged to facilitate prompt care.²

3 Working with patients: patient-centred care

In the past, the service was based upon the care of patients whose need for admission had been previously determined. Nowadays there is an increasing emphasis on assessment and treatment rather than admission, including the provision of alternatives to admission. These alternatives include immediate outpatient services - rapid access clinics - with specialist clinics for conditions such as cerebral transient ischaemic attacks (TIAs), chest pain and ambulatory emergency care (AEC). Ambulatory care in particular is a direct development of the acute medicine movement and is defined as 'clinical care which may include diagnosis, observation, treatment and rehabilitation, not provided within the traditional hospital bed base or within the traditional outpatient services, and that can be provided across the primary/secondary care interface^{2,7,8} Such developments have provided practitioners and patients with choices for their care that were not previously available. The development of AMUs has meant that many patients can be admitted for short periods without transfer to a traditional inpatient ward. In larger hospitals, issues of scale have also allowed the development of specialist short-stay units and ambulatory care units.²

4 Interspecialty and interdisciplinary liaison

Multidisciplinary team working

Acute medicine demands good multidisciplinary team (MDT) working, with input from bed managers and the

discharge liaison team, physiotherapists,⁹ occupational therapists and pharmacists as well as specialist nurses.

Working with other specialties

Acute medicine relates to the other medical specialties in a variety of ways. In many hospitals, patients are assessed, given initial treatment and then referred to the specialty most appropriate for their continuing care shortly after admission.⁵ Alternatively, particularly in larger hospitals, there may be regular AMU ward rounds by clinicians from the major specialties to identify patients best suited for specialist care and to advise on the care of others. Prompt access to specialist opinions and care is essential for optimal patient care.

Acute medicine has particularly important relationships with emergency medicine and critical care. These relationships are described in the RCP documents *Interface of accident and emergency and acute medicine*¹⁰ and *Interface between acute general medicine and critical care*,¹¹ and are discussed in detail in *Acute medical care*.²

Working with general practitioners (GPs)

The AMU also provides an opportunity for GPs to work in acute care within hospitals and such working can provide a valuable channel of communication between primary and secondary care.¹² Conversely, the admitting physician working with an effective bed bureau or bed management team can be a point of contact for GPs to obtain clinical advice on patient care and to discuss alternatives to direct admission.

5 Delivering a high-quality service

RCP recommendations for the assessment process

Any hospital admitting acutely ill medical patients should have a consultant physician on site for at least 12 hours per day, 7 days a week, and that physician should have no other duties scheduled during this time. At night, physicians should cover on-call duty from home but must be prepared to return to the hospital to respond to the needs of acutely ill patients who may have presented during the out-of-hours period.¹³

An assessment of the severity of a patient's illness should be made immediately upon arrival on the AMU. This assessment should use a validated assessment or 'track-and-trigger' tool. The Acute Medical Task Force recommended that there should be a single such system across the NHS and the RCP recommends the NHS Early Warning Score (NEWS).¹⁴ The initial care of all patients should be dictated by their clinical need and the severity of the illness at presentation.

When a patient is found to be seriously ill, his or her care should be directly provided by the most senior doctor readily available. This should be a consultant or specialty registrar (StR) and possession of the membership of the RCP, MRCP(UK), should be the minimum qualification for this task.

A severely ill patient may require resuscitation and immediate care before a formal clerking can be carried out.

The RCP recommends that a foundation or core medical training (CMT) doctor should be allowed one and a half hours to complete the formal assessment of a patient presenting to hospital with an acute medical problem. This would include:

- carrying out a clinical assessment
- documenting that assessment
- arranging appropriate investigations
- gathering the results of those investigations
- assessing the patient's risk of venous thromboembolism
- assessing the patient's risk of acute kidney injury
- carrying out a diagnostic synthesis and deriving differential diagnoses
- drawing up an appropriate care plan including a clear monitoring plan specifying the physiological observations to be recorded and their frequency
- initiating treatment where appropriate
- reporting the case to an appropriate senior doctor.

All patients should have their formal assessment completed within 4 hours of their admission.²

A more senior doctor with appropriate skills in acute medicine should be based in the AMU at all times. This should be an StR 3+, or equivalent middle-grade doctor, who should have the MRCP(UK) qualification and at least 2 years' recent experience of managing acutely ill patients. When working on the AMU, they should have no other scheduled commitments.^{1,2}

There must always be consultant supervision of the medical team on call and the identity of the supervising consultant should always be known to the medical staff on call and to other relevant staff. There should be clear mechanisms in place to involve the consultant at an During the extended working day, the consultant on call should review patients as soon as possible after their formal assessment has been completed – 'rolling review'. As a minimum standard, during the working day this review should take place within 6–8 hours of the patient's admission to the AMU. Patients admitted overnight should receive a consultant review within 14 hours.¹⁵

In addition to the review of newly assessed patients, the consultant on call should also review all patients who remain on the AMU. These tasks will require a consultant-led post-take ward round at least twice a day, 7 days a week.

All patients admitted into the hospital from the AMU should have been reviewed by the consultant on call, who should agree or modify the care plan proposed at the patient's formal assessment. Exceptionally, a senior StR could deputise for the consultant on call in this role.

Planning for the patient's discharge should start as soon as possible after admission.

Any patient leaving the AMU, or remaining there over a change of shift, should have details of his or her situation passed on to the clinicians assuming responsibility for their continuing care. This handover of information and responsibility is vital for good patient care. The handover process should therefore be robust, clearly understood and regularly audited as described in the RCP *Acute care toolkit 1: Handover*.^{16–18}

Patients transferred out of AMU should receive prompt review on their new ward, with a consultant review within 24 hours of the transfer, 7 days a week. This should be a priority duty in the first hour of the working day – 'golden hour' review.¹⁹

Maintaining and improving the quality of care

Education and training

The acute medical intake provides a unique forum for training medical and other staff and students involved in the care of the acutely ill patient. Consultants are expected to ensure that learning opportunities are taken up whenever possible. The General Medical Council (GMC) has approved a variety of assessment tools for junior medical staff, particularly the Acute Care Assessment Tool (ACAT), which can be carried out in the context of the acute medical intake. Senior StRs approaching the end of their training should have the experience of leading the post-take round under the supervision of the consultant on call. Detailed recommendations for education and training are included in the RCP report *Acute medical care*² and the RCP *Acute care toolkit 5: Teaching on the acute medical unit.*²⁰

Continuing professional development

It is clearly important that all consultants involved in the supervision of the acute medical intake are familiar with current recommended practices in the management of common emergency presentations. To this end, part of their study leave and continuing professional development (CPD) should be committed to acute medicine.² All aspects of a consultant's CPD should be discussed and planned as part of his or her annual appraisal.

Acute physicians will have similar needs for CPD. In addition to maintaining a good knowledge of current best practice, it is likely that new roles will fall to acute physicians who will need to develop new skills and competences; the thrombolysis of acute ischaemic stroke is an example.

General physicians are responsible for the continuing care of patients whose disorders are not appropriate for specialist care within their hospitals. Their CPD will need to include the acquisition and maintenance of expertise in the management of these patients. This could include, for instance, patients with neurological or renal disorders or infectious diseases.

Clinical governance

All AMUs should have a clinical governance strategy that includes monitoring of 24-hour mortality, 7-day readmission and direct discharge rates.^{6,21} All AMUs should also have a written and dated operational policy that is reviewed regularly. Quality standards for AMUs have been published jointly by the West Midlands Quality Review Service and the Society for Acute Medicine²² and clinical quality indicators for AMUs have also been published by the Society for Acute Medicine (SAM).²³

Research

Acute medicine needs to develop a strong research base and all physicians involved in the acute medical intake are encouraged to seek opportunities for research that will build an evidence base for best acute practice. Acute medical units provide the potential to undertake clinical research on a variety of acute clinical problems, as well as opportunities to review the role of technology in improving healthcare. This is particularly the case for acute physicians.

Regional and national work

Acute physicians are expected to be as equally involved as their peers in regional and national work with the medical royal colleges, Department of Health (DH), deaneries and specialist societies such as the SAM.

National guidelines and audit

The RCP publication *Acute medical care*² provides detailed recommendations for the organisation of care of the acutely ill medical patient. This has been endorsed by the SAM, which has published similar recommendations, as have the National Institute for Health and Care Excellence (NICE) and the Scottish Intercollegiate Guideline Network (SIGN). Guidelines for the medical management of many acute presentations have been formulated by a number of agencies, including specialist societies such as the British Thoracic Society (BTS).

NICE clinical guideline 50 *Acutely ill patients in hospital*²⁴ includes a general audit of the care of the acutely ill medical patient and the NCEPOD report *Emergency admissions: a journey in the right direction?* has a self-assessment checklist.⁴

6 Clinical work of consultants

The RCP has recommended movement towards a more consultant-delivered service, available 7 days a week. Hospitals undertaking the admission of acutely ill medical patients should have a consultant physician on site for at least 12 hours per day, 7 days a week, whose primary role is to manage the acute medical intake.¹³ Provision should also be made for a daily consultant visit to all medical wards on weekends and holidays. The purpose of this visit is not only to address new problems that have arisen overnight but also to progress patient care where possible. In many hospitals, this will require input from more than one physician¹³ and should be supported by junior medical staff. It is also recognised that consultant job plans will need to correctly reflect this extra work, which is programmed activities (PAs) undertaken in premium time. Arrangements will be needed to ensure adequate rest for the consultants involved. Other specialties and support services will also need to adopt 7-day working practices if the full benefit of this additional input by physicians is to be realised.⁸

Detailed recommendations for the implementation of 7-day consultant working in the AMU are made in the RCP *Acute care toolkit 4: 12-hour, 7-day consultant presence on the acute medical unit.*¹⁵

With the on-call consultant present in the hospital for 12 hours daily, typical hours of work would be from 8am to 8pm. During the working week, this predictable emergency work would represent three sessions of PAs in direct clinical care, mainly in non-premium time. Similar working on weekends and during holidays, in premium time, would represent four sessions of PAs in direct clinical care.

Consultant work patterns should include protected sessional time for AMU work, ideally in blocks of days. Single-day rotas contribute to poor continuity of care but 7-day blocks are considered too onerous. Precise work patterns should be developed to reflect local needs.

All other clinical duties and responsibilities should be cancelled for all clinical staff working on AMU or participating in the direct supervision of the acute medical intake.^{2,13} A consultant's eligibility to continue participating in the acute take should be assessed annually during his or her appraisal. These recommendations are equally applicable where the intake is managed by an acute physician or by a physician with another specialty interest who is qualified to lead the acute medical intake.

The work of an acute physician

Acute medicine is a young discipline, and as such its style of working is still in evolution. However, it is apparent that there is more opportunity for variety of practice in acute medicine than in many other specialties. Classic acute physicians will normally have access only to beds on the AMU, where their patients' length of stay is usually limited to between 24 and 72 hours. Acute physicians are therefore able to manage the total episode of care of patients who do not require a longer admission. Managing patients in the AMU, or its related short-stay unit, is beneficial in minimising the number of ward-to-ward transfers which are disruptive to care. The acute physician should also have time to manage alternative strategies to admission, such as ambulatory emergency care and rapid access clinics.

In addition to work on the AMU, the RCP recognises the value of the acute physician in ensuring close relationships with all medical specialties and with emergency medicine and critical care.^{10,11} Sessional work in either of these fields would be appropriate for acute physicians who have the required competencies. Similarly, it may be appropriate for an acute physician to retain an interest in another discipline in which he or she has demonstrated the relevant competencies, such as thoracic medicine or gastroenterology, or in procedures such as echocardiography. This can be maintained by continuing sessional work in that field. Other models exist where a significantly greater proportion of working time is spent in another discipline or where there is a cycle of differing activities, such as working for periods of one or more weeks in acute medicine and subsequently similar periods in another discipline.

All acute physicians should have the competencies to deliver high dependency care to most patients with medical needs defined as level 2 by the Intensive Care Society.^{8,25} In some hospitals, a medical high dependency unit could be embedded within the AMU.²

Inpatient work

The usual day-to-day work of an acute physician can include a formal contribution to the supervision of the acute medical intake as the sole responsible consultant for a period of time. Alternatively, an acute physician might work together with another consultant, seeking the more severely ill patients for early assessment or patients suitable for management as short-stay or ambulatory emergency care patients. Where a number of acute physicians are in post, their contribution to the supervision of the acute medical intake will obviously be greater.

Outpatient work

Outpatient work in acute medicine is divided between rapid access clinics, which usually offer same-day or next-day appointments for selected patients, and ambulatory emergency care. In the outpatient service, the numbers of patients seen should follow the recommendations for a number of specialties – approximately 30 minutes should be allocated for a new patient and 15 minutes for a follow-up appointment. In ambulatory care, it is more difficult to define set numbers because the patients managed in this way are more varied.

The work of a general physician

General internal medicine is the origin of many medical specialties and is at the heart of physicians' work. There are two components to the work of a general physician: the immediate care of the acutely ill medical patient and the longer-term management of some of these patients. The general physician needs the same core acute care skills as the acute physician and these have been discussed previously. The acute component of a general physician's work is highly significant and, with the development of acute physicians working on the AMU during the day, this work is increasingly taking place outside the normal working day. In 2004, the RCP recommended that every district general hospital (DGH) should have a minimum of three acute physicians. Given this workforce, even in a hospital needing only one physician involved in the acute medical intake, more than half of the 24-hour consultant cover for the intake will still need to be provided by general physicians. This situation will of course vary where hospitals have larger numbers of admissions or more acute physicians, but it remains the case that it is unlikely that acute physicians will be numerous enough to provide all acute medical care in the near future.

The recommendation that hospitals undertaking the admission of acutely ill medical patients should have a consultant physician on site for at least 12 hours per day, 7 days a week applies as much to general physicians when they are supervising the acute medical intake as it does to acute physicians. As out-of-hours activity is predictable work, it should be recognised as such in the consultant's job plan and may attract compensatory periods of time away from work.

Inpatient work

The development of the medical specialties has led to many patients admitted with single organ disorders being transferred to specialist care as soon as is practicable, because there is evidence that the outcome for such patients is better under specialist care rather than generalist care. There remain, however, many patients whose presentations do not meet the local criteria for specialist care and these patients remain under the care of general physicians. In practical terms, only a relatively small number of hospitals can offer care in all 30 medical specialties. Most DGHs will be able to provide specialist care in the major specialties of cardiology, gastroenterology, geriatric medicine, diabetes and endocrinology, and respiratory medicine, together with rheumatology and haematology. It is, however, unlikely that a typical DGH will have specialists in neurology, renal medicine or infectious diseases based in the hospital. In the absence of these specialist services locally, care for patients with disorders in these specialties must be delivered by general physicians. In addition, the high frequency of

some cardiac and respiratory conditions is such that all patients with these relatively common disorders will not receive specialist care when the severity of these conditions is mild. These patients too will remain under the care of general physicians. Lastly, it must be remembered that specialist care has been shown to be beneficial where the patient has a single disorder. The same may not be true when patients have many comorbidities, as is the case in elderly patients who make up much of the intake. Such patients often have a number of conditions including frailty and dementia.⁵ For all these reasons, there is a need to maintain physicians with the relevant skills to be able to care for these groups of patients.

7 Opportunities for integrated care

Good working relationships between acute medical services and social care services are essential if patients are to avoid inappropriate or unduly prolonged stays in hospital. Early discharge can be facilitated by outreach services from the hospital into the community, such as 'hospital at home' schemes for patients with chronic obstructive pulmonary disease. Elderly patients can benefit from the services of a hospital-based re-ablement team or falls service working with the local social care services.

8 Workforce requirements for acute internal medicine

In 2004, the RCP recommended that there should be a core group of acute physicians in every acute hospital to take primary responsibility for the organisation of the acute medicine service and the management of AMU. The recommendation was for at least three acute physicians in every acute hospital by 2008.¹ Subsequently the Working Group on Acute and Internal Medicine,²⁶ set up by the Joint Committee on Higher Medical Training (JCHMT), reported that a workforce of three acute physicians per acute hospital would require over 600 new consultant posts in the specialty of AIM. The 2006 census of consultant physicians²⁷ found that there were 140 acute physicians in post at that time. By 2011, this number had increased to 295²⁸ but was still well short of the 2004 recommendation. Moreover, out of the 155 consultant appointments advertised in England and Wales in 2009, 60 were either cancelled or no appointment was made. This rate of 60% specialists available suggests a shortage of acute medicine

Certificate of Completion of Training (CCT) holders to fill consultant posts and supports the case for more training numbers in AIM, either as new posts or as post conversions. Despite these problems, AIM has remained the fastest growing medical specialty in the past 5 years.

A workforce of three acute physicians per acute hospital is clearly not able to provide all the consultant input required to manage the acute medical intake, and in this situation there will still be a need for consultant physicians with specialist interests to be involved in the acute take. Some acute hospitals have, however, demonstrated their intention to employ larger numbers of acute physicians, with groups of six or seven being appointed. If this trend is followed, then an average of 6 acute physicians in each acute hospital would need a workforce of over 1,300 acute physicians, but the need for the continued involvement of other physicians in the acute take would be reduced and acute physicians trained in both AIM and GIM could take part in the longer-term care of inpatients. This would, however, demand even more training numbers in AIM.

In planning workforce requirements, a consultant physician should be expected to spend an average of 15 minutes reviewing each patient after their formal assessment.^{1,29} This should allow time for the consultant on call to assess each new patient, review the case and relevant documentation and talk to relatives. To this should be added time for opportunist teaching and the assessment of trainees using the ACAT.

Time must also be allowed for the review of existing short-stay patients on the AMU on post-take rounds. Thus in a typical extended working day, the consultant on call should be expected to review no more than 32 new patients.

Where attendances at the AMU are likely to exceed 32 per 24 hours, there should be more than one consultant on duty and the number of consultants involved daily on the AMU should reflect pro rata the number of patients expected to attend.²

9 Consultant work programme/specimen job plan

The models recommended in Tables 1 and 2 should be regarded as standard with respect to the activities of a consultant in acute medicine but may be altered by agreement according to local need.

Table 1 Acute physician with no additional special interest						
Activity	Workload per session	Sessions				
Direct patient care						
Acute medical unit ward rounds or hot review sessions Rapid access clinics Ambulatory care sessions Investigational sessions – eg endoscopy Other specialty sessions	Up to 32 new patients per 24 hours 6 new or 12 old patients Variable Variable Variable	6.5 sessions in total				
Supporting professional activities (SPAs)		2.5 sessions				

Table 2 Acute physician with a major additional special interest, including general internal medicine

Activity	Workload per session	Sessions
Direct patient care		
AMU ward rounds or hot review sessions Rapid-access clinics Ambulatory care sessions	Up to 32 new patients per 24 hours 6 new or 12 old patients Variable	} 4 sessions in total
Second specialty		3.5 sessions
Supporting professional activities (SPAs)		2.5 sessions

All work programmes should conform to the RCP's checklist for consultant job descriptions.³⁰

10 Key points for commissioners

Acute medical services

- 1 Hospitals providing assessment and admission of acutely ill medical patients should have AMUs or equivalent facilities (RCP, SAM, NCEPOD).
- 2 AMUs should have defined medical and nursing leads, written operational policies and regular audits including 24-hour mortality, 7-day readmission and direct discharge rates.
- 3 The consultant physician on call should be on site for at least 12 hours per day, 7 days a week, and should have no other duties scheduled during this time.
- 4 The consultant on call should review patients as soon as possible after their formal assessment has been completed. During the working day this review should take place within 6–8 hours of the patient's admission to the AMU. Patients admitted overnight should receive a consultant review within 14 hours.
- 5 The acute medicine service should offer alternatives to admission including rapid access outpatient clinics and an ambulatory emergency care service (RCP, SAM).

General medical services

- 1 Hospitals have a responsibility to provide enough experienced medical and nursing practitioners to deliver prompt high-quality care to all their patients in facilities appropriate to their patients' needs. No provider should provide any service that does not comply with fundamental standards of service.
- 2 It should be evident that general physicians have used some of their CPD to acquire and maintain expertise in the management of patients whose disorders are not appropriate for specialist care within their hospitals. This could include, for instance, neurological, renal or infectious diseases.
- 3 A consultant physician should visit every medical ward daily, including at weekends, to address problems of patients already in hospital and should be supported in this task by junior medical staff (RCP). This should be a priority duty in the first hour of the working day – 'golden hour' review.
- 4 Rapid access to imaging, laboratory tests and other diagnostic and support services is crucial and should be available 7 days a week to inform treatment and facilitate discharge (RCP, RCPEdin).

5 Patient observations on all wards should include continuous evaluation by NEWS, with clear protocols in place to escalate or redefine care on the basis of these scores.

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Allergy

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1 Description of the specialty

Allergy is a non-organ-based specialty, with its own training programme and Certificate of Completion of Training (CCT). The allergist provides expertise in diagnosis and management of allergy that is different, and complementary to, services of other specialties. Allergic disorders are common and increasing in prevalence. They cause significant impairment of quality of life and considerable direct cost to the NHS.^{1,2} The need is to identify or exclude allergy as a cause of disease, eg an acute allergic reaction, or in a chronic disorder such as asthma, rhinitis, eczema or urticaria; and to provide management. Allergy diagnosis and avoidance can prevent further episodes or reduce disease. This results in substantial healthcare impact, reducing healthcare costs and improving quality of life for the patient.

There has been a documented rise in allergic disease over the lasts three decades in numbers, severity and complexity, eg admissions for anaphylaxis have risen sevenfold in 10 years,^{1,2} and nut allergy, previously rare, now occurs in 2% of children and persists to adulthood. Food and drug allergy and angioedema are common. New allergies are also appearing. The allergy epidemic has created a new and substantial demand for consultant allergists, not previously addressed by the NHS.

There are a small number of specialist allergy services run by academic or NHS consultant allergists. In response to demand, some organ-based specialists, immunologists and paediatricians provide part-time or limited allergy services in addition to their main service, which is only a partial response to patient need. For many patients, however, there is an unmet need. There is inadequate access to care, suboptimal healthcare delivery and, consequently, unnecessary cost to the NHS in avoidable disease.^{3,4}

A Royal College of Physicians (RCP) report proposed a rational approach to improve patient care in response to

current inequalities and the developing allergy epidemic.³ Key to services is development of at least one major allergy centre in each region, staffed by adult and paediatric allergists. This requires increased numbers of allergy consultants and allergy trainees. Such an investment would provide the infrastructure and expertise for the development of services throughout the region and support education in primary and secondary care. A House of Commons Health Committee inquiry into allergy services endorsed the RCP report, recommending the development of national allergy services and commissioning of allergy centres.⁴ In England, a Department of Health (DH) review recognised the need for allergy services.⁵ Pivotal to service development and patient care is the need to train more allergists.

Who are the patients?

Numbers

Allergic disease is one of the most common diseases and a major public health problem. About 20 million people in the UK have a disease where allergy may be involved. Around 3.5–7 million require the care of a specialist allergist.⁵

Disorders

Disorders commonly coexist. Some may be immunoglobulin E (IgE)- or non-IgE-mediated:

- asthma
- rhinitis, conjunctivitis, rhino–sinusitis, nasal polyps
- eczema
- anaphylaxis
- urticaria
- angioedema
- glottal oedema
- food allergy, eosinophilic enteropathies
- food intolerance
- drug allergy
- latex allergy
- venom allergy
- mast-cell disorders
- occupational allergy.

Allergies in children

Forty per cent of children have allergies. Owing to a shortage of paediatric allergists, children are often seen by adult allergists.

Main disease patterns

Wide-ranging nature

Allergic disease is wide ranging (as listed above). Allergists also deal with non-IgE-mediated disorders, including rhinitis, angioedema and anaphylaxis.

Complexity

Multiple disorders and multiple allergies are common in an individual, eg asthma, rhinitis, eczema, food allergy and anaphylaxis coexist. There are cross-reacting allergens.

New allergies

New kinds of allergies are emerging, eg foods, drugs and diagnostics.

Progression

In children, allergies develop progressively. Much of this persists to adulthood.

Severity

A proportion of patients has severe or life-threatening disease or disease impairing schooling or ability to work (eg anaphylaxis, airway oedema or multi-system allergy).

2 Organisation of the service and patterns of referral

A typical service

There is a specialist definition for allergy (*Specialised services national definitions set, definition no 17*).⁶ The purpose is to identify the activity that should be regarded as specialised and hence within the remit of PCT collaborative commissioning. However, there is lack of recognition by commissioners of the need for allergy commissioning. This occurs around the established specialist allergy centres but is lacking in many parts of the country. Allergy is a specialty recognised for specialist commissioning by the DH in England.

Specialist services

These provide high-throughput, comprehensive, full-time services led by allergists with the expertise to deal with a range of allergic diseases. These services typically offer: one-stop diagnosis and management; complex investigation requiring day-case service, eg for drug or food allergy; immunotherapy; and anti-IgE therapy. There are only a small number of these services, but each sees large numbers and more complex patients (eg \sim 5,000 pa).

Subspecialty services

Other clinics are part time and provided by consultants in other specialties, most of whom offer a limited spectrum of diagnostic and treatment facilities.⁵

There is a geographical inequality and national shortage of doctors with allergy expertise. GPs dealing with the brunt of allergic disease have limited training and access to specialist advice.

Current services and proposals for allergy care are outlined in the RCP report³ and the British Society for Allergy & Clinical Immunology (BSACI) and National Allergy Strategy Group (NASG) submissions to the DH.^{5,7,8} The RCP proposed the following:

- *Tier 1* simpler allergic diseases managed in primary care or by self care (allergy diagnosis often not required)
- *Tier 2a* consultant allergists in teaching hospitals and district general hospitals to provide secondary care
- *Tier 2b* other specialists with an interest in allergy (immunologists; dermatologists; respiratory physicians; ear, nose and throat (ENT) specialists; paediatricians) to contribute to secondary care
- *Tier 3* regional allergy centres to manage specialised tertiary problems and provide local secondary care.

This model has been developed subsequently in papers from BSACI identifying the burden of disease and referral pathways.^{7,8}

Sources of referral from primary, secondary and tertiary levels

Referral is mainly direct to a specialist centre from a patient's GP (>80%) but from a wide (often regional) catchment. Patients are also referred from other services, eg respiratory, dermatology and anaesthetics.

Locality-based and/or regional services

Most major specialist services provide a regional and local service because of few providers in each region.

Drug allergy and anaphylaxis during anaesthesia require expertise and high throughput and should be part of a regional service.

Community models of care

Close links between specialists and GPs are needed with early discharge and supported care in the community. Because of the lack of specialists, it has not been cost effective to develop outreach services. Specialist allergy nurses from major centres could be commissioned to provide diagnostic skin test services to local GPs. Please note that consortia are not in place in Wales and Northern Ireland.

Complementary services

A wide range of alternative allergy diagnostic tests and treatments are available to the public but these are not scientifically based and cannot be recommended.

3 Working with patients: patient-centred care

What you do with patients and how you do it

Good allergy care requires accurate allergy diagnosis through identification or exclusion of allergic triggers. Essential are a detailed allergy history and skin-prick tests. Intradermal and challenge testing may be required as well. Management includes avoidance advice, training in self-use of rescue medication in case of inadvertent acute reactions and medication to control chronic conditions. Monitoring is required in some disorders.

Involving patients in their treatment

Informing and involving patients is a crucial aspect of effective allergy care. Patients are trained in: avoidance of triggers (eg foods, drugs) to prevent or reduce disease (eg anaphylaxis, asthma, eczema); self-administration of drugs in self-management plans for acute attacks; and prophylactic treatment for predictable allergen exposure. Early whole-system effective intervention prevents the development of chronic illness.

Education and self care

This is a major part of allergy care (see above).

Chronic conditions

Many allergic conditions are chronic but controllable (asthma, rhinitis, eczema) or avoidable (food or

drug allergy, anaphylaxis). These require long-term care, which can be shared with or transferred to primary care.

The role of the carer

Involvement of the carer is vital in terms of food and other allergies. When injected adrenaline is required, partners/parents must be trained to administer this.

Patient support groups

Patient groups – Allergy UK and the Anaphylaxis Campaign – are members of NASG⁸ and play a vital role in providing support and information in the absence of an adequate NHS service. The most common reason for calls to their helplines is difficulty in being referred to an allergy clinic or finding one able to deal with the patient's problem.

Access to information

Specialist centres have a wide range of patient literature, as do BSACI⁷ and patient charities.

Availability of clinical records/results

These can be supplied according to patient preference.

Role of expert patient

Allergy management involves training patients to self-manage.

Communication with patients

Good communication is essential to elicit the allergy history and explain the diagnosis and management.

4 Interspecialty and interdisciplinary liaison

Multidisciplinary teamworking

The following groups fulfil important roles in the team:

- allergy specialist nurses
- dietitians (adult and paediatric) trained in allergy
- pharmacy and drug information services.

Working with other specialists

• For a minority of patients, allergists liaise with respiratory physicians, dermatologists, immunologists, ENT consultants or paediatricians. These consultants may refer patients; some contribute to allergy care.
- Most allergy diagnosis is done by skin testing. An immunology laboratory service is required.
- A paediatrician is identified as a contact where physicians dealing with adults provide paediatric allergy services.
- Other specialists include community paediatricians and nurses (for children at risk of anaphylaxis) and occupational health physicians (for occupational allergies and vaccination reactions).

Working with GPs and GPs with a special interest (GPwSIs)

There is no formal GPwSI curriculum in allergy, but a small number of GPs work in allergy departments. Extensive GP liaison occurs as a result of referrals and shared care.

Other specialty activity beyond local services

There are regional and national services for drug allergy and anaphylaxis during anaesthesia. Joint ENT/allergy clinics exist for selected patients.

5 Delivering a high-quality service

What is a high-quality service?

Consultant allergists should have completed the allergy training programme (allergy CCT). A minimum of two full-time consultant allergists are required with appropriate support staff.

The following resources are recommended for outpatient, day-case and inpatient settings.

Outpatient services

- a comprehensive, high-volume service able to diagnose and manage all types of allergic disease
- skin-prick test primary investigation
- defined and integrated clinic facilities for outpatients and day cases
- immediate access to drugs and equipment for treatment of anaphylaxis.

Day-case investigation and immunotherapy

- agreed protocols and approach to diagnosis
- sufficient caseload to ensure expertise and continuing standards of care; dedicated sessions for drug challenge and immunotherapy at least weekly
- facilities to store and prepare drugs and conduct challenge tests
- team approach.

Inpatients

• rapid consultation service.

Work to maintain and improve the quality of care

Service developments to deliver improved patient care

- Nut allergy managed in specialist allergy clinics reduces morbidity.
- ENT surgery can be avoided by treatment of rhinitis by allergists.
- Immunotherapy reduces chronic disease, drug use and improves quality of life.
- Challenge testing enables diagnosis of drug and food allergy.
- Liaison with community paediatricians improves care for children at risk of anaphylaxis.
- A single consultation with an allergist is more effective than multiple referrals to organ-based specialists.
- Development of new therapies, eg anti-IgE, and desensitisation for peanut allergy.

Education and training

The allergist may act as educational supervisor for allergy trainees and has a role in the education and support of colleagues in primary care and other specialist services in their region. The centre will network with these other providers to enhance allergy provision in the region. This encompasses clinical governance, professional self-regulation, and continuing professional development (CPD).

Research – clinical studies and basic science

There is a strong tradition of academic allergy in the UK. Most allergy centres have developed through academic funding. Academic allergists make an important contribution to allergy within NHS trusts through service delivery, service development, guideline development, clinical research and training. Basic and clinical allergy research in the UK is internationally recognised for excellence and has led to improvements in patient care.

Specialty and national guidelines and audit

Table 1 lists some useful guidelines and audits for this specialty.

A national audit of venom immunotherapy revealed variable practice; BSACI guidelines were subsequently produced.⁷ An audit of asthma deaths suggested allergy was a cause but that this had not been addressed in life.

Table 1 Guidelines and audits for allergy services			
Organisation	Guidance	Weblink	
BSACI Standards of Care Committee	Guidelines for specialists (including rhinitis, urticaria, angioedema, anaphylaxis during general anaesthesia, drug allergy, egg allergy, venom immunotherapy); guidelines for primary care	www.bsaci.org	
NICE	 Diagnosis of food allergy in children and young people Anaphylaxis (in development) Venom immunotherapy (in development) 	http://guidance.nice.org.uk/CG116	
Royal College of Paediatrics & Child Health (RCPCH)	Care pathways for children with allergy	Includes: www.rcpch.ac.uk/allergy/anaphylaxis www.rcpch.ac.uk/allergy/foodallergy	
Organisation	Audit	Weblink	
BSACI	Venom immunotherapy		
Eastern Region Inquiry	Asthma deaths		

Quality tools and frameworks

Quality of care requires clinical expertise. The history is paramount and reliance on tests alone is a source of misdiagnosis. Allergy services are sometimes provided by those with little training, so standards vary. Allergy plays an important role in various diseases, eg asthma, but this aspect is often ignored. BSACI guidelines are a good source of developing and supporting standards. Allergy centres should evaluate diagnostic methods and conduct clinical research.

6 Clinical work of consultants

How a consultant works in this specialty

- An allergist works full time in allergy. This specialty is outpatient and day-case based, with minimal inpatient component.
- NHS consultants typically have five clinics a week, comprising general allergy and some specialised clinics or day-case sessions.
- Day-case work includes complex investigation, diagnostic challenge tests and desensitisation and anti-IgE therapy.
- Telephone or written advice is also provided without seeing the patient; consultants act as an educational resource for GPs.
- Outpatient work is complex and each consultation takes time. This is because many patients have multiple allergic disorders, which are usually dealt with in a single consultation, so a detailed

allergy history is critical to accurate diagnosis. This requires team approach and a series of diagnostic and management components, eg allergen avoidance, self-management plans, training to use adrenaline auto-injectors and organisation of school training.

- Day-case work involves a series of diagnostic steps, over 4–6 hours, with the risk of anaphylaxis.
- There is a heavy burden in information provision and complexity of letters, eg in drug or food allergy.
- A centre might see 5,000–8,000 patients with a significant component of day cases per annum depending on staffing; 100% of the work is specialty and >95% outpatient/day-case based. The consultant supervises the work of other members of the team.

Inpatient work

Allergists do not deal with acute medicine. They do, however, provide a consultation service for inpatients, eg with drug allergy.

Outpatient work

• General allergy clinics: new to follow-up patient ratios vary with the complexity of referrals and service provided, eg four new patients plus two review patients per doctor. Additional time is required for teaching and reviewing patients of trainees.

- Immunotherapy clinic: approximately 20–30 patients are seen per clinic, depending on staffing.
- Day-case challenge/complex investigation sessions: these include skin-prick tests, intradermal and/or challenge tests over hours. Typically two patients are seen per doctor depending on casemix and staffing.
- Special allergy clinics: these deal with venom allergy, difficult asthma, etc.

Investigative and therapeutic procedures

These procedures include skin-prick testing, intradermal and challenge testing, occupational allergy testing, immunotherapy, anti-IgE therapy, and drug desensitisation.

Specialist on call

Allergists are on call for advice in emergencies, other specialties and following day-case procedures.

Clinically related administration

- Job plan: for a consultant allergist in a specialist centre, a job plan should allow two hours per clinic for work relating to outpatients and time for other clinical work. This includes: providing telephone and written advice to GPs; requesting clinical information before/after appointment to expedite investigation; and supporting management of patients in the community.
- Reporting: clinical letters/reports are time consuming and may include treatment plans, drug alerts, information for patients to carry, etc. Where patients are seen once, a full report, often of multiple disorders, is required. Accuracy is paramount because of severity and risk.

7 Opportunities for integrated care

Patients may have a single consultation for diagnosis and management, and care can then be continued by their GP. Services by specialist allergy nurses from major centres are in development to provide diagnostic skin test services to local GP practices.

8 Workforce requirements for the specialty

There are 26 whole-time equivalent (WTE) consultant allergists in England and none in Wales. The RCP and the House of Commons Health Committee have

recommended an increase in allergy trainee and consultant posts.^{3,4}

The current situation fails to deliver adequate standards of care or to comply with clinical governance and is inadequate for the increasing number of patients with severe, multisystem or non-organ-based allergic disease. Improvement is required across the board – in primary, secondary and tertiary care – to achieve more equal access to appropriate allergy services throughout the country and to gear the training of doctors and nurses to achieve these ends. A substantial expansion in the number of trained full-time allergists providing a dedicated allergy service is needed. For an effective national system of allergy patient care, allergy clinics provided by other consultants need to be networked with specialist allergy centres.

Both now and in the immediate future, demand will outstrip service supply by a large measure.

Immediate proposals

The key step is the creation of a network of regional specialist allergy centres.^{3,4} These services in adult and paediatric allergy would provide comprehensive expertise including dealing with more complex diseases and training, research and leadership within the nascent national allergy service. They would support and enable other providers in secondary care and improve geographical distribution of allergy services. A core of experts is essential to set standards and support primary care, where the bulk of allergy care will be delivered. Immediate needs include the following:

- 1 To create/develop regional allergy centres: an additional 20 adult and 20 paediatric consultants are required for England and Wales.^{3,4}
- 2 To increase the number of allergy specialty registrar posts: the DH Workforce Review Team and the House of Commons Health Committee recommended an increase of 20 (centrally funded) national training places in allergy (and 20 for paediatric allergy). Discussion is ongoing with the Centre for Workforce Intelligence.

Long-term aim: a mature specialist allergy service (secondary and tertiary)

The long-term aim is to extend the service to provide allergist-led services in most major teaching hospitals and a part-time service provided by other consultants.

Calculation of national consultant workforce requirements

Assumptions of population/patient need

BSACI estimates that at least 3 million people in the UK or 50,000 per million need to see a consultant allergist (5% of the UK population) or 5,000 people per million in any year (if workload is spread over 10 years).^{2,5,7}

Consultant manpower required

- The number of patients requiring referral to a specialist allergist in any year is estimated to be 5,000 per million population.
- One consultant will see approximately 670 new, 335 review and 600 day cases per year.
- About 416 consultants would be needed for a population of 52 million (England and Wales).
- Around 390 additional allergy consultants are required, 50% of which would be in paediatric allergy. The requirement for allergists could be reduced by ~10–15%, as specialists such as immunologists and dermatologists would contribute to allergy care. Therefore, at a minimum, 160 adult allergists are required.

Trainee manpower

The current number of trainees is 11. In terms of medical specialty training numbers, 20 additional trainees are required (as well as 20 in paediatric allergy) for immediate development.

Table 2 Consultant w plan	ork programme/specime	n job
Activity	Workload	Session
Direct patient care		
Outpatients	4 new + 2 follow-up patients	3–4
Day cases	2	1
Immunotherapy	12	1
Ward referrals	2	0.5
Work related to clinics and clinical advice		2–2.5
Work to maintain and improve the quality of healthcare	Education and training, appraisal, management, service development, audit and clinical governance, CPD, revalidation, research	2

9 Consultant work programme/specimen job plan (tertiary centre)

Table 2 shows an outline of the work of an NHS consultant allergist in an allergy centre. The job plan of an academic allergist will differ. This should not be seen as prescriptive.

10 Key points for commissioners

- 1 Allergy is a major health problem and needs the attention of commissioners.
- 2 About one in three patients has allergy. Allergy has become more severe and complex; a patient often has several illnesses due to allergy, and multiple allergies.
- ³ This is a new problem facing the NHS, but allergy is not often addressed. This results in significant costs that could be avoided by good-quality allergy care.
- 4 The majority of GPs have limited knowledge of or training in allergy (not available in most medical schools).
- 5 Allergy diagnosis and management leads to avoidance of the triggers and prevention or control of disease (eg anaphylaxis, angioedema, asthma, eczema, rhinitis) and cost savings. It also reduces referrals to a series of other specialists, where treatment is symptomatic and allergy not considered, giving further savings.
- 6 Allergy is a recognised specialty with specific expertise. Allergy diagnosis is usually not addressed by other specialties. Specialist allergists deal with multiple allergy-driven disorders, often in a single consultation, with ongoing care by the GP.
- 7 Care pathways, NICE guidance and BSACI guidelines are available.
- 8 Surveys show that few primary care trusts are aware of, or commission for, allergy. Allergy is not identified in GP commissioning guidance.
- 9 Commissioning of allergy services from specialists in allergy is essential for patient care. It complies with the Quality, Innovation, Productivity and Prevention (QIPP) programme, will prevent or control further illness, reduce the burden on GPs and hospital services, and be cost saving.

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Note to readers: This chapter has not been updated for the revised 5th edition 2013. The text has been reproduced from the 2011 edition.

Audiovestibular medicine

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1 Description of the specialty

Audiovestibular medicine (AVM) is the specialty concerned with prevention, investigation, diagnosis and management of adults and children with disorders of hearing, balance and tinnitus.¹ Some specialists also include developmental disorders of speech and language. This is a small specialty with an uneven distribution across the UK. There is an unmet need that is only partially met by other specialties.

Audiovestibular physicians (AVPs) play a key role in the multidisciplinary team (MDT) involved with assessment and management of patients. Competencies in general internal medicine, paediatrics and child health underpin the practice of AVM. Knowledge of the pathophysiology of systemic, neurological and otological diseases and disorders that affect the audiovestibular system throughout life is essential.

Who are the patients?

Hearing loss and dysequilibrium are widespread in the UK adult population and will increase with the changing demographics:

- One third of those over 60 years have a hearing loss of 25 decibels or more.
- Symptoms of dizziness or imbalance are experienced by 30% of the population by the age of 65 years.¹
- Balance problems are the most common cause of presentation to primary care in patients over 74 years of age.²
- AVPs are involved in complex cases of hearing loss and assessments for cochlear implants.
- Many patients have other complex needs, eg 45% of deaf adults under the age of 60 have additional disabilities.³
- Tinnitus affects up to 20% of the population, with 5% describing the complaint as troublesome, while

for 1% it is severe enough to have a significant effect on their quality of life.³

Balance disorders are less common in children, affecting only 8%, 4 but may be difficult to assess and manage.

- Approximately 1:1,000 children are born with bilateral permanent hearing impairment each year⁵ and 2:1,000 will have a unilateral hearing impairment.⁶
- 25% of all children up to the age of 4 years suffer from otitis media with effusion at any one time⁷ and 80% of children under 8 years of age have experienced temporary deafness due to glue ear.⁸ Current best management of this includes the use of amplification rather than surgery.⁹
- Approximately 10% of children have some degree of auditory processing disorder.¹⁰
- Approximately 6% of children have speech and language disorders.¹¹

Main disease patterns

Permanent childhood hearing impairment can be congenital or acquired and syndromic or non-syndromic and is often accompanied by other symptoms and disabilities. AVPs are involved in the medical diagnosis (from newborn hearing screening and beyond), aetiological investigation and (re)habilitation. Hundreds of conditions are involved and it is important for families to fully understand their child's problem(s). Other associated conditions are mentioned earlier.

Balance disorders including those of vestibular origin provide the bulk of most AVPs' adult-patient load but patients with complex, progressive, unknown or asymmetrical hearing problems and/or tinnitus are also common. Conditions range from the common benign paroxysmal positional vertigo (BPPV) and migraine-associated vertigo through to complex neurological problems and systemic disease: diabetes, autoimmune disorders, syndromic disorders and vascular disease. Those with chronic balance disorders from whatever cause suffer significant social, occupational, emotional and economic disability. They are best managed by a team that will include expert physiotherapy, AVP and counselling. AVPs investigate causation and with the MDT manage both children and adults with auditory processing difficulties.

2 Organisation of the service and patterns of referral

A typical service

There are areas of the country where there are no AVPs and the service of each consultant varies. There is no typical service.

AVPs are involved across primary, secondary and tertiary care. Most are employed by acute trusts. Some consultants work in a 'hub and spoke' network, delivering services to neighbouring trusts on a practical or consultative basis.

Some consultants cover the whole spectrum of service provision in AVM, but others may specialise in paediatrics or adults. Subspecialty areas include cochlear implantation, auditory processing disorders, developmental neuro-otology, disorders of speech and language, cleft palate, adults with learning disability, and paediatric vestibular service. Delivery is predominantly through an MDT, which is commonly led by an AVP, audiologist, paediatrician or otologist.

Practice is primarily outpatient based with inpatient consultation for patients admitted in other specialties; rarely, patients are admitted for intensive diagnostic or rehabilitative work. Adults and children are seen in separate clinics in all practices.

Secondary audiovestibular services provide a multidisciplinary approach in dedicated facilities and manage the vast majority of audiovestibular problems effectively. Approximately 20% of adult patients and 67% of child patients will see more than two health professionals at any one visit, with the aim of formulating both an accurate diagnosis and a plan for rehabilitation or treatment. Appointments often include detailed testing by audiologists and assessments by other professionals. Tertiary services for both adults and children are hospital based and include sophisticated neuro-otological test facilities, cochlear implant programmes, bone-anchored hearing aid programmes, and specialised advice and assessment in services such as cleft palate, dual sensory loss or falls clinics. Integrated multidisciplinary care is a key feature of these services.

Sources of referral

Figure 1 shows the sources of referral to AVM from the primary, secondary and tertiary levels.

Locality-based and/or regional services

Some AVPs work in district general hospitals (DGHs) and others in specialist centres where the majority of work is tertiary. There is a disproportionate concentration of services in London and the south east, with a few consultants in the north of England, one in Scotland, one in Wales and large gaps in most other parts of the country. Different AVPs provide a regional, supra-regional or national service.

The implementation of the Newborn Hearing Screening Programme (NHSP) had a significant effect on paediatric AVM with increased clinical, diagnostic and management demands for patients at a much younger age. In many areas, AVPs are involved in the coordination and implementation of various local and national aspects of this programme, working closely with audiologists and consultant community paediatricians.

The long-term nature of some neuro-otological and other underlying systemic disorders means that organisation of transitional care services between paediatric and adult services is essential.

Community models of care

There are no structured AVM services for adults in primary care, although some services for adults are now provided in a primary-care setting by general practitioners with a special interest (GPwSIs) in otology. Some AVPs have developed community-based services for common problems and hub-and-spoke services would support the provision of more rapid effective care for this group of patients.

A significant proportion of paediatric audiological services, including hearing surveillance programmes, are provided by second-tier community services.



Fig 1 Sources of referral to audiovestibular medicine from primary, secondary and tertiary levels. ENT = ear, nose and throat specialists; GP = general practitioners.

These feed into secondary audiovestibular provision in either the hospital or the community. Not all community audiology services are led by AVPs; some may be delivered by paediatricians in child health who have gained additional competencies in audiology.

Successful moves of services into alternative healthcare settings will depend largely on the provision of facilities and space for interdisciplinary teamwork, which is at the heart of patient care in this field.

Complementary services

AVPs work closely with a wide variety of services. These include old age medicine, neurology, otology, paediatrics, ophthalmology, psychiatry, oncology, endocrinology, acute medicine, cardiology, speech and language therapy, clinical psychology, audiology, rehabilitation services, NHSP, social work and the voluntary sector.

3 Working with patients: patient-centred care

Interaction with patients

The basis of all clinical work is careful history and detailed medical examination, supported by conventional medical investigations. Selection and interpretation of specialist assessments by other healthcare professionals supports the physician to produce both a diagnosis and a management plan, incorporating active treatment where appropriate. Audiovestibular disorders are often chronic and successful management requires effective communication with patients and carers/families about the nature of the disorder and the possible management options. Clinical activity needs to be delivered by an MDT in an acoustically and patient-friendly environment with interpreters for both sign language (British Sign Language (BSL) and other sign support) and English as a second language, as needed.

Patient-centred care

- AVPs are careful to provide unbiased information to enable patients and parents/carers to make informed decisions about their investigations and interventions. This enables the patient to have an input in their care plan.
- Knowledge of and respect for the varied attitudes to deafness and disability in different ethnic and cultural groups enables informed discussion. For example: community attitudes to deafness that differ in relation to genetic testing; disquiet in the deaf community about the use of cochlear implants or hearing aids; and the use of sign language.

- Each consultation provides an opportunity to educate the patient and to check their understanding of their condition. All members of the MDT have an important contribution to make in this area.
- In order to promote self-care, there should be understanding of the condition. Perseverance and commitment from patients and their families are essential for successful auditory and vestibular (re)habilitation as well as compliance with pharmacological and other treatments.
- AVPs and the MDT have a key role in reinforcing the important task of parents and carers in contributing to and implementing care plans for patients.
- Local services for children should all have a Children's Hearing Services Working Group (CHSWG) in which (trained) parents participate with multiagency professionals to ensure development of effective local services.
- Voluntary bodies, including Action for Deafness (AFD), the National Deaf Children's Society (NDCS) and the Ménière's Society provide easily accessible information for patients as well as developing criteria for good practice.
- Information on audiovestibular disorders is available from websites, special libraries, and written material produced by educational, clinical and patient support groups.
- Information about relevant support groups (such as AFD, NDCS, Hearing Concern, Ménière's Society, British Tinnitus Association (BTA), British Deaf Association (BDA), Royal Association for the Deaf (RAD), SignHealth (the National Society for Mental Health and Deafness; previously called Sign), Council for the Advancement of Communication with Deaf People (CACDP), Usher's Society, Sense and Afasic should be readily available in outpatient departments.
- It is good practice to copy patients and parents into clinical correspondence to ensure that they are aware of the care plan and are informed about results of investigations.
- Some services already use adult role models, local self-help groups or patient volunteers as expert patients.

AVPs are trained to be highly effective communicators. Relevant professional interpreters must be available for both the family and the patient during medical consultations, recognising that communication needs may be different, eg a BSL interpreter for the patient and a mother-tongue interpreter for parents/carers for medical consultations.

4 Interspecialty and interdisciplinary liaison

Multidisciplinary team working

Both adult and paediatric AVM services are delivered by MDTs that include other health professionals, education and social services. MDTs may include community paediatricians, audiologists, specialist nurses, speech and language therapists, hearing therapists, teachers of the deaf, psychologists, behavioural therapists, educational audiologists, physiotherapists, social workers and occupational therapists. Each has a specific but overlapping role to play and successful teamwork is based on mutual recognition and respect.

The patient and their family are an integral part of this team.

Working with other specialties

Closely linked specialties include otology, neurology and neurosurgery, paediatrics and child health (working both in the community and in acute paediatrics and neonatology), clinical genetics, radiology, immunology and allergy, old age medicine and ophthalmology, and many subdisciplines of general internal medicine. There will be a number of patients who are common to these groups, where diagnosis or care is shared depending on the patient's symptoms at any one time.

The wide-ranging prevalence of audiovestibular symptoms in other conditions means that AVPs will be in contact with or receiving referrals from many different disciplines.

Working with GPs and GPwSIs

Some GPwSIs in otolaryngology are concerned with aural care and simple audiovestibular disorders in adults and this area could be usefully expanded.

Other specialty activity beyond local services

Multiagency working is fundamental to AVM. Education services share the care of children with permanent childhood hearing impairment while social services and job centres are important in terms of both

Table 1 Specialised facilities required by an audiological medicine service for a population of 500,000

Hearing testing

Paediatric

- 3 large paediatric soundproof test booths with viewing areas
- 1 standard booth with viewing area
- 1 child-friendly, hearing aid fitting room
- 1 room for taking impressions
- 1 room for nurse-led activities, including a microscope and irrigation for aural toileting
- 1 acoustically treated, child-friendly, hearing aid prescription room
- 1 room for evoked-response audiometry
- 1 counselling room for parents
- Sufficient rooms for members of the MDT to see and work with children in a child-friendly environment, including consultation rooms for medical examination
- 1 waiting room including supervised play facilities for all ages and available refreshments

Adult

- 4 standard audiometric soundproof test booths
- 1 evoked-response booth
- 2 acoustically treated, hearing aid prescription rooms
- 3 hearing aid fitting rooms
- 2 comfortable rooms for hearing therapy
- 1 room for nurse-led activities, including a microscope and irrigation for aural toileting
- 1 large room for group relaxation classes
- Sufficient rooms for members of the team to consult and assess patients
- 1 waiting room

Vestibular testing

Paediatric

- 1 child-friendly, purpose-designed, vestibular test room with play area and mains water supply
- Facilities for comprehensive vestibular testing, including videonystagmography (VNG), electronystagmography (ENG), rotating chair, posturography and caloric testing (needs mains water supply)
- 1 clinical room for physiotherapy and occupational therapy

Adult

- 1 large vestibular laboratory from which light can be excluded, including VNG, ENG, rotating chair, posturography and caloric testing (needs mains water supply); it needs to be suitable for children and adults
- 1 large room for group relaxation and balance retraining
- 1 counselling and cognitive therapy room

Overall service

- 1 seminar room for MDTs and for continuing professional development (CPD)
- Office space for patient administration

employment for adults and appropriate domestic support for children and adults.

5 Delivering a high-quality service

What is a high-quality service?

AVPs are medically trained professionals with the highest level of skills and competencies in the field and deliver effective and efficient assessment, diagnosis and management of disorders through an MDT in as few visits as possible.¹²

The British Association of Audiological Physicians (BAAP) policy document 2002¹³ contains recommendations for the staff and details of the equipment (less than 5 years old) required for a population of 500,000 patients (Tables 1 and 2). It covers paediatric and adult vestibular and hearing services in both community and hospital sites. It also refers to the staff required for a team based at a main unit working across several sites. BAAP published a clinical standards document in 2011 which sets out the generic and core standards for working with children

Table 2 Non-medical staffing requirement for the service provided by an audiovestibular centre					
Professional		Child	Adult	Total (500,000)	Total (250,000)
Audiologist	Band 8B Band 7 Band 6 Band 5	1 2 3 1	1 1 3 3	2 3 6 4	2 2 3 2
ATO		2	2	4	2
SALT for hear	ing impaired	2	1	3	1–2
Educational a	udiologist/ATHI	2	0	2	1
Deaf role mo	del/sign language teacher	1	0	1	0.5
Social worker	/counsellor	1	1	2	1
Hearing there	ıpist	0	2	2	1
Physiotherapi	ist	1	1	2	1
Psychologist		1	1	2	1
Paediatric oco	cupational therapist	1	0.5	0.25	?
Nurse/healthe	care assistant	1	3	4	2
Medical secre	tary	2	2	4	2
Receptionist		2	2	4	2
A&C records s	staff	2	2	4	2

ATQ = assistant technical officer; SALT = speech and language therapist; ATHI = advisory teacher for the hearing impaired; A&C = adult and children.

and adults with hearing and balance disorders.¹⁴ Interdisciplinary standards for specific activities have

Table 3 Audiovestibular medicine guidelines and audits

- BAAP clinical standards and guidelines are available at: www.baap.org.uk/index.php?option=com_content& view=article&id=48&Itemid=54
- NHS Newborn hearing screening protocols and pathways: http://hearing.screening.nhs.uk/publications
- Royal College of Physicians working party report Hearing and balance disorders: achieving excellence in diagnosis and management¹
- Department of Health documents Improving access to audiology services in England; Transforming adult hearing services for patients with hearing difficulty; National service framework (NSF) for older people; NSF for children, young people and maternity services; and NSF for long-term conditions. All these documents are available at: www.dh.gov.uk/en/ Publicationsandstatistics/Publications/index.htm

been implemented, eg NHSP¹⁵ and Modernising Children's Hearing Aid Services (MCHAS).¹⁶

Maintaining and improving the quality of care

Maintenance and improvement of service quality is ensured by clinical governance, which includes:

- development of patient-care pathways, systems and processes to improve the efficiency of patient flow
- appraisal and peer-review system
- revalidation
- participation in accreditation of audiology departments, eg Improving Quality In Physiological Diagnostic Services (IQIPS)
- adherence to published clinical standards (see Table 3) and the development of national and local guidelines reviewed by audit
- participation of AVPs in BAAP specialty-specific national audit
- participation of AVPs in regional and national work, eg for BAAP and in partnership with other professional and voluntary bodies such as the British

Academy of Audiology (BAA), the Department of Health (DH), the Royal College of Physicians (RCP) and NDCS

- encouragement by BAAP through appointment of a second AVP where possible in areas where there is a single-handed AVP
- education and training ensuring publication of cross-discipline information, conferences, teaching and learning opportunities, both locally and internationally, especially through the International Association of Physicians in Audiology (IAPA), which publishes *Hearing Balance and Communication*
- research in conjunction with healthcare professionals, basic scientists and patients into the pathophysiology and management of audiovestibular disorders.

Specialty and national guidelines

Table 3 gives details of AVM guidelines and audits.

6 Clinical work of consultants

Outside academic units, all AVPs work exclusively in their specialty, almost entirely with outpatients. In units where there are no trainees, work is direct rather than supervisory but is always as part of an MDT.

Inpatient work

AVPs do not have dedicated inpatient beds, but in an average DGH approximately four inpatients per week are likely to be referred from other specialties for diagnostic consultation.

Outpatient work

A consultant AVP working alone in an adult outpatient clinic may see 4–6 new patients or 8–12 follow-up patients per programmed activity (PA). In a paediatric outpatient clinic, a maximum of six new or follow-up patients may be seen. The number will depend on the consultant's experience, the complexity of the problems and the availability of support staff. In some highly specialist services fewer patients may be seen. When supervising trainees, the numbers of patients in clinics should be adjusted to allow for teaching and discussion of cases.

Specialist activities beyond the local services

Some clinical work can be undertaken by telephone consultation and email.

Specialist investigative and therapeutic procedures

Whenever possible, audiovestibular investigations should be carried out at the same attendance as the clinic appointment; this might be combined with assessment and advice from other professionals within the MDT. However, this makes the timing of clinics unpredictable as some patients will inevitably take longer to assess than others, especially the very young or the very old.

Most investigative and therapeutic procedures are carried out by other professionals but the coordination and interpretation is often by AVPs.

Specialist on call

There is no on-call requirement for AVM nor do consultants and trainees participate in the on-call rota for acute general internal medicine. They may, however, be closely involved in the management of two acute presentations: sudden hearing loss and acute intractable vertigo. Both conditions require urgent admission, investigation and management in collaboration with otology and/or neurology.

Other specialist activity

Many AVPs undertake clinical work and teaching in more than one site, including outreach clinics in DGHs, community clinics, primary-care groups, schools for the deaf or learning disabled, and domiciliary visits to private homes or residential accommodations.

An AVP's work encompasses duties in clinical governance, professional self-regulation, CPD, and education and training of others. For many consultants at various times in their careers it may include research, serving in management, and providing specialist advice at local, regional and national levels. In a small specialty, work for the RCP, government, specialist societies, patient groups, deaneries and other national bodies is a greater burden than in larger specialties where the majority of consultants may not be involved if they are not so inclined.

Clinically related administration

The specialist nature of the work, lack of general knowledge about audiovestibular disorders, tertiary, interdisciplinary and multiagency working, and the personal approach to management inherent in the field, result in the generation of a considerable communication burden for AVPs and A&C staff. Preparation of complex reports may take half as long as the time to see the patient. There are numbers of requests for clinical information from patient agencies, patients, other professionals and specialists, and for information and documentation to support entitlements such as the disability living allowance, statements of special educational needs, rehousing and immigration. Adequate administrative infrastructure for secretarial support, appointments and medical records is essential.

7 Opportunities for integrated care

Audiovestibular physicians can provide integrated care with the following services:

- falls clinics
- adult and paediatric neurology services
- adult and paediatric otology services
- community-commissioned audiological and vestibular services
- genetics
- dual visual and hearing loss clinics
- educational audiology
- social work for deaf people
- speech and language therapy.

8 Workforce requirements for the specialty

A population of 250,000 generates approximately 1,000 new AVM referrals per year and 1,000 follow-up appointments. The follow-up rate is kept low, despite the specialty being largely concerned with chronic disease, because non-medical members of the MDT undertake much of the rehabilitation work.

Current workforce numbers

There are currently 49 consultant AVPs in England, one in Wales and one in Scotland; giving a total of 51. Most of these work full time. There are also 12 consultant community paediatricians in audiology, 19 StRs (specialty registrars) – 7 flexible. There are no non-consultant career grade doctors or GPwSIs.

Providing an audiovestibular medicine service to a population of 250,000

The specialist society¹³ recommends that one whole-time equivalent (WTE) adult and one WTE paediatric AVP would be needed to provide this service. This assumes that there are sufficient numbers of professionals in the MDT.

National consultant workforce requirements

An initial increase of 104% across the UK is thought to be an appropriate target over the next few years, with an aim of achieving one WTE per 300,000 population.¹ The aim must be to provide the best service for patients using an appropriate balance of AVPs, community paediatricians and audiologists working closely with their ENT colleagues.

Calculating the numbers for academic staff is more challenging: the MSc and diploma courses are largely dependent on the teaching of honorary staff, despite attracting a large number of overseas, as well as local, students. The success of integrated scientific and clinical research supports the demand for an increase in this faculty.

9 Consultant work programme/specimen job plan

Tables 4 and 5 give examples of job plans for consultants placed in either paediatric or adult work. For those who cover both areas, a hybrid plan would be needed according to the service demands of the department. Please note that, because this is a complex rehabilitative field, the paperwork can be heavy and needs to be adequately catered for in any job plan; the ratio of administration:face-to-face patient contact can be 0.5:1 to 1:1.

10 Key points for commissioners

- Audiovestibular physicians (AVPs) are well placed to advise on planning and commissioning specialist services because of their training and multidisciplinary work. Their professional standards and national collaborations would ensure that significant national variation of hearing and balance service provision is minimised, while maintaining a focus on local needs.
- 2 Commissioning of audiovestibular medicine (AVM) services on a regional basis would ensure that the specialist skills of the limited number of AVPs are used most effectively. This would enable development of robust regional networks for hearing and balance services which would be located within tertiary centres.
- 3 A nationwide, integrated AVM service should include cooperative work with colleagues with complementary competences and with GPs,

Table 4 Consultant in paediatric audiovestibular medicine				
Activity		Workload	Programmed activities (PAs)	
Outpatient work				
General hearing clinics		A maximum of 6 patients – commonly a ratio of 1 new patient to 2 follow-up	3–5	
Specialist clinics	Vestibular	2–3 patients new or follow-up	Depending on subspecialisation and demand 1–2	
	Speech and language	2–3 patients new or follow-up		
	Cochlear implant	2–3 patients new or follow-up		
	NHSP	2 new or 4 follow-up		
Work outside hospital base	Special schools		0–1	
Multidisciplinary work			1	
Direct patient care		Minimum of 0.5 PA admin: 1 PA clinic	2.5–3	
On call for specialist advice and emergencies		Depends on centre	0–0.5	
Acute medicine rota		Rare	0	
Total direct patient care PAs			7.5	
Supporting professional activities (SPAs)				
Work to maintain and improve the quality of healthcare		Education and training, appraisal, departmental management and service development, audit and clinical governance, CPD and revalidation, research	2.5	
Total PAs			10	
Additional PAs				
Other NHS responsibilities		eg medical director, clinical director, lead consultant in specialty, clinical tutor	Negotiable	
External duties		eg work for deaneries, royal colleges, specialist societies, DH or other government bodies	Negotiable	

through formally embedded pathways. This service should be designed utilising the clinical network expertise from other services with a proven track record (eg cancer services).

- 4 AVPs should work with local GPs to promote 'self-care' of AV problems and address inequalities within disadvantaged and minority groups.
- 5 As multidisciplinary secondary-care physicians with additional training in paediatrics, AVPs have a wide knowledge of hospital and non-hospital care, and are well placed to sit on boards of clinical

commissioning groups and other national government and non-government bodies.

- 6 AVM should be easily locatable in the Choose and Book service, with a named consultant to facilitate patient choice and easy access to treatment of complicated problems. This would optimise referral patterns and quality of care.
- 7 Health and wellbeing boards should consider formally supporting local adult and children's hearing and balance services working groups, in order to facilitate the patient's voice and joint

Table 5 Consultant in adult audiovestibular medicine				
Activity		Workload	Programmed activities (PAs)	
Outpatient work				
General hearing clinics		4–6 new patients or 8–12 follow-up patients or combination	3–5	
Specialist clinics	Vestibular triage clinic	10 new patients	1–2	
	Specialist diagnostic/ management clinic	3–4 new patients and 4–5 follow-up		
	Supra-specialist clinic	4 new patients		
	Adult tinnitus	4–6 patients new or follow-up		
	Cochlear implant	2–3 patients new or follow-up		
	Adult learning disabled	2–4 patients new or follow-up		
Multidisciplinary work			1	
Clinically related administration			2.5–3	
On call for specialist advice and	emergencies	Depends on centre	0–0.5	
Acute medicine rota		Rare	0	
Total direct patient care PAs			7.5	
Supporting professional activit	ies (SPAs)			
Work to maintain and improve the quality of healthcare		Education and training, appraisal, departmental management and service development, audit and clinical governance, CPD and revalidation, research	2.5	
Total PAs			10	
Additional PAs				
Other NHS responsibilities		eg medical director, clinical director, lead consultant in specialty, clinical tutor	Negotiable	
External duties		eg work for deaneries, royal colleges, specialist societies, DH or other government bodies	Negotiable	

working between AVM services and voluntary bodies (eg NDCS, AFD), education, local sensory support, social services and public health.

- 8 AVM services should participate in and support national audits against published clinical standards.
- 9 The establishment of national registers for outcome comparison is required, to ensure quality and consistency of care, regardless of who is providing AVM services.
- 10 To ensure equality in healthcare provision, and for the wider health and economic benefit to the

patient's quality of life, AVPs should be appointed in those large areas of the country where AVM is lacking, or when an AVP or paediatrician with a special interest in audiovestibular medicine is due to retire. This would ensure that the holistic approach of AVM is maintained and that there is continuous improvement in standards of care that can be applied across the country.

Relevant publications

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Cardiovascular medicine and paediatric cardiology with adult congenital cardiology

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1 Description of the specialty

What is the specialty?

Cardiovascular medicine involves the management of patients with suspected or confirmed cardiovascular disease and conditions of the heart, circulation and linked organs associated with diabetes, renal disease or cerebrovascular disease. Paediatric cardiology is a specialty that deals with all aspects of care of patients with congenital heart disease, from before birth to adulthood. More and more patients have grown-up congenital heart disease (GUCH) and they are followed in GUCH centres and local centres with joint expertise an example of improved integration of services (see section 7). Regionally coordinated genetics and pathology services are being developed for investigation of people with a family history of sudden death. There is no room for complacency if we are to prevent further cases of premature cardiac death and improve quality of life for people with chronic heart disease.

Who are the patients?

Most patients arrive at emergency departments as acute admissions, presenting with shortness of breath, chest pain or some other cardiac symptom such as transient loss of consciousness. They are stratified according to risk so that those with acute coronary or another high-risk syndrome (eg arrhythmia) receive appropriate specialist care on cardiac care units (CCUs), or on continuing care or heart failure wards. By mid 2011, 94% of patients with ST-elevation myocardial infarction (STEMI) were taken to network-designated centres in England for primary percutaneous coronary intervention (PPCI).¹ Follow-up of many different cardiac disorders with increasing subspecialty focus, eg cardiomyopathy and valve disease, is appropriate. Congenital heart disease affects 8 out of every 1,000 live births, and this represents a major clinical challenge for detection and management.

Main disease patterns

The current emphasis is on early primary prevention, diagnosis and secondary prevention in a larger population of people with coronary heart disease who are living for longer. The increase in patients with heart failure is being addressed through specialised support in the community, but palliative care for patients with heart failure and cardiac rehabilitation completing all care pathways are priorities in England in the cardiovascular disease (CVD) Outcomes Strategy (March 2013). Severe aortic stenosis in frail patients can now be managed by transarterial valve implantation (TAVI). The field of paediatric cardiology has also become increasingly subspecialised, with new developments in prenatal detection and interventional and electrophysiological treatments, and the outlook for these patients has been greatly improved. Treatments for pulmonary hypertension, cardiac transplantation, and implantation of left ventricular assist devices (LVADs) are concentrated within supra-regional centres. The pattern of endocarditis is ever-changing, and extra vigilance is needed since the National Institute for Health and Care Excellence (NICE) recommended removing routine prophylaxis for most susceptible patients in 2008.

2 Organisation of the service and patterns of referral

A typical service

The aim is to provide a seamless transition for adult and child patients from primary to secondary and then to tertiary care, as necessary, and back to local rehabilitation within cardiac networks through the use of agreed care pathways. Some advances in service provision pioneered within tertiary care are appropriate for regular use in secondary care, such as implantation procedures and follow-up of patients with implantable cardioverter defibrillators (ICDs). A key part of the agenda for cardiac networks is equity of healthcare across sectors. It is hoped that the outcome for paediatric cardiology within the review *Safe and sustainable children's congenital heart services*² will support continued access to similarly integrated primary, secondary and tertiary care for all regions. Supra-regional services should be justifiably rationalised to preserve quality for patients (and their families) who have to travel some distance.

Primary care is focused on primary prevention and lifestyle counselling, through monitoring and management of hypertension, hyperlipidaemia, diabetes and renal disease. It also involves secondary prevention of chronic coronary heart disease and monitoring of heart failure. The main emphasis in paediatric cardiology should be on the early detection and prevention of congenital heart disease. Symptoms must be recognised, and innocent heart murmurs must be differentiated from pathological ones.

Paediatricians in secondary care offer reassurance to patients with innocent murmurs, and those who have a special interest in cardiology are greatly valued. Secondary care can provide almost all acute cardiac care and elective outpatient investigations in adults, with interventions other than implantation of pacemakers and complex devices being through network agreement (see Table 1).

Tertiary care provides surgery for disease of the coronary arteries, aorta and valves, as well as complex interventions with on-site surgical cover, paediatric and GUCH centres (see above), interventions with advanced imaging support, and complex invasive electrophysiology. 'Heart-attack centres' for patients who need PPCI tend to be based (but not exclusively) in tertiary care.

Sources of referral from primary, secondary and tertiary levels

In addition to the above, one-stop clinics are in development, following the success of rapid access for patients with angina. These clinics are for patients with heart failure and arrhythmias, and have protocols for the management of atrial fibrillation through from primary care. Strong secondary care is vital for the supervision of care pathways and community clinics. Risk assessment in secondary care to determine the need for catheterisation and onward referral for intervention or surgery is critical for all patients with cardiac conditions. Tertiary care should offer a multidisciplinary approach for assessing the optimum intervention in referred patients. Patients should be repatriated locally for rehabilitation and follow-up after an intervention at the tertiary level, and this should be ensured in care pathways. Special patterns of referral for patients with congenital heart disease may occur, but the local secondary care service should maintain documentation in these cases. Prenatal detection services are not comprehensively available, and babies who are suspected of having congenital heart disease are referred from secondary care to outreach clinics, tertiary centre clinics, or as inpatients, depending upon their clinical condition. Children who need cardiac surgery are referred by paediatric cardiologists, rather than directly to cardiac surgeons by either their GP or a local paediatrician. A breathless baby with cyanosis should be referred urgently to a tertiary care specialist.

Locality-based and regional services

Patient and carer stakeholder discussions within the networks have expressed a wish for local district services, except where network or regional levels confer some additional benefit, as described above (see also section 1). The cardiovascular network strategy and the coordination of jointly agreed standards for specialised services across several networks can determine the location of newer strategic services for the patients described in section 1. This model is ideal for involvement of commissioners (see section 10). The families of children with congenital heart disease are content to travel greater distances in order to benefit from definitive, specialised surgery in an appropriately committed environment.

Community models of care

There are registers in primary care for people at risk of cardiovascular disease (including smokers, obese and diabetic patients) and patients with coronary heart disease or heart failure. This was recommended in England by the national service framework (NSF) for coronary heart disease.³ Professional community healthcare networks are increasing for patients with heart failure and for people in need of palliative care or rehabilitation. Non-invasive cardiac investigations may be practised, ideally under the supervision of specialists, in line with care pathways linked to local cardiology services. Cardiac rehabilitation, particularly during the maintenance phase, may be community based.

Table 1 Service location and main activities			
Service location	Main activities		
Primary cardiac care	 Primary and secondary prevention Monitoring and management of: hypertension (eg ambulatory blood pressure) hyperlipidaemia diabetes renal conditions. Resting ECG tests Monitoring and management of stable chronic diseases, eg coronary heart disease, heart failure 		
Community cardiology	Some investigation and management of heart failure (community echo and blood tests) Ambulatory monitoring of blood pressure and ECG Cardiac rehabilitation		
Secondary cardiac care	Emergency care of: acute chest pain collapse acute breathlessness suspected to be cardiac in origin acute breathlessness suspected to be cardiac in origin acute arcoronary conditions (heart attack) acute arrhythmias acute arrhythmias acute arrhythmias acute heart failure heart infections (endocarditis) diseases of the heart muscle acute pericardial conditions. Clinical management of cardiac care units Inpatients with cardiac conditions Clardiac day cases for investigation or treatment Investigation of suspected cardiac symptoms – in rapid-access chest pain clinics, and newer one-stop clinics for heart failure, arrhythmias Follow-up of patients with certain valve disorders, cardiomyopathies, pericardial conditions and arrhythmias Follow-up of some patients with congenital heart disease General outpatient clinics Echocardiography studies, transthoracic, transoesophageal and stress exercise ECG investigations Nuclear cardiology studies, some CT and MRI Ambulatory analyses of ECG and blood pressure Investigations of autonomic function, eg tilt-table testing Diagnostic cardiac cordeterisation and angiography Some percutaneous coronary intervention (PCI) Implantation of temporary pacemakers Implantation, renewal and follow-up of permanent pacemakers including complex devices, eg CRT Some electrophysiological studies and routine ablation Implantable ECG loop recorders Implantation and renewal of intracardiac/subcutaneous defibrillators Cardiac rehabilitation		
Tertiary cardiac care	All secondary care services for their local population, plus: Emergency PPCI for STEMI Complex interventions: • percutaneous closure of PFO • percutaneous closure of ASDs • non-surgical reduction of myocardial septum • percutaneous laser revascularisation for refractory angina • carotid artery stent placement for carotid stenosis • percutaneous occlusion of left atrial appendage • percutaneous mitral valvuloplasty • percutaneous aortic valvuloplasty and aortic valve replacement • percutaneous closure of acquired VSD.		

(continued)

Table 1 Service location and main activities (continued)		
Service location	Main activities	
	Management of rare cardiac arrhythmias (eg congenital long QT syndrome, Brugada's syndrome, arrhythmogenic right ventricular dysplasia, ventricular arrhythmias associated with familial cardiomyopathies)	
	Screening families affected by sudden cardiac death Management of some cardiomyopathies Extraction of pacemaker leads with special equipment Cardiac surgery Complex cardiac interventions Advanced cardiac electrophysiology	
Supra-regional cardiology	Paediatric cardiology Assessment of adults with congenital heart disease Most interventions in adults with congenital heart disease Follow-up of certain adults with congenital heart disease Pulmonary hypertension Implantation of left ventricular assist devices Cardiac transplantation Cardiopulmonary transplantation	
ECG = electrocardiography; PFO = patent foramen ovale; ASD = atrioseptal defect; VSD = ventriculoseptal defect; STEMI = ST-elevation myocardial infarction		

Community cardiology is an expanding subspecialty that has a particular interest in these areas.

Complementary services

Complementary therapies do not play a major role in the management of heart disease. However, some patients have access to various therapies through links between voluntary services and patient and carer groups.

3 Working with patients: patient-centred care

Patient and carer involvement in cardiac services

In 2003, the British Cardiovascular Society (BCS) established a broad-based group to represent the interests and aspirations of cardiac patients and their carers. The Cardiovascular Care Partnership UK (CCP UK) was developed as an affiliated group of BCS in 2004 to act as the patient arm of cardiology. Trustees are drawn from various cardiac patient and carer charities, including the Children's Heart Federation (CHF), the GUCH Association, the British Heart Foundation (BHF) Heart Support Group network, the cardiovascular network patient and carer partnerships of England, and various healthcare professionals committed to patient empowerment. The CCP UK is represented on the patient involvement panel of the Royal College of Physicians (RCP), the Joint Specialty Committee for Cardiology, the board of Myocardial Infarction Audit Project (MINAP), Society for Cardiothoracic Surgery (SCTS), Department of Health's (DH) working groups on cardiovascular medicine and stroke, BHF, National Audit of Cardiac Rehabilitation (NACR), NICE consultations, NSF chapter groups for GUCH and arrhythmias, and the NHS Improvement Heart team.

Patient-centred care in integrated care pathways

A formal description of a patient's view of the essential elements of the care pathway is given in the *Fifth report* on the provision of services for patients with heart disease.⁴ Among the issues raised were:

- involvement in decisions regarding treatment
- receipt of appropriate information
- time to interpret and reflect before decisions are made
- partnership with professionals in their care
- support offered earlier in care pathways
- promotion of cardiac rehabilitation and support groups.

Patients help to define care pathways through their involvement with quality in practice teams working in

all healthcare trusts under proper governance, and in cardiovascular networks. Both patients and carers demand that healthcare professionals consider their gender, age, ethnic background and religious choices, and should seek advice for unfamiliar problems. Assessment of the impact of diversity on care pathways is exemplified by patient involvement in the BCS Joint Working Group recommendations for women's heart health. Patient support groups are recommended because they offer sensible companionship, advice, activities and support.

Promoting self-care through education

It is essential to give appropriate information (such as that provided by the BHF) to patients early in the acute care pathway, and patients should have ready access to further advice (see below). Self-care is encouraged, particularly for patients moving up from an appropriate local cardiac rehabilitation programme, when the time is right for further training in order for them to become expert patients, capable of fully understanding and managing their situation, and accepting challenges so that their life is as tolerable and fulfilled as possible. They can also guide others. Patients can be further empowered by BHF's Hearty voices, the Consumer Council's Stronger voices, and the training programmes provided by CCP UK and new NHS structures. Participation in multidisciplinary teams (MDTs) with staff (see section 4) may also improve the patient experience. Their involvement in support groups will help other patients, as will working on committees and groups for service users including the new commissioning structures (see section 10).

The role of the carer

The vital link between the patient and the carer is respected by cardiac network patient and carer partnerships, and by support groups of the CCP UK. The carers should understand their role as the third corner in the dynamic triangle with the patient and the clinician, and they should be aware of the risks of the patient's heart disease and any interventions. The activities of the CHF charities since the Bristol Enquiry are good examples of parent and carer empowerment in terms of influencing service reviews.

Communication with patients

Information and communication are high priorities. Access to information should be provided at all the defined stages of an integrated care pathway (eg recent NHS Improvement recommendations for post-PPCI information and cardiac rehabilitation). Information should be provided in an easy to understand format and should include websites and contact details for local clinical advisers and patient experts. Newsletters from disease-specific support groups are also helpful (such as the Sudden Arrhythmic Death Syndrome support group and the Cardiomyopathy Association). Full patient documentation (eg copies of letters and test results) is useful for the patient's personal health record, as well as hospital and primary care records. In paediatric cardiology, letters are routinely copied to patients and carers. The CCP UK emphasises that consultants should strive to help every patient reach a level of understanding comparable to that of an expert patient.

4 Interspecialty and interdisciplinary liaison

Multidisciplinary team working

Multidisciplinary working is well established in cardiology practice, with acute involvement of cardiac nurses, cardiac physiologists and radiographers. Surgeons, anaesthetists, intensivists and cardiac subspecialties such as interventionalists, pharmacists and play specialists for children may also be needed. The full cardiac rehabilitation team also benefits from professional expertise in exercise, as well as educational input from dietitians, smoking cessation counsellors, clinical psychologists and stress managers. Strong groups affiliated to the BCS set standards in multidisciplinary working in many areas, such as echocardiography, nuclear cardiology, intervention, rehabilitation and heart failure, and they have informed BCS's peer-review process. Clinical governance demands multidisciplinary working, and many trusts have set up teams to develop quality in practice. The NSF for coronary heart disease enforced local multidisciplinary implementation teams, which reflected the whole integrated care pathway, and cardiac networks which involved Service Improvement staff.

Working with other specialties

Cardiologists in larger district general hospitals (DGHs) concentrate on patients with cardiovascular disease within the acute medical 'take' and often work in acute medical units to assess patients' risks. They may contribute outreach teams to emergency departments. A continuing, close and effective working relationship with front-door teams is essential. Patients admitted as emergencies with important cardiac diseases should rightly expect to be seen by a cardiologist within 24 hours,⁴ and 24/7 services are rapidly evolving for the cardiac intake. In tertiary centres, the multidisciplinary forum, which includes cardiac surgeons and cardiac interventionalists (for both adults and children), is a vital quality standard for assessing the appropriate treatments for all patients, including children. The interface between radiology and cardiology in terms of expertise in imaging and its place within the MDT in the future is an area for development. The way it evolves will largely depend on local interest and expertise. There is improving cooperation among the BCS-affiliated groups for imaging modalities. The increasing focus on vascular medicine is facilitating closer working relationships between specialists in vascular surgery, nephrology and diabetes, particularly with respect to preoperative assessment, and these will also extend from the CVD Outcomes Strategy 2013. The treatment of patients with infective endocarditis involves cooperation of specialists in microbiology and cardiac surgery with those in cardiology. There are increasing numbers of joint GUCH clinics, which allow specialists to visit local centres.

Working with GPs and GPs with a special interest (GPwSIs)

Some GPs are especially interested in cardiovascular medicine, and GPwSIs have been developed with input from the RCP, the BCS and NHS Improvement for accreditation. Clinical assistants and hospital practitioners should receive this further training to allow them to contribute to services that they typically provide in outpatient or non-invasive investigative cardiology settings. They have a useful role in local management boards and networks for vascular and chronic diseases, and they may become leads, for example, in developing community cardiac clinics for hypertension and palpitations. The Primary Care Cardiovascular Society is an important affiliated group of the BCS.

Other specialty activity beyond local services

Specialised commissioning activity often relates to a group of networks for which standards must be agreed to allow development, and the BCS can contribute the strength of its affiliated groups and committees. Regional and national reviews of services have been influenced, for example, by the workforce requirements identified by the BCS (see section 8). Closer cooperation with other organisations is a formal strategy, as exemplified by the Cardio & Vascular Coalition through the production of *Destination 2020* and *Access to cardiac care in the UK*.^{5,6} Hopefully this will be noted in new commissioning structures (see section 10). A specific resource pack on commissioning of cardiac services has been produced by the BCS.⁷

5 Delivering a high-quality service

Characteristics of a high-quality service

A national cardiac conference was held in March 2010 (see Box 1) to celebrate the achievements over 10 years following the publication of *NSF for coronary heart disease* in England, which enumerated 12 standards of care. These were further elaborated on over that 10-year period by *Chapter eight: arrhythmias and sudden cardiac death*,⁸ a GUCH guide, and multiple guidelines from NICE (see Table 2).

Success has been seen with rapid-access chest pain clinics for angina and the prompt referral of patients with acute coronary syndrome to cardiologists for angiography, percutaneous coronary intervention or coronary artery bypass grafting. There has also been a major reduction in waiting times for investigations and treatment.

However, there is still room for improvement in many areas, such as cardiac rehabilitation. There is also an increasing demand for heart failure services and arrhythmia detection, particularly atrial fibrillation for anticoagulation to prevent stroke (a priority of the DH's Quality, Innovation, Productivity and Prevention (QIPP) programme). Care for congenital heart disease in both children and adults should be organised around regional networks led by congenital cardiac centres. Access to adequate pacing services and implantation of complex devices could be improved. Particularly challenging issues involve the development and maintenance of high-quality information technology and transfer services, as well as developing cardiology imaging services as recommended in Box 1.

Maintaining and improving the quality of care

The recurrent cycles of national audits for heart disease, which have been increasingly comprehensive, have led to improvements both in practice (eg with the move from hospital thrombolysis to pre-hospital thrombolysis or PPCI) and of the audit tools that complement the MINAP. The National Institute for Clinical Outcomes Research (NICOR) now hosts MINAP, the British Cardiovascular Interventions Society (intervention), the SCTS (surgery) and the Box 1 Quality tools, service frameworks and progress reports (www.improvement.nhs.uk/heart) NHS Improving Quality (NHS IQ) – now hosted by NHS England (previously National Commissioning Board)

Event presentations

 Heart improvement national cardiac conference (March 2010): ten years of the coronary heart disease (CHD) NSF. Presentation by Professor Roger Boyle CBE, former national director for heart disease and stroke, Department of Health.

Documents for sharing

- National Imaging Board. *Cardiac imaging: a report from the National Imaging Board*. Department of Health, March 2010.
- NHS National End of Life Care Programme. *End of life care in heart failure: a framework for implementation.* NHS, June 2010.
- Strategic Commissioning Development Unit (SCDU). *Commissioning pack for cardiac rehabilitation*. Department of Health, October 2010.
- National Institute for Health and Care Excellence. *Chronic heart failure. Quality Standards QS9*. NICE, June 2011.

Latest publications in priority areas

- *Quality, innovation and value in cardiac rehabilitation: commissioning for improvement.* NHS Improvement, May 2012.
- National Heart Failure Audit 2011/12. November 2012.
- GRASP-AF report, published in *Heart online*. February 2013.

British Congenital Cardiac Association (congenital) audits, and NACR (rehabilitation) and others will also be hosted in due course.

The development of DH's Quality Accounts in 2010 and the use of Commission for Quality and Innovation (CQUINN) and other measures in the new outcomes framework in England will still hopefully facilitate further audit development to maintain standards of a high-quality service and sustain progress. Leadership roles within NHS Improvement Heart team and cardiovascular networks have been used to drive service improvement and share best practice. The peer review process of the BCS has contributed to what is now the Care Quality Commission.

Education and training

Education and training are essential at all levels, from patients and carers to undergraduates, foundation doctors and specialist trainees in medicine. Most cardiologists are involved in teaching students of clinical medicine and all grades of junior doctor, particularly those in higher specialist training in cardiology in their one of 17 deaneries. Designated trainers will have special responsibility for the supervision of registrars and an increasing workload to provide evidence of their trainees' competence through workplace-based assessments. Cardiology-supported implementation of the Tooke review ensures a formal selection process at entry to specialist training, and has pioneered a national application process and developed a knowledge-based assessment (KBA) for use in formative training. Cardiology encourages all trainees to undertake a period of research, and the BHF has expanded funding for such opportunities to encourage academic training. Formal training programmes are organised by higher specialty training committees and the BCS organises an annual review course at the RCP with the Mayo Clinic.

The BCS has elected vice-presidents for education and research, and for training, the latter being the incumbent chair of the specialist advisory committee (SAC) for cardiology. The vice-president for training holds delegated responsibility through the Physicians' Training Board from the General Medical Council for setting standards for higher specialist training in the specialty, and the deaneries organise annual reviews of competence which are externally verified through assessment in the penultimate year. The cardiology curriculum has recently been updated to include new areas of practice such as cardiac computed tomography and more generic areas such as medical leadership.

Paediatric cardiology has its own Certificate of Completion of Training (CCT) and SAC with a recently updated curriculum. Possible subspecialties include fetal cardiology. Care of adult congenital heart disease (ACHD) is open to trainees in paediatric or adult cardiology in 1–2 years of ACHD, depending on the ultimate level of service.

Mentoring and appraisal of medical and other professional staff

Annual appraisal, assessment of contribution to improving quality and working towards revalidation is an increasing responsibility for consultant cardiologists. Mentoring of junior consultant colleagues, as well as junior doctors, is also increasing. Mentoring for professionals allied to medicine also helps to develop a highly skilled, clinically competent group of healthcare workers who will contribute to the delivery of high-quality cardiovascular care.

Continuing professional development

Continuing professional development (CPD) for cardiologists is regulated by the Federation of the Royal Colleges of Physicians of the UK, and is provided by the BCS, which is now accredited by the European Board for Accreditation in Cardiology (EBAC), through its annual scientific meeting, the *Education in heart* series and European Society of Cardiology textbook.

Clinical governance

Cardiology has been at the forefront of development of clinical governance at both national and local levels (see above, and *Specialty and national audit* below).

Research - clinical studies and basic science

The British Society for Cardiovascular Research (BSCR) is an affiliated group of the BCS that recognises the importance of basic science. It recently held its annual scientific conference jointly with BCS. Nationally, clinical and basic science research is supported by the BHF through project grants, chairs, and senior, intermediate and junior fellows. The medical director of the BHF is a member of the council of the BCS. Consultant cardiologists are encouraged to conduct high-quality research individually and in collaboration with their whole-time academic colleagues. There should be encouraged active engagement with the new academic health science networks.

Local management duties and regional and national work

A consultant may be the clinical director or hold some other leadership or management role within the health service, NHS trust, network or clinical senate. Alternatively, she or he may be elected to the deanery's higher specialist training committee.

The BCS is run on a day-to-day basis by the presidentelect, secretary, assistant secretary, treasurer and chair of the Programme Committee. Affiliated groups address the subspecialty areas of echocardiography, nuclear cardiology, heart failure, intervention, pacing and electrophysiology, congenital heart disease and rehabilitation, and they represent professional groups of cardiac nurses, cardiac physiologists and primary care. Council representatives also represent colleagues from the DGHs, female cardiologists and patients. The BCS also has a system of regional representatives and network advisers. The Joint Specialty Committee provides an essential link between the RCP and BCS.

In England, the NHS Improvement Heart team, the national director and clinical leads/advisers have provided the impetus for change within the specialty over the last decade. Wales, Scotland and Northern Ireland have also developed programmes for improving services.

Specialty and national guidelines

Cardiology practice has responsibility for the observation of multiple clinical guidelines, interventional procedure guidelines, technology appraisals and other advice issued by NICE. Table 2 includes additions to previous summaries from 2008 edition of *Consultant physicians working with patients.*⁹ As a constituent member, the BCS endorses and supports guidelines published by the European Society of Cardiology.

Specialty and national audit

NICOR now hosts MINAP, BCIS, SCTS and British Congenital Cardiac Association (see above). Although each audit looks at a specific aspect of heart disease, they can be linked together to follow a patient's treatment and outcomes throughout their lifetime. This does not depend on where the patient received treatment, who provided their care or what treatment they received. NACR works with the NHS Information

Table 2 Guidelines from the National Institute for Health and Care Excellence 2008–2012 (http://guidance.nice.org.uk/)

Clinical guidelines	
Prophylaxis against infective endocarditis	March 2008 (CG64)
Cardiovascular risk assessment and modification of blood lipids	May 2008 (CG67)
Diagnosis and initial management of acute stroke and transient ischaemic attack (TIA)	July 2008 (CG68)
Identification and management of familial hypercholesterolaemia	August 2008 (CG71)
Unstable angina and non-ST segment elevated myocardial infarction (NSTEMI)	March 2010 (CG94)
Chest pain of recent onset	March 2010 (CG95)
Hypertensive disorders during pregnancy	August 2010 (CG107)
Chronic heart failure	August 2010 (CG108)
Stable angina	July 2011 (CG126)
Hypertension	August 2011 (CG127)
Interventional procedure guidelines	
Transcatheter aortic valve implantation for aortic stenosis	June 2008 (IPG266)
Thoracoscopic epicardial radiofrequency ablation for atrial fibrillation (AF)	January 2009 (IPG286)
Percutaneous epicardial catheter radiofrequency ablation for AF	March 2009 (IPG294)
Percutaneous epicardial catheter radiofrequency ablation for ventricular tachycardia	March 2009 (IPG295)
Percutaneous laser revascularisation for refractory angina pectoris	May 2009 (IPG302)
Percutaneous mitral valve leaflet repair for mitral regurgitation	August 2009 (IPG309)
Transcatheter endovascular closure of perimembranous ventricular septal defect	March 2010 (IPG336)
Percutaneous occlusion of left atrial appendage for non-valvular AF	June 2010 (IPG349)
Percutaneous closure of patent foramen ovale (PFO) for recurrent migraine	December 2010 (IPG370)
Percutaneous closure of PFO for prevention of paradoxical emboli	December 2010 (IPG371)
Technology appraisals	
Drug-eluting stents for the treatment of coronary artery disease	July 2008 (TA152)
Dabigatran etexilate for the prevention of venous thromboembolism after hip or knee replacement	September 2008 (TA157)
Dabigatran etexilate in AF	March 2012 (TA249)
Prasugrel for treatment of acute coronary syndromes with percutaneous coronary intervention	October 2009 (TA182)
Dronedarone for treatment of non-permanent AF	August 2010 (TA197)
Clopidogrel and modified-release dipyridamole for prevention of occlusive vascular events	December 2010 (TA210)
Ivabradine for the treatment of chronic heart failure	November 2012 (TA267)
Public health guidance	
Prevention of cardiovascular disease at the population level	June 2010 (PH25)

Centre. Our national audits against the above standards have already provided key evidence on which to base further cost-effective service improvements and improvements in patient outcomes.

6 Clinical work of consultants

How a consultant works in this specialty

Consultant cardiologists increasingly work in teams to provide a specialised cardiology inpatient service without involvement in acute medicine commitments other than the care of patients in the predominantly cardiac portion of the emergency 'take' of the cardiac care unit and the continuing care and heart failure wards. Importantly, they provide a consultation service to other specialists (as described in sections 2 and 4). Their patient numbers exceed 500 per annum, and ward or front-door emergency consultations may be underestimated.

Outpatient work

Most cardiologists will hold one to two outpatient clinics per week. These will include new patients and follow-up patients, with numbers as recommended by the RCP and BCS. They will also hold specialist outpatient clinics, increasingly on a one-stop basis, for new patients who present with chest pain, breathlessness or suspected heart failure, murmurs and valve disease, arrhythmia or syncope. Specialist outpatient follow-up clinics will also carry out the following activities (see Table 1):

- follow-up of patients with pacemakers and other devices, arrhythmias, valvular disease and cardiac disease in pregnancy
- follow-up of patients after myocardial infarction and PCI (an opportunity to integrate with cardiac rehabilitation see section 7)
- monitoring heart failure requiring specialist input.

Specialist investigative and therapeutic procedures

Most consultant cardiologists will directly undertake, supervise and report laboratory procedures (see Table 1).

Specialist on call

Provision of an on-call consultation service requires a minimum of six consultants. Ten are preferred to cover leave. The provision of a cardiac catheterisation laboratory service around the clock, 7 days a week (as is needed for PPCI) also requires specialised cardiac nurses, physiologists and radiographers.

Other specialist activity and activities beyond the local services

Most cardiologists have developed an area of special interest, such as imaging, heart failure, GUCH, electrophysiology or PCI. They are expected to provide evidence of the quality of such work through appraisal, CPD and membership, and by contribution to the relevant affiliated groups of the BCS. Attendance at regional, national and international meetings is expected. Appropriate engagement in clinical senates to support networks is advised.

Clinically related administration: timely and appropriate communication

Working in a multidisciplinary environment and contributing to local cardiac networks and patient pathways to improve healthcare delivery are all part of the clinical duty of a cardiologist. The interdisciplinary liaison detailed in section 4 is an obligation.

Balance of clinics, wards, acute and specialty care

Most consultant cardiologists undertake all of these activities, and therefore will have an individualised balance of these activities in their personal job plans. They will make allowance for on-call duties and the needs of the particular trust and cardiology service. Some consultants may be designated with responsibility for certain interdisciplinary work.

Direct work compared with supervision and teamwork

Cardiology is fundamentally a team-based specialty. Consultants provide leadership to trainees, physiologists and extended-role practitioner nurses who may deliver certain aspects of the service, but consultants engage directly in many activities themselves.

Work in hospitals and the community

Cardiac network pathways have developed to span the community, the primary/secondary care interface and secondary/tertiary inter-hospital transfers, and share good practice. Cardiologists need to clinically manage acute pathways, adult and paediatric coronary care units, cardiac wards, cardiac physiology departments, cardiac catheter laboratories and rehabilitation services. They may be engaged in community clinics to ensure safe referral practice, with cardiovascular disease still representing the most common cause of mortality. There are also cardiac networks in place in Wales and Northern Ireland.

7 Opportunities for integrated care

Cardiac networks are a reflection of the major progress that has been made in integrating cardiac care over the last decade.¹ Once care pathways are clearly defined, further opportunities for integrated care may be recognised and made cost-effective under the QIPP programme: one-stop clinics for more first consultations, initial investigations and counselling; joint GUCH/adult and paediatric/cardiology local clinics with a significant educational focus; in-reach community heart failure teams to help support heart failure patients admitted to hospital; or progressive patient involvement in MDT meetings about care. There is a need for vigilance around the new strategic clinical networks (SCNs) to ensure no dilution of impact as the model is extended to other specialties.

8 Workforce requirements for the specialty

Current workforce numbers

The NHS electronic staff records identified 855 consultant cardiologists (whole-time equivalent (WTE): 825) in May 2010. There were 580 trainees according to a recent BCS survey, with 980 consultants in England, and 1,200 across UK. Around 12% of consultants and 21% of trainees are women, and their recruitment is encouraged to the specialty. There are currently only 90 paediatric cardiologists.

Number of consultants needed to provide a specialist service for a population of 250,000

The BCS has estimated¹⁰ that the UK requires a continuing increase in numbers of consultant cardiologists (including at least three paediatric consultants) per million of the population to provide comprehensive cardiac services. For a population of 250,000, no less than a 1:6 on-call ratio should be aimed for, with more subspecialist consultant cardiologists required for secondary, tertiary and community cardiac care. Because of PPCI, more interventionalists are now required. Similarly, the new chest pain guidelines will result in the need for more imagers. The current priorities of cardiac rehabilitation and heart failure should also be recognised in programmed activities (PAs) allocation in job plans for consultants.

National workforce requirements

Only 25% of consultant cardiologists now undertake acute medicine. The estimated number of consultant cardiologists required does not include those with

Activity	Programmed activities (PAs)
Direct clinical care	
Inpatients (CCU, ward rounds, referrals)	1.5–2.0
Outpatients (plus additional outreach for paediatric cardiologists)	2.0 (+ 2.0)
Laboratory work (or other specialised clinical work)	2.0-3.0
Meetings of the MDT (PCI, cardiac surgery, imaging, arrhythmia)	0.5
Clinical administration	1.0
On call	0.5
Total	7.5–9.5
Supporting clinical care	
Clinical management, audit, clinical governance, service improvement and development, teaching, CPD, research, advisory appointments committees, work for external organisations for the greater good of the NHS	2.5
CCU = cardiac care unit; CPD = continuing profession MDT = multidisciplinary team; PCI = percutaneous co	al development; pronary

responsibilities for acute medicine or academic medicine, nor does it take account of the more recent priorities as described above.

9 Consultant work programme/specimen job plan

Table 3 outlines the typical work programme of consultants undertaking cardiovascular medicine.

10 Key points for commissioners

- The principle of working together, enshrined in the RCP/BCS response to the NHS White Paper *Equity and excellence: liberating the NHS*,¹¹ has been upheld by all health professional opinions. The implementation of the Health and Social Care Bill 2012 demands vigilance under governance.
- 2 An essential building block includes liaison at local vascular/chronic disease management board level

between the local cardiology service and primary care clinical commissioning groups. The new CVD Outcomes Strategy 2013 will emphasise an integrated model of all cardiovascular care with prevention and rehabilitation.

- 3 There should be agreed care pathways for cardiac conditions across the local health economy and the larger cardiovascular, paediatric and GUCH networks. For instance, future commissioning requirements are likely to mandate screening by a paediatrician with an interest in cardiology prior to referral to a cardiologist in congenital heart disease.
- 4 Commissioners (NCB and CCGs) should commit to reviewing, through the specialty's clinical reference group and local senates/networks, achievements in national cardiac audits, both those within NICOR, and those without (eg NACR), together with local mortality trends, in setting priorities.
- 5 Cardiovascular networks are recognised to have provided a key (and improving) relationship with commissioning. A very successful example is the network-based roll-out of PPCI and subsequent cardiac rehabilitation pathway review.^{1,12}
- 6 Service level agreements should define expected outcomes to meet national cardiac audit outcomes and standards (see point 4 above and Box 1).
- 7 Priority investment in development, delivery and integration of heart failure, cardiac rehabilitation, palliative care and arrhythmia services should be balanced with a reduction and decommissioning of others, without destabilising any aspect of care, whether acute or long term, or causing disadvantage to patients.
- 8 There should be a sustainable mechanism for input of the specialty standards of the RCP and BCS, including those of affiliated groups, with patients through CCP UK, via the Joint Specialty Committee/Specialty clinical reference group in the commissioning process.
- 9 It is hoped that the NHS Commissioning Board in England and planning mechanisms for devolved nations will utilise cardiology's innovative approaches to development and acknowledge relevant informative reports ^{5,6,7,13} in specialised and local commissioning.
- 10 A new Strategic Commissioning Development Unit (SCDU) Department of Health model of

commissioning guide, pioneered for *Cardiac rehabilitation* (October 2010, see Box 1), provides a model for future commissioning of services.¹³

References

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- 3 Department of Health. *National service framework for coronary heart disease*. London: DH, 2000.
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Clinical genetics

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1 Description of the specialty

Clinical genetics provides a diagnostic and genetic counselling service for individuals and families with, or at risk of, conditions that have, or may have, a genetic basis. Individuals and families are helped to understand their condition, its implications and their options with regard to reproduction, screening, prevention and management. Genetic disorders affect at least 5% of the population.¹

Who are the patients?

A patient is an individual person, or their family, affected by or at risk of a genetic disorder or congenital abnormality (that may be non-genetic). They seek a diagnosis, information, recurrence risks for themselves or other family members, screening and intervention options. Patients come from all age groups.

Main disease patterns

Genetic disorders can affect any body organ or system and include:

- chromosomal abnormalities, including balanced rearrangements
- single gene disorders, eg muscular dystrophies, dysmorphic syndromes, inherited cardiac conditions, skeletal and connective tissue disorders, and neurological conditions, across all ages
- familial cancer syndromes, including common cancers as well as rare single-gene conditions
- congenital abnormalities, including non-genetic and teratogenic anomalies
- learning disabilities.

2 Organisation of the service and patterns of referral

A typical service

This is regionally based for populations ranging from approximately 1 million to 5 million and delivered in a 'hub and spoke' model.² Each centre maintains a computerised family-based record system, incorporating disease-specific registers.

Staff

- consultant clinical geneticists, with subspecialty interests, eg paediatrics/dysmorphology, cancer, neurogenetics, prenatal and cardiac genetics
- genetic counsellors (GCs), often with subspecialty interests, perhaps based in a peripheral office
- specialty registrars (StRs) and academic clinical fellow (ACF) trainees
- administrative, clerical and managerial staff
- information technology (IT) support.

Service delivery

- mainly outpatient-based with widely distributed local clinics
- general and specialist clinics, eg paediatric, cancer, neurogenetics and cardiac
- combined clinics, eg ophthalmic, skeletal dysplasia and cardiac.

Service summary

This includes clinical and genetic diagnosis; explanation and information about the disease, syndrome or condition; determination and communication of genetic/recurrence risk; identification of screening and/or intervention options; and appropriate counselling support.³ Additionally, there is an expert information and educational resource for healthcare disciplines,⁴ a contribution to research through clinical and molecular projects, and recruitment to national studies and therapeutic trials.

Sources of referral from primary, secondary and tertiary levels

Referrals come from all medical specialties, most commonly general practice, paediatrics, obstetrics/antenatal screening, surgery and cardiology.

Referrals may be urgent, eg neonatal consultations, and received from other regional genetic centres (RGCs)

because families are widely scattered. Self-referrals are usually accepted and additional family members often attend unannounced.

The NHS document *Do once and share: clinical genetics* (2006)⁵ outlines the patient journey.

Locality-based and/or regional services

There are 23 RGCs in the UK, all with strong links to genetics laboratories, mainstream medical specialties and their clinical networks; services are delivered in a 'hub and spoke' model.

Community models of care

The Department of Health (DH) genetics white paper (2003)⁶ recognised that genetics impacts on mainstream medical services. The DH in England funded several initiatives (for details see **www.clingensoc.org**) and some general practitioners with a special interest (GPwSIs) were appointed. The role of GPwSIs remains to be evaluated fully and debate continues in relation to the extent to which genetics can be 'mainstreamed' (see section 10, Key points for commissioners, no 9).

Complementary services

In some areas hereditary blood diseases (haemoglobinopathies/haemophilias) are often managed by haematologists.

Some clinicians (not trained as geneticists) with a specialised area of expertise undertake the clinical genetic aspects of a condition, or group of conditions, and offer a national or supra-regional service, eg mitochondrial disorders.

3 Working with patients: patient-centred care

What you do with patients

- Some referrals are managed by a GC, possibly under consultant supervision.
- Background information is gathered including a detailed family pedigree, confirmation of diagnoses (eg from cancer registry), review of medical records and psychosocial circumstances.
- The consultant clinic includes assessment, examination, explanation, counselling, appropriate investigations and/or screening.
- Follow-up may be undertaken by a GC.
- Postclinic letters are detailed and copied to the patient/family this is regarded as a key part of

patient communication and is intended for long-term retention.

• See also sections 1 and 2.

Patient-centred care

The patient's, or family's, agenda is paramount; questions are explicitly invited. Genetic counselling is 'person-centred' and 'non-directive' and clinical letters are personalised.

Principles of privacy, consent, confidentiality and non-discrimination on the basis of genetic characteristics are upheld – see *Consent and confidentiality in genetic practice.*⁷

Involving patients in decisions about their treatment

Patients/families are provided with accurate, up-to-date information on genetic risks, testing and/or screening, and reproductive choices available. A non-directive approach fosters patient autonomy and they are encouraged to retain clinic letters. The special position of children has been extensively considered⁸ and the principles of the Mental Capacity Act 2005⁹ upheld.

Patient choice: ethnic and religious considerations

Ethnic, cultural and religious considerations are paramount and translation services are used when necessary.

Opportunities for education

These are provided at clinic through postclinic letters and patient information leaflets (in different languages). Patients and families are directed to relevant lay support groups, and geneticists respond to invitations to their meetings.

Promoting self care

A non-directive approach and autonomous decision making are encouraged (see above).

Patients with chronic conditions

Clinical geneticists actively help coordinate multidisciplinary care.

The role of the carer

The carer's role is recognised to be vital for many patients, especially those with a learning disability and neuromuscular disorders. Advocacy and support are offered appropriately.

Patient support groups

Close links exist with many relevant patient groups, and clinical geneticists are well represented among their expert advisers. Close links also exist with the Genetic Alliance (umbrella organisation of lay support groups).

Availability of clinical records/results

Records are accessible under the Data Protection Act 1998, with care taken not to disclose information held about other family members

Role of expert patient

This is fully acknowledged; with mutual consent, patients may be put in touch with others similarly affected.

Communication with patients

The aim is to be prompt, clear and sensitive.

4 Interspecialty and interdisciplinary liaison

Multidisciplinary team working

The clinical genetics service links with GCs, who have a background in nursing or science with specialist training. The Association of Genetic Nurses and Counsellors (AGNC) is registered with the Health Professions Council¹⁰ and there is a very close integrated working practice between clinical geneticists and GCs (see report¹¹). There is also close liaison with laboratory scientists – biochemical, molecular and cytogeneticists – with routine combined meetings.

Working with other specialties

Clinical geneticists are valued members of clinical networks, eg cancer/oncology, fetal medicine and cardiology. Advice is provided on familial/genetic diseases and genetic testing. There are combined/joint clinics, eg ophthalmic, prenatal (fetal medicine) and cardiac genetics (eg Marfan syndrome). Joint reports of the Clinical Genetics Society (CGS) with the Association of British Neurologists¹² and the Royal College of Obstetricians and Gynaecologists¹³ highlight the importance of joint working practices.

Working with GPs and GPs with a special interest (GPwSIs)

Referral guidelines are available to assist GPs in clinical management, eg for family history of common cancers.

These may be national guidelines, eg National Institute for Health and Care Excellence (NICE) guideline on familial breast cancer, or local guidelines. Some GPwSIs were established with white paper funding⁴ and clinical geneticists often teach at GP study days.

Other specialty activity beyond local services

National forums exist to discuss difficult diagnostic, ethical or management problems. These have regular meetings and include the following:

- UK Dysmorphology club quarterly meetings; similar regional events
- GenEthics club (informal forum to discuss ethically difficult cases) meets three times a year to discuss difficult ethical cases and issues
- smaller special interest group meetings, eg paediatric neurogenetics
- multicentre regional meetings for audit and training, eg South West of Britain group (six RGCs) meets three times a year
- annual national conferences CGS, AGNC, Cancer Genetics Group and British Society of Human Genetics.

5 Delivering a high-quality service

Quality standards for clinical genetic services include the following:

- applying principles of 'good medical practice'¹⁴ to clinical genetics and giving time to clinical governance
- giving attention to detail and accuracy in diagnosis the key to high-quality genetic counselling
- adherence to quality standards documents^{3,15}
- the Genetics Commissioning Advisory Group (GenCAG) have produced auditable quality standards for commissioning,¹⁶ including prompt postclinic letters and response to urgent referrals, eg prenatal cases
- service should be part of an RGC, with access to specialised genetic laboratories and academic university departments of medical genetics (see reference 17 for requisite facilities).

Maintaining and improving the quality of care

The following activities help maintain and improve the quality of care:

patient satisfaction surveys and local, regional and national audits

- clinical review meetings within RGCs and inter-centre case-note peer reviews
- national steerage from the clinical governance committee of the CGS.

Service developments that improve patient care

- establishment of clinical networks for expanding subspecialty demand, eg cardiac genetics
- regular development and updating of care pathways
- implementation of new diagnostic tools, eg microarray comparative genomic hybridisation (array-CGH), in collaboration with laboratory colleagues.

Education and training

- Entry to four years of clinical genetics at StR grade is at specialty training year 3 (ST3) level after core medical training. Membership of the Royal College of Physicians (MRCP(UK)), or the member of the Royal College of Paediatrics and Child Health (MRCPCH), must be attained prior to entry. Up to 12 months of training spent in pre-agreed research, such as a PhD, or in a locum appointment for training (LAT) post may be recognised.
- Most training programmes involve rotation through blocks specialising in different areas such as dysmorphology, cancer genetics, neurogenetics, cardiac genetics, prenatal genetics, research and special interest.
- From 2012, trainees will take a specialty certificate examination or a diploma of the Royal College of Pathologists.

Mentoring and appraisal of medical and other professional staff

A consultant clinical geneticist will appraise fellow consultants, junior doctors and genetic counsellors, as well as undergoing their own annual appraisal.

Continuing professional development

This is an academic specialty and rapid developments in genetic science make adequate continuing professional development (CPD) essential, for which numerous opportunities exist. Job planning should allow for adequate CPD time.¹⁸

Clinical governance

The following are routinely in place:

• care pathways and clinical protocols in place for many conditions; regularly audited

- regular departmental clinical meetings for case discussion
- regular combined clinical-laboratory meetings.

Research – clinical studies and basic science

This is considered essential. Many consultants conduct their own clinical and laboratory collaborative projects, actively recruit patients for national and international studies, and publish regularly. Genetics has a growing portfolio within a comprehensive local research network as part of the National Institute for Health Research (NIHR). Those seeking an academic career can train through an ACF post.

Local management duties

A consultant may be the lead clinician or the clinical director or may hold other leadership or management roles within the service or NHS trust.

Regional and national work

Because clinical genetics is a small specialty, a high proportion of consultants will therefore undertake committee work at a regional and/or national level. Examples of national committees are: the National Screening Committee, Human Genetics Commission, Human Genome Strategy Group, NICE and advisory groups for national specialist services.

Specialty and national guidelines

The following guidelines are available:

- see CGS website (www.clingensoc.org)
- NICE guidelines for familial breast cancer¹⁹
- Scottish consortium pathway guidelines for the management of common genetic disorders and others.

Specialty and national audit

Local and regional audit projects are regularly conducted in relation to specific diseases and service issues, and national audit projects are being developed. A regular inter-regional case note audit is undertaken.

Quality tools and service frameworks

Quality tools for clinical genetics are under development and genetics is mentioned in a number of national service frameworks (NSFs), eg cardiac services.

6 Clinical work of consultants

How a consultant works in this specialty

The CGS has published a description of the work of a clinical geneticist in its 2011 document *Roles of the clinical geneticist.*²⁰ This includes:

- diagnosis of genetic disorders and congenital malformations
- investigation and genetic risk assessment
- information giving
- predictive genetic testing
- initiation and coordination of health surveillance and screening for genetic conditions
- coordination of interventional management in specialist or multidisciplinary clinics
- management of the extended family
- maintenance of genetic family registers
- liaison with genetic laboratories
- participation in local and national genetic networks
- education and training of genetic and other healthcare professionals
- acting as an expert resource to all health professionals
- research clinical, biomedical, psychosocial and service related.

Inpatient work

This is limited to ward consultations.

Outpatient work

See section 3. Consultants on full-time contracts (10 programmed activities (PAs)) undertake 9–11 clinics per month, each consultation lasting 45 minutes on average, equating to an annual workload of up to 400 formal outpatient consultations; 65–80% of these are new cases/families. Consultants also supervise the caseload of GCs, who may conduct approximately 200 consultations annually that never reach a consultant clinic.

Specialist investigative and therapeutic procedures

Patients requiring specialist procedures are referred to the appropriate specialists.

Specialist on call

Some centres offer an on-call service for urgent advice, eg prenatal or ward consults, including neonatal units.

Clinically related administration

Administration related to clinical work includes the following:

- maintenance of disease-specific registers, development of protocols and guidelines, and contribution to clinical networks
- correspondence and organisation relating to families and their extended members.

The balance between clinics, wards, acute and specialty care

The balance of work is split as follows:

- mostly outpatient-based; each half-day clinic requires an additional PA for preparation and correspondence
- the proportion of urgent referrals varies from centre to centre.

Direct work compared to supervision and teamwork

Although most of the work is direct, but supervision of both StR trainees and GCs would each require a minimum of 0.5 PA per week.^{18,20}

7 Opportunities for integrated care

The principles of integrated care are well-suited to clinical genetics because many genetic diseases are multisystem, requiring a multidisciplinary approach. Geneticists are well placed to take a holistic, patient-centred approach, and coordinate involvement of other disciplines, screening as appropriate, and provide expert information to other healthcare professionals.

8 Workforce requirements for the specialty

The current workforce in England is approximately 140 consultant clinical geneticists (data collected by CGS), and 59 StRs. The Royal College of Physicians estimates that 0.75 whole-time equivalent (WTE) consultants are required per 250,000 population, which equates to 7.5 consultant notional half days (NHDs) to provide a specialist service (both general and cancer genetics) to this size population. Assuming a population in England of 50 million, this equates to a consultant workforce requirement of 150 WTE consultants.

Table T Consultant work programme/specimen job plan generated by a population of 250,000				
Activity	Workload	Programmed activities (PAs)		
Direct clinical care	Outpatient clinics with preparation and dictation; follow-up correspondence, telephone and written advice; ward referrals; multidisciplinary team (MDT) meetings (direct clinical care component); travel to clinics and to MDTs; and nurse/counsellor/StR supervision	7.5–8.0		
Supporting professional activities (SPAs)	Education and training; appraisal; departmental management and service development; audit and clinical governance; CPD and revalidation; research	2.0–2.5		
Other NHS responsibilities	eg medical director/clinical director/lead consultant in specialty/clinical tutor	Local agreement with trust		
External duties	eg work for deaneries/royal colleges/specialist societies/DH or other government bodies, etc	Local agreement with trust		

9 Consultant work programme/specimen job plan

Table 1 shows a consultant work programme/specimen job plan.

10 Key points for commissioners

- 1 Clinical genetics is commissioned as a specialised service in England (Specialised services national definition set, definition no 20).²¹ In devolved regions: in Scotland clinical genetics is commissioned by health boards, while the four genetics laboratories comprise the Scottish Genetics Consortium, commissioned by the National Services Division, NHS National Services Scotland; in Wales, genetics is commissioned by the Health Care Commission Wales; in Northern Ireland, genetics is commissioned by the Health and Social Services Boards (informed by the Regional Medical Services Consortium).
- The role of the specialty in contributing to clinical 2 care in the NHS is far wider than direct patient contact; expertise and education is provided across all aspects of medical genetics.
- Clinical genetics services are complex, 3 multidisciplinary services based in RGCs, offering integrated clinical and laboratory service, typically serving a population of 1-5 million people.
- Staff providing these services include consultant 4 clinical geneticists (0.75 WTE per 250,000 population); registered genetic counsellors; and

appropriate administrative, clerical, IT and management support.

- 5 Services offered include the diagnosis of genetic conditions and birth defects that, although individually rare, account for at least 5% of disease in the population. Advice about appropriate screening/surveillance is offered, including to relatives at risk of being affected. Reproductive options, including prenatal diagnosis or pre-implantation genetic diagnosis, are discussed, and patients and their families are directed to additional sources of advice and support.
- 6 RGCs should also include, or have access to, comprehensive laboratory services, including molecular genetics (DNA), cytogenetics (chromosomes) and specialised biochemistry (inborn errors of metabolism, etc). Clinical involvement in the provision of laboratory services is essential to ensure clinically appropriate genetic testing and follow-up.
- 7 Clinical genetics services uniquely support not only the person who initially presents to the genetics clinic but also members of the extended family who may also be at risk. Sometimes this follow-up work is facilitated by the maintenance and active curating of disease-specific genetic registers.
- 8 Genetics centres maintain long-term (sometimes lifelong) contact with patients and their families and retain clinical records indefinitely as they continue to be relevant to patients' descendants and succeeding generations.
- 9 The explosion in genetic testing over the last few years will continue and the benefits of these tests will extend through all branches of medicine. Staff

working in RGCs allocate considerable time to working with colleagues across the specialties in order to ensure that the potential benefits of genetic testing are understood, made available to patients in all areas of medicine (so-called 'mainstreaming'), and ethically applied.

10 The development of genetic predisposition tests (both in NHS clinics and commercial 'direct-to-consumer' tests) will increase the demand on NHS genetic counselling services, as a greater proportion of patients will not have single gene disorders or chromosome rearrangements but more complex multifactorial problems.

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Note to readers: This chapter has not been updated for the revised 5th edition 2013. The text has been reproduced from the 2011 edition.
Clinical neurophysiology

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1 Description of the specialty

Clinical neurophysiology uses measurement of electrical activity from the central and peripheral nervous system to help in the diagnosis and management of a wide range of neurological conditions in all age groups. Most consultants work within neuroscience centres, although some services are delivered in district general hospitals (DGHs), and all departments are supported by healthcare scientists (HCS). The core investigations are electroencephalography (EEG) and nerve conduction studies (NCS) with electromyography (EMG), which are mostly performed on outpatients and constitute the largest part of clinical neurophysiology workload. EEG is used to investigate children and adults with epilepsy, the most common serious neurological condition,¹ and nerve conduction is required for the management of peripheral nerve disorders such as entrapment neuropathy (carpal tunnel syndrome, ulnar neuropathy, etc) and generalised peripheral neuropathy (eg diabetic neuropathy). Clinical neurophysiology is used to investigate a wide range of less common neurological diseases, and most departments also perform long-term EEG monitoring to record episodic disorders (ambulatory EEG and video-telemetry), evoked potentials for multiple sclerosis, and EMG for radiculopathy, muscle disease, myasthenia gravis and motor neuron disease. Some departments offer highly specialised investigations that may not be available in all neuroscience centres, including EEG monitoring on intensive therapy unit (ITU) for coma, intracranial EEG and evoked potential recording during neurosurgery for epilepsy, brain tumours, Parkinson's disease and spinal surgery, polysomnography to investigate sleep disorders, and evoked potentials for retinal disease and hearing loss.

The scope of clinical neurophysiology brings it into contact with many other specialties including neurology and neurosurgery, paediatrics, rheumatology and orthopaedics, plastic surgery, ophthalmology, general medicine and general practice.

2 Organisation of the service and patterns of referral

Neurophysiology testing requires specialised recording apparatus, an appropriate environment and trained medical and scientifc personnel. Consequently, services are hospital based and usually only available in neuroscience centres or larger DGHs. Smaller DGHs may provide outpatient EEG and nerve conduction studies, but patients needing more specialised investigation or inpatient studies will be treated in tertiary centres, on a hub-and-spoke model. DGHs without clinical neurophysiology services are at a disadvantage for managing patients with acute neurological conditions and further plans to strengthen neurology support to these hospitals² should include provision for neurophysiology. Sources of referral are usually from secondary or tertiary care but some departments allow limited direct access from primary care.

3 Working with patients

Patients referred for a neurophysiological opinion will usually be under the care of hospital consultants who will explain the need for investigation. The results are sent to the referring physicians, but because of the complexity and technical nature of neurophysiology reports, it is unusual for a copy being sent directly to the patient. Where appropriate, the results may be discussed with the patient by a consultant clinical neurophysiologist: HCSs are not usually in a position to provide a tailored clinical opinion or discuss further medical management. It is good practice to provide information to the patients in advance of any investigation which explains the procedures as well as possible risks and consent issues. The British Society for Clinical Neurophysiology (BSCN) has produced recommendations on patient information documents that, after local modifcation, are sent by most departments with appointment letters.³ Many conditions investigated by clinical neurophysiology are long-term illnesses and have excellent patient groups and charities.

4 Interspecialty and interdisciplinary liaison

Consultant neurophysiologists are dependent on highly trained and skilled scientifc support staff who typically perform all EEG and evoked potential studies and assist with nerve conduction recordings. Although clinical reports are usually produced by medical personnel, scientifc staff are increasingly asked to provide provisional reports, requiring close cooperation to ensure limits of competence and standards are maintained.

There should be regular meetings and reviews between users of neurophysiological services and the medical and scientist staff who perform the studies. Although informal discussion with referring clinicians to explain the significance of results is a normal part of a consultant's work, more formal multidisciplinary teams (MDTs) may be required for EMG with neurologists and pathologists, EEG with neurologists and paediatricians and for sleep disorders with neurologists and chest physicians. Large MDT meetings to include neurologists, neurosurgeons, neuroradiologists and neuropsychologists are usual in centres undertaking complex surgical treatment of patients with intractable epilepsy. Liaison with many other physicians who refer patients to neurophysiology is via a written report, which must therefore be clear and capable of being understood by non-specialists.

The complexity and relative rarity of neurophysiology investigation, and its dependence on equipment and support staff mean that there is limited opportunity for the specialty to be delivered in the community.

5 Delivering a high-quality service

A high-quality neurophysiology service requires appropriate facilities, equipment and trained staff.

Facilities

The minimum requirements would include:

- a self-contained department in a quiet location
- a suffcient number of rooms large enough to accommodate equipment, couches, patients, relatives and staff
- access for beds and disabled patients
- shielding from electrical interference
- ease of access for outpatients, and proximity to neurological inpatient wards when video-telemetry is performed
- secretarial and staff offces for the analysis of data, preparation of reports and clinical management of the service.

Equipment

The following equipment would be required:

- digital EEG recording apparatus with simultaneous video, preferably linked to a central server for data analysis and storage
- EMG and evoked potential recording systems
- more specialist equipment according to the services offered (eg portable apparatus for operative monitoring, video-telemetry, polysomnography)
- number and different types of machines to match the service demand
- regular maintenance contract to ensure safety and accuracy.

Education, training, mentoring and appraisal

Consultants in clinical neurophysiology will have trained in the specialty following the curricular requirements laid out by the Joint Royal Colleges of Physicians Training Board (JRCPTB) and regulated by the General Medical Council (GMC). Occasionally, limited neurophysiological services are delivered by consultants not trained in the specialty (although a few neurologists have dual certifcation with neurophysiology), but the BSCN recommends that all departments offering a comprehensive service are supervised by a consultant in neurophysiology to maintain standards.⁴ The supervising consultant works alongside the scientifc service manager to provide departmental leadership and to ensure that local clinical governance is in place, including in-house training and education, health and safety, appraisal and audit. The BSCN, in conjunction with the Department of Health and the Association of Neurophysiological Scientists (ANS), has developed quality standards for departments as part of the Improving Quality In Physiological diagnostic Services (IQIPS) initiative hosted by the Royal College of Physicians (RCP). The UK Accreditation Service (UKAS) is expected to use these standards to accredit departments formally. Continuing education for consultants is through scientifc meetings of the BSCN. International clinical neurophysiology conferences and a BSCN advanced course are held every three to four years. Consultants are expected to keep up to date by personal study, verifed at annual appraisal. The ANS supervises training for scientifc staff, and delivers a certification process in addition to the university education recently introduced under Modernising Scientifc Careers.⁵

Specialty and national guidelines and audits

The BSCN and the ANS have produced national guidelines and standards for the commonly performed neurophysiological procedure.⁶ Audit has been locally and regionally based, but the BSCN and ANS are piloting national audit in 2011/12.

6 Clinical work of consultants

The working patterns of consultants in clinical neurophysiology vary according to location and expertise, but will typically include a mixture of specialist procedures and clinical reporting. The majority of EMG and EEG work is for outpatients although investigations are also required for acutely ill inpatients. Consultants working in larger centres will usually provide some specialist investigations such as video-telemetry or intra-operative monitoring. Indications of appropriate numbers of investigations per programmed activity (PA) are given in Table 1. These numbers should be reduced if there is a signifcant training component to the clinics/ reporting sessions or if the consultant is required to supervise other professionals such as specialty registrars (StRs) or HCSs at the same time as performing their own clinical work. The BSCN recommends that at least one hour in each four-hour EMG/NCS/EEG clinic should be allowed for clinical administration which includes responding to referrals, the generation of written reports and other communications regarding the patients. Some neurophysiologists with neurological expertise may hold clinical outpatient clinics, eg for epilepsy, but it is unusual for them to be involved in general internal medicine. On-call commitments vary according to the

size of the department, with some centres being able to provide a formal out-of-hours service whilst others having ad hoc arrangements in place.

7 Opportunities for integrated care

As a diagnostic specialty, the majority of neurophysiology care is integrated with other specialties (including neurology and neurosurgery, paediatrics, rheumatology, orthopaedics and plastic surgery, general medicine, and ophthalmology) and within clinical pathways. MDT meetings are usual for complex disorders including neurophysiology, such as the surgical treatment of epilepsy.

8 Workforce requirements for the specialty

The RCP recommends that one consultant clinical neurophysiologist is required to serve a population of approximately 300,000. The latest RCP census⁷ records 118 consultants in the UK, with 103 in England. This workforce is not uniformly distributed around the country and the extremes are London, with one consultant to fewer than 300,000 patients, and the North West, South East Coast and East Midlands with one to (in excess of) 700,000 patients.

The consultant workforce has consistently been insuffcient to meet demand for neurophysiological investigations despite consultant provision improving in nearly all regions with total numbers doubling over the last 10 years. Because of the small number of consultants and the need to work with others to maintain continuing professional development (CPD) and clinical standards, neurophysiology is concentrated in neuroscience centres to the detriment of DGHs and the community. With the current workforce predictions and numbers of trainees, the RCP recommendation is unlikely to be met in the near future.

9 Consultant work programme/specimen job plan

Consultant work programmes will vary according to hospital size and the specialist services provided, and the job plan will have to take into consideration local needs. The key elements of a job plan are shown in Table 1 on the next page.

Table 1 Consultant work programme for clinical neurophysiology			
Activity	Workload (patients per PA)	Programmed activities (PAs)	
Direct clinical car			
Outpatient EMG clinics	4–6 (depending on complexity)	2–5	
Inpatient EMG	3–4 studies in the department, fewer if on ward	Up to 1	
Supervision and reporting of HCS NCS clinics	8–10 (4–5 per HCS clinic)	0–2	
Reporting routine EEG	10–15 (depending on complexity)	1–3	
Performing and reporting specialised tests eg video-telemetry or visual electrophysiology	1–5	0–3 (may be more in specialist centres)	
Intra-operative procedures, eg evoked potential monitoring, intracranial recording/functional mapping	0.5–1	0–4	
Multidisciplinary team meetings		Up to 2	
Total number of direct clinical care PAs		7.5 on average	
Supporting professional activities (SPAs)			
CPD/appraisal/revalidation		1.5	
Teaching/training		0–1	
Service development, clinical governance, audit		0–1	
Research		0–1	
		2.5 on average	
Other NHS duties		By local agreement	
External duties eg for deaneries, royal colleges, Department of Health		By local agreement	

10 Key points for commissioners

- 1 Clinical neurophysiology provides important diagnostic support for a number of specialties.
- 2 These investigations are essential for the management of epilepsy and many peripheral nerve disorders, which are common and important clinical conditions.
- 3 Recent computerisation of recording apparatus has ensured that neurophysiology continues to have a diagnostic role.
- 4 Consultant numbers are insuffcient for the service demand and consultants tend to be grouped in neuroscience centres.

- 5 Neurophysiology is essential for managing some neurological emergencies and any move to increase neurological provision in DGHs must include neurophysiological support.
- 6 Neurophysiology services are highly dependent on a scientifc workforce that must be continually developed. Departments should be supervised by a consultant trained in clinical neurophysiology and healthcare scientists should be appropriately qualifed for the investigations they undertake.
- 7 Geographical distribution of neurophysiology consultants and trainees is skewed to London, with under-provision in some parts of the UK – a distribution that should be addressed.

- 8 Neurophysiological services depend on adequate facilities, equipment and staff. Under-provision of any of these will result in a sub-standard service.
- 9 The nature of neurophysiology has resulted in concentration of services in central departments. Moves to deliver the service in the community will require considerable investment in technology and trained manpower, along with education of referring physicians.
- 10 In future, all service providers should achieve neurophysiological departmental standards and be accredited by the appropriate bodies.

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Note to readers: This chapter was published in 2012 and the authors felt that it did not need updating for the revised 5th edition 2013.

Clinical pharmacology and therapeutics

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1 Description of the specialty

Clinical pharmacologists at consultant level may be employed by universities (the majority), the NHS or pharmaceutical companies. Within industry, clinical pharmacologists are involved in the development of new drugs and early clinical trials in patients. Clinical pharmacologists employed in the NHS and universities usually combine their specialty work with responsibilities as a general physician. This involves the supervision of acute medical admissions, managing medical inpatients and running outpatient clinics. These individuals will normally have a clinical subspecialty interest (eg cardiovascular risk management or toxicology) and will take a particular interest in prescribing issues on behalf of their employing NHS body.

The mission of the specialty is to improve the care of patients by promoting the safe and effective use of medicines and to evaluate and introduce new therapies.¹ Therefore, clinical pharmacologists will often make wider contributions to the NHS clinical service. At a local level this will usually involve leading a drug and therapeutics committee, advising on non-medical prescribing policy, developing and maintaining a drug formulary, assessing new products, creating prescribing guidelines, reviewing adverse medication incidents and promoting evidence-based therapeutics.

Some consultants may play a leading role in a 'medicines information service' for local prescribers, with the support of a clinical pharmacist. At a national level, consultants in clinical pharmacology and therapeutics occupy many positions in key bodies such as the National Institute for Health and Care Excellence (NICE), the Medicines and Healthcare products Regulatory Agency (MHRA), the Commission on Human Medicines (CHM), the joint formulary committees that oversee publication of the British National Formulary (BNF) and the BNF for children (BNFC), and adverse drug reaction monitoring (pharmacovigilance) schemes. The National Poisons Information Service (NPIS) is run almost exclusively by NHS clinical pharmacologists. They are also involved in research, both basic and clinical.

2 Organisation of the service and patterns of referral

Sources of referral from primary, secondary and tertiary levels

Clinical pharmacologists are active in promoting the safe and effective use of medicines at all levels. At the primary care level they develop and maintain formularies; at the secondary care level they lead drug and therapeutics committees and run drug information services; and at the tertiary level they are involved in organisations such as the CHM's adverse drug reaction monitoring systems, the NPIS and the Health Technology Assessment (HTA) programme of the National Institute for Health Research (NIHR).

Locality-based and/or regional services; community models of care

The viability of local clinical networks is restricted by the small number of consultants. However, clinical pharmacologists often come together at a national level in the setting of the adverse drug reactions monitoring system of the MHRA, NPIS and HTA.

Clinical pharmacologists will usually have a close relationship with one or more of the following:

- clinical pharmacy service
- medicines information unit
- clinical risk management committee
- primary care prescribing advisers

- primary care trust (or equivalent) prescribing advisers
- regional adverse drug reaction monitoring centre
- strategic health authority/health board.

The work of clinical pharmacologists in promoting the safe and effective use of medicines is complemented by clinical pharmacy services. Pharmacists often play an important role in supporting the work of professional committees, providing information about medicines, preventing and reporting adverse medication incidents, and reporting adverse drug reactions. Some consultants require an efficient laboratory service to support plasma drug concentration monitoring and the assessment of poisoned patients. In some circumstances, the work of a clinical pharmacologist involves close collaboration with primary healthcare.

3 Working with patients: patient-centred care

What you do with patients

Involving patients in decisions about their treatment

Clinical pharmacologists are not only practitioners of patient-centred care in their own clinical area but will also, as part of their mission to deliver appropriate and rational therapeutics, promote improved understanding of drug therapy issues and support concordance with discussion of prescribing decisions between local prescribers and their patients, thus enhancing adherence. These objectives may be achieved through the education of doctors (at undergraduate and postgraduate levels), with emphasis on patient involvement in therapeutic choices, informed consent and promotion of self care, and through the education of patients by disseminating relevant information. Clinical pharmacologists also endeavour to improve the efficacy and safety of medicines through the promotion of evidence-based medicine and the development of guidelines and shared-care protocols. They will, whenever possible, liaise with patient groups and lay representatives when developing prescribing policies.

4 Interspecialty and interdisciplinary liaison

Clinical pharmacologists often have important relationships with other specialist groups and primary care colleagues. They usually have an interest in medical subspecialties, particularly cardiovascular, respiratory, and metabolic medicine, in which liaison with other clinical groupings, such as cardiology and stroke medicine, is important. It is likely that they will work as part of a multidisciplinary team (MDT) involving pharmacists and nurses in the pursuit of medicines management and when carrying out clinical trials.

5 Delivering a high-quality service

A high-quality service includes:

- a well-organised and efficiently run drug and therapeutics committee drawing on relevant local expertise
- an agreed local formulary
- development and regular review of local prescribing policies that support safe, evidence-based and cost-effective prescribing
- regular audit of prescribing quality
- contributions to clinical risk management through regular review of adverse medication incidents (adverse drug reactions and medication errors)
- encouraging adverse drug reaction reporting by local prescribers
- regular high-quality education in appropriate and rational prescribing for undergraduates and postgraduates
- early review of and advice concerning poisoned patients.

Maintaining and improving the quality of care

Quality and standards in clinical pharmacology are largely expressed by local prescribers in the primary and secondary healthcare sectors in relation to the approach to appropriate and rational use of medicines, not by clinical pharmacologists alone. The measurement of quality and standards in relation to the provision of a clinical pharmacology service is therefore problematic. However, potential means to ensure and measure quality do exist, through adherence to widely applicable national guidelines, dissemination of relevant prescribing information, and implementation of cost-effective prescribing patterns and audit of prescribing practices.

This work encompasses duties in clinical governance, professional self-regulation; continuing professional development (CPD); and the mentoring, education and training of others. For many consultants at various times in their careers it will include research; serving in management; and providing specialist advice at local, regional and national levels. Although the supervision and management of general medical patients is a major direct contribution to the NHS, most consultants in clinical pharmacology and therapeutics take on other roles that contribute indirectly to achieving local NHS service objectives and standards. These activities usually focus on the management of medicines in primary and secondary care, eg:

- leading or playing an important role in the activities of drug and therapeutics committees and overseeing the use of drugs in both hospitals and primary care
- managing a local drug formulary, which may be jointly agreed with local GPs
- editing and facilitating the production of local prescribing guidelines for common medical problems
- taking a lead role in reporting adverse drug reactions and reviewing local medication errors
- undertaking HTA, which might involve reviewing new and established drugs for clinical and cost-effectiveness purposes
- auditing and reviewing patterns of local drug use, with the aim of maximising effective and safe use of medicines in the NHS.

All of these activities make an important contribution to achieving local objectives in clinical effectiveness, clinical risk management and clinical governance. Clinical pharmacologists are likely to play a major role in auditing and investigating local drug-related incidents.

Some consultants provide a drug information service, often with the support of a clinical pharmacist. This may include a plasma drug concentration monitoring service, advising on the management and prevention of medication errors, and an advice service on drug overdoses and the management of adverse drug reactions. Some consultants have a specialist interest in forensic pharmacology and provide expert advice in coroners', criminal and civil cases. There should be adequate provision for all of these important public health and additional service commitments within a job plan.

6 Clinical work of consultants

How a consultant works in this specialty

Clinical pharmacologists have varied working patterns, but most NHS and academic consultants are accredited in clinical pharmacology and therapeutics (CPT), with general internal medicine (GIM) as their second specialty. However, the skills of clinical pharmacology and therapeutics are generic and are fully applicable to other medical specialties. A few consultants also practise in specialties such as geriatric medicine, cardiology, paediatrics, oncology, respiratory medicine or rheumatology, and it is likely that the number of such consultants will increase as more varied training schemes are established.

Inpatient work

Activities will normally be devoted to supervising the management of acute medical patients and the specialist work of the individual consultant. This work typically requires two ward rounds per week at fixed times.² The number of inpatients for which the consultant team is responsible should ideally not exceed 20 patients. Part of this time will be dedicated to inpatient referrals for patients with pharmacological or toxicological problems. Consultants expect to work in an adequately staffed ward, with the appropriate facilities and ancillary services to care for a typical casemix of general medical patients. They should have the support of at least one junior doctor who has completed general professional training.

Outpatient work

Time will be allocated for seeing new patient referrals, including emergency referrals and follow-up after discharge from accident and emergency or a hospital ward. Consultants normally provide this service with the support of junior staff and must allow time for their supervision. It is reasonable to expect that the assessment of a new patient will take approximately 30 minutes and follow-up patients approximately 15 minutes. Trainees require more time and should not work in isolation. A typical clinic might include 4-6 new patients and 10-15 follow-up patients. These sessions should include time for dictating clinic letters and administrative matters relating to the outpatient service. Some clinical pharmacologists also provide specialist clinics, eg in cardiovascular risk management, asthma, or epilepsy. Patients are sometimes referred with specific therapeutic, toxicological or other drug-related problems.

Specialist investigative or therapeutic procedures

Clinical pharmacologists will not normally undertake specialist procedures other than those that arise from other specialty activities.

Specialist on call

Clinical pharmacologists have traditionally taken a particularly active role as general non-organ-based physicians in the on-call rota for supervision of receiving and triaging acute emergency admissions. These duties should be undertaken with the support of an appropriate number of junior doctors, including a specialty registrar (StR). Acute general medical admissions should ideally be admitted to a medical admissions unit with appropriate staffing and access to emergency investigations.³ The on-call rota should not be more onerous than one in five. Each period of acute admitting must include a post-take ward round with the junior staff who were involved in the admission process. In some services, two ward rounds may be required in a 24-hour period. Consultants who are responsible for the review of poisoned patients have more frequent post-receiving ward rounds.

A common on-call commitment of a clinical pharmacology service is the provision of emergency advice about the management of poisoned patients. This activity will usually be supported by a poisons information service, and clinical pharmacologists may offer regional advice. Some academic specialists may have out-of-hours commitments to subjects involved in clinical trials.

Clinically related administration

Clinical pharmacologists will have administrative duties in keeping with their clinical workload. They may also be called upon to write specialist reports related to medication issues.

Academic medicine

The large majority of consultants in clinical pharmacology and therapeutics hold academic posts, which adds to the particularly diverse contributions that the specialty makes to the delivery of healthcare. Consultants in major teaching centres also play a key role in the design and delivery of teaching in therapeutics to medical students.⁴ For new medical graduates, prescribing drugs is a major activity and one that is associated with significant clinical risk. For these reasons therapeutics remains an important theme within any medical curriculum and requires appropriate support from clinical teachers. Clinical pharmacologists are also involved in the delivery of postgraduate training in therapeutics to other health professionals in the NHS, including GPs, nurses and pharmacists.

Research is a fundamental part of the work of many clinical pharmacologists. It involves clinical research in patients and healthy volunteers, and some individuals lead teams of laboratory-based researchers. Drug-related research activities make an important contribution to local and national NHS research and development strategies, providing important long-term benefits for patient care. The success of these activities will depend on the availability of suitable clinical and laboratory areas, recognition of the need for protected research sessions, and the support of appropriately trained clinical and technical staff. Clinical pharmacologists often have an important role on (or chair) local and multicentre research ethics committees, because of their expertise in drug-related research.

7 Opportunities for integrated care

Clinical pharmacologists frequently work with scientists and technical staff in order to provide therapeutic drug monitoring services. Close working with pharmacists is also undertaken, running formulary and drug and therapeutics committees. Similarly, subspecialty clinics such as hypertension and vascular risk clinics may be provided, working with pharmacists and nurses who may also prescribe. Although communication with primary care concerning patient management is essential, clinical pharmacologists have not traditionally provided integrated services across primary care, but the potential is there, particularly with regard to medication review.

8 Workforce requirements for the specialty

The 2009 consultant census by the Federation of Royal Colleges of Physicians of the UK reported that there were 51 whole-time equivalent (WTE) consultants in clinical pharmacology and therapeutics in England and Wales, equivalent to one per 1.027 million population.⁵ The following calculation reflects the number of consultants needed to ensure that there are sufficient clinical pharmacologists to contribute to national bodies and to provide a high-quality local national service, with particular emphasis on medicines management, toxicology, and academic activities such as teaching and research. The workforce also contributes to the care of unselected acute general medical admissions. The calculation takes into account several important trends; drugs account for an increasing proportion of NHS expenditure (currently

above 15% of the total) and there are pressures to prescribe newer, more expensive medicines.

- There is a requirement to contain costs by adopting agreed formularies and making rigorous assessments of the clinical and cost effectiveness of new drugs.
- There has been a significant expansion in medical student numbers to around 6,000 annually, which has been maintained.
- Acute general medical admissions are increasing annually.
- The increasing burden on physicians running a specialty service (eg gastroenterology and cardiology) is creating difficulties in providing acute medical cover.
- Junior doctors' hours of work have decreased and this continues to have an impact.

Clinical pharmacology is one of the few specialties whose numbers are currently decreasing – numbers in England and Wales fell by three consultants in the three years to 2009. Sufficient consultants are required to deliver academic programmes, including teaching. There is a strong case to be made for having one WTE clinical pharmacologist in every large district general hospital (DGH) for acute medicine and to address the specialty needs of trusts and local primary care trusts.

Using a previously developed model, the workforce requirement for consultants in clinical pharmacology and therapeutics is approximately 440 WTE. This number of consultants is based on providing:

- one WTE consultant per DGH serving a population of 250,000
- one WTE consultant per 180 medical students in training.

In the present climate, this expansion is unrealistic and it is felt that expansion of a minimum of 10% per annum over the next decade is realistic. This would increase numbers to almost 150.

Following the successful joint initiative

of the NHS Executive and the Association of the British Pharmaceutical Industry (ABPI), the number of trainees in clinical pharmacology increased during the 1990s, but this scheme has ended. Recent initiatives by the Wellcome Trust, the Medical Research Council and the NIHR will increase the numbers of research-trained clinical pharmacologists, but more NHS posts are required.

9 Consultant work programme/specimen job plan

Reflecting acute medicine commitment or academic appointment as appropriate

Tables 1 and 2 summarise the range of activities undertaken by consultant physicians in clinical pharmacology and therapeutics with responsibilities in GIM, the recommended workload and the allocation of programmed activities (PAs) (each PA is considered to be a period of four hours). The job plan is based on a commitment of 10 PAs per week, although the typical working patterns of clinical pharmacologists involve extra PAs. Suggested work programmes have been provided for a consultant working in a university teaching hospital (Table 1) and one in a DGH (Table 2).

Academic clinical pharmacologists will normally hold a full-time university contract (the full-time salary being paid by the university) and an honorary (unpaid) NHS contract. The honorary contract will normally include not more than five NHS PAs, of which no more than 3.5 PAs will be devoted to direct clinical care activities (as defined in the 2003 consultant contract). The award of these concurrent contracts recognises the contribution that academic consultants make, both directly and indirectly (medicines management) to the NHS clinical service. This arrangement also recognises that the activities carried out on behalf of the NHS have value for teaching and research. The job plan of an academic clinical pharmacologist will be made by agreement between the consultant, the dean and the medical director of the NHS body (or their nominated representatives) and will take full account of the principles set out in the Follett Report 2001 concerning the relationship between academic and clinical workload.⁶ The academic contract will include responsibilities for research, undergraduate teaching and administration relating to these and other NHS duties. In some cases it will be the university department as a whole that makes a commitment to provide a fixed number of PAs to the NHS service, allowing for more flexible participation of the individual academic consultants in clinical duties.

10 Key points for commissioners

1 Clinical pharmacology and therapeutics is a diverse specialty, with consultants often undertaking very different clinical activities.

Table 1 Consultant work programme/specimen job plan for an academic clinical pharmacologist working in a university teaching hospital, based on 10 PAs

Activity	Workload	Programmed activities (PAs)
Direct clinical care		
Emergency duties arising from acute receiving (24 hours)	10–15 patients	0–1
Inpatient (ward rounds, referrals, MDT meetings)	10–15 patients	0–1
Outpatient clinics	5–10 patients	0–1
Administration directly related to patient care (eg referrals, notes, complaints, correspondence with other practitioners)		0.5–1
Public health duties, eg medicines management: running a drug and therapeutics committee, managing a formulary, developing prescribing policies, health technology assessment, drug information services		0–2
Supporting professional activities (SPAs)		
Work to maintain and improve the quality of healthcare	eg CPD, postgraduate teaching and training, management of doctors in training, audit, job planning, appraisal, revalidation, contribution to service management and planning, clinical governance activities	1.5 on average
Other NHS responsibilities	eg Caldicott guardian, clinical audit lead, clinical governance lead, undergraduate and postgraduate dean, clinical tutor, regional education adviser, medical management responsibilities	Local agreement with trust
External duties	eg work for NHS bodies (eg advisory committees), work for other external bodies (eg MHRA, CHM, NICE, royal colleges, General Medical Council (GMC), Postgraduate Medical Education and Training Board (PMETB), British Medical Association (BMA), BNF and BNFC), NHS disciplinary procedures, NHS appeals procedures, advisory appointments committees	Local agreement with trust
Academic duties	Teaching undergraduates	1–2
	Research	2–4
	University administration	1
Note: PA = programmed activities equivalent to 4 hours	each.	

- 2 As almost all are trained in GIM, the potential combination with acute medicine for new appointments is attractive.
- 3 Consultant clinical pharmacologists' contribution to the acute medical take means that specialty trainees will contribute to the medical registrar rota.
- 4 Management of drug formularies and therefore drug expenditure is an important contribution to local health economies, which clinical pharmacologists are trained to undertake.
- 5 Clinical pharmacologists are well placed to support the infrastructure needs of NHS trusts to manage

Table 2 Consultant work programme/specimen job plan for a NHS consultant clinical pharmacologist working in a DGH, based on 10 PAs

Activity	Workload	Programmed activities (PAs)
Direct clinical care		
Emergency duties arising from acute receiving (24 hours) including dealing with poisoned patients	20–30 patients	1–2
Inpatient (ward rounds, referrals, MDT meetings)	20–25 patients	1–2
Outpatient clinics	15–20 patients	1–2
Administration directly related to patient care (eg referrals, notes, complaints, correspondence with other practitioners)		1–2
Public health duties, eg medicines management: running a drug and therapeutics committee, managing a formulary, developing prescribing policies, health technology assessment, drug information services		1–2
Supporting professional activities (SPAs)		
Work to maintain and improve the quality of healthcare	eg CPD, teaching and training, management of doctors in training, audit, job planning, appraisal, revalidation, research, contribution to service management and planning, clinical governance activities	2.5
Other NHS responsibilities	eg Caldicott guardians, clinical audit leads, clinical governance leads, undergraduate and postgraduate deans, clinical tutors, regional education advisers, medical management responsibilities	Local agreement with trust
External duties	eg work for national NHS bodies, work for other external bodies (eg MHRA, CHM, NICE, royal colleges, GMC, PMETB, BMA), NHS disciplinary procedures, NHS appeals procedures, advisory appointments committees	Local agreement with trust

non-medical prescribing both in primary and secondary care. This area of practice is likely to continue to grow.

- 6 The subspecialty interest of hypertension and vascular risk management is widely practised by clinical pharmacologists and is going to become even more important with the rise in prevalence of obesity and metabolic syndrome.
- 7 Those clinical pharmacologists with other subspecialty interests, such as epilepsy, asthma, or clinical toxicology, will also be able to contribute to NHS trusts' clinical workload.
- 8 As all NHS trusts are required to have a research and development portfolio and to undertake recruitment to portfolio studies, clinical pharmacologists, who are all trained in research, can contribute to this activity and facilitate other clinicians to take part.

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Dermatology

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1 Description of the specialty

Dermatologists are the only experienced, trained and accredited specialists in the diagnosis and management of diseases of the skin, hair and nails in adults and children. There are no others who can provide care of equal quality to that of dermatologists; however, there are only 650 consultant dermatologists in the UK, many of whom work part time. Over 2,000 skin disorders are recognised, so accurate diagnosis is fundamental to successful management. Each year 54% of the population are affected by skin disease, and 23-33% at any one time have disease that would benefit from medical care.^{1,2} Approximately 4,000 deaths occur in the UK annually due to skin disease, most often from malignant melanoma.¹ Skin diseases represent 34% of disease in children,² with atopic eczema affecting 20% of infants. Dermatologists organise and deliver skin cancer services. Others subspecialise in complex medical dermatology, surgery including Mohs' micrographic surgery, allergy, paediatrics, genital disorders, photodermatology, psychodermatology and dermatopathology.

Skin cancer is the most common cancer and the second most common cancer causing death in young adults. Basal cell carcinoma (BCC) numbers equal all other malignancies combined, and increased by 81% between 1999 and 2010.³ Reported melanoma incidence increased by over 400% over 35 years.⁴ Hand eczema is one of the most common reasons for disablement benefit in the UK. Inflammatory skin diseases are disabling, disfiguring and distressing, and reduce quality of life. Expectations of the public have changed and will continue to change in particular with regard to skin disease appearance which can be of great importance, causing disability and loss of function.¹

The professional society for dermatologists is the British Association of Dermatologists (BAD) (**www.bad.org.uk**), a charity funded by the activity of British dermatologists. The objects are to further knowledge, practice, teaching and research of dermatology and to advise other interested parties (including healthcare providers and politicians) in dermatology. Dermatologists not only provide care but are active in improving systems for healthcare.

2 Organisation of the service and patterns of referral

Each year 24% of the population see their GPs for skin disease and 882,000⁵ were referred to dermatologists in England in 2009–10 with 2.74 million⁵ consultations. This reflects an increased prevalence of atopic eczema and skin cancer, availability of more effective treatments and patient demand.

Consultant dermatologists are the most efficient providers of skin care, leading interdisciplinary teams including specialty doctors and associate specialist (SAS) doctors, GPs and nurses working in secondary and integrated intermediate care. Government initiatives have experimented with dermatology service delivery and evidence consistently shows that *care should always be delivered by individuals with the right skills, in the right setting, the first time.* Triage by an expert familiar with the full range of services ensures that patients are directed to high-quality, cost-efficient care from the outset. Misuse of non-accredited doctors as long-term locum dermatologists should be decried.

Primary care services

There are 13 million primary care consultations for skin diseases each year.¹ Outcomes could be enhanced by improving undergraduate dermatology teaching and learning, which averages approximately 6 days only. Most GP training schemes have no dermatology attachment. New Department of Health (DH) guidelines allow limited skin surgery to be undertaken under local enhanced (LES) and direct enhanced (DES) GP services, provided that correct governance arrangements are followed.⁶

Community specialist nurses can provide support for education and self-management of chronic

inflammatory skin diseases such as psoriasis, eczema and acne. They can enhance care but there is no evidence that they reduce secondary care referrals.

Intermediate services

GPs with a special interest (GPwSIs) in dermatology can provide effective intermediate care for individuals with chronic mild/moderate inflammatory diseases, skin infections, sun damage and certain skin cancers *as part of an integrated consultant dermatologist-led team*.⁶ There is no good evidence that these services reduce secondary care referrals or save money; they may 'de-skill' GP colleagues.^{7,8} There are detailed DH safety, governance and training guidelines for the accreditation of GPwSIs, which some primary care trusts (PCTs) ignore, risking patient safety.

Secondary care services

Secondary care dermatology services receive 882,000 referrals each year in England (approximately 16 per 1,000 population).⁹ Up to 50% of referrals relate to skin cancer. Specialist services include:

- skin cancer clinics dermatologists screen over 90% of skin cancer referrals, treat approximately 75% and reassure the remainder; the National Institute for Health and Care Excellence (NICE) recommends that high-risk BCCs (the majority of cases) are treated in secondary care
- facilities for dermatological surgery, cancer multidisciplinary teams (MDTs) and data collection compliant with NICE guidance
- medical dermatology for complex problems, often in MDT clinics with other specialties such as rheumatology
- inpatient care of sick patients with severe skin diseases or skin failure, sometimes requiring intensive care
- phototherapy (see BAD and British Photodermatology Group working party report),¹⁰ iontophoresis, wound care and other day treatments
- day-case units for infusion of disease-modifying drugs
- paediatric dermatology services including laser surgery (see BAD and British Society for Paediatric Dermatology working party report)¹¹
- investigation of cutaneous allergy and occupational skin disease by patch and prick testing (see BAD and British Society for Cutaneous Allergy working party report)¹²

- investigation of photodermatoses, which affect 18% of the population reducing quality of life, psychological welfare and employability
- management of skin problems in hospital patients with other illnesses, thereby reducing length of stay (LOS)
- skin cancer screening for organ transplant recipients
- genital skin diseases
- management of genodermatoses
- cutaneous infections, tropical diseases and HIV skin diseases
- cellulitis day-case services producing substantial NHS savings
- teaching, training and assessment of medical students, GPs, trainee dermatologists and other healthcare professionals
- collection and analysis of clinical data, clinical audit and compliance with clinical governance requirements
- clinical research including therapeutic trials
- contributions to the wider NHS including NICE, Care Quality Commission, the RCP and BAD (producing guidelines, patient information and outcome measures).

Hospital-based services require at least one whole-time equivalent consultant dermatologist per 62,500 population (see section 8). SAS doctors form an integral part of the hospital team. Departments require the support of pharmacists and trained specialist dermatology nurses who meet competency standards set by their professional body, the British Dermatology Nursing Group (**www.bdng.org.uk**). Trained dermatology nurses can:

- treat patients in day-care units and on wards, provide and supervise phototherapy, assist with patch testing under consultant supervision, perform surgical procedures, and care for wounds and ulcers
- provide patient information, demonstrate and apply treatments, dress wounds, remove sutures and review follow-ups
- assist in operating theatres and advise patients undergoing surgery
- advise and train professional colleagues caring for patients with skin diseases in the hospital/ community
- with paediatric training, run hospital/outreach services for children with chronic skin disease. Establish and run community clinics

• run monitoring clinics for isotretinoin and biologic/systemic treatments for inflammatory skin diseases.

Tertiary care services

The UK has many national and international experts in dermatology who provide services for complex cases.

As of January 2011, national commissioned group services in England exist for: xeroderma pigmentosum, epidermolysis bullosa, Ehlers–Danlos syndrome, neurofibromatosis types 1 and 2, Fabry disease and cryopyrin diseases. The National Commissioning Board Dermatology Clinical Reference Group is developing, in 2013, nationally commissioned networks of specialised services in over 20 areas of dermatology, which may be commissioned from April 2013 onwards. Proposals for this service include virtual MDTs with referrals delivered through a portal hosted by the BAD.

Psychological services

People with skin disorders often benefit from psychological intervention, but services are often limited by NHS financial restraints. The NICE guidelines for skin cancer care require psychological services to be available for those with skin cancer.

Community care

Community pharmacists can reinforce self-care/self-help messages at the point of dispensing for patients. People spent £413 million (18% of over-the-counter (OTC) sales) on skin treatments in the UK in 2007.¹

Camouflage services may be an integral part of care.

Complementary services

Alternative therapies lack evidence of efficacy and safety and some (eg eastern herbal treatments) may contain potent corticosteroids or liver toxins.

3 Working with patients: patient-centred care

Ensuring that the patient is at the centre of care

Patient involvement and choice

Involving patients in choice and decision-making about their care has been improved by increasing consultation times with doctors and nurses and by providing quality information such as BAD patient information leaflets (PILS) (available at **www.bad.org.uk**). Patient choice would be enhanced were information for patients available, at the point of choice, about the qualifications, experience and accreditation of doctors providing services.

Patient support groups and access to information

The BAD recognises and supports 55 patient support groups (PSGs), providing links to their websites from **www.bad.org.uk**, where over 130 PILS on over 120 conditions are available.

Education and promoting self-care for acute and chronic skin diseases

Information provided by PSGs is invaluable. The BAD provides ongoing support, including financial grants, to the PSGs.

Role of the expert patient

The Dermatology Councils for England, Scotland and Wales represent multiple stakeholders including the PSGs. Patient and public involvement groups (PPIs) are active in many dermatology departments.

4 Interspecialty and interdisciplinary liaison

Dermatology care is carried out most efficiently in the UK using a hospital-based team led by a consultant dermatologist, with SAS doctors, GPs and nurses in secondary and integrated intermediate care.

Multidisciplinary teams in skin cancer clinics involve dermatologists, surgeons, histopathologists, oncologists, radiotherapists, nurses, and psychiatrists and psychologists (see BAD and Psychodermatology UK working party report on psycho-dermatology).¹³

Combined clinics between dermatologists and hospital specialists exist for complex problems, eg involving rheumatology, plastic surgery, HIV, genital/oral diseases, psychiatry, paediatrics, genetics, stomas, eyes, vascular surgery and allergy.

5 Delivering a high-quality dermatology service

What is a high-quality service?

A dermatology service should provide patient-centred care focusing on outcomes that meet national standards. To achieve this, all staff must be correctly trained and accredited and the local service structure should provide facilities that enable safe and effective investigation and treatment. A multi-stakeholder document, the production of which was supported by the DH *Quality standards for dermatology*, provides commissioners with guidance in commissioning high-quality dermatology services.¹⁴ A high-quality service should follow and audit compliance with national guidelines provided by NICE and the BAD, and should participate in BAD-facilitated and -hosted national audits.

Staffing

Consultant dermatologists should be on the specialist register of the General Medical Council (GMC). They should not work alone and must have appropriate support staff including specialist dermatology nurses and trained secretarial staff.

Local facilities needed for dermatology patients¹⁵

The following local facilities are needed:

- dedicated outpatient units with rooms for patient education, breaking bad news and counselling
- areas for contact allergy testing with storage areas for allergens meeting national published standards
- surgical facilities meeting national standards for space, cleanliness and equipment, with storage for liquid nitrogen
- laser-safe areas where required
- facilities for Mohs' micrographic surgery where required, meeting national standards
- day-care centres staffed by dedicated dermatology nurses
- phototherapy units for adults and children staffed by trained dermatology nurses who can also provide skin care (unlike physiotherapists), meeting national standards for equipment and safety. Medical physicists should monitor ultraviolet (UV) output. A named consultant dermatologist should be responsible for the service
- *hospital beds* staffed by trained specialist dermatology nurses with 24-hour medical care. Dermatology patients require a specialised dermatology nurse to apply treatments and provide education, with adequate bathing and treatment rooms. Inpatients should be geographically close to outpatient units for maximal efficiency
- laboratory support including chemical pathology, haematology, radiology, microbiology, mycology, histopathology and immunopathology
- information technology (IT) hardware and software that is robust, modern, reliable, fast, in the right place and immediately available

- medical photography services (eg for mole mapping and monitoring)
- comprehensive pharmacy services
- appropriate accommodation for paediatric dermatology clinics and inpatient care.

Maintaining and improving quality of care

Dermatologists lead the team delivering clinical services, driving service developments/innovations to improve patient outcomes.

Education and training

Education and training of medical students, specialty registrars (StRs), GPs and nurses improve care for patients with skin disease. Twenty per cent of GP consultations relate to skin disease but only 20% of GP training schemes include dermatology. Medical students, on average, receive approximately 6 days only of dermatology education. The BAD campaigns for more and better undergraduate and GP training in dermatology. Consultants conduct assessments (such as mini-clinical evaluation exercise (mini-CEX), direct observation of procedural skills (DOPs)) for trainee dermatologists, SAS, and foundation year 1 and 2 (FY1 and FY2) doctors and medical students. Entry to dermatology training requires proficiency in core internal medical training, including passing the MRCP qualification. Trainee dermatologists follow a 4-year curriculum, overseen by the specialist advisory committee (SAC), encompassing all aspects of dermatology.

Mentoring and appraisal of medical and other professional staff

The UK leads the world in development of specialist dermatology nurses.

Continuing professional development

Dermatologists spend more than 50 hours per year on continuing professional development (CPD).

Clinical governance

Clinical governance meetings discussing outcomes and reviewing departmental data, audit, complaints, new guidelines, etc should be included in the work programme. Protected time should be allowed for local, regional and national audit.

Research – clinical studies and basic science

Clinical and basic science research is essential to drive innovation and improve outcomes. The UK

Dermatology Clinical Trials Network has over 600 members. Academic dermatologists contribute to NHS work by setting up tertiary services, and leading UK dermatology education and research. The second largest charity for dermatology research, the British Skin Foundation, is funded and supported by the BAD, which has also set up, in 2012, a network for translational dermatology research. The NIHR Dermatology Specialty Group is being reorganised in 2013 and supports delivery of clinical dermatology research studies on the NICE research portfolio.

Local management roles

Dermatologists have multiple roles, leading clinical areas such as paediatric dermatology or patch testing and being responsible for registrar training or undergraduate teaching, audit and clinical governance. They also may be MDT chair or clinical service lead.

Regional and national work

Medical representation is essential on local, regional and national committees, and for national, professional or governmental bodies such as the DH, GMC, SAC, the RCP and the British Medical Association (BMA). The BAD has elected officers and committees that contribute substantially to national policy. Appropriate time should be allocated in the work programme for these important roles if the NHS is to function efficiently.

The *British Journal of Dermatology* and *Clinical and Experimental Dermatology*, essential for service development and CPD, are run by the BAD, with editorial work and paper reviews undertaken by UK dermatologists.

National guidelines

National guidelines are produced by dermatologists and listed on **www.bad.org.uk**, badged by NHS Evidence. Dermatologists contribute to NICE appraisals and guidelines and NHS 'Clinical knowledge summaries'.

Audits, quality tools and frameworks

All dermatologists participate in local, regional and national audit programmes, and many help develop quality tools and service frameworks.

6 Clinical work of consultants in dermatology

Inpatient work

In many hospitals, dermatology care is moving from a fixed ward base to multidisciplinary involvement with

dermatology patients on multiple wards. This must be reflected in job plans, with inpatients also receiving expert, dedicated dermatological nursing care.

- *Ward rounds*, leading and training a team including registrars, specialist nurses and students, usually occur for dermatology inpatients twice weekly.
- *Referral work.* Urgent requests for dermatological opinions on acute admissions require review on ward rounds. These frequently reduce length of stay in hospital.

Outpatient and day-case work

Outpatient and day-case work is the core work of most dermatologists. The nature of these clinics and specialist procedures varies considerably.

- *General dermatology clinics:* the ratio of new to follow-up patients and time allocated vary depending on the type/complexity of the cases seen. On average 12–16 patients may be seen in a clinic. In clinics teaching undergraduates, training registrars, or supervising doctors and nurses, numbers must be reduced accordingly.
- *Skin cancer/'see-and-treat' clinics:* various models are used. In screening clinics dermatologists see larger numbers of patients. See-and-treat clinics provide surgery on the first visit, reducing the numbers seen.
- *Specialised clinics within dermatology* include paediatrics, skin allergy, photodermatology and genital clinics.
- *Complex case clinics:* regions and large departments hold multidisciplinary clinics weekly or monthly for complex cases.
- Surgery lists may include biopsies (often done by nurses), day-case skin surgery lists including Mohs' micrographic surgery and laser lists (requiring a laser-safe area and general anaesthetic facilities for children). Skin surgery will usually take 20 minutes for a skin biopsy, 30 minutes for a simple excision and 60–90 minutes for more complex flaps and graft repairs. Micrographic surgery can take 90 minutes to several hours. These times do not include 'turnaround' time between cases, which depends on trained nursing support and efficiency.

Specialist on call

Dermatology trainees require training in acute 'on-call' dermatology. Patients with severe skin disease or skin failure should have access to expert dermatology advice.

Other specialist activities

Other specialist activities include weekly 1–2 hour MDT cancer meetings reviewing cancer cases according to the NICE guidelines, cancer networks, case conferences and nationally commissioned specialist services.

Clinically related administration

Clinically related administration includes screening and prioritising referral letters, reviewing and acting upon laboratory results and communicating with and about patients with colleagues in writing, by telephone or email. The time ratio between direct patient contact and clinical administration for dermatologists is 1:0.4.

Teledermatology

Teledermatology may be a useful triage tool for geographically remote areas *only* as part of an integrated consultant-led team subject to full clinical governance; there is no evidence that it can safely reduce referrals outside this setting.¹¹ Quality standards for teledermatology have been produced in 2012–13 by a multistakeholder group, supported by the DH, to guide commissioners. These standards should be available on the Primary Care Commissioning website and on **www.bad.org.uk** in 2013 (personal communication, Jan McLelland, honorary secretary, BAD).

7 Opportunities for integrated care and continuity

Consultant dermatologists are the most efficient providers of skin care. Due to consultant shortages in the UK, dermatology services work most efficiently as interdisciplinary, consultant dermatologist-led teams including SAS doctors, GPs and nurses (in secondary and intermediate care). GPwSIs must comply with DH rules on training and governance.¹⁶

8 Workforce requirements for the specialty

Based on government statistics for new patient referrals in 2009–10, a population of 250,000 generates 4,000 new patients.⁵ With a ratio of 1 new to 1.6 follow-up patients achievable for general dermatology clinics (not counting patients attending for patch testing, phototherapy, surgery and other specialist treatments that should be separated and removed from this statistic),¹⁷ 6,400 follow-up patients would give 10,400 patients per year in total. The recorded new to follow-up ratio in 2009–10 for dermatology in England was 1:2.1.⁵ Commissioners using current recording methods should expect these figures.

Activities related to direct clinical care generate approximately 0.4 PA (programmed activity) for each clinic (Table 1). A 10-PA consultant should work 5 PAs in the clinic, operating theatre, seeing ward patients, etc, with 2 PAs of patient administration and 0.5 PA for MDT. A newly appointed consultant on 8.5 DCC and 1.5 SPA (ie with no teaching, research and trainee supervision or department management) may do an extra 0.7 PA in clinic or operating (with an extra 0.3 patient admin) initially pending job planning review.

A consultant with no travel to other centres, no inpatients, ward rounds or on call, no specialist clinics, no clinic teaching and no junior supervisory role should undertake 2 new, 2 follow-up (or equivalent mixed clinics) and 1 skin surgery clinic per 10-PA week. With 12 new patients (20 minutes per consultation), 16 follow-up cases (15 minutes per consultation) or up to 7 surgical cases per clinic, 24 new patients, 32 follow-up patients and 7 surgical procedures are seen per week. These are maximum numbers; actual numbers and new:follow-up ratios vary according to case type/complexity, with a ratio of 1:1.6 reported for psoriasis.¹⁸ People attending phototherapy, day care, treatment visits, surgery or investigations should not count or be coded as follow-up cases. Intermediate services take simple cases, resulting in more complex cases in secondary care adversely affecting new to follow-up ratios.

In an average 42-week year, a consultant will see 1,008 new and 1,344 follow-up patients and perform 280 operations. A population of 250,000, therefore, requires 4 whole-time equivalent (WTE) consultants (ie one consultant per 62,500 based on DH 2009–10 figures). This does not allow for specialist clinics, teaching students, supervising or training any grade of staff, ward referrals, inpatient care, on-call work, travel or MDTs.

There were 655 (557 WTE) consultant dermatologists, 213 WTE specialty registrars (equivalent to 44 WTE consultants) and 157.3 WTE SAS doctors (equivalent to 125 WTE consultants) in the 2012 UK BAD workforce survey, totalling approximately 726 WTE consultants. For the population of 61,800,000⁶ the UK workforce requirement for a consultant-led service is a minimum

Table 1 Example of job plan (England	i)	
Activity	Workload	Programmed activities (PAs)
Direct clinical care		
Ward rounds, day-care supervision, nurse clinic supervision, ward referrals in hospitals with contractual agreements	Referrals from hospital colleagues; inpatient bed numbers vary	0.5–1.5
General outpatient clinics	12 for new clinic (20 min/consultation) <i>or</i> 16 follow-ups (15 min) <i>or</i> combination	3–4
Skin surgery	7 cases of average complexity	0–1
Skin cancer multidisciplinary team	Weekly or alternate weeks	0.5–1
Dermatopathology	Variable	0–0.5
On-call duties	Variable	0–1
Administration and management	'Choose and book', direct patient care, review of results, communication with other, healthcare professionals (0.4 per clinic or surgical list)	2–2.5
Specialist clinics	eg paediatric, patch testing, phototherapy, psoriasis, skin cancer	0–2
Travel	Variable	0–1
Total number of direct clinical care PAs		7.5 on average
Supporting professional activities (SPAs)		
Work to maintain and improve the quality of healthcare	Revalidation, undergraduate education, nurse, GP and hospital doctor training and supervision, appraisal educational supervisor or programme director for specialty registrars; departmental management and service development audit and clinical governance CPD and revalidation, research, etc	2.5 on average (1.5 minimum for revalidation if no teaching/ research/trainee supervision/department management)
Other NHS hospital responsibilities	Medical director/clinical director/lead consultant in specialty/clinical tutor	Local agreement with trust
External duties	Work for deaneries/royal colleges/specialist societies/DH or other government bodies	Time for this has been agreed by NHS leaders

of 989 (WTE) dermatologists, indicating a shortfall of over 250 WTE dermatology consultants.

Reductions in clinic numbers are required for consultants supervising and training other doctors and medical students. The impact varies (typically one patient slot/individual) but may mean up to a 30% reduction in patient numbers.

9 Consultant work programme/specimen job plan

The work programme/specimen job plan discussed here is for a consultant dermatologist working in a district general hospital. The standard contract for a full-time NHS consultant is 10 PAs per week, typically divided into 7.5 PAs for direct patient care including ward work and 2.5 PAs for supporting activities (SPAs) (7:3 ratio in Wales).

The balance of formal clinics, surgery, specialist clinics, ward work and supervisory activity will vary. Direct patient contact time must be accompanied by appropriate clinical administration time (1 clinical PA requires 0.4 PA administration time).

Numbers in clinics should be adjusted to ensure completion within 4 hours (3.75 in Wales), including clinic teaching and immediate clinical administration.

The BMA and the RCP give 2.5 SPAs (3 in Wales) as the 'typical' requirement, with 1.5 typically needed for the purposes of revalidation. Additional time is required for training, the lead dean stating that StR supervision requires 0.5 SPA and FY1/FY2 supervision 0.25 SPA weekly. New jobs should detail the proposed SPAs and existing consultants may need to justify SPAs at the job plan review.

Work for national bodies should be acknowledged and programmed and may require a negotiated reduction in the clinical elements of the job plan. On-call commitments will vary with local policies and staffing levels. Those working part-time or in academic posts must revalidate. Adequate SPA time must, therefore, be available while maintaining a sensible balance in a part-time contract. Hospital consultants involved in teaching and research need additional time for these activities, which will reduce the clinical elements of the job plan.

10 Key points for commissioners of dermatology services

- 1 Dermatology care should always be delivered by individuals with the right skills, in the right setting, the first time.
- 2 Patients offered choice should receive full information about the qualifications, accreditation and range of services offered by providers.
- 3 Dermatologists manage diseases of the skin, hair and nails in adults and children. As over 2,000 conditions are recognised, accurate diagnosis is fundamental to successful management.
- 4 Each year 54% of the population are affected by skin disease, and 23–33% at any one time have disease that would benefit from medical care.^{1,2}

- 5 Skin cancer is the most common cancer and the second most common cause of death in young adults. Basal cell carcinoma numbers equal all other malignancies combined and increased by 81% between 1999 and 2010.³ Reported melanoma incidence increased by 50% over 13 years.⁴
- 6 Consultant dermatologists see over 1,000 new patients per year and provide expert management, leading and training an MDT of dermatology nurses and GPs working across traditional healthcare boundaries. Efficiency of consultants is maximised by support and teamwork with specialist nurses and secretaries, optimising communication with the public and other practitioners.
- 7 There is no evidence that intermediate care in dermatology saves money or reduces referrals to secondary care, although such services may be popular with patients.^{7,8} There are DH documents on GPwSI training and governance that should be followed for patient safety.¹ DH training and governance guidance (2010–11) for GPwSI surgery for low-risk skin cancers should be followed.
- 8 Teledermatology may be a useful triage tool for geographically remote areas but only as part of an integrated consultant-led team subject to full clinical governance; there is no evidence that it can safely reduce referrals outside this setting.¹⁶
- 9 Dermatology consultants should not work in isolation but with consultant colleagues with a range of subspecialist skills.
- 10 The British Association of Dermatologists clinical services unit (www.bad.org.uk) provides clear, evidence-based guidance¹⁹ and is able to advise commissioners about dermatology services and help resolve issues.

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Diabetes and endocrinology

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1 Description of the specialty

The specialty of diabetes and endocrinology deals with the diagnosis and management of a diverse range of hormonal and metabolic disorders. It encompasses a wide variety of conditions ranging from the most common (eg type 2 diabetes) to those that are rare but eminently treatable (eg pituitary tumours). Most conditions are chronic, requiring long-term and often lifelong management. There is a strong evidence base for the management of disorders encountered within the specialty. Delayed, inadequate or inappropriate treatment leads to poor health, reduced lifespan and increased burden on the health service.

Main disease patterns

Type 2 diabetes is a common multifaceted disorder that is rapidly increasing in incidence. The demands of glucose control management are progressive, and concurrent management of hypertension, obesity and dyslipidaemia is usually required. Type 1 diabetes often starts in childhood and is usually compounded by emotional and behavioural problems common to adolescent and young adult medicine. In either kind of diabetes, potential complications are protean. Untreated they lead to disability and early death.

Increasingly the clinical presentation of type 1 and type 2 diabetes is becoming more complex. There is growing recognition of the monogenic varieties of diabetes and therefore diagnosis of the type of diabetes is becoming more difficult. There is also a greater emphasis on patient empowerment and education, with increasing development of newer treatment options such as thiazolidinediones (TZDs), glucagon-like peptide (GLP1) analogues, dipeptidyl peptidase-IV (DPP IV) antagonists, newer insulins and insulin pumps. The problems of diabetes in pregnancy have been outlined in the Confidential Enquiry into Maternal and Child Health (CEMACH) report (**www.cemach.org.uk**). With

the increasing prevalence of obesity and type 2 diabetes in women of childbearing age this problem is going to grow.

Endocrinology covers disorders of the endocrine glands, in particular the thyroid, pituitary and adrenal glands, testes and ovaries. Thyroid disorders are the most common, usually presenting as under-activity (hypothyroidism) or over-activity (thyrotoxicosis).

2 Organisation of the service and patterns of referral

Sources of referral from primary, secondary and tertiary levels

Diabetes services

Diabetes services are largely outpatient based. A complex local network of services is required to encompass the needs of all people with diabetes throughout their lifelong pathway of care. Much of the process of care can be provided in primary care by nurses, dietitians, podiatrists and GPs. A core requirement for all patients is self-care, which necessitates effective, ongoing patient education programmes. The majority of diabetes care is in primary care, but specialist input is required to support the primary care team with clinical advice and education for health professionals and patients.

At various stages, further specialist physician management is required:

- at the time of transitions: eg new diagnosis of type 1 diabetes, younger type 2 patients, monogenic diabetes or the progression to more complex therapy for someone with poorly controlled type 2 diabetes
- in particular clinical scenarios: eg young people with diabetes, diabetic pregnancy, metabolic emergencies,

serious intercurrent non-diabetic illness or psychosocial interactions

• for the identification and collaborative management of complications: eg severe diabetic foot disease, diabetic nephropathy, erectile dysfunction, painful and autonomic neuropathy, or macrovascular disease.

Rapid changes in the structure and delivery of services are occurring as a result of:

- treatment developments such as continuous subcutaneous insulin infusion
- technological developments such as remotely accessed blood glucose results, call-centre support and electronic care records
- GPs with a special interest (GPwSIs) in diabetes
- changing organisational relationships and commissioning in primary and secondary care
- structured educational programmes
- relationships with acute medical care and general medicine.

Endocrine services

For common conditions, such as polycystic ovary syndrome (PCOS) and thyroid disorders, services are often organised on a multidisciplinary or multisector basis, which is much less complex but in other respects similar in structure to that for diabetes. Unusual endocrine disorders require sophisticated laboratory and clinical imaging support for diagnosis and close liaison with highly specialised surgical services for treatment. In England From April 2013 these will fall under the remit of the specialised services national definitions set, and be commissioned nationally (www.specialisedservices.nhs.uk).

3 Working with patients: patient-centred care

What you do with patients

Involving patients in decisions about their treatment

Treatment choices in diabetes and endocrinology are often complex and entail difficult risk assessments. Lengthy, well-informed negotiation between specialists and patients is necessary in order to achieve optimum outcome. Young people with diabetes and endocrine disorders require support and negotiated management appropriate to their stages of physical and emotional development. Long-term clinical records are indispensable; ideally, they should integrate information and results from all the healthcare providers and be accessible to both professionals and patients.

Access to information, opportunities for education and promoting self-care

Diabetes is always a chronic condition and many endocrine disorders are also lifelong. Therefore, self-care and empowerment are a core part of delivering the appropriate services. Patient education programmes are an essential component of management for type 1 and type 2 diabetes, and feature increasingly in the management of endocrine conditions such as PCOS, pituitary disease and hypogonadism. National and local patient organisations are prominent and supportive in these areas.

4 Interspecialty and interdisciplinary liaison

Multidisciplinary team working and working with other specialties

Multidisciplinary team (MDT) working and collaboration with other specialists is a characteristic of almost all aspects of diabetes and endocrine specialist care.

The diagnosis and ongoing care of children, young people and adults with type 1 diabetes demand close collaboration among paediatricians, paediatric diabetes specialist nurses, physicians with a special interest in diabetes, adult diabetes specialist nurses and dietitians, and, often, contributions from podiatrists, optometrists and psychologists. For type 2 diabetes, primary care teams make the majority of the diagnoses and provide the ongoing care. Specialist services provide consultative advice at intervals and, at times, temporary ongoing care for particularly difficult metabolic or complicated management problems. Specialist services will be increasingly involved in the ongoing education of the primary care teams.

Diabetic foot care requires an extensive MDT including community podiatrists and district nurses, hospital podiatrists, orthotists, microbiologists, vascular surgeons and orthopaedic surgeons, in addition to diabetes specialist nurses and physician specialists. Diabetes pregnancy care requires integrated team working with obstetric and midwifery colleagues. Other aspects of diabetes care involve collaborative management with ophthalmologists, nephrologists, stroke physicians, cardiologists, rheumatologists, emergency care teams, elderly care teams and every kind of inpatient hospital care for which people with diabetes are admitted. The need to involve such specialties is often concurrent with the need to reconfigure the metabolic care plan.

Both diabetes and endocrinology are heavily dependent on close collaboration with laboratories. This is particularly the case for endocrinology where access to specialist laboratory techniques may determine the ability to deliver service. Endocrinology is also dependent on a variety of sophisticated imaging techniques requiring close collaboration with specialist radiologists. For the management of pituitary disease endocrinologists work in teams with neurosurgeons and radiotherapists; for thyroid and adrenal disorders partnership with an endocrine surgical team is essential; for reproductive endocrinology it is necessary to work closely with specialist gynaecologists. Several complex endocrine disorders have their origins in childhood (eg growth disorders, Turner's syndrome and congenital adrenal hyperplasia (CAH)), so liaison between adult and paediatric services during the vulnerable transition period is essential to effective continuing care. The management of genetically based endocrine disorders such as CAH and multiple endocrine neoplasia will usually involve geneticists. The majority of specialist endocrine practice requires specialist nurse support.

5 Delivering a high-quality service

What is a high-quality service?

High-quality diabetes services should be managed in a fully integrated manner that deploys primary, intermediate, secondary and tertiary care facilities in an integrated programme that will achieve all of the standards set out in the national service framework (NSF) for diabetes. Services continually self-assess their structures and processes using systems such as Diabetes, and monitor outcomes of care through local and national clinical audit (see below). In endocrinology, as for diabetes, common conditions need to be managed collaboratively between primary and secondary care according to local guidelines and with ongoing audit of satisfaction and outcome. Regional centres deal with the rarer endocrine conditions and should be co-located with the laboratory, imaging and surgical teams in order to provide a seamless, comprehensive, safe and high-quality service.

Maintaining and improving the quality of care

This work encompasses continuing professional development (CPD), clinical governance, professional self-regulation, education and training. For many consultants, at various times in their careers, it may also include research, management and providing professional advice. Management is a common component of diabetes service provision. The role typically involves providing whole systems clinical and organisational leadership across a care community usually comprising about 250,000–500,000 people and includes responsibility for the education, development and quality assurance of primary care and community staff and those working from a hospital base.

Specialty and national guidelines

Diabetes guidance and guidelines

- The NSF for diabetes www.dh.gov.uk/en/ Healthcare/NationalServiceFrameworks/Diabetes
- NICE guidance: technology appraisals www.nice.org.uk
- NICE clinical guidelines www.nice.org.uk
- National audit www.diabetese.net
- Diabetes in pregnancy www.cemach.org.uk
- Specialist societies: Diabetes UK www.diabetes.org.uk and the Association of British Clinical Diabetologists (ABCD) www.diabetologists.org.uk
- Royal College of Physicians (RCP) www.rcplondon.ac.uk

Endocrinology guidance and guidelines

- NICE guidance: technology appraisals for the use of growth hormone: www.nice.org.uk/ catrows.asp?c=153
- National guidelines containing standards against which practice can be audited: Society for Endocrinology (www.endocrinology.org/index. aspx); these include recent position statements, eg on testosterone replacement and dopamine agonists
- The RCP guidelines on pituitary tumours, thyroid cancer and radioactive iodine http://bookshop. rcplondon.ac.uk
- International guidelines: Endocrine Society www.endo-society.org

6 Clinical work of consultants

How a consultant works in this specialty

Most consultants with a specialist interest in diabetes and endocrinology work in acute hospitals. They contribute substantially to provision of the acute general medical service. Usually they participate in a one in eight to one in fourteen acute-take rota that includes post-take ward rounds on the emergency medical admissions unit. Additionally, they will lead a ward-based team responsible for about 16–20 unselected general medicine inpatients.

Most diabetes/endocrine consultants are also trained in general medicine and take part in acute medicine 'takes' on a rotational basis. A small number of consultants may deal with diabetes without endocrinology, and a somewhat larger number may be endocrine specialists alone. There is an increasing number of diabetologists with a community diabetes specialty.

Inpatient work

Diabetes is over-represented in hospital populations (about 17% of NHS beds are occupied by diabetic patients), mostly due to complications such as coronary artery disease or foot ulceration with infection. Treatment alterations and glycaemic control are done on an outpatient basis by diabetes specialist nurses. Similarly, endocrine investigation and treatment are almost entirely done without hospital admission. Diabetes/endocrine specialists therefore have an unusually high inpatient load of general medical, rather than specialty, patients. Diabetic foot disease (the most commonly admitted diabetes-related disorder) is also increasingly managed on an outpatient basis with the support of multidisciplinary foot care teams. Inpatient consultation work varies considerably depending on the co-specialty profile of the hospital. Because of the high prevalence of diabetes comorbidity among hospital inpatients, there is a substantial workload in supporting colleagues in other specialties; this is increased considerably if there are tertiary referrals: maternity, renal, vascular or cardiac services.¹ For endocrinology, the workload is greater where a hospital has neurosurgery, a cancer centre or a specialist endocrine surgical service.

Outpatient work

Outpatient work comprises the following elements:

- General internal medicine (GIM): this load varies considerably. Most consultants will either run a separate general medical clinic or see such patients as part of their endocrine clinic.
- Diabetes services: new patient consultations for people with diabetes are complex and require approximately 30 minutes of consultation time.

Review diabetes patients require approximately 20 minutes but may require more time. Additional time with other healthcare professionals (eg specialist nurses and dietitians) may also be needed.

- Endocrine services: new endocrine patients require about 30 minutes of consultation time and review patients about 15 minutes. Complex reviews for pituitary patients or endocrine tumours, paediatric transition or genetic consultations may take longer and arrangements for joint consultation with other specialities are recommended.
- Nurse-led clinics: increasingly specialist services and diabetes and endocrinology are being provided by nurse-led clinics. These are an invaluable resource that ensure that the appropriate review of many patients. They do, however, still require consultant support.

Academic medicine

Physicians in the specialty who have university contracts generally divide their time equally between research and a clinical work programme similar in configuration but reduced by 50% of the volume to their NHS colleagues. Quite frequently, the clinical contribution will be restricted to the specialty (eg no GIM, or only endocrinology). The academic component of such posts usually focuses primarily on research, but there is likely to be a substantial teaching load and other academic, administrative and managerial responsibilities.

7 Opportunities for integrated care

These have been partly covered in section 4. Examples of integrated care in the specialty of diabetes and endocrinology include:

- the diabetes team: consultant, specialist nurse, dietitian and podiatrist
- the extended diabetes team: vascular surgeon, orthopaedic surgeon, nephrologist, ophthalmologist, optometrist, psychologist, etc
- diabetes links with primary care, including community diabetologists and GPwSIs in diabetes
- endocrine links with nuclear medicine (for treatment of thyrotoxicosis): endocrine surgeons, geneticists and paediatricians
- joint management of patients with pituitary disease with pituitary surgeons, in pituitary centres
- transitional care (in both diabetes and endocrinology) for the efficient and sensitive move from paediatric to adult care.

8 Workforce requirements for the specialty

Current workforce numbers

The 2011 annual Diabetes UK RCP manpower survey identified 723 whole-time equivalent (WTE) consultants in the UK. These numbers give WTE consultants per 100,000: England 1.1, Scotland 1.51, Wales 1.4 and Northern Ireland 1.67. This represents a small overall increase in WTEs in the UK, from 1.04 in 2009 to 1.16 in 2011. The number of consultants working single-handedly in hospitals is very small. There has been a rise in the numbers of posts combining acute medicine and diabetes and/or endocrinology that appears to reflect a lack of vacancies in recent years in the specialty.

Estimated number of consultants needed to provide a specialist service for a population of 250,000

There has been a considerable increase in type 2 diabetes prevalence and the prospect of formal screening for diabetes is likely to result in a steep rise in demand for diabetes care; epidemiological studies suggest that screening may double the number of those identified as having diabetes. The latest Diabetes Prevalence Model (2010) from the Association of Public Health Observatories estimates that the prevalence of diabetes will be 8% in England by 2015.

Current healthcare policy is to encourage the development of ongoing primary and intermediate care for diabetes services. These services will, however, require support and supervision from specialists. The combination of these factors makes it difficult to accurately calculate the need for specialist and secondary diabetes care. The best current estimate is that the increased prevalence and longevity of people with diabetes and the increased complexity of care, plus the provision of new care models, will mean an increase in the workload of diabetes specialists. The work of the specialist is likely to change over time, with more emphasis on work outside secondary care but also an increase in work focused on inpatients with diabetes.

For endocrinology, it is also expected that the devolution of more routine care will be balanced by the increased complexity of treatment options for rare conditions. Table 1 shows a recommendation of what could be regarded as the minimum involvement in diabetes and endocrinology to provide a service for a 250,000 population. It is expressed as time divided into programmed activities (PAs) (4-hour sessions). This analysis is for a consultant-provided service and does not accurately take outpatient activity by other grades into account. The demands of acute medicine on specialty registrars (StRs) and the need to supervise juniors mean that most consultants feel that it is not possible to quantify the input from them. Some centres run parallel nurse-led clinics, which are not included.

Table 1 shows that for the specialty commitment alone for a 250,000 population there is a need for at least 4 consultants in endocrinology and diabetes, with a 10-PA contract allowing for a GIM/acute medicine component and for supporting professional activities. No allowance has been made for managerial, regional or national roles. This would require 877 WTEs at consultant level for England and Wales (609 in 2011).

9 Consultant work programme/specimen job plan

The programme in Table 2 assumes the above estimated number of physicians sharing a general medical commitment and working a 10-PA contract. This would fit a typical district general hospital in diabetes and endocrinology and would be different for more specialised or academic posts. Many of the activities are given as a range because individual posts will vary widely even in a single department.

10 Key points for commissioners

- 1 Diabetes is rapidly increasing in prevalence, consumes about 10% of NHS resources and uses about 17% of NHS beds.
- 2 Many diabetic patients (eg those with uncomplicated type 2 diabetes) can be cared for in primary care.
- 3 Nevertheless, many will need secondary care specialty teams. These include most type 1 and complex type 2 patients.
- 4 Mandatory areas for secondary care include diabetic pregnancy, transitional (adolescent) care and diabetic foot ulceration.
- 5 Secondary care will also lead complex new treatments, eg insulin pumps, GLP1 agonists.
- 6 Educational systems (eg DAFNE, DESMOND and XPERT) need support in both primary and secondary care.
- 7 A smooth interface for diabetes care between primary and secondary care is vital and will be helped by community diabetologists and GPwSIs.

Table 1 Minimum requirements for a diabetes and endocrinology service for 250,000 peop	le in 2015
District population	250,000
Diabetes prevalence with 0.3 % increase/year	8%
Number of people with diabetes	20,000
Approximate number with type 1 diabetes	2,000
Approximate number with type 2 diabetes	18,000
General diabetes clinics*	Programmed activities (PAs) per week
New and follow-up patients, including, where necessary, specialist clinics, eg pumps (4–8 clinics) (This figure is dependent on the level of additional clinical support, including specialty registrars (StRs), doctor support networks (DSNs), GPwSIs and staff grades. In an increasingly consultant-led service the higher figure is probably more accurate)	8
Community support clinic (primary care, intermediate care, email and ethnic minorities)	2
Specialist diabetes clinics*	
Antenatal	1.5
Young adult	0.5
Paediatrics	0.5
Renal/cardiovascular	1
Foot	1
Ophthalmic	0.5
Inpatient care – daily input to admission units and at least two ward rounds per week (this is for emergency specialty care only, not acute GIM. It will require DSN support)	2
Trainee specialist and practice nurse support	0.5
Patient education	1
Diabetes network management	1
Supervision of trainees	1
Endocrine outpatient activity*	
New and follow-up patient clinics	4
Specialist/joint clinics (one clinic weekly)	1
Supervision and training of nurse-led clinics	0.5
MDM-radiology/biochemistry/histopathology	0.5
Supervision of trainees	1
General/acute medical activity	
Ward rounds, on call etc	4
Subtotal	31.5
Add allowance for supporting professional activity (+ 25 % of total)	8
Total	39.5
*Clinic allowances include provision for out-of-clinic administration.	

 $\mathsf{AAU} = \mathsf{acute} \ \mathsf{assessment} \ \mathsf{unit}; \\ \mathsf{GIM} = \mathsf{general} \ \mathsf{internal} \ \mathsf{medicine}; \\ \mathsf{GPwSI} = \mathsf{general} \ \mathsf{practitioner} \ \mathsf{with} \ \mathsf{specialist} \ \mathsf{interest}.$

Table 2 Example of a consultant work programme				
Activity	Workload	Programmed activities (PAs)		
Direct clinical care				
Ward rounds, referrals, on call	20–25 patients	1–3.5		
Outpatient clinics				
Diabetes	4 new and 6 follow-up or 12 follow-up patients	1–4.5		
Endocrinology	4 new and 8 follow-up or 16 follow-up patients	0.5–3.5		
Specialist clinics: diabetes and endocrinology	8 new/follow-up patients	1		
Patient-related and supporting clinical administration		1.5–2.5		
Patient education, health professional education and community support		1		
Total number of direct clinical care PAs on average		7.5		
Supporting professional activities (SPAs)				
Service management: trust and network	Departmental management and service development	1.5		
Work to maintain and improve the quality of healthcare	Education and training, appraisal, audit and clinical governance, continuing professional development and revalidation, and research	1		
Other NHS responsibilities	For example, medical director, clinical director, lead consultant in specialty, clinical tutor with trust	Local agreement		

- 8 Key documents for commissioning diabetes services are *Commissioning diabetes without walls*³ and *Commissioning specialist diabetes services for adults with diabetes.*⁴
- 9 Demand for endocrine services in secondary care is also increasing, especially with regard to thyroid disease.
- 10 Complex endocrine disease may need relatively expensive investigation and treatment (eg growth hormone, octreotide, tolvaptan and cinacalcet), with specialist services being commissioned nationally (www.specialisedservices.nhs.uk).

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Gastroenterology and hepatology

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1 Description of the specialty

The specialty of gastroenterology and hepatology cares for patients with both benign and malignant disorders of the gastrointestinal (GI) tract and liver. The specialty encompasses a wide range of conditions – from common disorders, such as indigestion and irritable bowel syndrome, to highly complex problems, such as inflammatory bowel disease (IBD) and liver failure – and specialised procedures such as endoscopic resection of cancers and liver transplantation.

Gastroenterologists also see patients with a variety of general medical problems, particularly anaemia and weight loss. Much of the work, particularly to exclude organic disease in symptomatic patients and to provide rapid diagnosis and treatment for patients with suspected GI cancer, is based in outpatients. The investigations required often include endoscopy and imaging. An acute and emergency inpatient service is needed for common problems such as gastrointestinal haemorrhage, acute IBD and decompensated liver disease (particularly due to alcohol).

Gastroenterologists are involved in the National Bowel Cancer Screening Programme and provide a highquality, safe, diagnostic and therapeutic (removal of polyps) colonoscopy service.

Gastroenterology departments have an essential role in the implementation of urgent referral for patients with suspected cancer ('2-week referrals') to improve the diagnosis and treatment of GI cancers. Several departments have combined to form multidisciplinary teams (MDTs) in order to provide the critical mass of specialists needed to meet the standards for England of the Department of Health's (DH's) Clinical Outcomes Group (COG) for the provision of specialist services.¹

• Tertiary referral units may receive patients with complex IBD or hepatobiliary disease or complex

nutritional problems (who may require home total parenteral nutrition) or who require advanced therapeutic endoscopy.

• Patients who require transplantation of the liver and small intestine are referred to the small number of units that undertake organ transplantation.

Malnutrition is common in hospital patients $(\sim 35\%)$ and associated with increased morbidity and mortality.² Every healthcare facility should be screening nutritional status using the Malnutrition Universal Screening Tool (MUST), or equivalent. Patients found to be at risk should ideally be referred to a multidisciplinary nutrition support team.

2 Organisation of the service and patterns of referral

Most symptomatic patients are looked after by their GP, and most problems are resolved by discussion, primary care-initiated investigation, advice and medical treatment. Nonetheless, there has been a continuing steady increase in outpatient and inpatient work for gastroenterologists, particularly in relation to alcoholic liver disease and the increasing numbers of cancers of the GI tract that occur in an ageing population. The inpatient casemix usually comprises patients with GI bleeding, cancer, severe alcoholic liver disease and acute severe IBD.

Close liaison with colleagues in surgery, radiology, pathology and oncology facilitates the treatment of different forms of GI disease. Combined outpatient clinics (ie colorectal surgeon and gastroenterologist) undoubtedly improve management, and weekly cancer multidisciplinary team (MDT) meetings are a useful forum for discussing all complex cases. Meetings with radiologists and pathologists should take place at least once a week and can be combined with formal training sessions for trainees. Many units have established posts for nurses specialising in IBD, liver disease, disorders of bowel function and nutritional support. The specialist nurses are used in the main for task- and process-oriented services to streamline clinical pathways. One effect of this is to increase the complexity of cases for medical staff in clinics. Larger departments may employ consultant GI nurses, nurse endoscopists and GPs with a special interest (GPwSIs) who will often carry out sessions in the hospital unit.

3 Working with patients: patient-centred care

Patient choice and involving patients in decisions about their treatment

Much of the outpatient work in gastroenterology relates to the management of chronic conditions such as chronic liver disease and IBD. Success depends on a good working relationship with the patient, whereby the patient has a full understanding of and participates in the management of their condition and it is clear where responsibility lies in patient care for the specialist, patient and GP. An example of this is where patients with IBD will often initiate a change in their treatment in the face of a relapse of their disease, usually in close liaison with the specialist team or GP, or both. A further example is the self-help strategies and biofeedback that are used to treat the highly prevalent symptoms of gut dysfunction.

Patients are represented on the joint gastroenterology/ hepatology committee of the Royal College of Physicians (RCP) and, through Crohn's and Colitis UK (NACC), are involved in the generation of standards of care for patients with inflammatory bowel disease. Similarly, patients have been involved in setting standards for nutritional support through Patients on Intravenous and Nasogastric Nutrition Therapy (PINNT) – a core group of the British Association for Parenteral & Enteral Nutrition (BAPEN). The British Society for Gastroenterology (BSG) endoscopy section has devised comprehensive information leaflets for all patients undergoing endoscopy. The British Liver Trust and Core – the main GI charity – also produce many helpful documents for patients. All of the charitable bodies have excellent interactive websites, as does the BSG, with a website that has a dedicated patient information area.

4 Interspecialty and interdisciplinary liaison

Multidisciplinary teams and working with other specialists

The practice of gastroenterology involves many specialties, such as radiology and pathology, and perhaps a greater overlap between medical and surgical practice than for any other specialty. This is coordinated through MDT meetings, and facilitating close liaison with tertiary referral centres is an integral part of the management of complex GI problems – eg IBD, complex liver disease, pancreatic cancer, liver or small bowel transplantation, and complex nutritional problems that often require home parenteral nutrition. Specialist nurses in nutrition, stoma care, GI oncology, general gastroenterology and management of the treatment of viral hepatitis play an increasingly valuable role in improving the quality of service, communication and liaison between disciplines within the team. Hospital and community dietitians are vital members of the GI team.

Working with GP specialists

The development of primary care practitioners with an interest in gastroenterology and/or endoscopy has been a major advance during the last decade. Nationally, primary care specialists have been closely involved in the production of guidelines by the National Institute for Health and Care Excellence (NICE).

5 Delivering a high-quality service

Characteristics of a high-quality service

Care for patients with GI symptoms should be timely, evidence based, patient focused and consultant led. Although most patient care takes place in the outpatient department, this should be supported ideally by a combined medical and surgical inpatient unit that provides senior-level expertise for the management of inpatients with GI emergencies 7 days a week. A high-quality service will:

- have properly timetabled audit and clinical governance meetings
- fulfil the Joint Advisory Group (JAG) on GI Endoscopy's requirements for endoscopy
- have sufficient time for staff development and appraisal

- provide consultant input into clinical management at a high level
- facilitate research and academic interests where appropriate
- use evidence-based national and local guidelines on patient management.

Consultants will also work closely with colleagues in other trusts to provide clinical networks to ensure that patients receive the highest quality of care. The BSG has produced a document on care standards for patients with GI disorders³ and recommendations on out-of-hours care.⁴

Resources required for a high-quality service

Specialised facilities

Specialised facilities are described clearly in the BSG's working party report of 2001 (*Provision of endoscopy-related services in district general hospitals*)⁵ and in the RCP's 2005 report.⁶ Specialised facilities include: diagnostic and therapeutic endoscopy unit; facilities for parenteral nutrition; operative, anaesthetic and intensive therapy unit (ITU) support; interventional radiology; and access to oncology and tertiary referral units (eg regional liver centres).

Adequate secretarial support for every consultant is essential. Communication is central to the safe management of patients, and good information technology (IT) is necessary for auditing standards of practice within the department. There should be computer terminals at all workstations and in endoscopy rooms and offices. In most gastroenterology departments, specialist nurses in endoscopy, cancer and palliative care are fully integrated into the management structure.

Quality standards and measures of the quality of specialist services

Specialist society guidelines

In 2006, the BSG produced a quality standards document backed up by data gathered over a 1-year period.³ This provides information on all aspects of gastroenterological practice and how this can be improved. The BSG provides guidelines for the highest standards of care in all areas of clinical practice in gastroenterology. These have been published by *Gut* and are available on the BSG's website (www.bsg.org.uk).

6 Clinical work of consultants

Contribution to acute medicine

About 60% of gastroenterologists participate in unselected medical take. They therefore commit a major part of their time to the management of patients with general medical problems as part of their unselected acute medical take, ward work and outpatient work. The workload associated with acute medical take will increase after the president of the RCP recommended that consultant physicians should be on site for 12-hour stretches each day at weekends and bank holidays when on call.

Many larger departments are adopting new models of service delivery to allow the consultant 'on the wards' time to focus on the delivery of high-quality care to inpatients which also includes responsibility for GI bleeding. Elective outpatient clinics and endoscopy lists are usually cancelled while 'on the wards' so that time is available for seeing inpatient referrals and emergency procedures, etc.

Many consultant gastroenterologists act as trainers in both the specialty and general medicine for foundation year 1 and 2 trainees, core medical trainees and specialty registrars. Calculations suggest that the time taken to train, appraise and complete the e-portfolio should be a minimum of 0.25 programmed activities (PAs) per trainee.

This section describes the work of a consultant physician providing a service in acute general medicine and gastroenterology and recommends a workload consistent with high standards of patient care. It sets out the work generated in gastroenterology by a 250,000 population and gives the consultant workload as PA for each element of such a service.

The gastroenterology committee of the RCP and the BSG have published several studies concerned with the provision of a combined general medical and gastroenterology service. The most recent summarised the nature and standards of gastrointestinal and liver services in the UK.³

Working for patients

A consultant-led team should look after no more than 20–25 inpatients at any time. Most patients are admitted on emergency 'take' days with various general medical problems or are gastroenterological
emergencies triaged to the ward. A minority are admitted, urgently or electively, for evaluation of GI problems. PAs need to be allocated for at least three specialist ward rounds per week and one post-take ward round per week per consultant, bearing in mind the RCP's recommendations on the amount of time that should be devoted to each patient.⁶

Outpatient work

New patient clinic

A consultant physician in gastroenterology working alone in a new patient clinic may see 6–8 new patients in a session, usually equivalent to one PA. The exact number of patients is dependent on experience and the complexity of the problem. Each new patient should be given approximately 30 minutes.

Follow-up clinics

A consultant physician working alone in a clinic for selected patients after acute medical or gastroenterological admission may see 12–15 patients in a session, usually equivalent to one PA. Each follow-up consultation should be given about 15 minutes. A physician working alone in a specialist follow-up clinic for chronic GI and liver disease sees 10–12 patients in one session. In practice, most gastroenterologists will run clinics that involve a mixture of new and old patients.

Support from junior medical staff

Outpatient clinics are often run with doctors in training; time must be allocated to review the patients seen by the trainees. The number of patients seen by junior members of staff depends on their experience but in general the outpatient workload is increased by about 50% of that undertaken by the consultant. It should be noted that this creates a potential saving only in outpatient and endoscopy consultant sessions and not in the other components of the consultant's work. Moreover, this saving (which amounts to perhaps one session) is counterbalanced by the need for the consultant to devote time to training (including training in endoscopy). A specialist trainee should be able to see 4 new patients or 10 follow-up patients or some combination of the two.

Diagnostic and therapeutic endoscopy

It is essential that adequate time for training is allowed and that dedicated endoscopy training lists are scheduled into the programme. Training sessions inevitably reduce the service throughput. Hands-on training cannot be carried out during a busy service endoscopy list.

The workload of a consultant physician undertaking endoscopy depends on the procedure:

- Diagnostic upper gastrointestinal endoscopy: allowing 15–20 minutes per procedure, a maximum of 10–12 procedures should be carried out in a session equivalent to one PA. For a teaching session, 6–10 patients should be allocated, with the number depending on the experience of the trainee.
- Diagnostic flexible sigmoidoscopy: a maximum of 8–10 procedures should be carried out in a session equivalent to one PA.
- Therapeutic upper gastrointestinal endoscopy: this includes oesophageal or pyloric dilatation, treatment of bleeding ulcers, endoscopic resection of polyps or high-grade dysplasia in Barrett's oesophagus, palliative treatment of oesophageal or gastric cancer and placement of feeding tubes (percutaneous endoscopic gastrostomy (PEG)). Such procedures take two to three times as long as routine upper GI endoscopy and, allowing 30–40 minutes per procedure, 5–6 might be undertaken in a session (4–5 for a teaching session).
- Therapeutic flexible sigmoidoscopy: this usually involves polypectomy and takes twice as long as routine flexible sigmoidoscopy; 5–8 procedures might be undertaken in a session.
- Diagnostic and therapeutic colonoscopy: there should be a maximum of 6 colonoscopies per session (3–4 for a teaching session), allowing 30–40 minutes per procedure.
- Diagnostic and therapeutic endoscopic retrograde cholangiopancreatography (ERCP): a maximum of 4 procedures should be carried out in one session.
- Endoscopic ultrasound: 4–6 procedures should be carried out in one session but this will depend upon the complexity (oesophagogastric or hepatic, pancreatic or biliary) and type (diagnostic or therapeutic) of procedures.
- Video capsule endoscopy technology allows diagnostic views of the small intestine. Numbers of capsule studies read in a session depend on the experience of the operator and the length of the study.
- Endoscopic tests of the small intestine (enteroscopy) are time-consuming because the small bowel is long

(up to 6 metres) and easily forms loops when intubated. Passage may be assisted with balloons or spirals. These procedures are usually used to provide therapy to abnormalities found by capsule or radiological procedures. Numbers of tests in a session depend on the complexity of the procedure.

On call for GI emergencies

For the safety of patients, it is necessary that NHS organisations have formal and robust arrangements to care for emergency patients presenting with upper GI bleeding, every day of the year, throughout the UK.

The BSG have published documents on out-of-hours care^{4,7} calling for a reorganisation of services ('hub-and-spoke' model) to provide for safe care of all GI emergencies. In larger units ('hub') emergency cover may be available 24 hours a day, 7 days a week. On-call rotas should include all of those with appropriate skills, particularly members of the medical and surgical GI teams and interventional radiologists.⁷ Even in the smaller units ('spoke'), as far as possible, the aim should be to schedule sessions during the week and at weekends to manage patients admitted with acute GI bleeding.

The BSG strongly endorse the need for 7-day care (not necessarily 24 hours) for patients with acute severe upper GI bleeding and acute severe entero colitis and for those with acute liver failure or acute cholangitis: an acute GI service is needed that covers all hospitals. This would require a consultant gastroenterologist to undertake a ward round at weekends and on bank holidays in addition to standard care.

Nutrition service

Nutrition teams responsible for enteral and parenteral feeding services are usually led by consultant physicians with an interest in gastroenterology. This should be within the context of an MDT with core members comprising dietitians, nurses, pharmacist and clinician (usually a gastroenterologist). These teams have expertise in the promotion of adequate nutrition, eg physical help, protected mealtimes, nasogastric tube, PEG feeding or parenteral nutrition.

Supervision of home-based parenteral nutrition for patients with type 2 or 3 intestinal failure is usually provided from specialist centres. Nutritional rounds

need to be regular and would be expected to account for 2 hours per week for the gastroenterologists who take responsibility for the nutritional service. Such rounds will often include critical care and surgical wards. All acute hospitals should have at least one nutrition nurse.8

Gastroenterologists are responsible for the placement of PEG tubes and are now required to be intimately involved in the pre-assessment of patients referred for the procedure and in obtaining consent.

Hepatology

Hepatology has developed as a subspecialty such that most gastroenterology units will require one or two hepatologists or at least someone who takes a lead role for liver disease, while transplant hepatology is delivered in tertiary supra-regional units. Training in hepatology has been boosted by an extra sixth year specialty hepatology training module. Alcoholic liver disease has increased the burden of acute hospital admissions, while specialist hepatitis B and C clinics are provided on an outpatient basis. Hepatocellular cancer (HCC) is increasing in incidence, and hepatologists are responsible for surveillance of patients with cirrhosis, and often for discussions on treatment of HCC as part of MDT meetings.

Academic medicine

Academic gastroenterologists are crucial for the development and implementation of new ideas about disease pathogenesis and treatment. Clinical academics often provide specialist clinical services and tertiary advice related to their research activity and play a crucial role in training the future consultant body. The clinical contribution of academic gastroenterologists varies widely depending on their other responsibilities and some academics may take on clinical leadership roles within the NHS. Most hold an honorary consultant contract with their local NHS trust, and the usual ratio of academic work to service work is 50:50, although wide variations and great flexibility exist in practice. The academic gastroenterologist would be expected to provide proportional input into the gastroenterology service according to the nature of the contract and the job plan which should be agreed by university and NHS as part of the joint appraisal process. It should be stressed that this will be proportionate for all activities in a gastroenterologist's job description, including support, training, governance, teaching (often undertaken during

academic part of job plan) and administrative roles, as well as direct patient-related activities.

7 Opportunities for integrated care

A more fluid relationship between primary and secondary care is developing, eg Choose and Book guidance and advice. There are opportunities for GPs to develop special interests and to work within GP clusters to advise on referrals to secondary care and to undertake specialist clinics in the community. Future management of chronic conditions such as irritable bowel syndrome (IBS), dyspepsia and coeliac disease will need to involve integrated care to decrease referrals to secondary care. By collating activities such as referral management, use of Choose and Book (guidance/advice), clinical assessment services, telephone helplines, GP education and feedback for improvements in integrated care may be achievable. Shared care protocols for monitoring of drugs such as thiopurines are required to facilitate safe follow-up in the community.

Diagnostic endoscopic procedures such as flexible sigmoidoscopy may be undertaken in community hospitals but the JAG standards will make this a less attractive option.

8 Workforce requirements for the specialty

Current workforce numbers

On 30 September 2012, there were 1,005 consultant gastroenterologists in England. A whole-time consultant currently serves a population of around 51,000; however, there is considerable variation. Presently, 15% of consultants are women and only 14% of consultants work part time (receive <10 programmed activities (PAs)).

There has been a 30% expansion in trainee numbers over the last 8 years. There are currently 622 trainees in gastroenterology in England.

Consultant PAs required for a 250,000 population

The numbers of PAs required depends on the volume of inpatient, outpatient, endoscopic work and on-call responsibilities.

Inpatient service

Two to three consultant PAs per week should be allocated for inpatient rounds, discharge letters and

other related administration, with an additional consultant PA per week for a post-take ward round. A consultant may require additional PA time to see inpatient referrals, patients and relatives on an ad-hoc basis and to review the results of investigations. Each consultant is likely to commit half a PA to formal MDT meetings.

Outpatient service

Outpatient services are often provided by the consultant staff and team in training. The reduction of junior doctors' hours and the commitment to run the emergency medical service often means that the junior medical staff cannot attend outpatient clinics regularly. In this example, it is assumed that the consultant physician is working alone in the outpatient department.

New outpatient referrals

A district general hospital (DGH) serving a 250,000 population may receive about 4,000 new patients with GI conditions each year. This will include urgent suspected cancer referrals and up to 25% may be for patients with liver disease. A variable proportion of this workload - around 1,500 cases - will be seen by gastrointestinal surgeons. The remaining 2,500 require 8–10 consultant PAs per week for consultants working alone in the outpatient clinic. The incidence of liver disease is increasing rapidly, particularly as a result of alcohol-associated liver damage and obesity-related liver disease. In addition, up to 0.7% or more of the population may be carriers of hepatitis C or B, and the workload associated with this will increase substantially as case-finding initiatives are being rolled out.

Diagnostic and therapeutic endoscopy service

- Diagnostic upper GI endoscopy: the annual incidence for upper GI endoscopy in the general population is about 1% or 2,500 procedures in a DGH serving a 250,000 population. It is assumed that half of the procedures will be performed by GI physicians and that, with training requirements, this will amount to three PAs per week, but this will depend on the contributions of surgeons, other medical and nursing staff to service delivery.
- The annual incidences of flexible sigmoidoscopy and colonoscopy are currently 0.8% and 0.6%, respectively, but, with screening for colon cancer and increasing referrals through the referral system for suspected lower GI cancer, this is presumed to increase to 1% each, which amounts to 2,500 of each

procedure annually. Half of these are likely to be performed by GI physicians. Nine PAs per week are required for these procedures, allowing for training requirements.

- Endoscopic ultrasound scanning (EUS) and ERCP: these are currently performed at an annual incidence of 0.2%, with little change anticipated. Four PAs are needed for ERCP and EUS, assuming that 80% of these are performed by GI physicians.
- Cancer screening and surveillance programmes: there is a national bowel cancer screening programme needing approximately two lists per week of colonoscopy, rising to three lists per week with full age and regional roll-out, and an increasing surveillance burden generated from investigating and treating these patients. Approximately 2 (rising to 3) PAs are required for this activity.

Out-of-hours GI service

An out-of-hours (OOH) GI service may include an emergency therapeutic endoscopy service alone or 7-day cover for patients with acute GI emergencies. The cost implications of the OOH endoscopy service will depend on the nature of the service (24 hours or daytime cover only) and the number of consultants on the rota but is likely to cost at least one consultant PA per week. Weekend and bank holiday cover for inpatients would cost about 1 PA (3 hours of premium time) for each day covered.

Nutrition service

This service requires up to two consultant PAs per week.

Consultant programmed activities required to provide a service in gastroenterology and general internal medicine in a DGH

Direct patient care

Where members of the junior medical staff provide support for the inpatient service and consultants provide the outpatient and endoscopic service, about 54 PAs per week are required to provide a service in a DGH with an average workload. The number of PAs required to run the service is reduced if part of the work is undertaken by consultant colleagues – eg those in radiology or surgery might share the endoscopic workload over and above that assumed in the calculations above. It has been assumed that half of all upper and lower GI endoscopic procedures will be performed by non-GI physicians – either other consultants or nurse specialists. Regular help in outpatients may come from junior medical staff – each of whom might contribute to the work done by around 50% of that recommended for a consultant PA. It should be noted that the delivery of an endoscopy training list is counted as a direct clinical care session.

Work to maintain and improve the quality of care

Additional PAs for each consultant are required for this work. This has been estimated at up to 2.5 PAs per consultant, using the RCP's guidelines, and includes: continuing professional development (CPD); teaching of junior medical staff, nursing staff and medical students; administration and management; clinical research; and clinical governance.

On the basis of these conditions and recommendations, the number of PAs needed to provide a clinical service in gastroenterology and general medicine for a DGH serving a 250,000 population can be calculated. Allowing 2.5 PAs for each consultant for the supporting activities (SPAs) given above, the total is 69 PAs (this assumes 6 consultants all working 11.5 PAs per week).

Table 1 summarises the work programme of consultant gastroenterologists providing a service for a 250,000 population, giving the recommended workload and allocation of PAs (see page 106).

National consultant workforce requirement

The calculation allows an estimate of the national consultant requirement to be made. Assuming the population of England and Wales is 53,861,800 (DH figures for 2008), the total need in England and Wales is 1,753 head count consultants in gastroenterology (with general medicine), using the Centre for Workforce Intelligence calculations.

9 Consultant work programme/specimen job plan

Table 2 summarises an example of the work programme of consultant physicians undertaking gastroenterology and acute general medicine, giving the recommended workload and allocation of PAs.

Activity	Workload	Programmed activities (PAs)
Direct patient care		
Ward rounds (except on-take and post-take)		3
Outpatient clinics New patients Follow-up patients	6–8 patients per clinic 12–15 patients per clinic	9 13
Diagnostic and therapeutic endoscopy Diagnostic and therapeutic upper GI endoscopy Diagnostic flexible sigmoidoscopy Diagnostic and therapeutic colonoscopy EUS and ERCP	(10–12 patients per PA) (10–12 patients per clinic) (6 patients per clinic) (5 patients per clinic)	3 3 6 4
Nutrition service On-take, and mandatory post-take rounds Rota 1:10 for this example		2 1
MDT meetings Additional direct clinical care		3 6
On call for emergency endoscopy (assuming some registrar input to the rota)		1
Total direct patient care		54
Work to maintain and improve the quality of care (6 consultants)		15
Total		69

Table 1 Work undertaken by consultant gastroenterologists (total PAs per week) serving a population of 250,000

10 Key points for commissioners

A good-quality service for gastroenterology and hepatology should include:⁹

- 1 an endoscopy service that participates in the Global Rating System, is accredited by the JAG, participates in national audit, provides/participates in a network that provides 24-hour/7-day endoscopy service for gastrointestinal bleeding and ensures that all patients over 40 with recent onset rectal bleeding and/or persistent diarrhoea > 3 weeks have access to flexible sigmoidoscopy or colonoscopy within 4 weeks. Efficient use of facilities should usually include evening and weekend lists. Commissioners should negotiate with trusts to achieve a transparent shift of activity from unnecessary endoscopy in young patients with dyspepsia towards appropriately increased resources to meet appropriately increased demand for lower-GI endoscopy
- 2 an inflammatory bowel disease service that is separately commissioned, conforms to the IBD Standards (www.ibdstandards.org.uk) and participates in national clinical audit

- 3 a hepatology service that is separately commissioned and that ensures appropriate monitoring of patients with chronic liver disease for prophylactic treatment of varices and early diagnosis of hepatocellular carcinoma, and that includes 7 days/week availability of appropriately trained specialist care for patients with acute jaundice and liver failure. The service should be provided by an appropriate MDT as defined in the National Liver Plan (www.bsg.org.uk/attachments/1004_National% 20Liver%20Plan%202009.pdf)
- 4 provision of a consultant gastroenterology/ hepatology ward round on each day including weekends and public holidays
- 5 a multidisciplinary alcohol care team, integrated across primary and secondary care but with a hospital base, providing a 7 days/week service to support patients with alcohol-related problems, improve abstinence, and reduce re-admission rates
- 6 efficient use of outpatient services with low follow-up to new ratios, eg 1:1 for patients excluding those with chronic disease (IBD and liver disease) and appropriate use of nurse-led clinics, telephone

Activity	Workload	Programmed activities (PAs)	
Direct clinical care			
On-take and mandatory post-take rounds	(According to numbers of admissions, rota and non-consultant support) It is recommended that all other activities are cancelled for a large proportion of the time when a consultant is on-take for acute medicine, which will clearly have an impact on the routine clinical workload that can be undertaken by a consultant.	1–4	
Oncall for emergency endoscopy		0–1	
Ward rounds and other inpatient work (except post-take rounds – see above)		2	
Referrals and specialist services (eg nutrition rounds, monitoring service)		1	
Diagnostic and therapeutic endoscopy*	Diagnostic upper GI endoscopy: 10–12 [†] Therapeutic upper GI endoscopy: 5–6 [†] Diagnostic flexible sigmoidoscopy: 10–12 [†] Diagnostic and therapeutic colonoscopy: 6 [†] Diagnostic and therapeutic ERCP: 4 [†]	1–2	
Outpatients (general medical or specialist)	New: 6–8 patients per clinic	1–2	
Clinically related administration	ronow-up. 12–15 patients per chine	1.5–2.5	
Total number of direct clinical care PAs		7.5 on average	
Supporting professional activities (SPAs)			
Work to maintain and improve the quality of healthcare	Education and training, appraisal, departmental management and service development, audit and clinical governance, CPD and revalidation, research	2.5 on average	
Other NHS responsibilities	eg medical director, clinical director, lead consultant in specialty, clinical tutor	Local agreement with trust	
External duties	eg work for deaneries, royal colleges, specialist societies, DH or other government bodies, etc	Local agreement with trust	
*List sizes will be reduced proportionately if training is included.			

Table 2 Example work programme of consultant physicians undertaking gastroenterology

[†]Numbers = patients per 4-hour list.

and email consultation. Efficient first consultation for new patients should be facilitated by the use of structured referral forms containing relevant data and pre-investigation results, agreed by local consultation between primary and secondary care. Secondary-care trusts should provide explicit information that allows targeted referral of patients to the most appropriate subspecialty service

7 a multidisciplinary nutrition service that provides daily input into the care of inpatients with nutritional problems, and provides specialist dietetic

support in all settings for patients with special dietary requirements including patients with liver disease, IBD, coeliac disease and patients with short bowel. A coeliac disease service conforming to NICE (www.nice.org.uk/CG86) and European Society for Paediatric Gastroenterology, Hepatology and Nutrition (www.espghan.med.up.pt) standards on diagnosis, national guidance on management and using cost-efficient pharmacy supply schemes to manage prescriptions.

See also Table 3.

Table 3 Commissioning gastroenterology services and measuring quality			
	Effectiveness	Safety	Patient experience
Irritable bowel syndrome	NICE CG61 (2008); ¹⁰ BSG guideline (2007) ¹¹	Audit	Patient questionnaires
Iron-deficiency anaemia	BSG guideline (2011) ¹²	Audit	Questionnaire
Nutrition	NICE CG32 (2006) ⁸	NCEPOD report 2010	Audit
Coeliac disease	NICE CG86 (2009) ¹³	Audit	Patient questionnaires
Dyspepsia	NICE CG17 (2004) ¹⁴	Audit	
Inflammatory bowel disease	National standards for IBD Care (2009); ¹⁵ BSG guideline (2011); ¹⁶ NICE TA187 biologics (2010); ¹⁷ NICE CG118 (2011) ¹⁸	Results of National IBD Audit	Assessed by audit
Acute upper GI bleeding	<i>Scope for improvement</i> (2011); ⁷ BSG guideline (2009); ¹⁹ NICE CG 141 (2012) ²⁰	Results of National UGIB audit	Questionnaire
Alcohol-related disease	BSG guideline (2010); ²¹ NICE CG 115 (2011) ²²	Audit of alcohol-related (re)admissions and death	Survival without alcohol
Endoscopy services	BSG QA/Global Rating Scale ²³	BSG QA/Global Rating Scale; JAG approval	Global Rating Scale scores A/B; patient questionnaires

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Genitourinary medicine

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1 Description of the specialty

Genitourinary medicine (GUM) is the medical specialty concerned with the screening, diagnosis and management of sexually transmitted infections (STIs) and related genital medical conditions. In the past 30 years, the scope of clinical work has broadened to include human immunodeficiency virus (HIV) diagnosis and acquired immune deficiency syndrome (AIDS) management. STIs, including HIV, are currently of major public health concern. This has been recognised by the Department of Health (DH) and 48-hour access to GUM services was an NHS priority in England from 2008 to 2011.

A distinctive feature and strength of GUM clinics is the holistic approach whereby STIs and HIV diagnosis and management, contraceptive advice/emergency contraception, health promotion/risk reduction advice and partner notification, are all provided in the same clinic. However new commissioning arrangements from April 2013 mean GUM services including HIV prevention and diagnoses will be commissioned by local authorities and HIV management by the National Commissioning Board. It is hoped that this split will not lead to fragmentation of care.

The British Association for Sexual Health and HIV (BASHH) is the GUM national specialist society and is affiliated with the Royal College of Physicians (RCP). It provides the specialty with a framework for education, clinical governance and audit.

Who are the patients?

GUM is primarily outpatient based. The largest group of patients are those with STIs and a range of other sexual health conditions. Much activity is related to sexual health advice-seeking and screening which forms an important part of the prevention and public health role of the specialty. STIs affect all sections of the population; however, case finding by screening at-risk groups and the identification of sexual partners of persons with STIs are necessary components to control the spread of infection. Approximately 50% of patients are under 25 years of age. The service sees a disproportionate number of vulnerable people, eg young people, immigrants, drug users, commercial sex workers and offenders.

Main disease patterns

The impact of poor sexual health is greatest in young adults and in men who have sex with men (MSM). Over the past 10 years, increased transmission through unsafe sexual behaviour, especially among MSM, has contributed to a substantial increase in STI diagnoses. Untreated STIs can lead to serious costly sequelae. Management of STIs is important in the control of HIV infection because evidence indicates that STIs predispose to the transmission of HIV.

Patients with HIV infection form a rapidly increasing and time-consuming group with a wide variety of medical, social and other problems. Newly diagnosed HIV infections continue to increase. Highly active antiretroviral therapy (HAART) has improved survival, further adding to caseloads.

2 Organisation of the service and patterns of referral

A typical service

Historically, clinics provided an open access walk-in facility. Recently, higher numbers of patients and limited resources have led to increased use of appointment systems. Patients attend the clinic of their choice – this may or may not be near where they live or work because of travel or concerns about confidentiality. Sevices are working increasingly with contraceptive services to deliver more integrated sexual health services.

Sources of referral

Most patients self-refer but a proportion are referred from general practice, family planning, accident and emergency (A&E) departments and other providers.

Locality-based and/or regional services

Specialist services in GUM provide primary level STI management, particularly in urban areas and to those without easy access to health services. They also provide secondary and tertiary level referral and reference

services to other providers and training for healthcare workers. These functions require accessible, confidential services staffed by appropriately trained multidisciplinary teams.

Secondary care

GUM specialists provide a service for the community in designated departments. There should be facilities for outpatients, and any service with HIV-infected patients should have access to day care and beds. Although consultants work primarily in outpatient clinics, they are on call for urgent problems and provide support for other specialists. It is essential that single-handed consultants have regular meetings with GUM colleagues for audit and continuing professional development (CPD). GUM services are usually key stakeholders in the local chlamydia screening service.

Tertiary care

Examples of conditions managed in tertiary care include complex HIV disease, sexual problems and vulval disorders.

Community models of care

While historically GUM clinics were based in acute hospital sites, an increasing number are now provided within community settings. Some services are co-located with other sexual health providers or provide integrated services to variable degrees. The DH's national sexual health strategy for England and Wales outlined the increasing role that primary care is expected to take in screening for STIs.¹ The strategy set standards for those providing care at this level and GUM collaborates in developing protocols, training and clinical governance. There is evidence in primary care services of both increased screening for *Chlamydia trachomatis* and referral to GUM clinics.

Complementary services

Complementary medicine services are valued by patients with HIV and are usually supplied by voluntary services.

3 Working with patients: patient-centred care

What you do with patients

Involving patients in decisions about their treatment

It is essential that patients are involved in treatment decisions, especially for successful antiretroviral

therapy where it has been shown that the doctor-patient relationship and understanding of treatment are key components for the long-term adherence and success of therapy. To prevent onward transmission of STIs, patients need a clear understanding of the aims of therapy and the importance of partner notification. The specialty sets great store by these principles.

Patient choice: ethnic and religious considerations

Cultural sensitivity is essential in sexual health. Information for patients is published in many languages. Intimate examinations need to be carefully explained and understood by patients, especially those who may have cultural taboos in respect of female examination. Patients with HIV from developing countries will often have beliefs in traditional medicine or disease causation that need to be addressed. Sensitivity to patients' sexual orientation is an integral part of care.

Opportunities for education and promoting self care

Education is a cornerstone of GUM for the prevention of transmission of infection. Verbal explanations and written materials are provided for all patients with STIs/HIV during consultations. Health advisers provide an extra level of education for those with serious or recurrent disease, eg syphilis, gonorrhoea and HIV. Emphasis is placed on prevention (using condoms, number of sexual partners, healthcare-seeking behaviour). The relatively low incidence of HIV in the UK has been partly attributed to these interventions. MSM are routinely advised to have hepatitis B vaccination.

Patients with chronic conditions

The main groups are patients with HIV, hepatitis B and C, recurrent herpes, warts and the sequelae of pelvic inflammatory disease. Many patients opt for continuing care in GUM. Psychological services are required but are underprovided in the majority of clinics.

The role of the carer

A partner sitting in on the consultation can help to ensure that information and advice are understood, as long as issues of confidentiality are considered. Carers frequently accompany patients with HIV disease and can be vital to adherence to HAART.

Access to information, patient support groups and the role of expert patient

Information on STIs and other areas of sexual health is freely available through written material and clinical staff. Many clinics have websites providing clinic information and general information on STIs.

Patient support groups and expert patients have been a long established and valuable feature of HIV care, but, in the field of STIs, similar support groups and expert patients are notable by their rarity and should be encouraged. BASHH has establised a public panel and is producing patient information leaflets through its clinical effectiveness group. The Herpes Association and the Vulval Pain Society provide sources of support and information.

Availability of clinical records/results

Clinics increasingly provide results by text, email or 24-hour telephone lines. GUM outpatient records and computer registration are kept separate from general hospital records for reasons of confidentiality. Access to test results is increasingly linked to service laboratories by computer. Tests should be anonymised by coded identifiers. These systems should be 'firewalled' from users outside the clinic and laboratories. Access to notes by patients or for medicolegal reasons is as for other specialties.

4 Interspecialty and interdisciplinary liaison

Multidisciplinary team working

Multidisciplinary work is key to quality service delivery. Nurse-led clinics and nurse practitioners are increasingly frequent. Health advisers are an important part of teams. Close links with microbiologists and virologists are essential.

Many HIV services hold regular multidisciplinary team meetings which have an important training role.

Working with other specialists

Most patients with STIs and allied conditions are managed within the clinics. Relationships with other services include obstetrics and gynaecology, urology, pathology, family planning and psychology. Close links with the Health Protection Agency (HPA) have been forged over recent years and have yielded benefits in epidemiological surveillance and the targeting of health promotion. HIV patients require integrated care and collaboration between primary and secondary care and community health services. National standards have recommended the development of clinical networks to manage HIV infection.²

Working with GPs and GPs with a special interest (GPwSIs)

Sexual health has been identified as a priority for the development of GPwSIs. GUM has many GPs who do sessional work and are ideally placed to take on enhanced roles in primary care. The specialty is committed to working closely with the Royal College of General Practitioners (RCGP) and commissioning organisations to provide training programmes and clinical governance for these GPs.

Other specialty activity beyond local services

Many services have set up outreach clinics including primary healthcare settings and prisons. Most consultants take a leading role in local sexual health and HIV clinical networks.

5 Delivering a high-quality service

Standards that cover all aspects of management of STIs, including the diagnosis and treatment of individuals and the public health role of infection control, were published by BASHH in 2010.³

Characteristics of a high-quality service

For STIs

- All patients should be offered an appointment within 48 hours of contacting the service.
- Patients with a suspected acute STI should be seen on the day that they present.
- Clinics should be in good quality, easily accessible premises. Interviewing rooms and examination rooms should afford privacy.⁴
- Management includes taking a general and sexual history, a physical examination and collection of appropriate specimens. Patients should be offered a chaperone in line with General Medical Council (GMC) guidance.
- Clinical examination is supported by immediate microscopy of samples, requiring staff to be trained and monitored in their practice of microscopy.
- Patients often have multiple infections. STIs may be asymptomatic, and for that reason patients are offered screening for other common conditions.

- Provision of free treatment for STIs is a legal requirement.
- Patients with STIs are advised on the need to notify sexual partners at risk of infection and offered counselling on sexual health in general. They are offered leaflets to support verbal information and free condoms. Most clinics provide general contraceptive advice; some provide emergency and routine contraception methods.
- Follow-up appointments are required to assess resolution of symptoms and compliance with medication, to undertake tests of cure, to ensure that partners have been notified and to offer further sexual health advice if required.
- Enhanced confidentiality for all patients is set out in statute and must be guaranteed by all members of staff.
- All patients presenting to GUM clinics are offered screening for HIV infection.

For HIV infection

- Standards for NHS HIV services recommend the establishment of clinical networks.
- At the first visit, a full history is taken and a physical examination, including STI screen, is performed. Investigations include viral load and CD4 lymphocytes, and those for clinical or laboratory evidence of current or past comorbidity.
- Patients require regular monitoring of immunological and virological parameters and commencement on HAART as needed.
- When complications occur, outpatient or inpatient care with appropriate staff and facilities for investigations and management are required.
- Longer appointment times are required for HIV patients than those with STI.

Maintaining and improving the quality of care

Leadership role and development of the service Recent strategy documents have emphasised the need for more community-based care, and that standards should be set for this. Any service development must take into account the individual, and the impact on public health. The enhanced awareness and anticipated case finding will increase patient attendance at clinics. Adequate resources are the main requirement for improved patient care.

The principal aim is for patients suspecting an STI to be seen on the day that they present or when the clinic is next open. It is to be determined whether this is best provided by open access or a flexible appointment system. Evening and weekend working depends on adequate resources and contractual agreement. Staff skill mix and multidisciplinary working requires consideration but an overall increase in workforce is necessary to increase capacity.

Improved laboratory diagnosis, such as nucleic acid amplification tests, are under continual implementation. Implicit in these developments is the need to produce timely reports, entailing cooperation within trusts between laboratories and clinics, and more widely between the HPA and trusts.

Services should have agreed written guidance for all aspects of management to improve and maintain quality and maximise risk avoidance and management.

Education and training

Most teaching is carried out by NHS consultants in outpatient clinics and on undergraduate and postgraduate courses. The paucity of teaching time in GUM in most undergraduate courses is of concern. More academic posts would enhance the capacity for teaching. With the development and delivery of STI foundation courses, BASHH has a critical function in the delivery of sexual health education to non-specialists.

Mentoring and appraisal of medical and other professional staff

Consultants should be regarded as the team leader for clinical matters for medical, nursing and health advising staff of all grades. All staff should have annual appraisal and personal development planning.

Continuing professional development

Specialist GUM providers play a key role in supporting the delivery of education, training and governance across the range of providers within a sexual health economy and as such maintenance of CPD is essential. This is supported by BASHH scientific and CPD meetings, regionally and nationally throughout the year.

Clinical governance

GUM services are central to local networks of STI service providers, and essential for setting the clinical governance framework, for care pathways and for providing training to other services in the network. Clinical governance is overseen by BASHH's clinical governance committee.

Research

The establishment of special interest groups in GUM by BASHH has promoted the research agenda of the specialty. In HIV medicine, academic posts have been critical to clinical and basic research. Continued clinical and scientific research into STIs and HIV is essential and many clinics work closely with the Medical Research Council (MRC), industry and other partners.

Local management duties

Each GUM service providing diagnostic and therapeutic services for STI and HIV should be led by those holding a Certificate of Completion of Training (CCT), or equivalent, in GUM. As a multidisciplinary team, the day-to-day management leadership should devolve to a lead GUM consultant; he or she would have a managerial relationship to the general management structure of the provider trust.

Regional and national work

Many GUM specialists participate in regional and national work, for the RCP, BASHH and local deaneries, in addition to working closely with agencies such as the HPA on public health matters.

Specialty and national guidelines

Specialist guidelines for STIs were first published in 1999. The updated guidelines include other areas of practice and are available at www.bashh.org.⁵ Guidelines for HIV management and treatment are published by the British HIV Association (BHIVA). The National Institute for Health and Care Excellence (NICE) guidelines include:

- public health intervention guidance on the prevention of sexually transmitted infections and reduction of under-18 conceptions
- generic and specific interventions to support attitude and behaviour change at population and community levels
- increasing the uptake of HIV testing to reduce undiagnosed infection and prevent transmission among black African communities living in England (NICE 2011)
- increasing the uptake of HIV testing among men who have sex with men (NICE 2011).

Specialty and national audit

Consultants review the notes of patients to monitor quality of care and ensure that accurate diagnoses are

entered on workload and epidemiological returns made to trusts and the HPA on behalf of the DH.

In 2003, BASHH established a national audit group which undertakes an annual national audit. Specialtyspecific standards have been developed and are recommended as an integral part of the revalidation process. There are national HIV audits through BASHH and BHIVA programmes.

The British Co-operative Clinical Group, a special interest group of BASHH, conducts regular national surveys and publishes the results of clinic practices.

6 Clinical work of consultants

How a consultant works in this specialty

Inpatient work

The GUM service may require inpatient access for the management of complex infections (such as HIV-related complications). A range of inpatient specialties may require access to clinical opinion from GUM consultants, who should be available to give opinion to colleagues on request. GUM physicians who act as sole consultant for inpatients should have current knowledge of HIV/AIDS medicine to an acceptable level. Levels of junior medical staffing should be sufficient to support GUM admissions.

Ward rounds vary according to the numbers of patients. Many district general hospitals (DGHs) have only one or two GUM/HIV inpatients at any one time. Consultants in DGHs may be single-handed with minimal supporting staff and manage most/all of the care themselves. Alternatively, inpatient care may be shared with colleagues in other disciplines such as infection or thoracic medicine. Larger units have several GUM consultants, some of whom specialise in the management of HIV/AIDS, with either dedicated or shared junior staff.

Outpatient work

Most work in the specialty is outpatient based.

STI clinics. In a 4-hour session, consultants should allow 3.5 hours for their own patients and 0.5 hour for consultation, teaching and training. Clinical teaching forms a major part of the workload in teaching and non-teaching hospitals. Fewer patients will be seen while teaching but numbers vary according to casemix and supporting staff. Adequate time must be allowed to

practise to a satisfactory standard, especially for consultants working single-handedly.

HIV clinics. Where dedicated HIV clinics are held, other healthcare professionals should be available including pharmacists, dietitians and clinical psychologists. Education on therapy and adherence are essential elements of specialised support for patients.

Other specialist clinics. Consultants may undertake other clinics depending on casemix and local requirements. Many offer consultant specialist clinics, eg for psychosexual problems and erectile dysfunction, and clinical problem clinics, eg for pelvic pain. These require nursing support. Some services provide multidisciplinary clinics such as those for genital, skin or vulval disorders. These clinics provide opportunities for teaching and training.

Therapeutic procedure clinics

Genital warts are common and persistent and may be treated in dedicated sessions. Nurses working to patient group directives may provide treatment. Intravenous infusions and inhalation therapy are provided as required.

Specialist advice on call

Access to GUM/HIV

opinion out of hours should be available. Cover arrangements should be appropriate to local need, may be provided on a network basis and should be explicit. This includes advice on HIV post-exposure prophylaxis, support for A&E departments, inpatients and sometimes problems in the community. Many services provide a consultant on call. With the aid of junior staff, some emergencies may be managed over the telephone.

Other specialist activity including activities beyond the local services

Many services have set up outreach clinics including in primary healthcare settings and prisons.

Clinically related administration

Correspondence with primary care and other medical colleagues is routine. Writing reports for social services, asylum seekers and medicolegal reports is a significant workload.

7 Opportunities for integrated care

The reorganisation of commissioning provides an opportunity for integration of sexual health services

which could lead to significant cost savings through: streamlining management structures; facilitating the provision of community-based clinics, providing up to level 2 STI and contraception care; strengthening the chlamydia screening programme through coordinated contact tracing and a seamless pathway into specialist services; and giving assurance that care is being provided to a consistently high standard, irrespective of point of access.

8 Workforce requirements for the specialty

Workload

The number of sexual health screens (SHS) conducted in GUM have approximately doubled in the last 8 years from 633,289 in 2003 to 1,258,952 in 2011. There has been a 1.5-fold increase in the number of HIV tests conducted in GUM during the same period from 400,166 in 2003 to 1,007,847 in 2011. Among HIV cases, 73,400 are now under care and these increase annually. Service provision is changing with consultants required to supervise staff – both nursing and specialty doctors managing less complex cases – while seeing more complex patients themselves.

Current workforce numbers

There is a headcount of 396 (approximately 345 whole-time equivalent (WTE)) consultants in the UK of whom 54% are male, from the RCP 2011 census data⁶ (England, 364; Wales, 12; Northern Ireland, 5; and Scotland, 15). Of those consultants under 40 and 35 years of age, 80% and 90% respectively are female. From available data, 51% of female consultants work less than 10 programmed activities (PAs) compared with 7.3% of men. This is an important consideration for workforce planning where many consultants are likely to want to practise part time at least for a proportion of their career. The rate of expansion has decreased to 1% in 2011 and this contraction is likely to continue in the present financial climate despite an increasing workload. There is likely to be a future reduction in numbers of higher trainees as part of cost savings irrespective of workforce planning. Ninety (24%) consultants are over 55 years of age with a further 84 (22.6%) aged between 50 and 54.

Number of consultant programmed activities required to provide a specialist service to a population of 250,000

The figures below assume 40% of consultations will be undertaken by consultants. Patients will also be seen by other staff, including doctors in training, specialty

Table 1 Specimen job plan for a consultant in genitourinary medicine			
Activity	Workload	Programmed activities (PAs)	
Direct clinical care			
Outpatient clinics/clinical supervision	10–12 patients per session	4–6	
Ward work including day care		0.5–2	
On call		0.5	
Patient-related administration		1.0	
Total number of direct clinical care PAs		7.5 on average	
Supporting professional activities (SPAs)			
Work to maintain and improve the quality of healthcare	Education and training, appraisal, departmental management and service development, audit and clinical governance, CPD and revalidation, research	2.5 on average	
Other NHS responsibilities	eg medical director/clinical director/lead consultant in specialty/clinical tutor	Local agreement with trust	
External duties	eg work for deaneries/royal colleges/specialist societies/Department of Health or other government bodies, etc	Local agreement with trust	

doctors and nurse practitioners, but require consultant supervision:

- 15,000 new and follow-up consultations per 250,000 population per year
- 42 consultant weeks per year (8 weeks annual leave/bank holidays, 2 weeks study leave)
- 7.5 PAs for direct clinical care
- 4–6 clinics
- 20 minutes per appointment for routine GUM (more time for HIV patients).
- 10–12 patients seen per clinic
- 2,500–3,000 consultations per year per consultant.

National consultant workforce requirements

With modernistation of service delivery and the need to contain costs, robust arguments will be needed for expansion. Increased consultant numbers are needed where there is insufficient service provision, eg in rural areas where providing prompt access is not possible. Ideally, consultants should not be working single-handedly and they should work within defined networks. Trusts may resist replacing retiring consultants like for like. However, particularly with GUM and HIV services, there are additional factors that must be considered where greater consultant numbers may be required: demographic mix, numerical population, HIV cohort, deprived areas, risk groups such as asylum seekers, ethnic minority groups, young people, towns and cities with a university or other training establishments. The role of consultants encompasses the provision of supervision of other healthcare professionals, providing the clinical governance framework and providing medical leadership across a locality that may involve primary and secondary care, and private providers. These needs, along with the additional expectations of revalidation, teaching and training, will require maintaining consultant numbers despite the specialty being commited to modernisation of practice and other ways of delivering the service.

With present uncertainties, a reduction in proposed number of consultants from the previous 1 WTE per 84,000 to 2 WTE per 250,000 is suggested. In the UK (61 million population), this would equate to 480 WTE. The Centre for Workforce Intelligence⁷ predicts that, by 2018, 439 WTE will be reached. It suggests no adjustment to the number of training posts, taking into account population growth, demographics and historical supply. The rate of retirement will have a significant influence on potential vacancies. Additonally, a proportion of trainees enrolled in higher specialist training is training part time and therefore taking longer to reach CCT.

9 Consultant work programme/specimen job plan

Direct clinical care

Depending on the profile of their workload and specialist interests, consultants will undertake 7.5 direct patient care PAs divided between outpatient and inpatient work (see Table 1). Many consultants have outpatient clinics on more than one site.

10 Key points for commissioners

- 1 Sexual health services should be open access, confidential and free to users irrespective of their place of residence.
- 2 Services should be commissioned within a framework of local clinical networks supported by consultant-led specialist services to ensure maintenance of high standards, consistency of care and clinical governance.
- 3 Commissioners should require all providers to produce evidence of participation in national audit.
- 4 Commissioners should require all providers to ensure that staff delivering services have been appropriately trained and are competent to carry out their roles. Providers should be required to demonstrate the use of validated competency assessment for all clinical staff.
- 5 BASHH standards for the management of STI and key performance indicators listed in this document

should be incorporated into the local commissioning process for all levels of service to ensure consistency of care and to enable meaningful performance management of services.

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Geriatric medicine

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1 Description of the specialty

Geriatric medicine is the branch of general medicine concerned with all aspects of health and illness in older adults. Geriatricians possess the specialist skills needed to diagnose, manage and treat conditions occurring in a physically and mentally frail section of the population. Additional challenges are provided by the fact that older people have different patterns of disease presentation when compared to younger adults, they respond to treatments and therapies in different ways, and they frequently have complex social needs that are related to their chronic medical conditions.

The patients are traditionally adults aged over 65 years, but younger people with complex needs can also benefit from input by a geriatrician. Those who gain the most benefit from specialist geriatrician input are the frail elderly. Frailty often presents as non-specific ill health (the 'geriatric giants' of falls, confusion, incontinence and immobility) but leads to prolonged hospital stays and poorer outcomes.^{1,2}

2 Organisation of the service and patterns of referral

To provide integrated holistic care for older people, geriatric medical services should cross the boundary between primary and secondary care. Care pathways should consider the physical and psychological needs of normal ageing, together with the crises and potential deterioration associated with acute illness.

An acutely ill older person should be assessed as soon as possible using appropriate diagnostic and imaging facilities, usually in an acute district general hospital (DGH) or teaching hospital. It is vital that older people are not denied access to the best of diagnostic services on the basis of their age and the organisation of community and hospital services should be geared towards this aim. No clear evidence exists that any one pattern of elderly admission system is superior (age-related, needs-related or integrated with general medicine), so the format chosen needs to be appropriate to the facilities and systems already available. There is increasing interest in involving geriatricians in the accident and emergency (A&E) department and medical admissions units to facilitate the early comprehensive assessment, and appropriate subsequent treatment environment, of frail older people. Patients admitted urgently to geriatric medical services might be referred directly by their GP, attend the A&E department and be referred onwards for admission, or be transferred from other acute areas such as surgical or psychiatric facilities.

The increasing importance of involvement of geriatricians with the care of older people in specialties other than medicine is becoming apparent, with early geriatric assessment routinely taking place in those under the care of orthopaedic surgeons for fragility fractures.

Referrals for rehabilitation are taken from almost all specialties at a later stage in a patient's hospital stay. Rehabilitation aims to optimise or maintain physical function and, following patients' admission to hospital, should start as soon as they are physically able. Geriatrics is the parent specialty for stroke medicine, and both the acute stroke and stroke rehabilitation services are often led by geriatricians.

Community models of care

Community geriatrics is a growing subspecialty, with some consultants working exclusively in the community, although the majority have sessional commitments to both community work and acute hospitals. A job plan may include time spent in community hospitals, as well as supporting intermediate care services, community matrons and care homes. A wide variety of work patterns are possible, but it is vital that integrated pathways involving community services are developed locally, with community geriatricians working closely with GPs, district and specialist nurses, and allied professionals. The consultants will often lead clinical governance processes and teaching for community services. They are specifically required to supervise clinically and to support any GPs with a special interest (GPwSIs) in elderly care.

Relationship with other services and agencies

Multidisciplinary working necessitates close liaison with many complementary services (see Table 1), as well as the mainstream specialties in a DGH.

3 Working with patients: patient-centred care

What you do with patients

Involving patients in decisions about their treatment

Geriatricians are committed to rooting out ageism in the delivery of medical care and recognise that competent informed adults have an established right to refuse medical procedures – sometimes in advance. Respect for patient autonomy is at the centre of practice, particularly when dealing with advance directives and issues relating to nutrition in patients of advanced old age. Medico-legal topics such as power of attorney, Court of Protection and the Mental Capacity Act 2005 are important parts of everyday geriatric medical practice. Geriatricians regularly seek patients' and carers' views on end-of-life care, cardiopulmonary resuscitation, assisted ventilation, artificial feeding and other ethical issues.

Patients with chronic conditions and the role of the carer

Geriatricians recognise the importance of involving informal carers in decisions about complex treatment in old age and consider a patient's quality of life and a disability-free life expectancy as important goals of treatment rather than absolute longevity. Patient and carer support groups may have a role in the management of patients with chronic conditions in older life, particularly those with conditions such as stroke, Parkinson's disease and dementia. In addition, patients' and carers' views form an important part of the clinical governance process in geriatric medical departments in hospitals – either individually or as part of focus groups that look at complaints and the patient experience.

Older people should be treated as individuals at all times, be offered a choice of treatment and be involved in the discussions planning their future care. Services need to be

Table 1 Medical and paramedical services supportingthe assessment and rehabilitation of older people

Domain	Services
Activities of daily living	Occupational therapy
Care management	Social work services
Communication	Speech and language therapy Audiology Hearing therapy Ophthalmology Optician services Dental services
Elimination	Continence adviser Stoma therapist Urological or gynaecological services Urodynamic assessment Personal laundry services
Palliative care	Specialist pain relief Hospice support
Mental state	Psychiatry of old age Clinical psychology
Nutrition	Dietetic advice Enteral and parenteral feeding services including percutaneous endoscopic gastrostomy (PEG) Dental services Videofluoroscopy
Mobility	Physiotherapy Wheelchair and aid supplies Orthotics Podiatry Orthopaedic services Chiropody
Specialist nurses	Chronic obstructive pulmonary disease Heart failure Parkinson's disease Diabetes Tissue viability Dementia Fracture or orthogeriatric

made easily accessible, regardless of provider, by involving older people and their carers in service planning.

There are a number of areas for which all specialist elderly care units should have policies. These include: maintenance of dignity, privacy and humanity in care; end-of-life care/advanced care planning and 'do not resuscitate' orders; and provision of written information for patients about life in hospital, the choices to be made, discharge plans and the timescales involved.

Promoting health and self care

Specialist elderly services should develop a culture of health promotion alongside disease management and rehabilitation. Geriatricians should discuss health promotion and preventative healthcare programmes, which should be regarded as a legitimate subspecialty, with commissioning boards. Health promotion posters and literature specifically directed at this age group should be readily available in patient-contact areas.

4 Interspecialty and interdisciplinary liaison

Consultants in geriatric medicine pioneered the concept of interdisciplinary teams, working to ensure that medical illness and functional capacity in older people are assessed and treated. It is the essence of good practice in acute assessment and rehabilitation settings for the consultant to lead at least one interdisciplinary case conference per week. Such teamworking with allied health professionals, social workers and community staff, based on multiple individual assessments that lead to comprehensive geriatric assessment (CGA), is the hallmark of a high-quality service. Case conferences may be less frequent in long-term care.

5 Delivering a high-quality service

A high-quality service is defined as early access to an MDT, led by a geriatrician specialising in the comprehensive assessment of older people. This can be in an acute hospital, day hospital or outpatient setting, with subsequent access to further specialist input when indicated. Community rehabilitation and crisis intervention teams should be based on an interdisciplinary model with specialist medical involvement.

Quality tools and frameworks

Relevant quality standards should be adhered to, such as the National Institute for Health and Care Excellence (NICE) quality standards in England, and relevant outcomes measures achieved. Particular attention should be paid to stroke,^{3,4} dementia and falls; pathways should be in place to assess and address continence and poor nutrition.⁵ In addition to national policies, the British Geriatrics Society (BGS) has guidelines, policy statements and statements of good practice for many aspects of the care of older people.⁶

Education, training and support programmes for non-specialist wards and clinicians not specialising in

the care of older people should be available, and organisations should have a system of quality assurance to facilitate clinical governance and ensure maintenance of the highest possible standards.

6 Clinical work of consultants

How a consultant works in this specialty

Geriatricians work in a broad range of settings, with duties differing widely in content and load across the UK, reflecting variations in local supporting services, specialist activity, geographical sites covered and involvement in the acute emergency take. No job is likely to be identical to another.

In many areas, consultant geriatricians participate in the acute unselected take for adults of all ages. In a growing number of hospitals where the main medical take is delivered by acute physicians, geriatricians are delivering 7-day input to provide a rapid, targeted, comprehensive geriatric assessment to case-find frail people at the front door and prevent unneeded hospital admissions. Such models of care are frequently known as Geriatrician of the Day, OPAL teams or Interface Geriatrics. Others work alongside specialty-based physicians so they can preferentially care for older people on an age- or needs-related basis. In all situations, geriatricians must ensure an appropriate balance between their emergency role and other duties, particularly supervision of rehabilitation and delivery of subspecialty services, such as falls management, stroke care or orthogeriatrics.

Most consultants in geriatric medicine maintain specific sessional commitment to the inpatient core areas of acute assessment and rehabilitation. In addition, they will have some community responsibilities through outpatient, day hospital and outreach facilities. The development of intermediate or post-acute care outside the hospital will necessitate increasing cooperation with primary care.

Acute inpatient care

Models of care delivery will vary depending on casemix, bed numbers and support staff. Regular consultant ward rounds should take place at least twice per week, and be combined with frequent multidisciplinary 'board rounds'. A ward round of 25 (+/-5) patients should take a programmed activity (PA); therefore this work would be equivalent to 2–3 PAs per week. Involvement of relatives is vital in the ongoing care and recovery of this complex group of patients, and a further 3–4 hours per week (1 PA) should be considered to allow for meeting with next of kin.

Within a department there should be sufficient capacity for consultants to provide prospective leave cover for colleagues, including being able to do a ward round of their patients.

Rehabilitation

Numbers of rehabilitation patients looked after by a consultant geriatrician, with supporting medical staff, will vary depending on where the rehabilitation is taking place. In a traditional hospital setting with direct supervision (either acute or community), this could be expected to be an average ward ie 24–30 patients. In a 'virtual ward' or intermediate-care setting, this number would vary depending on the expertise of the lead staff, and complexity of the patients. A consultant normally would be expected to complete at least one rehabilitation ward round per 20 patients each week, and this would include a meeting of the multidisciplinary team (MDT).

In addition, the consultant is likely to require one further PA for meeting relatives, reviewing unstable patients, special case conferences and troubleshooting.

Community work

Departments of geriatric medicine should expect to play a significant role in the community, including working in teams to deliver intermediate care; reviewing patients in care homes (NHS and private sector) – often in conjunction with community matrons or other expert allied health professional colleagues; assessing patients who require long-term care; and providing home assessments at the request of colleagues in primary care. These duties of community geriatricians may be undertaken in partnership with social services, by GPwSIs in older people and perhaps by nurse or therapist consultants.

Continuing care

When continuing care work is undertaken, a consultant geriatrician would be expected to have direct responsibility for around 30 continuing care beds and would normally be expected to review the needs of the patients at least once every two weeks.

Referral work including interspecialty and interdisciplinary liaison

A consultant would expect to deal with around five to 10 referrals per week. Absolute numbers will depend on consultant numbers and local provision of specialist liaison services within an acute hospital.

Outpatient work

Table 2 considers the requirements of outpatient clinics for general geriatric medicine and general internal medicine (GIM).

Table 2 Requirements of outpatient clinics for general geriatric medicine and GIM with indicative timings for consultations

	Time (minutes)			
Type of patient	New consultation*	Follow-up consultation	Administration [†] (per patient)	Training and patient discussion (per patient)
Consultant and ST4-7				
Complex elderly care patient ‡	45–60	20	10	10
General medical patient (young or old)§	15–25	10	5	10
ST1-3				
Complex elderly care patient ‡	60	30	10	10
General medical patient (young or old)§	45	15	5	10

ST = specialty trainee.

*A new consultation would cover patient history, an examination, discussion of findings, reviewing or ordering investigations and a management plan. †Administration may be during clinic or at another time and includes dictation, reviewing results, phone calls, electronic correspondence, etc.

[‡]Complex conditions such as multiple problems, memory loss, Parkinson's disease, falls and incontinence.

[§]General conditions such as transient ischaemic attacks, weight loss, anaemia, gastrointestinal problems and ischaemic heart disease.

Day hospitals

A high-turnover day hospital might expect to see 600 new patients a year in a 30-place unit. Each consultant should expect to have responsibility for around 12–15 patients at any one time. The consultant should hold interdisciplinary case conferences every one to two weeks.

Services beyond the base hospital

These may include clinics at other hospitals, outreach clinics, domiciliary work and hospice work.

Work to maintain and improve the quality of care

This work encompasses duties in clinical governance, professional self-regulation, continuing professional development (CPD) and education, and the training of others. For many consultants at various times in their careers, it may include an educational role, research, clinical management and provision of specialist advice at local, regional and national levels.

The BGS has produced detailed guidance on clinical governance and the amount of time that is required to fulfil these requirements. Generally, a lead clinician in clinical governance needs one session of PA, while participation in clinical governance would need about 0.25 PA. This does not include any time required for revalidation, CPD or participation in appraisal, which are mandatory activities for all consultants.

Leadership roles and development of the service

Departments of geriatric medicine are expected to take an active role in the development of services for older people in primary and secondary care. Such work for designated individuals should be recognised in the job-planning process, alongside other management duties such as running the department and taking responsibility for the delivery of teaching, clinical governance and the research agenda for a group of geriatricians.

Academic geriatric medicine

Academic geriatricians usually make a significant contribution to the NHS service for older people but have fewer clinical PAs to allow for university commitments, which include teaching and research. Their job plans should reflect this mix of university and NHS work. Consultant geriatricians teach not only undergraduate medical students but also other disciplines. Many NHS geriatricians teach and undertake research when there is no academic department. All academic and NHS geriatricians have a responsibility for the postgraduate training of higher specialist trainees in geriatric medicine, which culminates in the award of a Certificate of Completion of Training (CCT).

7 Opportunities for integrated care

There is a growing awareness of the scope for geriatric medicine to integrate throughout healthcare services. As referred to in other sections, the importance of geriatrician involvement in other areas of community care, such as care homes rather than just the traditional community hospitals, is becoming apparent. The new term 'interface geriatrics' describes the ability to perform a comprehensive geriatric assessment at the front door of the general hospital to ensure that an older person is placed appropriately in order to receive the care they need. This might be in an acute medical bed, accommodation within a community facility, or care at home with either domiciliary or early outpatient care and therapy.

Geriatrician involvement with older orthopaedic patients has been shown to improve both mortality and morbidity, and there is clear scope for similar involvement to be extended throughout any surgery for older people, whether elective or emergency procedures.

8 Workforce requirements for the specialty

In 2009, there were 1,205 consultant geriatricians; an increase of 8.5% on 2008. Half of the workforce aged 50 years and under was female compared to 20% for consultants aged 55 years and over. In the next five years, it is expected that 12.4% of all consultants will reach 65 years and are likely to retire. The majority of consultants (86.2%) work full time. The average number of PAs per week was 11.5, with the actual number of PAs worked being 12.4.

The number of trainee posts stood at 508 in 2009, a drop of 15 from 2008. Just under half (49.6%) of trainees were women and 34% of all trainees had children. The impact of the European Working Time Directive has been mixed, with 63.7% of trainees reporting a reduction in the quality of training but 37.4% saying it has improved their work balance. The average frequency of on-call work was one in 10 for weekdays and one in 11 on weekends. The ratio by which the population is served by a whole-time equivalent (WTE) consultant geriatrician varies considerably across the country – from the lowest ratio in Wales, Yorkshire and Humber, and Scotland, with one geriatrician per 46,000 of the population, compared to the highest ratio of 76,000 to 86,000 in the East and West Midlands.⁷

To care for the population older than 75 years, the BGS has recommended that there should be a minimum of one WTE geriatrician per 50,000 population (one WTE for 4,000 people older than 75 years), although the numbers needed are likely to increase further with the increasing age and frailty of the population.

9 Consultant work programme/specimen job plan

Table 3 provides an example of a consultant job plan.

10 Key points for commissioners

- 1 Providing excellent care for older people results in excellent care for younger patients; the converse is rarely true.
- 2 Geriatrician input early in a patient's hospital stay (in the A&E department or clinical decision unit) leads to better care in the best environment for that person. This could be at home with support, in a community setting, or in the acute facility.
- 3 Geriatric medicine is the parent specialty for stroke, and the vast majority of post-stroke rehabilitation is undertaken by geriatricians with an interest in the condition.
- 4 Improved and increased levels of care taking place in the community cannot be achieved without teams led by geriatricians working closely with primary care and other providers.

Activity	Workload	Programmed activities (PAs)
Direct clinical care		
Acute ward rounds (including interdisciplinary meetings and interviewing relatives)	20–25 patients	2–3
Rehabilitation ward rounds (including interdisciplinary meetings and interviewing relatives)	20 patients	1–2
Intrahospital liaison or domiciliary visits		0.5
General or geriatric medicine clinic	Numbers will depend on casemix and the availability of specialty trainees	1.0
Specialist clinic, day hospital, other subspecialty work		1.0
Post-take ward round or on-call work		1.0
Patient-related administration		1.0
Total number of direct clinical care PAs		7.5–9.5 on average
Supporting professional activities (SPAs)		
Work to maintain and improve the quality of healthcare	Education and training, appraisal, departmental management and service development, audit and clinical governance, CPD and revalidation, research	2.5 on average
Other NHS responsibilities	eg medical director, clinical director, lead consultant in specialty, clinical tutor	Local agreement with trust
External duties	work for deaneries, royal colleges, specialist societies, Department of Health or other government bodies, etc	Local agreement with trust

- 5 The specialist discharge planning skills and knowledge held by geriatricians can lead to shorter lengths of hospital stay, without subsequent early readmission.
- 6 Geriatricians are essential in the care of older people with fragility fractures and have a role to play both preoperatively and in the rehabilitation phase.
- 7 Following the 2010 National Confidential Enquiry into Patient Outcome and Death (NCEPOD) report *Elective and emergency surgery in the elderly*,⁸ there is a growing role for geriatricians to be involved in all surgical admissions in older people.

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Haematology

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1 Description of the specialty

Haematologists are both clinicians and laboratory specialists who engage in the following activities:

- working within a specialty clinical team, taking full clinical responsibility for patients with a wide range of haematological disorders (see Table 1)
- providing interpretation of laboratory results and advising other hospital clinicians and GPs on appropriate clinical management
- providing professional direction and having clinical responsibility for the haematology and transfusion laboratory
- providing a laboratory, clinical and consultative service 24 hours a day.

Haematologists undergo general professional training in medicine followed by specialist training in all aspects of clinical and laboratory haematology. Many undertake a period in research. Most develop further expertise in one or more subspecialties.

Main disease patterns

Table 1 summarises main haematological disease patterns and numbers of patients seen annually.

2 Organisation of the service and patterns of referral

A typical service

Laboratory service

• The haematology laboratory provides a diagnostic and blood bank service to its host institution, which may include highly specialised investigations to support specialist clinical services. It also provides a range of tests for primary care, which may allow diagnosis of a spectrum of haematological disease in the community. The source of specimen referral varies across hospitals, with the proportion of requests from primary care ranging from 30% to 50%.¹ • Haematologists provide an interpretative and advisory service based on laboratory results and direct the appropriate referral of patients with abnormal laboratory results within an acceptable timeframe. This may involve providing support and written advice to the GP to allow care to be managed in the primary-care setting.

Clinical service

Clinical referrals come from primary, secondary or tertiary care. The level of subspecialisation varies, and many haematologists have a subspecialty interest in addition to their commitment to laboratory and general haematology.

Haematological malignancy

The British Committee for Standards in Haematology (BCSH) has defined three major levels of care for patients with haematological malignancies (see Table 2).² The National Institute for Health and Care Excellence (NICE) *Guidance on cancer services* recommends that patients with haematological cancers are managed by multidisciplinary haemato-oncology teams serving a population of more than 500,000, with link networks between hospitals and that the treatment of acute leukaemia be limited to hospitals that treat at least five patients annually.³ As a result, the number of units that can deliver the level 2b chemotherapy that is required for patients with acute leukaemia has been reduced.

All units that undertake stem cell transplantation (SCT), both autologous and allogeneic, are accredited by JACIE, which is the Joint Accreditation Committee of the International Society for Cellular Therapy (ISCT) and the European Group for Blood and Marrow Transplantation (EBMT).

Haemoglobinopathies

Sickle cell disease and thalassaemia represent a significant part of the haematologist's workload in areas of the UK where the prevalence is high. In London, sickle cell disease is now one of the most common reasons for admission to hospital and has the highest rate of multiple admissions for individual patients.^{4,5}

		Population		
Disease or treatment	England and Wales	Per 1,000,000	Per 500,000	Per 250,000
Acute leukaemia	2,400	48	24	12
CML	500	10	5	2–3
CLL	4,000	80	40	20
NHL – high grade	2,000	40	20	10
NHL – Iow grade	5,000	100	50	25
Hodgkin's lymphoma	1,200	24	12	6
Myeloma	3,000	60	30	15
MDS, MPD and other	2,000	40	20	10
Oral anticoagulant treatment	520,000	10,000	5,000	2,500
Venous thrombosis	78,000	1,500	750	375
Thrombophilia	2,600,000	50,000	25,000	12,500
Symptomatic thrombophilia	30,000	600	300	150

Table 1 Incidence of haematological disease and numbers of patients seen annually

 $\mathsf{CLL}=\mathsf{chronic}\ \mathsf{lymphocytic}\ \mathsf{leukaemia};\ \mathsf{CML}=\mathsf{chronic}\ \mathsf{myeloid}\ \mathsf{leukaemia};\ \mathsf{MDS}=\mathsf{myelodsyplastic}\ \mathsf{syndrome};$

MPD = myeloproliferative disease; NHL = non-Hodgkin's lymphoma.

Patients require comprehensive care, which may include chronic transfusion programmes, iron chelation and frequent hospital admissions for the treatment of sickle crisis. National standards for the management of patients with haemoglobinopathies direct services which are delivered in the secondary and tertiary care settings and in the community. Linked newborn and antenatal screening for haemoglobinopathy is a Department of Health (DH) initiative that requires a designated lead clinician and careful links with obstetric clinics.

Thrombosis and haemostasis

The care of patients with haemophilia and other inherited bleeding disorders is organised through haemophilia comprehensive care centres using management guidelines produced by the UK Haemophilia Centre Doctors' Organisation (UKHCDO) and the National Service Specification for Bleeding Disorders. Patients require lifelong care, with input from other disciplines including orthopaedics.

A consultant haematologist in each hospital is often responsible for supervising the control of oral anticoagulants (OACs). The consultant may also lead a thrombosis service, directing a multidisciplinary approach to the management of the risk of thrombosis and the investigation and treatment of venous thromboembolism (VTE). This aspect of a consultant haematologist's work increased significantly during 2010 following the development of national targets in England for VTE risk assessment that have been set in the Commissioning for Quality and Innovation (CQUIN) payment framework and the publication of the NICE standards on the prevention of VTE.

Transfusion medicine

One consultant haematologist is usually responsible for the hospital blood bank and transfusion services. The consultant will be a member of the hospital transfusion committee, together with a specialist practitioner of transfusion (SPOT) and the senior biomedical scientist (BMS) of the hospital blood bank. This team is responsible for ensuring that appropriate policies and guidelines are in place to guarantee the safety of blood transfusion and the best use of blood to meet the requirements of British and European legislation. Hospital blood banks must ensure that all blood components can be traced accurately from donor to recipient. Table 2 A summary of the staffing requirements and facilities for different levels of care as outlined by the British Committee for Standards in Haematology (BCSH)²

Levels of care	Intensity and complexity of treatment regimen	Medical staffing	Nurse staffing	Facilities
1	Usually outpatient based with regimens that are unlikely to result in bone-marrow suppression	Consultants not usually based on site but work as part of a wider network and provide sessional input; should be 24-hour telephone access to consultant advice	Dedicated specialist nurse sessions provision during the working week with professional links to level 2 or above centre	Access to day care facility; inpatients should be admitted as part of the general medical admission process
2α	Outpatient and day-case based with regimens that may result in short, predictable periods of bone-marrow suppression	Consultants should provide cover on a 24-hour/7 days-a-week basis; this may be provided by cross cover; junior medical staff should be available to support care for inpatients	Dedicated specialist nurse provision during the working week	Access to day-case facilities that include facilities for intravenous infusions of a long duration; inpatient beds should be available on one ward designated for haematology with access to single rooms with en-suite facilities
2b	Includes inpatient regimens that cause a predictable prolonged period of bone-marrow suppression	24-hour on-site consultant cover with designated junior trainee or non-career grade staff provided during the working week	24-hour cover by haemato-oncology trained nurses with resources to achieve a nurse:patient ratio of 1:2 for inpatients requiring high dependency nursing, if required; there should be on-site dedicated nurse specialists during the week	As for 2a with additional provision for direct access to a dedicated haematology ward
3	Includes inpatient regimens that are complex and have a high incidence of complications; includes treatment for rare haematological malignancies	As for level 2b plus 24-hour specialist middle-grade medical staff cover during the weekdays and weekends	As for 2b	As for 2b

Paediatric haematology

A small number of haematologists specialise in children with benign and malignant haematological disorders.

3 Working with patients: patient-centred care

Interaction with patients

Patients with any haematological disorder receive a detailed explanation of their disorder (including easily understood written information) and its treatment. This is usually provided in conjunction with a haematology

specialist nurse, and adequate time is allowed for joint decision making and discussion about the expected benefits and toxicities of treatment. Patients should be offered treatment in a clinical trial when available, and written informed consent should be obtained.

Involving patients in decisions about their treatment

Patient education plays a crucial role in the safe management of patients with haematological disorders by enabling patients to recognise symptoms that need urgent self-referral, such as fever and bleeding. Many patients and their carers are taught to administer part of their treatment at home, including coagulation factors for inherited bleeding disorders, subcutaneous heparin, iron chelation and home chemotherapy. Patients on OACs may self-test at home, with dosing supervised by a nurse specialist by telephone.

4 Interspecialty and interdisciplinary liaison

Multidisciplinary team working

Multidisciplinary team (MDT) meetings for patients with haematological malignancies, severe bleeding disorders, haemoglobinopathies and pregnancy-associated haematological problems are routine in haematology practice. Laboratory-focused meetings with biomedical and clinical scientists also take place.

Working with other specialties

Haematologists work in joint clinics with clinical oncologists, orthopaedic surgeons, obstetricians and paediatricians depending on the relevant patient group and may consult physicians from a number of disciplines when treating patients with complex haematological disease. Close liaison with primary care spares many patients hospital visits and allows management in the community.

5 Delivering a high-quality service

What is a high-quality service?

A high-quality service is dependent on evidence-based management, appropriate staffing and access to adequate facilities.

Specialised facilities

The facilities required are dependent on the clinical service provided. For hospitals that care for patients with haematological cancers, facilities should be organised as set out in the document *Improving outcomes in haematological cancers*.³ Specialist units may require facilities for therapeutic apheresis and cytopheresis. Hospitals that deliver intrathecal chemotherapy must have a designated clinical area in which this is performed.⁶

Outpatients

Facilities should guarantee a rapid turnaround of blood results and should have an appropriate environment in

which to deliver sensitive information to patients and their families.

Day care

Haematology day-care areas are crucial for patient review and the delivery of blood products, certain chemotherapy regimens and infusional treatments (bisphosphonates, intravenous iron, immunoglobulin, coagulation factors and monoclonal antibodies). Good day-care facilities greatly relieve pressure on inpatient beds and are more acceptable to patients.

Inpatients

The number of dedicated beds and isolation rooms needed and the requirement for filtered air and positive pressure rooms depends on the level of inpatient care offered, particularly the predicted length of neutropenia and the degree of immunosuppression. Facilities should be appropriate for the age of the patients as outlined by NICE.⁷

Units that provide a specialist service for patients with inherited bleeding disorders and haemoglobinopathies should have adequate day-care facilities for review and treatment of patients and access to appropriate inpatient facilities.

Workforce requirements: clinical and support staff The haematology team of a district general hospital (DGH) should have the following members.

- It should include at least three whole-time equivalent (WTE) consultant haematologists; these should work as part of a team that may cover more than one site.
- There will be either a nurse consultant or a number of clinical nurse specialists that may have subspecialist expertise in areas of blood transfusion, haemoglobinopathies, venous thromboembolic disease, haemophilia or bone-marrow transplantation.
- Outpatient facilities and staffing and inpatient staffing should be as outlined in Table 2.
- The service should also include access to a pharmacist with a special interest in chemotherapy, a data manager, specialist palliative care, a dietician and physiotherapists.

Service developments to deliver improved patient care

Haematologists maintain and improve quality of care for their patients and the laboratory duties for which they have responsibility through involvement in management, clinical governance, professional self-regulation, continuing professional development (CPD), education and training and the provision of specialist advice at local, regional and national levels. They participate in national laboratory quality assurance schemes; national service accreditation schemes such as that organised by Clinical Pathology Accreditation (UK) Ltd and the cancer peer-review process; projects to audit clinical outcomes and processes; and local, regional and national educational meetings.

Research – clinical studies and basic science

Although there are many challenges in academic medicine haematology remains one of the more academic specialties. Most hospitals participate in clinical trials in accordance with the trust's research governance arrangements. Between 30–40% of trainees take time out during their higher specialist training to follow a research project, with many proceeding to a higher degree. This research expertise is reflected in the enthusiastic support given to national studies organised through the National Cancer Research Institute.

Specialty and national guidelines

In all areas of haematology, the BCSH produces robust, evidence-based guidance that meets the challenges of a highly complex and rapidly changing field. The guidelines are produced through a well-defined process designed to fully assess available evidence and involve all relevant stakeholders. Guidelines are disseminated by publication in peer-reviewed journals and on the website of the BCSH (www.bcshguidelines.com), which currently receives around 100,000 page hits per month. Other important guidelines include those for haemophilia produced by UKHCDO, which is part of the Haemophilia Alliance (www.haemophiliaalliance.org.uk/docs/who.htm), those for blood transfusion produced by the National

Blood Transfusion and Tissue Transplantation Service (www.transfusionguidelines.org.uk) and NICE (www.nice.org.uk).

6 Clinical work of consultants

Contributions made to acute medical or surgical care

Haematologists are consulted regularly on problems arising as emergencies in acute medical and surgical

patients, particularly with regard to haemostatic problems and anticoagulant treatment.

Direct clinical haematology care

Table 3 outlines maximum clinical workload for consultant haematologists according to the Royal College of Physicians (RCP), and the data from 2005–6 survey by the British Society for Haematology (BSH) and Royal College of Pathologists (RCPath).⁸

Inpatient work

The type of work carried out by a consultant haematologist varies considerably, depending on subspecialisation and the size of the hospital, but almost all will have patients with complex medical conditions that make clinical responsibilities onerous. Time must be designated for MDTs to direct patient care. The increasing inexperience of trainees makes them less able to contribute to the clinical service, and this is influencing a change from a consultant-led service to a consultant-delivered service.

Day-case and outpatient work

Most haematologists run two to three outpatient clinics per week and increasingly provide care in day case rather than inpatient settings.

Specialist investigative and therapeutic procedures

Bone marrow aspirates and trephine biopsies are usually performed by medical staff, but nurses are increasingly being trained in the procedure. The results are reported by haematologists, although the results of trephine biopsies may be reported by a specialist haemato-oncological pathologist.

Intrathecal chemotherapy is given by specifically designated haematologists under strictly controlled conditions.⁶ Apheresis is usually performed by specialist nurses under the supervision of a consultant haematologist with experience in this field.

Specialist on-call arrangements

Haematologists provide an essentially consultant-delivered on-call service for their laboratory work and for patients under their care, and a consultative service to other disciplines. The intensity of on-call work varies (average on-call rota: one day in every four days),¹ and provision of highly specialised advice can be onerous, particularly in transplant and haemostasis centres.

Table 3 Recommended maximum clinical workload for consultant haematologists according to the Royal College of Physicians (RCP) and data from 2005–6 survey⁸

		Annual numbers of patients		
Activity	RCP recommendation	2005–6 survey	Difference (%)	
Inpatients	250			
Outpatients				
New	250	211	-15.6	
Return	1,500	1,920	+28	
Day cases/ward attendees	1,500	1,180	-21*	
Ward consults	100			
*Increasing by 10% per appum				

*Increasing by 10% per annum.

Patients receiving OACs as outpatients not included.

Published figures from a haematology workforce document show that haematologists meet or exceed the RCP's recommended outpatient numbers.⁹

Other specialist activity, including activities beyond the local services

Reference laboratories

Some highly specialised laboratories provide a regional or even national service.

Blood transfusion

Appropriate time should be designated for the consultant haematologist with responsibility for the hospital transfusion service to guarantee the safe delivery of this service. The team should include a member of the hospital transfusion team, together with a SPOT and the senior BMS of the hospital blood bank. This team is responsible for meeting the standards outlined in Better blood transfusion: safe and appropriate use of blood¹⁰ and Blood safety and quality regulations 2005.¹¹ The team is also responsible for ensuring that appropriate policies and guidelines are in place, including maximum blood ordering schedules (MBOS), emergency blood contingency and major incident planning, and that all blood components can be traced from donor to recipient, with a 30-year audit trial kept as per the European directive on haemovigilance 2005.¹²

Hospital and primary care liaison activity

Consultant haematologists are consulted regularly about the management of patients in all specialties, particularly about problems related to anticoagulation. Many of these consultations may be dealt with on the telephone, but the consultant frequently needs to see the patient. GPs appreciate close contact with haematology consultants: 30–50% of laboratory work typically comes from primary care and telephone consultations are frequent.

Roles in the laboratory

Abnormal blood films from general practice and hospitals and authorisation of all results are reviewed daily, and the workload is shared between members of the consultant haematology team. This frequently leads to urgent primary care or intrahospital referrals.

Clinical and laboratory networks

Meetings of the MDT and other specialist meetings are held in order to maintain clinical networking for the management of patients. The MDT meeting and regular 'handovers' ensure safe continuity of care. The development of pathology laboratory networks may also mean that the consultant haematologist is responsible for an area of laboratory work across different locations. The impact of the Carter report¹³ on the modernisation of pathology services will emerge in the next few years, but it is likely that the independent sector will play an increasing role. Although this may reduce the technical laboratory workload, it will have a limited effect on specialist laboratory tests or the advisory role of consultants.

7 Opportunities for integrated care

There are a number of opportunities for integrated working with both primary care and palliative care. Patients who require monitoring of low-grade haematological conditions such as early chronic lymphocytic leukaemia, monoclonal gammopathy and minor abnormalities of the blood count such as thrombocytopenia or neutropenia, can be managed in a joint way between primary and secondary care.

Table 4 Specimen consultant job plan		
Activity	Workload	Programmed activities (PAs)
Direct clinical care		
Diagnostic laboratory work		2–3
Ward rounds, ward referrals, MDT meetings		2–3
Outpatient clinics		2–3
Marrows and other specialist procedures		0–0.5
Lead haematologist laboratory		0–1
Lead haematologist transfusion	One haematologist would have this recognised in job plan	0–1
Lead haematologist venous thromboembolism	One haematologist would have this recognised in job plan	0–1
On-call and weekend work	This should not exceed a 1:3 rota and carry an 8% supplement; PAs for predictable or unpredictable on-call work should be recognised in job plan – eg one PA on average per week	
Total direct clinical care (PAs)		7.5 on average
Supporting professional activities (SPAs)		
Work to maintain and improve the quality of healthcare	Education and training, appraisal, departmental management and service development, audit and clinical governance, CPD and revalidation, research	2.5 on average
Other NHS responsibilities	eg medical director, clinical director, lead consultant in specialty, clinical tutor	Local agreement with trust
External duties	eg work for deaneries, royal colleges, specialist societies, DH or other government bodies	Local agreement with trust
Note: concultants with a significant academic worklo	ad will have separate PAs identified for NHS and/or universit	ty components. Consultant job plans

Note: consultants with a significant academic workload will have separate PAs identified for NHS and/or university components. Consultant job plans must take into account the European Working Time Directive (EWTD).

Outreach haematology clinics have been established in community hospitals in conjunction with palliative care. This allows for care to be delivered closer to the patient's home and can include simple palliative interventions such as supportive blood transfusions in non-haematology patients with advanced cancer where appropriate.

8 Workforce requirements for the specialty

Current workforce numbers

According to the Information Centre's 2009 census, there are 647 WTE consultants (700 headcount) while the Electronic Staff Record (ESR) from September 2009 shows 580 WTE (605 headcount).¹⁴

The consultant workforce has increased by 11% during the last five years.¹⁵ The RCP's census of consultant physicians in the UK in 2009 showed that haematologists are on average contracted to work 11 programmed activities (PAs) with the actual number of PAs delivered being 12.2.¹⁵

National consultant workforce requirements

The Centre for Workforce Intelligence estimates that the expected requirements based on changing demographics indicate a required growth rate in consultant haematologists of about 2%.^{14,16} However, there are other factors that also need to be taken into account when planning the future need for consultant haematologists.

As was outlined in the 2008 report published by the BSH and the RCPath, there are a number of professional issues that should be considered.⁸ These include the increasing complexity of treatment and subspecialisation in haematology and other disciplines, the increasing impact of regulatory initiatives (eg improving outcome guidance and waiting-time targets) and legislation, as well as multidisciplinary working and interhospital networking. Implementation of the demands of Better blood transfusion: safe and *appropriate use of blood*¹⁰ and the European directive on haemovigilance¹² will require an additional 30-40 consultants. An increasing laboratory workload (>5% increase per annum) generates increasing numbers of patient referrals and the need for clinical guidance on the use of the laboratory and the interpretation of results. The specialty has supported improvements in training programmes, but these too place greater demands on consultants' and trainees' time.

The RCP report on the impact on medicine of the increasing proportion of women entering the profession identified that haematology is one of the specialties that has attracted a higher proportion of women.¹⁷ As a result, the current male:female ratio for consultants over the age of 55 of 7:3 changes to 1:1 for younger consultants and for trainees it is 4:6. Since the male to female ratio of consultants that work less than full time in haematology is 1:4, an increasing number of consultant haematologists would be expected to work less than full time. In addition, the report also noted that women who take career breaks are taking them later in their medical careers as consultants, which is another factor that will impact on the ability of a consultant-delivered service to be maintained. Therefore, the professional bodies recommend that the total number of consultant haematologists that will be required is estimated to be 1250 (headcount).

9 Consultant work programme/specimen job plan

Table 4 outlines the typical work programme of a consultant haematologist.

10 Key points for commissioners

1 Haematology is an integrated clinical and laboratory specialty; commissioning for one aspect of the

specialty without consideration for the other may impact on the viability of a local service.

- 2 Haematologists have a key role in providing advice to other specialties within a hospital as well as GPs on both clinical and laboratory issues.
- 3 Many aspects of a haematology service are now provided across a network that covers more than one NHS provider and commissioners need to bear this in mind when commissioning haematology services.
- 4 Postgraduate training is closely linked to the current organisation of haematology services, another factor that commissioners should bear in mind when commissioning clinical and laboratory services.

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Note to readers: This chapter has been reproduced from the book's 5th edition (2011) as the author felt it did not need updating for the 2013 revision.

Immunology

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1 Description of the specialty

The clinical practice of immunology, as defined by the World Health Organization (WHO), encompasses the clinical and laboratory activity dealing with the study, diagnosis and management of patients with diseases resulting from disordered immunological mechanisms and conditions in which immunological manipulations form an important part of the therapy.¹ In the UK, the practice of immunology largely conforms to this WHO definition, with immunologists providing combined clinical and laboratory services for patients with immunodeficiency, autoimmune disease, systemic vasculitis and allergy.

Following the recent re-organisation of the NHS, specialist immunology and allergy services will be nationally commissioned for patients with immunodeficiency, C1 inhibitor deficiency and complex allergy. To underpin this initiative, new service specifications have been produced to ensure equitable delivery of high-quality networked services nationally.

Who are the patients?

Patients with immunologically mediated diseases comprise a diverse group who present to a variety of medical specialties. Within this group, patients with primary immunodeficiency disorders (PIDs) have particular clinical needs given the relative rarity of their chronic conditions and the attendant diagnostic delay, with the need for complex therapy and lifelong immunological follow-up.² Such patients require access to a specialist clinical immunology service for optimal care. Patients with autoimmune disease, systemic vasculitis and serious allergy require access to the relevant organ-based specialty working in partnership with a high-quality immunology laboratory to ensure prompt diagnosis and optimal management of their conditions.

Although allergy is recognised as a specialty in its own right, the immunology curriculum includes allergy as

an important component and produces immunologists equipped with the requisite knowledge and skills to independently investigate and manage patients with allergic diseases of all degrees of severity. In view of the immunological principles underlying allergic disease and the patchy development of allergy services, most immunologists have established and continue to provide a full range of specialist allergy services including desensitisation therapy.³ Currently, clinical immunologists are the main providers of specialist allergy services in most regions of the UK.³ The poor provision of allergy services in the NHS at present underlines the need for the urgent development of allergy networks comprising immunologists, specialist allergists and organ-based specialists with an interest in allergy.

2 Organisation of the service and patterns of referral

A typical service

Clinical immunology has evolved over the past two decades from a laboratory base to a combined clinical and laboratory specialty, with the immunologist's role as a physician becoming increasingly prominent. A typical immunology service is based in a teaching hospital led by a consultant immunologist and comprises a mixture of clinical and laboratory staff. The clinical team will include specialty registrars (StRs) in immunology and immunology nurse specialists, while the laboratory team is composed of healthcare scientists.

Sources of referral from primary, secondary and tertiary levels

The majority of referrals to immunologists involve patients with suspected immune deficiency, severe allergy, systemic autoimmune disease and vasculitis. Referrals emanate from colleagues in both hospital and primary care.

The advent of laboratory accreditation has led many district general hospitals (DGHs) to seek formal
consultant immunology input into their diagnostic immunology services. In many instances, laboratory duties are combined with clinical work. In some parts of the country, this arrangement has enabled the development of a clinical network linking the regional immunology service to surrounding DGHs, therefore ensuring wider delivery of clinical immunology services.

3 Working with patients: patient-centred care

What you do with patients

Involving patients in decisions about their treatment

Patients with immunodeficiency disorders have a lifelong need for specialist immunological care. As their primary physicians, immunologists work in close partnership with colleagues from other disciplines to ensure that their patients' complex multisystem complications are managed optimally across disciplines. The coordination of multidisciplinary care by immunologists for immunodeficient patients is a good example of the integrated care that these patients require. Patient empowerment has been enthusiastically embraced by immunologists as evidenced by the widespread development of home immunoglobulin infusion programmes, which enable patients to self-infuse immunoglobulin at home following completion of a competency-based training programme. The principle of home therapy has recently been extended to include C1 inhibitor infusion in selected patients with hereditary angioedema due to C1 inhibitor deficiency.^{4,5} Both of these initiatives have been welcomed by patients and their support groups.

Patient support groups

Following the recent dissolution of the Primary Immunodeficiency Association (PiA), new patient groups have emerged to provide a vital source of educational and pastoral support for patients. Both adult and paediatric immunologists serve on the medical advisory panel of the PiA and play an important educational and advisory role in raising awareness of immunodeficiencies among the wider medical profession and policy makers. Immunologists are also actively involved in patient education by making regular presentations to regional and national patient meetings and contributing to patient newsletters. The concept of the expert patient is particularly apposite to patients with primary immunodeficiency who have a lifetime's experience of the problems associated with defective immunity. Actively obtaining patients' views on the quality of the clinical service afforded to immunodeficient patients is a requirement for accreditation of immunodeficiency services by the United Kingdom Primary Immunodeficiency Network (UKPIN). This is a multidisciplinary organisation comprising clinicians, nurses and scientists. Regular meetings between UKPIN and patient support groups about matters of mutual interest ensure that patients' views are well represented in both medical and industrial forums. Topics range from the supply of therapeutic immunoglobulin, the relative risk of variant Creutzfeldt-Jakob disease (vCJD) from blood products and research into PIDs. A further example of patient engagement is the active involvement of patient representatives in the ongoing national demand management plan of the Department of Health (DH) to ensure that immunoglobulin usage is prioritised and targeted at those patients who are in greatest need of immunoglobulin therapy.⁶

4 Interspecialty and interdisciplinary liaison

Multidisciplinary team working

Immunologists work as members of multidisciplinary teams (MDTs) that include nurse specialists and laboratory healthcare scientists. Nurse specialists in immunology play a leading role in all aspects of immunoglobulin infusion, from the supervision of hospital-based therapy to the training and supervision of patients who undertake self-infusion of immunoglobulin as part of the home therapy programme. In many centres, immunology nurse specialists undertake skin testing for allergy and train patients with life-threatening allergic disease in the use of self-injectable adrenaline. Some immunology nurse specialists have completed the extended prescribing course for nurses and have set up autonomous clinics for the diagnosis and management of allergic diseases.

Working with other specialties

Several additional services are essential for the efficient delivery of a good immunology service. Access to specialist services such as microbiology, virology, cellular pathology and radiology are vital for the early detection and optimal management of the complications of immunodeficiency. Multidisciplinary meetings provide education and improved liaison for patient care. A comprehensive diagnostic immunology laboratory underpins the diagnosis of all immunological disease and is integral to the success of a clinical immunology service.

Considering the propensity of antibody-deficient patients to develop complications involving multiple-organ systems, immunologists must liaise closely with colleagues in a range of specialties including: respiratory medicine; ear, nose and throat (ENT) surgery; haematology; ophthalmology; and gastroenterology.

5 Delivering a high-quality service

What is a high-quality service?

A high-quality clinical immunology service will be consultant led and adequately staffed (medical, scientific, nursing and secretarial), with appropriate resources to support service delivery. It must be supported by an accredited immunology laboratory providing a full repertoire of investigations encompassing immunochemistry, autoimmunity, allergy, and cellular and molecular immunology.

Maintaining and improving the quality of care

The DH in England has published specialised definitions for clinical immunology (definition no. 16) and allergy (definition no. 15). The previous set of definitions encompassed a definition for specialised pathology diagnostic services, including immunology (definition no. 25). Although the last has not been revised, collectively, these definitions provide a benchmark for the practice of immunology.^{7,8} The quality of the laboratory immunology service has been underpinned by Clinical Pathology Accreditation (UK) Ltd (CPA) since 1993. This accreditation process is now encompassed within the remit of the United Kingdom Accreditation Service (UKAS). Enrolment with the CPA was made a mandatory requirement by the DH for all laboratory disciplines in 2003. Many units across the UK are now developing laboratory service specifications with key performance indicators as part of the DH's 'modernising pathology services' initiative.

Service developments to deliver improved care

The process of accreditation of clinical immunology services for immunodeficiency through a system of peer review by UKPIN is actively under way. Participation in both clinical and laboratory accreditation ensures that immunology services comply with current standards of clinical governance. Evidence of active participation in audit is an essential prerequisite for accreditation in both clinical and laboratory immunology. Recent examples of audits that have influenced practice include an audit of a gating policy for requesting antineutrophil cytoplasmic antibodies9 and an on-going audit of the diagnosis and management of C1 inhibitor deficiency. UKPIN fulfils an important educational role in the development of guidelines on the diagnosis and management of immunodeficiencies (www.ukpin.org.uk). The network also develops the immunodeficiency register and works closely with governmental agencies involved in the provision of therapeutic agents for patient care.

In view of the patchy provision of allergy services, immunologists are actively involved in developing accreditation standards for allergy under the auspices of the Joint Committee on Immunology and Allergy (Royal College of Physicians (RCP) and Royal College of Pathologists (RCPath)). The increasing recognition of anaesthetic allergy has prompted immunologists and allergists to work closely with the Association of Anaesthetists of Great Britain and Ireland to develop guidelines for the investigation of patients who develop perioperative anaphylaxis.¹⁰ This initiative has been successful in improving referral pathways and ensuring that these patients are provided with a clear management plan for future anaesthesia.

Immunologists positively embrace service developments and initiatives that deliver improved patient care, eg training patients to use home immunoglobulin therapy through intravenous or subcutaneous routes. Home intravenous immunoglobulin (IVIg) therapy, initially developed for patients with primary antibody deficiency, has now been extended in some centres to patients with autoimmune neuropathies in whom it is used as maintenance immunomodulatory therapy.

In the laboratory, immunologists take a lead role in the assessment of new diagnostic tests for immunological diseases, followed, if appropriate, by their introduction into routine clinical practice.

Education and training, clinical governance and management duties

Immunologists are actively involved in a range of duties that are essential to the maintenance of high standards of clinical practice. These include: education and training of StRs, laboratory scientists and nurses; continuing professional development (CPD); clinical governance; General Medical Council (GMC) revalidation; local management and national work for the RCP and RCPath and specialist immunological societies - the British Society for Immunology (BSI), the British Society for Allergy and Clinical Immunology (BSACI) and UKPIN. With the development of a competency-based curriculum in immunology, it is envisaged that a consultant with responsibilities as an educational supervisor will need to devote one weekly programmed activity (PA) to teaching and training activities.

Research - clinical studies and basic science

The direct relevance of immunology to much of clinical medicine and its strong scientific foundations provide ample opportunities for clinical studies of new immunomodulatory therapies, the recognition of new diseases (as shown by recent descriptions of new forms of severe combined immunodeficiency and type 1 cytokine deficiency) and translational research. Despite their heavy NHS commitments, many immunologists are actively involved in national and international clinical and laboratory studies.

The few full-time academic immunologists make a proportionately greater contribution to research while shouldering a significant clinical workload for the NHS. With the disappearance of many university immunology departments and recent medical school expansion, consultant immunologists have major undergraduate and postgraduate teaching commitments.

6 Clinical work of consultants

How a consultant works in this specialty

The clinical work of consultant immunologists is largely outpatient based, with the following broad work patterns:

• Immunologists are solely responsible for patients with primary immunodeficiencies (antibody deficiency, combined T- and B-cell deficiency, complement deficiency and phagocytic defects).

- In many centres, consultant immunologists are responsible for patients with complex, severe allergic disease (food allergy, drug allergy, venom allergy and anaphylaxis).
- In most centres, consultant immunologists perform joint clinics with paediatricians to care for children with immunodeficiencies and allergy.
- Many immunologists have an interest in connective tissue disease and perform joint clinics with rheumatologists for patients with autoimmune rheumatic disease and systemic vasculitis. The increasing recognition of autoinflammatory disorders and its inclusion in the national commissioning specification for immunodeficiency, reflects the key role played by immunologists in investigating and managing these patients, either singly or jointly with rheumatologists.
- Day-case immunoglobulin infusion clinics for patients with antibody deficiency form an integral part of the clinical workload of consultant immunologists. With increasing recognition of IVIg as a therapeutic immunomodulator, these infusion clinics have expanded in some centres to include non-antibody-deficient patients, eg those with inflammatory neuropathies.
- Immunologists are increasingly involved in the supervision of patients receiving therapeutic biologics for systemic autoimmune disease. The immunology laboratory plays a key role in monitoring the response to certain biologics as exemplified by B-cell quantification in patients receiving rituximab (an anti-CD20 monoclonal antibody). Many laboratories have led the introduction of interferon-*γ* assays to detect latent tuberculosis as part of the pretreatment assessment of patients receiving anti-tumour necrosis factor (TNF)-based therapies.

Outpatient work

Outpatient work includes the following:

- primary immunodeficiency clinics
- severe allergic disease clinics
- day-case desensitisation immunotherapy
- challenge clinics for drug and food allergy
- combined clinics with paediatricians for children with immunodeficiency and allergy
- combined clinics with rheumatologists
- supervision of day-case immunoglobulin infusion clinics for antibody replacement and therapeutic immunomodulation

- supervision of day-case clinics for infusion of therapeutic antibodies (biologics)
- transition clinics for adolescents with primary immunodeficiency as they move from paediatric to adult services.

The complexity of clinical referrals requires that sufficient time is given to the assessment of patients at the first consultation, which limits the number of patients who can be seen in a single outpatient session. A consultant immunologist working alone will typically see 5–10 (new and follow-up) patients in a single session, depending on the complexity of the patients' problems. An audit of primary antibody deficiency, and guidelines from UKPIN, suggest that a consultant should be responsible for up to 100 patients with antibody deficiency in order to deliver optimum care.¹¹

Specialist investigative procedures

Consultant immunologists are responsible for directing diagnostic immunology services and perform a wide range of duties including clinical liaison, interpretation and validation of results, quality assurance, assay development, and supervision of biomedical and clinical scientists and StRs. Some consultants perform a limited amount of 'hands-on' laboratory work.

In view of the work pressures on immunologists, CPA guidelines stipulate that a single consultant immunologist should not support more than two laboratories outside their base hospital at any one time and the weekly off-site commitment to these should not be more than two PAs (including travelling time).

Driven by advances in laboratory technology and the re-appraisal of the role of the physician in laboratory medicine,¹² there is an increasing trend for integration of significant parts of the conventional immunology test repertoire in to multidisciplinary blood science or core automated laboratories. This initiative coupled with reconfiguration of pathology laboratories in line with the Carter review¹³ is likely to impact on the future work patterns of immunologists by changing the balance between laboratory and clinical activities.

Specialist on call

The nature of on-call duties in immunology only rarely warrants the out-of-hours attendance of consultant immunologists. However, it is important that an on-call specialist immunology service is available for the discussion of clinical problems and emergency laboratory investigations. The frequency of on-call duties for consultant immunologists will be determined by the number of colleagues in a centre. Where possible, an on-call rota with a frequency of one in two or one in three is recommended, although it is recognised that consultants who work single-handedly will have difficulty with this arrangement. In such cases, the possibility of forming a consortium with colleagues in adjacent regions to provide an acceptable level of cover should be explored.

7 Opportunities for integrated care

The frequent requirement for multidisciplinary care for immunodeficient patients who develop organ-specific complications has prompted immunologists to embrace enthusiastically the principles of integrated care across specialties. The adoption of UKPIN accreditation standards by many immunology centres has driven the development of protocols ensuring clear documentation of the clinical process and evidence-based management guidelines underpinning the provision of integrated care to patients with immunodeficiency.

Participation in multidisciplinary clinics and/or team meetings for patients with systemic autoimmune diseases and vasculitis are further examples of integrated care. Similarly, the principles of integrated care have been applied to the investigation and follow-up of patients with anaphylaxis following attendance at accident and emergency departments.

8 Workforce requirements for the specialty

Currently, 60 consultant immunologists serve the entire population of England and Wales.

Limited data are available on the workload of immunologists, who are based mainly in teaching hospitals. Increasing awareness of immunological diseases, coupled with the need to provide specialist advice and direction to immunology laboratories, including those in larger DGHs, has placed a traditionally understaffed specialty with many consultants who work single-handedly under great strain.

An estimate of the number of consultant immunologists required in England and Wales is based upon the last workload survey undertaken by the RCPath, the RCP census and extensive consultation within the

Table 1 Consultant work programme/specimen job plan		
Activity	Workload	Programmed activities (PAs)
Direct clinical care		
Outpatient clinics	5–10 patients per clinic	3–4
New patients	2–4 patients per clinic	
Follow-up patients	3–6 patients per clinic	
IVIg infusion	6–10 patients per clinic	
Ward consultation and telephone advice		0.5
Allergy, including desensitisation immunotherapy		1
Laboratory work		
Clinical liaison, interpretation of results		
Quality assurance		
Assay development		
Hands-on laboratory work		
Supervision of DGH immunology laboratories		
Total laboratory work		3–4
Total number of direct clinical care PAs		7.5 on average
Supporting professional activities (SPAs)		
Work to maintain and improve the quality of healthcare	Education and training, appraisal, departmental management and service development, audit and clinical governance, CPD and revalidation, research	2.5 on average
Other NHS responsibilities	eg medical director, clinical director, lead consultant in specialty, clinical tutor	Local agreement with trust
External duties	eg work for deaneries, royal colleges, specialist societies, DH or other government bodies	Local agreement with trust

specialty.^{14,15} The latest RCP census showed that immunologists worked an average of 12.5 PAs per week. This represents an excess of 10.8 hours worked above contractual obligations.

Workforce requirements have been calculated on the basis that most immunologists are based in teaching hospitals and the population served by existing consultant immunologists is approximately 40 million.

Because there are insufficient data on immunology workload at DGH level, it is not possible to calculate workforce requirements for a 250,000 population. Instead, the projected estimates are based on the assumption that each consultant will not be expected to exceed their contractual obligation of 10 PAs and no consultant will have to practise on his or her own (currently 13% of consultant immunologists work on their own).

On this basis, it is estimated that 105 whole-time equivalent (WTE) consultants in immunology are required to serve the population of England and Wales (54 million). This translates into one consultant immunologist per 514,285 population compared with the existing provision of one per 0.9 million population. This is 0.31 WTE for 250,000 population, which is an expansion of 75%. In addition to replacing retiring consultants, numbers will need to expand by 7.5% per annum over the next 10 years to achieve this figure.

9 Consultant work programme/specimen job plan

Table 1 shows a consultant work programme/specimen job plan.

10 Key points for commissioners

- 1 Immunology and allergy services for patients with primary immunodeficiency, complex allergy and C1 inhibitor deficiency have been designated as nationally commissioned services.
- 2 The specialty deals with many rare immunodeficiency disorders that have designated 'orphan status' within the European Union.
- 3 Specialist management for patients with primary antibody deficiency is highlighted by the improvements in actuarial survival and reductions in morbidity that have accrued as a direct result of patients receiving dedicated care from immunologists.^{16,17}
- 4 Evidence-based guidelines for the management of patients with primary antibody deficiency have been developed by UKPIN (including guidance for commissioners) and, as major users, immunologists have played a key role in the development and implementation of the DH's immunoglobulin demand management plan.
- 5 The use of therapeutic immunoglobulin for antibody deficiency and immunomodulation is underpinned by a number of key performance indicators (KPIs), which will be monitored as part of a national dashboard.
- 6 Patients with C1 inhibitor deficiency (hereditary and acquired) are dependent on emergency treatment with C1 inhibitor and/or bradykinin receptor antagonists (Icatibant) for crises, with a minority requiring prophylactic treatment. As with antibody deficiency, these patients should be managed in centres with appropriate specialist immunological expertise.
- 7 Immunologists have led the development of home therapy for patients with antibody deficiency (immunoglobulin), autoimmune neuropathies and hereditary angioedema (C1 inhibitor).
- 8 Immunologists are major providers of comprehensive allergy services and are closely

involved in the development of accreditation standards for allergy centres.

- 9 The need for, and evidence supporting, growth in the capacity of specialised allergy services has been made repeatedly in recommendations (2003–2010) from the medical royal colleges, the House of Commons Health Select Committee and the House of Lords Science and Technology Committee.
- 10 Specialised immunology diagnostic laboratory services should only be commissioned from accredited laboratories.

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Infectious diseases and tropical medicine

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1 Description of the specialty

What is the specialty?

Infectious diseases and tropical medicine as specialties encompass the diagnosis and management of a wide variety of infections, only some of which are 'infectious' in the commonly understood sense of the word. Previously associated with fever hospitals, infectious diseases is now a specialty fully integrated into the modern general, acute hospital and closely allied with acute medical specialties. Physicians in the specialty help hospitals deal with problems associated with healthcare-associated infections and, at the same time, the specialty is at the forefront of efforts to recognise and contain emerging infections like severe acute respiratory syndrome (SARS) and avian influenza. The specialty is also involved in providing travel medicine advice for those visiting the tropics and for assessing those travellers returning to the UK with health problems. Most infectious diseases physicians are actively engaged in research and other academic activities.

Who are the patients?

Most inpatients arrive from the community as acute admissions to infectious diseases wards. A variety of conditions, such as gastroenteritis, bacterial pneumonia, meningitis, skin and soft tissue infections are managed in addition to more exotic conditions such as HIV, malaria and tuberculosis. The patients with infections are adults of any age but a proportion of these may present with infections and end up with a non-infective diagnosis, such as connective tissue disease or malignancy. Due to the nature of the specialty, there are disproportionate numbers of vulnerable patients, such as asylum seekers and recent immigrants, the homeless, prisoners, intravenous drug users and visitors from the tropics.

Main disease patterns

In addition to the workload provided by community-acquired infections such as pneumonia, pyelonephritis and cellulitis, the specialty is increasingly involved in managing the infective complications of a growing number of immunosuppressed patients. Advances in cancer care and autoimmune diseases mean that more patients survive but are prone to infections, many of which are unusual. Over the past two decades HIV infections have increased. New patients continue to present with infective complications of HIV and those can be complex to manage. In addition, the welcome success of highly active antiretroviral therapy (HAART) has dramatically increased survival in HIV, so the number of patients seen in the clinics continues to increase, putting pressure on services. Many infectious diseases physicians are managing increased numbers of hepatitis virus infected patients (hepatitis B and C). At the same time, increasing problems with antibiotic resistance are changing the face of healthcare-associated infection. The specialty has to cope with the problems of methicillin-resistant Staphylococcus aureus (MRSA) and new strains of Clostridium difficile, as well as multiresistant urinary tract infections and resistant tuberculosis.

Finally, increasing numbers of travellers from the UK and migrants to the UK increase the number of tropical infections, eg malaria, that are imported.

2 Organisation of the service and patterns of referral

A typical service

Most infectious diseases units are associated with teaching hospitals but, increasingly, new units are being established in larger district general hospitals (DGHs). Inpatient services are provided in the infectious diseases ward, which provides single rooms for isolation purposes, some of which have negative pressure ventilation systems to reduce the risk of transmission of respiratory pathogens, such as tuberculosis (TB). The infectious diseases ward takes in acute admissions 24 hours a day. In addition, outpatient services are sufficiently flexible to see urgent outpatients immediately, such as those returning from the tropics with fevers or HIV-positive patients with new problems. A significant part of the practice of an infectious diseases physician is to provide consultation advice for other specialists, ranging from general medicine through to surgery, obstetrics and gynaecology, neurology and intensive care. Infectious diseases physicians also play a major part leading on infection control issues in hospital trusts.

Sources of referral

The majority of acute admissions (about 80%) come straight from GPs or the hospital's emergency department. Others may be referred from other hospital services or be admitted as tertiary referrals from outlying DGHs. A few, such as those with HIV, may self-refer. Some of the more vulnerable patients may be referred by social services, the voluntary sector or from prisons.

Locality-based and/or regional services

While infectious diseases units provide services primarily for the hospital trust in which they are sited, most also provide a regional infection and tropical medicine service for more distant DGHs and GPs. Locally, the infectious diseases ward provides isolation facilities for infectious patients, such as those with TB, and provides specialist advice for other clinicians, such as those on intensive therapy units (ITUs). Such facilities and expertise can be put to use for patients transferred from other hospitals, including the provision of negative-pressure isolation facilities or specialist tropical diseases opinions and investigations.

Community models of care

Although most infectious diseases units focus on the care of acutely ill inpatients, there are increasing interactions with community care. Many units have developed programmes to provide intravenous antibiotic therapy outside hospital (outpatient antibiotic therapy (OPAT)) to enable medically stable patients to receive necessary intravenous therapy at home. In addition, HIV care involves community liaison with social workers and community nurses to provide holistic care. Finally, some patients with chronic fatigue syndrome (CFS) are treated by community therapists. Increasingly, because of the importance of healthcare-associated infections, there need to be clear links between hospitals and the community to prevent and manage these infections. Infectious diseases physicians take a lead in this area, along with medical microbiologists.

Complementary services

Complementary therapies do not play a role in the management of infections. However, some patients with HIV can avail themselves of various complementary therapies provided by voluntary services with links to the infectious diseases unit.

3 Working with patients: patient-centred care

Patient choice: involving patients in decisions about their treatment

Patients are routinely involved in decisions regarding their treatment. Many outpatient referrals are now made by 'Choose and book', allowing patients to see the physician of their choice, guided by their GP. In HIV care, patient participation in decisions about treatment options is essential to maintain trust and to increase the likelihood of adherence to often difficult, long-term therapies. Before being considered for OPAT, patients are consulted as to whether or not they want to participate in such out-of-hospital care.

Ethical and religious considerations

Due to the type of patient groups involved, great store is placed on the religious and cultural context of patient decision-making. In infectious diseases and tropical medicine, many patients come from non-UK backgrounds and cultures. Efforts must be made to engage them in their own healthcare. Particular care must be taken with HIV patients from other cultures, many of whom may have particular concerns about their immigration status. Physicians need to be aware of the ethical aspects of decision-making in such difficult circumstances. Similar issues may arise with patients infected with TB or hepatitis viruses.

Opportunities for education and promoting self-care

Patient information and education are fundamental to all aspects of medical care but are especially important for the vulnerable groups that are seen by infectious diseases physicians. Education improves patient involvement and helps patients to make their own decisions about aspects of their medical care. This is clearly important in HIV disease so that individuals understand the need to take medication, inform their sexual partners and practise safe sex. Similarly, education and self-help are important aspects of travel medicine so that travellers can protect themselves from various hazards associated with tropical travel.

Patients with chronic conditions

Infectious diseases practice involves working with some patient groups with chronic conditions, even though most of the activity concerns acute admissions. Those with blood-borne virus infections, notably HIV, hepatitis B and C, are frequently cared for in the outpatient setting. There needs to be engagement between physicians and patients, along with other team members, to ensure the best long-term care and outcomes. Difficult surgical infections, particularly involving the musculoskeletal system, require long-term management and close liaison with surgical colleagues. Some infectious diseases physicians also manage patients with CFS and again provide chronic care for these individuals in a multidisciplinary team (MDT).

The role of the carer

Carers have an important role in managing many diseases. The involvement of carers in the overall management of those with HIV infection is often important. They can help ensure adherence to difficult drug regimens and provide support. The same is true for those who have to undergo difficult treatments for hepatitis C infections.

Access to information, patient support groups and the role of the expert patient

Information is provided in a variety of forms by infectious diseases units to increase patient awareness and involvement. Patient support groups are very helpful, particularly in HIV disease where organisations such as the Terence Higgins Trust provide invaluable support and advice. Similarly, involvement of support groups for those with hepatitis C or with CFS can help. The role of the expert patient is most useful in chronic conditions, such as HIV, but is more difficult for many of the acute conditions seen by infectious diseases physicians.

Availability of clinical records/results

Prompt access to records and results is an essential part of the practice of infectious diseases physicians as decisions often have to be made in the acute setting. The use of information technology (IT) has improved the ability to access results and records. Imaging is an important component of good infectious diseases management and this has been enhanced enormously by the availability of digital imaging accessible electronically. The electronic patient record will be a major step to improving care. Many units now have the ability to inform patients of results by email or text messaging. This can be helpful for those with chronic conditions, such as HIV, but may also help those seeking travel advice. Those units that provide an OPAT service (see above) usually provide patients with hand-held records to facilitate their care in the community.

4 Interspecialty and interdisciplinary liaison

Multidisciplinary team working

Infectious diseases physicians frequently work in MDTs. The complex cases and the numbers of vulnerable patients require interactions with specialist infectious diseases pharmacists, specialist nurses, dietitians, occupational and physical therapists, and social workers. There are also close links with voluntary organisations, particularly those involved with HIV and with drug addiction. Infections can complicate surgical procedures or may require complex surgery, so MDT clinics and rounds are essential for good outcomes. In addition, the management of CFS requires team work with clinical psychologists.

Working with other specialties

There are close working relationships between infectious diseases physicians and clinical microbiologists and virologists. There are also now well-established joint training programmes so that future infection specialists will be accredited in both infectious diseases and medical microbiology. Infectious diseases specialists also interact closely with genitourinary medicine (GUM) specialists (particularly in the joint management of HIV infection) with hepatologists in the management of chronic hepatitis B and C infections and with respiratory physicians in managing TB. Due to the acute nature of the specialty, there are many times when infectious diseases specialists work with other physicians in the acute sector, particularly those in acute general medicine. Many infectious diseases physicians, acting as acute physicians themselves, play a major role in acute medicine in their trusts. Surgical infections are an important problem so infectious diseases physicians interact regularly with surgeons to manage complex intraabdominal infections or musculoskeletal infections. There are few hospital specialties that do not require and seek advice from infectious diseases physicians.

Working with GPs

Generally speaking, there are no GPs working in infectious diseases although there are many interactions with GPs needing specialist advice to manage patients in the community. Some GPs have a special interest in travel medicine and may provide these services in the NHS or the independent sector. Infectious diseases physicians are prominent in the development of antibiotic policies, not only for the hospital but also those that are used in primary care. They help to educate GPs in the appropriate use of antibiotics in the community, the interpretation of laboratory tests and the prevention and management of healthcareassociated infections.

Specialist activity beyond local services

Infectious diseases physicians have taken on the burden of providing clinical expertise and cover in the event of bioterrorism. Each region has an infectious diseases physician named as the smallpox diagnostic expert (SDE), who has been vaccinated and trained in the recognition of this disease and its management in the event of a new case emerging. These physicians are also involved in the planning for other outbreaks, including pandemic influenza, in conjunction with the Health Protection Agency (HPA) and public health physicians. Infectious diseases physicians play an active role in national bodies. As well as working at the Royal College of Physicians (RCP), they serve on national committees such as the Joint Committee on Vaccinations and Immunisations (JCVI), the Expert Advisory Group on AIDS (EAGA), the Advisory Committee on Antimicrobial Resistance and Healthcare Associated Infection (ARHAI) and the National Expert Panel on New and Emerging Infections (NEPNEI). Many have helped with the development and running of the National Travel Health Network and Centre which now provides excellent advice about travel medicine to the public as well as to health professionals.

5 Delivering a high-quality service

Characteristics of a high-quality service

Characteristics of a high-quality service include:

- inpatient facilities and expertise 24 hours a day throughout the year
- isolation rooms, including those with negative pressure ventilation
- same day access to outpatients for acute infections and travellers
- open access to those with HIV infection
- open access to those with accidental blood-borne virus exposure
- clinical management that takes a holistic approach
- regular clinical liaison with the microbiology/virology laboratory

- lead on the trust's antimicrobial policy
- active promotion of appropriate antimicrobial usage in the hospital
- lead on the trust's infection control policies and with the team
- active promotion of best practice of infection control
- promoting safe intravenous antibiotic usage outside the hospital
- meeting recognised standards in clinical care
- meeting NHS targets for inpatient and outpatient work.

Maintaining and improving the quality of care

Leadership role and service development

Infectious diseases physicians often take leadership roles in the hospital, in addition to having clinical leads in their specialty. Many will serve on or chair antibiotic committees or infection control committees in their trusts. They will frequently have leadership roles in their regions for infection-related policies and links with primary care trusts (PCTs) and with the HPA. Infectious diseases physicians have taken the lead in developing OPAT to facilitate patient discharge, while providing appropriate antibiotic therapy for serious infections. In addition, by supporting the development of standards for managing HIV and TB, they are contributing to improvements in the service.

Education and training

Most infectious diseases physicians are involved in teaching medical students, both preclinical and clinical. In addition, because many have academic positions, there is wider teaching, both regionally and nationally. However, some of the new medical schools do not have infectious diseases physicians so not all students and trainees get exposed to such teaching, which is a gap in their training. Most infectious diseases physicians will act as trainers for junior medical staff. Some centres have appointed new academic clinical fellows under the Walport scheme to continue to nurture academic medicine and, particularly, academic infectious diseases. The physicians also teach other trainees, including nurses and ancillary workers. Infectious diseases physicians, as in other specialties, have been involved in training foundation doctors and in academic training schemes. In addition, recognising the need to encourage trainees to learn about international health, our specialty is keen to allow trainees to spend time abroad and to encourage trainees from developing countries to be involved in research and to get some experience in the UK.

Mentoring and appraisal of medical and other staff

All infectious diseases physicians undergo annual appraisal through their trusts or universities, or both. In addition, many take on management roles and therefore they often act as appraisers for their organisations. They also help with assessments and appraisals of trainees and other staff.

Continuing professional development

All physicians take part in continuing professional development (CPD) activities locally, nationally and internationally through the CPD scheme. Many, if not all, contribute by providing teaching and training for others to contribute to their CPD. There is a minimum requirement for consultants to achieve an average (over five years) of 50 hours of CPD annually.

Clinical governance

Physicians in infectious diseases understand the need for good clinical governance. Through organisations such as the British Infection Association (BIA), the British HIV Association (BHIVA), the British Society of Antimicrobial Chemotherapy (BSAC), the Royal Society of Tropical Medicine and in collaboration with the Royal College of Pathologists (RCPath), physicians develop guidelines (eg management of meningitis, fever in returning travellers and SARS) and help to implement these locally. Through the RCP, infectious disease physicians have key roles on the Joint Committee on Infection and Tropical Medicine. All physicians will undergo appraisal.

Research - clinical and basic science

Compared to most medical specialties, a large proportion of physicians in this specialty have academic appointments. At least half are academics (up to 80% of those in tropical medicine have academic appointments) and contribute significantly to research nationally and internationally. Research varies from basic science, often virological or immunological, through to clinical science and clinical trial work. British tropical medicine continues to have a high international profile in subjects as diverse as malaria, HIV, TB, dengue fever and rickettsial diseases.

Local management duties

Most infectious diseases physicians play an active role in local management, either as clinical leads or serving on committees for infection control. Most have taken on clinical directorships and some have become medical directors of trusts. Most will have management responsibilities relating to MDTs.

Specialty and national guidelines

Infectious diseases physicians and their professional societies help to formulate and comment on guidelines from the National Institute for Health and Care Excellence (NICE), the RCP and other organisations. Many individuals have served on committees to formulate guidelines such as those dealing with meningitis, TB and HIV. These have been published by BIS, BHIVA and other organisations.

Specialty and national audit

Infectious diseases physicians routinely take part in national audits organised by the HPA, BHIVA and others, and contribute to the surveillance of infections. In addition, they are involved in the use of audit to assess clinical and other services in their own trusts.

6 Clinical work of consultants

The clinical work of infectious diseases consultants includes the following:

- Inpatient work: most infectious diseases physicians are responsible for the care of acute admissions with infection-related problems. A typical physician would be responsible for 500–600 admissions per annum.
- Outpatient work: outpatients is an important facet of the physician's work and increasingly involves the care of those with HIV and hepatitis virus infections. A physician would be expected to see 1,000–1,200 outpatients per year.
- Specialist procedures: infectious diseases is not a procedure-based specialty but physicians often have to deal with occupational exposure to blood-borne pathogens in healthcare workers and sort out post-exposure prophylaxis for HIV exposures. However, an important 'procedure' is the need to provide timely consultations to other services to provide the best infection care. Consultation work is an important part of the infectious diseases physician's workload.
- Specialist on call: most physicians will take part in a regular on-call rota for infectious diseases. Due to the acute nature of the specialty this often requires the presence of the physician in the hospital out of hours and involves weekend ward rounds. Most physicians would expect to be part of an on-call rota of one in three or less.

- Other specialist activity: infectious diseases physicians often provide advice beyond the bounds of their local hospital trusts, either by telephone advice to DGH physicians and GPs or by providing easy-access outpatient review for patients from outlying areas.
- Clinically related administration: all physicians need to keep on top of the administration related to their clinical activity, including good data collection, appropriate audit and management of junior staff. Good communication with other colleagues is an important aspect of this.

Balance between acute and specialty care

Most infectious diseases physicians take part in general medicine on-take in addition to their specialty role. This is important as the specialty is not 'organ-based' and still requires a breadth of general medicine knowledge and experience. Many will divide their time between specialty and general medicine by doing some months of general medicine and the remainder in infectious diseases, while maintaining their specialty clinics throughout.

Balance between direct work and supervision

Much of the work of infectious diseases is 'hands on', although the clinical work does involve the delegation of some duties to junior doctors and requires the consultant to supervise such work. Increasingly, with the reduction in junior doctors' hours of work and the implementation of the 'Hospital at night' in NHS hospitals, infectious diseases consultants are often on call with none of their own specialty junior staff and end up doing more direct care than in previous years.

Other work

Although infectious diseases physicians rarely, if ever, work in the community they are involved with supervising intravenous antibiotic therapy in the community as part of OPAT programmes. Some will have other duties including infection control work or they may, with microbiology colleagues, have a role in the supervision of diagnostic laboratories. Infectious diseases physicians have an active role in academic medicine and research.

7 Opportunities for integrated care

Much infectious diseases practice is, necessarily, based in the acute hospital, whether running a ward or consulting on patients admitted under other specialties. However, opportunities do exist for integrated care. The provision of OPAT is a good example of this. There will also be increasing opportunities for the management of patients with chronic blood-borne virus infections, like HIV, and those with tuberculosis.

8 Workforce requirements for the specialty

Current workforce numbers

There are currently around 136 whole time equivalent consultants in infectious diseases and tropical medicine. About two-thirds are also involved in some way in acute (on-take) general medicine and a large number are in academic positions. The infectious diseases physicians tend to be in teaching hospitals with a relative paucity in DGHs so the number of specialists is well below that required for the population and is approximately half the number per 250,000 population compared to countries in northern Europe. Numbers of infectious diseases consultants would need to expand by about 40% in order to satisfy the RCP and specialist society recommendations for adequate provision of specialist services (to around 190 WTE). Although few retirements are expected in the next few years, the specialty may expand as more trainees emerge who are jointly trained in infectious diseases and medical microbiology. The expectation is that these joint trainees will be appointed to hospitals without infectious diseases specialists at present and will be able to provide clinical inpatient work as well as infection control expertise and microbiology advice.

Recommendations for providing services

The UK has a very low number of infectious diseases specialists in comparison to other western countries. Currently there is only about one infectious diseases physician per 500,000 population in England and Wales. In Scotland, the ratio is better, with one per 270,000. Scandinavian countries with good provision have about one infectious diseases specialist per 50,000 population. Countries more akin to the UK, such as the Netherlands or Australia, have one per 200,000. It is thought that this figure would be more appropriate for the UK - one infectious diseases physician for each district hospital. Medical microbiologists contribute greatly to the management of infection in the UK, but even if their numbers were included in the tally of infectious diseases specialists, the UK is underprovided compared to other similar countries. In addition, the fact that at least half of the infectious diseases physicians contribute to the general medicine on-take service means that there are even fewer WTE physicians devoted purely to infectious diseases.

9 Consultant work programme/specimen job plan

Table 1 shows a work programme for infectious diseases and tropical medicine physicians.

Table 1 Work programme for infectious diseases and tropical medicine physicians*		
Activity	Frequency	Clinical supporting programmed activities
Ward rounds	2 per week	2
Clinics	2 per week	2
MDT meeting	1 per week	0.25
X-ray meeting	1 per week	0.25
Patient-related admin	per week	0.5
Ward consultation work	ad hoc in week	2
Weekend rounds	1 weekend/month	0.5
Supervising trainees	2 per consultant	0.5
Postgraduate meetings	2 per week	0.5
Governance/revalidation		0.25
Teaching	weekly	0.25
Research		1

*The table assumes an inpatient ward of 20–25 patients, and 15–20 consultations with patients outside the ward. It does not include acute general medicine work.

10 Key points for commissioners

1 Infectious diseases units provide care for patients with acute infections, including imported ones and this requires 24-hour availability, single-room availability and, ideally, less than 100% bed occupancy.

- 2 Because infectious diseases units commonly deal with contagious infections, they need to have good isolation facilities with single rooms, including negative pressure ventilation for some rooms, in order to provide safe respiratory isolation for conditions like TB.
- 3 Infectious diseases physicians are very involved with the inpatient and outpatient management of those with blood-borne virus infections (eg HIV) and need to be able to provide outpatient management for increasing numbers of cases as survival rates are now so much better.
- 4 Job planning for infectious diseases physicians needs to take into account the fact that much of their work involves providing clinical consultation and advice for doctors in other specialties.
- 5 Infectious diseases physicians provide a key governance role with their activities around infection control and involvement in antibiotic stewardship.
- 6 Most infectious diseases physicians are involved in academic work and the ability to foster translational research will be increasingly important for the NHS.
- 7 Infectious diseases physicians need the resources and flexibility to deal with outbreaks, whether with known pathogens like swine influenza or new ones like SARS.
- 8 Because infectious diseases units often deal with vulnerable groups such as refugees, intravenous drug users, prisoners etc they need good access to ancillary services.
- 9 Many infectious diseases physicians are dual trained in general medicine and can help to improve the quality of infection control and management on the acute medical 'take'.
- 10 If, as is likely, pathology services become centralised, those infectious diseases physicians jointly trained in microbiology will be needed to provide test interpretation and quality assurance.

Note to readers: This chapter has not been updated for the revised 5th edition 2013. The text has been reproduced from the 2011 edition.

Medical oncology

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1 Description of the specialty

Medical oncologists are specialist physicians trained in the investigation and care of patients with cancer. They are an integral part of the cancer multidisciplinary team (MDT), providing particular expertise to patients through their knowledge of the systemic treatment of cancer with hormonal treatment, conventional cytotoxic chemotherapy and newer molecular-targeted treatments. These treatments may be delivered with both curative intent, particularly in early cancers, and palliative intent to alleviate symptoms plus, increasingly, for prolonging life in more advanced cancers. Medical oncologists are especially trained to understand the biology of cancer and the pharmacology of drugs. They are ideally prepared for the role of monitoring the efficacy and safety of current treatments and also in the testing and development of new medicines. Medical oncologists have a central role in the conduct of clinical trials and are expected to enter patients into nationally approved trials. Many have a remit to design and develop new treatment strategies through translational research.

Medical oncologists are tumour-site specialists focusing on two or three specific types of cancer. The specialty has a strong academic component, with many medical oncologists having a higher degree and a high proportion with combined academic and National Health Service (NHS) appointments. Increasingly medical oncologists require skills in management and service delivery to understand the complex issues involved in introducing new treatments, commissioning healthcare in relation to changing models of care and monitoring standards through peer review.

In addition to this specialist role, many medical oncologists now have a defined role in the practice of 'acute oncology',¹ a service designed to ensure appropriate and urgent management of complications of cancer and its treatment, and also the rapid assessment and diagnosis of patients presenting with symptoms of previously undiagnosed malignancy.

Medical oncologists are drivers of the current focus on prevention of cancer. It is recognised that many cancers could be prevented by lifestyle changes. For some cancers, interventions (secondary prevention) may afford opportunities to prevent development of the disease.

Who are the patients?

One in three people in the UK will be diagnosed with cancer during their lifetime. This rate will increase as the population grows proportionally older, which partly explains the increasing incidence and prevalence of cancer year on year. Advances in the early detection of cancer and major improvements in treatment have resulted in a decrease in cancer mortality, with more people surviving cancer. Although many big improvements in survival have been in rarer cancers affecting younger patients, new therapies for common cancers are delivering similar advances in older people. This trend for improved survival will continue over the next decade as still better methods of prevention, diagnosis and treatment are delivered.

As well as caring for patients with active cancer, medical oncologists are involved in monitoring and supporting cancer survivors.

2 Organisation of the service and patterns of referral

A typical service

Since the government appointment of a national cancer director in England, cancer care in the UK has been revolutionised through a number of important strategic publications,^{2–4} each taking forward the development of the structure of cancer services.

Referral of patients with suspected cancer is usually initiated by the patient's GP. In England, Wales and Northern Ireland, waiting-time targets ensure that the time from referral to diagnosis to first definitive treatment is as short as possible. All suspected and proven cases of cancer are discussed within an MDT to agree an appropriate treatment. All MDTs require active attendance and participation by cancer site-specialised oncologists. More recently, further targets in England have been set to improve the whole patient pathway, with all subsequent treatments to be given within 31 days of the decision to treat.

Locality-based and/or regional services

MDT meetings take place within cancer units for common tumour types. Less common tumour types are centralised within a cancer centre with a critical volume of patients and staff to deliver the highest possible standard of care. The constitution is specific for each tumour type as set out by improving outcomes guidance (IOG).⁵ Until the reorganisation of the health service in April 2013, cancer units were each part of one of 34 cancer networks, with each network serving a population of 1–3 million. Since this date the network functions are being absorbed into the new strategic clinical networks that will serve larger populations and cover multiple specialist areas. Within each network there are tumour site-specific boards to ensure a coordinated approach for both the organisation of services and the equity of access for patients. There is an established national programme of peer review to ensure that services are appropriate, effective and in line with national guidance. There is increasing focus on new models of care, eg centralising wherever necessary to improve outcomes for complex treatment delivery.

Inpatient care and acute oncology

Patients may be admitted acutely to almost any department when they present with symptoms or complications of advanced disease or complications related to therapy. Recently the focus has moved on to the safe and effective out-of-hours management of patients receiving chemotherapy and the care of non-elective patients admitted with cancer.¹ In England, the National Cancer Action Team (NCAT) introduced the new multidisciplinary specialty of 'acute oncology', which addresses more effective diagnostic pathways for new patients presenting acutely with symptoms of cancer, reducing unnecessary investigations and length of stay. It also ensures the safest management of complications of disease or treatment, addressing the concerns of the National Confidential Enquiry into Patient Outcome and Death (NCEPOD), which investigated deaths within 30 days of systemic anticancer therapy.⁶

3 Working with patients: patient-centred care

Interaction with patients

Medical oncologists work with patients and their families to provide a holistic approach to care that recognises their right to information, autonomy, support and guidance that are sensitive to their cultural background and appropriate to their knowledge and beliefs. Medical oncologists are trained in advanced communication skills so that they can deliver bad news in an empathic fashion, and discuss the risks and benefits of complex and toxic treatments or, perhaps, no active therapy at all. This may include difficult discussions of statistical risk of relapse or the benefits of palliative therapies that may be associated with significant toxicity.

Very often, where new treatments keep patients well with advanced disease over long periods, medical oncologists provide ongoing and continuous support to patients and their families over many years. In these situations, the cancer can be considered as a chronic disease requiring repeated assessment and discussion relating to ongoing management.

Involving patients in decisions about their treatment

Medical oncologists' communications skills are complemented by involvement, if necessary, of appropriate interpreters and patient advocates. The decisions in oncology are often complex. Verbal information is always reinforced with written, audio or video material. Validated internet resources, such as the websites of Macmillan Cancer Support (www.macmillan.org.uk), the National Cancer Research Institute (NCRI) (www.ncri.org.uk) and Cancer Research UK (www.cancerresearchuk.org), are provided to interested patients.

Medical oncologists contributed to and led many of the workstreams of the English National Chemotherapy Implementation Group (NCIG), including those around standardised 'prescriptions' of information and the process and documentation of consent. The NCIG ceased to exist in 2013 but medical oncologists now lead and participate in the Chemotherapy Clinical Reference Group, which has taken on many of the roles of NCIG. Over the next 2 years, in collaboration with Macmillan, standardised national consent forms will be introduced to ensure higher standards of consent for systemic cancer treatment. This work, including patient nursing and pharmacy staff, has been led by medical oncology, initially through the NCIG and now through the Joint Collegiate Council for Oncology (JCCO). Medical oncologists are key members and often leaders of MDTs in which the patient is at the centre of any management decision. Adherence to national guidelines, the IOG,⁵ ensures high-quality services. All patients should be offered participation in appropriate clinical trials, which may facilitate access to drugs that are not otherwise provided by the NHS. Medical oncologists are represented (often as chairpeople) on all relevant NCRI clinical studies groups on which patient representatives ensure that patients' voices are heard as early as possible during the planning stages of clinical trials.

Increasing importance is paid to provision of psychological support and to access to information about financial support. With more patients surviving through cure or prolonged control of cancer, survival is becoming an important issue for many. Medical oncologists are increasingly involved in identifying, monitoring and treating late effects, both of cancer and of its treatment.

Patient support groups

Local self-help groups within hospitals and the community can improve patient education and support. Medical oncologists provide staff education within the specialist oncology team, the general hospital and the community services that provide much of the patient care. The expert patients' programme provides lay-led, group-based support for patients, empowering them to improve their quality of life despite living with a long-term condition. The National Awareness and Early Diagnosis Initiative (NAEDI) is coordinating a programme of activity to raise public awareness of signs and symptoms of early cancer to encourage people to seek help sooner.

Patients may wish to explore complementary therapy together with standard treatment. This need has been recognised in a paper published by the JCCO.⁷

4 Interspecialty and interdisciplinary liaison and opportunities for integrated care

Medical oncology is by design, and by national guidance, an integrated specialty through MDT working.

Multidisciplinary team working

All newly diagnosed patients are discussed in a relevant MDT meeting and a recommended treatment plan is agreed in accordance with tumour site-specific guidelines and protocols. Often medical oncologists are the coordinators of these treatment plans, working with other specialties to create defined care pathways both for elective care and within acute oncology.

Working with other specialties

Within the MDT, medical oncologists work closely with surgeons, physicians, clinical oncologists, radiologists, pathologists, specialist nurses and the palliative care team. The MDTs are required to communicate effectively with those in primary care who, in turn, have targets to ensure prompt referral of new patients.^{2,3} An RCP/RCR working party has recently published a document, *Cancer patients in crisis – responding to urgent needs*, which was produced by specialists in medical oncology, clinical oncology, palliative care, emergency medicine, intensive care, acute medicine, together with patient representatives in recognition of the complexities of acute cancer management in emergency situations.⁸

Working with GPs and GPs with a special interest (GPwSIs)

Communication with GPs is vital to provide seamless care at all stages of a patient's illness. Patients in remission require a coordinated follow-up strategy. Palliative treatments require excellent communication and coordination between oncologists and the community.

Medical oncologists are frequently the non-surgical oncology leads for trusts, providing input into the management and planning of services and working closely with trust management and primary care trusts (PCTs) on commissioning issues.

Other specialty activity beyond local services

Most medical oncologists will be based in a cancer centre and provide a number of direct clinical care (DCC)-programmed activities (PAs) in a peripheral cancer unit within their network. For some, the principal site of activity is within a cancer unit and they will visit their cancer centre for audit, research and continuing professional development (CPD). With the introduction of acute oncology, every trust that cares for elective and non-elective admissions with cancer must establish an MDT that ensures that there are pathways for the care of patients presenting for the first time with cancer, or at later stages within their cancer journey with complications due to disease or treatment. Addressing this neglected area of cancer care represents new activity for medical oncologists where a key requirement is availability at an early stage. This requires investment through strong partnerships of commissioners, cancer service providers and cancer networks. New medical oncology posts are being established to support this additional workload, recognised as sessions of DCC within job plans.

Joint Collegiate Council for Oncology

On a national level medical oncologists work with colleagues from clinical oncology and haematology through the JCCO to provide a nationally coordinated forum for guidance and advice to government and commissioners. The JCCO includes patient/user representation and has participation from the Department of Health through the membership of the national cancer director.

5 Delivering a high-quality service

What is a high-quality service?

A high-quality service can be judged by the criteria of patient satisfaction, adherence to national and network guidelines and accreditation standards, and the achievement of outcomes which, when audited and compared with national cancer care standards and published reports, are deemed to be excellent.

The NCIG (directed through the NCAT) developed key performance indicators that provide benchmarks for the assessment of the quality of oncology services.

Cancer is increasingly a long-term condition and many cancer survivors receive complex and toxic ongoing disease-modifying treatments. It is imperative that reductions in new:follow-up ratios are not used as a quality indicator in this setting.

Maintaining and improving the standard of care

The system of cancer peer review ensures adherence to guidelines such as the IOG and cancer strategy publications.^{1–5} Medical oncologists lead and support these processes and are key members on other national bodies, such as the National Institute for Health and

Care Excellence (NICE) and NCIG, tasked with improving standards and outcome.

Service developments to deliver improved patient care

Medical oncologists are at the centre of national planning of cancer services, research and therapies through the Association of Cancer Physicians (ACP), NICE, the Royal College of Physicians (RCP), the JCCO, Cancer Research UK, the Department of Health (DH) and, previously, the office of the national cancer director.

Systemic anti-cancer therapy dataset (SACT)

In the last 3 years NCIG, through a working party led by medical and clinical oncologists, established a national chemotherapy database (which is now coordinated through the National Cancer Information Network). At present all chemotherapy activity in England, where there is electronic prescribing of chemotherapy, is being characterised within a standard dataset (SACT) and sent monthly to the database. Within the next year, all chemotherapy activity will be required to be uploaded to the database. These data will provide an internationally unique resource that will be used for audit, and benchmarking of both activity and meaningful outcomes such as survival.

Education and training

Medical oncology is a thriving specialty. The last workforce census reported an annual increase of consultants by 6.3% (compared with 5.3% for medical specialties as a whole).⁹

The training and supervision of specialty registrars (StRs) is becoming more detailed and time-consuming. There are currently 248 trainees within 25 training programmes across the UK. The minimum time for higher specialist training in oncology is 4 years, but, as it is a research-based specialty, many undertake extra out-of-programme research.

A competency-based curriculum has been developed which incorporates the 17 Postgraduate Medical Education and Training Board (PMETB) standards. Formal assessment of competence in procedures, knowledge, understanding of clinical trials, clinical skills and attitudes of the aspiring medical oncologist fall to the existing consultant body through the use of assessment tools, including mini-clinical examination (mini-CEX) and multisource feedback appraisal. Since November 2010, trainees sit the specialty examination set by the ACP and the medical oncology specialist advisory committee (SAC).

The academic nature of medical oncology is recognised within the curriculum and the award of a Certificate of Completion of Training (CCT) recognises time spent in research. In addition, the National Institute for Health Research (NIHR) has established a number of academically based training opportunities in which 30 current trainees have basic and translational research embedded in their training programme.

Clinical governance

With its tradition of audit and research, medical oncology is strongly oriented towards maintaining clinical standards and effectiveness. The rigours of research governance through good clinical practice (GCP),^{10,11} which defines standards for the conduct of clinical research, prepare medical oncologists for delivery of high standards in routine practice. Medical oncologists lead and support audits which are an essential part of the peer-review process; these include the NICE assessment and implementation of new drugs.

Research – clinical studies and basic science

- Medical oncology is a research-based specialty. Therapy is in a constant state of evolution, depending on the latest, validated, clinical research. Medical oncologists must be competent and committed clinical scientists, whether working in academic centres or cancer units.
- It has been demonstrated that patients treated within a clinical trial fare better. The National Cancer Research Network (NCRN) has set a target of 10% of cancer patients to be entered into randomised clinical trials. All medical oncologists are expected to support this activity. Many will have undertaken laboratory research during training (obtaining a PhD or MD) and can develop and support translational, pharmacological and basic clinical research.

Local, regional and national duties

Medical oncologists are increasingly involved in roles such as:

- leadership of tumour group at trust or network level
- leadership and involvement in drug and therapeutic committees
- leadership of acute oncology teams
- leadership in guideline development
- clinical service lead/medical director roles

- regional specialty advisers
- education programme leadership/training programme directors
- educational and clinical supervisors for trainees
- leads for tumour-specific research groups local, network and national
- regional and national committees RCP, ACP, JCCO and national working parties.

Specialty and national guidelines

Most medical oncologists contribute to continuing development of comprehensive guidelines for the management of different cancers through regional protocols and national guidelines, often through NICE, IOG,⁵ specialist societies, JCCO and NCRN.

Medical oncologists have also led work for the 'Map of Medicine' and national information pathways to support patients at key points during their cancer journey, through partnership with Cancer Research UK (www.cancerresearch.org) and Macmillan Cancer Support (www.macmillan.org.uk).

Quality tools and frameworks

As indicated in other sections, through development of robust databases and prescribing systems and contribution to the development of guidelines that are followed nationally, medical oncologists are at the forefront of creating benchmarks for clinically meaningful outcomes through audit, peer review and other quality assessment tools.

6 Clinical work of consultants

How a consultant works in this specialty

The medical oncologist is the leader and coordinator of an extended team of professionals through regular MDT meetings, and will attend one or more each week depending on the volume of work and site specialisation. This should be a maximum of three tumour sites because of the increasing range and complexity of treatments and patient numbers.

Most cancer patients receive their care in the outpatient setting and day-care wards. Patients may be admitted for diagnosis, treatment and management of complications.

All medical oncologists manage patients with multiple comorbidities and treat critically ill patients with oncological emergencies. Medical oncologists support acute medicine through provision of the acute oncology service.

Table 1 Sample job plan for consultant medical oncologist		
Activity	Workload	Programmed activities (PAs)
Direct clinical care		
Outpatient clinic	3–4 new patient consultations per week: approximately 1 hour each. Routine follow-up of well patients: 10–15 minutes' consultation. Management of patients with relapsed or metastatic disease: approximately 30 minutes	2–4
Day-care ward work	May form part of a mixed outpatient clinic. Patient assessment and chemotherapy prescribing: approximately 30 minutes	1–2
Acute oncology	1 or more PAs may be appropriate in some job plans	<2
Clinical administration	Will relate to numbers of OPD sessions; half session per OPD session	1–2
Clinical trial administration and participation	Should be expected in all consultant job plans	0.5–1
Inpatient ward rounds	Number of patients will vary depending on nature of practice; 5 –20 would be typical	1–2
MDT meetings	Frequency and duration will vary according to size of MDT sessions; up to 4 hours is not uncommon	1–2
Total number of direct clinical care PAs		7.5 on average
Supporting professional activities (SPAs)		
Work to maintain and improve the quality of healthcare	Education and training, development of clinical trials and research (unrelated to participation in trials), appraisal, department management and service development, audit and clinical governance, CPD and revalidation	2.5 on average
Other NHS responsibilities	eg medical director/clinical director/lead consultant in specialty/clinical tutor	Local agreement with trust
External duties	eg work for deaneries/royal colleges/specialist societies/DH or other government bodies, etc	Local agreement with trust

CPD = continuing professional development; MDT = multidisciplinary team; OPD = outpatient department.

Division of clinical workload

A typical full-time equivalent consultant job plan of 10 PAs would include 7.5 programmed activities (PAs) of DCC. The number of ward rounds varies according to the complexity of the patients and composition of the clinical team. As development of new treatments through clinical trials (with national targets for recruitment) is an expectation of medical oncologists, their DCC includes the time required to set up clinical trials, recruit patients and ensure that their ongoing care is in keeping with GCP. Outpatient clinics require additional time for prescription of treatments.

The 2.5 supporting professional activities (SPAs) comprise activities of teaching and training, audit and clinical governance, CPD, attendance at

national/international research meetings, work in trial development and usually translational research in academic centres. Management or national roles require separate time allocation and those medical oncologists with a significant role in supervision of trainees require dedicated time (1 PA) to deliver this.

Academic medicine

Academic medical oncologists should expect a reduced clinical commitment of 5 or 6 PAs per week for DCC and, consequently, 4 or 5 more PAs for teaching and research.

Sample job plans are given for both scenarios (Tables 1 and 2).

Table 2 Sample job plan for academic medical oncologist with a major laboratory interest

Activity	Programmed activities (PAs)
Direct clinical care	
Inpatient care (ward rounds and ward consultations)	1.0
MDTs/MDT meetings	0.75
Outpatient clinics	1.5
Patient administration and clinical follow-up (letters, referrals, telephone calls)	1.75
On call (supporting junior doctor on-call arrangements)	0.5
Total number of direct clinical care PAs	5.5
Supporting professional activities (SPAs)	
Medical education	0.25
CPD	0.25
Research (clinical trials, translational research in drug development, supervision of MD and PhD students)	3.25
Other NHS duties (local trust committees, eg research and development, clinical governance and audit)	0.25
External duties (international boards, lectures on behalf of employing institution)	0.5
Total number of supporting professional activities	4.5
Total programmed activities	10

Note: medical oncologists, particularly in academic centres, may work with other consultant medical oncologists as part of a team sharing the outpatient and inpatient care of a group of patients. In this case, responsibilities may vary weekly or monthly, for which an annualised job plan is required.

CPD = continuing professional development; MDT = multidisciplinary meeting.

7 Workforce requirements for the specialty

The number of medical oncologists has risen from 138 in November 2000 to 408 in September 2012. With MDT working, an ageing population, additional lines of treatment available, ongoing drug development and subsequent personalisation of cancer treatment, as well as the generation of acute oncology services, the number of medical oncologists required has inevitably increased. To adequately provide an acute oncology service, approximately 100 new posts will be required across the UK. The provision of acute oncology is recognised with new posts as follows: 9 of a total of 36 new appointments in 2009-10, 12 of 26 posts in 2010–11 and 20 of 39 posts in 2011–12, with potentially a further 100 posts for the provision of personalised medicine. Therefore, the predicted workforce requirement in the UK is a minimum of 550 posts, representing 2.75 whole-time equivalent (WTE) posts per 200,000-250,000 population.

8 Consultant work programme/specimen job plan

The workload of a medical oncologist, measured by the number of new patients seen annually, should be approximately 200 (100–150 for academic medical oncologists). Due to the lack of specialist oncologists in much of the UK, the workload of the majority of medical oncologists exceeds this.

An on-call rota of oncology specialists should provide 24-hour emergency cover, if necessary together with colleagues from haematology or clinical oncology to ensure sufficient numbers for a rota (maximum one in five).

9 Key points for commissioners

1 Medical oncology is a specialty that should be represented in every cancer centre and most cancer MDTs.

- 2 The requirement for systemic cancer therapy is increasing through new therapies, the ageing population, personalised complex therapies and prolonged survival with cancer.
- 3 Patients surviving cancer require increasing specialist intervention and monitoring to maintain remission and to deal with late effects of cancer and therapies.
- 4 Acute oncology is a new multidisciplinary service offering significant gains in quality of patient care and clinical efficiency.
- 5 Acute oncology requires an invest-to-save approach by commissioners and providers.
- 6 Clinical trials are a prerequisite of high-quality cancer care and are an expected component of medical oncologists' direct clinical care.
- 7 Translational research supports new treatments and subsequently better outcomes for patients with cancer. Medical oncologists are key drivers of the concept of bench to bedside.
- 8 Medical oncologists lead the development and integration of new treatments safely into routine practice.
- 9 Training and education in systemic therapy for junior medical staff and other healthcare professionals are a vital part of the role of the medical oncologist.
- 10 The SACT dataset and database will provide a unique resource for benchmarking and audit of chemotherapy activity and outcomes. New quality indicators will need to be developed to support commissioning and management of advanced disease, which in many areas is becoming a long-term condition. Particular attention is required in relation to supervision of new and additional therapeutic options, as well as survival issues, complications and patient self-management initiatives.

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Medical ophthalmology

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Consultant medical ophthalmologist

1 Description of the specialty

'Ophthalmic physicians' or 'medical ophthalmologists' are trained in both medicine and ophthalmology and are skilled in the diagnosis and management of systemic diseases affecting the eyes and vision as well as ophthalmic conditions that do not require surgery. Patients with generalised vascular, autoimmune, neoplastic, inherited and degenerative disorders may first present with ophthalmic symptoms and signs and an understanding of systemic disease, as well as the complex interaction between physical, social and psychological factors, is essential to providing a holistic approach to patient care.¹

Medical ophthalmologists have varying roles around the UK but are mainly employed as ophthalmic specialists caring for patients and providing services in one or more of the following areas:

- ocular inflammation (which includes uveitis and inflammatory diseases of the cornea and orbit)
- diabetic eye disease
- neuro-ophthalmic problems (vision and the brain)
- retinal disease (which includes age-related macular degeneration (AMD), retinal vascular occlusions and hereditary eye diseases).

Ophthalmic physicians may undertake laser treatments of the retina and deliver drug injections into the eye (intravitreal injections). Other roles undertaken by some ophthalmic physicians include supervision of eye casualty or primary care clinics and managing diabetes retinal screening programmes. Ophthalmic physicians support patients with visual impairment, and their families, and provide access to rehabilitation and social support services.

With an ageing population, an increasing prevalence of diabetes and the growing use of biological therapies (intravitreal and systemic), the workload and demand for ophthalmic physicians is expected to continue to increase.

2 Organisation of the service and patterns of referral

Organisation of the service

Ophthalmic physicians are usually based in ophthalmology departments or eye hospitals but have links with other physicians. Most patients are seen within the ophthalmic setting but some ophthalmic physicians offer outreach services to neurology and infectious disease units and for hospital inpatients. Services are usually outpatient based, with access to day-case and inpatient beds required for a minority of patients.

Referrals

Ophthalmic physicians receive referrals from other ophthalmologists, GPs, physicians and optometrists, and through the diabetes retinal screening programme. Direct referral from community optometrists is encouraged for certain conditions where a delayed referral could result in loss of vision, for example in the case of AMD. Many conditions managed by ophthalmic physicians initially present urgently through eye casualty clinics.

Ophthalmic physicians generally offer secondary and tertiary level care although some offer primary care through supervision of eye casualty or primary care clinics. Tertiary referrals usually involve patients with complex ocular inflammatory or neuro-ophthalmic diseases.

3 Working with patients: patient-centred care

Ensuring that the patient is at the centre of things

Patient education and support is fundamental to the practice of medical ophthalmology, where many patients have chronic disease and lifestyle factors can influence the visual and systemic outcomes. The Department of Health's *Supporting people with long-term conditions*² discusses the importance of giving

patients the knowledge and skills to care for themselves. For example, good blood-glucose and blood-pressure control reduce the risk of progression of diabetic retinopathy and help to preserve vision. Liaison with GPs, physicians and specialist nurses is important to reinforce these messages and to provide additional support. Skilful counselling is required to inform and educate while recognising the individual's expertise in their own condition.

Patient support groups, which include those for patients with visual loss and those with specific medical conditions, enable patients to gain from the life experience and understanding of others. An ophthalmic physician will have links with one or more local societies for the visually impaired and many also support charities at a national level.

Visual impairment

Ophthalmic physicians need to take account of the special needs of the patient with visual impairment, whether temporary or long term. The Royal National Institute of Blind People (RNIB) 'Losing Patients Campaign' has highlighted the difficulties faced by blind and partially sighted people who are given health information that they cannot read.³ Patient information should be available in a format that is accessible to patients with visual impairment and currently the NHS falls behind on this ideal. Staff should be trained to assist those with visual impairment and to be alert to the difficulties of communicating for patients with dual sensory impairment.

In the UK, only one in three blind or partially sighted people is working.⁴ Diabetic retinopathy and uveitis are the leading causes of visual impairment in the working years of life⁵ and these groups in particular need access to specialist employment advice, which is usually provided through charities. Advancing technology and computer software mean that many patients with sight loss can often retain their jobs if they are given adequate support.

Timely registration using the certificate of visual impairment (form BP1 in Scotland) enables patients with poor vision to gain access to practical and financial support (although access to services for the visually impaired should always be on the basis of need rather than registration).

Ethical and religious considerations

Ophthalmic physicians should be sensitive to cultural and religious beliefs and how these impact on a patient's

acceptance and understanding of their condition and treatment.

Patient-centred eye services

A patient seeing an ophthalmic physician may need to have a number of assessments and investigations, eg an orthoptic assessment and a visual field test for a neuro-ophthalmic appointment or retinal photography and optical coherence tomography imaging at a diabetes eye clinic. Treatments such as intravitreal injections and retinal laser therapy are provided through outpatient departments.

Services should be organised to enable patients to have their investigations and clinical review at the same appointment wherever possible to minimise hospital attendances. The Royal College of Ophthalmologists issued guidelines on the commissioning of services for AMD in 2007 and recommends a 'one-stop' clinic, where investigations and treatments are performed at the same visit.⁶

4 Interspecialty and interdisciplinary liaison

Within the ophthalmology department, ophthalmic physicians work closely with ophthalmic surgeons, optometrists, orthoptists, ophthalmic photographers, electrophysiologists and ophthalmic nurses. Increasingly, ophthalmic nurses and optometrists are being trained to see and manage patients according to protocols for conditions such as AMD and acute anterior uveitis.

Working with ophthalmologists

Ophthalmology is divided into a number of subspecialty areas and while the vast majority of patients are managed by one specialist, some patients may be managed by an ophthalmic physician in association with an ophthalmic surgeon. Patients may need to be referred on for ophthalmic surgery, and others with complex disease benefit from seeing an ophthalmologist with a special interest in their condition, eg a patient with glaucoma secondary to uveitis may see an ophthalmic physician, for control of their ocular inflammation, as well as a glaucoma specialist.

An ophthalmic physician may be called to assist with the management of ophthalmic patients with medical needs, for example a patient under the care of a corneal surgeon requiring immunosuppression for a complex corneal transplant.

Working with other specialties

Ophthalmic physicians work closely with other specialties, although the specialties vary depending on the areas covered. The following list is not exhaustive but shows the variety of specialties that interact with medical ophthalmology:

- ocular and orbital inflammation rheumatology, renal medicine, respiratory medicine, endocrinology, dermatology, infectious diseases, microbiology, haematology and radiology
- neuro-ophthalmology neurology, neurosurgery, endocrinology, stroke, rehabilitation medicine and radiology
- diabetic eye disease diabetes, renal medicine and obstetrics
- medical retina clinical genetics and stroke.

Working with community services

The traditional organisational boundaries of primary and secondary care are becoming blurred⁷ and this is particularly true for ophthalmic practice with the growing role of community-based optometry services. Chronic disease management (eg diabetes) and prevention of disease (eg smoking cessation) are commonly organised through general practice. Increasingly, optometrists are taking on extended roles and being trained to diagnose and manage specific anterior segment eye conditions and glaucoma.

Effective communication between different community services and between hospital and community services is vital to ensure that patients are referred in a timely and appropriate fashion.

Ophthalmology departments work with local social work departments and societies for the visually impaired to ensure that patients with sight loss are able to live as independently as possible. Eye clinic liaison officers exist in some centres to provide information, emotional support and advice to patients and crucially act as a link between the eye clinic, rehabilitation services (such as low vision aid assessments) and support services in the community for patients with visual impairment.

5 Delivering a high-quality service

What is a high-quality service?

A high-quality medical ophthalmology service is one that bridges the gap between hospital ophthalmic services, medical care and community-based care, using resources efficiently and effectively to provide a coordinated, patient-centred service for those with medical ophthalmic problems.

Effective communication with patients and their families and between ophthalmic physicians and other health professionals involved, including those in community services, is essential.

Quality of services should be monitored and ophthalmic physicians should audit the performance of their services regularly, eg recording complication rates from intravitreal injections and visual outcomes for treated AMD.

Ophthalmic physicians have a responsibility to train not only doctors and trainee doctors but also members of the wider team, which may include nurses, optometrists and orthoptists. They have a leadership role within the hospital eye service and may choose to take on other management responsibilities or roles within the National Health Service (NHS), deanery, university or college.

Ophthalmic physicians should manage their own continuing professional development (CPD) and have a responsibility to maintain their knowledge and skills, to practise safety and to keep up to date with new developments. They should recognise their limitations and work within their capabilities, referring patients on or seeking advice where appropriate.

Societies and colleges

The Medical Ophthamological Society UK is the professional society for ophthalmic physicians (www.mosuk.co.uk). The Royal College of Ophthalmologists (www.rcophth.ac.uk) is the professional body for ophthalmologists, which includes ophthalmic physicians, and has a role in training delivery, manpower planning and other professional issues. The Joint Royal Colleges of Physicians Training Board (JRCPTB) runs the medical ophthalmology training programme,⁸ with input from the Royal College of Ophthalmologists. Trainees in medical ophthalmology enter specialty training (ST) at ST3 level from either core medical training or ophthalmology training.

Guidelines

The following guidelines are relevant to medical ophthalmology:

Diabetic eye disease

- Royal College of Ophthalmologists. *Diabetic* retinopathy preferred practice screening guidance.⁹
- NHS Quality Improvement, Scotland. *Diabetic retinopathy screening clinical standards*.¹⁰
- Royal College of Ophthalmologists. *Guidelines for diabetic retinopathy*.⁹

Age-related macular degeneration

- Royal College of Ophthalmologists. *Maximising* capacity in AMD services.⁹
- Royal College of Ophthalmologists. Guidelines for management of AMD.⁹
- Royal College of Ophthalmologists. *Guidelines for intravitreal injections procedure.*⁹

Retinal vein occlusion

 Royal College of Ophthalmologists. Interim guidelines for the management of retinal vein occlusion.⁹

6 Clinical work of consultants

Medical ophthalmology is an outpatient-based specialty although there are usually facilities for day-case and inpatient admission for a minority of patients. Most ophthalmic physicians do not participate in out-of-hours work, but it would be feasible for an ophthalmic physician to be on an ophthalmology on-call rota if there was cover provided by an ophthalmic surgeon for the small proportion of cases that require urgent surgery.

Specialist clinics such as ocular inflammation and neuro-ophthalmology require direct consultant involvement and close supervision of trainees. With the high-demand services like AMD and diabetic retinopathy, there is often a more supervisory role. Ophthalmic physicians need to facilitate rapid referral and diagnosis of patients with macular degeneration and are responsible for the quality of the service. Other health professionals such as nurses and optometrists may be trained to assess and manage patients with macular degeneration according to protocols. 'Virtual clinics', where clinical decisions are made on the basis of ocular images and visual acuity, are used in some centres for diabetic maculopathy to determine which patients need to be seen in the diabetes eye clinic.

Clinical administration work can be time consuming due to the large numbers of referrals and outpatient

reviews. Ocular inflammation and neuroophthalmology clinics are particularly demanding as additional investigations are often required and a patient may be under the care of a number of specialists.

7 Opportunities for integrated care

Medical ophthalmology is complex. Hospital services, general practice, community eye services and social services need to be coordinated. Optometrists serve local communities and have the ability to perform a more complete ophthalmic examination than can be achieved in general practice but until recently this has been underused by the NHS. The role of the optometrist has been reviewed in the General ophthalmic services review (2007)¹¹ and the Review of community eyecare services in Scotland (2006).¹² Optometrists are now taking on extended roles, in some areas taking referrals from general practice, managing anterior segment eye conditions and glaucoma in the community with extended prescribing rights, and working up more complex cases to a higher level before they are referred to the hospital eye service.¹² Linking community optometrists with social services and hospital eye services allows optometrists to identify those with failing sight and to refer on for treatment and social-work assessments where appropriate.

Cost-effective evidence-based treatments are lacking in a number of areas of medical ophthalmology but particularly in the field of ocular inflammation where there are no licensed immunosuppressive medications. Clinical research should be encouraged and integrated with routine clinical care.

8 Workforce requirements for the specialty

There are currently 10 consultant medical ophthalmologists and eight trainees in the UK. There are no academic medical ophthalmologists or academic training posts at present.

More than half of new referrals to ophthalmology are for medical rather than surgical ophthalmic problems.¹³ It is recognised that there is a lack of trained medical specialists and that a substantial expansion in numbers of consultants is required to deliver services in the UK.

It is estimated that a ratio of one ophthalmic physician to eight ophthalmic surgeons in a unit is required, and it is predicted that in the future there will be one

Table 1 Typical job plan of a medical ophthalmologist	
Activity	Sessions
Direct patient care	7.5
Outpatient clinics – which may include: ocular inflammation clinic, neuro-ophthalmology clinic, diabetic eye disease clinic, medical retina clinic, AMD clinic	
Procedures (injection or laser)	
Retinal screening	
Administration	
Inpatient (ward rounds, referrals, MDT meetings)	
This may include: inpatient and day-case work	
Neuroradiology meeting	
Electrophysiology meeting	
Ocular imaging meeting	
(NB: for units with a large tertiary referral cohort, there may be additional inpatient or day-case work and fewer clinics.)	
Supporting professional activities (SPAs)	
Work to maintain and improve the quality of healthcare	2.5

ophthalmic physician per 263,000 population.¹⁴ The number of ophthalmic physicians needs to be balanced with the workforce plans for ophthalmology and the current plan is to expand the workforce to around 100 consultant ophthalmic physicians to provide specialist medical services to ophthalmic patients. The JRCPTB is working with the Royal College of Ophthalmologists to support the specialty to expand the number of medical ophthalmology training programmes to 16 and to provide opportunities for academic training.

9 Consultant work programme/specimen job plan

The range of activities a medical ophthalmologist would conduct in a typical week is reflected in Table 1. Like all specialties, the workload can be heavy at times, with some busy clinics, but the working times are usually quite predictable.

10 Key points for commissioners

1 Medical ophthalmology is a diverse specialty and the needs of an individual service will depend on the specialist interest of the ophthalmic physician and the requirements of the local population.

- 2 Ophthalmic physicians provide secondary and tertiary level care to patients with complex problems, including those with ocular inflammation, neuro-ophthalmic disease, diabetic eye disease, inherited eye diseases and degenerative conditions.
- 3 Specialist clinics for ocular inflammation and neuro-ophthalmology require direct consultant involvement. With the high-demand services like AMD and diabetic retinopathy, there is often a more supervisory role.
- 4 Procedures performed by ophthalmic physicians include retinal laser and intravitreal injections.
- 5 Recent pharmacological developments and an ageing population mean that the workload for an ophthalmic physician has increased substantially and is likely to continue to increase.
- 6 Medical ophthalmology is predominantly outpatient based but day-case and inpatient facilities are required for a minority of patients.
- 7 All ophthalmic physicians require a comprehensive ocular imaging service and access to optometrists. Those working in neuro-ophthalmology require

orthoptic support, electrophysiology and neuroimaging services.

- 8 Ophthalmic physicians need to be able to interact with the wider team in order to act as an effective link between medical and ophthalmic care. This may involve joint ward rounds and clinics, multidisciplinary radiology meetings and ocular imaging meetings.
- 9 Education of doctors in training, trainee doctors and other members of the team, including optometrists and nurses, is an important part of the role of the consultant ophthalmic physician.
- 10 Integrating research into clinical care is a priority for medical ophthalmology as the evidence base is lacking, particularly in the management of ocular inflammation and neuro-ophthalmic conditions.

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Note to readers: This chapter has been reproduced from the book's 5th edition (2011) as the author felt it did not need updating for the 2013 revision.

Metabolic medicine

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1 Description of the specialty

Metabolic medicine (MM) can be defined as a group of overlapping areas of clinical practice with common dependence on detailed understanding of basic biochemistry and metabolism. Those areas are:

- disorders of nutrition, eg obesity, patients requiring parenteral nutrition
- inherited metabolic disease (IMD), eg phenylketonuria, galactosaemia, urea cycle defects, glycogen storage disorders
- abnormalities of lipid metabolism and cardiovascular risk assessment
- disorders of calcium metabolism and bone, eg osteoporosis, vitamin D deficiency, Paget's disease, osteogenesis imperfecta, renal stones
- diabetes mellitus.

They fall within the expertise of both the physician and biochemist. With regard to training, MM is considered a subspecialty and whilst it is possible to specialise with a background in general internal medicine, most MM physicians are also trained in chemical pathology.

The patients cared for by MM physicians are a diverse group across all age ranges. Many have chronic disorders that require long-term follow-up. Advances in diagnostics such as developments in neonatal screening and new treatments such as enzyme replacement therapies are bringing novel management challenges, particularly for patients with IMD.

In each domain the MM physician works to lead and coordinate the activities of a multidisciplinary team confirming a biochemical diagnosis, instituting treatment, preventing complications and offering information, help and support.

MM physicians who are chemical pathologists also provide professional direction in a clinical biochemistry laboratory. In addition to providing interpretative advice on a wide range of clinical biochemistry tests for GPs and hospital colleagues, they are particularly well placed to advise on any aspects that fall within the five metabolic medicine domains listed above.

2 Organisation of the service and patterns of referral

MM is a new and developing specialty so it is not possible to describe a typical service. Although MM physicians are trained in all five domains, most will subspecialise in two according to the needs of the service in which they work. In a district general hospital and some teaching hospitals, MM physicians might have clinical responsibilities such as the management of patients receiving parenteral nutrition and those with abnormalities of lipid metabolism and cardiovascular risk assessment or disorders of calcium metabolism and bone, in addition to duties within the clinical biochemistry laboratory. The clinical biochemistry laboratory service is led by an MM physician trained in chemical pathology and comprises a mixture of clinical and scientific staff. The MM consultant has responsibility for hospital outpatient clinics as well as providing ward referrals and care of patients admitted for investigation.

In other settings such as a tertiary referral centre, the MM physician may specialise in just one domain, eg IMD, to deliver a more clinically focused service, particularly in adults. As many metabolic disorders are comparatively rare, laboratory and clinical networks exist and are being further developed to link regional services to district general hospitals and so ensure a wide delivery of full diagnostic services and tertiary level clinical care.

The majority of referrals to MM physicians are from GPs or consultant colleagues. As the specialty becomes better established it is anticipated that referrals will increase, for example adult patients with IMD not having the opportunity to be cared for by a physician with specific expertise and patients with metabolic bone disease not currently being seen in a dedicated multidisciplinary clinic, are two obvious groups.

3 Working with patients: patient-centred care

Optimal management of metabolic disease involves informing patients and engaging them in their treatment. Many metabolic disorders require complex nutritional modifications, and dietetic regimens need to be tailored to the requirements, lifestyle and preferences of individual patients for success.

Patient-centred care

Patient choice: cultural considerations

It is essential that the MM specialist appreciates and responds to the needs of people from different cultural backgrounds. Innovative approaches have been tried in some regions, particularly with respect to diabetes and lipid management, and the nature of the specialty favours rapid dissemination of examples of good practice.

Patient support groups

Patient support groups are available in all domains of the specialty and play a vital role in providing information, peer support and counselling. Examples include:

- disorders of nutrition Patients on Intravenous and Nasogastric Nutrition Therapy (PINNT) (www. pinnt.com)
- abnormalities of lipids Heart UK (www.heartuk. org.uk)
- disorders of calcium metabolism and bone metabolism – National Osteoporosis Society (www.nos.org.uk)
- IMD Contact a Family (www.cafamily.org.uk), National Society for Phenylketonuria (NSPKU) (www.nspku.org)
- diabetes Diabetes UK (www.diabetes.org.uk).

Many MM physicians are involved with the patient support groups relevant to their own domain(s) of interest within the specialty at local or national level.

4 Interspecialty and interdisciplinary liaison

Multidisciplinary team working

MM favours a multidisciplinary team (MDT) approach. The members of the team and their particular expertise will vary according to the domain involved. For example, an MM physician prescribing parenteral nutrition will work closely with an appropriately skilled specialist nurse, dietitian and pharmacist. A physiotherapist is an essential team member in a specialist outpatient clinic where patients with bone disease are seen.

Working with other specialties

MM has key links with a number of other specialties, eg:

- gastroenterology, general surgery
- cardiology
- orthopaedics, rheumatology
- paediatrics
- obstetrics
- endocrinology.

This illustrates the breadth of skills that the MM physician needs in order to maximise the expertise of other medical and surgical colleagues to best advantage.

Working with GPs and GPs with a special interest

Some metabolic disorders such as common dyslipidaemias and diabetes mellitus are frequently encountered in general practice and it is essential for MM physicians to work closely with GPs to ensure appropriate care pathways and optimal care, particularly for those patients who have chronic metabolic disorders.

5 Delivering a high-quality service

Maintaining and improving the quality of care

A high-quality MM service will be well staffed, well resourced and consultant led. It will be supported by an accredited clinical biochemistry laboratory offering a full repertoire of investigations to enable the diagnosis and monitoring of metabolic disease.

Service developments to deliver improved patient care

MM physicians maintain and improve quality of care both for their patients and in clinical biochemistry laboratories for which they have responsibility. This is achieved by involvement in management, clinical governance, professional self-regulation, continuing professional development (CPD), education and training and by the provision of specialist advice at local, regional and national levels. They participate in laboratory quality control and national external quality assurance schemes and projects that audit outcomes. The MM physician is also responsible for the implementation of guidelines from bodies such as the Royal College of Pathologists, the National Institute for Health and Care Excellence (NICE) and the Department of Health (DH), which define the facilities, services and treatment that should be available for patients.

Education and training

Education and training are important aspects of the work of MM physicians who teach and train medical students, qualified doctors in many disciplines, nurses and laboratory scientists. The training curriculum for MM¹ reflects the need to support the development and maintenance of skills and acquisition of knowledge required for proficiency in the investigation, diagnosis and management of all five MM domains, together with generic competencies necessary to support good medical practice.

Mentoring and appraisal of medical staff and other professional staff

All MM physicians undergo annual appraisal. Those with a management role will often act as appraisers in their organisation. Consultants will also assist with the appraisal and assessment of medical trainees.

Continuing professional development

A minimum five-year requirement of 250 CPD credits is required, calculated on a five-year rolling cycle, where one credit usually equates to one hour of educational activity.

Clinical governance

A MM physician has a defined role in clinical governance arrangements having responsibility for the quality of the results issued by the clinical biochemistry laboratory. Mechanisms include participation in internal quality control and external quality assurance schemes and attainment of recognised accreditation.

Research - clinical studies and basic science

MM physicians are encouraged to undertake high-quality clinical studies and basic science research either individually or in collaboration with academic and scientific colleagues.

Local management duties

MM consultants can be clinical directors or hold other leadership or management roles within a NHS trust.

Specialty and national guidelines

There are guidelines pertinent to laboratory and clinical aspects of all the MM domains. Some of these are from specialty societies, eg

• Disorders of nutrition guidelines for the management of patient with a short bowel, available

from the Small Bowel and Nutrition Committee of the British Society of Gastroenterology.²

• A consensus document for the diagnosis and management of patients with IMD, available from the NSPKU.³

Guidelines from NICE include those for nutrition support, obesity, diabetes, cardiovascular risk assessment and lipid management and familial hypercholesterolaemia.⁴

Specialty and national audit

Audit is carried out within the domains of MM via specialist societies such as the Association for Clinical Biochemistry (www.acb.org.uk). Relevant national audits include the National Clinical Audit of the Management of Familial Hypercholesterolaemia,⁵ and the National Diabetes Audit⁶ which is considered to be the largest clinical audit in the world.

Quality tools and frameworks

For the laboratory aspects of the service, accreditation⁷ and benchmarking exercises, such as the national pathology benchmarking service,⁸ provide measurable quality standards. For the clinical aspects of MM, national service frameworks have been developed for diabetes and coronary heart disease.⁹

6 Clinical work of consultants

How a consultant works in this specialty

There is considerable variation between consultants. Those with laboratory duties may spend the equivalent of a day a week as duty biochemist with front-line responsibility for clinical validation of results and troubleshooting of analytical problems and additional time on the development of laboratory services. Those trained in general internal medicine are likely to have additional clinical duties on the wards and may undertake general medical outpatient clinics.

Inpatient work

There is variation in the amount and type of inpatient work according to the domains of specialist interest of MM physicians. Typical duties might include:

- nutrition ward round for 15 patients, 2–3 hours
- general medical, IMD or nutrition MDT meeting to discuss complex patients, 1–2 hours
- IMD ward round for those admitted for investigation and more complex patients admitted with acute metabolic problems, 2–3 hours

- referral work: responding to requests for advice by patient review, 1–2 hours
- general medical ward round and associated duties for 30 patients, 4 hours.

Outpatient work

There are likely to be two or three outpatient clinics per week. In each of these, between two and six new patients and four and eight follow-up patients would be appropriate.

Specialist on call

Consultants in chemical pathology may take part in an on-call rota, providing out of hours support on laboratory and clinically related issues by telephone. Those with duties in general internal medicine may well be expected to take part in a medical on-call rota requiring attendance at the hospital out-of-hours.

7 Opportunities for integrated care

Integrated care has been defined as a concept bringing together inputs, delivery, management and organisation

of services relating to diagnosis, treatment, care, rehabilitation and health promotion.¹⁰ MM physicians engage with patients to identify their needs and are aware of services available, working with other professional groups to provide them. This is particularly relevant with respect to diabetes, lipid disorders and IMD.

8 Workforce requirements for the specialty

As MM has only recently become available as a specific training option, workforce issues are not yet clearly delineated and it has been recommended that professional bodies assess the likely future demand for MM consultants.¹¹ There are currently 20 consultants in chemical pathology and MM and one consultant in general internal medicine and MM, with 52 specialty registrars in training. Increasingly new or replacement posts in chemical pathology are including a MM component.

9 Consultant work programme/specimen job plan

There is potential for considerable variation in the work programmes/job plans of consultants in

Table 1 Example job plan for a MM physician			
Activity	Work	Programmed activities (PAs)	
Direct clinical care			
Outpatient clinics	2–4 new patients 4–8 follow-up patients	1 per clinic	
Inpatient ward rounds	eg nutrition 10–20 patients	0.5	
MDT meeting	Variable	0.25–1	
Chemical pathology: Laboratory work Clinical administration Internal medicine: Ward work Clinical administration		3–4 0.5 3–4 1	
Total number of direct clinical care PAs		7.5	
Supporting professional activities			
Duties maintaining and improving the quality of healthcare	eg CPD, audit, clinical governance, teaching and training, research	2.5	
Additional NHS responsibilities	eg management	by individual agreement with the trust	
External duties	eg roles within specialist societies, royal colleges, deaneries	by individual agreement with the trust	

metabolic medicine according to their domains of specialisation and whether they work in chemical pathology or general internal medicine. Table 1 shows an example of the types of activities that might be included in the job plan of a MM physician with the number of programmed activities (PAs) relevant to each.

10 Key points for commissioners

- 1 Metabolic medicine (MM) encompasses five domains:
 - abnormalities of lipid metabolism and cardiovascular risk assessment
 - disorders of calcium metabolism and bone (eg osteoporosis)
 - diabetes
 - nutrition
 - IMD, particularly in adults.
- 2 Most metabolic medicine specialists are also trained as chemical pathologists and have an important role in providing clinical and professional leadership within the clinical biochemistry laboratory.
- 3 Ensuring appropriate management of dyslipidaemia is essential to lowering cardiovascular morbidity and mortality and the MM physician has particular expertise in this area.
- 4 MM physicians are trained to provide care for patients with metabolic bone disease including osteoporosis, an increasing problem as the population ages.
- 5 MM physicians have the appropriate skills and knowledge to provide outpatient and community care for patients with diabetes mellitus.
- 6 Nutritional care is often ignored. MM physicians can assist in improving the quality of care delivered in this area.
- 7 Obesity is a major public health problem and MM physicians are able to advise on its management

in the community and to deliver a specialist service.

8 Due to improvements in diagnosis and treatment, children with IMD are now surviving to adulthood. MM physicians are specifically trained to provide care for this group of patients.

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Note to readers: This chapter has not been updated for the revised 5th edition 2013. The text has been reproduced from the 2011 edition.

Neurology

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1 Description of the specialty

Neurology is the branch of medicine dealing with disorders of the nervous system, including the brain, spinal cord, peripheral nerves and muscle. Specialist care is provided by consultant neurologists working within a network of specialist nurses, neurophysiotherapists, occupational therapists, speech and language therapists, neuropsychologists, psychotherapists, neuropsychiatrists, neurophysiologists, physicians and surgeons, including GPs with a special interest (GPwSIs) in conditions such as epilepsy, Parkinson's disease or headache.

The patient with a neurological illness should easily be able to access a neurology network that includes services at a district general hospital (DGH), neurology centre (NC) and a regional neurosciences centre (RNC). Neurologists provide a clinical lead for teams within the network, coordinating the patient's clinical pathway and promoting the cause of patients.

Who are the patients?

Sixteen common diseases (including epilepsy, headache and migraine) account for 75% of all new outpatient referrals, the investigation and management of which have become more complex in the light of new medical and surgical treatments. The remaining 25% of patients have unusual disorders or complex symptomatology that requires expert assessment, sophisticated investigation and management (eg spinocerebellar degeneration). All patients need prompt and careful assessment with an appropriate and safe management plan.

Disease patterns

One in six people has a neurological condition that makes a significant impact on their lives.¹

Every year 0.6–1% of the population is diagnosed with a neurological condition and 2% of the UK population is disabled by a neurological illness.

Long-term neurological conditions (LTNCs) are very common – taken together there are about a 1,000

patients with epilepsy, multiple sclerosis (MS) and Parkinson's disease per 100,000 of the population.

2 Organisation of the service and patterns of referral

The components of the network – community settings such as small DGHs, NCs based in larger DGHs and RNCs – should share common protocols and guidelines. Some specialist services will be based only in parts of the network or even in some parts of the UK.

Community clinics

Where appropriate, some outpatient clinic activity will be in community settings providing a service close to the patient's home.

District general hospital neurology centres

Neurologists increasingly work together in a neurology centre based at a DGH. They provide a general and special interest neurological service with clinical neurophysiology, neuroradiology and neurorehabilitation services but without inpatient neurosurgery facilities. These centres may have inpatient beds for the care of acute emergencies and the investigation of patients with complex neurological disease. The Royal College of Physicians (RCP) and the Association of British Neurologists (ABN) recommend the development of these DGH neurology centres across the UK.²

Regional neurosciences centres

These are crucial to the provision of high-quality care. They provide access to all relevant modern investigative equipment and an appropriate environment for the management of both the more common disorders and the rarer complex conditions that often require input from more than one professional. All neurologists should have links and be attached to a neurosciences centre.

Acute neurological services (unscheduled care)

Close to 20% of acute medical admissions (including stroke) results from neurological problems. Some
are life threatening and require early specialist intervention.

At the moment early access to neurological specialist advice is not available in many DGHs in the UK.²

There needs to be an increase in neurology sessions in larger DGHs to provide timely access to specialist opinion for patients admitted with neurological disorders, with appropriate local access to relevant neurological investigations, eg neuroradiology and neurophysiology at the DGH.

Patients with neurological disorders need to be managed on one ward of the hospital with suitably trained nursing staff. Therapists and neurological rehabilitation can then be linked to this specialist team.

Stroke services

Across the UK, neurologists have steadily but variably increased their involvement in acute stroke care, working in collaboration with care of elderly people, and stroke and acute internal medicine physicians, but this needs to become more uniform, fully supporting and training junior staff.

Neurology outpatient services (scheduled care)

Patients with neurological problems should, where feasible, be seen for consultation as close to their home as possible. Many patients with LTNCs can be monitored by specialist nurses and/or GPwSIs, provided that they are supported by the consultant neurologist.

The principles of community care are as follows:

- local access for all patients with chronic neurological disorders
- patient-centred care
- patients seen by an appropriately skilled clinician (eg physiotherapist, specialist nurse or consultant neurologist)
- identifying a key worker (nurse specialist, consultant, etc)
- designated consultant neurologist in charge
- better integration with social services
- improving clinical skills locally.

Care pathways are required for patients with LTNCs and the responsibilities of team members must be identified.

Neurological care in the community is fully endorsed by the RCP and ABN.²

Complementary services

Neurologists support the use of complementary therapies for their patients where there is an evidence base.

3 Working with patients: patient-centred care

What you do with patients

Involving patients in decisions about their treatment

Following the initial outpatient consultation and investigation a diagnosis can usually be made and treatment plans discussed with the patient, the family and the GP. Some will require ongoing care, involving rehabilitation and other local community services. Patients should have the name and contact details of a key worker and be able to access the most appropriate part of the network at all times. For certain patient groups, education, support and counselling are also undertaken by specialist nurses.

In England, the national service framework (NSF) for long-term conditions was launched in 2005, providing 11 quality requirements to improve the care of patients with LTNCs. In response, the ABN produced its own document setting out generic and specific guidance for implementation with appropriate performance standards.³

In 2011 the National Audit Office report⁷ highlighted basic problems with the NSF at its half-way stage.

Services for people with long-term neurological conditions are not as good as they ought to be, despite a large increase in spending. Progress in implementing the Department's strategy has been poor and local organisations lack incentives to improve the quality of services.

It is not clear how lessons will be learnt and there are risks to services which the Department must address to ensure that care improves.

This was followed last year by a critical Public Accounts Committee report⁸ which concluded that:

... services for people with neurological conditions are simply not up to scratch, and the implementation of the Framework for improving neurology services has not worked ... we identified an absence of leadership at both national and local level and poor integration of services as key weaknesses that must be addressed. It is therefore extremely disappointing that the Department has rejected our recommendations in relation to these issues ... the Department has got to do better and we will be taking this up with them in due course.

Neurologists are often part of the team providing care for patients who are at the end of their lives. Patients, carers and families need to be kept fully informed about prognosis and the range of services available. It is essential to coordinate pain control and emotional and psychological care.

Patient support groups

Patients and carers should have access to high-quality information about their neurological condition, investigations and treatment, and to local branches of neurological charities, together with a wide range of healthcare workers. Increasingly, neurological patients are experts in their condition and may be part of the multidisciplinary team (MDT) as expert patients.

Availability of clinical records and results

All patients should be offered copies of clinic letters and the results of investigations. Patient records should be available at all times to all treating agencies. This is now increasingly possible by electronic means.

4 Interspecialty and interdisciplinary liaison

Multidisciplinary team working

Neurologists frequently work as part of MDTs when caring for acutely ill patients and especially for patients with LTNCs. Clinical nurse specialists and therapists with knowledge of neurological conditions are key team members and some should be based in the community. Links with care of elderly people and social services need to be better developed, so that patients receive the appropriate care and support required.

Transition care

The ABN fully supports the RCP's young adult and adolescent initiative to improve healthcare outcomes for those aged 16–24 years. Some neurologists already undertake transition clinics with paediatric colleagues (in specialties such as epilepsy and neuromuscular diseases) but there is a need to increase the profile of this type of specialist service and to ensure that it is appropriately supported by trusts and health boards across the UK.

Working with other specialists

Managing acute neurological conditions involves working with acute and other medical specialists in the medical admissions unit (MAU) and during ward liaison to improve appropriateness of investigations, obtain early diagnosis and speed up discharge from hospital by facilitating appropriate follow-up. There has to be a close liaison with radiologists, intensivists and neurophysiologists, and the involvement of neurosurgery and neurorehabilitation. Neurologists have an increasing role in stroke care together with stroke physicians and geriatricians. Neurologists also work with psychiatrists in dementia services.

Long-term condition services need neurologists, neurorehabilitationists, geriatricians and palliative care physicians.

Close liaison also exists between neurology and other specialties in the following areas: Parkinson's disease (geriatrics), dementia (psychogeriatrics), higher function disorders (neuropsychiatry and neuropsychology), double vision and visual loss (ophthalmology), dizziness (ear, nose and throat, audiovestibular physicians), peripheral nerve and nerve root disease (orthopaedics), inherited neurological disease (clinical genetics), functional disorders (psychiatrists), pain teams and obstetric services.

Working with GPs and GPwSIs

Care for patients with LTNCs has traditionally been based in DGH or RNC outpatient clinics that are mainly consultant delivered, and more recently have had nurse specialist input. Newer networks of care are developing with the involvement of primary care, and neurologists are key members of these networks. Better use needs to be made of combined meetings, educational seminars and clinical guidelines to underpin this network.

5 Delivering a high-quality service

What is a high-quality service?

The ABN and the Neurological Alliance (www.neural.org.uk) are currently assessing what outcomes can be measured to reflect high-quality care. These have to be meaningful and applicable to all neurology units in England, Wales and Northern Ireland. Scotland has published clinical standards for the neurological health services,⁴ with implementation of these standards from 2010. The National Institute for Health and Care Excellence (NICE) has already set quality standards for stroke and dementia.

The framework is in part set out in ABN³ and RCP⁵ documents and the main criteria would include:

- a patient-centred service
- timely referral (according to the waiting-time target set out by individual home nations) and adherence to existing NICE guidance
- involvement of a neurologist in assessing acute neurological emergencies
- provision of appropriate follow-up
- access to clinical nurse specialists and therapists
- access to rehabilitation
- access to palliative care
- clear and up-to-date information available to patients.

Maintaining and improving the quality of care

Excellence should be maintained and deficiencies identified and corrected through:

- service developments to deliver improved care
- leadership role for consultant neurologists in introducing service change
- education and training
- constructive appraisal
- continuing professional development
- clinical governance
- research
- regional and national work for the royal colleges, ABN, deaneries, Department of Health and British Medical Association, and as advisers to various patient support groups, as examples.

Specialty and national guidelines

Association of British Neurologists' guidelines The following are available at www.abn.org.uk:

Neurology in the United Kingdom: numbers of clinical neurologists and trainees (1996) Neurology in the United Kingdom: towards 2000 and beyond (1997) Acute neurological emergencies in adults (2002) Levelling up (Neurological Alliance, 2002) The medical management of motor neurone disease – a UK perspective of current practice (2002) Academic neurology in the United Kingdom: threats, opportunities and recommendations (2003)

- *Standards of care for people with neurological disorders* (2004)
- *Intravenous immunoglobulin in neurological diseases* (2005)
- ABN guidelines for treatment of multiple sclerosis with B-interferon and glatiramer acetate (2009).

NICE guidance

The following are available at **www.nice.org.uk**:

Alzheimer's disease: donepezil, rivastigmine and galantamine (replaced by TA111) (2001)

Guidance on the use of riluzole (Rilutek) for the treatment of motor neurone disease (2001) Beta interferon and glatiramer acetate for the

treatment of multiple sclerosis (2002)

Multiple sclerosis: management of multiple sclerosis in primary and secondary care (2003)

Head injury: triage, assessment, investigation and early management of head injury in infants, children and adults (2007)

The epilepsies: the diagnosis and management of the epilepsies in adults and children in primary and secondary care (2004)

- Parkinson's disease: diagnosis and management in primary and secondary care (2006)
- Dementia: supporting people with dementia and their carers in health and social care (2006)
- Natalizumab for the treatment of adults with highly active relapsing–remitting multiple sclerosis (2007)
- Neuropathic pain: the pharmacological management of neuropathic pain in adults in non-specialist settings (2010)
- Management of transient loss of consciousness in adults and young people (2010)
- *Headache: diagnosis and management of headaches in young people and adults* (2012)
- The epilepsies: the diagnosis and management of the epilepsies in adults and children in primary and secondary care (2012)

Urinary incontinence in neurological disease (2012) *Spasticity in children and young adults* (2012).

NICE quality standards

Quality standards for epilepsy and headache are under development

RCP guidelines and reports

The following are available at www.rcplondon.ac.uk:

Chronic spinal cord injury: management of patients in acute hospital settings (2008)

Care after stroke or transient ischaemic attack: information for patients and their carers (2008)

Measuring clinical outcome in stroke: acute care (2008)

- Stroke: national clinical guideline for diagnosis and initial management of acute stroke and transient ischaemic attack (TIA) (2008)
- *Spasticity in adults: management using botulinum toxin: national guidelines* (2009)
- Long-term neurological conditions: management at the interface between neurology, rehabilitation and palliative care (2008)
- Oral feeding difficulties and dilemmas: a guide to practical care, particularly towards the end of life (2010)
- *Local adult neurology services for the next decade: report of a working party* (2011).

Scottish Intercollegiate Guidelines Network (SIGN) guidelines

The following SIGN guidelines are available at **www.sign.ac.uk**:

- Diagnosis and management of epilepsy in adults (2005)
- Management of patients with dementia (2006)
- Management of patients with stroke or TIA: assessment, investigation, immediate management and secondary prevention (2008)
- Diagnosis and management of headache in adults (2008)
- *Early management of head injury* (2009)
- *Management of patients with stroke: identification and management of dysphagia* (2010)
- Management of patients with stroke: prevention and management of complications, and discharge planning (2010)
- Diagnosis and pharmacological management of *Parkinson's disease* (2010).

Departments of Health

The Department of Health (England) published the NSF for long-term conditions in 2005 but this was stopped after a damning mid-point review (see National Audit office and Public Accounts Committee reports); the Department of Health in England will now be under appropriate scrutiny to ensure that there are measurable improvements in services for patients with LTNCs.

The Scottish Government Health Department has produced its report⁹ on *Neurological health services in Scotland* and its findings show enormous variability across its health boards. It now has a baseline from which to monitor progress.

Neurology service guidelines have not been produced by the governments of Wales and Northern Ireland and this needs to be rectified urgently.

Specialty and national audit

Individually, neurologists participate in national audit projects (stroke and epilepsy) and the ABN is working through the RCP Clinical Effectiveness Forum to establish a system for collecting local and regional audits and to implement a strategy for UK-wide projects.

6 Clinical work of consultants

Neurologists should be involved in the acute care of people with neurological disorders^{2,6} and should have sufficient sessions to provide this through ward liaison and attending the MAU and the accident and emergency department.

How a consultant works in this specialty

Inpatient work

This may take the form of ward rounds, ward liaison and care of emergency admissions. Time may be spent working with MDTs, discharge planning, writing discharge summaries and other patient-related administration.

Outpatient work

The number of outpatient clinics will depend on other duties, in particular the amount of inpatient and emergency work. A 10-session job plan could have 3–4 outpatient sessions. When consultants are expected to visit more than one site, appropriate travel time must be allocated, included as working time, within a programmed day-care centre activity.

Clinics should be reduced by 25% if they are dedicated training or teaching clinics.

The recommended time allocated for each neurological outpatient in a general neurology clinic is:

- 30 minutes per new patient for a consultant, 45 minutes for a specialty registrar (StR) (years 1–3)
- 15 minutes per follow-up patient for a consultant or 30 minutes for an StR (years 1–3).

The duration of consultation appointments in tertiary subspecialist clinics will vary according to the consultant/team involved and is likely to be longer than for general neurology clinics.

Clinically related administration

A minimum of an additional 50% of time per clinic is included in direct clinical care for responses to referrals and administration relating to consultations.

Balance of clinics, wards, acute and subspecialty care

This will vary between neurologists, depending on the proportion of the working week spent in the RNC, DGH/NCs, or doing community clinics or at a regional centre. Most will have at least one specialist clinic per week. Neurology beds are mainly located in RNCs, but larger DGHs designated as NCs should be encouraged to have some dedicated neurology beds with appropriately skilled nursing and junior medical staff.

Proportion of direct supervision/teamwork

The proportion of consultant-delivered activity has increased. Trainees should have regular meetings with their educational and clinical supervisors and the more demanding delivery and monitoring of trainee education require timetabling through the job-planning process. All neurologists should be within a team, but the team structure will vary depending on the site (DGH/NC/RNC) of greatest clinical activity.

Community-based work

Over the last decade, clinical nurse specialists (CNSs) and GPwSIs have played an increasing role in the management of patients with a range of neurological conditions both in hospital and in the community.

Average ratios of new:follow-up patients are on the whole meaningless, particularly when caring for patients with LTNCs, and do not reflect quality of care.

Specialist investigative and therapeutic procedures

These are limited, with the exception of a botulinum toxin injection. It may become more common for neurologists to have a role in the running of electroencephalography (EEG) and electromyography (EMG) clinics.

Specialist on call

This may be a regional rota from the neurosciences centre, or based more locally if this can be achieved.

Other specialist activity

Many neurologists will have regional or supra-regional clinical responsibilities.

7 Opportunities for integrated care

Pathways for a number of neurological conditions already exist (stroke, epilepsy, Parkinson's disease, motor neuron disease and acquired brain injury) but this is an area that requires further expansion. Neurologists should be given the flexibility in job planning to be able to develop integrated pathways that extend outside secondary care, so that quality of care improves and clinic/hospital admissions are reduced.

8 Workforce requirements for neurology

At present there are 684 consultant neurologists in NHS practice in the UK, with 274 national training numbers.

To provide a comprehensive DGH neurology service that includes scheduled and unscheduled neurological care, at least 3.6 whole-time equivalent (WTE) neurologists per 250,000 population are required – a total of around 880 consultants in the UK.²

There is a need and increasing demand for 7-day 24-hour expert services. This will be difficult to provide for neurology with the current consultant numbers – particularly at DGH level. It is unrealistic that all existing DGHs will provide such a specialist neurology service; this should happen in larger DGHs with NCs and RNCs, with an absolute minimum number of 1 neurologist per 70,000 population to cover one site every day of the week. If there aren't enough neurologists to allow that level of staffing, then there will need to be a rationalisation of the number of hospitals that are able to admit, investigate and manage patients with neurological illness.

The projected greater liaison with community services is also likely to be demanding on time. Time needs to be made available through job planning to allow a neurologist to teach and supervise GPwSIs and community nurses in a range of topics including Parkinson's disease, multiple sclerosis and motor neuron disease, brain injury, headache and epilepsy. Achieving key government targets for the delivery of high-quality services requires this expansion in consultant number to:

- deliver services close to the patient's home where this is possible. This will impact on health outcome (eg improving seizure control and so reducing sudden death in patients with epilepsy)
- provide continuous cover, eg thrombolysis and hospital at night
- deal with changing population demographics and resultant increase in chronic neurological illness
- assess, administer and monitor new technologies, eg new drugs for multiple sclerosis.

9 Consultant work programme

There is no fixed job plan for a consultant neurologist. The structure of the working week will depend on how the particular service/network is organised. For a neurologist covering a DGH with minimal support, the post should have no more than three clinics per week; in larger departments neurologists could do four or five clinics per week, depending on other duties.

As guidance, in England, Scotland and Northern Ireland, a typical 10-session job plan split between direct clinical care (DCC) and supporting professional activities (SPA) should be a 7.5/2.5 (DCC/SPA). In Wales the job plan is split 7.0/3.0. For university-based clinicians (academic) this will be different again, and will normally contain no more than two clinics, one of which will be a specialist clinic. It is recognised that the structure of a 10-session job plan will vary according to individual and local need for clinics, liaison duties, research, training and teaching duties

The training post numbers in neurology have not changed from 2011. An expansion in training posts is needed to provide the required staffing levels for a consultant-led DGH service.

The key elements of a job plan are shown in Table 1.

10 Key points for commissioners in England

The recent changes in NHS England provide an opportunity to correct major deficiencies that exist in the care of patients with neurological conditions: Neurology will be part of a strategic clinical network (mental health, dementia and neurological conditions) to be operational from April 2013 and clinical leadership will be provided by Dr David Bateman, consultant neurologist and national clinical director for chronic disability and neurological conditions.

At the present time there is uncertainty regarding which neurology services the NHS Commissioning Board (NHS CB) will assume responsibility for, and what will be for more local clinical commissioning groups (CCGs). As demonstrated by the recent National Audit Office and Public Accounts Committee reports on neurological services, the absence of national leadership and local accountability were central to the failed implementation of the NSF for LTNCs. If this division between specialist and general neurological commissioning is to work in the best interest of patients under the new system, the NHS CB must provide maximum support to CCGs to meet their direct neurology commissioning responsibilities.

In this context, the new National clinical director for chronic disability and neurological conditions will have a key role to play in enabling the effective commissioning of neurological services at national and local level. Developing commissioning tools and outcome measures for inclusion in accountability frameworks must represent key priorities from the outset of their appointment. Similarly, the strategic clinical network for mental health, dementia and neurological conditions must be properly resourced to facilitate seamless care for individuals interacting with both specialised and general neurology services.

The key points are as follows:

- 1 Commissioning groups for neurology with a strong clinical representation should be established to develop a comprehensive local and regional neurology service over the next 10-year period.
- 2 Resources should be provided to increase neurology sessions in DGHs to improve acute care (unscheduled) of neurological patients (in DGHs, NCs and RNCs).
- 3 The importance of the partnership between the DGH/NC and RNC must be recognised.
- 4 Commissioning of health- and social care for neurological patients should be linked.
- 5 Alternative community settings for elements of neurological long-term care should be considered.

Table 1 Main elements of a consultant job plan	
Direct clinical care	Session(s)/week
Outpatient clinic (including admin) (1.5 sessions each)	4.5–7.5
Ward round	0.0–1.0
Ward liaison	0.0–5.0
MAU ward round	0.0–5.0
Multidisciplinary meetings, eg with clinical nurse specialists (CNSs), neuroradiologists, neuropathologists, neuropsychologists	0.5–1.0
On-call duties	Variable
Travel time	Variable
Supporting professional activities (SPAs)	
CPD/audit/appraisal/revalidation	1.5
Teaching/training	0.0–1.0
Participation in research, eg National Institute for Health Research (NIHR)	0.0–1.0
Service development	0.0–1.0
Other NHS responsibilities, medical director, clinical director, lead consultant in specialty, clinical tutor	By local agreement
External duties, work for deaneries, royal colleges, specialist societies, Department of Health, trust/health board or other government bodies	By local agreement

- 6 Neurology provision has a shortage and therefore needs to expand to provide an acceptable quality of service.
- 7 Local geographical, population and manpower variations mean that different models of service delivery must be used.
- 8 Payment by results tariffs (in England) for outpatient and inpatient work require careful research and should be calculated to allow high-quality services to be maintained and developed.
- 9 Improved resources for neurological rehabilitation are urgently needed.
- 10 An increase in training numbers is needed to meet consultant manpower requirements.

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Nuclear medicine

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1 Description of the specialty

Nuclear medicine uses radioactive materials for diagnosis, treatment and research. Nuclear medicine investigations detect early physiological changes that occur in response to disease, and provide unique functional information to diagnose and support the management of patients of all ages in many medical areas including oncology, cardiology, nephrourology, orthopaedics, rheumatology and neuropsychiatry. Increasingly, nuclear medicine data are fused with anatomical scans to improve the specificity and sensitivity of complementary imaging modalities.

The range of diagnostic nuclear medicine investigations is expanding rapidly. Tracers based on receptor-specific ligands, monoclonal antibodies and small peptides are now available for tissue characterisation at a molecular level, contributing to the investigation of movement disorders, schizophrenia, Alzheimer's disease, the unstable coronary plaque and thromboembolic disease.

Advances in tumour targeting have led to a parallel expansion in unsealed source therapy using high-activity, radiolabelled drugs for cancer treatment.

2 Organisation of the service and patterns of referral

Nuclear medicine services are hospital based, with additional provision of positron emission imaging–computed tomography (PET-CT) in some areas via mobile scanners. Service delivery varies to suit local population size, casemix and degree of centralisation.^{1,2} Small departments undertaking a limited range of diagnostic investigations follow an outpatient clinic model and are often sited within radiology departments. Large units offering a comprehensive range of diagnostic procedures, bone densitometry, outpatient clinics and radionuclide therapy require day-care and dedicated inpatient facilities.

Diagnostic nuclear medicine procedures are performed either by specialist nuclear medicine practitioners or by multiple individual practitioners responsible for specific service components allied to their main specialty. Examples of the latter include system-specific radiologists and cardiologists. Where the service is fragmented, it is essential to have at least one specialist trained to Certificate of Completion of Training (CCT) level (or on the specialist register) in nuclear medicine to ensure consistent development across the full spectrum of nuclear medicine practice.

Diagnostic services are required in most acute hospitals. Service configuration usually follows a 'hub-and-spoke' design, linking large teaching hospital centres with smaller, local departments. Specialist services and inpatient facilities are provided in the central unit and consultants may undertake sessions in central and outreach hospitals. Nuclear medicine consultants with particular expertise in cardiology, oncology, PET-CT and radionuclide therapy provide advice and receive tertiary referrals from other centres.

3 Working with patients: patient-centred care

Patient preference is central to service delivery. However, due to legal constraints all procedures involving radiation exposure must be justified and often the need to order the required radiopharmaceuticals, which may not be available every day, means that these scans are often planned in advance. However, some units have limited instant access to some tests such as lung scintigraphy. Direct access to services without a referral from a medical or IR(ME)R-approved practitioner is, therefore, inappropriate for both practical and safety reasons.

The majority of diagnostic nuclear medicine investigations are undertaken as outpatient procedures, whereas high-activity radionuclide therapy may require inpatient admission for between 1 and 7 nights in a single room with separate washing and toilet facilities. Written information is required for all procedures and is, ideally, developed in collaboration with patient representatives. The Joint Specialty Committee for Nuclear Medicine and the British Nuclear Medicine Society have developed central information resources for patients and their carers. The significance of test results and potential implications for management are usually discussed with patients by their referring clinician.

4 Interspecialty and interdisciplinary liaison

Multidisciplinary team working

Non-medical personnel are essential to routine nuclear medicine service provision. The skill mix varies between departments but will usually include physicists and other clinical scientists, medical technical practitioners, radiographers, radiopharmacists and nuclear medicine nurse specialists. Play specialists and cardiac technicians contribute to specialist services in centres with a high paediatric or cardiac workload. Provision of a medical physics expert and a radiation protection adviser is a legal requirement.

Nuclear medicine clinicians liaise closely with most other specialties and are often core members of cancer multidisciplinary team (MDT) meetings. Review of nuclear medicine imaging should be undertaken by appropriately trained specialists who are able to provide advice reflecting new information arising from MDT discussions. The Royal College of Physicians (RCP) has published new guidance for nuclear medicine physicians working within MDTs.

Most nuclear medicine specialists undertake radionuclide therapy and many are the lead clinicians in joint clinics managing benign and malignant disease.

5 Delivering a high-quality service

A high-quality service is patient centred and produces accurate results in a timely manner in accordance with explicit service standards. Nuclear medicine services should be led by a specialist trained to CCT level (or on the specialist register), or equivalent, in nuclear medicine. Service quality is jeopardised in hospitals where there is no sessional commitment to nuclear medicine, particularly if a small nuclear medicine caseload is divided between a large numbers of consultants, diluting individual experience. The nuclear medicine physician liaises closely with scientists and clinical colleagues to ensure that new evidence-based techniques are introduced safely.

Reciprocal rota commitments with colleagues in other units are recommended to avoid professional isolation for consultants working single-handedly. Telemedicine links improve communication between large and smaller departments and facilitate audit but are not a substitute for local clinical involvement. Scan reading and issuing reports is only part of the role of the nuclear medicine specialist. As many of the studies performed are not well known by the general medical profession providing an expert opinion and guidance is also essential.

The facilities required to deliver a high-quality service include:

- dedicated patient waiting areas to separate patients who have received radiopharmaceuticals from patients and carers not receiving them
- separate area for administration of radiopharmaceuticals
- dedicated toilet facilities which will need to comply with trust's disabled access and personal dignity requirements
- examination rooms and quiet counselling room for discussion with any patient, including any pregnant and breastfeeding women, appropriate to the casemix
- secure radiopharmaceutical storage area
- area for image analysis
- data-reporting room
- educational and library area
- separate paediatric waiting or play area, as appropriate
- cardiac stressing facility this may be shared with cardiology if it is organisationally more appropriate

- imaging equipment appropriate for the casemix, which should be maintained to published specifications
- radiation protection measures to comply with all relevant legislation
- office space for other staff
- information technology, access to electronic patient record (EPR), results reporting and prescription analysis, and cost tabulation, PACS facilities.

If the department uses PET-CT, single-photon emission tomography–computed tomography (SPET-CT) and positron emission tomography–magnetic resonance (PET-MR), additional facilities may be required for staff and patients. Paediatric services may require areas for recovery after general anaesthesia.

Inpatient radionuclide treatment must take place in a dedicated facility with appropriate monitoring equipment and shielding for radiation protection, and be performed by correctly trained medical and non-medical staff. This may involve a dedicated area within the nuclear medicine department, interventional radiology and dedicated ward areas.

Maintaining and improving the quality of care

All procedures are undertaken in accordance with written departmental standard operating procedures (SOPs); where possible these procedures and protocols should be derived from the BNMS or European guidelines.^{3–10} The expected expansion of nuclear medicine services within cancer centres will support cross-specialty liaison and shared access to purpose-built, shielded facilities for radionuclide therapy. Improving access to radionuclide therapy throughout the UK will require close MDT cooperation and mentorship of individuals working in small centres. Nuclear medicine specialists provide expert advice to MDTs and tumour working groups within cancer networks about radionuclide treatment options for patients with malignant disease.

Service developments to deliver improved patient care

The 2003 intercollegiate report recommended prioritising nuclear medicine specialist support for all UK cancer networks in a 'hub-and-spoke' model.² Central (hub) functions include protocol development, provision of comprehensive diagnostic services and radionuclide therapy. Smaller (spoke) departments undertake a limited range of radionuclide imaging and therapy for benign disease. Access to PET-CT has improved following implementation of key recommendations for the development of PET services in England.⁵ Mobile service provision continues as an interim measure probably until 2015. Planning of how to replace this mobile provision should commence 2 years before any transfer of work from a mobile to a static site.

A recent review published by the British Institute of Radiology¹¹ has shown a massive variation in provision of radionuclide therapy in cancer with patients in the north west and London being well served while provision in the rest of the country is often limited.

Education and training

The small number of UK consultants results in substantial education commitments to nuclear medicine trainees, specialty registrars in other disciplines and non-medical staff. Training curricula, standards and competency assessment measures have been developed to allow non-medical healthcare staff to undertake extended roles, thereby improving local access to nuclear medicine. A long-term issue has been the need for the modern nuclear medicine trainee to receive adequate training in cross-sectional imaging. Although there have been examples of good local initiatives, further work is needed to ensure that delivery of such high-quality relevant training is seen nationwide. It is hoped that such a programme will be rolled out in 2013–14.

Consultants are expected to undertake at least 50 hours of continuing professional development (CPD) per annum and may take a leading role in clinical governance. Work plans should include protected time for clinical audit, which will often be undertaken at regional or national level.

Research - clinical duties and basic science

Nuclear medicine techniques are used extensively in medical research. The 2003 college census indicated that 40% of consultants held at least part-time academic contracts.¹² The pressing need to develop academic molecular imaging is addressed within current proposals for curriculum and training review.

Local management duties

Many nuclear medicine consultants have managerial duties as heads of departments and statutory responsibilities with respect to the Administration of Radioactive Substances Advisory Committee (ARSAC) and the Medical Application of Radioactive Substances (MARS) regulations. Many also contribute to the work of radiation protection and research ethics committees.

Regional and national work

The small number of nuclear medicine consultants nationally results in strong commitments to external educational and professional leadership. They will often take a leadership role with their region. It would be expected that most consultants in nuclear medicine would be involved in national committees at some point in their professional life.

Specialty and national guidelines

Specialty guidance for nuclear medicine is summarised in Table 1.

6 Clinical work of consultants

How a consultant works in this specialty

Nuclear medicine is a consultant-delivered service. Specialists are responsible for justifying, supervising and reporting diagnostic investigations and for administering unsealed source therapy. At present, few nuclear medicine departments provide on-call nuclear medicine diagnostic services but pressure for extended hours working is anticipated. The supply of radiopharmaceuticals outside normal working hours may be problematic. Centres that undertake inpatient therapy provision must ensure consultant on-call availability.

Typical time requirements for completion of different procedures are suggested in Table 1. These allow for referral vetting, patient assessment, manipulation of drug therapy where appropriate, procedure supervision, discussion with patients and colleagues, review of other imaging/case notes and authorisation of final reports. Also reporting of imaging should not be in isolation but reference made to previous imaging of the patient available on PACS.

7 Opportunities for integrated care

Nuclear medicine consultants work closely with referring clinicians to ensure timely access to diagnostic

investigations, in particular to ensure that studies are performed within the required guidelines. However, recent problems with the production of the radio-isotopes themselves have meant prolonged waits for some specialised studies. This shortage situation is expected to continue till 2018. The specialty has responded quickly to meet the requirements of 'one-stop' outpatient and acute medical assessment units. Integrated care within the hospital setting is well established for patients undergoing targeted radionuclide therapy, with close cross-specialty collaboration being reinforced by MDT working. Shared care with palliative care and community teams is increasing to ensure supervision close to home after radionuclide treatment. The use of hybrid imaging (PET-CT, PET-MR and SPRCT-CT) often means a single set of images is all that is needed for diagnosis, so offering a 'one-stop' diagnostic service. This has often meant close working with specialist nurses in both oncology and non-oncological specialties. Special arrangements allow specialist nurses to request nuclear medicine studies and remain IR(ME)R compliant

8 Workforce requirements for the specialty

There are approximately 230 individuals on the General Medical Council's (GMC's) specialist register for nuclear medicine. The 2011 RCP census listed nuclear medicine as the main specialty of 72 college members (64 in England and 2 in Scotland), a fall of 2 since 2009. However, not all of these people work full time in the specialty.¹² The picture is complicated by the contribution of specialists in other disciplines, particularly radionuclide radiology, to nuclear medicine service delivery, many of whom spend only a few sessions per week in the specialty. The 2000 Intercollegiate Standing Committee in Nuclear Medicine survey identified about 190 trusts that provided nuclear medicine services, with an average of 2.2 consultants per trust,² equating to approximately 400 consultants. The survey did not indicate the time allocation to nuclear medicine, however, and some trusts failed to identify any medical time at all for the service. The RCR census of 201113 identified 140 radiologists as providing a radionuclide service. This may include some double counting with the RCP census. Also those who report radionuclide studies but do not have any dedicated sessions may not have marked radionuclide radiology as a main area of subspecialty interest.

Table 1 Guidelines for reporting times for nuclear medicine studies. Please note the times are additive so if there is a routine planar imaging and SPET-CT in the same patient it is important to add the times taken for both imaging modalities

	Time required (min)	
	Non-training environment	Training environment
Procedure		
Routine non-imaging studies, planar imaging and bone densitometry	10–15	13–20
Tomographic imaging (SPET and SPET–CT)	15–20	20–30
Complex procedures and image co-registration studies*	30–40	40–50
PET	30–45*	45–60**
Stressing before cardiac imaging, including prior assessment and advice on drug treatment	25	30
Outpatient thyroid therapy		
New patient	45	60
Follow-up	15	20
Inpatient therapy and other outpatient therapies	Variable according to length of patient stay and amount of care shared with other specialties. On average, allow 40 min for a pretreatment, 60–120 min on day of administration and 15 min per day per patient on subsequent days or follow-up visits	
Multidisciplinary meetings***		
Preparation	60–240	60–240
Presentation	60–240	60–240
CT, computed tomography; PET, positron	emission tomography; SPET, single-photon emission tomography.	

*This would include most paediatric studies.

**In patients with lymphoma multiple studies may need to be viewed and quantification performed.

*** These may vary in length and complexity from a few patients per month to over 100 patients every week.

An allocation of 300–350 whole-time equivalent (WTE) consultants in the UK was proposed¹² equating to about 100–150 WTE nuclear medicine specialists within hubs linked to cancer centres and 200–250 WTE nuclear medicine specialists or radionuclide radiologists in the spokes. This number is regarded as the minimum required to manage increasing workload complexity and rising commitments to MDT participation. As all existing training places are linked to expected retirements, there is no training capacity for consultant expansion. The 2011 RCP census indicated that a 5% per annum increase in current consultant WTE

numbers would be required to meet European Working Time Directive targets¹⁴ and manage current workload. Twenty-two per cent of nuclear medicine consultants will reach the age of 65 years within the next 10 years.¹⁴ Current training numbers for nuclear medicine and radionuclide radiology (10 per annum) are just sustainable but do not allow for early retirements.

Workforce planning will need to take into account changes in working practice, prospective cover for colleagues and an increase in part-time work for periods of an individual's career. Consultant expansion will be necessary to accommodate proposals for 7-day service provision. A significant increase in allied professions (physicists, radiographers, medical technologists, radiopharmacists and administrative staff) will be required to support this change.

9 Consultant work programme/specimen job plan

Consultant work programmes will vary according to hospital size and range of nuclear medicine services provided. Fixed commitments include reporting sessions, outpatient clinics, special procedures and MDT meetings. Additional time is required for paediatric imaging and cardiac stress testing. Duties such as administrative work, teaching and training are considered flexible commitments. The figures in Table 2 are an average guide and assume uninterrupted clinical activity. These new centres should be outside London and the north west and provide for treatment of both benign and malignant conditions.

10 Key points for commissioners

- Nuclear medicine investigations detect functional 1 changes that occur early in disease, allowing prompt diagnosis and accurate, cost-effective assessment of treatment response.
- 2 Demand for nuclear medicine services is increasing, particularly in cancer diagnosis, cardiology and neuropsychiatry. The majority of diagnostic nuclear medicine investigations are undertaken as outpatient procedures.
- 3 Services should be commissioned only from departments that demonstrate compliance with statutory requirements and are led by a certificated

Table 2 Consultant job plan		
Activity	Workload	Programmed activities (PAs)
Direct clinical care		
General nuclear medicine	Depends on casemix	2–3
Myocardial perfusion stressing	8 patients	1
Myocardial perfusion reporting	8 patients	0.5
PET-CT imaging and reporting	8 patients	1
SPET-CT imaging and reporting	8 patients	1
X-ray/MDT meetings	2 patients per week	0.5–2
Inpatient therapy	2 patients	1
Outpatient clinics	3 new patients + 7 follow-up	1
Outpatient therapy*	4 patients	0.5
Clinical administration	Internal cover arrangements†	0.5–1
Supporting professional activities		
Work to maintain and improve healthcare quality	Education and training, appraisal, service development, audit, governance, CPD, revalidation, research, departmental management	2.5
Other NHS responsibilities [†]	eg medical director, clinical director, lead local clinician, educational supervisor, etc	Variable by local arrangement
External duties [†]	eg work for deaneries, royal colleges, specialist societies, Department of Health, governmental bodies, etc	Variable by local arrangement
*Allows time for consent and further discussion prior to treat	ment	

[†]These programmed activities are subject to local negotiation.

(ARSAC) clinician trained to CCT level (or equivalent) in nuclear medicine.

- 4 Clinical evaluations should be made by appropriately trained staff who demonstrate and maintain competence in nuclear medicine or radionuclide radiology imaging.
- 5 Where NICE guidance is available (chest pain, cancer pathways) providers should demonstrate sufficient capacity to comply with the commissioned activity.
- 6 A 'hub-and-spoke' model for service delivery is encouraged. Providers should demonstrate that services are patient centred and that appropriate clinical and imaging data transfer facilities are available.
- 7 Nuclear medicine expert advice should be available at MDT meetings in compliance with cancer standards for diagnostic and therapeutic intervention decisions.
- 8 General diagnostic nuclear medicine may be included in overall imaging activity. Providers should demonstrate indicative clinical pathways to demonstrate appropriate diagnostic service utilisation.
- 9 Outpatient therapy for benign disease such as hyperthyroidism may be available in small departments if local skills are available.
- 10 There needs to be provision for expected expansion of nuclear medicine into new diagnostic areas such as amyloid imaging for the diagnosis of early Alzheimer's dementia.
- 11 High-activity radionuclide cancer treatment should be provided by tertiary centres attracting sufficient numbers of patients to provide treatment in MDTs. Radionuclide therapy may require inpatient admission to a dedicated facility with radiation protection shielding. These new centres should be outside London and the north west and provide for treatment of both benign and malignant conditions.

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Palliative medicine

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1 Description of the specialty

Palliative medicine, recognised in the UK as a medical specialty in 1987, is defined as 'the study of patients with active, progressive, far-advanced disease, for whom the prognosis is limited and the focus of care is the quality of life'. Palliative physicians work within specialist palliative care teams, assessing and treating patients with difficult symptoms and complex psychosocial and spiritual problems. The specialist society for palliative medicine physicians in the UK is the Association for Palliative Medicine of Great Britain and Ireland (APM) (www.apmonline.org).

Traditionally, most patients referred for palliative care have advanced cancer.¹ More patients with end-stage progressive non-malignant diseases are now being referred to specialist palliative care, from 13.6% in 2006–7² to 17% in 2010–11.¹ Since 2000, the most striking increases are in outpatients (8% to 24%), hospital support (6% to 20%) and day therapy (5% to 17%). For specialist palliative care inpatient units, the proportion of patients with a diagnosis other than cancer has increased from 3% to 11%, and the lowest increase is for community settings from 4% to 10%. Inequity of access to specialist palliative care by diagnosis, geography, age and ethnicity remains.

2 Organisation of the service and patterns of referral

A typical service

Specialist palliative care services include some or all of the components shown in Table 1. These are delivered by multiprofessional teams who may come from different organisations within the National Health Service (NHS) or voluntary sector. These services are usually part of supportive and palliative care networks (within cancer networks) and/or end-of-life care networks. Arrangements vary to reflect local structures and needs. Relationships between palliative care networks and cardiac and renal networks are developing.

Table 1 Components of specialist palliative care services

Clinical	Academic
 Inpatient specialist palliative care Community palliative care teams Hospital palliative care teams 	 Education and training programmes/centres Research groups and departments

- Day therapy services
- Outpatient clinics

Sources of referral

In 2007–8,³ referrals to specialist palliative care came from:

- GPs or district nurses (28%)
- hospital doctors (34%)
- other specialist palliative care teams (16%).

Patients are referred when specialist palliative care expertise is needed in:

- symptom management
- management of complex psychosocial and spiritual issues
- terminal care
- decision making in uncertain progressive situations.

Sometimes one-off consultations are required. More often, ongoing shared care is helpful. Referrals may be triggered by patients, families or other professionals.

3 Working with patients: patient-centred care

A patient-centred focus is fundamental to palliative care practice: helping patients to express their wishes and achieve their preferences in relation to symptom management and end-of-life care, within a multicultural context. National strategies to promote patient-centred care for end-of-life care include: *End of life care strategy* (England),⁴ *Living and dying well* (Scotland),⁵ the palliative and end of life care strategy (Northern Ireland)⁶ and implementation of the Sugar Report (Wales).⁷

Resources for patient/carer education and support include:

- Help the Hospices (www.hospiceinformation.info)
- The National Council for Palliative Care (NCPC) (www.ncpc.org.uk)
- Macmillan Cancer Support (www.macmillan.org.uk)
- Maggie's Cancer Caring Centres (www.maggiescentres.org)
- National End of Life Care Programme (www.endoflifecareforadults.nhs.uk)
- healthtalkonline (www.healthtalkonline.org).

User involvement occurs at local and regional levels. Electronic palliative care coordinating systems (EPaCCS) have been piloted in England and are now being implemented across the country with a nationally approved standard (Information Standard Board) for its core content.⁸ Dying Matters, a national coalition in England, is promoting public awareness of dying, death and bereavement (www.dyingmatters.org). Patients and carers are becoming more involved in education, research and service evaluation.

4 Interspecialty and interdisciplinary liaison

Multiprofessional specialist palliative care teams

Integrated and flexible teamworking across professional boundaries is essential. See section 6 for the role of consultants in palliative medicine. Other essential team members include:

- clinical nurse specialists: provide assessment, support, monitoring, care planning and coordination, bereavement support and training for non-specialist staff
- specialist physiotherapists/occupational therapists: provide rehabilitation of patients with disability from advanced disease and facilitate rapid safe discharge home for patients; increasingly important as advances in treatment alter the natural trajectory of incurable diseases
- *specialist social workers*: provide advice on financial issues; organise domiciliary/residential social care;

provide psychological and bereavement support to patients and families, including children.

Other team members include specialist pharmacists, dietitians, chaplains, clinical psychologists, counsellors, and creative and complementary therapists.

Working with other specialties

Close cooperation between specialists in palliative care and those in other disciplines, especially oncology, surgery, gerontology, cardiology, renal medicine, respiratory medicine, mental health, radiology and orthopaedics, is mandatory. Specialist palliative care teams are small, so it is rarely possible for these teams to provide comprehensive consultant input to all multidisciplinary teams (MDTs) in acute hospitals. Consultants in palliative medicine rely on good working relationships and communication with colleagues in other disciplines.

Working with GPs and GPs with a special interest

GPs provide palliative care within the community. Most community palliative care teams are advisory. Local arrangements vary. In some areas GPs with a special interest (GPwSIs) have been appointed to facilitate palliative care training for local GPs. Many specialist palliative care units employ GPs as specialty doctors or have trainees drawn from GP specialty training schemes. This helps to develop expertise within primary care and raises the standard of primary palliative care locally.

Other specialty activity beyond local services

Palliative medicine consultants provide strategic leadership for palliative and end-of-life care within their cancer networks, strategic health authorities and health boards or trusts, promoting quality and equity of access for cancer and long-term conditions and developing guidelines, audit and outcome measures.

5 Delivering a high-quality service

What is a high-quality service?

High-quality specialist palliative care services have the following characteristics:

- 24-hour access
- clear referral and discharge criteria based on need not diagnosis:
 - ability to receive referrals rapidly and securely, eg by fax/email
 - clear process for clinical screening of referrals

- explicit standards for interval between referral and first assessment
- consultants in palliative medicine providing:
 - early medical review with sufficient time for thorough review and dedicated administrative support
 - rapid links to other relevant disciplines
 - 24-hour medical advice for colleagues in community and hospital
- MDTs with core specialists in palliative medicine, nursing, physiotherapy, occupational therapy and social work
- evidence-based clinical management with efficient information technology (IT) systems, and access to medical notes and results of investigations
- efficient and effective communication and collaborative working relationships within core and wider teams
- clinical audit and research programmes to evaluate treatments and outcomes
- education and training programmes for continuing professional development (CPD) of own staff and others
- patient and family involvement in management plans and discussions about preferred place of care and death
- support for carers and families through illness into bereavement.

In addition, specialist inpatient palliative care units should have:

- adequate number of dedicated beds
- adequate medical staffing at all grades, including out-of-hours cover
- trained specialist palliative care nurses with high nurse:patient ratio (UK average: 1:1.5)
- appropriate equipment for care of weak, cachectic and debilitated patients – eg pressure-relieving mattresses, electrically operated beds and chairs, easily operated nurse-call systems and assisted baths/showers
- space for private interviews/counselling sessions, prayer, reflection and faith rituals
- comfortable sitting area for patients and visitors, with self-catering/overnight facilities
- dedicated space for viewing the deceased person.

Clinical facilities should be integrated wherever possible. The physical proximity of inpatient, outpatient and community teams and day-care facilities promotes good communication and efficient use of consultant expertise and time. Where a service covers a wide geographical area, outlying beds or day-care units may be provided in community hospitals with support from specialist palliative care.

In acute hospitals, there needs to be private space for conversations, comfortable seating for patients and families, self-catering/overnight facilities and near-ward teaching facilities. Drugs should be administered and dispensed promptly to avoid long waits for weak patients. Adequate arrangements should be in place for rapid communication with the GP and community nurses when a patient is discharged or dies.

A national specialist palliative care peer-reviewed process is being tested at present.⁹ A quality standard for end-of-life care was published by the National Institute for Health and Care Excellence (NICE) in November 2011, consisting of 16 quality statements which collectively describe a high-quality end-of-life care service.¹⁰

Maintaining and improving the quality of care

Service developments to deliver improved care High-quality services need to be responsive to patients' needs, efficient in use of resources, collaborative in relationships with other services and continuously vigilant in maintaining standards of care through audit, teaching and research. Service developments include:

- joint clinics/MDTs in oncology and heart failure, respiratory, renal and neurological medicine
- access to 24-hour health and social care for palliative care crises
- leadership and strategic innovation within local trusts, including education, evaluation and research
- implementing end-of-life care and advance care planning tools: integrated care pathways for the dying, Gold Standards Framework and Preferred Priorities for Care, or equivalent
- workforce planning.

Education and training

Work in this area includes:

- development of consensus syllabus for undergraduate palliative medicine¹¹
- development of specialty curriculum, certificate examination and assessment framework with the Royal College of Physicians (RCP)
- development of a report on professional development in end-of-life care for physicians¹²

- regular educational events, sometimes in collaboration with the RCP or the Royal Society of Medicine (RSM)
- leadership of e-learning programme for end-of-life care (e-ELCA: www.e-elca.org.uk)¹³
- guidance on clinical governance, outcome measures and audit
- mentoring scheme for new consultants
- training programmes for specialty trainees and specialty doctors

Research

There are relatively few academic departments in palliative medicine. Research in this group of vulnerable patients with a high attrition rate is difficult, yet an evidence base in this clinical area is crucial. Research is required in the efficacy and cost-effectiveness of palliative care interventions, models of care and translational research.

The APM science committee runs a training programme in critical appraisal and research methods for the specialty. Increasing numbers of specialty registrars (StRs) and consultants in palliative medicine are achieving higher research degrees. A network of APM research champions support new researchers across UK and Ireland.

Specialty tools and national guidelines

National guidance involving palliative care has appeared in a number of influential publications.^{14–21} Reports of relevance to the specialty include the National Confidential Enquiry into Patient Outcome and Death (NCEPOD),²² the National Audit Office report²³ and Gold Standards Framework After Death Analysis.²⁴ The National End of Life Care Intelligence Network, launched in 2010, provides a focus for data relating to end-of-life care (www.endoflifecare-intelligence.org.uk).

6 Clinical work of consultants

Consultants in palliative medicine provide clinical leadership to specialist palliative care inpatient units, community and hospital palliative care teams, and day centres. Their role includes:

- direct clinical care
- providing advice to primary and secondary care colleagues
- attending site-specific cancer MDTs and for long-term conditions, eg chronic obstructive pulmonary disease (COPD)

Table 2 Programmed activities (PAs) contracted and worked (full-time consultants): Royal College of Physicians' census 2011²⁵

Activity	Mean PAs contracted per week	Mean PAs worked per week
All activities	10.6	12.1
Clinical PAs	7.1	7.6
Supporting PAs	2.5	3.4
Academic PAs	0.5	0.6
Other PAs	0.5	0.5

PAs contracted and worked (less than full-time consultants): Royal College of Physicians' census 2011²⁵

Activity	Mean PAs contracted per week	Mean PAs worked per week
All activities	7.6	8.6
Clinical PAs	5.4	6.0
Supporting PAs	1.8	2.1
Academic PAs	0.1	0.2
Other PAs	0.3	0.3

Note: most consultants in palliative medicine play a greater role in the strategic development of palliative care services locally than is common in other specialties. A high percentage of $(31\%)^{26}$ consultants in palliative medicine work single-handedly, so they carry more responsibility for education, audit and research.

- running joint/parallel clinics with other specialists
- service development.

Many are single-handed (31%).²⁶ Although trainee numbers have increased, palliative medicine remains consultant delivered and consultant led. Neither StRs nor consultants usually participate in the on-call rota for acute general medicine.

As outlined in Table 2, full-time consultants work an average of 48.4 hours (12.1 programmed activities (PAs)) and part-time consultants 34.4 hours (8.6 PAs).²⁵

Consultant posts are often split between local district general hospitals (DGHs), tertiary hospitals, community services and specialist palliative care units (voluntary/NHS), with implications for cross-site working and travel. Considerable time is spent liaising with GPs and colleagues in primary and secondary care. A more detailed document on the role of the palliative medicine consultant has been produced by the APM.²⁷

Inpatients

There are 223 adult inpatient specialist palliative care services in the UK (52 beds per million population: 26% funded by the NHS, the rest funded by the voluntary sector).²⁸ Patients with complex needs for symptom control, major emotional distress and family problems are admitted. The ratio of deaths to discharges is 1.22 (mean stay 13.7 days).¹ Patients are admitted for terminal care if adequate support/complex needs for dying at home cannot be met.

Inpatient units may sit in separate buildings in the grounds of acute and community hospitals or as standalone units. Most have 24-hour, non-resident, specialist medical cover. Some only admit during working hours because of lack of on-site out-of-hours medical cover. Most units provide 24-hour telephone advice for colleagues in the community and hospital.

Hospital palliative care teams (346 in the UK⁸) offer an advisory and supportive service without taking over care from the patients' primary physicians and hospital teams. The service usually runs during daytime working hours, with some running 7 days a week. Out-of-hours telephone advice is usually accessed from specialist inpatient units.

Outpatients

Three hundred specialist outpatient palliative care services are provided in hospices, community hospitals or hospitals.²⁹ Eighty-four per cent of new referrals have a primary diagnosis of cancer. Some 275 services offer day care, ranging from medical/nursing focused models to social or rehabilitative models.²⁸ Other services include bereavement support, lymphoedema clinics, creative therapies, counselling and complementary therapies. See section 7 for community-based care.

7 Opportunities for integrated care

The nature of palliative care requires integrated team working across primary and secondary health and social care. Palliative care for patients at home is provided by GPs and community nurses, with advice, where required, from community specialist palliative care teams. There are 291 specialist community teams in the UK.²⁸ On average, each team sees over 550 new patients per year (mean length of care: 123 days).¹ Consultants in palliative medicine typically offer shared care with GPs in the community. Support and advice from clinical nurse specialists may be supplemented by hands-on care from carers provided by social services or Marie Curie (or equivalent) nurses. In some areas, hospice-at-home services are offered, ranging from rapid-response services to sustained hands-on care at home, eg the Delivering Choice Programme³⁰ and other hybrid versions of hospice-at-home and specialist community services. There are now 120 hospice-at-home teams.²⁸ More data and evidence about the impact of these services will emerge over the next few years. The Gold Standards Framework (GSF) provides a framework for palliative care provision in the community by facilitating identification of patients on a GSF register, which triggers discussion about these patients' end-of-life care at regular practice meetings.31

Education and training is regularly provided by consultants in palliative medicine as a routine part of their work. This helps non-specialist health and social care colleagues to remain skilled and up to date in palliative care. The e-learning programme for end-of-life care¹³ provides opportunity for blended learning across the sectors.

8 Workforce requirements

The RCP's 2011 census UK²⁵ identified a head count of 474 consultants in palliative medicine: England 387, Wales 29, Scotland 42 and Northern Ireland 16. Of these, 71% were women, and overall 44.4% worked part-time. In 2011, there was an 8.4% (10% in 2010) unfilled vacancy rate.

Key factors in workforce planning include:

- ageing population: cancer, predominantly a disease of older people, is the commonest diagnosis in palliative care referrals
- increasing referrals for non-malignant conditions (20–50% of referrals): comparable need in terms of symptoms and social and psychological issues as those with cancer
- high proportion of female doctors: 71% of consultants and 84% of StRs
- significant proportion of less than full-time working: 44% of consultants and 38% of StRs
- a detailed survey (1997) demonstrated that workloads were too high to allow adequate time for

Table 3 Consultant workforce requirement		
Minimum consultant requirement*	WTE	
Per 62.2 million population (2011) UK England Wales Scotland Northern Ireland	505 424 24.8 42 14.4	
[†] Consultants required per 160,000 residents	1	
Consultants required per 120,000 residents, assuming 30 % of consultants work less than full time	1	
*Based on the following estimates:		

- 660 cancer deaths per year for population of 250,000
- 462 referrals per year if 70% access to specialist palliative care
- 554 referrals per year if 20% non-cancer referrals are included
- 1.54 WTE required if one WTE sees 360 new patients per year (APM calculation).

[†]Assuming consultants work full time, one consultant can support a population of 160,000. However, 30 % of consultants work less than full time, in which case one consultant can support a population of 120,000.

CPD, audit, research and clinical governance, all necessary for delivering high-quality services.³²

On the basis of calculations that include all these factors, there should be a minimum of one whole-time equivalent (WTE) consultant in palliative medicine for every 160,000 residents (1.56 WTE consultants per 250,000 population) (see Table 3). Given the excessive hours that consultants currently work, the new consultant contract (10 PAs/week) and restrictions of the European Working Time Directive (EWTD), a more appropriate pragmatic final estimate would be 2 WTEs per 250,000 population. This would require 505 FTE consultants across the UK (based on 2011 population of 62.2 million) comprising for England (424 FTE), Wales (24.8 FTE), Northern Ireland (14.4 FTE) and Scotland (42 FTE). The Centre for Workforce Intelligence report for England (2011) based on the RCP 2010 consultant census estimated the supply of consultants for 2020 will need to increase to nearly 600 FTE (681 headcount).

9 Consultant work programme/specimen job plan

Service models vary. Consultant job plans usually incorporate more than one of the following

Table 4 Work of palliative medicine consultants generated by a population of 250,000 as PAs (4 hours)

Activity	Workload	PAs	
Direct clinical care			
Ward rounds	339 admissions/year	4–5	
Outpatients	4 new patients/week plus 1–6 follow-ups	2	
Hospital referrals	2–6 patients/week	3–5	
Community referrals	4–6 domiciliary visits/week	2–3	
Day care	Assessments	0.5	
MDT meetings	Ward: 1/week Community team: 1/week	2	
*On-call and weekend ward rounds		1	
Total direct patient care		15–19	
Supporting professional activities (SPAs)			
Work to maintain and improve quality		6–8	
ΤοταΙ		21–27	
*Generally the on-call commitment is onerous. ³⁵ Many consultants are			

first on call for specialist inpatient beds (on-call ratio at least 1:4). Those who are single-handed may have second on-call rotas of 1:1. Sleep is infrequently disturbed but workload for first on call during a weekend is significant. Time off in lieu is rarely included in job plans.

components: inpatient hospice, community, acute hospital and day care (see Tables 4 and 5).

This job plan does not represent the workload carried by the majority of consultants currently in post and emphasises that the most common current pattern, in which a single consultant carries responsibility for work across all settings, is not sustainable.

10 Key points for commissioners

The APM has produced commissioning guidance for specialist palliative care, in partnership with a number of other organisations.³³ This can help commissioners to achieve a number of wider commissioning goals, especially in relation to domains 2 and 4 of the NHS outcomes framework and the national QIPP indicators for end-of-life care. The data and evidence on which

Table 5 Consultant work programme		
Activity	Work	PAs
Direct clinical care		
Inpatient unit	2 ward rounds (including teaching round) 1 MDT Case conferences	2.5
Outpatient clinics	1–2 clinic sessions Supervising StR clinics Additional urgent referrals as required Joint clinics (some)	1–2
Home/domiciliary visits	1–2 home visits per week Supervising StRs and community clinical nurse specialists	0.5–1
Day care	Assessments	0.5
Acute hospital team	2 ward assessments (including teaching round)	2.5
MDT meeting with ward and community		1
On call for specialist advice and emergencies On-call weekend ward rounds		1–2
Supporting professional activities (SPAs)		
Work to maintain and improve quality of care	Education, training, appraisal, management, service development, audit, clinical governance, CPD and revalidation, research	2.5
Other NHS responsibilities	eg medical director, clinical director, lead clinician, clinical tutor	By local agreement with trust
External duties	eg work for deanery, royal colleges, specialist society, DH, other bodies	By local agreement with trust

this guidance has been produced will need to be updated in the coming years, and the commissioning advice revised to take into account the additional pressure from ageing and long-term conditions in particular. Generic guidance for commissioning end-of-life care is also available.³⁴

- 1 Over the next 30 years, the demand for palliative care services will continue to increase because of an ageing population and a predicted 20% increase in mortality rates (patients aged 80 years or more).
- 2 Equitable service delivery is needed for long-term conditions, as well as cancer, based on joint health and social care needs assessments.
- 3 Strategic planning requires collaboration of statutory health, social care and voluntary sector providers, with involvement of public, patients and users in all aspects of the commissioning cycle.

- 4 GPs and specialists need to be fully involved in planning and commissioning palliative care services and developing care pathways which:
 - a identify key triggers/criteria for the end-of-life care phase for cancer and long-term conditions
 - b promote patient choice and advance care planning
 - c are based on national guidance and use outcome measures.
- 5 Integrated multiprofessional health and social care teams are necessary to provide high-quality coordinated care to patients and their families.
- 6 Service specifications need to provide the range and type of services for optimal delivery across hospital, community, care home or hospice and other locations, eg prisons and hostels for the homeless.
- 7 Seven-day and 24-hour generic and specialist palliative care services are critical to enable patients to remain in the community by meeting

out-of-hours palliative care crises and avoiding carer breakdown.

- 8 Palliative medicine consultants provide clinical leadership, promote care coordination across hospital, hospice and community, reduce symptom burden experienced by patients, facilitate successful earlier discharges into the community and prevent inappropriate admissions.²⁷
- 9 A skilled health and social care workforce will be a major cost driver for improving end-of-life care in all care settings and is a fundamental part of the work of palliative care physicians and professionals.
- 10 Outcome measures should be embedded within contracts and funding mechanisms for quality care delivered in all settings. In this patient population, outcomes can be difficult to measure but should be based on the End of Life Care Quality Markers (2009)²¹ and NICE Quality Standards for End of Life Care.¹⁰

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Pharmaceutical medicine

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1 Description of the specialty

Pharmaceutical medicine is a medical specialty concerned with the discovery and development, evaluation, licensing and monitoring of medicinal products, for the benefit of patients and public health. Pharmaceutical physicians work in the pharmaceutical industry, drug regulatory authorities, contract research organisations and academia. They have a close affinity with their medical colleagues in primary and secondary healthcare.

Pharmaceutical medicine is based on the knowledge and understanding of how medicines work, the limitations and variability of response to treatments, and how therapies can be used optimally in clinical practice. In addition to expertise in basic research, medicines development and evaluation, clinical trials and registration, pharmaceutical physicians also need a good understanding of pharmacoeconomics, medical aspects of the marketing of medicines, business administration and the social impact of healthcare on patients and public health.

The roles of pharmaceutical physicians

Some pharmaceutical physicians are involved in defining the biological mechanisms of disease, enabling medicines to be identified that specifically target the illness. However, the majority of doctors in the specialty are responsible for the design, management and implementation of clinical trials and work with a team of clinical investigators and supporting clinical staff. They are either directly employed by industry, or work as independent consultants. Their work contributes to all stages of clinical trials as described below:

• A small number of pharmaceutical physicians are involved in phase 1 trials, which are conducted in dedicated clinical pharmacology units and involve the first dosing of a drug to (usually healthy) humans for safety and tolerability testing, measurement of pharmacological effects and pharmacokinetic profiling. Depending upon the treatment indication and the type of drug being evaluated, phase I studies may also be performed in patients, eg in oncology studies.

- A larger number of physicians are involved in phase 2 and 3 trials. Phase 2 trials are generally the first conducted in patients and are small-scale trials that give an indication that the drug works effectively and safely. Pharmaceutical physicians choose suitable disease targets, and design trials using appropriate measures of clinical efficacy, pharmacodynamic endpoints and safety.
- Phase 3 trials are of larger scale, involving hundreds or thousands of patients and are required to prove the clinical efficacy and safety of a drug. Due to the patient numbers required and the international nature of many pharmaceutical companies, phase 3 trials are often carried out globally, requiring pharmaceutical physicians to adapt their practice significantly depending on location and circumstance.
- Pharmaceutical physicians also consult on the implementation of phase 4 clinical studies. Once a marketing authorisation for a new medicine is granted and the drug opened to a wider patient group, post-marketing and continued safe prescribing needs to be closely monitored. Clinical doctors and pharmacists work closely with the pharmaceutical physicians responsible for drug safety to ensure full, timely and complete analysis of unexpected adverse drug reactions alongside the regulatory agencies, to comply with their necessary reporting regulations.

All trials are strictly governed by regulations designed to protect the safety of patients. Many pharmaceutical physicians work within the regulatory agencies, such as the Medicines and Healthcare products Regulatory Agency (MHRA) and the European Medicines Agency (EMA), to ensure that trials are being carried out to the highest ethical and safety standards and in the best interests of the patient.^{1,2}

Some physicians are involved in medical affairs, which includes the marketing of medicinal products. These doctors conduct market support studies, provide medical input to marketing strategy, support sales staff in the field, review drug advertising and the safety (pharmacovigilance) of marketed drugs, and ensure that the information materials for both prescribers and patients are as accurate and easy to understand as possible.

Pharmaceutical physicians and patients

As mentioned previously, those participating in clinical trials are usually either patients suffering with the particular condition under investigation, or can be healthy members of the public who volunteer (and can receive remuneration) to take part in trials. However, apart from phase 1 clinical trials, direct patient contact is rare for pharmaceutical physicians. Phase 1 trials are carried out in independent 'clinical research units' and here the pharmaceutical physicians have medical responsibility for the safety of the participants and must have up-to-date knowledge of resuscitation techniques and treatment of medical emergencies. These physicians regularly conduct physical examinations for fitness, take blood, give injections etc. Phase 2 and 3 trials are usually carried out with patients 'in-the-field' and pharmaceutical physicians are more involved in monitoring the overall safety of patients, rather than day-to-day contact. All clinical trials require the informed consent of the participants and pharmaceutical physicians will be involved in developing the requisite consent forms. Pharmaceutical physicians who work for regulatory agencies have almost no direct patient contact.

Despite the fact that pharmaceutical doctors have very little direct patient contact compared with typical hospital doctors or GPs, the medicines and vaccines that they develop can ultimately affect the lives of millions of people across the world. Thus, working for the benefit of the public is still very much at the heart of a pharmaceutical physician's endeavours. Despite this, relations between the pharmaceutical industry, the NHS and patients are often strained. The report in 2009 by the Royal College of Physicians (RCP) Innovating for *health: patients, physicians, the pharmaceutical industry* and the NHS³ suggested that many patients remain concerned that they do not enjoy equal access to medicines, nor do they believe that the full range of innovative medicines that are available is brought to their attention, thus undermining their confidence in the entire prescribing process. The report also indicated that patients in the UK are usually very willing to participate in clinical trials but that patients report a lack of opportunity. The working party that produced

this report is now coordinating the activities that will address these issues.

Areas of work

Pharmaceutical physicians are involved in studies concerned with the research and development of new medicines in almost all disease areas and will have specialist knowledge in their chosen field of research. There are globally about 5,000 medicines and about 350 vaccines currently in development (although only a small percentage of these will successfully make it to market), with the majority of research efforts being directed towards new treatments for cancers, heart disease and stroke, diseases of the central nervous system and tackling the burden of infection in developing countries (source: CMR International).

2 Organisation of the service and patterns of referral

As the majority of pharmaceutical physicians work outside the NHS and in such a wide variety of roles it is impossible to crystallise how the service that they provide is organised. Pharmaceutical physicians are to be found at all levels of service in commercial, academic and government institutions.

Pharmaceutical physicians do not operate in the standard referral channels of GPs and hospital doctors. Although they are involved in designing the protocol for patient selection etc, they are not involved in individual patient referral to a site conducting a clinical trial.

3 Working with patients: patient-centred care

As mentioned previously, very few pharmaceutical physicians have direct contact with patients, though their work is always for the benefits of patients and the public.

Although the pharmaceutical physician does not deliver the information regarding trials directly to the patient, they are involved in coordinating all the relevant information concerning the patient's participation; including why the trial is being carried out, why this patient is involved, and what the potential or expected benefits and risks are. One of the main sources of information for clinical trials patients is the NHS website 'Involve'⁴ which is managed by the National Institute for Health Research (NIHR). Many of the disease-specific charities also provide advice and information for patients who are already undergoing or thinking about becoming involved in clinical trials.

The issue of post-trial patient information is considered to be an integral part of patient rights and has been mentioned as part of the World Medical Association's Declaration of Helsinki on the Ethical Principles for Medical Research Involving Human Subjects,⁵ where paragraph 33 states:

At the conclusion of the study, patients entered into the study are entitled to be informed about the outcome of the study and to share any benefits that result from it.

Despite this, patients are still not routinely kept up to date with the outcomes of trials that they have been involved in. The main reason for this is that often many months or years have elapsed before the analysis of a trial is complete and the communication channels between the investigators and patients and their consultants have often broken down. Clinical trial participants are coded and thus the responsible pharmaceutical physician does not have access to individual patients. At the end of the trial, the outcomes are reported to the investigators involved and it is their responsibility to pass this information on to the participants from their centre.

4 Interspecialty and interdisciplinary liaison

Although their contact is often limited, pharmaceutical physicians work with clinicians across almost the entire spectrum of medicine. They are available to talk to clinicians working in a particular field and to discuss the use of medicines in a particular condition. Clinical doctors always have a route of contact with a company's medical information department when issues around medicinal products arise, and these circumstances are likely to involve a pharmaceutical physician. Increasingly, pharmaceutical physicians are also acting as direct sources of expert information on the medicines that their companies provide to doctors working in the NHS. This interaction is usually initiated by the consulting clinician and can act to greatly enhance patient care but is currently an underused relationship.

5 Delivering a high-quality service

What is a high-quality service?

Due to the diverse nature of their roles, it is difficult here to define precisely what constitutes a high-quality service as delivered by pharmaceutical physicians. Beyond phase 1, the running of a safe and efficient clinical trial requires close collaboration of the trial sponsor, the hospital or clinic where the patients are located and the consultant or GP responsible for them, the chief investigator and other healthcare professionals supporting the research and the ethics committee responsible.

To ensure a safe, rigorous and well-executed trial the sponsor or chief investigator must go through several authorisation procedures before, during or after a clinical trial:

- The sponsor or investigators must first apply to the MHRA for clinical trial authorisation (CTA). They then usually register the trial for an international standard randomised controlled trials number (ISRCTN) and although this is not compulsory it ensures that the trial complies with the requirements of the International Committee of Medical Journal Editors (ICMJE) – a prerequisite for publishing trial data in most journals.
- 2 Ethical approval for the trial must be sought by the principal investigator through a research ethics committee (REC), part of the National Research Ethics Service (NRES).
- ³ Once a trial is under way, safety and progress reporting must be carried out to the appropriate REC both on a periodic basis (both 6-monthly and annually) and also whenever there is an unexpected or dangerous event, known as a suspected unexpected serious adverse reaction (SUSAR).
- 4 When a trial is finished it must be reported to the MHRA and the relevant REC (within 90 days of its conclusion or within 15 days of early termination) and a summary of the final report on the research should be sent to the main REC within 12 months of the end of the project.

Those pharmaceutical physicians who work for the regulatory agencies have a very different remit and therefore different definitions of a quality service. Their prime responsibility is to protect public health.

Maintaining and improving the quality of care

Pharmaceutical physicians are predominantly employed by private companies which will have their own strict codes of conduct, ethical principles and protocols for ensuring the ongoing high quality of work carried out under their sponsorship. These practices are further supported by professional codes of practice⁶ and statutes that enshrine good clinical practice (GCP) and the safety and well-being of the patient and/or research subject.

The majority of pharmaceutical physicians in the UK are members of the Faculty of Pharmaceutical Medicine (FPM), a Faculty of the Royal Colleges of Physicians of the UK. The FPM conducts pharmaceutical medicine specialty training (PMST) which enables qualified doctors to obtain specialist registration in pharmaceutical medicine with the General Medical Council (GMC). The overall aim of PMST is to produce accredited pharmaceutical physicians, who are equipped with specialist knowledge and comprehensive skills and competencies to practise to the highest ethical and professional standards, for the benefit and safety of patients and the public, in the development and maintenance of medicines. The earliest entry point into PMST is at ST3 level.

The FPM also coordinates the continuing professional development (CPD) of its members, though it does not currently provide modules for CPD accreditation. The FPM is currently developing the framework for the revalidation of pharmaceutical physicians and recommends that all practising pharmaceutical physicians registered with the GMC should have a Licence to Practise and therefore make themselves available for revalidation. Because of the diverse nature of pharmaceutical physicians' roles, coupled with the fact that they work outside the NHS and that the majority of their work does not involve direct patient contact, their revalidation process is going to be very different to the majority of doctors. It is vitally important that the revalidation of pharmaceutical physicians is carried out in a manner that is as objective, transparent and robust as possible. The FPM will continue to develop guidance on revalidation and to work closely with the GMC.

6 Clinical work of consultants

Apart from the few pharmaceutical physicians who continue to work part time in a wide variety of other

specialties and general practice, the profession is not engaged in clinical work.

7 Opportunities for integrated care

This does not directly apply to pharmaceutical physicians, but contact between nurse and pharmacist prescribers and pharmaceutical physicians will occur where the healthcare professional is seeking information or advice from the sponsor of the product.

8 Workforce requirements for the specialty

The FPM has over 1,100 UK-based members, but has estimated that there are over 1,500 pharmaceutical physicians currently practising in the UK. It is difficult to give a more precise figure for this, again due to the diverse and extra-NHS nature of the profession.

As of October 2012 there were 177 trainees in pharmaceutical medicine with a national training number undertaking training in 60 approved organisations. A total of 193 physicians have now completed specialty training in pharmaceutical medicine and can be awarded the Certificate of Completion of Training (CCT) with eligibility for Specialist Registration with the GMC; two physicians have also completed training through the Certificate of Eligibility for Specialist Registration Combined Programme (CESR-CP) route. There are 34 senior specialty advisers whose role is one of governance and quality management of the training programmes within their allocated sites. There are 92 trained and approved educational supervisors (ESs) and associate educational supervisors (AESs) who are actively supervising trainees.

The revised PMST curriculum, launched in August 2010, is now established for newly enrolling trainees. Trainees following PMST2, as it is known, undertake workplace-based assessments (WPBA) and use an e-portfolio to collect evidence of competency and supporting information to record their training progression.

9 Consultant work programme/specimen job plan

Pharmaceutical physicians can be self-employed, work for a multinational pharmaceuticals company or a regulatory agency or in academia. Their work involves developing medicines and vaccines in almost all disease areas, both at home and abroad. Because of this huge diversity it is almost meaningless to produce a 'typical' work programme or job plan for a pharmaceutical physician.

10 Key points for commissioners

- 1 The specialty of pharmaceutical medicine currently has the eleventh highest number of trainees.
- 2 Pharmaceutical physicians work in a very diverse specialty, researching and developing medicines in almost all disease areas.
- 3 Although few pharmaceutical physicians work directly with patients they consider their work to be for the benefit of public health first and foremost.
- 4 Some pharmaceutical physicians are employed in the public sector, but most are employed privately in companies ranging from small consultancies to multinational companies with billions of pounds of annual turnover.
- 5 Pharmaceutical physicians are the providers of information and data to patients undergoing trials, via the investigator.
- 6 Pharmaceutical physicians almost always work in multidisciplinary teams, with doctors of all specialties, trials investigators and supportive clinical staff.
- 7 Pharmaceutical medicine is a global specialty and therefore many pharmaceutical physicians

who have qualified in the UK now work overseas.

- 8 Pharmaceutical medicine is a very broad-based specialty and therefore welcomes doctors from a broad spectrum of specialties including surgery and paediatrics.
- 9 Pharmaceutical physicians are able to pursue a variety of specialties in their careers and are likely to build a diverse portfolio.
- 10 Virtually all medicines available for prescription will have had considerable input from pharmaceutical physicians in their development.

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Rehabilitation medicine

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1 Description of the specialty

Consultants in rehabilitation medicine (RM) serve people with complex disabilities arising from conditions such as spinal and head injuries, stroke, multiple sclerosis (MS), musculoskeletal disorders, congenital or acquired limb loss, muscle disorders, cerebral palsy and spina bifida. Roles include:

- confirming diagnoses and prognoses
- preventing and treating symptoms and complications
- contributing to life decisions
- providing information, support and counselling for patients, families and carers.

Most RM consultants lead and coordinate a multidisciplinary team (MDT). Although the specialty was originally developed for disabled people of working age,^{1,2} RM is now relevant to people of all ages.

The World Health Organization's (WHO) *International classification of functioning, disability and health*³ provides a conceptual framework. This recognises the social and physical environment as a target for interventions: for example, someone complaining of spinal pain may benefit from different seating arrangements, drugs or medical treatments. The clinical skills of RM specialists are essential for the effective use of many assistive technologies.

Rehabilitation programmes are important in acute and non-acute conditions. For example, RM consultants help individuals with MS to manage their own disability and prevent secondary complications, while providing treatment as required.

The British Society of Rehabilitation Medicine (BSRM) (www.bsrm.co.uk) provides further information on the specialty.

2 Organisation of the service and patterns of referral

Rehabilitation medicine is a consultant-led service that works closely with MDTs. Consultants have responsibility for inpatients in neurological rehabilitation units but also consult in stroke units, other wards (including pre-amputation) and multidisciplinary outpatient services. Rehabilitation of people with spinal cord injuries occurs through supra-regional centres. Specialist neurological rehabilitation centres accept the most complex patients. Rehabilitation medicine has important relationships with trauma, orthopaedics, neurology, neurosurgery, vascular surgery, acute medicine and palliative medicine.⁴ RM has a central role in the early and ongoing management of patients within the major trauma networks.

Many consultants work in the community. In England, recent drivers for such services include the *National* service framework (*NSF*) for long-term conditions⁵ and the Department of Health's *Transforming community* services programme⁶ and *Liberating the NHS* white paper.⁷ Community work entails frequent interactions with primary care, psychiatry, urology, palliative medicine and many other services. Most RM consultants carry out home visits or review people in nursing homes.

Referrals come from GPs or consultant colleagues. In addition, professions allied to medicine trigger referrals.

3 Working with patients: patient-centred care

Patient-centred care is central to RM, which involves meetings with disabled individuals, family members

and others. The ability to facilitate these meetings is an important consultant skill. Communications between professionals and patients are highly developed and include evaluations of rehabilitation goals. Consultants in RM use educational approaches to help patients and families, often raising their expectations of potential achievement, and to support self-management. Patient support groups can be a major help in rehabilitation. Consultants in RM typically have close relationships with local groups, and many work with national patient or carer-led organisations.

Rehabilitation must always consider other people important to the patient. The separate needs of carers must be appreciated, but balancing the interests of the individual patient with those of others can pose ethical challenges when the disabled individual has reduced capacity. An important challenge for RM consultants is to understand the needs of people from different religious, cultural and ethnic backgrounds. RM facilitates innovative approaches, with a great deal of expertise on cultural differences within the specialty; however, the cultural responsiveness of rehabilitation services needs further development.

4 Interspecialty and interdisciplinary liaison

Most aspects of RM require an MDT. Evidence for a team approach comes from research on acquired brain injury and MS.^{8,9} The key to MDT working is that professional roles are flexible, with the needs of a disabled individual superseding disciplinary boundaries. Interspecialty links are strong throughout rehabilitation, and links with primary care and community services are particularly important during community reintegration. Social services work closely with RM teams, alongside education, employment, housing and legal services, and voluntary agencies.

Neurology and neurosurgery interact closely with RM in managing long-term neurological conditions. Vascular surgery interacts specifically with RM for amputations. RM works closely with orthopaedics and neurosurgery in the management of patients following severe trauma. Other joint work with RM consultants includes:

- managing handover of young disabled people from paediatrics to RM
- managing spasticity in collaboration with geriatricians

- working with surgeons to plan procedures and postoperative rehabilitation following spinal or joint surgery and tenotomies
- sharing care with gastroenterologists during insertion of feeding tubes
- obtaining support from otorhinolaryngologists in the management of tracheotomy
- working with anaesthetists in the management of complex pain
- collaborating with psychiatrists for patients with neurological conditions, including traumatic brain injury, functional disorders and Huntington's disease
- working with urologists in the management of continence
- working with palliative medicine consultants in the management of people with rapidly progressive neurological conditions (eg motor neuron disease).

In the community, RM makes rehabilitation expertise accessible to disabled people and provides an interface for specialist community professionals, as advocated in *Supporting people with long-term conditions*.¹⁰ Ways of working with GPs are constantly evolving, as recommended in a joint statement by the Royal College of Physicians (RCP) and the Royal College of General Practitioners.¹¹ General practitioners with a special interest (GPwSIs) in RM participate in many stages of rehabilitation.

5 Delivering a high-quality service

What is a high-quality service?

A high-quality RM service provides equitable access to specialist services for all, including those with the most severe disabilities. The services described here must be available within reasonable distance of a patient's home rather than exclusively in specialist centres. Home-based intervention is therefore essential. Inpatient and outpatient services must be available for those with brain or spinal cord injury, other acute or progressive neurological conditions, limb deficiencies and rarer disabilities. Stroke rehabilitation should be provided either by the RM service or with RM consultant input. A consultant in RM must be involved in providing complex assistive technologies, including environmental controls and special seating.

RM services must be based within a well-managed, adequately resourced MDT. Factors that determine

service quality include committed management, involvement of service users and regular audit.

Inpatient unit

The BSRM recommends 45–65 beds per million population for specialist RM, depending on local service patterns for stroke and rehabilitation of older people.

- The minimum size of a viable inpatient unit should be 20 beds, which should be located together to foster rehabilitation nursing expertise.
- Space must be available for therapy, recreation, social activities, team meetings and case conferences.
- The unit requires immediate access to acute medical and surgical services, dietetics and enteral feeding services, and radiology and pathology services.
- Manual and powered wheelchairs must be available on the unit, and there must be access to specialist orthotics and wheelchair clinics.

Outpatient facilities

Most patients need access to the MDT, as well as medical clinics, so day assessments, case conferences and outreach visits are often required. The RM consultant will need access to services for:

- physiotherapy and hydrotherapy
- occupational therapy, including domestic facilities and workshops
- social services
- information technology (IT) equipment and software for patient use
- orthotics and prosthetics
- specialist wheelchairs and seating
- electronic assistive technology
- driving assessment and training
- counselling and psychology
- sexual and genetic counselling
- education and employment training
- vocational rehabilitation.

Work to maintain and improve the quality of care

The role of the RM consultant in leading service developments

The work of the RM consultant includes more service development than that of most other specialists, as they lead or contribute to the development of care pathways – for example, the current development of major trauma networks in England.

Consultants in RM make major contributions to productivity and quality (as exemplified in England

by the Quality, Innovation, Productivity and Prevention (QIPP) programme).¹² Respiratory medicine reduces hospital usage by using preventive interventions alongside general practice and community services, and by coordinating complex hospital discharges. Consultants in RM could play a larger role given the increased drive to bring cohesion to rehabilitation services.¹³

Consultants in RM focus on maintaining and regaining employment,¹⁴ contributing to the agenda of the interdepartmental strategy *Health*, *work and well-being*.¹⁵

Consultants in RM lead undergraduate and postgraduate teaching on disability and rehabilitation.

Education, training and continuing professional development (CPD)

The training curriculum for RM^{16,17} includes developing skills in the management of neurological and musculoskeletal disorders and comorbidities arising from multiple trauma or chronic immobilisation. Consultants must also have a thorough understanding of how individual and social behaviours influence disability. Such training overlaps with psychiatry, neurology and neuropsychology. Training must deliver high-level skills in communicating with individuals and groups, analysing complex situations and incorporating psychological elements in therapeutic interventions.

The BSRM organises an annual programme of scientific meetings, postgraduate courses and regional educational meetings. The scientific meetings of the Society for Research in Rehabilitation are another important element in CPD.

Clinical governance

Clinical governance raises specific issues for RM,¹⁸ including the vulnerability of people with physical and cognitive impairments and medical accountability in an environment in which consultant roles may be obscured by the multidisciplinary interagency context of RM.

Research

Evaluating complex interventions has been fundamental in rehabilitation research for the past two decades, particularly in the development of outcome measures.

Most evidence for the effectiveness of rehabilitation concerns stroke, but evidence is emerging in acquired brain injury, MS and community-oriented rehabilitation.^{8,9,19,20} Gaps remain, however, and the academic base of RM needs further development. At present there are two professorial chairs in RM in the UK. A third is anticipated. There are a number of non-professorial academic posts as well.

Local management duties

RM consultants have a high and complex management workload: first, through involvement in service development; second, because RM consultants interface with a wide range of services including therapies, neurosciences and community services; and third, because responsibilities must be shared among small consultant teams.

Specialty and national guidelines

The BSRM is the principal focus for nationally based work; it regularly produces reports and guidelines.

The national clinical guidelines for rehabilitation following acquired brain injury,²¹ published jointly by the RCP and the BSRM, provide a comprehensive framework for the management of an important patient group. These evidence-based guidelines will continue to underpin the development of rehabilitation services. The BSRM has published standards for specialist inpatient and community rehabilitation services,²² amputee and prosthetic rehabilitation,²³ spinal cord injury,²⁴ use of botulinum toxin in spasticity²⁵ and vocational rehabilitation.²⁶

Guidelines published by the National Institute for Health and Care Excellence (NICE) on the management of MS in primary and secondary care²⁷ (which provide a framework for specialist services in MS, including aspects most frequently undertaken by RM consultants) and on rehabilitation after critical illness²⁸ are of central significance for the specialty.

The *National service framework for long-term conditions* (2005) specified a 10-year implementation programme.⁵ Rehabilitation medicine has key roles in the delivery of all of the NSF's Quality Requirements.

Specialty and national audit

The BSRM has led development of the standards outlined below. Most audit work is carried out locally, but the BSRM piloted a peer-review scheme. Guidelines published by the BSRM strongly influence local audit activity, and the BSRM is currently developing specialty-appropriate parameters for Payment by Results.²⁹

Quality standards and measures of the quality of specialist services

Much work has established measurable quality standards for RM.¹⁸ Two standards ratified by the RCP are:

- 1 For all patients entering a rehabilitation programme, a set of goals should be established and agreed between the team and the patient/family within a defined time from entry.
- 2 For all patients enrolled in a rehabilitation programme, at least one agreed outcome measure should be assessed on admission and discharge from the programme.

The BSRM has developed a 'basket' of approved outcome measures,³⁰ because no single outcome measure is appropriate for all types of rehabilitation. The Barthel Index and Functional Independence Measure are widely used. Goal attainment scoring is being explored as a patient-centred outcome measure.

6 Clinical work of consultants in rehabilitation medicine

How a consultant works in rehabilitation medicine

Inpatient work

Job plans for consultants in RM vary widely; a consultant working in a post-acute rehabilitation facility will have a different emphasis from one working in a community setting. Draft model job specifications and job plans for different settings are available from the BSRM. A typical consultant's working week includes:

- *Ward rounds*: a conventional weekly medical ward round for 20 beds takes about 3 hours.
- *Inpatient MDT meeting*: a rehabilitation unit holds at least one weekly MDT meeting to discuss patient progress, which takes at least 3 hours.
- *Referral work*: 5–10 referrals may be seen per week, which requires 1–2 programmed activities (PAs) (more if offsite travel is required).
- *Interdisciplinary liaison*: liaising between members of the MDT and between the numerous medical and surgical specialties involved requires about 2 PAs per week.
- *Case conferences*: 2–3 cases conferences may be held per week, which last 1–2 hours (1 PA).

Outpatient work

• *Outpatient clinics*: 2–5 new patients or 4–8 follow-up patients may be seen in a session of 1 PA, based on each new patient requiring 45–60 minutes, and each follow-up 30–35 minutes.

- *Special clinics*: examples of these include:
 - young adults clinic
 - prosthetic amputee rehabilitation clinic
 - specialised wheelchair and/or seating clinic
 - environmental control assessment clinic
 - spasticity clinic
 - incontinence clinic
 - diagnosis-specific clinics, eg MS clinics.
- Specialist investigative and therapeutic procedure *clinics*: these include clinics for botulinum toxin, phenol blockade and gait analysis.

Specialist on call

A consultant may be on call for inpatients one in two or one in three nights, but is unlikely to need to come into the hospital more than once a month.

Other specialist activity including activities beyond the local service

Consultants in RM often link with appropriate specialties, as listed in section 4.

Clinically related administration

In RM, assessments are complex; clinics often involve letters to numerous services and agencies, which requires at least half the duration of the clinic in addition to the clinic itself. At least 1 PA per week should be allocated for administration.

Consultants in RM participate in negotiating funding for complex care packages and liaising with primary care trusts, social services and others. Reports on physical and mental capacities, employment, benefits, insurance, etc, are also frequently required.

Community work

Consultants in RM increasingly undertake outreach or network-based activity to support specialist teams in the community. Activities include:

- MDT meetings (including interagency liaison)
- outreach clinics
- home visits (1 PA for 3 or 4 visits)
- scheduled visits to specialist nursing homes.

7 Opportunities for integrated care

Consultants in RM have exceptionally well-developed links with community health and social services. Because people with complex disabilities have wide-ranging needs, the practice of RM exemplifies interagency communication and cooperation. Vocational rehabilitation entails close relationships with other agencies, including employers.

8 Workforce requirements: clinical and support staff

Current consultant and trainee numbers

There are 177 whole-time equivalent (WTE) RM consultants.¹ More than 90% of RM consultants are employed full time. Development of new consultant posts is proving difficult due to current pressures to meet government spending targets.

There are about 65 specialty trainee (ST) posts in UK. National training numbers (NTNs) have remained static although in common with other medical specialties RM is facing under-recruitment to ST posts. This has implications for future consultant posts.

Estimated requirement for consultants

The BSRM recommends a minimum of 1.5 WTE consultants per 250,000 of the population, including 0.9 WTE consultants for inpatient and outpatient services and 0.6 WTE consultants for community provision. This requires 195 WTE consultants for England (233 for the UK), which is an increase of approximately 32% on current numbers. Additional consultants are required for patients with highly complex needs. Current numbers are thus little over half of what is required. Over a 10-year period, RM has shown the second highest expansion rate at about 150% (Census 1993 to Census 2003),³¹ but the current shortfall remains urgent. Developing new consultant posts is in line with the National service framework for long-term conditions (Quality Requirements 4, 5 and 6).⁵ The NSF also stipulates the need for networks of services that are close to patients' homes for patients with highly complex disabilities. In some parts of the UK (especially metropolitan areas) such networks have developed to reflect a mix of 'complex specialised', district specialist and local general services.

Non-medical workforce

There is a parallel requirement for non-medical staff, as an RM consultant cannot practise effectively without access to appropriate numbers of specialist nurses, therapists and clinical psychologists.
Table 1 Example of a job plan (Engla	nd)	
Activity	Workload	Programmed activities (PAs)
Direct clinical care		
Inpatient ward rounds	20 inpatients	1 per ward round
Referrals	10–12 patients per week	1–2 (more if offsite travel is required)
MDT meeting/case conference, etc	Variable	2–4
Outpatient clinics, including specialised clinics	45–60 mins per new patient and 30–45 mins for follow-up patients	1 per clinic
Outreach work from base hospital	Variable	1–2 (more if this is a key focus of the role)
Work in another specialty	Not often required	-
Work in general medicine/acute take	Not often required	-
Work in academic medicine	Few academic appointments	0–4 (more for formal academic appointments)
Clinical administration	Clinic-related and outreach administration	1–2
Total number of direct clinical care PAs		7.5–8.5 in most contracts
Supporting professional activities (SPAs)		
Work to maintain and improve the quality of healthcare	Education and training, appraisal, departmental management and service development, audit and clinical governance, CPD and revalidation, research	2.5 in most contracts
Other NHS responsibilities*	For example, medical director/clinical director/lead consultant in specialty/clinical tutor	Local agreement with trust
External duties*	For example, work for deaneries/royal colleges/specialist societies/Department of Health or other government bodies, etc	Local agreement with trust
while it follows the set of the set		

*Note: rehabilitation medicine is a small specialty with fewer consultants to service the same number of roles for colleges, deaneries and Department of Health, etc. These will take more time *per consultant* than in larger specialties.

9 Consultant work programme/specimen job plan

Table 1 broadly indicates activities, a specimen job plan and the relevant number of PAs.

10 Key points for commissioners

 Rehabilitation medicine is an underused resource that prevents hospital admissions and reduces unneeded expenditure and length of stay during admissions. It is key in delivering major trauma networks and the NICE guidelines on critical illness.

- 2 Commissioning discussions will be hampered until rehabilitation elements of healthcare are unbundled. Payment for specialist rehabilitation must reflect the complexity of patient needs.
- 3 The BSRM recommends a minimum of six consultants per million population to provide both inpatient and community services, which requires a 50% increase in current consultant numbers.

- 4 Rehabilitation medicine requires MDTs. A centre should include at least two RM consultants (single-handed practice is undesirable).
- 5 Rehabilitation medicine must be recognised as a resource for both hospital and community services. Specialist medical involvement is essential wherever disabilities are complex – for example, amputation rehabilitation. Advice on rehabilitation medicine is often crucial for cost-effective delivery of assistive technologies.
- 6 There should be 45–60 beds per million population, depending on how services such as stroke are provided. The recommended minimum size for an inpatient unit is about 20 beds.
- 7 The special character of RM does not fit well with a standard medical job plan. In RM, more time must be allocated for clinical administration, interagency coordination, home visits and service development.

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Renal medicine

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1 Description of the specialty

Renal medicine, or nephrology, involves the care of patients with all forms of kidney disease. Major components of the service are the management of patients with acute kidney injury (AKI; this term has now replaced the previous terminology of acute renal failure) or advanced chronic kidney disease (CKD); the latter is often used to assess workforce requirements. In addition, renal physicians provide care for patients with kidney diseases without impairment of excretory kidney function, including proteinuria and nephrotic syndrome, kidney involvement in multisystem immune diseases such as systemic lupus erythematosus and vasculitis, and inherited and acquired tubular and other metabolic disorders that affect the kidney. Renal physicians work closely with urologists to provide care for patients with haematuria, recurrent infections of the urinary tract, kidney stone disease, urinary tract obstruction and neurogenic bladder, and with obstetricians to manage kidney disorders in pregnancy, rheumatologists to manage systemic vasculitis and cardiologists to manage 'cardiorenal syndrome'. The care of children with kidney disease is coordinated by paediatric renal physicians, and particular support is required for the transition from paediatric to adult renal services.

A growing aspect of the work of renal physicians, in partnership with primary care and some secondary care specialties, involves the early detection of kidney problems and the prevention and management of progressive kidney disease.

Who are the patients?

It has become apparent in recent years that kidney disease is more common than previously appreciated, although some controversies remain around the definition of CKD and, in particular, the extent to which reduction in glomerular filtration rate is an inevitable and normal part of the ageing process, rather than being caused by avoidable microvascular disease. Kidney disease is a long-term condition for many patients and can impact on all aspects of life. The care, support and treatment of patients with end-stage kidney failure are important aspects of renal service provision for adults. A coordinated approach involving a wide range of healthcare professionals is required to ensure that nutritional, lifestyle, social and psychological needs are met, alongside the management of biochemical and metabolic disorders. The complexity of this care requires integrated multiprofessional working to provide a high-quality service.

A sustained increase has been seen in the number of patients receiving renal replacement therapy (RRT) in the UK. At the end of 2010, 50,965 patients were receiving RRT in the UK, and prevalence per million population increased from 523 to 832 between 2000 and 2010.^{1,2} Acceptance rates for patients into RRT are lower in the UK than in other comparable countries, which may be due partly to better prevention of progressive kidney disease in primary and secondary care, but could also be due to unmet need. The main growth in RRT in recent years has been in hospital-based haemodialysis, with a gradual decline in the number of patients receiving home-based therapies (peritoneal dialysis and home haemodialysis); current initiatives to enhance patient choice and promote home therapies can be expected to make some impact on this. In parallel, significant increases have been seen in the mean age and comorbidities of patients accepted to RRT programmes.

Rates of kidney transplantation have grown by increasing use of transplantation from living kidney donors, including spouses, friends, and altruistic donors, from donation after circulatory death donors, and from 'expanded criteria' donors. Renal transplantation across ABO blood group barriers or across human leukocyte antigen (HLA) incompatibilities, traditionally rather uncommon in the UK, is becoming more widespread now that modern techniques have led to improved results, but requires additional up-front funding. Renal physicians work closely with transplant surgeons in the provision of renal transplant services, and are involved in the assessment of potential recipients, the evaluation of potential living donors, preoperative and postoperative care, and the long-term follow-up of patients after kidney transplantation.

2 Organisation of the service and patterns of referral

A typical service

Access to renal services is required at primary, secondary and tertiary levels at different stages in the journey of a patient with kidney disease.

Sources of referral from primary care

The early detection and prevention of CKD require close collaboration of primary care practitioners, renal physicians and other specialists in secondary care. Awareness that CKD and/or proteinuria is a major risk factor for vascular disease is increasing. Ascertainment of kidney disease will undoubtedly be increased by standardisation of assessment of excretory kidney function using estimated glomerular filtration rate (eGFR) and by more widespread testing for albuminuria. The eGFR is calculated from serum creatinine, age, gender and ethnic origin, and is now routinely reported (after adjustment for interassay differences) by all NHS clinical biochemistry laboratories whenever a serum creatinine concentration is reported.

Many people with CKD will not develop progressive kidney failure, and the emphasis should be on the management of their vascular risk factors in primary care. An important minority of patients with CKD will progress towards end-stage kidney failure, however, and late referral of such patients remains a problem. Those with progressive CKD will benefit from specialist referral for management to delay progression and to manage the complications of progressive CKD, including anaemia, acidosis and bone disease. Guidelines on the detection, management and referral of patients with CKD in the UK provide clear guidance on the management of CKD, including indications for referral to a renal physician.³ The National Institute for Health and Care Excellence (NICE) has recently published guidance on this topic

(www.nice.org.uk/CG73).⁴ Although detection of CKD in primary care is increasing, correct application of these guidelines has not resulted in a major sustained increase in the rates of outpatient referral to renal medicine: many patients with stable, uncomplicated CKD can safely be managed in primary care.

Sources of referral from secondary and tertiary care

The provision of care for patients with advanced CKD and end-stage kidney failure is largely based in hospital. Referrals to secondary care arise from GPs and other specialists in secondary care, particularly diabetologists, cardiovascular physicians, rheumatologists and urologists.

'Acute kidney injury (AKI)' is now the preferred term for an acute change in kidney function, The change in terminology is driven by the recognition that the early stages of AKI are avoidable, primarily by the prompt recognition and treatment of sepsis, hypotension and hypovolaemia, together with the prompt discontinuation (using 'sick day rules') of drugs that may impair renal autoregulation in the face of such insults - including drugs widely used in the management of chronic heart failure, hypertension and CKD (eg angiotensin-converting enzyme (ACE) inhibitors, angiotensin receptor blockers). Most episodes of AKI occur in other specialties (eg acute general medicine, cardiology, general surgery), but renal physicians have an important role to play in ensuring that appropriate education and clinical systems (eg automated laboratory-based recognition of AKI) are in place. Patients with later stages of AKI are either managed by nephrologists (providing dialysis) or on an intensive care unit (usually with continuous haemofiltration). Patients who have had an episode of AKI are at greater risk of further episodes and of developing CKD, even if they appear initially to fully recover renal function.

During the 1960s and 1970s, programmes for RRT in the UK were provided by a small number of renal units based in tertiary referral centres that covered large catchment populations. In the 1980s and 1990s, a significant increase in provision of dialysis was seen, provided to some extent by an increase in satellite units but also by growth in the number of renal units. Currently there are 52 main adult renal units (not including satellite units) in England, 9 in Scotland, 5 in Wales and 5 in Northern Ireland. There are 207 satellite dialysis units in the UK; 76 of these are operated by private companies under contract to the NHS, but, even though the nurses in these units are employed privately, medical supervision of the care of patients receiving dialysis in these units is provided by NHS nephrologists. A smaller number of these hospitals have renal transplant units (RTUs), which also provide surgical transplant services: 19 in England, 23 in the UK.

Local and regional services

Clinical networks

The level of renal service provision in different hospitals varies considerably. Some district general hospitals (DGHs) do not have a consultant renal physician. Others have a renal physician on a sessional basis, perhaps providing support for a satellite haemodialysis unit and outpatient clinic work, with 24-hour cover for renal problems provided by the nearest renal unit. A growing number of DGHs have renal units that have sufficient consultant renal physicians to provide both 24-hour specialist cover for renal medicine and on-call cover for general internal medicine (GIM), but require access to a tertiary centre for renal transplantation. Continuous RRT (by haemofiltration or haemodiafiltration) for the urgent management of AKI can be performed in many intensive care units (ICUs); patients who require continuous RRT may need to be transferred to a renal unit if RRT is still needed when intensive care is no longer required. Delay in transfer is associated with poorer outcomes and there is increasing demand for formal agreements between hospitals in a clinical network to ensure timely and safe transfer of patients with AKI.

3 Working with patients: patient-centred care

What you do with patients

Involving patients in decisions about their treatment

The diagnosis of progressive CKD will be a major life-changing event. The needs of patients and their families and carers should be assessed on a regular basis to ensure that appropriate support is provided so that they can be involved in decisions about treatment. The consultant renal physician is central to ensuring that optimum support is provided by the multiprofessional team and that patients have access to the knowledge and expertise that they require. Many decisions facing patients with kidney disease are 'preference sensitive' the choice depends not just on clinical outcomes but also on the patient's values and preferences. Eliciting these, and ensuring that the patient 'shares' the decision, rather than passively accepting a decision made by the healthcare team, requires specific consultation skills. This is particularly important when considering RRT for patients with end-stage kidney failure. Older patients with significant comorbidity other than CKD derive minimal or no survival benefit

Renal units provide information to patients and their carers through direct discussions with members of the multiprofessional team – individually or in group sessions – and through written and audiovisual materials. Patient decision aids are used as part of the 'shared decision-making approach' and can be paper or web based. Patients who feel 'in control' of their illness do better than those who feel that their illness controls them, so investment of effort to 'empower' patients pays large dividends. Most UK renal units offer patients access to their own test results and clinic letters using Renal Patient View⁵ – an award-winning, web-based access system that so far is unique to renal medicine.

Patients should be offered opportunities for self-care whenever possible. Peritoneal dialysis and home haemodialysis offer greater opportunities for independence and self-determination, but decisions about treatment must take into account the impact on carers and the patient's home and family life.

Patient choice: cultural considerations

Patients need time and expert advice to help them deal with diverse choices, which may include opting for home-based dialysis treatment, hospital-based dialysis or pre-emptive living donor transplant or, for some, choosing not to receive dialysis or a transplant when kidney failure supervenes and instead opting for conservative care. Such discussions can be complex and time-consuming. The need to provide information in a range of languages appropriate to the local population and to take account of religious needs – eg when considering dietary advice – is widely recognised.

Patient support groups

Many renal units have active kidney disease associations that provide local information and support. The controlling council of the National Kidney Federation (NKF, **www.kidney.org.uk**) brings together 63 kidney patients' associations. The NKF campaigns for improvements to renal provision and treatment, and provides support and information for patients through its website, information leaflets on kidney disease and the National Kidney Patients' Helpline. The British Kidney Patient Association (**www.britishkidney-pa. co.uk**) provides support, information and grant aid both to individuals and to renal centres, as well as supporting research that is likely to be of direct benefit to patients. There is an active discussion forum on www.kidneypatientguide.org.uk. Kidney Research UK also provides valuable patient information (www.kidneyresearch.uk.org).

4 Interspecialty and interdisciplinary liaison

Multidisciplinary team working

During the course of their illness, patients with kidney disease encounter numerous healthcare professionals, who each contribute to their management and care. Patients' varied needs may form the focus, at different times, for a wide range of healthcare professionals with expertise in kidney disease:

- renal physicians
- nurses and healthcare support assistants
- dietitians
- social workers
- clinical psychologists
- counsellors
- clinical technologists
- pharmacists
- occupational therapists and physiotherapists
- renal transplant and vascular surgeons
- transplant coordinators
- staff of the histocompatibility and immunogenetics service.

Extended roles for clinicians other than doctors have long been established practice in renal units – eg in the day-to-day care in haemodialysis units. Other competence-based extended roles – eg prescribing, nurse-led clinics and placement of vascular access catheters – are increasingly being developed.

Renal unit managers and clerical and administrative staff also have a key role in supporting patient care.

The renal multiprofessional team that delivers healthcare to kidney patients is represented by a number of professional bodies, which are coordinated through the British Renal Society (BRS, www.britishrenal.org).

Access to the circulation or peritoneum for haemodialysis and peritoneal dialysis, respectively, is essential for provision of dialysis. Access for dialysis is best provided by a multiprofessional team which includes vascular and transplant surgeons, who are responsible for the creation of access, renal physicians, renal nurses, and radiologists with vascular imaging and interventional skills for the provision and maintenance of vascular access. Recommendations for the organisation of services for vascular and peritoneal access have recently been published.^{6,7}

Working with other specialists

Renal physicians often provide support for patients who develop kidney problems in other units and hospitals, particularly in ICUs, cardiothoracic units, liver units and vascular units, where AKI is common. Renal physicians play a key educational role in settings in which improved clinical practice can reduce the risk of AKI, and a recent National Confidential Enquiry into Patient Outcome and Death (NCEPOD) report emphasised the need for improvements.⁸ Diabetes, microvascular and macrovascular disease, and immune-mediated kidney diseases are the most common causes of CKD, and renal physicians need to work closely with diabetologists and immunologists. Renal physicians also work closely with urologists, especially in the management of obstructive renal disease. The multisystem consequences of kidney disease - eg the increased risk of cardiovascular disease and metabolic bone disease – mean that patients with kidney failure require the support of many other specialists. The increasing number of elderly patients on dialysis programmes often requires the skills of rehabilitation teams, and end-of-life issues require partnership with local palliative care services. Close working with renal transplant surgeons is essential for delivery of a renal transplant service. Renal pathologists provide essential diagnostic input into renal and transplant services.

Working with non-consultant medical practitioners

Non-consultant career grade (NCCG) practitioners play a key role in the provision of care in many renal units, especially for patients on maintenance haemodialysis. There are probably around 50 NCCGs working in UK renal units, of whom two thirds are associate specialists. Many of these individuals are highly experienced. Provision of adequate training and study leave opportunities for these doctors is currently unsatisfactory. New opportunities are offered through Article 14 of the order governing the Postgraduate Medical Education and Training Board (PMETB), which describes how to secure a certificate of eligibility for specialist registration (CESR). By this means, a number of NCCG doctors are being placed on the specialist register.

Involvement of renal physicians in other specialty work

Consultants whose primary specialty is renal medicine may work in additional specialties. The most common additional specialties declared by renal physicians in the RCP's census of consultant physicians in 2011 included general (internal) medicine, acute medicine and transplantation medicine. Other specialties mentioned were cardiology, clinical genetics, clinical neurophysiology, endocrinology, genitourinary medicine, immunology, intensive care medicine, metabolic medicine, obstetric medicine, paediatric cardiology and rheumatology.⁹

Working with GPs, GPs with a special interest (GPwSIs) and the primary care team

Renal physicians work closely with primary care colleagues to ensure that pathways for the management of CKD are agreed in accordance with guidelines in the UK.^{3,4} Appropriate locality-based electronic information and decision support have been developed.

The role of GPwSIs in renal medicine has not been developed. The primary care of CKD is dominated by management of vascular risk, which is mainstream work for all GPs. Complex cases will still need referral to a renal physician, although shared-care protocols for ongoing management are often appropriate. Renal physicians play a major role in providing education about CKD for non-specialists, especially those in primary care, and in providing leadership as care pathways for CKD emerge within health communities.

5 Delivering a high-quality service

What is a high-quality service?

A high-quality service is one in which patients and their families and carers have timely access to the expertise, advice and support of the full range of renal healthcare professionals within the multiprofessional team. The characteristics of such a service are described in the *National service framework for renal services for England*.^{10,11} The service should meet the goals recommended by the Renal Association's clinical practice guidelines.¹²

Specialised facilities required for a high-quality service

Renal units require specialised facilities for outpatient haemodialysis – at the hospital base of the renal unit, in

satellite units in other hospitals or freestanding in the community. Specialised wards are also required for the care of inpatients with renal disease, including a high-dependency facility and facilities for renal transplantation. Isolation facilities are required for the care of patients with highly transmissible diseases receiving haemodialysis. The standards for such facilities have been laid out.¹³

Information technology

In addition, renal units should have the information technology (IT) necessary to perform internal audit and to submit required data to the UK Renal Registry. Most renal units are highly computerised, using a range of IT systems. Although these systems are very heterogeneous, it is possible to use 'mapping' software to extract data items to external databases, including the Renal Patient View website mentioned above. In the near future, this mapping and extraction software could be used to ensure that information could be transferred from one renal unit to another if a patient moves around the country.

Maintaining and improving the quality of care

This work encompasses duties in clinical governance, professional self-regulation, continuing professional development (CPD), and education and training of others. For many consultants at various times in their careers, it may include research, management, and the provision of specialist advice at local, regional and/or national levels.

Service developments to deliver improved care

The increasing numbers of patients who need treatment for kidney disease underline the importance of the renal physicians' role in planning with commissioners for expansion and development of services and in evaluating innovative approaches to service delivery. Leadership is usually provided by the clinical director or network lead. Other consultants may need to share substantial local management duties depending on the size of the unit.

Education and training

Training renal physicians to meet the requirements for consultant expansion is essential, and consultants need sufficient time to supervise and appraise trainees. All renal physicians are involved in education and training, and many will act as educational supervisors within their hospital and/or will take on specific roles within their deanery or for the royal colleges. Renal physicians must also participate in appraisal and CPD, and systems for mentoring new consultants are encouraged. Renal physicians also play an important part in undergraduate education.

Research – clinical studies, teaching and basic science

Renal medicine has a strong track record in teaching and research. Many specialty registrars (StRs) undertake a period of formal research training, and many NHS consultants supervise research alongside academic colleagues. Academic renal physicians often train in laboratory science and work closely with basic scientists, but renal physicians are increasingly involved in a wide range of research, including epidemiology, clinical research and healthcare service research, as well as laboratory studies.

Regional and national work

Participation of renal physicians in regional and national work is important to ensure that patients have equitable access to a high-quality service across the UK and that opportunities for teaching and research are widely available. These roles, which are usually for a fixed term, can be onerous, and it is essential that arrangements for cover of local duties are agreed with colleagues and managers.

Collectively, these roles in service development and provision, audit, education and training, mentoring, appraisal and professional development ensure that requirements for clinical governance are met. Overall responsibility for clinical governance usually rests with the clinical director.

Specialty and national guidelines

Specialist society guidelines

- Renal Association clinical practice guidelines¹²
- Good practice guidelines for renal dialysis/transplantation units: prevention and control of blood-borne virus infection¹⁴
- Standards for solid organ transplantation in the United Kingdom.¹⁵

National Institute for Health and Care Excellence guidelines

- Renal failure home versus hospital haemodialysis. Technology appraisal (TA) 48¹⁶
- Central venous catheters ultrasound locating devices. TA49¹⁷

- *Renal transplantation immuno-suppressive regimens (adults).* TA85¹⁸
- *Type 2 diabetes: the management of type 2 diabetes* (update). Clinical guideline (CG) 66¹⁹
- *Renal transplantation immunosuppressive regimens for children and adolescents.* TA099²⁰
- *Laparoscopic insertion of peritoneal dialysis catheters.* Interventional procedures guidance (IPG) 208²¹
- Cinacalcet for the treatment of secondary hyperparathyroidism in patients with end-stage renal disease on maintenance dialysis therapy. TA117²²
- Chronic kidney disease: early identification and management of chronic kidney disease in adults in primary and secondary care. CG73⁴
- *Type 2 diabetes: the management of type 2 diabetes.* CG87 (partial update of CG66)²³
- Peritoneal dialysis: peritoneal dialysis in the treatment of stage 5 chronic kidney disease. CG125²⁴
- *Chronic kidney disease*. Quality Standard (QS) 5²⁵
- Anaemia management in people with chronic kidney disease. CG114²⁶
- Percutaneous transluminal radiofrequency sympathetic denervation of the renal artery for resistant hypertension. IPG418²⁷
- Hyperphosphataemia in chronic kidney disease: management of hyperphosphataemia in patients with stage 4 or 5 chronic kidney disease. CG157²⁸
- Acute kidney injury: prevention, detection and management of acute kidney injury up to the point of renal replacement therapy. CG [In press]²⁹

Department of Health guidance

- Renal specific management of medicines³⁰
- *Reducing MRSA and other healthcare-associated infections in renal medicine.*³¹

Quality tools and frameworks

The performance of renal units against these guidelines is audited for patients on RRT through the annual reports of the Renal Association's UK Renal Registry (**www.renalreg.org**), for which data are returned from all renal units in the UK. There is some evidence of sustained improvements in the quality of service in a number of areas for which the registry publishes comparative data – eg the management of renal anaemia and the control of hyperphosphataemia. However, substantial unexplained variation remains, and the role of the registry is anticipated to expand into continuous quality improvement.

Academic medicine

The RCP's census of 2011 identified 540 consultants in renal medicine in the UK.⁹ Of these, 11% who responded held at least some academic sessions.

6 Clinical work of consultants

Inpatient work

Emergency work Emergency work involves:

- treatment of AKI
- investigation and management of fluid and electrolyte disorders
- medical emergencies arising among patients on RRT.

As well as care of patients on renal wards, this work typically involves consulting on patients in other wards and other hospitals, both in person and by provision of telephone advice.

Investigative inpatient nephrology

This relates to work associated with the immunological and metabolic nature of kidney disease, which involves investigative procedures in an inpatient setting. Specialist procedures include renal biopsy; a renal unit can expect to perform 150–200 renal biopsies per million population per year.

The setting for these beds should always be an acute hospital that offers the full range of supporting services, including imaging, pathology, immunology, haematology, biochemistry and microbiology.

Different models for providing inpatient care have developed according to local needs and the numbers of consultant renal physicians. In small units with two or fewer consultant renal physicians, consultants may provide continuing cover for all inpatient aspects of renal medicine. In larger units, individual consultants may provide continuing cover for subspecialty interests (eg transplantation and vasculitis) or may rotate cover for all inpatients, devoting time to other activities (eg research, management, teaching and audit) when not directly involved in inpatient care. The RCP's working party report The changing face of renal medicine in the UK: the future of the specialty³² recommended a minimum of four consultant renal physicians to make a renal unit autonomous for clinical care, including on-call commitments.

The RCP's Joint Specialty Committee (JSC) for Renal Medicine has recommended that all patients admitted to a renal unit should be seen by a consultant within 24 hours and that all inpatients should be reviewed by a consultant at least twice a week. Consultant renal physicians should therefore visit the wards daily to see new admissions and new referrals from other specialties and should perform at least two full ward rounds each week.

Outpatient work

Renal replacement therapy

A major element of the work of a renal physician involves preparing patients with advanced CKD for RRT and providing medical supervision of these patients for the remainder of their lives. Increasingly, they are also involved with conservative care of patients opting not to receive RRT. Resources should be sufficient to support an annual acceptance rate onto RRT of 120-130 new patients per million population, with free choice between modality according to the patient's needs. Available modalities should include hospital-based haemodialysis, home haemodialysis, peritoneal dialysis (including chronic ambulatory peritoneal dialysis (CAPD) and automated peritoneal dialysis (APD)) and kidney and/or pancreas transplantation for a suitable minority. Non-dialysis management requires leadership by the renal physician of a full multiprofessional team in liaison with palliative care services. The role of, and funding arrangements to support, 'assisted APD', in which healthcare workers are employed to help dependent patients to perform APD, is being defined.

Predialysis

Patients with progressive renal failure should be managed in a clinic with multidisciplinary support from dietitians and specialist nurses. Education and preparation for dialysis, including referral for timely formation of vascular access, should be available.

Transplantation

In addition to monitoring and optimising kidney function, renal transplant clinics should provide management of cardiovascular risk, osteoporosis and post-transplantation pregnancy, and prevention and detection of malignancy, especially skin cancer.

General nephrology

Other outpatient activity is concerned with investigation and management of the wide range of kidney problems that do not necessarily lead to progressive CKD. In large renal units, further specialist clinics (often shared with other disciplines) may focus on specific clinical issues for people with kidney disease – eg clinics for people with diabetes, pregnancy, lupus and vasculitis.

A whole-time equivalent (WTE) consultant renal physician should expect to work in three clinics per week, which is likely to reflect a mixture of general nephrology, predialysis, haemodialysis, CAPD, renal transplant and specialty clinics. The number of patients seen will vary considerably according to the clinic and the support staff available. For example, a new patient with established kidney failure may require 1 hour of a consultant's time if seen in a clinic without support staff but might spend half an hour with the consultant and half an hour with other staff, including a specialist nurse and a dietitian, in a dedicated low clearance clinic. Similarly, a follow-up patient with established renal failure may need to spend 10-30 minutes with a consultant, depending on the availability of specialist support staff, who might advise on management of anaemia, access for dialysis and diet. The need for ongoing multidisciplinary specialist input into many long-term renal conditions means that the ratio of follow-up appointments to new patient appointments is unusually high.

Specialist investigative procedures

Specialist procedures undertaken by renal physicians include renal biopsy, placement of temporary and permanent central venous catheters, and insertion of catheters for peritoneal dialysis. The procedures are often shared with specialist nurses, radiologists and surgeons.

Specialist on call

A census of all consultant renal physicians in 2010 reported that 33% have a regular on-call commitment for unselected emergency medical admissions (Dr Phil Mason, personal communication) – a decrease from 52% in the census in 2002 and 40% in 2006.^{33,34} On-call work for renal medicine is often highly intensive, particularly because of the need to support patients with AKI and the complexity of intercurrent illness in people on RRT. A frequency of no more than one in four is recommended.

Other specialist activity, including activities beyond the local services

Many consultant renal physicians provide cover for satellite dialysis units and give telephone advice or

accept referrals from neighbouring hospitals that are unable to provide 24-hour nephrology cover.

Advice is increasingly given to patients, GPs and other healthcare professionals by phone or email, which may obviate or replace outpatient clinic visits. Such 'virtual' clinical practice, which is in keeping with NHS commitments to environmental sustainability, saves the patient time and money and encourages patient 'empowerment', must be recognised in consultant job plans and in contractual arrangements.

Clinically related administration

Clinical activity in renal medicine often generates clinically related administrative duties that can require a further 50–100% of the time spent in direct contact with patients, eg after a renal transplant clinic, the consultant renal physician will need to check laboratory results for all patients, arrange admission or rearrange follow-up if unexpected results are identified, contact patients or GPs concerning any alterations to treatment, and dictate and sign relevant correspondence. This clinically related administration should be taken into account when time for direct clinical care is allotted in consultant job plans.

7 Opportunities for integrated care

As well as the obvious links with transplant surgeons and vascular access surgeons, renal physicians now often provide integrated care with other specialists: eg obstetricians, diabetologists, geriatricians and palliative care physicians. They also typically work in multidisciplinary teams with (for example) dietitians, pharmacists, psychologists, podiatrists, vascular technicians, etc.

8 Workforce requirements for the specialty

A census of all renal units by the RCP's JSC established that there were 525 consultants in renal medicine (106 women; 404 WTEs dedicated to renal medicine; as many renal physicians also have other commitments, especially GIM or academia) as of February 2010 (Dr Phil Mason, personal communication).

More renal physicians are required. The justification for this statement comes from the recommendations of the BRS's National Renal Workforce Planning Group (2002),³⁵ which are endorsed by the RCP's working

Table 1 Variation in RRT : renal WTE ratio in 2010				
Area	Mean RRT : renal WTE ratio	Individual unit RRT : renal WTE ratio range		
UK	110	25–211		
England	117	25–211		
Wales	116	62–196		
Northern Ireland	63	32–112		
Scotland	89	62–127		
RRT = renal replacement therapy; WTE = whole-time equivalent.				

party report The changing face of renal medicine in the *UK: the future of the specialty.*³² On the basis of current patterns of work, with support from NCCG doctors, junior doctors, nurses and staff from other professions allied to medicine, it is recommended that one WTE renal physician is required for every 100 RRT patients or for every 75 RRT patients for an 'average' physician with GIM responsibilities. This resulted in a projected workforce requirement of 570 WTEs by 2010. In fact, the 2002 projection is similar to a more up-to-date projection (taken from actual numbers of patients on RRT on the Renal Registry in 2008) of 53,000 patients in 2010 (which would require 530 WTEs) and the actual end-2010 figure of 50,965 RRT patients requiring 510 WTEs. This number is slightly lower because the rate of increase has slowed down from the average annual increase of 5% between 2000 and 2006. The actual current averages fall short of this but there is considerable regional and unit variation (Table 1).

These projections assume that the balance between commitment to renal medicine and GIM and the extent of part-time working will remain the same. This is possibly not a valid assumption, as increasing numbers of renal physicians are dropping GIM and the number of doctors planning to work less than full time is increasing. In addition, the median contracted time worked by consultant renal physicians currently is equivalent to 11.5 programmed activities (PAs) per week. To achieve 10 PAs per consultant would need 109 more posts.

The currency for estimating workforce requirements as described (one WTE renal physician renal physician for every 100 RRT patients) broadly assumes that these numbers will effectively cover the range of outpatient and inpatient work of a 'typical' renal physician. It also takes into account the service contribution of trainees and NCCGs and the demands of general medicine, academic commitments and less-than-full-time working for personal reasons. Furthermore, there is a vision for many more independent renal units, especially in England and Wales, and provision of advice and care of patients with AKI in our hospitals, as emphasised in the NCEPOD report from 2009.⁸

Predicting workforce requirements is challenging at the time of writing because of uncertainty about the impact of changing practice (eg increasing use of specialist nurses) and changes in the detection and referral of patients with CKD to renal units and the increasing involvement of the specialty in improving the provision and quality of care of patients with AKI. A repeat census of all UK renal units and review of the estimate of the required ratio of renal physicians to numbers of patients on RRT are in progress.

9 Key points for commissioners

- 1 Chronic kidney disease often coexists with other chronic diseases, especially diabetes mellitus and cardiovascular diseases.
- 2 Although patients with established renal failure can be kept alive by dialysis or kidney transplantation, mortality rates are as high as for some malignant diseases: well-defined care pathways for end-of-life care are an important part of kidney services.
- 3 There is a need for seamless commissioning of the whole patient pathway, from early chronic kidney disease right through to treatment by renal replacement therapy and end-of-life care.
- 4 For patients without major comorbidity, kidney transplantation offers the best survival and quality of life: pre-emptive kidney transplantation from a living kidney donor is optimal.

- 5 Funding for additional treatment to allow patients to undergo ABO- and HLA-incompatible transplantation will generate cost savings within two to three years but not within the same financial year.
- 6 Variations in the use of home haemodialysis and peritoneal dialysis, and of maximal conservative care for patients with significant comorbidity, appear to be driven more by clinicians' preferences and biases than by those of patients; promotion of shared decision-making will likely reduce this variation, as will the provision of formal multidisciplinary clinics for patients approaching established renal failure.
- 7 The UK Renal Registry provides high-quality professionally led audits of the quality of care of patients with established renal failure, and is developing plans to extend its work to patients with acute kidney injury, advanced kidney disease, and conservative care: it is also piloting measurement of the quality of shared decision-making, quality of life, and patient experience. Dissatisfaction with transport for dialysis is one of the most frequent causes of poor experience.
- 8 Managed renal networks have played an important role in promoting high-quality care. There is a particular need to define clear clinical pathways for the management of patients developing acute kidney injury in hospitals without an on-site renal service.
- 9 There are major opportunities for reducing both fiscal cost and the carbon footprint of kidney care, for instance by development of phone clinics and virtual consultations between GPs and nephrologists. The current 'payment by activity' funding arrangements provide a disincentive to such new pathways.
- 10 The ratio of new to follow-up outpatient visits will necessarily be lower than for many specialties due to the large number of patients with chronic disease (including those on dialysis and those with functioning kidney transplants) who require regular specialist follow-up.

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Respiratory medicine

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1 Description of the specialty

Who are the patients?

Respiratory medicine is a varied, exciting and challenging specialty. It is concerned with the diagnosis, treatment and continuing care of children and adults of all ages with a wide range of more than 30 respiratory and related conditions.

Main disease patterns

The second edition of Burden of lung disease¹ emphasised the immense and growing health and economic burden of respiratory illness in the UK. A Department of Health (DH) review showed that the total spend on respiratory care in 2008-9 was £4,247,325,000.² Respiratory diseases kill one in five people – more than ischaemic heart disease. Nearly 30,000 people die of chronic obstructive pulmonary disease (COPD) every year, and lung cancer kills more women than breast cancer. Respiratory conditions are the most commonly reported long-term illness in babies and children, up to one in five adults consult a GP for a respiratory complaint annually, and respiratory disease is the second most common illness responsible for emergency hospital admission, with cases of COPD taking up more than one million bed days in England alone.

Disease areas include:

- airway diseases:
 - nasal, upper and middle airway problems
 - asthma and other small airway conditions
 - COPD
- sleep-disordered breathing
- diffuse parenchymal lung disease (DPLD) and systemic diseases that affect the lung:
 - inflammatory and scarring lung conditions
 - sarcoidosis

- pulmonary manifestations of systemic diseases and drugs
- pleural conditions:
 - malignancy
 - pleural effusion
 - pneumothorax
 - conditions of the chest wall, thoracic spine and diaphragm
- occupational lung disease
- allergic lung and bronchial disorders
- infection:
 - cystic fibrosis
 - bronchiectasis
 - tuberculosis (TB)
 - pneumonia and empyema
 - infective and non-infective pulmonary disorders in immunocompromised hosts
- critical care and lung failure (acute and chronic)
- pulmonary vascular diseases:
 - pulmonary hypertension
 - pulmonary haemorrhage
 - pulmonary embolism
- lung cancer and mesothelioma
- genetic and developmental lung disorders
- paediatric lung diseases
- end-of-life care for malignant and non-malignant lung conditions
- public health:
 - smoking cessation and tobacco and nicotine addiction policy
 - epidemiology and prevention.

2 Organisation of the service and patterns of referral

A typical service

The typical service provides many components that contribute to respiratory care delivered over whole-care pathways, including care at home, in the community and in hospital.

Primary care and community models of care

The British Thoracic Society (BTS) works closely with the main primary care professional respiratory group, the Primary Care Respiratory Society (PCRS-UK), to campaign for and plan delivery of expert integrated respiratory care in the community through Improving and Integrating Respiratory Services in the NHS (IMPRESS; www.impressresp.com), a joint initiative of the BTS and PCRS-UK. Many GPs provide chronic care for patients with asthma and COPD, which is often delivered by practice nurses. A few GPs with a special interest (GPwSIs) in respiratory medicine have been appointed. Respiratory medicine has been and remains at the forefront of developing integrated services (see section 7).

Hospital-based care

Most respiratory physicians continue to have a major commitment to the care of acutely ill medical patients in the emergency admission department. Respiratory disease remains the second most common cause of emergency hospital admissions and, although the role of the acute physician is expanding in some acute medical trusts with more of these specialists now running medical admission units (MAUs), specialty input at the 'front door' and beyond must not be compromised. The national COPD audit of 2008³ found that only 53% of patients admitted with COPD exacerbations were under the care of a specialist respiratory team. The care of these patients and other respiratory inpatients with life-threatening conditions, such as acute asthma, severe pneumonia and pneumothorax, and the need to provide advice for inpatients under the care of other medical and surgical disciplines have a significant impact on workload.

Most outpatient referrals are from GPs, specialist colleagues in the hospital and the emergency department. Suspected cases of lung cancer and TB should be seen within 2 weeks, but facilities are also needed to allow all other urgent referrals to be seen promptly.

Regional hospital care

Patients with certain conditions, such as cystic fibrosis, are usually managed in regional centres and networks. Surgical and radiotherapy services and more complex bronchopleural medical interventions are usually based in regional or subregional centres. Supra-regional centres exist for the assessment and management of occupational lung disease, pulmonary hypertension, complex assisted-ventilation needs and lung transplantation.

3 Working with patients: patient-centred care

What you do with patients

Involving patients in decisions about their treatment

In 2009, the BTS established the Public Liaison Committee (PLC) to ensure that the society benefits from access to informed and involved public involvement in the planning and execution of all of its work. Respiratory physicians are totally committed to these concepts and are aware of the crucial importance of cultural and ethnic issues; discussions and educational sessions on ethical matters take place regularly at educational meetings of the BTS.

The care of patients with asthma and COPD provides examples in which self-management plans have long been developed by respiratory physicians working jointly with Asthma UK and the British Lung Foundation. A number of respiratory physicians are also involved in the Health Foundation's Co-creating Health initiative.

Every respiratory clinic will have locally and nationally produced information leaflets available in different languages. These are often provided by the British Lung Foundation, Asthma UK and TB Alert, among others.

Patients are offered copies of letters to GPs and access to their medical records if requested. Respiratory physicians have developed training programmes and materials for breaking bad news to those with cancer and other life-limiting lung conditions, which include the IMPRESS DVD *Living and dying with COPD*.

Patients with long-term conditions, patient support groups and the role of the expert patient

The specialty recognises the vital importance of a patient-centred service. Asthma, COPD, cystic fibrosis

and bronchiectasis are examples of chronic conditions for which care is shared with primary care. The BTS has long supported the British Lung Foundation in developing Breathe Easy patient support groups and the Cystic Fibrosis Trust in helping patients and families with cystic fibrosis.

The concept of the expert patient is welcomed, especially to improve care for patients with chronic respiratory conditions. The BTS greatly values the input of lay representatives on all of its committees and is working closely with the Royal College of Physicians' (RCP's) patient and carer group.

4 Interspecialty and interdisciplinary liaison

Multidisciplinary team working

Respiratory specialists have long worked as a team with career-grade doctors, doctors in training, ward-based and outpatient nurses, and other allied healthcare professionals committed to providing high-quality patient care, including:

- respiratory nurse specialists (RNSs)
- clinical respiratory physiologists
- clinical scientists
- physiotherapists
- psychologists
- secretaries
- managers.

Examples in which these colleagues contribute substantially include:

- specialist clinics
- smoking cessation advice and support
- early assisted discharge and pulmonary rehabilitation services
- ambulatory and long-term domiciliary oxygen and nebuliser assessments
- acute and domiciliary non-invasive ventilation (NIV) service for patients with ventilatory failure
- sleep-related breathing disorders service, including continuous positive airway pressure (CPAP) therapy
- providing education for patients, their carers, other healthcare professionals and the wider community
- providing an invaluable counselling service
- for clinical respiratory physiologists, running diagnostic and therapeutic lung-function services.

Working with other specialists

Members of the respiratory team liaise with many other specialties, particularly with histopathology, microbiology, radiology, thoracic surgery, oncology, palliative medicine, public health and social services. Regular meetings with radiological and surgical colleagues to review scans and radiographs and to discuss patient management are common. Close clinical liaisons have been developed between respiratory physicians and colleagues from disciplines in which multisystem diseases affect the lungs. These include rheumatology, haematology, transplant services, genitourinary medicine, renal medicine and oncology. Respiratory teams increasingly are developing collaborations with other specialists, particularly cardiologists, to provide high-quality care for the large number of respiratory patients who have multiple comorbidities.

Lung cancer is a good example of a disease in which respiratory physicians play a key role in multidisciplinary teams (MDTs). Most respiratory physicians are heavily involved in the diagnosis and management of patients with lung cancer. In 2007, there were 177 lung cancer MDTs in the 30 cancer networks in England; about 85% of these were chaired by respiratory physicians, as were most lung cancer-specific network working groups. Other MDTs and networks are emerging for TB, DPLD, COPD and end-of-life care.

5 Delivering a high-quality service

What is a high-quality service?

A high-quality service implies that all patients receive prompt, expert, effective and compassionate care, and, with few exceptions, this should be available locally. This requires a well-motivated, well-staffed MDT that has access to suitable facilities. Patients and other professionals should expect continual access to a local expert respiratory advice service, so respiratory physicians should never be single-handed and working in isolation.

Maintaining and improving the quality of care

Service developments to deliver improved patient care

The resources required for a district general hospital (DGH) to provide a high-quality service are summarised in Table 1.

Table 1 Resource requireme	ents
Setting	Requirements
Inpatient unit	 Fully staffed and efficient, with specialist respiratory wards HDU or acute lung unit with continuous access to acute NIV Endoscopy unit for bronchoscopic and pleural investigations Easy access to ultrasound for pleural procedures Facilities for day-case investigation and care
Outpatient services	 Dedicated outpatient unit with natural lighting and of sufficient size for all members of the MDT Quiet room for the bereaved and to give bad news/counselling Seminar room for unit meetings and MDTs Lung-function service in each clinic, with support from a fully equipped lung-function laboratory High-definition screens in each clinic room for access to PACS, and an efficient imaging department in close proximity Relevant pharmacy service Immediately bookable slots for endoscopy and all imaging Adequate secretarial and clerical staff, who are familiar with running respiratory services Flexible appointment system
Diagnostic and therapeutic facilities	 Bronchoscopy suite with facilities for advanced diagnostic and therapeutic procedures (endobronchial ultrasound, stenting, laser therapy, etc) Fully equipped and staffed lung-function laboratory with facilities to perform routine and highly specialised investigations Investigation, treatment and ongoing support of patients with sleep-related breathing disorders, including secure funding for equipment for CPAP and ongoing technical and clinical support Full polysomnography, dedicated sleep beds and soundproofed facilities for undertaking sleep tests in more specialist units Assessment of causes of alveolar hypoventilation (neuromuscular, obesity or pulmonary in origin) Provision of domiciliary NIV, including clinical and technical support Ambulatory and long-term oxygen and inhaled therapy assessment service Facilities and beds for the provision of expert end-of-life care by the respiratory physician
CPAP = continuous positive airway provide PACS = picture archiving and common	ressure; HDU = high-dependency unit; MDT = multidisciplinary team; NIV = non-invasive ventilation; unications system.

Education, training, continuing professional development (CPD) and appraisals

The BTS works closely with the specialist advisory committee (SAC) to set the training curriculum for respiratory trainees, almost all of whom undertake both respiratory and general medical training. In 2011 the General Medical Council (GMC) approved dual training in intensive care medicine and respiratory medicine, and this is already proving popular. Regional and national training directors ensure consistency of content, and out-of-programme experience is encouraged. Funded educational sessions are required for respiratory trainers.

The BTS provides information on its website that signposts doctors to material and resources on CPD and quality improvement initiatives, which those working in respiratory medicine will find useful as they compile their supporting information portfolio for revalidation. Details are available at www.brit-thoracic.org.uk/ Delivery-of-Respiratory-Care/Revalidation.aspx

Further information and support is is available on the RCP's website: www.rcplondon.ac.uk/cpd/ revalidation

The Education Committee and the Science and Research Committee of the BTS organise numerous short-course training meetings on a wide range of subjects; the annual summer CPD meeting; and the winter science, audit and educational conference. Conference abstracts are published in a supplement in *Thorax* in December each year.⁴ Since 2011, the Society has also run business leadership programmes, recognising the need for its members to take on leadership roles to develop systems of respiratory care for local communities.

Research - clinical studies and basic science

The specialty has an excellent track record for undertaking multicentre clinical research and continues to encourage respiratory specialty trainees to take time out of their training programmes to undertake research projects. With the changing research governance and to correct the long-term underfunding of both basic and clinical lung research, the UK Respiratory Research Collaborative (UKRRC) has been formed by the BTS, lung charities, research funding bodies and other respiratory professional societies, to prioritise and facilitate translational lung research and build research capacity. Research training fellowships have already been appointed. An active respiratory specialty group of the UK Clinical Research Network has been established to encourage and facilitate research.

Specialty and national guidelines

The BTS has been at the forefront of guideline production for more than 25 years. Guidelines are written in accordance with the BTS's manual for guideline production, and the BTS guideline production process was awarded NICE accreditation in 2011. The BTS guidelines are based on available evidence and adhere to the AGREE criteria (www.agreetrust.org). They are regularly updated and are available to download free from the BTS website (www.brit-thoracic.org.uk). As part of the BTS commitment to drive service improvement and promote excellent patient care, BTS quality standards will be produced for each BTS guideline, to provide a concise set of markers of good practice. The first BTS quality standards document for bronchiectasis was published in 2012.5

Quality tools and frameworks, including national clinical strategy

The BTS provides an excellent web-based audit tool system, which has recently been revised and updated. National audits by the BTS are included on the list for inclusion in Quality Accounts in England, approved audits and regular newsletters, and National Advisory Group for Clinical Audit and Enquiries (NAGCAE), and an annual audit report can be downloaded from the website. Different areas of practice are audited in a cyclical fashion; areas covered in 2012 included adult and paediatric asthma, adult and paediatric community-acquired pneumonia, adult NIV, emergency oxygen, COPD discharge and bronchiectasis (www.brit-thoracic.org.uk/audit.aspx). The BTS is a major partner in the next national COPD audit which will run from 2013. This new national audit, which will be coordinated by the RCP, builds on previous influential national audits of COPD and COPD peer review (www.rcplondon.ac.uk/resources/nationalcopd-audit-programme-starting-2013). In addition, the BTS, jointly with the RCP, has undertaken influential national audits of COPD and COPD peer-review learning exercises in collaboration with the Health Foundation (National COPD Resources and Outcomes Project (NCROP)).

An outcomes strategy for COPD and asthma in England was published on 18 July 2011. This long-awaited strategy identified six objectives that will drive work to transform respiratory care: better prevention of COPD, reducing premature death from respiratory disease, improving quality of life, improving safe and effective care, reducing the impact of asthma, and reducing inequalities in access to and quality of services.⁶ A NICE technology appraisal on CPAP for the treatment of obstructive sleep apnoea and hypopnea syndrome was published in 2008,⁷ and the specialty was involved in updating NICE's COPD guidelines in 2010.⁸

6 Clinical work of consultants

This section includes an overview of clinical programmed activities (PAs) required in respiratory medicine for a nominal catchment population of a DGH of 250,000.

Respiratory physicians have responsibilities for the respiratory health of the local population, as well as the individual patient. Clinical PAs therefore need to use the knowledge and skills of hospital clinicians to serve populations, as well as the patients referred to them. Models by which clinical leadership is included in job plans and funded by commissioners already exist, and there is an increasing need for respiratory leadership roles to be formally recognised as clinical activities (sometimes referred to as knowledge and network management according to Right Care definitions). This work may account for 1–2 PAs of a lead consultant's workload.

Inpatient work

Consultants usually undertake at least two specialty-based ward rounds per week (2 PAs). Each ward round generates its own share of additional administrative duties, including discharge-planning meetings, meetings with relatives and discharge summaries (0.5–1 PA).

Daily specialist visits are becoming increasingly necessary because of the need for urgent specialist advice to be available consistently to MAUs to enable rapid turnover and triage and to support medical high-dependency units (HDUs). This is likely to involve each consultant in an additional 0.5 PA per week.

In addition, most respiratory physicians have a major commitment to acute general medicine. Duties include ward rounds to review patients on the day of admission (at least twice daily) and usually a ward round the next morning to review patients who have been admitted overnight. This may require one further PA in addition to on-call PAs.

Each consultant team should have no more than 20–25 inpatients under their care at any one time, including when cross-cover is needed for leave. Respiratory wards often manage patients with a high need for expert monitoring, management and consultant input, including those stepped down from the intensive treatment unit (ITU). The maximum inpatient load for consultants should be halved when such patients are included. A DGH of this size typically generates 10 ward referrals per week to respiratory medicine from other specialties, and 0.5–1 PA needs to be set aside for this.

Respiratory physicians who attend weekly meetings of the MDT require 0.5 PAs, and those with specific service links (such as with critical care and thoracic surgeons on a transplantation service) will need pro-rata recognition of PAs in their job plan.

Outpatient work

A DGH serving a population of 250,000 people typically generates 900 new non-cancer respiratory referrals per year. On the basis of consultants seeing 2–4 follow-up patients for every new patient (the trend recently is towards the lower figure), the number of consultant clinic sessions available per year and the time for patient administration to support the clinic, a total of 11–12 PAs per respiratory department is required for respiratory clinics.

In addition, consultants may need to follow up about 10–16 general medicine patients per week as their contribution to the acute take and the general medical

service. Most consultants only have time in their job plan to offer two (to three) outpatient clinics a week (1 PA each) for specialty referrals, general medical referrals and follow-up appointments.

New patients should be allocated 30 minutes for consultant appointments and follow-up patients 15 minutes (longer if trainees, medical students or nurse-led clinics are working alongside the consultant and for patients with complex respiratory problems). Based on a 4-hour clinic, a maximum of four new and eight follow-up patients can be seen per consultant.

Experienced trainees (such as specialist registrars (StRs)), associate specialists and experienced staff-grade doctors should see fewer patients. More junior trainees at foundation year 2 (F2) or core medical training (CMT) grade should attend the clinic for training and should not be allocated extra patients.

Specialist investigative and therapeutic procedure services

Bronchoscopy

Most respiratory physicians undertake one bronchoscopy session each week (1 PA), which should accommodate no more than six bronchoscopies and fewer if complex procedures such as transbronchial biopsy, pleural biopsy or drainage are added or if junior doctors are being trained.

Medical thoracoscopy

This service is growing in usefulness as it can increase diagnostic yield and reduce thoracic surgical workload, but it is demanding and requires an additional 0.5–1 PA per week, with 2 patients per session.

Sleep-related breathing disorders

This is a rapidly developing area that has been highlighted by the publication of the National Institute for Health and Care Excellence's (NICE's) technology appraisal of CPAP.⁷ Growth is likely to continue for the foreseeable future, as best estimates suggest that no more than one in four patients with symptomatic obstructive sleep apnoea/hypopnoea syndrome (OSAHS) in the UK has so far been identified. A sleep service will require anything from 1 PA to 7 PAs per week, depending on the complexity of the service and the number of patients. As a guideline, an average department in a DGH that serves a population of about 500,000 and that has about 500 new referrals per annum, 200 new patients on CPAP per annum and a cumulative follow-up population of 1,500 on long-term CPAP is likely to need:

- consultant medical staff (5–8 PAs)
- nursing, scientific and technical staff (3–4 whole-time equivalents (WTEs))
- secretarial and clerical staff (1 WTE).

Ward NIV for acute respiratory failure (due to exacerbations of COPD)

This service must be available in all hospitals and should be led by a respiratory consultant. In most hospitals, one lead consultant supervises the service and, depending on the number of patients who require NIV, would require 1–2 PAs.

Domiciliary assisted-ventilation service

With the introduction of domiciliary NIV for patients with COPD, in addition to patients with neuromuscular disorders and morbid obesity, it is likely that the sessional commitment required for this respiratory service will increase significantly. As a starting guide, 1 PA should be allocated to run the domiciliary service for every 50 patients, including 10 new patients per year.

Pulmonary rehabilitation service

Pulmonary rehabilitation is a highly effective service. It is provided largely by an MDT, including RNSs and physiotherapists, with dietitians, occupational therapists, social services, pharmacists and other healthcare professionals having sessional inputs. The lead supervising clinician may need to allocate 0.5 PA per week for this – or more if the consultant also takes some of the educational sessions or pre-assessment clinics.

Specialist on call

Unfortunately, very few DGHs are able to provide continuous specialist advice from on-call consultant physicians in respiratory medicine, although specialist advice is usually available.

Other specialist activities, including activities beyond the local services

Examples of specialist services provided at a local level include the following:

• *Lung cancer:* most respiratory physicians manage patients with lung cancer as part of their normal job plan, but those who attend meetings of the MDT require 0.5 PA per week for this and at least another 0.5 PA is needed for the local lead lung-cancer

physician who coordinates services. Delivery of the relevant quality standards for the respiratory medicine department of a DGH with average standardised mortality ratio for lung cancer requires 10 PAs.

- *Critical care involvement*: respiratory physicians are increasingly involved in the very time-demanding supervision of HDUs and the provision of NIV respiratory support outside ITUs.
- *TB services*: in most trusts, patients with both pulmonary and non-pulmonary TB are managed by one or two named respiratory consultants. One consultant takes the lead for the service, including tracing contacts, managing difficult and multidrug-resistant cases, and coordinating the local TB service network. The lead clinician requires dedicated PAs for this based on the number of local cases: 0.5 PA per week for 25 TB cases annually, 1 PA for 50 cases annually and pro rata for increasing numbers, as long as they are adequately supported by TB RNSs (1 WTE per 50 cases) and administrative support.
- *Specialist clinics*: many consultants offer dedicated clinics for patients with, for example, difficult asthma, DPLD and bronchiectasis. If such clinics are in addition to their usual two to three clinics per week, an extra PA is needed per clinic.

Examples of specialist service provision for specified conditions at a regional or supra-regional level are shown below:

- *Cystic fibrosis*: the care of patients with cystic fibrosis is normally managed by large regional centres. The Cystic Fibrosis Trust recommends 0.75 WTE of specialist consultant grade time per 50 patients under full care, supported by a full range of supporting staff, including non-consultant career grade (NCCG) doctors.⁹ A respiratory physician with appropriate expertise may provide local care to patients with cystic fibrosis as the spoke of a hub-and-spoke model, with a large regional centre as the hub; that physician will require half of the PA allocation stated above, based pro rata on the number of cases.
- *Lung transplantation*: the five lung transplantation centres are based in Birmingham, Harefield, Manchester, Newcastle and Papworth. Each centre requires consultant physicians who specialise in the assessment and management of patients after transplantation. At least 5 PAs per week are necessary.

- *Pulmonary vascular disease*: this is organised on a supra-regional basis, and all seven centres (six in England and one in Scotland) have been approved by the National Specialist Commissioning Advisory Group (NSCAG) or National Services Division (NSD) in Scotland. All centres have at least two consultants trained in pulmonary vascular disease who will be able to commit up to 50% of their time to the specialty.
- Occupational lung diseases: consultants who work in such units will receive many tertiary referrals and will require at least 3–5 PAs per week for this complex work.

7 Opportunities for integrated respiratory care

Although respiratory medicine provides a mainly hospital-based service, job patterns involving community work are increasingly being developed, and consultants in integrated respiratory care, who have sessions both within a hospital and in the wider community, have been appointed in some areas. Examples of community work include:

- development of care pathways to facilitate care closer to home
- clinical leadership for integrated respiratory care services to ensure excellent multidisciplinary clinical care across the whole pathway
- leading local respiratory networks
- education of primary and intermediate care healthcare professionals
- medical input into pulmonary rehabilitation, respiratory nursing services and hospital-at-home and outreach services
- clinics in a non-hospital-based setting
- clinical responsibility for high-quality lung function and oxygen assessment services
- assessing and managing patients with complex breathlessness in the community
- promotion of better end-of-life care for those with severe lung disease.

8 Workforce requirements for the specialty

To provide a high-quality, patient-centred, specialist respiratory service, as described above, a DGH that serves a population of 250,000 people requires 7 WTE adult respiratory physicians, equating to 1,428 WTEs in England. This assumes that they also undertake on-call work, are adequately supported by a team of other respiratory professionals, have adequate facilities and resources, and work under a direct clinical contract of 7.5 PAs. Many units fall well short of this number. With demands for a consultant-led and -delivered service, pressures from the European Working Time Directive, an ageing population and the changing working patterns of consultants (with more opting to work less than full time), it is estimated that 1.4 consultants will be required to replace every one current WTE in future years.

In November 2012, 976 consultants were working in respiratory medicine in England and, despite financial pressures, the numbers of respiratory consultants has continued to increase. In the last quarter of 2012 there were 641 respiratory trainees in England, roughly half of whom are female; 104 of these trainees were out of programme (OOP) at that time. Training programme directors and others continue to actively support OOP activity, but it is increasingly difficult to fill gaps that then remain in training programmes with LAT (locum appointment - training) doctors (only 12% of respiratory LAT posts were filled in 2012). In contrast to some other specialties, with the feminisation of the workforce, there has been little increase in the numbers of trainees or consultants working less than full time.

Respiratory physicians who responded to the RCP's census in September 2011 were contracted for an average of 10.8 PAs, but worked an average of 12 PAs per week, the vast majority of which were clinical.¹⁰ With changes in working patterns and the move to consultant-delivered service, it seems that consultant expansion needs to continue for several years to come, albeit at a slower rate than we have seen in recent years.

9 Consultant work programme/specimen job plan

The 10-PA job plan shown in Table 2 assumes that the correct number of WTE consultants is employed in the department. As respiratory services are delivered by teams, individualised job plans – in terms of both content and number of PAs worked – can easily be adapted from the 10-PA job plan on a proportional basis to accommodate flexible working.

Table 2 Consultant work programme/specimen	job plan	
Activity	Workload	Programmed activities (PAs)
Direct clinical care		
Outpatient clinics		3
Ward rounds	20–25 patients maximum (half that number if involving complex or high-care patients, such as ITU step-down cases)	2
MDT meetings (eg lung cancer)		0.5
Routine bronchoscopy, transbronchial lung biopsy and pleural procedures	Bronchoscopy (6 per session)	1
Specialist investigative/therapeutic procedures	Lung or pleural biopsies (3 per session)	0–1
Clinical lead activity	Workload examples are given in the text. Depending on the activity, some of this work may fall under supporting professional activities (see below)	0–1
Clinically related administration		1–2
Specialist on-call and/or general medical on-call/post-take ward rounds	Most respiratory physicians also undertake acute and general medicine	0.5–1.5
Total number of direct clinical care PAs		7.5 on average
Supporting professional activities (SPAs)		
Work to maintain and improve the quality of healthcare	Education and training, appraisal, departmental management and service development, audit and clinical governance, CPD and revalidation, research	2.5 on average
Other NHS responsibilities	For example, medical director, clinical director, lead consultant in specialty, clinical tutor	Local agreement with trust
External duties	For example, work for deaneries, royal colleges, specialist societies, Department of Health or other government bodies	Local agreement with trust

 $CPD = continuing \ professional \ development; \ DH = Department \ of \ Health; \ ITU = intensive \ treatment \ unit; \ MDT = multidisciplinary \ team \ meeting.$

10 Key points for commissioners

Commissioning is considered to be the process of assessing the health needs of a population, and then planning, securing and monitoring the best possible range and quality of health services and health improvement services given the resources available.¹¹

- 1 High-quality respiratory commissioning enables the delivery of the right care at the right time and in the right location for each individual patient with respiratory illness by a competent workforce that intervenes with knowledge and understanding of the patient's place on a local pathway of care.
- 2 High-quality respiratory commissioning is informed by accurate local information on the burden of respiratory disease and the impact on existing services across the whole system of respiratory care.
- 3 It is necessary to have a common understanding of existing local respiratory pathways and services and their interdependence, as well as accurate information on local respiratory outcomes, including distinguishing variation from unwarranted variation.
- 4 High-quality respiratory commissioning supports the development and implementation of 'currencies' that encourage right care, eg care bundle tariffs and personalised care tariffs.

- 5 Patients and carers should provide input into the design of local services.
- 6 A culture must be developed that attributes value to knowledge, expertise and sharing of learning.
- 7 Current and future workforce planning and training must be a component of commissioned services.
- 8 High-quality respiratory commissioning delivers evidence-based, best-value care.
- 9 Support to stop smoking, with counselling and pharmacotherapy as a treatment for smokers with respiratory problems, is essential across primary, secondary and intermediate care.
- 10 Disease-specific examples of what high-quality respiratory commissioning might deliver (depending on local needs assessment) include:
 - earlier diagnosis of lung cancer and COPD
 - high-quality asthma care in the community, which reduces avoidable hospital admissions.

Further information

The national strategy for COPD in England⁶ provides a framework for commissioners and COPD commissioning guidance, and packs will be available from NICE and the DH.

A national clinical director (respiratory) was appointed to NHS England in April 2013. Respiratory medicine is represented on a number of Clinical Reference Groups for commissioning specialised services (www.england.nhs.uk/ourwork/d-com/spec-serv).

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Rheumatology*

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1 Description of the specialty

Rheumatology deals with the investigation, diagnosis and management of patients with arthritis and other musculoskeletal conditions. This incorporates more than 200 disorders affecting joints, bones, muscles and soft tissues, including inflammatory arthritis and other systemic autoimmune disorders, vasculitis, soft-tissue conditions, spinal pain and metabolic bone disease. A significant number of musculoskeletal conditions also affect other organ systems.

Rheumatology is a multidisciplinary specialty and the rheumatologist works in close liaison with other medical specialists and healthcare professionals. Accredited training for paediatric and adolescent rheumatology is based within paediatrics, although adult rheumatologists should be aware of the spectrum of conditions that affect children in order to take part in the transitional care of older adolescents and young adults. Specific training is available in sports and rehabilitation medicine.

Who are the patients?

The burden of musculoskeletal disease in the UK is significant (Table 1), with 10 million working days lost in 2006–7 due to musculoskeletal conditions, which is second only to stress, depression and anxiety.¹ The estimated cost to society is £5.7 billion per year.

2 Organisation of the service and patterns of referral

Up to 30% of people who consult their GPs and 40% of those who attend NHS walk-in centres do so with a musculoskeletal complaint.¹⁰ Those with inflammatory arthritis or autoimmune connective tissue disease

require input from a rheumatologist. Early referral for patients with inflammatory disease is vital to minimise joint damage and is cost-effective. Treatment is most effective if started within 3 months of symptom onset.⁵ Referral to secondary care via a rapid-access system is appropriate for patients with 'red flags', including systemic disorders such as malignancy or complex multisystem disease. Most self-limiting non-inflammatory disorders and exacerbations of chronic degenerative disease such as osteoarthritis and back pain are managed in primary care.

The NHS white paper¹¹ for England will give rheumatologists more opportunities to work directly with frontline colleagues in primary care. The commissioning proposals should lead to improved integration with primary care and increased access to support and advice for GPs to manage musculoskeletal disease in the community. Integral involvement of rheumatologists will ensure the appropriate formulation of quality and outcome measures in line with national standards and guidance.

The Department of Health (DH) in England's best practice guidance document The musculoskeletal services framework (MSF)¹⁰ has emphasised the role of triage, assessment, diagnosis and treatment by practitioners with special interests (GPs, therapists and specialists) and the establishment of intermediate services between primary and secondary care known as clinical assessment and treatment services (CATS). The CATS have been proposed in order to improve the efficiency and appropriateness of referrals. In order to be successful, the CATS must work in close liaison with rheumatologists and primary care specialists and should be integrated with regard to continuing professional development (CPD) programmes, audit and teaching of specialist staff and students, rather than being stand-alone entities.

^{*}Please see an appendix to this chapter, which has been written for the revised 5th edition 2013 (p. 249). The rest of the text has been reproduced from the 2011 edition.

Table 1 Estimated numbers of people with rheumatic disease in the UK			
Condition	Estimated number of people	Source	
All musculoskeletal conditions	10 million people	Arthritis Research UK ¹	
Osteoarthritis-related joint pain	8.5 million	National Institute for Health and Care Excellence ²	
Osteoporosis	2.1 million minimum	European Vertebral Osteoporosis Study ³	
Back pain: GP consultations	2.6 million/year	Royal College of General Practitioners 1991 statistics applied to year 2000 population ⁴	
Rheumatoid arthritis	Incidence 26,000/year Prevalence 580,000	National Audit Office, 2009 ⁵	
Ankylosing spondylitis	200,000	Royal College of General Practitioners 1991 statistics applied to year 2000 population ⁴	
Systemic lupus erythematosus	10,000	Epidemiological survey in Leicester ⁶	
Scleroderma	1,500	Epidemiological survey in the West Midlands ⁷	
Gout	250,000	Royal College of General Practitioners 1991 statistics applied to year 2000 population ⁴	
Regional pain syndromes (eg shoulder pain)	20% of adult population	Epidemiological studies in north-west England (unpublished)	
Chronic widespread pain (eg fibromyalgia)	11.2% of adult population	Croft P, <i>et al</i> , 1993 ⁸	
Juvenile idiopathic arthritis (JIA)	Incidence: 10 per 100,000 (children up to 16 years) Estimated 12,000 children with JIA in UK	Symmons DP, <i>et al</i> , 1996 ⁹	

Secondary care

The core work of secondary care rheumatology services provided by consultant rheumatologists and the multidisciplinary team (MDT) is the treatment of inflammatory arthritis, autoimmune connective tissue disease and vasculitis. The availability of powerful biologic disease-modifying and immunosuppressive treatments has made it possible for rheumatology MDTs to develop care pathways with the aim of achieving clinical remission or very low disease activity for patients with inflammatory arthritis. These aims are reflected in the recent NICE guidance for rheumatoid arthritis (http://guidance.nice.org.uk/ CG79) and the National Audit Office's report from July 2009 on *Services for people with rheumatoid arthritis.*⁵

Tertiary care

Tertiary care can provide specialised services that cover the needs of small groups of patients with rare or complex conditions, who may require specialised investigation or management not available in a local hospital. Examples of these include complex autoimmune connective tissue diseases and rare metabolic bone diseases. These services may include specialised surgery, such as neurosurgery and hand surgery, and specialist rheumatology MDTs including rehabilitation therapists.

Paediatric rheumatology

Tertiary care services in paediatrics include specialist paediatric and adolescent rheumatology services in all major children's centres covering every region. These centres provide outreach services that include working with adult rheumatologists as part of a managed clinical network. It is good practice for adult rheumatologists to provide paediatric rheumatology care within local paediatric services and within a regional paediatric rheumatology network.¹²

3 Working with patients: patient-centred care

What you do with patients

Involving patients in decisions about their treatment

Every patient should influence the delivery of care that they receive and good communication with all members of the rheumatology MDT is essential. Consultants should develop a personalised care plan with the patient to identify treatment and care. The white paper in England, *Equity and excellence: liberating the NHS*,¹¹ promotes shared decision-making with patients: 'no decision about me without me.' This approach improves compliance with therapy.

Access to information

Voluntary and NHS organisations produce a wide range of patient literature on musculoskeletal conditions, together with related topics such as diet and exercise. Patients often refer to the internet for information and to hospital departments' websites for guidance on common diseases and treatments, and details on how to access the MDT. Telephone advice lines are a standard part of the service offered by secondary care departments. Information should also be readily available at GP surgeries. It is recommended that patients are given lay information regarding their condition at the first consultation and are sent a copy of the clinic letters sent to their GP.

Patient choice: cultural considerations

Rheumatology departments should consider the specific needs of their local population. For example:

- Literature is provided in appropriate languages and formats.
- Translators can be provided.
- Female patients can elect to be seen by a female doctor and chaperones.
- Services aim to allow patients to keep religious festivals and practices.

Opportunities for education

Arthritis Care offers a range of courses such as 'Challenging arthritis', which promotes independence and was used by the DH as a model for their Expert Patient Programme. Personal development courses, courses specifically aimed at young people and an arthritis awareness course for employers are also available.

Table 2 Useful organisations

Organisation	Website/email address
Arthritis Care	www.arthritiscare.org.uk help@arthritiscare.org.uk
Arthritis and Musculoskeletal Alliance (ARMA)	www.arma.uk.net
Arthritis Research UK	www.arthritisresearchuk.org
British Sjogren's Syndrome Association	www.bssa.uk.net
British Society for Paediatric and Adolescent Rheumatology (BSPAR)	www.bspar.org.uk
British Society for Rheumatology (BSR)	www.rheumatology.org.uk
Carers UK	www.carersuk.org/Home
Expert Patient Programme	www.expertpatients.co.uk
Lupus UK	www.lupusuk.org.uk
Myositis Association	www.myositis.org
National Institute for Health and Care Excellence (NICE)	www.nice.org.uk
National Osteoporosis Society	www.nos.org.uk
National Patient Safety Agency	www.npsa.nhs.uk
National Rheumatoid Arthritis Society	www.rheumatoid.org.uk
Polymyalgia Rheumatica and Giant Cell Arteritis UK	www.pmrgcauk.com
Reynaud's and Scleroderma Association	www.raynauds.org.uk/
Scleroderma Society	www.sclerodermasociety.co.uk/ newsite/index.php

Patient support groups

People with a chronic disease may experience other physical or psychological problems, eg fatigue and depression, so rheumatology departments should provide access to appropriate services, such as occupational therapy, orthotics and clinical psychology. Voluntary sector organisations provide useful resources, membership schemes, information helplines and websites (Table 2). They also run specific information and support services for young people.

4 Interspecialty and interdisciplinary liaison

Multidisciplinary team working

Rheumatologists have long advocated MDT working.¹³ This is embedded in the British Society for Rheumatology (BSR)'s guidelines on the management of rheumatoid arthritis,¹⁴ the Arthritis and Musculoskeletal Alliance (ARMA)'s standards of care¹⁵ and NICE clinical guideline CG79.¹⁶

Consultant rheumatologists are supported by rheumatology nurse practitioners, physiotherapists, occupational therapists, podiatrists, psychologists and orthotists. Nurse practitioners play a key role in delivering direct-access helplines, drug monitoring, rapid-access clinics, nurse prescribing, patient education and counselling.¹⁷ Support regarding activities of daily living and occupation for disabled patients is important, including provision of information on benefits agencies and liaison where appropriate with community care agencies. Pharmacists have a role to ensure patient safety, to help with drug monitoring and to promote the introduction of newer treatments, eg biologic agents, through drug and therapeutics committees. Pharmacy databases can also provide units with data to assist audit.

Working with other specialties

Combined clinics provide an opportunity to coordinate care for complex patients (eg with dermatology, respiratory and renal medicine), run dedicated clinics for paediatric and adolescent (transitional) patients and enable access to orthopaedic surgery. Specialist advice should be available throughout antenatal and postnatal care for individuals with diseases such as lupus and antiphospholipid syndrome. It is also important to establish good links with general orthopaedic, pain management and musculoskeletal radiology services, including dual-emission X-ray absorptiometry (DXA), magnetic resonance imaging (MRI) and musculoskeletal ultrasound services.

Working with GPs and GPs with a special interest (GPwSIs)

The relationship of rheumatology units with primary care is evolving rapidly, driven by the MSF¹⁰ and the development of GP consortia in England. Training schemes for GPs often include rheumatology, and GPs may join the MDT as clinical assistants. However, expansion of GPwSIs has led to the possibility of stand-alone community clinics, sometimes located within the CATS. Unfortunately, collaboration between GPwSIs and rheumatology units has not always been

established, which causes concern about poor coordination of care, quality, training and governance. The BSR has a curriculum with a competency framework for GPwSIs.¹⁸ Clinical governance procedures must be robust, and the BSR has recommended that GPwSIs work in close liaison with rheumatology units and take part in CPD. Similar principles apply to the development of new integrated rheumatology services.

5 Delivering a high-quality service

What is a high-quality service?

High-quality rheumatology services should be patient-centred, accessible and multidisciplinary (Tables 3–5):

- Enhancing quality of life (including preserving the ability to remain in work) and ensuring people have a positive experience of their care are central aspects of a high-quality service.
- Access to the service must be equitable, prompt and physically suited to those with disability.
- Care must be collaborative to allow integration and continuity across primary, intermediate, secondary and (for some conditions) tertiary services. A strong MDT is pivotal for this.

6 Clinical work of consultants

The BSR recommends that no single-handed consultant rheumatologist should work in isolation or be expected to provide an acute general medical service.

Outpatient work

Rheumatology is an outpatient-based specialty. However, wide variation exists in the total number of clinics per consultant, which depends on the geography of the service, involvement in acute medicine, provision of community clinics, academic interests and other duties including teaching and management.

The expected workload is based on recommendations of best practice from the BSR. A full-time consultant rheumatologist would be expected to undertake 4–5 clinics a week and those who perform general internal medicine (GIM) 3–4 clinics a week. These would include routine clinics, special clinics (eg lupus clinics and fracture prevention clinics) and combined clinics (eg with orthopaedic surgeons). Some consultants now undertake musculoskeletal ultrasound and report on bone-density scans.

Table 3 How to ensure that the service is of high quality			
Guidelines	Comments		
Specialist society guidelines	 The BSR commissions and produces its own guidelines, which are available on the website (www.rheumatology.org.uk) and in the journal <i>Rheumatology</i>. The BSR's standards, guidelines and audit group keep guidelines up to date and commission new guidelines and audit toolkits. 		
NICE guidance	 NICE has produced a number of appraisals and guidelines of importance to rheumatology services (www.nice.org.uk/). Importantly, in February 2009, NICE published guidance on the management of rheumatoid arthritis in adults (http://guidance.nice.org.uk/CG79).¹⁶ The document emphasised the importance of early referral to a rheumatologist for patients with this common condition. It defined the need for close and regular monitoring of patients with rheumatoid arthritis to enable tight control of disease activity using disease-modifying and biologic drugs. 		
National Audit Office report	 In July 2009, the National Audit Office published the report Services for people with rheumatoid arthritis (www.nao.org.uk/publications/0809/services_for_people_ with_rheum.aspx).⁵ This supported the NICE guidelines and explained the long-term cost benefits of investing in these standards of care. 		
ARMA standards of care project	 ARMA has produced a series of publications defining reasonable expectations of care and services for all people with musculoskeletal conditions; these are accompanied by audit toolkits (www.arma.uk.net/). ARMA has recently published two documents <i>Joint working? An audit of the Department of Health's musculoskeletal services framework</i>¹⁹ (www.arma.uk.net/ pdfs/MSF % 20Review_FINAL1.pdf) and <i>The musculoskeletal map of England</i>²⁰ (www.arma.uk.net/pdfs/Musculoskeletal % 20map % 20FINAL % 202.pdf). These documents highlight the significant variations in response to the MSF and in the quality of NHS musculoskeletal services across England. 		
Inflammatory arthritis care pathway	 In 2009, the DH published a Commissioning pathway for inflammatory arthritis (www.nras.org.uk/includes/documents/cm_docs/2010/i/ia_pathway.pdf).²¹ The pathway encouraged commissioners and GPs to work with rheumatologists to redesign and deliver better services for patients with inflammatory arthritis. 		
Peer review	 Peer review is a clinical governance tool that facilitates improvement in the quality of clinical service. The BSR promotes this and published new guidance²² (www.rheumatology.org.uk/includes/documents/cm_docs/2010/p/2_peer_review_guidance_6_sept_2010.pdf) and a proforma²³ (www.rheumatology.org.uk/includes/documents/cm_docs/2010/p/peer_review_proforma_aug_2010.doc) for the scheme in 2010. 		

The recommended workload is as follows:

- new patients: 6–7 new patients per clinic depending on casemix, with one slot for urgent cases (approximately 30 minutes per patient)
- review clinics: 10–15 patients per clinic (10–15 minutes per patient)
- mixed clinics: one new patient takes the time of two review patients, but this depends on the casemix
- specialised clinics for patients with complex disorders eg early rheumatoid arthritis, systemic lupus erythematosus, vasculitis and paediatric rheumatology: numbers of patients seen in clinics need to be reduced from recommendations above
- number of patients seen in consultant clinics need to be reduced from recommendations above if the consultant is supporting and training junior staff (by about 20%)
- number of patients seen in consultant clinics need to be reduced from recommendations above if the consultant is undertaking undergraduate and postgraduate teaching: the Royal College of Physicians (RCP) recommends a reduction of 25%
- number of patients seen in consultant clinics need to be reduced from recommendations above if the consultant is supervising nurse-led clinics.

Completed NICE musculoskeletal guidance ²⁴	Current BSR guidelines ³⁶	ARMA ⁵³
 Rheumatoid arthritis¹⁶ Osteoarthritis²⁵ Arthritis (juvenile idiopathic) – etanercept²⁶ Osteoarthritis and rheumatoid arthritis – cyclooxygenase-2 (COX-2) inhibitors²⁷ Psoriatic arthritis – etanercept, infliximab and adalimumab²⁸ Rheumatoid arthritis – adalimumab, etanercept and infliximab²⁹ Rheumatoid arthritis – certolizumab pegol³⁰ Rheumatoid arthritis – drugs for treatment after failure of a tumour necrosis factor (TNF) inhibitor³¹ Rheumatoid arthritis – tocilizumab³² Hyperuricaemia – febuxostat³³ Osteoporosis – primary prevention³⁴ Osteoporosis – secondary prevention³⁵ 	 Guidelines on safety of anti-TNF therapies in RA³⁷ Management of giant cell arteritis³⁸ Guidelines on eligibility criteria for the first biologic therapy in rheumatoid arthritis³⁹ Quick reference guide for monitoring of disease-modifying anti-rheumatic drug (DMARD) therapy⁴⁰ Management of polymyalgia rheumatica⁴¹ Management of rheumatoid arthritis after first 2 years⁴² DMARD therapy⁴³ Metoject⁴⁴ Management of adults with anti-neutrophil cytoplasmic antibody (ANCA)-associated vasculitis⁴⁵ Management of fheumatoid arthritis (first 2 years)⁴⁷ Management of hot swollen joints in adults⁴⁸ Anti-TNF <i>α</i> therapy in psoriatic arthritis⁴⁹ Prescribing TNF blockers in adults with rheumatoid arthritis⁵¹ Prescribing TNF <i>α</i> blockers in adults with arthy anti-rheumatoid arthritis⁵¹ 	 Standards of care Back pain⁵⁴ Inflammatory arthritis⁵⁵ Osteoarthritis⁵⁶ Connective tissue diseases⁵⁷ Metabolic bone disease⁵⁸ Regional musculoskeletal pain⁵⁹ Overarching principles⁶⁰ Musculoskeletal foot health problems⁶¹ Other publications Joint working¹⁹ The musculoskeletal map of England²⁰ Charter for work for people affected by musculoskeletal disorders in the UK⁶²

Table 4 Recent NICE, BSR and ARMA publications relevant to rheumatology

Table 6 shows the patient allocation for non-consultant staff.

Casemix and ratio of new patients to follow-up patients

The ratio of new patients to follow-up patients varies considerably, with a national mean of 1:3.9 (interquartile range 1:1.3 to 1:7.8).⁶⁶ A number of variables are important, particularly casemix (which is influenced by the provision of local CATS and specialist services) and the quality of GP services, including the capacity for shared care. A casemix study from the Midlands identified that the major influence on the ratio of new patients to follow-up patients was the proportion of patients with inflammatory conditions.⁶⁷ Their mean ratio was 1:4.9, with a range of 1:3.0 to 1:7.3.

Primary care trusts (PCTs) in England tried to impose ratios for new patients to follow-up patients in an attempt to devolve follow-up care into the community. However, NICE guidelines on rheumatoid arthritis recommend more frequent follow-up for patients with active disease, as well as rapid access and annual review. It is therefore important that rheumatology units are actively involved in discussions with PCTs and future GP consortia (health boards in Wales) about developing appropriate care pathways and community services.

Community services

An increasing number of consultant rheumatologists are now working in community-based clinics, including polyclinics and CATS. Appropriate MDTs should provide support at these peripheral sites. Further integration with primary care services is likely in the

rable 5 maintaining	and improving the quality of care
Action	Comments
Service developments that improve care	 Rheumatology services operate a patient-centred model of care delivered in a multidisciplinary setting. Service developments may be simple but with associated cost savings (eg introduction of nurse-led clinics, telephone follow-up clinics or electronic advice to GPs) or may require significant planning and capital investment (eg introduction of dedicated day units or building of a new multidisciplinary 'one-stop-shop' outpatient facility).
Leadership role and the introduction of service developments	 Rheumatologists must be proactive and show leadership in service developments for their specialty. They must engage and negotiate both within their employing trust and outside with commissioners to secure high-quality services for their patients. Agreeing standards of care with other providers and commissioners on a regional basis may prevent variation and fluctuation in service funding and provision. An example of this is the model of 10 standards in inflammatory arthritis being developed by the rheumatologists within the East Anglian Strategic Health Authority. Guidance to help rheumatologists develop and strengthen their services is available from the BSR.⁶³
Education and training	 Undergraduate and postgraduate training are essential parts of the work of most rheumatologists. The time commitment for this will vary but must be included in the agreed job plan. The rheumatologist has an important role in the training and CPD of allied professionals and GPs so that future multidisciplinary and integrated care of patients with musculoskeletal disorders is of the highest standard. Rheumatologists would be expected to enrol in the RCP's CPD programme. They should have time allocation and funding for 10 days of study leave a year. The BSR holds various meetings, including a 4-day annual general meeting with educational and original research sessions. The society has its own journal, <i>Rheumatology</i>.
Mentoring and appraisal of medical and other professional staff	 Currently appraisal of rheumatologists follows individual trust requirements. Enhanced appraisal will soon be linked to revalidation. Rheumatologists will mentor, appraise and assess colleagues, trainees and other professionals in the MDT.
Clinical governance	 Clinical governance is based on best practice and national guidance. Local, regional and national audit must underpin the governance process. The BSR has a programme of national audits. The first of these looked at access to specialist services for patients with rheumatoid arthritis and compliance with guidelines in osteoarthritis.
Research – clinical studies and basic science	 Rheumatology has a strong academic and research base. Many trainees in the specialty spend some time in pure research, which often leads to the award of higher degrees. Consultant rheumatologists should be encouraged to continue and develop their research interests. The Comprehensive Local Research Networks under the auspices of the National Institute for Health Research (NIHR) can help facilitate this and there are many opportunities for multicentre clinical research. The BSR biologics registry (BSRBR) monitors the long-term safety of biologic drugs given for rheumatoid arthritis.⁶⁴ British rheumatology research is well regarded internationally. Recent examples where basic science has supported clinical research leading to important advances in clinical care are the introduction of anti-TNF agents and an anti-CD20 monoclonal antibody for the treatment of severe rheumatoid arthritis.
Local, regional and national work	 Rheumatologists are well represented at all levels of clinical management and professional activity. Local work may include clinical leadership or other roles such as undergraduate dean or Caldicott guardian. Regional and national work might be for the royal colleges, DH, NICE, specialist societies or deaneries. The BSR has a regional structure across the UK. The society has a close working relationship with the RCP, with representation on the Joint Specialty Committee and the president sitting on the RCP's council. The BSR has very active clinical affairs and external relations departments, which respond regularly to NICE appraisals and consultation papers from the DH.

Table 5 Maintaining and improving the quality of care

Table 6 Patient allocation to non-consultant staff			
Healthcare professional	New patients	or	Review patients
FY1/FY2	2		4 (consider as supernumerary, although they should see patients)
GP clinical assistant	3–4	or	7–10
StR	2–4	or	6–10 depending on experience
Staff grade	5	or	10
Associate specialist	6–7	or	12–15 (same as consultant)
Nurse practitioner			6–8 ⁶⁵

future, with support for GPwSIs and extended-scope practitioners.

Day-case work

The number of patients managed in day-case units rather than being admitted is increasing. Consultants often provide support for:

- assessment and supervision of biologic and cytotoxic drug therapy
- therapeutic procedures such as joint injections, which are increasingly undertaken with ultrasound guidance.

Inpatient work

Improved management of patients has resulted in a significant reduction in rheumatology inpatient admissions, and only a minority of units have dedicated inpatient beds. Patients who require admission are usually admitted by acute medical teams, but these patients often have complex disease with life-threatening complications and require prolonged lengths of stay. Consultant rheumatologists need to work closely with the medical teams to provide ongoing care.

Specialist on call

A significant reduction in the number of rheumatologists being asked to provide on-call cover has been seen, with a potential impact on quality of care and training of juniors. If on-call support is not provided by the hospital trust, adequate provision for ward rounds should be built into consultants' job plans.

7 Opportunities for integrated care

Multisystem inflammatory diseases with associated risks of serious morbidity and mortality are at the core of rheumatology and require early, active, multispecialty management and acute care, often in the hospital setting. However, integrated care with the community offers real opportunities for many patients and could be considered under two categories: improvement in care of long-term inflammatory conditions and optimisation of non-inflammatory conditions via directed-care pathways. Proposed changes in service design may mean that some services are run by GP consortia, while others may be run under close integration with secondary care.

Inflammatory conditions, eg rheumatoid arthritis, require rapid access to the MDT, investigations and diagnosis. Conditions generally require long-term management, including specialist therapies and consideration of comorbidity and risk. Initial rheumatology input is intensive, but most patients with stable disease could be managed via shared care with general practice and infrequent, usually annual, rheumatology review.¹⁶ Improving shared care could reduce follow-up rates, improve capacity for rapid-access services for new and flaring patients, and perhaps offer opportunities to optimise under-resourced areas, eg podiatry and psychology.

Good examples of community-based services exist for back pain, osteoarthritis and other soft-tissue conditions. Initial management occurs in general practice, with escalation to a musculoskeletal clinical assessment/triage service staffed by extended-scope practitioners or GPwSIs and linked to rheumatology or orthopaedic services in secondary care. The challenge for these services is to ensure that they provide quality, safety and good governance and that they dovetail with secondary care to avoid duplication. Other specialised services may also benefit from a coordinated approach, such as DXA for osteoporosis as part of a fracture liaison and metabolic bone disease service to improve patient care and reduce long-term healthcare and social care usage, eg by prevention of hip fractures.

With the engagement of existing rheumatology services, high-quality, productive, integrated care could be

Table 7 **Regional variations in number of** rheumatologists per population (updated 2013)

Region description	No. of consultants	Population	Population/ consultant
East Midlands	29	4,279,707	147,576
East of England	39	5,491,293	140,802
North east	23	2,54,5073	110,655
South central	38	3,992,301	105,061
South-east coast	33	4,187,941	126,907
South west	53	5,038,200	950,60
West Midlands	57	5,334,006	935,80
Yorkshire and Humber	47	5,038,849	107,210
North west	48	6,827,170	142,233
London	106	7,428,590	70,081
Scotland	39	5,222,100	133,900
Northern Ireland	17	1,799,392	105,847
Wales	28	3,006,400	107,371

delivered safely and effectively in various settings (eg hospital, polyclinic and CATS) tailored to the local population. Involvement of local rheumatologists must be considered early in service development to ensure efficient access to investigations, imaging and the MDT.

8 Workforce requirements for the specialty

Data from a recent national survey of rheumatologists in the UK indicates the following (Table 7):⁶⁶

- Rheumatology continues to be an expanding discipline; between 2007 and 2009:
 - The number of consultants in England, Wales, Northern Ireland and Scotland increased from 584 to 641 – an increase of 9.7%.
 - Whole-time equivalents (WTEs) increased by 13% from 470 to 531.
- 73% of rheumatologists work purely in rheumatology.
- 14% of rheumatologists undertake acute medicine.

- Currently, one rheumatologist is in place per 114,831 population in the UK, with wide regional variations.
- Recently, some retirement posts have not been filled due to funding shortfalls; this expansion of the discipline may plateau or even decrease depending on the effects of current changes in the NHS.

Consultant programmed activities (PAs) for a service for a population of 250,000

Different patterns of working across the UK, together with different referral patterns from GPs, lead to considerable variation in patient numbers in rheumatology units. The consultant requirement, measured as the number of PAs needed to provide a service, depends on the volume of inpatient and outpatient work. Estimates have been made based on epidemiological, needs-based assessments of the number of incident and prevalent cases of musculoskeletal conditions likely to present to primary care, and the estimated proportion of these cases that would benefit from assessment, treatment and follow-up in secondary care; the data are supplemented by a large audit performed across 17 units in the Midlands.^{3,16,67–69}

- One WTE consultant is required per 86,000 population (2.9 WTE per 250,000).
- To achieve this would require a total of 648 consultants, but there is currently a shortfall of 117 rheumatology consultants.
- The data assume that a consultant provides 4.5 clinics a week for 42 weeks per year, giving a total of 189 clinics per year.
- These data will obviously change depending on regional variations in patient demographics and models of care.
- Non-inflammatory conditions such as back pain, osteoarthritis, osteoporosis and regional conditions have greater unit variations and depend on local practice and specialist interests.
- Local commissioning must take into consideration incident cases of inflammatory arthritis and provision for follow-up in accordance with NICE guidance.

9 Consultant work programme/specimen job plan

Tables 8–10 show specimen job plans for different scenarios.

Table 8 Full-time rheumatologist		
Activity	Workload	Programmed activities (PAs)
Direct clinical care	4–5 outpatient clinics and associated administration (administration approximately 0.25 sessions per clinic)	5–6
	Ward work, inpatient referrals, day unit and MDT support	1
	Patient-related administration	1
Total number of direct clinical care PAs		7.5 on average
Supporting professional activities (SPAs)		
Work to maintain and improve the quality of healthcare	Teaching, training, appraisal, audit, clinical governance, CPD, revalidation, research, departmental management and service development	2.5 on average
Other NHS responsibilities	eg medical director/clinical director/lead consultant in specialty/clinical tutor	Local agreement with trust
External duties	eg work for deaneries/royal colleges/specialist societies/DH or other government bodies, etc	Local agreement with trust

Table 9 Rheumatologist with GIM		
Activity	Workload	Programmed activities (PAs)
Direct clinical care	3–4 outpatient clinics and associated administration (administration approximately 0.25 sessions per clinic)	4–5
	GIM and specialty ward round, inpatient referrals, day unit and MDT support	2
	Patient-related administration, relatives and contact	1
On-call duties	Peri- and post-take ward rounds weekdays and weekends (1:10)	1
Total number of direct clinical care PAs		8.5 on average
Supporting professional activities (SPAs)		
Work to maintain and improve the quality of healthcare	Teaching, training, appraisal, audit, clinical governance, CPD, revalidation, research, departmental management and service development	2.5 on average
Other NHS responsibilities	eg medical director/clinical director/lead consultant in specialty/clinical tutor	Local agreement with trust
External duties	eg work for deaneries/royal colleges/specialist societies/DH or other government bodies, etc	Local agreement with trust

Table 10 Full-time academic clinical rheumatologist			
Activity	Workload	Programmed activities (PAs)	
Direct clinical care			
Acute trust	Specialist patient clinics plus associated administration (administration approximately 0.25 sessions per clinic)	1.5	
	Ward round and inpatient referrals	1	
Research academic sessions – university	Full academic sessions (this is an example; the exact work balance will vary considerably from one individual to the next)	5	
Total number of direct clinical care and academic PAs		7.5 (average)	
Supporting professional activities (SPAs)			
Work to maintain and improve the quality of healthcare	Teaching and training, appraisal, audit, clinical governance, CPD, revalidation, some aspects of academic work.	2.5 (average)	
Other NHS responsibilities	eg medical director/clinical director/lead consultant in specialty/clinical tutor	Local agreement with trust	
External duties	eg work for deaneries/royal colleges/specialist societies/DH or other government bodies, etc	Local agreement with trust	

10 Key points for commissioners

- 1 Commissioning for rheumatic diseases must ensure that patients' needs are at the centre of service planning and support the concept of 'no decision about me without me'.
- 2 Consultants, as well as all other key healthcare professionals, such as specialist nurses, physiotherapists and occupational therapists, should be involved in commissioning of rheumatology services at a local level.
- 3 Many rheumatic diseases are complex, chronic, disabling and life shortening. Successful commissioning must include long-term planning, with integrated pathways between primary and secondary care, including social support.
- 4 Commissioning must involve patient representation through organisations such as local ARMA networks, National Rheumatoid Arthritis Society (NRAS) and Arthritis Care.
- 5 The introduction of competition in commissioning of services brings a risk of fragmentation of existing good-quality clinical networks, which are essential for management of rheumatic diseases.

- 6 Commissioning must focus on quality and outcome measures (including the ability to work) rather than on targets that may not be clinically relevant.
- 7 Quality of services should be assessed by quality metrics and by (multicentre or national) audits against national standards produced by bodies such as NICE, the BSR and the RCP.
- 8 Commissioning must conform to NICE clinical guidance and technology appraisals but should also be flexible enough to recognise that some patients with severe progressive rheumatic diseases should not be disadvantaged because their condition has not been assessed by NICE.
- 9 Commissioning must recognise the clinical importance and potential cost benefit of early referral and specialist treatment for rheumatic diseases, as highlighted by NICE guidance, the 18-week commissioning pathway for inflammatory arthritis and the National Audit Office's report on services for rheumatoid arthritis.⁵
- 10 Crude ratios of new patients to follow-up patients do not reflect service quality in rheumatology units and must be analysed in the context of the local clinical casemix, staffing and model of service provision.
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Appendix (2013 update)

Major changes in the commissioning of rheumatology services will occur in April 2013 in England, with the introduction of clinical commissioning groups (CCGs). CCGs will commission locally the majority of work undertaken by rheumatology services. Some specialised services will be commissioned by the National Commissioning Board.

Best practice tariff for early inflammatory arthritis

In April 2013 the Department of Health is introducing a best practice tariff (BPT) for early inflammatory arthritis (EIA). This tariff is intended to support NHS providers and their rheumatology services in the delivery of high-quality, evidence-based, cost-effective care to people with EIA. The BPT should incentivise rapid assessment and diagnosis and facilitate intensive treatment of rheumatoid arthritis and other EIA in line with National Institute for Health and Care Excellence (NICE) clinical guideline CG79. The tariff is designed to cover all aspects of rheumatological care in the first year after referral (except for the costs of biologic drugs), and will allow services to see patients according to their clinical need, removing some of the difficulties around commissioning of follow-up appointments and new:follow-up ratios.

Patients referred in to rheumatology services with suspected EIA will attract one of three tariff payments:

BPT1. Diagnosis and discharge

A best practice tariff payment for those patients with suspected EIA who are:

- seen within 3 weeks of referral
- diagnosed as not having EIA and discharged within 6 weeks of referral.

BPT2. DMARD therapy BPT

A best practice tariff payment for those patients with suspected EIA who:

- are seen within 3 weeks of referral
- have DMARD (disease-modifying anti-rheumatic drug) treatment initiated within 6 weeks of referral
- receive regular follow-up and monitoring over first year of treatment with evidence of appropriate titration of therapy.

BPT3. Biologic therapy BPT

A best practice tariff payment for patients with suspected EIA who:

- are seen within 3 weeks of referral
- are diagnosed, with DMARD treatment initiated within 6 weeks of referral
- receive regular follow-up and monitoring as per BPT2 over first year of treatment; biologic therapy prescribed and initiated in year 1.

The precise costing for the BPT has yet to be finalised, but the tariff levels are intended to allow rheumatology services to provide intensity of care consistent with NICE CG79, using a mixture of nurse- and consultant-delivered care.

If services are unable (or choose not) to implement the EIA BPT, they will continue to be paid the standard rheumatology new and follow-up tariff. However, it is hoped that the financial incentives built into the BPT will encourage providers to develop rheumatology services to have sufficient clinical capacity to provide timely assessment and intensive treatment.

The BPT will apply only to patients with new EIA referrals in their first year of care. All other rheumatology referrals, and patients already under follow-up will continue to attract the standard new and follow-up payment-by-results tariffs.

The Scottish Public Health Network

In Scotland secondary care services are not 'commissioned' through primary care, but are provided by health boards. However, the principles of shared care with primary care, early diagnosis and therapy of inflammatory arthritis, and multidisciplinary care are considered equally important. The Scottish Public Health Network (ScotPHN) commissioned a needs assessment for rheumatoid arthritis which was published in 2012. The epidemiological section is largely based on data from the Norfolk Arthritis Register (NOAR) and should thus be equally applicable in England, Wales and Ireland. The document includes an executive summary, epidemiological data, recommendations on the provision of core services for people with rheumatoid arthritis and cost implications (in draft form at the time of writing). These data may be of use to those commissioning services for rheumatoid arthritis in England, Wales and Northern Ireland as well as rheumatologists and health boards in Scotland. The website for the ScotPHN is: www.scotphn.net/ projects/previous_projects/rheumatoid_arthritis

Sport and exercise medicine

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1 Description of the specialty

Sport and exercise medicine (SEM) as a speciality has two objectives:

- 1 Address the needs of physically active groups and keep them active
- 2 Contribute to primary and secondary disease prevention by promoting and increasing physical activity participation.

Addressing the needs of physically active groups covers a broad spectrum of practice that is not exclusive to sports people and recreational athletes. SEM practice crosses the lifespan, treating children and adolescents with musculoskeletal complaints that prevent participation in school activities and hobbies through to older adults with decline in mobility. Occupationally based SEM practice helps adults to remain in active jobs, such as members of the armed services, public sector, construction industries, agriculture and other labour-intensive jobs, by managing musculoskeletal complaints. Clinical practice relating to sport and structured exercise addresses the clinical needs of the 15–25% of the UK population that regularly participate in sport and structured activity.¹ This clinical practice ranges from offering sports injury clinics to working with local, national and international sports teams in injury prevention and management.

Sedentary behaviour and inactivity are major contributors to musculoskeletal disease, reduced wellbeing and cardiovascular morbidity/mortality. The burden of physical inactivity extends across disease groups and impacts on society throughout our lifespan. Physical inactivity contributes to 5.3 million deaths world-wide and is recognised by the World Health Organization as one of the five most significant risk factors for chronic disease and reduced life expectancy.² Physical activity is integral to healthy growth and development yet, in the UK, only 70% of 10 year olds and less than 30% of 15 year olds achieve physical activity guidelines of 60 minutes of moderate to vigorous activity per day.³ Inactivity and sedentary behaviour continue to increase across the lifespan, with less than 8% of older adults engaging in the adult recommended levels of 150 minutes of moderate to vigorous activity per week.³ SEM consultants working in physical activity promotion undertake roles in environments ranging from primary prevention in population and community interventions to secondary prevention in lifestyle behaviour clinics and chronic disease management.

To meet the broad demands of clinical practice SEM consultants undergo 6 years of specialist training post-foundation training. SEM speciality training covers chronic diseases, exercise physiology, public health medicine, acute and emergency medicine, general practice, musculoskeletal and team medicine, as well as solid grounding in education, teaching and research.

2 Organisation of the service and patterns of referral

Investment in sport and exercise medicine and improving equity in public access to SEM services are of pressing national importance. The expansion and development of SEM services to date have largely evolved around the efforts of proactive, innovative and industrious individuals at regional levels. To date investment by NHS commissioners on behalf of their patients has been low. Sporadic regional development of service continues to support the bulk of NHS practice.

Regional efforts are now being supported by the National Centre for Sports and Exercise Medicine, based on three sites. The National Centre is a partnership between hospital trusts and universities from London, Sheffield and the East Midlands. The Department of Health has provided capital funding to help develop three facilities, one in each partner group, to speed up the translation of research into clinical practice. The funding of the National Centre is part of the government's Olympic legacy commitment, post-London 2012. It is anticipated that the National Centre will lead research and development to improve non-surgical musculoskeletal care and musculoskeletal disease prevention. It will also work to establish physical activity behavioural medicine services, particularly for those with chronic long-term conditions, many of whom could benefit from the expert prescription of exercise as part of their treatment. The National Centre for Sports and Exercise Medicine is a collaborative initiative with regional members. The regional development of SEM outside these centres continues to grow.

The clinical roles undertaken by SEM physicians leads to work in a variety of environments and many consultants would describe having portfolio careers. As a specialty in the process of being established, regional frameworks of clinical practice and organisational structure continue to evolve. Clinical practice can be broadly grouped as community models of practice and secondary care models.

Community models of care

In a community setting, SEM consultants are working with commissioners to develop locally agreed protocols/pathways in order to facilitate effective physical activity prescription within primary care and prompt access to appropriate musculoskeletal care.

In community musculoskeletal clinics, SEM consultants:

- provide a specialist opinion for patients and healthcare professionals close to the patient's home
- introduce a unique skill set, including the use of diagnostic ultrasound and guided injection therapies, which expedites the diagnosis and management of musculoskeletal problems
- provide support for other primary healthcare professionals, such as extended-scope physiotherapists (ESPs) and general practitioners with a specialist interest (GPwSIs)
- introduce a formal system of continuing professional development (CPD) and appraisal for physicians working within musculoskeletal services
- contribute to more efficient use of NHS funds for patients with musculoskeletal pathology through carefully considered and managed non-surgical plans in partnership with physiotherapists.

In chronic disease management promoting physical activity to achieve primary and secondary risk reduction, consultants working in community practice undertake roles defined by local resources and physical activity initiatives. Practice might include individual patient consultations with clinical risk assessments, physical activity measurement and behavioural modelling with outcome assessment at follow-up. Alternatively it might include physical activity services development, creating triage systems that are sensitive to individual patient needs, coordinating local resources and establishing sustainable behavioural interventions.

Models of secondary care

In secondary care, SEM consultants work within multidisciplinary teams and complement and expand care options across: adult musculoskeletal services, musculoskeletal adolescent care, pain management and chronic disease programmes. SEM consultants:

- lead musculoskeletal and sports injuries clinics, alongside existing orthopaedic, physiotherapy and emergency department services, providing diagnosis, treatment and rehabilitation of non-surgical musculoskeletal (including back pain), soft-tissue and sports injuries
- establish chronic disease rehabilitation schemes that are patient centred rather than disease centred and available to all, irrespective of morbidity
- provide a specialist service including clinical exercise testing and risk assessment for patients with more extensive or severe chronic disease and comorbidities
- provide a specialist service including clinical exercise testing to aid preoperative anaesthetic risk assessment
- provide an ongoing educational programme on evidence-based and effective exercise prescription for teams working in specific chronic disease areas.

3 Working with patients: patient-centred care

SEM services are centred on the patient and provide new options for healthcare providers in specialist exercise and musculoskeletal referrals. Patient choice is an important feature of these services, providing alternative options for patients. Many services are available in the community, close to home. The levels of physical activity and chronic disease of people from different ethnic, cultural and religious groups vary significantly. Equality, diversity and equity of access are integral considerations to SEM services, regardless of ethnic, religious or socioeconomic factors. Patients with chronic conditions are a priority for SEM services, and consultants are involved in the prevention of chronic disease through health promotion, as well as in establishing chronic disease rehabilitation services. They are trained in evidence-based behaviour change techniques, such as motivational interviewing, self-determination theory and social–cognitive theory. All these techniques improve efficacy for changing physical activity behaviour and improve compliance with exercise prescription.

4 Interspecialty and interdisciplinary liaison

SEM consultants are effective working at the centre of the care of those with musculoskeletal pathology. They may treat or sign-post the patient to appropriate other clinicians or services. They can also work side by side with many different healthcare professionals in effective multidisciplinary teams. These teams often include orthopaedic surgeons, physiotherapists, podiatrists, occupational therapists, nurses, dietitians and psychologists. In this way, SEM consultants work closely with other clinicians to reduce unnecessary burden on their services. This also ensures that patients are seeing the most appropriate clinician based on the SEM consultant understanding the pathology and the health system.

5 Delivering a high-quality service – how SEM contributes

SEM involvement in services will contribute to delivery of improved and innovative patient care, contribute to efficiency in pathways and reduce the financial burden on the NHS, both short and long term. Outside their direct patient contact role, SEM consultants can provide comprehensive and ongoing education on evidence-based and effective exercise prescription for application in primary care, as well as for teams working in specific chronic disease areas. They can introduce a formal system of CPD, mentoring and appraisal for medical and other professional staff working within musculoskeletal interface services. Clinical governance will be a key feature of all existing and new SEM services, with active involvement in audit, critical event analysis and appraisal. Most SEM services have an active programme of research, and this will be encouraged in new services as they are set up. The establishment and endorsement of the National Centre for Sports and Exercise Medicine provides a foundation for continued development in quality and standards. The National Centre will be tasked with being exemplars in clinical and research excellence in sport and exercise medicine. The National Centre will forge translation of biomedical and behavioural research into clinical practice, facilitating breakthroughs and innovation to drive improvements in patient care. This includes the establishment of protocols for process evaluation of clinical pathways and development of lean, sustainable organisational structures.

6 Clinical work of consultants

The work of SEM consultants includes (but is not limited to):

- musculoskeletal and soft-tissue diagnosis, treatment and rehabilitation
- musculoskeletal pain management
- musculoskeletal injury prevention
- diagnostic musculoskeletal ultrasound and image-guided soft-tissue and joint injections
- physical activity health promotion
- management of exercise and physical activity interventions
- assessment of chronic disease patients for the exercise referral service
- exercise prescription
- clinical exercise testing and risk stratification before exercise
- clinical exercise testing and risk stratification before anaesthesia
- advising on, and leading, workplace wellness schemes.

7 Workforce requirements for the specialty

Current workforce numbers

Since 2006 79 trainees have entered SEM training. Currently there are 49 trainees across the UK on specialist training schemes and 61 SEM physicians on the specialist register helping to further the development of the speciality.

Number of consultants required

Employment in the SEM field is still evolving so these figures are estimates only. Currently, there are 12 NHS

SEM services already in existence in secondary care, with many more community settings. The requirement for SEM consultants will evolve according to specific local needs, but it is expected that a minimum of 2 consultants will be required for a population of 330,000. This equates to 300 consultants across the UK. As the services develop within SEM, the number of consultants required is likely to grow further, given the enormous number of patients with a chronic disease or at high risk of developing one, all of whom would benefit from exercise prescription to help ease the burden of ill health in an ageing population.

8 Key points for commissioners

- 1 Globally physical inactivity causes 9% of premature deaths, 5.3 million of the 57 million deaths that occurred in 2008.²
- 2 Maintaining physical activity at recommend levels can equate to 3–4 years in additional life expectancy with risk reductions of the order of 20–40% for over 22 non-communicable diseases.⁴
- ³ The NHS could make substantial savings by targeting promotion of physical activity as part of chronic disease models.⁵
- 4 Current costs of providing healthcare cover for a physically inactive ageing population are not sustainable.^{6,7}
- 5 The NHS needs to invest proportionately to the burden of physical inactivity to develop sustainable prevention and treatment models for chronic disease.^{5–7}
- 6 SEM consultants are trained in providing evidence-based and effective physical activity interventions for primary and secondary prevention of chronic disease.^{8–10}
- 7 SEM consultants offer unique and specific skills in the diagnosis, treatment and rehabilitation

of musculoskeletal, soft-tissue and sport injuries.

8 SEM services may be situated in both community and secondary care settings, and tailored to meet local pressures and needs.

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Stroke medicine

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1 Description of the specialty

Stroke is the most common cause of severe disability and the third most common cause of death in the UK. It costs the economy £8 billion a year (£3 billion in NHS costs; over 5% of NHS resources).¹ Consultants specialising in stroke are based in several specialties, commonly geriatric medicine or neurology. They are represented by the British Association of Stroke Physicians (BASP) who define the competencies and roles of stroke specialists² and the stroke training curriculum (**www.basp.ac.uk**).

In an unprecedented development of stroke services, all hospitals in the UK now have a stroke unit and a neurovascular (transient ischaemic attack, TIA) clinic. Seventy-four per cent offer 24-hour thrombolysis. However, improvements in acute care are not yet matched by progress in delivering more effective post-hospital support.³

Who are the patients?

A hospital serving a population of 300,000 admits about 500 acute stroke patients each year.⁴ Stroke services need to plan for a further 20–25% of patients who present with stroke mimics. The cohort referred to TIA clinics contains a higher proportion of patients with alternative diagnoses, reflecting diagnostic uncertainty. The hospital described above might receive up to 500 such referrals per year. Twenty-five per cent of patients are under 65. People from certain ethnic minorities are at a higher risk. Stroke patients need specialist rehabilitation either in hospital or at home, and to access further rehabilitation and support, often for many years.

Main disease patterns

Stroke and TIA are part of the same spectrum of disease. By convention, TIA is diagnosed where symptoms resolve within 24 hours, but this is not a useful distinction. Stroke and TIA should be managed in an integrated service. Patients with subarachnoid haemorrhage have similar needs (eg rehabilitation) but a different pathway for acute care which is not addressed here.

2 Organisation of the service and patterns of referral

A typical service

A typical service comprises the following:

- *Neurovascular (TIA) clinic:* patients with suspected TIA who are at high risk of stroke should be seen and investigated within 24 hours, and all others within 7 days.⁵ A 7-day service with immediate access to appropriate brain and vascular imaging is needed.
- Hyperacute stroke service: people with suspected stroke must be conveyed immediately to a hospital providing thrombolysis 24 hours a day⁵ and admitted directly to a hyperacute stroke unit (HASU).⁶ Twenty-four hour availability of an experienced stroke physician and immediate access to brain imaging is needed. Hospitals that cannot provide a full hyperacute service participate in telemedicine schemes which are becoming well established and researched. Some hospitals continue to need to operate a bypass arrangement to convey stroke patients to the nearest suitable hyperacute service ensuring that there are robust arrangements for this with emergency service providers.6
- *Acute stroke unit (ASU):* all hospitals admitting people with stroke must ensure that patients are admitted directly to an ASU (or HASU). SUs should meet specific geographical, organisational and staffing crtieria.⁶
- *Rehabilitation stroke unit (RSU):* different models are effective including integration with the acute unit and separate units in acute, intermediate or community settings. Better outcomes are achieved when stroke professionals oversee care.⁷
- *Early supported discharge* should be provided for suitable patients and should consist of the same intensity and skillmix as in hospital, without delay in delivery.⁶
- *Long-term management of disablity:* a wide range of rehabilitation and support services must be provided for patients and carers.

Box 1 Characteristics of effective stroke units

Key characteristics of all stroke units³

- Consultant physician with responsibility for stroke
- Formal links with patient and carer organisations
- Multidisciplinary meetings at least once a week to plan patient care
- Provision of information to patients about stroke
- Funding for external courses and (monitoring of) uptake

Additional key characteristics of acute stroke units³

- Continuous physiological monitoring (ECG, oximetry, blood pressure)
- Immediate access to scanning
- Direct admission from A&E/front door (<1 hours)
- Specialist ward rounds 7 days/week
- Acute stroke protocols/guidelines
- Nurses trained in swallow screening
- Nurses trained in stroke assessment and management

• *Tertiary services for stroke:* include those provided by neuroradiology, neurosurgery, vascular surgery and specialist rehabilitation services.

Community models of care

A community model of care is not appropriate for acute stroke. Rehabilitation may be provided in a community setting in many cases. The *National stroke strategy*⁷ supports early supported discharge for people with moderate disability. Community rehabilitation must be by a specialist multidisciplinary team (MDT).⁶

3 Working with patients: patient-centred care

Involving patients in decisions about their treatment

Patients and carers want timely access to quality services and knowledgeable staff who understand the full range of their needs. Successful recovery from stroke depends on full and equal involvement of the patient. The nature and consequences of a patient's impairment should always be explained to the patient and carer. Patients should be informed of realistic recovery prospects and should have realistic goals set. It is particularly important to involve the patient when a therapist or team is planning to stop giving rehabilitation and about proposed transfers of care, where communication between services is often poor.⁶

Patient-centred care

Patient choice: ethnic and religious considerations Given the higher prevalence of stroke in some minority ethnic communities, services should consider the need for interpretation and advocacy, and be sensitive to cultural and religious preferences.

Opportunities for education

Members of the public and healthcare staff need to be able to recognise the symptoms of stroke, that it is an emergency, and to know what can be done to reduce risk.⁷ Education is a key component of rehabilitation. Stroke services must provide educational programmes for staff, patients and carers.⁶

Promoting self-care

Stroke rehabilitation aims to increase independence and ability. Organised rehabilitation directly improves activities of daily living. The goal of stroke care is for those who have had a stroke, and their carers, to live a full life in the community.

Patients with chronic conditions

Rehabilitation should continue until it is clear that maximum recovery has been achieved. Of stroke patients surviving at one year, 35% are significantly disabled and 5–15% are admitted to long-term care.⁶ Patients need help with a variety of complex problems, including spasticity, specialised equipment, cognition and mood, and return to work and driving.

The role of the carer

A stroke in one person often affects the whole family, and relatives need information and support.⁶ Families provide much of the long-term care, often finding their own lives radically altered. The needs of carers must be considered at each stage. Family support workers help to reduce carer distress.⁶

Patient support groups

The Stroke Association (**www.stroke.org**) plays a major role in developing, delivering and monitoring stroke services. Different Strokes (**www.differentstrokes. co.uk**), Connect (**www.ukconnect.org**) and Speakability (**www.speakability.org.uk**) also provide written, web-based and telephone advice. Most areas have local support groups.

Access to information

Patients with stroke and TIA report that one of their main needs is for information. This must be provided at appropriate times and in suitable formats including those suitable for people who do not speak English, and those with stroke-related impairments such as visual and language difficulties.

Availability of clinical records/results

Availability of clinical records, including results of brain imaging, is particularly important when the patient moves from one part of the service to another.

Role of the expert patient

Stroke patients should be routinely involved in service planning and evaluation,⁶ and may participate in education for staff and service users.

4 Interspecialty and interdisciplinary liaison

Multidisciplinary team working

The specialist stroke team includes specialist stroke nurses, therapists from all professions and psychologists. Other professions include orthotics and seating services, orthoptics and ophthalmology, podiatry, and hospital and community social work services. The World Health Organization international classification of functioning, disability and health (WHO ICF)⁸ provides a useful framework for shared working. Documentation and transfer of information are particularly important; a stroke proforma and integrated record (shared by all members of the MDT) are good practice.

Working with other specialists

Priority access to appropriate and specialised imaging is of fundamental importance. Stroke physicians also work closely with physicians, geriatricians, neurologists, vascular surgeons, neurosurgeons and accident and emergency (A&E) departments. Liaison with psychiatry (cognitive impairment, anxiety and depression), gastroenterology and nutrition (complex feeding issues), and with palliative care and pain management teams, is expected.

Working with GPs and GPs with a special interest

Stroke physicians work with the primary care team at all stages of the stroke pathway, including primary and secondary prevention, acute care of people with stroke/TIA and long-term support of stroke patients with residual disability.

5 Delivering a high-quality service

People who have a stroke are more likely to survive and recover more function if admitted promptly to a hospital-based stroke unit with care provided by a specialist team within an integrated service.⁷

Maintaining and improving the quality of care

Service developments to improve the quality of care

Stroke care has been a focus for the Department of Health (DH) for over 10 years and a UK leader in the National Sentinel Audit Programme (100% participation since 2004). The National sentinel stroke *audit*⁹ was developed by the RCP Stroke Programme (Clinical Effectiveness and Evaluation Unit, RCP, through the Intercollegiate Stroke Working Party, ICSWP). The National stroke strategy⁷ was implemented by the *Stroke Improvement Programme* (DH) until 2012. Services for stroke patients have been transformed under the influence of these and other key drivers (see Box 2). BASP and the RCP have developed a Joint Peer Review Programme. Stroke is now a key component of the General Medical Services (GMS) contract for primary care; there are seven key indicators for stroke in the 2012–13 quality and outcomes framework (QOF).¹⁰ Stroke is also represented in the NHS outcomes framework¹¹ and the Clinical Commissioning Groups Outcomes Indicator Set 2013–14.12

Box 2 Specialty and national guidelines and audits, quality tools and national frameworks

Specialty and national guidelines

- National clinical guideline for stroke, 4th edn 2012⁶
- NICE clinical guideline: management of acute stroke and TIA 2008⁵
- NICE Quality standard for stroke 2010¹⁴
- Stroke in childhood: clinical guidelines for diagnosis, management and rehabilitation¹⁵
- Meeting the future challenge of stroke. Stroke medicine consultant workforce requirements 2011–2015 (BASP)⁴

Specialty and national audit

- Sentinel Stroke National Audit Programme (SSNAP)³ (previously: National Sentinel Stroke Audit⁹) and Stroke Improvement National Audit Programme (SINAP)¹³
- UK audit of vascular surgery services and carotid endarterectomy¹⁶

Quality tools and service frameworks

- National service framework for older people 2001¹⁷
- National service framework for long-term conditions 2005¹⁸
- Reducing brain damage: faster access to better stroke care 2005¹⁹
- Improving stroke services: a guide for commissioners 2006²⁰
- National stroke strategy 2007⁷
- Welsh Health Circulars 058 and 082 2007²¹
- Improving stroke services in Northern Ireland. 2008²²
- Progress in improving stroke care 2010¹

Leadership role and the introduction of service developments

Stroke physicians play a key role in developing and implementing modern stroke services.

Education, training, mentoring and appraisal

Stroke physicians train and mentor members of the stroke team, and participate in education for staff, patients and carers.

Continuing professional development

BASP holds regular educational meetings including an annual meeting, at the UK Stroke Forum. Stroke practitioners join relevant professional societies and attend research and educational meetings as well as general continuing professional development (CPD) activities.

Clinical governance

All stroke physicians participate in local and national audit and reporting. The *National sentinel audit of*

stroke⁹ (England, Wales and Northern Ireland) has been superseded by the Sentinel Stroke National Audit Programme, SSNAP (currently for England).³ It comprises organisational audits and prospective data collection for all stroke patients. It will provide a core dataset, optional further data collection, spotlight audits (on topics not regularly covered) and sprint audits (focusing on areas of concern). Real-time data collection for stroke patients in England commenced in 2010 as the Stroke Improvement National Audit Programme (SINAP). SINAP data for 10,069 patients admitted between July and September 2012 show that they had improved access to imaging (92% had a brain scan within 24 hours), quicker time to arrival on a stroke unit (66% within 4 hours), and that more patients received thrombolysis (69% of eligible patients).¹³ The first SSNAP acute organisational audit found that 95% of patients were on a stroke unit on the day of the audit. However, only about 50% of patients are admitted directly to such a unit. Sixty-six per cent of services provide early supported discharge, but community rehabilitation remains under-developed.³

Research

Stroke medicine is founded on an increasing evidence base of high-quality international randomised controlled trials and was represented early in the Cochrane Collaboration (**www.cochrane.org**). The National Institute for Health Research Stroke Research Network (NIHR SRN) is one of the five main UK clinical research networks (**www.uksrn.ac.uk**).

Specialty guidelines, audits and quality tools

Specialty guidelines, audits and quality tools are presented in Box 2.

Regional and national work

Stroke physicians work within local clinical networks. Many are involved in the RCP Stroke Programme (Clinical Effectiveness and Evaluation Unit, RCP), the Intercollegiate Stroke Working Party (ICSWP, RCP), and with BASP and the NIHR SRN. Current stroke physicians are the founder members of a new national specialty and continue to work together to develop national service specifications, deliver integrated services and train future specialists.

6 Clinical work of consultants

How a specialist works in this specialty

Consultant stroke physicans are expected to provide daily assessment of new confirmed and suspected stroke and TIA patients, including at weekends and bank holidays. Weekly acute and rehabilitation MDT meetings and twice-weekly ward rounds of rehabilitation patients are specified.⁴

Outpatient reivew of high-risk TIA patients within 24 hours and low-risk TIA patients within 7 days, and at least two outpatient review opportunities after discharge from a stroke unit, must be provided. Stroke specialists will participate in clinics for spasticity, pain and other stroke-related complications.

Specialist on call

Twenty-four-hour availability of an experienced stroke physician for diagnosis and opinion on thrombolysis treatment is mandatory. Few hospitals currently have sufficient experienced consultants within stroke/ neurology to provide cover within the European Working Time Directive criteria. Hyperacute centres and telemedicine are possible methods of achieving a 24-hour service.

Other specialist activity including activities beyond the local services

Many stroke physicians play an active role in provision of tertiary services, research and service development (see above).

7 Opportunities for integrated care

The NICE *Quality standard for stroke*¹⁴ requires that stroke services are commissioned from and coordinated across all relevant agencies to encompass the whole stroke pathway.

8 Workforce requirements for the specialty

Clinical developments in UK stroke services have overtaken the specialist resource needed to support them. Using nationally approved clinical standards, it is calculated that 20 direct clinical care (DCC) programmed activities (PAs) are required to support a service admitting 500 patients per year (approximately 300,000 population). A population of 60 million requires 2,800 DCC PAs from stroke specialists. This is equivalent to 350 whole-time equivalent (WTE) consultants. However, (RCP) census data indicate that most stroke physicians also provide input into another specialty (www.rcplondon.ac.uk/resources). It is acknowledged that some aspects of stroke care are currently provided by consultants who are not stroke specialists according to BASP criteria. Allowing for such subspecialist support, it is calculated that the stroke specialist shortfall is currently 163 posts, ie 513 stroke specialists are required in the UK. In 2011, 40 stroke trainees were expected to complete specialist training by 2014.

BASP recommended that an extra 30 stroke medicine trainee places are created per year in the UK for the next 4 years.⁴

9 Consultant work programme/specimen job plan

Stroke specialists should provide a mimum of 5 PAs into stroke care, usually 4 DCC PAs and 1 SPA. The remaining 5 PAs can support a parent specialty. However, consultants may provide more or less time than this into stroke care, eg a full-time stroke specialist could provide 8 DCC PAs and 2 SPAs but would not provide any input into a parent specialty.⁴ For the purposes of this example it is assumed that a 1.0 WTE stroke consultant provides 2.5 DCC PAs into the parent speciality (Table 1).

Table 1 Specimen job plan for a consultant stroke physician	
Activity	PAs
Acute stroke unit (ASU) ward rounds (7-day service)	1
ASU MDT meetings/relatives clinics or meetings	0.25
Neuroradiology meeting	0.5
Neurovascular clinic (7-day service)	1.25
Rehabilitation stroke unit (RSU) ward rounds	1
RSU MDT/relatives clinic or meetings	0.5
On-call for stroke/TIA/thrombolysis (24-hour service)	1
Direct clinical care (DCC) stroke	5.5
DCC parent specialty	2.5
Supporting professional activities (SPAs)	2.0
Total PAs	10
In this example, a total of 20 DCC PAs are needed to support a stroke service.	
PAs for each activity are as follows: Hyperacute/Acute stroke service: Rehabilitation stroke service: Outpatients including 7-day neurovascular service:	10.0 2.5 7.5
Depending on the amount of work in parent specialties, between 4 and 9 stroke consultants are peeded in this bespital (maximum	

Depending on the amount of work in parent specialties, between 4 and 8 stroke consultants are needed in this hospital (maximum on-call frequency 1:4).

The British Association of Stroke Physicians (BASP) have produced a template for the amount of stroke consultant sessions needed according to the size of the service and the amount of work done in parent specialties.⁴

MDT = multidisciplinary meeting; TIA = transient is chaemic attack.

10 Key priorities for commissioners

The key priorities listed below are adapted from NICE's *Quality standard for stroke*.¹⁰

- 1 People seen by ambulance staff outside hospital should be screened using a validated tool, to diagnose stroke or TIA, and transferred to a specialist acute stroke unit within 1 hour.
- 2 Patients with acute stroke who meet any of the indications for urgent brain imaging should receive this within 1 hour.
- 3 Patients with suspected stroke should be admitted directly to a specialist stroke unit and receive thrombolysis if clinically indicated.
- 4 Patients with acute stroke should have their swallowing screened within 4 hours of admission by a specially trained professional before being given oral food, fluid or medication, and have a plan for the provision of adequate nutrition.

- 5 Patients with acute stroke should be assessed and managed by stroke nursing staff and at least one member of the specialist rehabilitation team within 24 hours of admission, and by all relevant members of the team within 72 hours. Documented multidisciplinary goals should be agreed within 5 days.
- 6 Patients who need ongoing inpatient rehabilitation should be treated in a specialist stroke rehabilitation unit.
- 7 Patients should be offered a minimum of45 minutes of each active therapy that is required,for a minimum of 5 days a week.
- 8 Patients who have continued loss of bladder control after 2 weeks should be reassessed to identify the cause and have a treatment plan involving both patient and carers.
- 9 All patients should be screened within 6 weeks, using a validated tool, to identify mood disturbance and cognitive impairment.

- 10 Patients discharged from hospital with residual stroke-related problems should be followed up within 72 hours by specialist stroke rehabilitation services.
- 11 Carers should be provided with a named point of contact for stroke information, written information about the patient's diagnosis and management plan, and practical training to enable them to provide care.

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3 The Royal College of Physicians: supporting the delivery of high-quality care

The Royal College of Physicians (RCP) supports fellows and members and the organisations and teams in which they work to improve the quality of clinical care that they deliver to patients. This is achieved in a number of ways: medical training and examinations; education and training programmes; developing clinical guidelines; conducting national comparative audits; facilitating data and informatics improvements; undertaking invited service reviews; undertaking quality improvement projects; and supporting the membership preparing for appraisal and revalidation. The RCP also supports the appointment process for consultant physicians, to ensure that the training and experience are adequate to allow the doctor to practise unsupervised.

Support is given to physicians who work overseas, through the International Office, and we share the quality improvement methodology and educational excellence with colleagues in other countries.

The RCP is also a resource for other organisations, both within and outside the NHS, providing experience and expertise in improving the quality of care.

The RCP's *A strategy for quality* sets out the domains of quality: safety, patient experience, effectiveness, equity, efficiency, timeliness and sustainability.¹

Setting standards, measuring standards and continuously improving, in ongoing repeated cycles are the basis of the approach – represented pictorially by the quality spiral (see www.rcplondon.ac.uk and see Fig 2).

Information about all the RCP departments and the infrastructure to support the work of the RCP is found on the website (www.rcplondon.ac.uk).

RCP activity has been designed to encourage and support physicians to evaluate and improve their clinical practice and improve patient care. Physicians are able to draw on resources from the RCP at all stages of the 'quality spiral'. Specific details of each of the programmes the RCP has developed in support of quality improvement are outlined below.

Patient Involvement Unit

The Patient Involvement Unit encourages and promotes patient, carer and public involvement in RCP activities. It does this through the Patient and Carer Involvement Steering Group and the Patient and Carer Network, ensuring that the patient perspective is included in all RCP policies and decisions.

Shared Decision Making/supported self-management by patients

As more patients have long-term conditions, and often more than one, they need to be supported to undertake better self-management of their conditions. Also, decisions about their care need to be made in partnership with the health professional. The RCP is taking forward this agenda, and has appointed a clinical fellow in Shared Decision Making to work with members and fellows and the specialist societies.

Education and training

Education is a core function of the RCP and it delivers a wide range of programmes for physicians of all grades. The programmes are continually developed and designed to keep physicians up to date on all aspects of medical education.

The Education Department leads in the development of educational policy and initiatives and in the provision of services and resources to support the professional development of physicians.

These include the organisation and delivery of educational programmes, the production of multimedia material, accreditation of continuing professional development (CPD) events, the provision of access to, and training in, the use of educational resources, and the provision of expertise through consultancy nationally and internationally.

The Department provides consultancy and project support to the Joint Royal Colleges of Physicians Training Board (JRCPTB) and to other colleges and faculties in relation to the development of curricula, assessment strategies and workplace-based assessment methods.

Educational programmes

The Education Department delivers a full range of programmes for doctors of all grades and specialties. Our Doctors as Educators Programme offers 1- and 2-day workshops, which include topics such as teaching skills, medical leadership, appraisal, assessment and educational supervision skills. We offer two RCP accreditations: the RCP Educator accreditation and the RCP Educational Supervisors accreditation. We also offer two university-accredited postgraduate programmes – a Masters in Medical Education and a Masters in Medical Leadership. In addition to these programmes the Education Department offers bespoke in-house training, as well as programmes specifically for new consultants and junior doctors.

Continuing professional development

Continuing professional development is the preferred term in the UK for continuing education and professional development after the completion of training. CPD encompasses both continuing medical education (CME) and the wider range of professional activities that are required for a doctor to practise medicine. CPD may therefore be defined as:

a continuing learning process, outside formal undergraduate and postgraduate training, which enables doctors to maintain and improve their performance across all areas of their practice through the development of knowledge, skills, attitudes and behaviours.

The Federation of the Royal Colleges of Physicians of the UK provides an online CPD scheme for physicians. Live and distance-learning activities are approved for 'external' CPD if they meet educational quality criteria. Approved activities are placed on a database accessible to scheme members. Activities are recorded in an individual's electronic CPD diary and may be matched against specific learning objectives. Credits are gained for an activity once a structured reflection is completed.

Jerwood Medical Education Resource Centre

The Jerwood Medical Education Resource Centre, which forms part of the RCP's library services, was opened in 2002 and holds a specialist collection of over 6,000 items including books, journals and CD-ROMs. The collection supplements the educational courses coordinated by the RCP and provides physicians with access to comprehensive resources and materials to support their CPD and teaching responsibilities. Fellows and subscribing members are entitled to borrow materials from the collection and can also apply for access to an extensive selection of online databases and electronic journals. Additional services include a detailed information and literature search service, database training and subject guidance.

Curriculum and assessment development

Educationalists from the Education Department regularly work with JRCPTB and the specialty advisory committees to provide expert advice on and practical support for the development of curricula and assessment systems. The Department provides consultancy services on curriculum development and assessment to other colleges and faculties both nationally and internationally. The Education Department has led the development, piloting and validation of workplace-based assessment methods for trainees and is currently piloting a new method of assessing leadership competencies for trainees. The Department is also project managing the development and implementation of a knowledge-based assessment system for small specialties.

RCP educational consultancy

The RCP educational consultancy works with medical organisations – both in the UK and internationally – to facilitate the most effective solutions to a range of challenging educational and training issues which the modern medical profession faces and then works with organisations to implement those solutions successfully. The consultancy has worked in several different countries including the USA, Singapore, Sri Lanka, Uganda and Oman, and has supported a number of different organisations, from deaneries and teaching hospitals to specialty boards and universities. The consultancy offers a range of different services, dependent on the specific needs of the organisation, from advisory roles to major curriculum design and development work.

Conferences

The Conferences Department provides a programme of scientific and educational events designed to maintain and improve the clinical practice of members, fellows and other healthcare professionals throughout their careers. It is focused increasingly on providing a resource that fellows and members can use for fulfilling the educational and development requirements for revalidation.

The annual conferences in advanced, acute and general medicine remain the foundation of the Department's activity. The joint specialty committees are invited to propose subjects for specialist educational events according to a rolling, predetermined programme, in order to provide conferences on topics appealing to wide, cross-specialty or multidisciplinary audiences. Those selected are 'joint badged' with the relevant societies. The programme of events also includes teach-ins and lectures, many of which are available as a web-stream.

Delegate interaction, facilitated by means of an audience-response system, is an important component of many conferences, with the eventual aim of developing a generic assessment process, whereby knowledge gained can be demonstrated and logged into RCP-based delegates' electronic CPD records. Again, this would be invaluable in helping members and fellows to fulfil their requirements for revalidation.

The Department also provides support for the administration of the RCP trust funds and the award of many prestigious fellowships, prizes and lectureships. Increasingly, these are awarded in conjunction with external bodies, eg Medical Research Council (MRC) and the Dunhill Medical Trust, to increase the range and quality of applications, to attract matched funding and to ensure a rigorous and fair method of evaluation.

Specialty recruitment

In 2007, coinciding with Modernising Medical Careers, the Medical Training and Application Service (MTAS) took on coordinated recruitment. This venture was not successful so the RCP was asked to coordinate core medical training (CMT) recruitment in 2009. This was done by a small team within the Education Department assisted by clinical leads. Following the success of this RCP-run process, five ST3 specialties were added to the process in 2010, and the Specialty Recruitment Office now runs recruitment for CMT and 16 medical ST3 specialties.

Recruitment is traditionally fraught and contentious so the RCP team concentrated on prompt delivery of a high-quality streamlined process. Extensive consultation and communication with stakeholders was undertaken, particularly with the trainees and clinicians involved as well as the deaneries who continue to deliver recruitment for their own localities. The recruitment websites, www.CMTrecruitment.org.uk and www.ST3recruitment.org.uk, are key resources, backed up by a help desk, extensive guides and training materials and question banks. The RCP service is regarded as one of the gold standards in recruitment.

Coordinated recruitment is now embedded in most training programmes, and the RCP has played a key part in making this work well for medical specialty recruitment. We continue to rely on the cooperation of trained physicians in assisting with the recruitment of trainees to their training programmes.

Examinations

The Membership of the Royal Colleges of Physicians (UK) (MRCP(UK)) Diploma is a high-stakes exam which tests the skills, knowledge and behaviour of doctors in training. It has three parts: two written papers that test medical knowledge and judgement, and a clinical component called PACES (Practical Assessment of Clinical Examination Skills). Under the rules for the latest UK curriculum, completion of the entire three-part examination is a requirement for applicants seeking specialist training posts (ST3). Internationally, one or more parts of the MRCP(UK) is delivered in 27 countries. The Specialty Certificate Examinations (SCEs) are a relatively new requirement for specialist physicians in the UK and they are gaining recognition internationally. SCEs have been developed in close collaboration with the specialist societies and they are demanding assessments for physicians nearing the end of specialist training, which test knowledge at an advanced level. They consist of 200 'best of five' multiple-choice questions and are administered via a computerised system at test centres around the world. By the end of 2011 a total of 12 SCEs had been rolled out. To encourage uptake around the world, we will be

broadening the eligibility criteria, allowing many more experienced trainees the opportunity to sit the SCEs.

Joint Royal Colleges Postgraduate Training Board

The Joint Royal Colleges Postgraduate Training Board (JRCPTB) (www.jrcptb.org.uk) is responsible to the Federation of Royal Colleges of Physicians of the UK for carrying out the functions relating to the supervision of medical training as devolved to it by the GMC and by arrangement with any other organisations as may be required. The policy directions of the GMC, Medical Education England and the equivalent organisations in the devolved nations remain the principal drivers for the JRCPTB's operations. Its main functions, through a system of specialist and core medical training committees, are to:

- monitor individual trainees' progress through specialist training and to make recommendations for the award of Certificate of Completion of Training (CCT); this entails:
 - the enrolment of all trainees (national training numbers (NTNs) and other categories)
 - maintaining a database of all trainees and monitoring their progress
 - contributing to the penultimate-year assessment and the Annual Review of Competence Progression (ARCP) process
 - signing off completion of training in concert with programme directors and postgraduate deaneries
- undertake the evaluation of applications for Certificates of Eligibility for Specialist Registration (CESR) and make recommendations on each one
- develop and arrange the ongoing review of generic, core and specialist training curricula and assessment strategies (including examinations)
- develop efficient processes, working with the postgraduate deans and college representatives locally, for the quality management (ensuring delivery) of physician training as stipulated in curricula and assessment strategies.

Leadership development

In 2011, a new intercollegiate Faculty of Medical Leadership was established to support those physicians who are undertaking specific leadership roles such as clinical or medical directors and will develop as a resource for developing leadership skills for the medical profession as a whole. The RCP will play a full part in the future development of the Faculty.



Fig 2 The RCP quality spiral

Clinical standards at the RCP: defining care, measuring care, improving care for patients

The vision of the Clinical Standards Department is to improve patient care by the setting, monitoring and implementation of clinical standards (Fig 2).

The intention of the Clinical Standards Department is to provide leadership and support to RCP fellows, members and the teams and organisations in which they work to deliver the highest standards of clinical practice and so the highest standards in patient care. The approaches used to deliver this intent are:

- clinical management guidelines
- national comparative clinical audit
- implementation and dissemination, sharing of best practice
- quality improvement projects
- revalidation and appraisal
- accreditation
- health informatics
- patient safety.

Our style of working is that of multiprofessional collaboration, keeping the patient at the heart of our work. Active front-line clinicians direct the work programme supported by health service researchers, project managers, statisticians and health economists. We work closely with those national bodies relevant to supporting delivery of high-quality patient care in the NHS such as the Department of Health, national clinical leads, the National Institute for Health and Care Excellence (NICE), the Healthcare Quality Improvement Partnership (HQIP), the Care Quality Commission (CQC), Health Improvement Scotland, the National Leadership and Innovation Agency for Healthcare in Wales, specialist societies, other royal colleges and patient groups.

Clinical management guidelines

To provide optimal patient care it is necessary to know what constitutes optimal care. Determining this can be difficult, increasingly so as medicine becomes more complex, more treatments become available and the associated scientific literature increases. One way of helping clinicians to manage their patients effectively in the face of information overload is the production of clinical guidelines. The primary purpose of a guideline is to set out recommendations for the most appropriate management of patients with a specified condition. Therefore, guidelines should be as clear and direct as possible. However, a patient with an uncomplicated, single pathology is something of a rarity. Concerns have been expressed that an over-reliance on guidelines will produce doctors who cease to think through their practice and make decisions. This is no more a necessary consequence of relying on guidelines than of using textbooks or lectures for medical education. Recommendations must be applied to individual patients with their particular preferences and their different comorbidities. But it is still important to have a clear, basic foundation from which to build, and guidelines provide this.

Guidelines should inform routine patient care and while it is reasonable to be at variance from standard guidance, as determined by a patient's circumstances, it is prudent to document why the alternative course was taken. This leads to the secondary function of guidelines – to provide a basis for the audit of the quality of patient care. Recommendations within guidelines are an important source of audit criteria, and indeed many guidelines encourage this by suggesting appropriate topics.

Producing guidelines

Clinical guidelines are developed using a variety of methodologies. One of the most rigorous approaches is used by the National Clinical Guidelines Centre (www.ncgc.ac.uk). The centre is hosted at the RCP to deliver a large and diverse commissioned programme for NICE. The guidelines have the advantage of incorporating both clinical and cost-effectiveness evidence. Another common methodology is the Scottish Intercollegiate Guidelines Network (SIGN) approach, which is often adopted by the specialist societies as it is less resource intensive and is consistent with the Appraisal of Guidelines Research and Evaluation (AGREE) collaboration (**www.agreecollaboration.org**), an international collaboration quality assuring guideline methodology. This methodology is also used for the development of guidelines for occupational health, stroke and in the Concise Guidelines to Good Practice series.

The topics that RCP guidelines cover grow on a monthly basis and can be found on the RCP website (www.rcplondon.ac.uk/resources/clinical-resources).

Specialist societies produce excellent guidelines which are particularly useful sources of information on rarer topics that are less likely to be covered by NICE. The RCP is supporting specialist society guidelines by publishing the Concise Guidelines series in *Clinical Medicine* and in booklet form.

National comparative clinical audit

Donabedian defined quality of care as 'the degree of conformance to, or deviation from, normative behavior'.² Brook and Kosecoff more succinctly defined it as 'doing the right things ... well'.³ In 2010, following a review of the literature and a consultation exercise, the RCP developed its own definition of quality. It comprises seven domains: safety, patients' experience, effectiveness, equity, efficiency, timeliness and sustainability. All definitions imply the need for standards – 'normative behaviour' and 'doing the right things' – and the need for measurement of practice, all key elements of clinical audit.

Clinical audit is conventionally considered as a cycle of quality improvement that involves measurement of the effectiveness of healthcare against agreed and proven standards for high quality, and taking action to bring practice in line with these standards so as to improve the quality of care and health outcomes. Detailed advice for carrying out clinical audit can be found in *New principles of best practice in clinical audit*⁴ and *Local clinical audit: handbook for physicians* (HQIP, 2010).⁵

Recommendations include the following:

Determining standards for practice: increasingly standards are based on evidence or derived from sound

consensus methods. Important sources of guidelines and standards that form the basis of audit include NICE and SIGN, policy guidance such as national service frameworks (NSFs), commissioning frameworks or clinical strategies, and clinical guidelines from specialist societies, eg the British Thoracic Society (BTS) guideline *Emergency oxygen use in adult patients*.⁶

Measuring practice: clinical audit is a multiprofessional activity that should reflect the service provided by the clinical team. Measurement of practice is not simple. Careful consideration has to be given to the patient groups to be audited, the audit criteria to be used, the methods for identifying patients, and for data extraction, data collation and analysis. Clinicians should work closely with clinical audit departments to ensure that the method is sound and thus time invested in clinical audit results in useful outputs. Clinical audit departments are invaluable in providing support and advice, and ensuring that results and actions are reported through NHS governance processes to the NHS Boards.⁷

Changing practice: the purpose of audit is to improve practice. Unless service improvement is included within the process, it is meaningless. The results from an audit should be followed up with action plans for improvement, and in order to achieve change it is important that there is close cooperation between clinicians and managers.

Re-measuring practice over a time series enables trends to be established and show whether progress has been made. Clinicians need to see clinical audit having an impact on service development if it is to establish sustainable change in practice.

Clinical audit has many potential uses in clinical practice, in the following areas:

- *Improving the quality of care*: the audit topic must be important and of interest to the clinician. The results of audits must be reviewed within teams and departments, and used to inform service development and improvement work. Repeat audits must be carried out to demonstrate whether or not progress is being made.
- *Audit as routine practice*: the increasing development of information technology within the NHS provides the opportunity for routine clinical data gathering to feed into audit processes.

- Accessing the patient's perspective: increasingly clinical audit is developing to ensure that the patient's perspective is included in assessing the quality of service provided.
- *Training*: clinical audit provides an opportunity to learn the principles of literature searching and critical appraisal as well as scrutinising care provision through data collection and subsequent change-management processes. An understanding of these principles underpins informed analysis of the literature as well as the methods for improving the quality of care.
- *Revalidation*: clinicians participate in audit and demonstrate that they have reflected on the outcomes of audit.

Clinical audit and specialist societies

Specialist societies have the potential to make a great contribution to audit. Many societies already develop guidelines for practice, the majority of which are amenable to audit.

Through their existing contacts with all medical departments throughout the UK, and for some internationally, societies are in a strong position to coordinate multicentre audit projects using agreed standards and audit criteria. Such a role can enable the rapid collection of powerful data for use both at a local level and for benchmarking between sites.

Societies are very well placed to disseminate findings – through their publications and at regional and national meetings. Such feedback can facilitate the sharing of best practice while providing a forum for debating how the quality of clinical practice can be improved.

Dissemination and implementation (sharing best practice)

The Clinical Standards Department's approach to delivering quality improvement projects ensures interaction with key stakeholders throughout project implementation. This establishes routes for active communication and naturally facilitates dissemination of information and findings directly to our key stakeholders. The RCP works to embed a culture of recognising the importance of these activities and sharing ideas and mechanisms that are tried and tested; however, we recognise that we do not know each organisation's or clinical team's circumstances. Dissemination and implementation are therefore initiated both locally and nationally. We disseminate via targeted reports and communications to the most involved audiences, and host national conferences and regional workshops. We provide slide sets which can be edited with local data to make dissemination as simple as possible and to encourage an accurate and consistent message. Broader audiences are targeted through press activity, RCP publications, and presentations at regional and national conferences, workshops and meetings, along with numerous academic papers published in peer-reviewed journals.

Implementation activity depends very much on the project topic and the specific findings or recommendations. Generic approaches include use of conference sessions and regional workshops to discuss findings and application of recommendations in detail, gathering feedback (via anonymous voting, discussion, focus groups) and creating action plans for local teams. Peer or expert reviews are often offered.

The focus is always on the evidence base, bespoke datasets and identification of what will work in individual circumstances. Audit data are widely shared, in various formats, to support patient choice initiatives, regulatory activities, such as the Care Quality Commission's *Quality risk profiles*,⁸ policy development, for example, the strategy for services for chronic obstructive pulmonary disease (COPD) in England,⁹ and evaluation of public expenditure such as the National Audit Office report, *Progress in improving stroke care*.¹⁰

Quality improvement projects

In line with the key objectives of the white paper in England, *Equity and excellence: liberating the NHS*,¹¹ and its own *A strategy for quality*,¹ the RCP manages a number of innovative projects that aim to drive improvements in specific aspects of healthcare where deficiencies or variations are identified through national clinical audit. Working in collaboration with specialist societies and patient groups to plan projects, and closely with clinical teams at the front line, a number of quality improvement techniques are implemented to support efforts to improve the patient experience and outcomes of healthcare services.¹²

Accreditation

Accreditation is a self-assessment and external peer assessment evaluation process used to assess accurately a service's level of performance in relation to established standards. Healthcare providers are required to produce evidence to demonstrate their compliance with the standards. Accreditation is seen as a 'badge of quality' for a healthcare provider and is important to commissioners and patients alike.

The RCP's accreditation schemes have at their heart the HQIP-approach to professionally led clinical service accreditation. They aim to improve the quality, safety and outcomes of healthcare, the patient experience and service delivery. The schemes are professionally led by multidisciplinary teams. They are supportive of healthcare services and as such include training days and facilitate sharing of best practice among teams. A key feature is the self-assessment and improvement tools available to services for them to measure their own performance in relation to the standards before an accreditation assessment takes place. If a healthcare provider does not meet the standards at the time of the assessment, the assessors recommend key actions and work with the service to support them in gaining accreditation.

Accreditation standards are reviewed periodically and in this way are used as a driver for quality improvement as the required level of quality is raised over time. Working in partnership with our clinical audit colleagues is key, as conducting and reviewing clinical audits is an important part of accreditation criteria for the various schemes.

Health informatics

Good quality medical record keeping is essential for good quality care and the wide variation in the structure and content of medical notes presents a major problem for the development of electronic healthcare. The standardisation of the administrative, demographic and clinical content of health records is needed to ensure unambiguous recording, safe communication and reliable integration of data held in different record systems. It is also essential to ensure that any analysis of aggregated data is valid and reliable. The need for information standards to support both safe clinical care and clinical research has been confirmed by many reports in the last few years.^{9–17} If clinical research is to be effectively integrated into the work of the NHS, standardisation of clinical information recording is required.

In brief, information record keeping standards are needed to ensure:

- appropriate data capture, in both structured form and free text, in different clinical and research contexts and locations
- valid and reproducible data extraction into summary records

- valid and safe inter-operability between systems when communicating or integrating patient data held in different systems – a reduction in ambiguity will bring benefits for patient safety
- meaningful, valid analysis when data are aggregated or analysed retrospectively to inform service development, performance monitoring, activity analysis and research
- common language for describing clinical research questions, and research commissioning, registration, management and reporting, which integrates with terminologies and definitions used in clinical practice.

Patient safety

The RCP has established a patient safety committee to look at safety issues that arise in the practice of the medical specialties. This will work with the patient safety initiatives in the devolved nations, including NHS England. The National Reporting and Learning Service, now at Imperial College, London, is a source of data for learning that can then be disseminated to our members and fellows. We will work in partnership with other disciplines and external stakeholders and will further education in safety issues for our members and fellows.

Revalidation and appraisal

Revalidation is the process whereby doctors have to demonstrate on a regular basis that they are up to date and fit to practise. This is achieved through a process of formal annual appraisal, where a doctor produces supporting information to demonstrate that they have met the requirements set out in the Good Medical Practice (GMP) framework for revalidation set by the General Medical Council (GMC) (www.gmc-uk.org). Doctors will be revalidated every 5 years in order to retain their licence. This will be based on the successful outcome of five annual appraisals, a multi-source feedback, CPD and participation in audit. A recommendation for revalidation will then be made to the GMC by a responsible officer. Revalidation started in late 2012.

Although there has been suggestion that revalidation is a means of identifying 'bad doctors', the RCP is keen to ensure that revalidation is a vehicle for achieving, maintaining and improving the quality of all physicians' practice and provision of care. Revalidation should be a means of helping to identify areas for improvement at an early stage, and for ensuring that there are clear support mechanisms available. Revalidation will work in parallel to existing clinical governance and performance management systems, but is very much about the individual doctor's development.

The RCP's aim is to shape a clear revalidation process for physicians, but to ensure that this process is part of a consistent and equitable system for specialties that all colleges and faculties support, and is also aligned with the generic requirements of the GMC and Revalidation Support Team (RST). We are working closely with the Academy of Medical Royal Colleges, individual colleges, and other key stakeholders to achieve this.

The RCP is involved in a number of activities. We:

- undertook a national pathfinder pilot to assess the strengthened medical appraisal process and the GMC's GMP framework
- developed validated multisource feedback (MSF) colleague and patient questionnaires which are currently used by different specialties in many trusts. We are now rolling out a specialty-specific version of the questionnaire, and we are currently piloting a version for medical managers
- developed a personal clinical audit tool (p-cat) which is a simple online tool designed to assist doctors to capture a high-quality audit, to document the process effectively and, importantly for revalidation, to reflect on their participation and any resulting change in practice. The output of the tool is a summary that can be provided as supporting information for appraisal
- are coordinating a 'cohort' to develop an e-system for revalidation, which will allow doctors to manage their supporting information for appraisal. The system will be designed to inter-operate with existing college systems such as CPD, and other national systems as necessary
- are providing high-quality appraisal training, and responsible officer (RO) training
- developed, on behalf of the Academy of Medical Royal Colleges, consistent specialty guidance for appraisal, and to consider the aspects of specialty training required for appraisers, those advising appraisers and ROs.

As time goes on, the RCP will provide more detailed ongoing guidance to members and fellows to support

them in revalidation, and a permanent revalidation office has been established.

Regional adviser network

The RCP maintains a network of regional advisers and regional specialty advisers in 19 UK regions. Ten regions have a dedicated RCP regional office providing a local point of contact for our members, supporting the work of the regional advisers and offering valuable support for RCP activities within the region.

Following a review of the role of regional advisers, the RCP is working with its local representatives to develop professional networks that have the capacity to contribute to service quality improvement. There have been a series of regional conversations with local physicians facilitated by the regional advisers. This is an opportunity to raise concerns as well as share what has gone well. The RCP has then fed back those findings to local trust chief executives and medical directors. Other important roles for regional advisers may include:

- developing local educational programmes
- participating in the local deanery school of medicine
- reviewing and approving job descriptions
- considering proposals for fellowship
- advising on clinical excellence awards
- approving educational events for CME
- liaising with college tutors
- promoting the hosting of MRCP(UK) in the region
- developing relationships with physicians in the area, to assist with service delivery issues
- supporting local commissioning/planning processes.

Work with specialist societies

Specialist societies work with their members to promote high-quality care in that particular specialty. The RCP works with the individual societies, using their expertise when needed, and meeting with them through joint specialty committees. Some of the larger societies send a representative to the RCP Council.

Working party reports

The RCP provides guidance to physicians and the wider NHS on topics of clinical relevance by publishing reports from working parties, which are set up as task

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and finish groups, to review what is known about a subject, including the patient and public's perspective, and making recommendations for best practice and future policy development. These reports are available on the RCP website.

Workforce issues

The RCP Medical Workforce Unit (MWU) collects and analyses information on issues related to human resources and workload. Data are collected in the annual census on consultant physicians, annual specialty registrar (StR) survey and annual StR census. Data include numbers, demographics, workload and relevant topical data. The results of the consultant and StR census are available online. The unit also performs periodic surveys of other physicians, eg specialty and associate specialists.

Data are used to inform discussion with the DH (via the Centre for Workforce Intelligence), the medical specialties, other colleges and the media. The MWU works very closely with the JRCPTB to ensure that recommendations about future StR numbers are accurate and appropriate.

The MWU has led the RCP's approach to the European Working Time Directive (EWTD), and has been involved in the development of the 'Hospital at night' system. It has exposed the difficulties and dangers of certain rotas and has expressed concern over the balance of time juniors spend in training, service work or on emergency duties. It is particularly concerned with the current role of and issues facing StRs in medicine.

It is involved in a range of other workforce-related projects including: flexible training for physicians; monitoring consultant vacancies; and women in medicine, particularly as trainee physicians. The MWU runs an in-house questionnaire service, which designs, performs and analyses surveys to support RCP activities.

The Professional Affairs Department manages the RCP's statutory and non-statutory role in the appointment of consultants and other senior hospital doctors in the NHS. It works with NHS trusts and regional advisers in order to review job descriptions and provide nominations of consultants to serve on advisory appointments committees (AACs). Advice is offered to medical staffing departments regarding 'good practice' and statutory and non-statutory procedures. An annual

report is produced and AAC data made available to the MWU.

Invited service reviews

An invited service review can be requested by hospital management and fellows or members of the RCP when they require independent advice on issues of concern in relation to the practice of medicine. This may be in respect of service delivery, patient safety, team functionality, clinical governance or workload issues. This process supports physicians and trust management when they feel that the practice of good clinical medicine is compromised, and forms an important method for protecting patient care and ensuring patient safety. The report is given to the commissioning organisation, with recommendations for improvement and the RCP will offer further support if invited to do so.

International Office

The International Office supports members and fellows working outside the UK, and promotes RCP expertise and services. It builds relationships with key individuals, organisations and governments, and takes an advocacy role on global health issues identified by the RCP. With nearly 20% of the RCP's subscribing members and fellows working in over 80 countries and in all continents, international relations are vital. The RCP aims to extend its role to promote high standards of healthcare globally by engagement with its overseas fellows and members, strategic partners and individual countries and regions.

The key objectives of the department include:

- 1 the support of medical graduates from outside the UK, who wish to undertake part of their training as physicians within this country. This involves three schemes, namely the International Sponsorship Scheme, the Clinical Placement Initiative and the International Medical Graduate scheme
- 2 overseas partnerships to support postgraduate medical training. At present these include commitments in West Africa, with the West African College of Physicians, Sudan, Oman, China and Sri Lanka. Further international collaborations to support postgraduate training are in the planning or early development stages

- 3 international networking with key organisations and agencies, including the World Health Organization, overseas universities and governments, the UK Department for International Development, and other UK government departments
- 4 support for the international work of other RCP departments, including Education, the National Clinical Guidelines Centre, and Corporate Communications and Publishing.

Conclusion

The Royal College of Physicians is involved in many activities to set standards, measure standards and improve standards. The ongoing spiral of improvement is a dynamic process. The aim is to ensure that patients receive the best care possible and have a good experience of care. We have begun work looking at the processes of care – eg how ward rounds are conducted, how the professions should better work together and how to improve communication, particularly between doctors and nurses.

We recognise that care is delivered within systems, and that doctors need to work to improve systems of care as well as individual interactions with patients. This will improve efficiency, patient experience and patient safety.

We are constantly reviewing how doctors perform in wider society and recognise that professionalism is also a dynamic concept, which changes as society changes.

We will continue to develop resources to help doctors who are members and fellows of the RCP to constantly improve their practice and to deliver high-quality care to patients. Our work also continues to be a resource for providers of care, commissioners, planners, policy makers, patients and the public.

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