



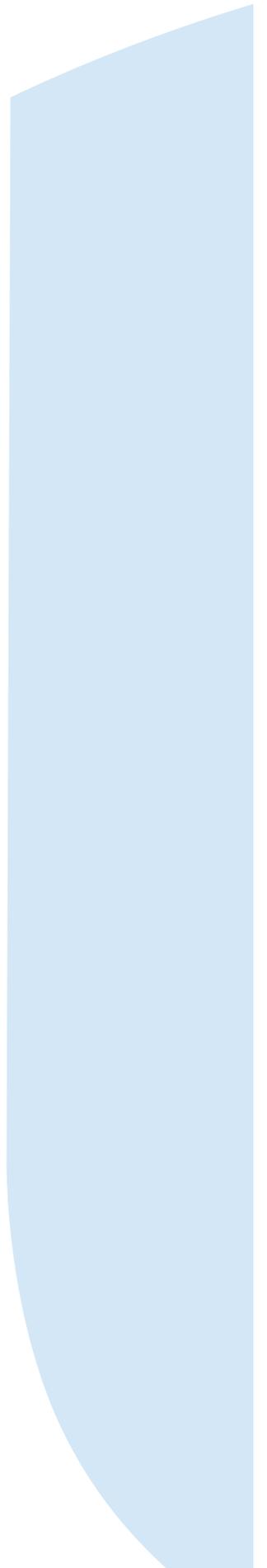
Royal College  
of Physicians

# Action on obesity: Comprehensive care for all

Report of a working party  
January 2013

‘Thou seest I have  
more flesh than  
another man, and  
therefore more frailty’

**William Shakespeare: Falstaff to Prince Hal  
in *Henry IV Part 1*, Act 3, Scene 3**





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of Physicians

Setting higher standards

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## Conflicts of interest

Dr Jenny Poulter – consultant to Weight Watchers UK. Member of the Nutrition Society and affiliate member of the British Dietetic Association.

Dr Anthony Leeds – salary paid by Cambridge Weight Plan.

Professor Nicholas Finer – consultancy and speaker’s fees from Novo Nordisk, Janssen, Vivus. Shareholder in Counterweight plc.

Dr Susan Jebb – My research group has received research funding within the last five years from the Department of Health, European Union, Food Standards Agency, Medical Research Council, Coca-cola, Weight Watchers, World Cancer Research Fund, Tanita; past chair and current member of the Association for the Study of Obesity; chair, DH Expert Advisory Group on Obesity; Chair, DH Public Health Responsibility Deal Food Network; chair, NICE PDG ‘Obesity: working with local communities’. In a personal capacity I am a Member of the Tanita Medical Advisory Board and receive a fee for writing articles for the *Rosemary Conley Diet and Fitness* magazine.

Dr Benjamin Field – I have received speaker honoraria from Eli Lilly and GSK; my employer (Imperial College London) has an interest in patients protecting compounds (analogues of gut hormones) that are currently being developed as novel treatments for obesity and diabetes. I am involved in this development work but do not have any personal financial interest in the patents or compounds.

Dr Christopher Birt – member of the Board of Trustees of Heart of Mersey (a registered charity).

Dr Shahrad Taheri – I have received consultancy honoraria from Allergan, Novo Nordisk, Phillips Respironics and Resmed. My research group has received research grant support from Abbot, Allergan, Eli Lilly, Novo Nordisk, Phillips Respironics and Resmed. Educational programme support has been received by my group from Allergan, Astrazeneca, Boehringer, Eli Lilly, MSD, Novo Nordisk, and Sanofi-Aventis. Travel funding has been awarded from Eli Lilly, Novartis, Novo Nordisk, Sanofi Aventis, and UCB Pharma.



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## Foreword

The Royal College of Physicians (RCP) has a long history of providing influential guidance for the solution of major public health problems. In 1962 the RCP published its ground-breaking report, *Smoking and health*, which was visionary in that it both brought the known evidence about smoking-related harm to wider public attention, and for the first time emphasised the role that government could play by recommending public policy measures to reduce the burden of death and disease. So began 50 years of campaigning by the RCP, including the setting up of Action on Smoking and Health (ASH) in 1971. Today, smoking is no longer the norm, smoking prevalence is down to 21%, and death and disease rates from smoking are in decline, in contrast to other parts of the world, notably China.

There are now similar far-reaching problems with obesity. The UK has the second highest prevalence of obesity in the world, and something needs to be done about it. This important report highlights the paucity of resources, such as multidisciplinary clinics, that are available to obese patients. Such clinics can work with patients who require support and management for obesity, its causes and associated comorbidities. The report also highlights the problems faced by obese patients, and calls on the medical profession to lead from the front in delivering a solution. Finally, it considers the role of a wide range of health policy makers, public health leads, commissioners of healthcare services as well as individual healthcare practitioners in coordinating services to ensure improved care for obese patients, as well as delivering programmes aimed at the prevention of obesity.

There is no shortage of reports in this field, but the time has come for coordinated action from the medical profession and beyond. We need coordinated government action, bringing together a number of departments working together towards a solution. We need to bring together experts in the field to provide advice and guidance to government on how to improve the situation and support the coordination and development of services that improve patient outcomes. The RCP is keen to work with all-comers to move from recommendations to action, and improve the health of the populations we serve.

January 2013

**Sir Richard Thompson**  
*President, Royal College of Physicians*

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## Preface

Obesity has increased so rapidly and is now so prevalent in the UK that it is often described as ‘epidemic’. The UK is not alone with this problem, but has one of the highest incidences of severe obesity in the world. Obesity has continued to occur more frequently, more severely, and at younger ages than was ever imagined possible when the Royal College of Physicians (RCP) last addressed the issue in 2007. No country on the planet has successfully tackled this problem, which results in major adverse consequences for health, wellbeing, work output and life expectation. Furthermore, there are huge costs involved in dealing with these adverse consequences, currently estimated at £5 billion per year and predicted to double by 2050.

Physicians, regardless of their specialty, are increasingly likely to be confronted with patients in whom the obesity itself needs managing, or where the obesity has modified the presentation and management needs of the diseases it causes. Currently the delivery of healthcare to patients with an established obesity problem is extremely patchy, as evidenced by the survey of services carried out for this report. As a result, if patients develop complications of obesity there is often no multidisciplinary service to which they can be referred for treatment of the primary problem or even specialist management of the complications. Furthermore, physicians and those in the health caring professions do not receive adequate training in obesity, healthy eating, physical activity and behaviour change techniques or the prevention of excessive weight gain – skills that are transferable to a much wider area of clinical practice.

The RCP is in a unique position to encourage, train and oversee the development of such multidisciplinary services. In this report, we provide clear guidelines as to how these can be set up and operate, as well as sample care pathways. These should be used to fill the lacunae of care services in the country. Also, we suggest that the RCP, as a respected institution, sets up a multidisciplinary group to oversee the development of these services as well as, in the future, to provide scientifically sound evidence-based advice to government on various pertinent issues in the obesity debate. As such, this would be the first of several projected RCP reports on different aspects of obesity, and this one is intended for the medical profession and the many healthcare professionals who interact with patients who may have an obesity problem. It will also be essential reading for policy makers, public health leads, national and local commissioners, and providers of health and prevention services.

As this report goes to press the NHS Commissioning Board has released its draft service specifications\* for severe and complex obesity. These have recognised the importance of bariatric physicians as integral

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\*NHS Commissioning Board. *Clinical commissioning policy: complex and specialised obesity surgery*, Reference: NHSCB/A5. Prepared by the NHS Commissioning Board Clinical Reference Group for Morbid Obesity. *2012/13 NHS standard contract for acute, ambulance, community and mental health and learning disability services (multilateral). Section B Part 1 – Service Specifications*. London: NHS Commissioning Board, 2012.

to the multidisciplinary care pathway for patients and so give added impetus to the recommendations of this report. They require that bariatric physicians 'have undertaken a relevant supervised training programme and have specialist experience in bariatric medicine. Formal training in obesity is a component of the training requirement for diabetes and endocrinology and metabolic medicine.' Furthermore the role of specialist nurses is noted. These recommendations, which will reshape the care for patients with severe and complex obesity from April 2013, lend urgency for the adoption of this report's findings.

January 2013

**John Wass**  
**Nick Finer**

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## Summary

Although the prevalence of obesity in adults and in children in the UK is amongst the highest in the developed world, the multidisciplinary services necessary to manage patients with an established problem of excess weight and its clinical consequences are poorly developed within the UK. Some prevention and intervention strategies are provided in primary care, but secondary care and specialist services remain underdeveloped or unavailable to meet the need. We recommend that a systematic review of specialist obesity services is undertaken between the Royal College of General Practitioners community leads and the Royal College of Physicians (RCP) and learned societies, including the Society for Endocrinology, Diabetes UK and the Association of British Clinical Diabetologists. Necessary referral services should be developed where there are none.

Commissioning of specialist obesity services should be for multidisciplinary care of ‘severe and complex obesity’ and not directly for rather than just bariatric surgical treatment.

Education in obesity and nutrition are inadequately represented in the current medical undergraduate curriculum. We recommend that this deficit be rectified. Further, we recommend that in all specialist postgraduate exams, obesity and relevant training in behavioural change therapy become essential components, thus enhancing the knowledge and skills of physicians and other professions related to medicine in this important area. This will enable improved care of patients with complications of obesity such as hypertension, diabetes mellitus, obstructive sleep apnoea and non-alcoholic fatty liver disease, regardless of the specialty of the physician caring for them.

There should be improved weight management resources for healthcare workers who have an obesity problem.

A patient charter for those with obesity problems should be developed.

In collaboration with the Royal College of Nursing (RCN) a specialist group of bariatric nurses should be set up.

Every hospital trust should have an obesity spokesperson and the essential role of general practitioners and the community are highlighted in this report.

Other recommendations include the appointment in government of one person to drive a coordinated obesity strategy between and across central government departments which include Health, the Treasury, Sport, Education, Agriculture, the Department of Work and Pensions, and local government responsible

for the local environment. This person should have a strong but politically independent status (eg a member of the House of Lords) with the skills and authority to address issues which need multiple government departmental involvement.

## Conclusions

The cost of obesity is £5 billion and will double by 2050. The government has failed to address this in a joined-up way which is essential if we are to make an impact.

The response of the NHS to obesity is patchy. We need multidisciplinary teams (MDTs) available to cover severe and complex obesity throughout the UK. Every NHS trust should have a champion/spokesperson on obesity.

The training for health service professionals is inadequate.

We need to increase investment in obesity research.

We recommend that an ongoing group is set up based at the RCP which, like Action on Smoking and Health (ASH), can meet regularly and oversee the development and implementation of these recommendations.

This report aims to engage the profession with weight management issues and to ensure that amongst healthcare professionals there is increased awareness of the issues resulting in a healthier workforce leading by example.

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## Recommendations

### Current service delivery

- 1 In our hospitals there are few 'joined up' services for people who are overweight or obese; there is a need to develop and integrate weight management services with those healthcare services that manage the complications and conditions which arise from obesity such as coronary heart disease (CHD), diabetes, arthritis, sleep disorders and gynaecological disorders. Multidisciplinary teams have a proven track record in cancer care to promote quality by providing integrated services for patients, and we recommend that this model is translated to obesity.
- 2 The Royal College of Physicians (RCP) should oversee the development of multidisciplinary bariatric services to cover the population in the UK.
- 3 The RCP should promote the provision of these multidisciplinary groups by developing and providing courses that advise, encourage and train doctors (and other healthcare professionals) on their formation.

### A multidisciplinary team approach to weight management and bariatric surgery

- 1 All members of the multidisciplinary team (MDT) should be trained and experienced in motivational interviewing and incorporate these techniques into their clinical practice.
- 2 Since type 2 diabetes is common among the overweight and obese population, and management of obesity may directly affect diabetes prevention and management, integration with diabetes services is recommended.
- 3 Adoption of the Edmonton Obesity Staging System (EOSS) will allow better 'phenotyping' of the individual patient and facilitate audit and outcomes review and research.
- 4 The primary care team has an important role in signposting to relevant services which are known to be effective. Many patients may contemplate commercial programmes, or increasingly such services may be providers of care within the NHS, and request advice from the primary care team. It is vital to ensure that patients attend services most suited to them.
- 5 The specialist MDT needs expertise in multiple obesity-related disorders. The MDT should include specialist consultant physicians, consultant surgeons, dietitians, nurses, psychologists and psychiatrists and exercise/physical activity professionals.

6 A particular issue amongst patients with extreme obesity is the increased prevalence of psychiatric disorders, including eating disorders, anxiety and depression. Thus, close collaboration with primary care and mental health services is required to assist patients with significant psychological trauma or psychiatric illness.

7 A growing number of patients within primary care will have had bariatric surgery (sometimes performed outside the UK), and links with the (hospital-based) medico-surgical MDT are essential.

8 Adequate administrative support to ensure that patients move smoothly through the MDT assessment is essential.

### Care pathways, including post-surgery follow-up

1 In collaboration with the Royal College of Nursing, a specialist group of bariatric nurses who are trained in the specialist aspects of bariatric medicine and surgery should be established.

### Audit, quality, research and monitoring progress

1 Within each multidisciplinary team, a clinical leader for audit for evaluating the quality and outcome of the service should be designated, and appropriate time allocated within that person's job plan.

2 Funding should be allocated, and bids from interested parties invited, to set up and run a central clinical audit system, facilitating regular comparison of outcomes between participating centres. All NHS and private providers in secondary and tertiary care settings should participate.

3 Clinical research should be encouraged and supported, focusing on long-term outcomes, health economics and quality of life from incorporating weight management within the treatment of patients being managed for obesity and its typical comorbidities.

### Commissioning

1 Specialist physicians should take a central role in commissioning obesity services.

2 Commissioners should ensure that every NHS trust has a medical obesity spokesman or 'champion', who, amongst other things, can communicate with commissioners, providers and the community and contribute to the local development of effective care pathways.

3 The RCP should support these 'obesity champions' with career development and networking opportunities.

4 Commissioning of multidisciplinary services should use the term 'severe and complex obesity' not morbid obesity or bariatric surgery because management of these patients requires MDT input and medical supervision pre-, peri- and post-operatively.

## The role of the GP and general practice team in weight management

- 1 Primary care has a core responsibility for obesity prevention, assessment of risk and morbidity in the obese, facilitating access to weight management support, and providing shared care in the long-term for patients who have been managed in specialist services.
- 2 GPs should, where possible and appropriate, deal with weight issues as part of their agenda to address risk factors. Each consultation provides a potential opportunity for this, although patient receptiveness also needs assessing for maximum effectiveness.
- 3 It is therefore important that GPs have training in a range of practical behavioural techniques such as in motivational interviewing. The effective application of these skills to weight management and obesity should be part of GP training and ongoing continuing professional development.
- 4 Inclusion of evidence-based targets for successful obesity management should be included in the Quality Outcome Framework (QOF) in order to support this practice.
- 5 A model for the commissioning of community services that integrates where required the specialist needs of patients should be developed.
- 6 The particular needs of some disadvantaged groups who find difficulty accessing community weight management groups should be addressed. These groups include people with learning disability, physical disability, mental health issues, those living in rural locations, socially excluded groups and those with severe degrees of morbid obesity.

## Weight management for health service employees

- 1 Employers should encourage healthy eating among staff by:
  - implementing the National Institute for Health and Clinical Excellence (NICE) recommendations for obesity in the workplace (NICE CG43)
  - ensuring that healthy food is available in the workplace at affordable or subsidised prices
  - encouraging nutritional labelling to allow employees to make informed food choices
  - setting strict nutritional criteria as part of procurement contracts for food made available in food outlets and vending machines.
- 2 Employers should encourage physical activity by:
  - signposting to and encouraging the use of walking and cycling routes and stairs, including the provision of safe cycle storage areas
  - recommending the use of active travel methods to and from work, and provision of changing room facilities
  - working with local authorities to enhance access to health services by public transport
  - considering the use of staff incentives such as discounted membership of fitness clubs.

3 Employers should encourage healthy behaviour change by:

- developing a strategy for staff health and wellbeing
- encouraging staff to take regular breaks to move around as well as sufficient time to eat well
- using innovative ways to encourage lifestyle change amongst staff, eg intranet messages on health, and signposting local activity/weight management opportunities
- using staff training as an opportunity to ensure that leaders are aware of the importance of encouraging proactive approaches to staff health
- enabling equitable staff access to a range of weight management and activity options, by commissioning weight management services which have proven effectiveness.

4 Occupational health departments have a responsibility to diagnose overweight and obesity in new employees, and wherever employees make health contacts (eg winter influenza vaccination) to communicate the health benefits of weight loss, and signpost obese employees either to 'in-house' or community-based services. Occupational health services could contribute to the monitoring of those engaged in weight management programmes by providing weighing facilities and information on healthy eating and activity opportunities within and outside the workplace.

### Local and national leadership on obesity

1 There should be a lead physician, ideally in due course a bariatric physician, within each hospital trust to lead on obesity. This person should interact with commissioning groups, be a source of patient information and act as a link between the hospital and the community. S/he will be part of a national network, working together for the benefit of patients with obesity problems, coordinating local resources in a hub-and-spoke manner and ensuring the delivery of the patient charter. S/he will work with others in the local delivery of prevention and nutrition advice and advise on physical activity, and coordinate with those involved with children's services.

2 The obesity lead physician will need at least one session per week to undertake these duties.

3 The RCP should develop an independent multidisciplinary intercollegiate group to lead on obesity advocacy. The Royal College of Surgeons and the Royal College of General Practitioners have agreed to this, but the group should also develop to include other royal colleges (eg the Royal College of Obstetricians and Gynaecologists, the Royal College of Paediatrics and Child Health, the Royal College of Anaesthetists), as well as the Royal College of Nursing and public health representatives. This group should meet two to three times a year with a programme of activity addressing the needs of the public and patients with obesity.

4 This group should be called the Royal College of Physicians' Advisory Group on Weight and Health.

5 This group should monitor progress of the development of obesity services up and down the country.

6 This group should develop a patient charter for obesity services.

7 This group should also have a role in accrediting hospitals' health and nutrition policy.

- 8 Obesity services should be formally reviewed within two years.
- 9 The RCP recognises that this report does not deal with the details of prevention, nutrition, diet, physical activity or pharmacotherapy – all important and indeed essential aspects of this problem. It is therefore recommended that the RCP address these aspects in the near future in further reports.
- 10 There should be one person who should lead a cross-departmental government group and coordinate action across all relevant government departments. This post requires effective and dynamic leadership.
- 11 Prevention also needs to be led and coordinated by government – both national and local, spanning a range of departments. There should be a single figure leading this to add visible leadership and momentum, and to take responsibility for integrating prevention and treatment activity.

### **Education and training of healthcare professionals**

- 1 All healthcare professionals should know and understand the ‘Ten essential facts about obesity’ (p 51).
- 2 Knowledge, understanding and training in nutrition, physical activity, exercise and the public health aspects of obesity should be an essential part of undergraduate and postgraduate curricula. This knowledge should be examined.
- 3 Every discipline in medicine should include training in the role of nutrition, physical activity and obesity in their core curricula which should be examined because complications of obesity cross all specialty and professional boundaries.

### **Obesity as a subspecialty**

- 1 There is a need to establish a subspecialty of obesity medicine for physicians. The terms ‘bariatric medicine’ and ‘bariatric physician’ are proposed.
- 2 The subspecialty should be within the umbrella of diabetes and endocrinology, although this does not preclude physicians with other primary specialties from developing subspecialty recognition in bariatric medicine.
- 3 A core curriculum and relevant experience for accreditation in this specialty is needed.
- 4 Physicians specialised in bariatric medicine will provide local leadership in the planning, provision and delivery of obesity treatments, within secondary care and in collaboration and partnership with primary care.

---

# 1 Introduction

Obesity, which is sometimes a lifelong condition, is increasing in prevalence in the UK such that approximately 25% of adults are obese. Among 10- to 11-year-old girls, 17% are obese, and 20% of boys are also obese. It should be preventable. The rates in the UK are some of the highest in the world, exceeded only by the USA. The rate of increase may be slowing but projections from the Foresight report remain valid – namely that by 2050 the population of Britain will be mainly obese.<sup>1</sup>

There are major socio-economic and cultural differences in the prevalence of obesity. In women, obesity prevalence increases with increasing levels of deprivation, regardless of the measure used. For men, only occupation-based and qualification-based measures show differences in obesity rates by levels of deprivation. Ethnic differences exist so, for example, the Chinese have a lower prevalence but West Indians have a higher prevalence of obesity. However, ethnicity also modifies the health impact of overweight and obesity.

The most widely used measure of overweight and obesity is body mass index (BMI), defined as a person's weight in kilograms divided by the square of their height in metres. The threshold BMI for Caucasians for overweight is 25 (kg/m<sup>2</sup>) and for obesity 30 (kg/m<sup>2</sup>) (see Table 1).

**Table 1. BMI values at different levels of weight, for Caucasians.**

<b>BMI definition</b>	<b>BMI range (kg/m<sup>2</sup>)</b>
Underweight	Under 18.5
Normal	18.5 to less than 25
Overweight	25 to less than 30
Obese	30 to less than 40
Obese Grade I	30 to less than 35
Obese Grade II	35 to less than 40
Morbidly obese/obese Grade III/severe	40 and over
Overweight including obese	25 and over
Obese including morbidly obese	30 and over

From: NHS Commissioning Board. *Clinical commissioning policy: complex and specialised obesity surgery*. Prepared by the NHS Commissioning Board Clinical Reference Group for Morbid Obesity. 2012/13 NHS standard contract for acute, ambulance, community and mental health and learning disability services (multilateral). Section B Part 1 – Service Specifications. London: NHS Commissioning Board, 2012.

Obesity is subject to strong heritability (40–70%). Increasingly both point mutations and single nucleotide polymorphisms have been identified as risk factors. Environmental changes interacting with genetic susceptibility are driving the rapid increase in prevalence and severity of obesity, making it inappropriate to take the prejudicial and judgmental attitude that obesity is merely a lifestyle choice and a self-inflicted problem. The resulting stigmatisation of the obese contributes to their feeling of abandonment, to poor quality of life and increased risks of psychiatric morbidity, all of which can exacerbate illness and healthcare costs.

Obesity affects most organs and body systems. Ninety per cent of people with type 2 diabetes have a body mass index (BMI) greater than 23 and conversely it is estimated that the attributable risk of obesity for diabetes is between 30% and 70%. Obesity substantially contributes to the risks of hypertension, ischaemic heart disease, cardiovascular mortality, obstructive sleep apnoea, ventilatory failure and asthma, as well as more recently recognised associations with several cancers, Alzheimer's disease and renal failure.

Generally there is inadequate provision for the management of patients in the UK with obesity. This is true in the primary care sector as well as in secondary and tertiary care. The National Institute for Health and Clinical Excellence (NICE) has issued guidelines for bariatric surgery in Caucasians but not for Asians who are defined as obese with a lower BMI. However, there is great variability in implementing these guidelines, or meeting the conservative benchmark rate for a bariatric surgical service of 0.01% operations per capita (25 cases/year for an average primary care trust (PCT) of 250,000).<sup>2</sup> For PCTs in England, the rate of bariatric procedures in hospital per 100,000 ranged from 0.4 to 41.3 (93-fold variation).<sup>3</sup>

This report complements the more general forthcoming report on obesity of the Academy of Medical Royal Colleges.<sup>4</sup>

This report will focus on the developing of services, and on education and multidisciplinary teams that can address and provide for the medical needs of individuals with obesity. Further, the report will focus on developing teams of physicians and other healthcare workers who can deliver integrated obesity treatment pathways and respond to advances in knowledge and evidence-based care. The RCP has a clear mandate in this area of clinical medicine.

## References

- 1 Foresight. *Tackling obesities: future choices* – Project report, 2007. [www.bis.gov.uk/foresight](http://www.bis.gov.uk/foresight) [accessed 13 December 2012].
- 2 [www.nice.org.uk/usingguidance/commissioningguides/bariatric/determininglocalservicelevels.jsp](http://www.nice.org.uk/usingguidance/commissioningguides/bariatric/determininglocalservicelevels.jsp) [accessed 13 December 2012].
- 3 [www.rightcare.nhs.uk/index.php/atlas/atlas-of-variation-2011](http://www.rightcare.nhs.uk/index.php/atlas/atlas-of-variation-2011) [accessed 13 December 2012].
- 4 Academy of Medical Royal Colleges (2013) in press.

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## 2 Methodology

An expert advisory panel was convened and met to discuss the achievable objectives of an obesity group in the RCP. The panel recommended that the RCP report should focus on achievable objectives within the bailiwick of the RCP; namely, after a careful assessment of the provision of services for patients with obesity and nutrition problems, the systematic setting up of these throughout the country. They also recommended that consideration should be given in obesity matters on how education could be improved both in the undergraduate and postgraduate spheres. Thirdly they proposed that there should be an ongoing group based at the RCP to oversee the development of services and provide evidence to government and others on a scientifically sound basis on issues relevant to obesity.

Three meetings were held at the RCP:

- Meeting one dealt with current service delivery, multidisciplinary teams (MDTs) and their composition, care pathways and auditing of these, together with cost effectiveness of treatment and how commissioning should be optimised.
- Meeting two dealt with local leadership and integration, education and training, obesity as a specialty and physicians as advocates.
- Meeting three dealt with the organisation of an action group on obesity to influence public thinking and government as to how these issues should be taken forward, as well as the monitoring of the development of services.

While the literature in the field of obesity is vast, indeed some 66,000 references have been published on this topic in the last ten years, most data are known and many have been subject to systematic review, and many evidence-based guidelines have been produced. The agreement was therefore that the RCP should produce a brief pragmatic report with its recommendations, and the reasons thereof, using a mixture of evidence identified and confirmed by members of the Working Party, and consensus-based data.

Pubmed was searched for relevant reference up to November 2012.

All recommendations are based upon a synthesis of research literature, patient experience and professional expertise.

The chapters in the report were drafted by various members of the Working Party and edited by the chairman and vice chairman.

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## 3 Current service delivery

We wished to ascertain the presence or absence of current multidisciplinary bariatric services in secondary and tertiary care in the UK, including healthcare services for patients undergoing bariatric surgery, and healthcare and weight management services provided by MDTs for obese patients who present in secondary care.

### 3.1 Methodology

We sent questionnaires to physicians, members of the Society for Endocrinology, Diabetes UK and the Association of British Clinical Diabetologists as well as to members of the British Obesity and Metabolic Surgery Society (BOMSS).

The questions were designed to ascertain:

- the presence of medical outpatient and inpatient services for obesity
- the presence of surgical outpatient and inpatient services for patients with obesity
- the presence or absence of multidisciplinary clinics for bariatric patients
- the geographical location of these services in the UK.

### 3.2 Results

In total 122 responses were analysed. 37/100 (37%) of respondents had dedicated multidisciplinary medical outpatient services for bariatric patients.

The percentages of specialties represented on medical outpatients MDTs were as follows:<sup>\*1</sup>

- physician: 94%
- surgeon: 58%
- dietitian: 88%
- psychologist: 58%
- nurse specialist: 55%

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<sup>\*1</sup>The recent National Confidential Inquiry into Patient Outcome and Death (NCEPOD) report<sup>1</sup> on bariatric surgery suggested that actual attendance of individual specialties at these MDT meetings was substantially lower: only 68% of patients were discussed when all three of surgeon, specialist nurse and dietitian were present, and less than 1 in 5 patients were assessed by a bariatric physician before surgery.

For medical inpatients, 17/99 (17%) had some form of inpatient team. Where present, the constituents included:

- physician: 87%
- surgeon: 87%
- dietitian: 80%
- nutrition: 47%

Where there was no dedicated medical outpatient service:

- 71% had somewhere for obese patients to be seen.
- 29% had no place for bariatric patients to be seen.
- 80% of those providing services did so within endocrine and/or diabetes clinics.
- 38% of respondents had a primary surgical service but only 65% of these had an endocrine or diabetes physician as part of the multidisciplinary clinic.

If there was no surgical service in house:

- 31% of hospitals did not have another service to which they could 'routinely' refer for bariatric surgery.

Where services did not exist, the numbers of people who thought they needed a particular service were as follows:

- medical outpatient: 82%
- medical inpatient: 75%
- surgical outpatient: 75%
- surgical inpatient: 69%

### 3.3 Conclusion

Multidisciplinary services provided for bariatric patients are very variable. There are some locations where there are large multidisciplinary services, usually where there is a bariatric surgery service, but there are many areas where there is little or no provision of services. There are also surgical services that do not have fully established medical or multidisciplinary teams.

### Recommendations

- 1 In our hospitals there are few 'joined up' services for people who are overweight or obese; there is a need to develop and integrate weight management services with those healthcare services that manage the complications and conditions which arise from obesity such as coronary heart disease (CHD), diabetes, arthritis, sleep disorders and gynaecological disorders. Multidisciplinary teams have a proven track record in cancer care to promote quality by providing integrated services for patients, and we recommend that this model is translated to obesity.
- 2 The Royal College of Physicians (RCP) should oversee the development of multidisciplinary bariatric services to cover the population in the UK.

- 3 The RCP should promote the provision of these multidisciplinary groups by developing and providing courses that advise, encourage and train doctors (and other healthcare professionals) on their formation.**

## Reference

- 1 National Confidential Enquiry into Patient Outcome and Death. *Too lean a service? A review of the care of patients who underwent bariatric surgery*. NCEPOD, 2012. [www.ncepod.org.uk](http://www.ncepod.org.uk) [accessed 14 December 2012]

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## 4 A multidisciplinary team approach to weight management and bariatric surgery

### 4.1 Introduction

Obesity and its severity have been traditionally defined by BMI, but it is well recognised that BMI alone may not define the ‘severity’ of obesity. A system for obesity classification, the Edmonton Obesity Staging System (EOSS), has been recently proposed by the Canadian Obesity Network and is gaining increasing acceptance. Patients are classified both by their BMI severity (BMI >30 – <35: Grade I; BMI >35 – <= 40: Grade II; BMI >40: Grade III) and also by the severity of their associated diseases and functional status.<sup>1</sup>

The numbers of people at extreme levels (Grade III: BMI  $\geq$ 40; and EOSS Stage 3 and 4) are increasing rapidly.<sup>1</sup> This level of obesity is most complex, being more likely to be associated with multiple medical, psychological, and social problems and markedly reduced life expectancy.<sup>2</sup> Comorbidities not only result in reduced life expectancy but also in psychological problems, depression and poor quality of life; they also impinge on the success of any interventions for weight loss and its maintenance.<sup>2</sup> The association between obesity and cognitive decline is increasingly appreciated. Once comorbidities develop and treatments are introduced to manage them and their complications, implementing lifestyle behaviour

**Table 2. The Edmonton Obesity Strategy System.<sup>1</sup>**

<b>Stage 0</b>	No apparent obesity-related risk factors (eg blood pressure, serum lipids, fasting glucose, etc within normal range), no physical symptoms, no psychopathology, no functional limitations and/or impairment of wellbeing
<b>Stage 1</b>	Presence of obesity-related subclinical risk factors (eg borderline hypertension, impaired fasting glucose, elevated liver enzymes, etc), mild physical symptoms (eg dyspnoea on moderate exertion, occasional aches and pains, fatigue, etc), mild psychopathology, mild functional limitations and/or mild impairment of wellbeing
<b>Stage 2</b>	Presence of established obesity-related chronic disease (eg hypertension, type 2 diabetes, sleep apnoea, osteoarthritis, reflux disease, polycystic ovary syndrome, anxiety disorder, etc), moderate limitations in activities of daily living and/or wellbeing
<b>Stage 3</b>	Established end-organ damage such as myocardial infarction, heart failure, diabetic complications, incapacitating osteoarthritis, significant psychopathology, significant functional limitations and/or impairment of wellbeing
<b>Stage 4</b>	Severe (potentially end-stage) disabilities from obesity-related chronic diseases, severe disabling psychopathology, severe functional limitations and/or severe impairment of wellbeing

change for obesity management becomes increasingly difficult. For example, the majority of treatments available for diabetes are associated with weight gain which hampers lifestyle change.

A bariatric physician will have more experience and skills in managing obesity than a general physician or specialty physician.

A strong focus on motivational interviewing is essential. Motivational interviewing – a directive, patient-centred counselling approach – focuses on exploring and resolving ambivalence, and has emerged as an effective therapeutic approach within the addictions field; it also appears to enhance weight loss in overweight and obese patients.<sup>3</sup>

The bariatric physician will recognise symptoms among the obese that may have particular associations with specific obesity-related disease. Thus headache may be a feature of idiopathic intracranial hypertension, obstructive sleep apnoea and hypoventilation; breathlessness may not just be due to excess weight but may reflect asthma, heart failure, and pulmonary hypertension from venous pulmonary thromboembolism. Special knowledge and experience of pharmacological choices for managing comorbidities is needed (eg substitution of weight neutral for weight gain promoting drugs).

Once extreme obesity occurs with multiple comorbidities, the most effective treatment option may be bariatric surgery. When bariatric surgery is contemplated as a treatment option, again a multidisciplinary approach is required for patient and procedure selection, patient preparation, preoperative, operative and postoperative care, and follow-up. Being a chronic condition, no matter what treatment option is selected for obesity, long-term and lifelong management and support is required.

The importance of a multidisciplinary care approach to obesity and its complications has been emphasised by several guidelines including those produced by NICE<sup>4</sup> and the Scottish Intercollegiate Guidelines Network (SIGN).<sup>5</sup> Multidisciplinary care is the collaboration of expertise and skills provided by different healthcare professionals to achieve a common therapeutic goal. This healthcare professional group should meet regularly in MDT meetings. MDT meetings allow information and knowledge sharing, more complete patient assessment, greater informed patient and treatment selection, and formulation of individualised treatment plans and follow-up.<sup>6</sup> Evidence supporting multidisciplinary care is better established and the practice is most widely embraced in cancer care.<sup>6–8</sup> Therefore some of the evidence for the recommendations from this review is cross-referenced from the cancer care service.

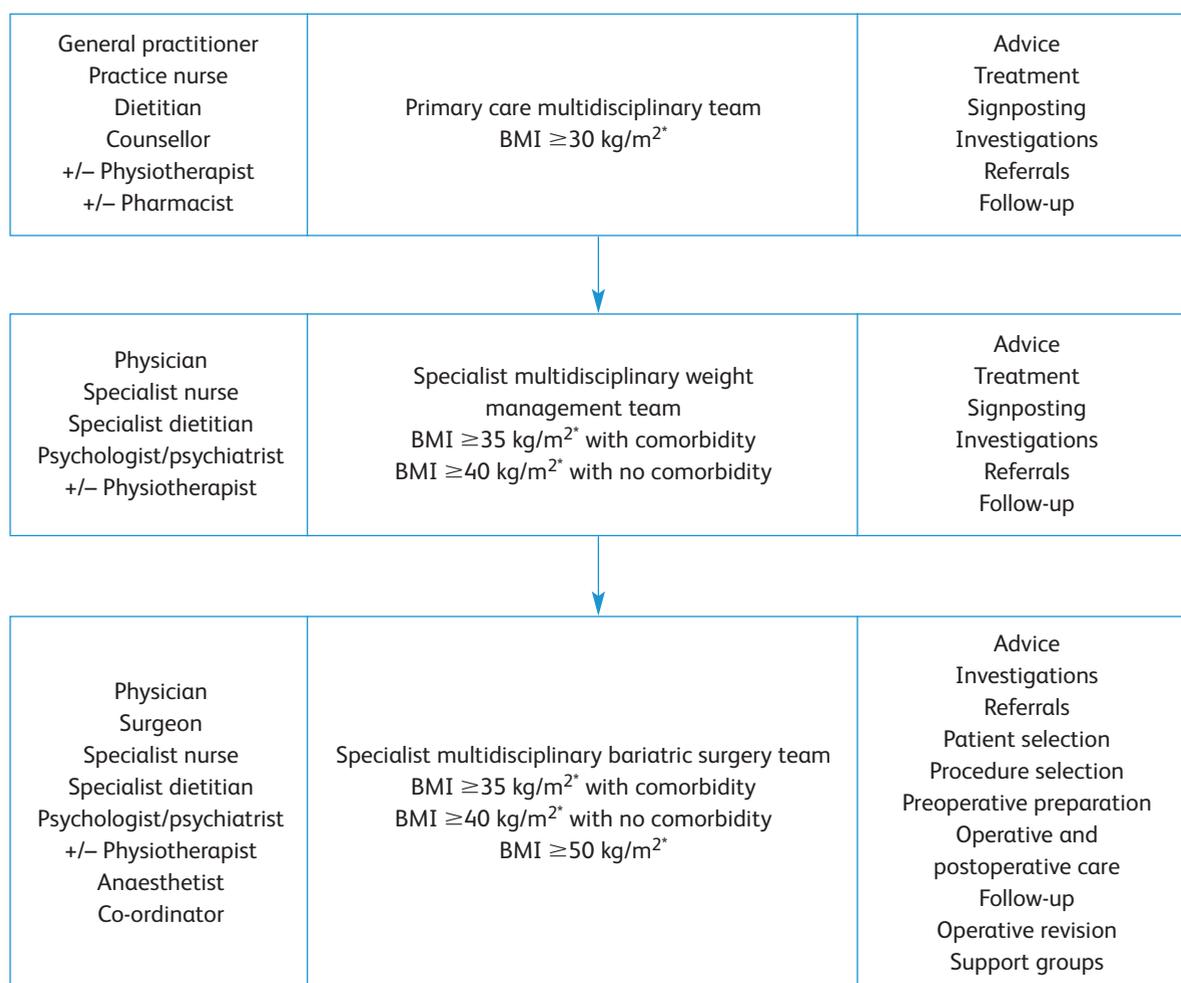
## 4.2 Multidisciplinary care approach in obesity

Preventing obesity effectively as far as the health service goes requires cooperation at several levels, ranging from health policy makers and public health to individual healthcare practitioners. Once obesity develops, effective multidisciplinary patient care should be implemented as early as possible at least to screen for and diagnose obesity-associated diseases (eg obstructive sleep apnoea, type 2 diabetes, non-alcoholic fatty liver disease) and prevent obesity progression, and ideally to reverse the obesity and ensure optimal management of any complications of obesity.<sup>9</sup> The multidisciplinary approach to obesity begins in primary care, with more complex cases catered for within specialist weight management services either in the community or secondary care settings. Patients requiring bariatric surgery should be managed in accredited centres.

Figure 1 Shows the various MDTs across levels of care. Different models exist across different centres and countries, largely determined by local, regional and national obesity strategies and levels of professional interest and funding. Collaboration across levels of care and integration of patient-centred services will ensure good quality care, and patient satisfaction and safety, but also requires clear definition of responsibilities. Good communication is essential amongst members of the MDT and across levels of care. This avoids the problem of patients receiving inconsistent information and advice. Regular shared training sessions will ensure maintenance and development of knowledge and skills within MDTs and across levels of care.

Briefly, the primary care MDT usually comprises the GP (ideally with a special interest in obesity), practice nurse, dietitian, and counsellor. Depending on services available, other contributors to the MDT include physiotherapists, pharmacists, and health trainers.

Specialist weight management services are usually provided in secondary care or in the community in collaboration with secondary care (hub and spoke model). Specialist weight management services are



**Fig 1. Multidisciplinary teams across levels of care.** \*The BMI appropriate to ethnicity should be used at all times.

essential for severely obese patients (Grade II and III, EOSS stage 3, 4) as they tend to have more complex problems. These are usually termed ‘Level 4’ services by commissioning authorities within England. Currently there are two patterns of entry into such specialist MDT care, usually determined by commissioning strategies: surgical, through bariatric surgery assessment pathways; or physician led. While both should have a full range of healthcare professionals, an initial physician-led assessment pathway<sup>5</sup> seems more appropriate in view of the need to fully address the medical issues behind and consequent to the patient’s obesity.

The specialist MDT needs expertise in multiple obesity-related disorders.<sup>10</sup> The MDT should include specialist consultant physicians, dietitians, nurses and psychologists and psychiatrists. Some centres include other professionals such as physiotherapists, and sport and exercise specialists. An MDT fully integrated into surgical treatment pathways will include bariatric surgeons, specialist anaesthetists and links to haematology for advice on thromboprophylaxis.

A particular issue among patients with extreme obesity is the increased prevalence of psychiatric disorders including eating disorders, anxiety and depression.<sup>11–13</sup> Patients are also more likely to have suffered from previous physical or sexual abuse. It is rarely possible to address these problems effectively within a weight management programme. Therefore close collaboration with primary care and mental health services is required to assist patients with significant psychological trauma or psychiatric illness.

Since management of the excess weight itself in severe obesity (as opposed to its disease consequences) includes helping the patient in making cognitive and behavioural changes, providing dietary evaluation, interpretation and advice on change, physical activity assessment and advice, possibly prescription, and signposting, psychological treatment and bariatric surgery,<sup>14</sup> the initial assessment is likely to involve several members of the MDT. They may use screening and scoring tools to assess these factors as well as psychological issues, and quality of life. All the measures will also be used for service evaluation. Table 3 shows the routine assessments carried out in a representative specialist clinic, but the National Obesity Observatory has also suggested a standard evaluation framework for weight management interventions.<sup>15</sup>

After baseline assessments, an MDT meeting determines the approaches that would be appropriate to the patient, and should include referrals for psychology and/or psychiatric interventions, and respiratory, cardiology or hepatology opinions either directly or through the GP. Whether such referrals are made directly by the weight management clinic or through the patient’s GP will be subject to local arrangements, but ideally contracts for specialist weight management should allow for such appropriate direct referrals to simplify the patient pathway.

Weight management will be tailored to the individual using a toolbox approach and should have access to all modalities of intervention including group interventions. Close liaison and integration with primary care weight management resources is needed to allow patient choice, and facilitate long-term management. The MDT should also determine patient discharge from the clinic.

Ideally secondary care specialist weight management clinics and their MDTs should also offer surgical treatment for those meeting NICE or other appropriate clinical guideline criteria. Where referral to a designated bariatric centre is required, it is critically important if patients have been seen in a non-surgery providing specialist centre, that there is close liaison between this MDT and the surgical unit to ensure continuity of care and avoid duplication of investigation. If referral is direct to a surgical centre it

**Table 3. Routine baseline clinic assessment**

Personal and demographic	Name, address, date of birth, NHS number, hospital number, GP details, gender, ethnicity
Social	Occupation, social benefits, marital status, smoking and alcohol/substance use
Questionnaires	<ul style="list-style-type: none"> <li>• Diet: food diary, food frequency</li> <li>• Activity questionnaire: General Practice Physical Activity Questionnaire (GPPAQ) or International Physical Activity Questionnaire (IPAQ) short version<sup>33</sup></li> <li>• Psychology: Hospital anxiety and depression scale (HADS)</li> <li>• Sleep: Pittsburgh sleep quality index (PSQI), Epworth sleepiness scale or STOP</li> <li>• Quality of life EQ5D, IQWOL-Lite</li> </ul>
Clinical history and examination	<p>Medical, surgical and drug history</p> <p>Allergies</p> <p>Family history</p> <p>Comorbidities: presence, duration, complications, treatment</p> <p>Elicit history of eating disorder, affective disorder, sleep disorder, GORD, IHD, cholecystitis, post menopausal blood loss, headaches</p> <p>Skin: acanthosis, acne, psoriasis, intertrigo, furunculosis</p> <p>CVS: Hypertension (appropriate size cuff), heart failure, pulmonary hypertension</p> <p>RS: cyanosis, flap (CO<sub>2</sub> retention)</p> <p>AS: hepatomegaly, previous abdominal surgery</p> <p>CNS: mood, intracranial hypertension</p>
Lifestyle history	History of weight gain, previous attempts at weight loss, previous weight management programmes, previous obesity medications, reasons for weight loss, family and social support, current diet and physical activity
Clinical measures	<p>Height, weight, BMI, neck and waist circumference</p> <p>Body composition</p> <p>Heart rate, blood pressure, oxygen saturation</p> <p>Measures of activity: pedometer, triaxial accelerometer</p>
Blood tests	<p>Full blood count, fasting and/or random glucose, HbA1C, urea and electrolytes, liver function tests, thyroid function, vitamin D levels and bone profile, lipid profile, uric acid.</p> <p>B12, folate, iron</p> <p>Cortisol after overnight dexamethasone suppression if Cushing's syndrome suspected</p>
Other tests if high probability from history, questionnaires or tests	<p>Positive OSA screen: home or sleep laboratory monitoring for sleep apnoea</p> <p>Abnormal liver function: liver ultrasound</p> <p>Heart failure: echocardiogram</p> <p>History of GORD: endoscopy</p> <p>Iron deficiency (unexplained in men): endoscopy/colonoscopy</p>

must be able to provide the full range of multidisciplinary non-surgical services, including education sessions and patient support groups.<sup>4,5,16–19</sup> These services should include a minimum team consisting of consultant physician with special interest and expertise in obesity, consultant bariatric surgeon, specialist bariatric nurses, specialist weight management dietitians, and bariatric coordinator and office support personnel. A specialist anaesthetist and access to intensive care facilities is also required. Additional medical specialties, which are useful within secondary care and should be available when required are psychologist or psychiatrist, diabetologist/endocrinologist, respiratory consultant and sleep specialist, cardiologist and gastroenterologist. Other useful personnel are social workers for any social issues, smoking cessation services, and drug and alcohol liaison support. Some centres also include access

to plastic surgery procedures after weight loss in specific rare cases. In those cases, plastic surgeons should attend MDT meetings to discuss cases since contouring operations require appropriate patient selection and preparation including treatment of any nutritional deficiencies.

### 4.3 Role of specialist members of the MDT

The members of the multidisciplinary team are shown in Fig 1 (p 9). Members of the specialist team should be accredited and belong to the appropriate professional bodies.

#### *Consultant bariatric physician*

A consultant physician with special interest and expertise in obesity usually leads the MDT. S/he should have the specialist interest, knowledge, attitude and skills for management of obesity and its complications. Medical causes of obesity are rare and require special vigilance and investigation. An understanding of syndromes that predispose to and are associated with obesity is increasingly necessary.

The physician will formulate an individualised medical investigation and therapeutic plan in collaboration with other members of the MDT. S/he will evaluate the clinical presence and importance of diseases associated with obesity (eg diabetes, dyslipidaemia, hypertension, cardiac function, obstructive sleep apnoea, non-alcoholic fatty liver disease). The physician will be able to alter and optimise primary treatment of obesity and its secondary diseases as above, for the best outcomes. If bariatric surgery is contemplated, it is recommended that patients have their cardiovascular risk factors, including obstructive sleep apnoea and other potential health problems, addressed preoperatively and postoperatively.<sup>20</sup> It is also important to have a system-oriented approach for potential medical problems prior to bariatric surgery and the physician needs to have knowledge and experience in managing complex obese patients.<sup>19</sup> The physician will be able to assess patients and refer to related medical specialists for further investigations or interventions and to psychologists if eating disorders or psychological issues are suspected. Furthermore, patients will be screened and those who are at risk will be identified and interventions can be implemented to prevent progression of disease.

Another key role of the physician is to monitor and implement different weight management programmes including intensive lifestyle intervention, prescribe or change patients' treatment as needed, and assess the suitability of additional anti-obesity medications on top of any intervention. The physician will also ensure appropriate communication with the patient's primary care team. Micronutrient deficiencies are common among the obese (eg vitamin D and folic acid deficiency) and can occur after bariatric surgery and should at least be screened preoperatively, 3–6 months postoperatively, and annually thereafter.<sup>16,21</sup> Monitoring for nutritional deficiencies is carried out by the physician and treated as necessary.

#### *Consultant bariatric surgeon*

Surgeons who perform bariatric surgery are recommended to have advanced laparoscopic skills.<sup>22</sup> Bariatric surgeons are important members of the MDT in assessing the individual patient's suitability for surgery taking into account factors such as age, comorbidities and previous medical and surgical history.<sup>23</sup> Providing clear explanation on benefits, risks and common complications of surgical procedures is vital to enable patients to give informed consent. The recent NCEPOD report recommended that 'As for all elective surgery, a deferred two-stage consent process with sufficient time

lapse should be utilised, and details of benefits and risks should be clearly described, and supported with written information.<sup>24</sup> Apart from this, bariatric surgeons should give patients the likely weight reduction outcomes after different surgical procedures and emphasise the need for long-term lifestyle changes and follow-up postoperatively. Surgeons, physicians and bariatric nurses can also participate in band adjustments for laparoscopic adjustable gastric banding. At some centres, band adjustments are occasionally carried out radiologically, and there a radiologist is also a member of the MDT. Radiologists also participate in MDT meetings to discuss complex cases, anatomical issues prior to surgery, patient problems post surgery, and revisional procedures.

#### *Specialist weight management dietitian*

There are many different dietary plans and individual patients respond differently to these. It is vital for registered dietitians to assist patients in finding a suitable regimen depending on their lifestyle, socio-economic status, cultural background and ethnicity.<sup>25</sup> Other roles include possible first point of contact for patients, explaining the necessary dietary changes required after surgery,<sup>25</sup> assessing patients for any significant eating disorders, referral of patients to psychologist for assessment, further help and support, and providing patient motivation and help in long-term weight maintenance.<sup>25</sup> For patients undergoing bariatric surgery, individualised low-calorie diet plans will ensure adequate weight loss in preparation for surgery. At some centres, the follow-up of patients post bariatric surgery is led by specialist dietitians who discuss cases with the MDT as necessary.

#### *Clinical nurse specialist*

A specialist nurse will be able to provide clinical as well as psychological support. It is recommended that there should be a clinical bariatric nurse within specialist weight management services to enhance patient care and promote collaboration between team members.<sup>26</sup> Specialist nurses contribute to patient measurement and medical assessments, advise on comorbidity management, help in administration and scoring of questionnaires, and assist in enrolment into and management of patients in research studies.

A specialist bariatric nurse will be able to help prepare and monitor patients preoperatively, for example ensuring that patients with obstructive sleep apnoea follow local or national treatment guidelines, ensuring adequate use of thromboprophylaxis, and safe use of bariatric-friendly equipment.<sup>14</sup> The management of diabetes pre-, peri- and post-operatively requires close collaboration between the specialist physician, clinical nurse specialist, and hospital ward and primary care teams. An experienced bariatric nurse could also provide nursing education about possible complications experienced by patients who undergo bariatric surgery to different departments, especially accident and emergency. Bariatric specialist nurses inform others about outcomes of treatments available and recent service audits, facilitate discharge after operations, assess surgical wounds postoperatively, and can supervise and manage band fills and fluid removal.<sup>27</sup> Bariatric specialist nurses could also act as bariatric coordinators (see below).

#### *Psychologist or psychiatrist*

Mental health issues are often associated with obesity and vice versa, particularly anxiety and depression. It is therefore important to recognise and treat these appropriately to achieve greatest success in lifestyle change, weight loss, and improvement in comorbidities. Complex relationships with food may also be an issue for some patients with obesity. Assessment and counselling will be provided for these patients by

the psychologist/psychiatrist either in group or individual sessions. If the psychologist/psychiatrist assesses that there are any major mental health issues which need to be resolved before patients are put into the weight reduction programme, then the referring GP will be asked to arrange for the patient to be reviewed by the local mental health team. Additional consultation will be carried out with the MDT. Some patients who are being considered for bariatric surgery need to be fully assessed psychologically, and their mental health issues, eating disorders, and medications optimised.

#### *Bariatric coordinator*

A bariatric coordinator is essential as the point of contact for patients who are attending various different clinics, such as surgical pre-assessment clinic and post bariatric surgery nutrition clinic. The coordinator will monitor and facilitate the patient's journey, ensuring smooth transition of patients into different clinics. S/he will also organise MDT meetings to discuss patients' cases.

#### *Administrative staff*

Administrative staff ensure smooth running of clinics and MDT meetings. They facilitate arrangement of appointments, can provide a point of contact between primary and secondary care teams, and ensure timely production of clinical letters. Apart from these tasks, it is important to have a database for data collection on all patients who are attending weight management services as well as those having bariatric surgery.<sup>28</sup> In that way, specific data can be collected and these could provide a data source for audit, and future analysis and research. Administrative staff assist in data collection and entry into the appropriate local and national databases.

### **4.4 MDT meetings**

The core members of the weight management and bariatric surgery MDT should have regular meetings to discuss patient care and suitability for interventions. The primary aim of all interventions is to treat patients who are at high risk of developing premature cardiovascular events or premature death. Apart from bariatric surgery and intensive lifestyle interventions, other interventions that the MDT may recommend, implement and support include techniques such as gastric balloon or endoscopic sleeve insertion, specialised dietary intervention with dietitian or psychological treatments to address specific issues, and use of adjuvant medications with other interventions. Consensus on the management plan for patients should be achieved through MDT discussion with the decision-making process, outcomes and recommendations recorded in the patient record.

### **4.5 Benefits and barriers to MDT meetings**

The most important benefit of MDT meetings is better patient-centred care.<sup>28</sup> There are many reasons behind this. Information sharing is much easier and more effective during MDT meetings, leading to better decision-making. The meetings will also ensure that all treatment options are explored and the best clinical decisions are made for the individual's management plan. The patient will receive better coordinated care as all team members understand and will be aware of the treatment plan for the patient. Care will also be more standardised, as less variation will occur between healthcare professionals.

Although multidisciplinary care is the best approach for patient care, it can present practical difficulties. In some centres, organising multidisciplinary meetings for many different healthcare professionals at a single place at a specific time can be challenging.

In addition to a better decision-making process for patients' treatment plans, MDT meetings also provide informal educational sessions as well as opportunities for developing interpersonal skills for team members and trainees in various healthcare specialties.<sup>20,30</sup> In some cancer centres, continued medical education has been incorporated in MDT meetings for attendees.<sup>30</sup> Moreover, MDT meetings can also be an effective place to identify patients suitable for participation in clinical trials.<sup>31</sup>

#### 4.6 Practicalities of MDTs

The MDT members will generally decide the structure of the MDT meetings. Every team needs good leadership and this role is very important. Various members of the MDT can chair the meetings in rotation. The frequency of MDT meetings depends upon the volume of patients. We recommend that MDT meetings should occur at least once a month and for high volume services they will need to be weekly (preferably not Friday or Monday). Attendance at MDT meetings should form part of clinicians' job plans. A bariatric coordinator or a nurse specialist (or medical secretary) can be involved in coordinating the dates, times and meeting place. It is usually best to agree a fixed day of the week to ensure MDT member availability. Patients suitable for MDT discussion will be referred to the coordinator and a list will be generated. The coordinator should also request all patients' notes before the MDT.

Before the MDT meeting, it is recommended that each patient has seen the appropriate members of the MDT. It will be ideal if the patient has also received input from a psychologist as well as a nurse specialist, as this will provide a better and more holistic picture of the patient during the MDT meeting. During the meeting, the MDT member who has had the most contact with the patient will lead the discussion. All MDT decisions should be recorded in the patient's notes and a letter should be generated to the patient and primary care team. An MDT proforma is a useful tool for focusing MDT assessments. An example proforma is shown in Table 4. Data collected from MDT decisions allow audit of the MDT meetings and decisions.

**Table 4. A sample MDT meeting proforma.**

#### Weight management MDT meeting proforma

Date of MDT: **Patient information / sticker**

Members of MDT present:

Patient ID:
Name:
DOB:

**Age:**

#### Body weight and BMI:

Referral waist:	(cm)	Referral height	(metres)
Referral weight:	kg	Referral BMI:	kg/m <sup>2</sup>
Latest weight:	kg	Latest BMI:	kg/m <sup>2</sup>
Weight loss percentage:			

*continued*

**Table 4. A sample MDT meeting proforma – continued**

**Comorbidities:**

Diabetes mellitus	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
If yes, latest HbA1c result and date:				
QRISK $\geq$ 20 %	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
Obstructive sleep apnoea (OSA)	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
If yes, is patient on CPAP?	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
NAFLD	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
Other, please specify	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>

**Dietary issues:** YES  NO

Comment:

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**Emotional / psychological issues:** YES  NO

Comment:

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**Functional states:**

- No limitations
- Need assistance
- Housebound/wheelchair bound

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**Others:**

Follow-up issues YES  NO

Comment:

**MDT recommendations:**

- Medication
- Dietary intervention
- Psychologist
- Bariatric surgery
- Other, specify

**Recommendation details:**

## 4.7 Difficulties in decision-making

Deciding on the most appropriate treatment plan can be difficult. This is especially so for bariatric surgery and procedure selection. Thus the service specification should not engage single procedure units. Many factors need to be considered when assessing a patient's suitability for bariatric surgery as well as medication use. These factors include age, presence or absence of comorbidities, type of surgery, health-related quality of life, and presence or absence of mental health issues. Guidelines provide some assistance in decision-making.<sup>4,21,22,32</sup> In the UK, NICE has issued guidance on suitability for bariatric surgery<sup>4</sup> but these are not routinely adhered to.<sup>33</sup>

MDT meetings will help identify high-risk patients, and hence risks and benefits of interventions can be discussed among MDT members. This is especially true for those who are over 60 years of age and have severe obesity, as outcomes for bariatric surgery tend to be less favourable<sup>34</sup> and assessing individual cases is less clear-cut. Although age over 60 is a risk factor, surgery can still be safe and effective and this group should not be disenfranchised from the potential benefits of surgery.

If children up to age 16 and young adults (16–18 years) are discussed, the MDT should include other contributors including paediatricians and also the GP. Some guidelines also recommend contribution from an ethicist to ensure that consent is possible and informed. Normally bariatric surgery is considered only after puberty.

There are many different case scenarios and each individual patient is unique. This can make the decision-making process very complex. The dietitian's assessment of the patient's motivation and dedication on dietary changes, the physician's input on medical conditions, and the surgeon's opinion of perioperative risks and complications will provide a more complete picture of each patient. In cases when bariatric surgery is not suitable, a decision on the best alternative interventions should be considered, to provide a consensus which will facilitate the patient's ongoing management.

Several scoring systems have been proposed for assessment of patient suitability for bariatric surgery by including the degree of obesity and contribution of comorbidities.<sup>33</sup> The limitations of using scoring systems are that although they attempt to take greater account of comorbidities and their severity, they do not include all comorbidities, and they do not consider the duration of the comorbidities and health-related quality of life. Scoring systems are helpful but still do not provide sufficiently individualised information, and have not been shown to alter outcomes.

## 4.8 Conclusion

This section has described the rationale and essential ingredients of the MDT necessary to care for bariatric patients, and has highlighted the need for physician involvement.

Patients seen in specialist weight management services and bariatric surgery centres should have an MDT care structure consisting of at least a consultant physician, bariatric surgeon, dietitian, bariatric coordinator and administrative staff. Additional members should include psychologist or psychiatrist, clinical bariatric nurse and exercise specialist. Each individual healthcare professional has a specific role in patient care as well as in the MDT meeting, although some roles overlap. Clinical decision-making for patient management is often difficult and complex due to the multiple factors involved. Regular MDT meetings will help facilitate appropriate decision-making. There is a need for future research into the

impact of multidisciplinary care in the management of complex obesity. Current multidisciplinary care practice should be audited on a regular basis and audit results published to inform service development and commissioning.

## Recommendations

- 1 All members of the multidisciplinary team (MDT) should be trained and experienced in motivational interviewing and incorporate these techniques into their clinical practice.
- 2 Since type 2 diabetes is common among the overweight and obese population, and management of obesity may directly affect diabetes prevention and management, integration with diabetes services is recommended.
- 3 Adoption of the Edmonton Obesity Staging System (EOSS) will allow better 'phenotyping' of the individual patient and facilitate audit and outcomes review and research.
- 4 The primary care team has an important role in signposting to relevant services which are known to be effective. Many patients may contemplate commercial programmes, or increasingly such services may be provided by care within the NHS, and request advice from the primary care team. It is vital to ensure that patients attend services most suited to them.
- 5 The specialist MDT needs expertise in multiple obesity-related disorders. The MDT should include specialist consultant physicians, consultant surgeons, dietitians, nurses, psychologists and psychiatrists and exercise/physical activity professionals.
- 6 A particular issue among patients with extreme obesity is the increased prevalence of psychiatric disorders, including eating disorders, anxiety and depression. Thus, close collaboration with primary care and mental health services is required to assist patients with significant psychological trauma or psychiatric illness.
- 7 A growing number of patients within primary care will have had bariatric surgery, and links with the (hospital-based) medico-surgical MDT are essential.
- 8 Adequate administrative support to ensure that patients move smoothly through the MDT assessment is essential.

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## Appendix. List of equipment needed by an MDT for inpatient obesity services.

### Perioperative equipment

- 1 Lifting-assisting devices / transfer devices:
  - eg stand assist lifts, floor-based lifts, ceiling-mounted mechanical lifts
- 2 Bariatric operating table
- 3 Lateral transfer aids especially during surgery:
  - eg air-assisted devices, friction-reducing devices, mechanical or powered lateral aids
- 4 Surgical equipment – consider extra large surgical instruments, eg extra large retractors
- 5 Large blood pressure cuffs
- 6 Respiratory equipment – spirometry and pulmonary tools to reduce atelectasis risk post surgery

### Inpatient (hospital facilities)

- 1 Entrances / door openings:
  - Ramps for wheelchair access
  - Minimum door widths = 48 inches
  - Double door entry for wide hospital beds / stretchers
- 2 Bariatric bed – wide and weight capacity clearly visible
- 3 Mobility aids – extra-large, wide aids suitable for weight of extreme obese patients:
  - eg walkers, walking sticks, frame
- 4 Lifting-assisting devices / transfer devices:
  - eg stand assist lifts, floor-based lifts, ceiling-mounted mechanical lifts
- 5 Bariatric wheelchair – wide and heavy duty to accommodate width of individuals as well as weight
- 6 Commode / shower chairs – wide and able to accommodate weight
- 7 Bariatric gowns
- 8 Transfer equipment:
  - eg slings – reduce risk of friction, wide to accommodate width of individuals
  - eg gait / transfer belts
- 9 Bariatric chair – adequate height to ease standing (individuals may suffer with arthritis), armless to relieve pressure on hips, wide

- 10 Bed space – spacious to allow staff (at least 2) to transfer patient / visitors space
- 11 Blood pressure – large BP cuffs
- 12 Bariatric scales
  - eg chair / sling / standing scale
- 13 Radiology facilities – radiology tables suitable for weight and width of these individuals – open computed tomography

### Toilet facilities

- 1 Spacious to allow staff (at least 2) and patient room to manoeuvre
- 2 Wide shower door (minimum 48 inches)
- 3 Toilet and sink frame suitable for obese patients' weight
- 4 Toilet with split front to allow easy access to perineal area
- 5 Toilet – seat height 17–19 inches to aid standing
- 6 Fixtures, eg grab bars / handrails to aid individuals with mobility problem
- 7 Avoid towel racks – may be mistaken as handrails by patients

### Clinic

- 1 As per toilet facilities above for clinic toilet
- 2 Bariatric chairs
- 3 Bariatric examination couch
- 4 Door entrances – as per above
- 5 Clinic room side – spacious and wide (for patients and carers)
- 6 Bariatric and wheelchair scales
- 7 Bariatric wheelchairs for patient transfer
- 8 Stadiometer
- 9 Blood pressure – large BP cuffs
- 10 Bariatric examination table with adjustable height

# 5 Setting up a multidisciplinary team

The MDT is key to the success of a specialist weight management and bariatric surgery service. Figure 2 provides an outline of the processes involved in setting up and running an MDT. The composition of the team should be planned in advance, based on local expertise, and must include professionals who have a dedicated practice in the field of obesity, its comorbidities, and its treatment. The MDT usually includes consultant physicians, surgeons, dietitians, psychologist(s) and a bariatric coordinator. The MDT has to

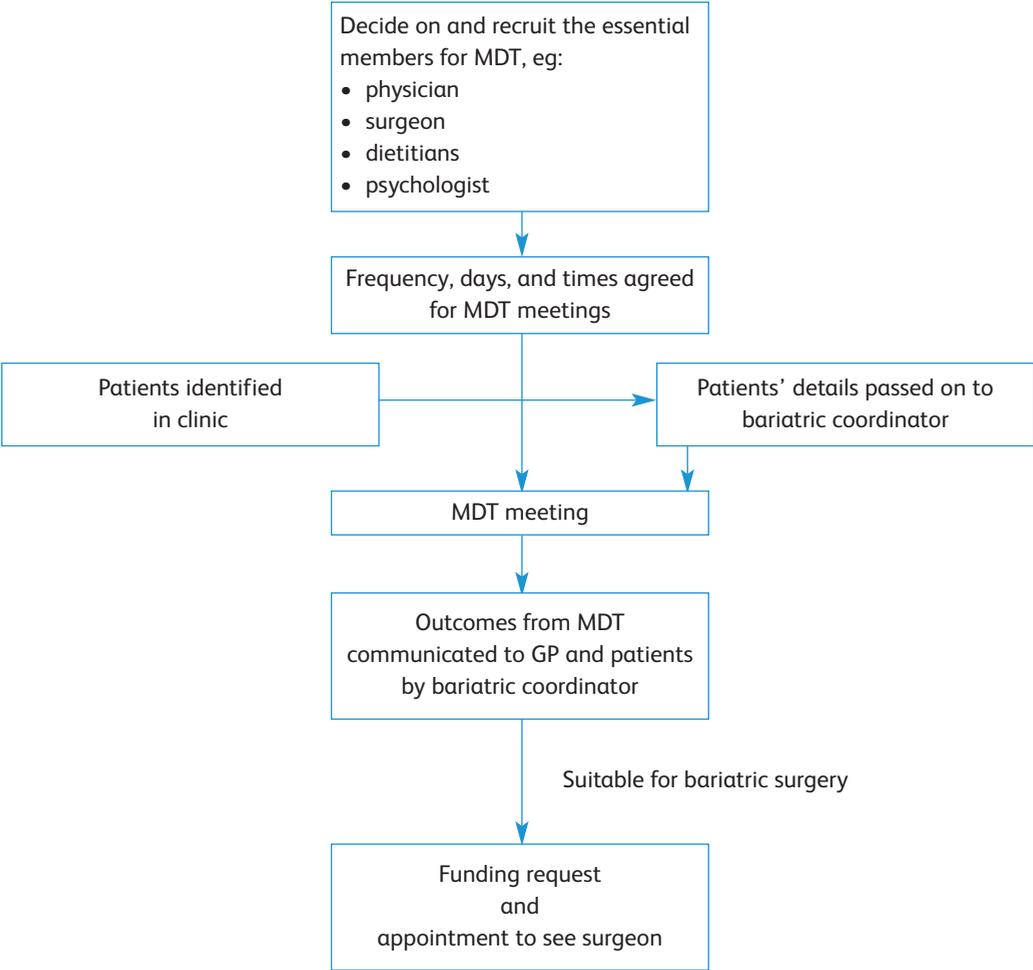


Fig 2. Setting up an MDT.

agree the number of professionals necessary for informed treatment decisions. The role of the bariatric specialist nurse has developed within surgical centres and these specialists play a critical role in assessing patients, preparing them for surgery, in follow-up, and acting as the patient advocate within the MDT. The physician's role is also critically important since many/most patients being seen within specialist services will have severe and/or complex medical problems including diabetes, cardiovascular, renal and liver disease. The high prevalence of affective and eating disorders necessitates adequate psychological and/or psychiatric expertise, while dietary assessment and care will be needed for all patients. Where surgery is offered, specialist bariatric surgeons undertaking adequate laparoscopic procedures (usually >50–100/year) are integral to the MDT.

Adequate provision should be made for leave so that MDT meetings happen regularly without delay to patient care. The MDT should agree the frequency (depending on patient volume), and a set day and time for MDT meetings. Patients suitable for MDT discussion should be identified in weight management and bariatric surgery clinics or referred from other affiliated clinics (eg community clinics) for MDT advice. Patient details will be kept by the bariatric coordinator/nurse/administrator and patients will be placed on the MDT list for discussion. After the MDT meeting, outcomes will be communicated back to patients as well as the respective GPs. Centres will be required to comply with the access policy developed by the clinical commissioning group (CCG) and subject to retrospective audit using the contractual process in place.

From April 2013 severe and complex obesity services will be commissioned by the NHS Commissioning Board and local services will be commissioned by CCGs.

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## 6 Care pathways, including post-surgery follow-up

### 6.1 Introduction

Despite National Institute for Health and Clinical Excellence (NICE) guidelines on a recommended pathway for prevention of overweight and obesity, and its management when established (CG 43),<sup>1</sup> care provision varies around the country and the models utilised differ. Commissioning has usually considered 3 or 4 levels of service: Tier 0/1 (early intervention and prevention; BMI >25), Tier 1/2 (first line obesity management; BMI >30), Tier 2/3 (primary care / hospital specialist services), Tier 3/4 (multidisciplinary specialist care including bariatric surgery). However, these definitions may be poorly related to the clinical needs of patients and are variably available, resourced and delivered; and from April 2013 commissioning arrangements will change. NICE has also provided a commissioning guide for bariatric surgery services,<sup>2</sup> but again this has not been uniformly or fully implemented.

### 6.2 Primary care pathways

Obesity may be identified by a primary care healthcare professional (HCP); this includes healthcare assistants, school nurses, pharmacists and GPs. It may also be self-reported by the patients. Obesity definition and assessment needs to take into consideration the different ethnicity criteria since there is agreement that the South Asian population in particular are at risk at a lower body mass index (BMI) than their Caucasian/Afro-Caribbean counterparts.<sup>3</sup> Obesity is currently defined by BMI and/or waist circumference.

Obese patients should be clinically assessed for causes, risks for obesity-related diseases (eg dyslipidaemia and type 2 diabetes) and for direct obesity complications (eg type 2 diabetes, obstructive sleep apnoea, non-alcoholic fatty liver disease). A psycho-social history is important as well as the history of previous attempts at weight management. Based on these factors, referral to the appropriate tier of service can be made.

If the patient fits within the primary care management pathway, the HCP makes the appropriate referral and/or implements treatment, and should inform other HCPs who may be managing the patient's obesity-related diseases since treatment of the obesity may impact on their other care (eg anti-coagulation, hypoglycaemic and hypertension medication needs may alter during weight loss).

Referral for assessment for bariatric surgery may be appropriate at this early stage if the patient has a BMI >50 (NICE CG 43),<sup>1</sup> or at a lower BMI if previous weight management treatments have failed. The HCP should be able to discuss the principles of surgery, its risks and benefits with the patient to ensure

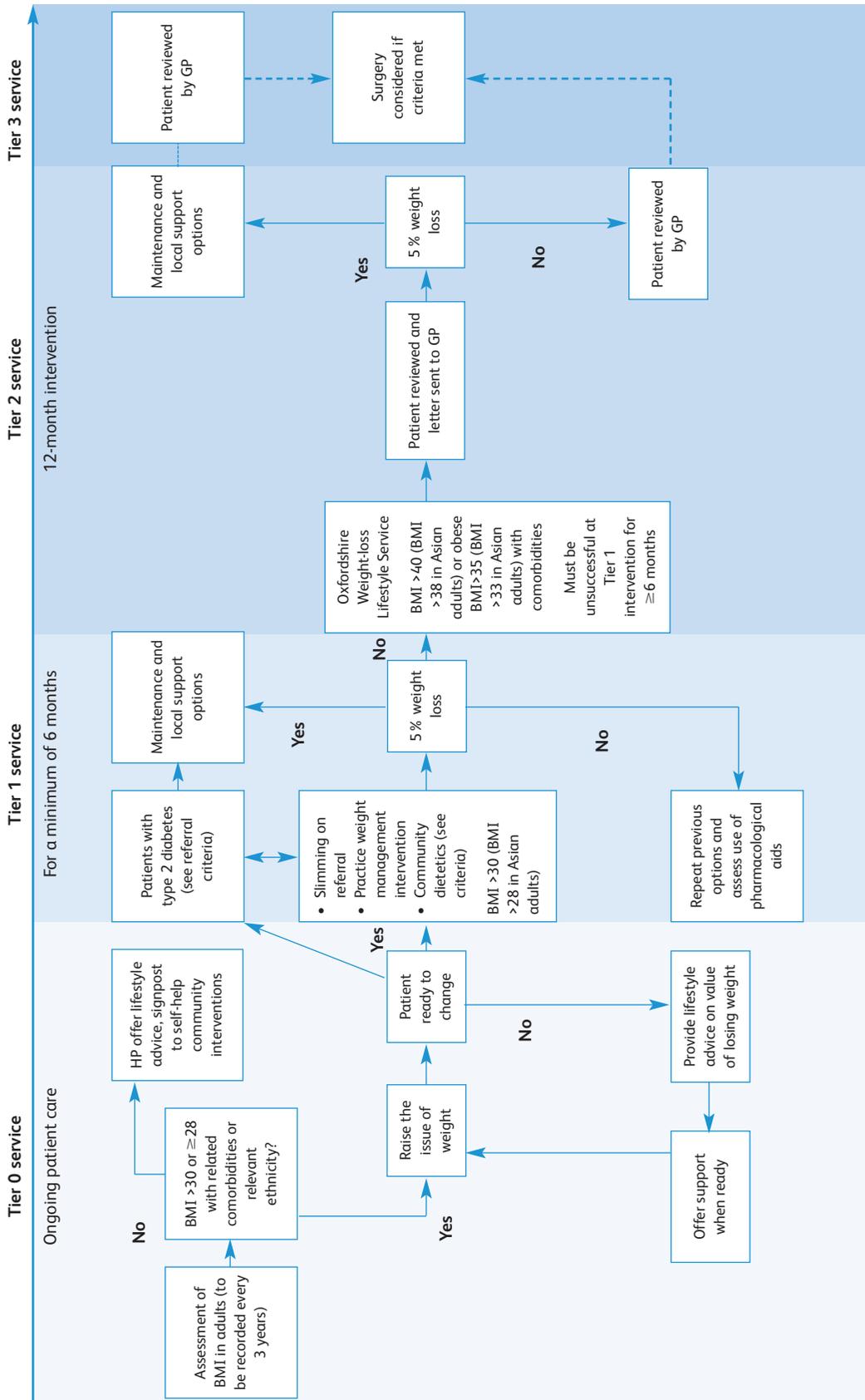


Fig 3. Adult obesity care pathway (NHS Oxfordshire). The pathway should be used alongside patient criteria for each tiered service (see facing page).

## Tier 1 – Services for obese patients

### Practice-based weight management intervention (if currently delivered)

#### Slimming on referral

GPs may refer patients that meet **all** of the following criteria:

- They have a BMI of  $\geq 30$  or BMI  $\geq 28$  with comorbidities ( $\geq 28$  for Asian patients).
- They have not attended a slimming group in the last 3 months.
- They are either living within Oxfordshire and/or registered with a Oxfordshire PCT practice.
- They meet the readiness for change criteria.

#### Community dietetic service

Only for patients considered unsuitable for slimming on referral or practice-based services and requiring additional specialist support due to having:

- significant comorbidities, eg hypertension, CVD, who require a motivational, cognitive and behavioural approach to manage their weight
- binge or disordered eating (may require a referral to a counsellor or clinical psychologist)
- a learning, physical or mental disability.

## Tier 2 – Services for morbidly obese patients

### Access criteria

- Patients should be morbidly obese (BMI  $>40$ , BMI  $>38$  in Asian adults) or obese (BMI  $>35$ , BMI  $>33$  in Asian adults) with comorbidities.
- There must be documented evidence of Tier 1 intervention for at least 6 months prior to referral and that the patient has not achieved sufficient sustained weight loss.
- Patients must meet the readiness for change criteria.

### Exclusion criteria

- No documented evidence of Tier 1 interventions as requested.
- Exclusion of clients who have already attended the service, unless prior approval is obtained by the PCT (Public Health Team – obesity lead).
- Temporary exclusion of patients for physical, psychological and social reasons.
- A clinical diagnosis which may prohibit adherence to the programme.
- Poorly controlled hypertension BP  $>150/100$ .
- Uncontrolled ischaemic heart disease or uninvestigated chest pain.
- Diabetes (please refer to enhanced care diabetes dietetic service).
- Pregnant women.
- Clients under the age of 16.

that informed patients who do not wish to consider surgery are not unnecessarily referred to specialist units. Currently many PCTs require prior authorisation for such referrals. However, the patient needs to be clear about the impact of bariatric surgery.

Follow-up after the weight management intervention is completed should be agreed with the patient and if weight loss is inadequate, not maintained, or has insufficiently improved obesity-related disease, the patient should be reassessed for a more 'intensive' treatment (likely to be at a higher tier).

Patients with obesity-related disease already being managed within secondary care should be referred back to their primary care physician for weight management rather than direct consultant-to-consultant referral, unless special arrangements have been agreed, or there is urgency (eg severe sleep apnoea uncontrolled by respiratory support). Non-obesity specialist physicians have a responsibility to highlight the need for weight management, and help patients into the management pathway when the condition they are treating could benefit from weight management.

Secondary/tertiary care services pathways should be accessed by the GP when other interventions have failed to achieve the desired outcome or when the patient meets the criteria for a direct referral to Tier 3/4 services.

### 6.3 Specialist medical and bariatric services – Tier 3/4

Entry into specialist care currently varies widely between centres. In some there are no medical services and referrals are direct to bariatric surgeons when bariatric surgery is considered an option. In other centres entry is via a specialist physician, often an endocrinologist, or bariatric physician where they exist. In larger centres referrals may be 'triaged' by the MDT. Adequate information on the patient's history, psychosocial status, and current medical problems will facilitate this assessment.

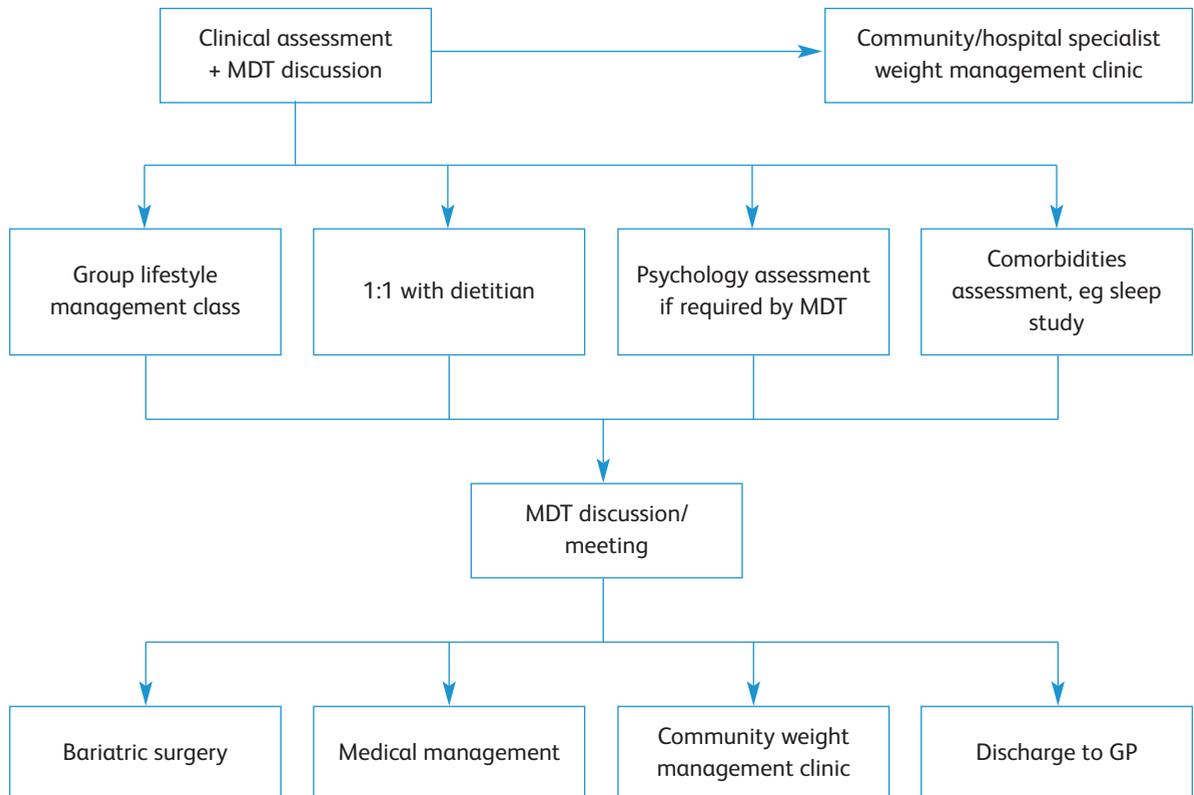
After assessment patients may be referred back to primary care (eg where s/he has not completed appropriate Tier 2/3 services in the community) or be accepted for assessment and treatment within secondary care. This may involve specialist medical management to optimise existing morbidities (eg blood pressure, glycaemic control) or intensive medical weight management programmes (eg using low and very low energy diets, behaviour therapy, or pharmacotherapy). Alternatively patients may proceed directly to assessment for bariatric surgery.

The multidisciplinary specialist team carrying out the assessment will include a bariatric surgeon, specialist physician, clinical nurse specialist, dietitian, psychologist as well as an anaesthetist and psychiatrist.

This may then necessitate specialist physician management for optimisation of the patient and their related comorbidities or onward referral to other specialists, eg in respiratory medicine, endocrinology, and cardiology.

Patients will be supported in the hospital medical clinic for up to 1 year if they need optimisation of their health for elective surgery, preoperative weight loss, prolonged psychological or psychiatric support and treatment (eg with cognitive behavioural therapy for stabilisation of an eating disorder).

Figure 4 shows the patient pathway followed at a typical centre. Patients undergo an initial day of assessment seeing in turn each member of the team followed by MDT discussion. The MDT will determine their suitability for surgery including appropriate investigations, support, and follow-up.



**Fig 4 Integrated care pathways.**

A further MDT discussion at 6 months (or 6 and 12 months depending on patient progress) will determine the next steps including bariatric surgery, as an option.

Medical sequelae of surgery will necessitate ongoing specialist intervention and follow-up for management of type 2 diabetes, hypertension, dietary modification and bariatric surgery induced hypoglycaemia. The specialist physician, bariatric dietitian and clinical nurse specialist best provide this.

Referral back to primary care services when the patient no longer requires secondary level care requires agreements, education and support from primary care. GPs should receive written information about the longer-term management with emphasis on how surgical and medical complications may present, and criteria for referring back to hospital.

#### 6.4 Discharge policy

A policy for discharging patients should be agreed by the MDT, and ideally by the patient when they first attend with a signed 'agreement'. Reasons for discharge may include:

- non-attendance at clinic on two occasions without prior notification unless due to an emergency and after attempts to re-engage the patient have been made
- patients who the MDT believes are not ready or motivated to change their lifestyle, which must include detailed information given to the GP and patient about expectations for the future including, eg, referral for psychological management

- patients requiring specific community mental health or substance use support (these patients should be re-referred once they have had adequate community intervention)
- patients who do not achieve expected weight loss during a hospital-based medical management programme, or fail to engage in cognitive behavioural or physical activity treatment within the programme (unless deemed otherwise by MDT).

## 6.5 Post-surgery MDT follow-up and pathways

Following bariatric surgery, patients require lifelong follow-up. Most UK centres offer a 2-year follow-up with open door access after 2 years. Close communication with the primary care team will ensure successful follow-up of patients after the initial 2 years. Thus patients can be referred into the MDT meeting by their GP and the MDT will determine any further investigations, treatment, or follow-up. During the 2-year follow-up, any patient problems are discussed by the MDT and decisions made as above. After 2 years, specific instruction is given to patients and the primary care team about long-term follow-up investigations and treatments. Advice is also given about potential problems that require intervention by the specialist centre.

To ensure success with weight loss after bariatric surgery, weight loss maintenance, improvement in comorbidities, and reduction and management of potential complications of surgery, the MDT approach is essential. Maintaining an appropriate eating pattern and food selection are key to avoiding complications post-bariatric surgery. In the case of the gastric bypass or more malabsorptive procedures, there is a requirement for lifelong vitamin and micronutrient replacement and monitoring and vigilance for vitamin and micronutrient deficiencies. A care plan, devised in collaboration with general practice, should be created for this purpose. For women contemplating pregnancy post bariatric surgery, close liaison between the bariatric and obstetric teams is necessary.

An important part of the care of patients who have undergone bariatric surgery is the provision of patient support groups. These support groups should be encouraged and supported by the MDT. Close interaction between patient support groups and the MDT allow optimisation of patient and family member education and troubleshooting.

## Recommendation

- 1 In collaboration with the Royal College of Nursing, a specialist group of bariatric nurses who are trained in the specialist aspects of bariatric medicine and surgery should be established.**

## References

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## 7 Audit, quality, research and monitoring progress

Audit is a prerequisite for quality assurance in all aspects of obesity services. The audit cycle provides an opportunity for reflection on objectives, resources and outcomes. If datasets are matched, a comparison of outcomes with other centres is also possible. When performed regularly in other clinical settings, eg cardiothoracic surgery, such comparisons are associated with improvements in performance.

The current expansion of secondary and tertiary care obesity services provides an opportunity to harmonise audit datasets and to establish a centrally coordinated, independently analysed audit system. Such a system should not confine itself to auditing surgical performance but should record outcomes for all patients referred to each obesity service.

Other organisations have already developed guidance on appropriate datasets. The National Obesity Observatory's Standard Evaluation Framework<sup>1</sup> is intended for use with diet and physical activity interventions but much is equally applicable to medical and surgical therapies. The Bariatric Obesity and Metabolic Surgeons Society has developed guidance<sup>2</sup> and a comprehensive database for surgical procedures and reported outcomes after 2 years.<sup>3</sup> The role of the current document is not to duplicate this work but to draw attention to these resources and to encourage their adoption.

Effective audit requires clinical leadership and dedicated time. A member of the multidisciplinary team in each centre should be designated as audit lead and appropriate time (typically 0.5 programmed activities or equivalent) should be allocated within that person's job plan. Data collection may be carried out by others in the team, including juniors, for whom the experience is likely to constitute a valuable training opportunity.

The future development of all clinical practice depends on a high-quality research evidence base. This presents a challenge for obesity services because medical, surgical, dietary and lifestyle interventions coexist and, to some extent, compete. In particular, bariatric surgical techniques, which are evolving rapidly, cannot be tested in double-blinded trials. Nevertheless, randomised controlled trials are achievable on an 'open-label' basis and offer greatest value in guiding treatment decisions.

### Recommendations

- 1 Within each multidisciplinary team, a clinical leader for audit for evaluating the quality and outcome of the service should be designated, and appropriate time allocated within that person's job plan.**

- 2 Funding should be allocated, and bids from interested parties invited, to set up and run a central clinical audit system, facilitating regular comparison of outcomes between participating centres. All NHS and private providers in secondary and tertiary care settings should participate.**
- 3 Clinical research should be encouraged and supported, focusing on long-term outcomes, health economics and quality of life from incorporating weight management within treatment of patients being managed for obesity and its typical comorbidities.**

## References

- 1 National Obesity Observatory. *Standard evaluation framework for weight management interventions*. London: National Obesity Observatory, 2009.
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- 3 Bariatric Obesity and Metabolic Surgeons Society <http://demo.e-dendrite.com/csp/bariatric/FrontPages/nbsrfront.csp> [accessed 13 December 2012].

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## 8 Cost effectiveness of treatment

### 8.1 Introduction

The societal costs of obesity are well established. In 2002 the House of Commons Select Committee estimated that the total cost of overweight and obesity in England was about £7 billion/year,<sup>1</sup> a figure that had doubled by 2007 and was projected to rise to £50 billion/year by 2050.<sup>2</sup> A systematic review of the economic burden of obesity worldwide concluded that obesity accounted for 0.7–2.8% of a country's total healthcare costs, and that obese individuals had medical costs 30% higher than those with normal weight.<sup>3</sup> It is estimated that 23% of spending on all drugs is attributable to overweight and obesity. The minimum annual cost of any drug prescriptions at BMI 20 rose from £50.71 for men and £62.59 for women by £5.27 and £4.20, respectively, for each unit increase in BMI to a BMI of 25.<sup>3</sup> Increases for each BMI unit were greater to BMI 30, and greater still, £8.27 (men) and £4.95 (women), to BMI 40.<sup>4</sup> Prevention of overweight and obesity can be cost effective, but interventions that modified a target population's environment, ie fiscal and regulatory measures, reported the most favourable cost effectiveness.<sup>5,6</sup>

### 8.2 Obesity treatment

There have been many health economic analyses of obesity treatments;<sup>6</sup> most show that their overall cost:benefit is sensitive to duration of follow-up. Thus in the 2004 systematic review by Avenell,<sup>7</sup> a diet and exercise intervention took 3 years before it achieved an incremental cost-effectiveness ratio (ICER) below £30,000 per quality-adjusted life year (QALY).

**Table 5. Base case results for a lifestyle (diet and exercise) intervention.**

Years since baseline	Strategy	Cost per person	Incremental cost per person	QALYs per person	Incremental QALYs per person	ICER (cost per additional QALY)
1	No intervention	£1,019		0.937		
	Diet and exercise	£1,287	£268	0.939	0.002	£113,905
2	No intervention	£1,779		1.849		
	Diet and exercise	£2,121	£342	1.856	0.007	£50,440
3	No intervention	£2,559		2.739		
	Diet and exercise	£2,949	£390	2.752	0.013	£29,903

*continued*

**Table 5. Base case results for a lifestyle (diet and exercise) intervention – continued**

Years since baseline	Strategy	Cost per person	Incremental cost per person	QALYs per person	Incremental QALYs per person	ICER (cost per additional QALY)
4	No intervention	£3,313		3.608		
	Diet and exercise	£3,769	£456	3.627	0.019	£23,732
5	No intervention	£4,165		4.452		
	Diet and exercise	£4,665	£500	4,478	0.026	£19,049
6	No intervention	£5,023		5.273		
	Diet and exercise	£5,508	£485	5.309	0.036	£13,389

### 8.3 Implementation of current guidelines

A recently updated overview of the costs and savings from treating obesity published by the NICE<sup>8</sup> showed that substantial savings to the NHS could be made by active treatment of overweight and obese children and adults over a 10-year period.

**Table 6. Costing report implementing NICE guidance.<sup>8</sup>**

Recommendations with a significant resource impact	Year 10 cost (£000s)
<b>Recurrent costs</b>	
Treatment of overweight/obese children with comorbidities	9,611
Bariatric surgery for obese adults with a BMI above 50 kg/m <sup>2</sup>	25,878
<b>Total estimated costs</b>	<b>35,489</b>
<b>Cash-releasing savings</b>	
Reduced prescription costs in primary care	-13,992
<b>Opportunity savings</b>	
Reduced GP contacts	-41,636
<b>Total estimated savings</b>	<b>-55,628</b>

Updated for 2009 healthcare resource group (HRG) costs and prescribing for England, a more recent estimate is that after 2 years of implementing NICE guidelines for obesity treatment, annual savings would amount to £16 million/year in England alone.<sup>9</sup> Other lifestyle intervention programmes have shown high levels of cost efficacy.<sup>10–12</sup>

### 8.4 Pharmacological treatment

A systematic review of pharmacological treatment in primary care (orlistat, sibutramine and rimonabant – the latter two now withdrawn) has shown all were effective at reducing weight and BMI, and cost effective when using a threshold of £20,000 per QALY. In clinical practice, orlistat should be considered to aid weight reduction with lifestyle interventions in those individuals who have not been successful in reducing their weight with lifestyle changes alone.<sup>13</sup> These data are likely to be conservative since most clinical trials ‘discount’ benefits obtained during an ‘active’ run – in with lifestyle prior to starting drug treatment. The importance of considering responders in economic evaluation of drugs (which can of

course be discontinued in non-responders) was shown in an evaluation of orlistat in obese type 2 diabetics.<sup>13</sup> If only those patients losing >5% weight at 12 weeks are considered, the base-case economic analysis showed cost per QALY gained of €14,000 in Sweden and €13,600 in Switzerland. Several new drugs and drug combinations are due to be submitted for approval in Europe during 2012/13.

## 8.5 Surgical treatment

The cost:benefit of bariatric surgery was examined as part of the Health Technology Assessment programme.<sup>14</sup> The authors found that bariatric surgery was cost effective in comparison to non-surgical treatment in previously published studies, but because some of the estimates were likely to be unreliable and not generalisable a new economic model was developed. Surgical management was more costly than non-surgical management in each of the three patient populations analysed (BMI  $\geq 40$ ; BMI  $\geq 30$  and  $< 40$  with type 2 diabetes at baseline; and BMI  $\geq 30$  and  $< 35$ ) but gave improved outcomes. For morbid obesity, ICERs ranged between £2,000 and £4,000 per QALY gained. For BMI  $\geq 30$  and  $< 40$ , ICERs were £18,930 at 2 years and £1,397 at 20 years, and for BMI  $\geq 30$  and  $< 35$ , ICERs were £60,754 at 2 years and £12,763 at 20 years. Sensitivity analyses produced ICERs which were generally within the range considered cost effective, particularly at the long 20-year time horizons, although for the BMI 30–35 group some ICERs were above the acceptable range.

## 8.6 Bariatric surgery

A more recent analysis by the Office of Health Economics<sup>9</sup> developed an alternative model and estimated that between around 10,000 and 140,000 of patients could receive bariatric surgery based on the assumption of between 1% and 25% of patients eligible for surgery choosing to take this option. External benefits were calculated by measuring paid hours gained for patients following surgical intervention and these offset the cost of surgery after one year. NHS costs were conservatively estimated by NICE at £56m per year once initial costs had been incurred. Overall the economic benefit ranged between £382m and £1,295m savings after three years to the NHS after surgery if 25% of patients potentially eligible for surgery chose this option. In addition to these economic benefits, it was estimated that a potential reduction in disability benefits of between £35m and £150m would be achieved through this level of surgical intervention. In Australia, adjustable gastric banding for severe obesity has been estimated to be of similar benefit in terms of reducing DALYs as taxation of alcohol and tobacco, reducing salt intake, and improving the efficiency of blood pressure- and cholesterol-lowering drugs using an absolute risk approach and choosing the most cost-effective generic drugs or reducing sun exposure (Table 7).

**Table 7. Assessing cost-effectiveness in prevention (ACE – Prevention).<sup>16</sup>**

Intervention	(Lifetime, discounted)		
	DALYs prevented	Intervention costs (A\$ billion)	Cost offsets (A\$ billion)
Taxation			
Tobacco tax 30 %	270,000	0.02	-0.7
Alcohol tax 30 %	100,000	0.02	-0.5
Alcohol volumetric tax 10 % above current excise on spirits	110,000	0.02	-0.7
Unhealthy foods tax 10 %	170,000	0.02	-3.5

*continued*

**Table 7. Assessing cost-effectiveness in prevention (ACE – Prevention)<sup>16</sup> – continued**

Intervention	(Lifetime, discounted)		
	DALYs prevented	Intervention costs (A\$ billion)	Cost offsets (A\$ billion)
Regulation			
Mandatory salt limits on processed food	110,000	0.07	–1.5
Preventive treatments			
Three blood-pressure-lowering drugs to replace current practice of preventive drug treatments	20,000	–1.9	–0.34
Polypill to replace current practice	60,000	–7.0	–0.8
Laparoscopic gastric banding (BMI >35)	140,000	3.7	–2.9
Health promotion			
Intensive SunSmart	120,000	2.0	–0.3

A number of other conditions, such as psoriasis, not included in economic models also improve after bariatric surgery.<sup>15</sup>

## 8.7 Conclusions

Obesity treatment is cost effective and in some cases it costs less to provide it than not. Targeting treatment at those most likely to benefit will further enhance cost efficacy.

The time period for assessing cost efficacy may be extended compared to some other areas of health intervention and this requires commissioning authorities to have an appropriate long-term view on the value of obesity treatment.

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## 9 Commissioning

The NHS Commissioning Board will be responsible for commissioning tertiary complex obesity including bariatric surgical services.

### 9.1 Introduction

Commissioning is the process by which the NHS and local government secure the services which are needed by the population they serve. It is made up of a process of:

- assessing the needs of a population
- assessing what the latest evidence suggests would be the most effective way of meeting those needs
- understanding the services already available and understanding the market of potential providers
- procuring additional or different services as needed
- closely monitoring the contracts to ensure that they are answering the needs of the population as predicted
- reassessing the needs of the population and the services available to them.

### 9.2 Which parts of the commissioning cycle should physicians be involved with?

Commissioning, to be done effectively, needs the involvement of clinicians. Physicians from both primary and secondary care bring an understanding of the effects of obesity and how it can be effectively tackled. Physicians in public health bring an understanding of prevention of obesity that happens at an individual, community and wider societal level. They often take the strategic leadership role in obesity, overseeing the whole of the care pathway from prevention through to treatment for their locality, including overseeing the whole of the commissioning process.

Physicians with specific knowledge of the effects and the treatment of obesity, at an individual patient level (obesity ‘champions’), can be usefully involved in the assessment of the latest evidence base, understanding current services and potential providers, the drawing up of relevant performance indicators in contracts and maybe even in monitoring of contracts.

When becoming involved in the commissioning process physicians need to ensure that they abide by procurement law and do not, by the nature of their involvement, preclude their employing organisation from competing for any contracts that are put out to tender.

### 9.3 Resources for commissioning obesity services

There are already many resources from respected sources available for commissioners with which physicians entering this work may want to familiarise themselves. These include:

- Foresight Report: *Tackling obesities – future choices*<sup>1</sup>
- *Healthy weight, health lives – A toolkit for developing local strategies*<sup>2</sup>
- Guidance from NICE ([www.nice.org.uk/CG43](http://www.nice.org.uk/CG43))
- The National Heart Forum Obesity Learning Centre ([www.obesitylearningcentre-nhf.org.uk](http://www.obesitylearningcentre-nhf.org.uk))
- The National Obesity Observatory ([www.noo.org.uk](http://www.noo.org.uk))

In *Healthy lives, healthy people*,<sup>3</sup> a public health White Paper, the government published further guidance on obesity. The evidence base for obesity interventions is not complete, and varies in its quality and style in different parts of the care pathway. While an evidence-based approach is desirable, physicians should be open-minded and respectful of different cultures and attitudes towards evidence, especially when working with colleagues from non-clinical disciplines and cultures, such as local government.

Where the evidence-base is weak, physicians have a key role in interpreting what evidence-base is available and in encouraging evaluation and further development of the evidence base. Innovative interventions should not be commissioned without collecting data on effectiveness as part of the contract as well as a clear period for review of the service.

### 9.4 Developing the market

The treatment of patients with obesity involves:

- assisting the patient to reduce, or prevent an increase in their weight
- assisting the patient in managing the effects of their obesity on their other disease processes.

The market of providers for both types of services is in need of development. Commissioners can struggle to find providers who are willing or able to provide effective services which fit their populations' needs.

Physicians are ideally placed to understand both the evidence of effectiveness and the workings of their own organisations. Combining this knowledge with communication with commissioners can put physicians in an ideal position to drive the development of the services that are needed.

### 9.5 The complexity of the obesity care pathway

Care pathways may be made up of services from a wide range of providers, including NHS providers of primary and secondary care, the voluntary and not-for-profit sector, and private providers (see Appendix, p 39). To make care pathways work for patients there needs to be excellent communication between different parts of the care pathway. Physicians involved in commissioning these services bring expertise in the challenges, legalities and importance of communicating sensitive patient information.

With the NHS reforms the commissioning of health improvement moves out of the NHS and into local government. While this will enable easier links between public health strategic leads and those

responsible for the wider determinants of obesity, there is a risk that it will lead to a fragmentation between strategic leads and the NHS. Physicians need to be aware of this risk and work to reduce it through a willingness to work with local government.

## 9.6 The value of physician involvement and local champions (primary and secondary care)

Obesity is an increasingly common problem in its own right and in the effects that it has in a wide range of pathologies. No single physician in a primary care or secondary care facility can, or should, take on the responsibility for all the patients or pathologies that it affects.

Commissioners need to ensure that every organisation that they commission any services from is aware of the effects of obesity on the services which it provides, even if these services are not specifically aimed at tackling obesity.

Commissioners may want to consider ensuring that providers have an obesity ‘champion’ of sufficient seniority within their organisations to enable the organisations to recognise the knowledge and skills needed regarding obesity, and their role as an employer in relation to this increasingly common problem.

## 9.7 New NHS Commissioning Board policy plans

As this report went to press, the NHS Commissioning Board released their draft *Clinical commissioning policy: complex and specialised obesity surgery* plans.\* The policy substantially reflects many of the recommendations in this report and is likely to both stimulate specialist multidisciplinary service development and an expanded role for the specialist bariatric physician and other healthcare professionals. It describes a patient pathway in which ‘the non surgical and intensive management of morbidly obese patients in Tier 3 / 4 settings to optimise risk ... is an integral part of this pathway’. In addition, the commissioning policy states that ‘... it is critical that individuals being considered for bariatric surgery are carefully selected, appropriately referred, fully evaluated and their medical condition optimised in order to achieve the best operative, post operative and long term outcomes. This is best done by MDTs at Tier 3 / 4 services’. Its recommendations on the composition of the multidisciplinary team that will need to be in place again reflect the recommendations in this report.

## Recommendations

- 1 Specialist physicians should take a central role in commissioning obesity services.
- 2 Commissioners should ensure that every NHS trust has a medical obesity spokesman or ‘champion’, who, amongst other things, can communicate with commissioners, providers and the community and contribute to the local development of effective care pathways.
- 3 The RCP should support these ‘obesity champions’ with career development and networking opportunities.
- 4 Commissioning of multidisciplinary services should use the term ‘severe and complex obesity’ not morbid obesity or bariatric surgery because management of these patients requires MDT input and medical supervision pre-, peri- and post-operatively.

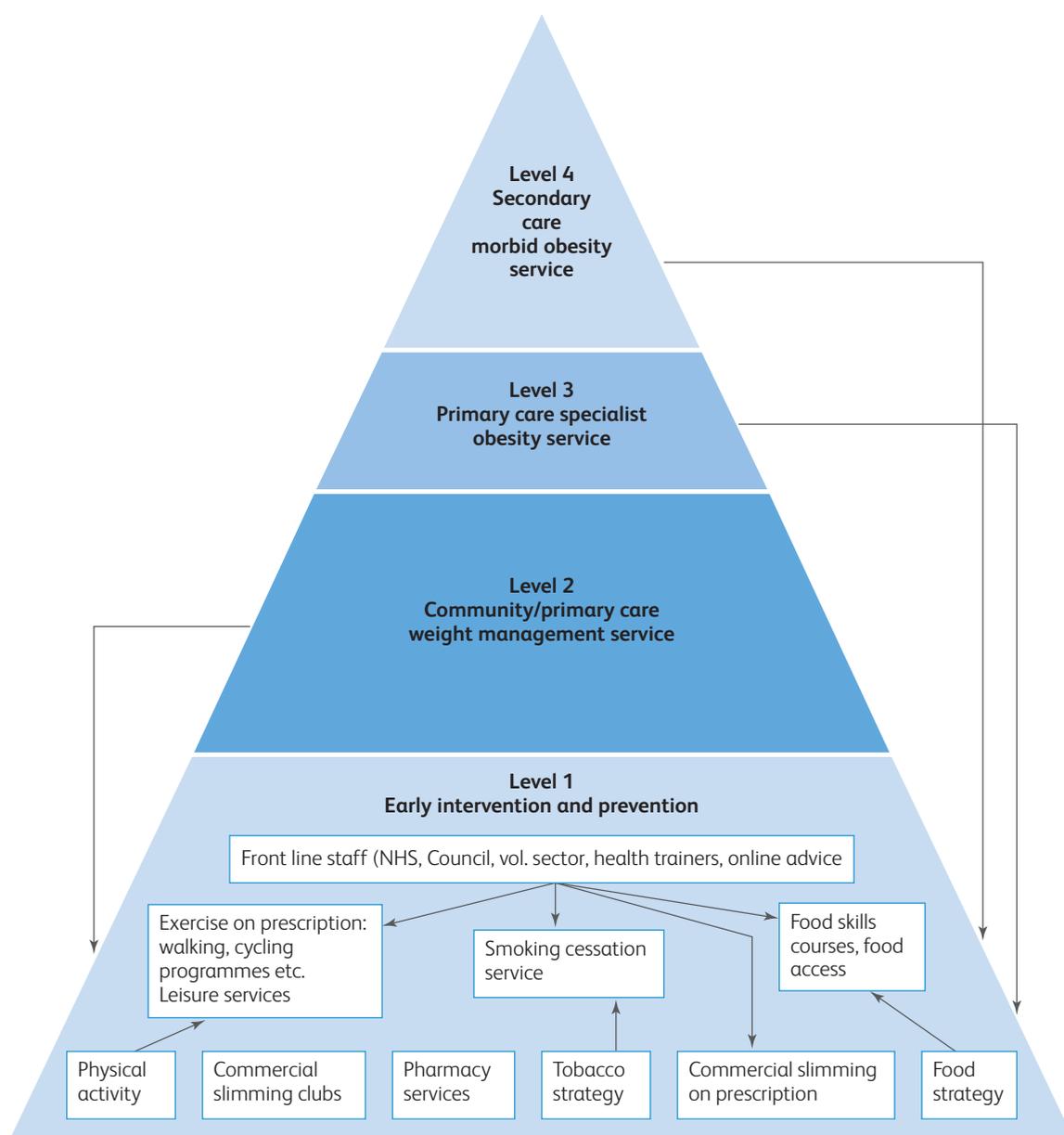
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## Appendix



**Example of an obesity care pyramid for adults** (Birmingham and Solihull Weight Management Service (Adult care pathway). Note: The term ‘severe and complex obesity’ is now preferred to ‘morbid’ obesity.

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## 10 The role of the GP and the general practice team in weight management

### 10.1 Introduction

GPs should have a pivotal role not just in obesity prevention, but also in management, and this needs to be clearly defined. Training for GPs in this area has so far been minimal and often poorly coordinated, reflecting a lack of focus on obesity throughout medical training as a whole.<sup>1</sup> This belies the impact that obesity has on many diseases, its common presentation to GPs and the fact that GPs and their practice teams can have a useful role in obesity prevention and management. Engagement among GPs has been limited, reflecting a combination of personal experience of ineffective health promotion approaches in the past, low confidence in sensitively raising the issue, and a limited evidence base of clinical effectiveness.

Having a uniquely holistic view, each GP consultation provides the opportunity for advice on weight and, if necessary, prevention.

In view of the complex societal pressures and metabolic factors that make weight gain and resultant obesity difficult to control, it is unrealistic to expect individual patients to simply grasp personal responsibility; this takes a complex series of educative and supportive steps, preferably within an environment conducive to healthy choices. GPs can bring their particular skills to some elements of this team-based approach but are unlikely to be in a position to address all facets. Work on core training in obesity management and prevention in general practice should be continued.

### 10.2 Core approaches for all GPs

GPs with a special interest (GPwSI) in weight management should be developed. There is a need to define the core training needs and service delivery expectations that apply to all GPs and to differentiate this from more specialist activities that a smaller number of GPs with an interest in obesity may choose to deliver. These approaches should reflect the underlying skill base of GPs, who typically already have experience in the following:

- assessing and treating low self-esteem, ‘emotional fragility’ and underlying depression
- developing perspectives on varied health risks such as alcohol, smoking, activity and diet
- taking a holistic view of health priorities and intercurrent conditions, for example pregnancy, disability, cancer treatment

- recognising how family issues are relevant to health behaviour
- every consultation being a healthcare opportunity.

After addressing training issues, all GPs should be in a position to adopt the following core approaches:

- sensitively raise awareness of weight issues and impact on health
- understand the complexity of obesity and the need to leave judgmental attitudes behind
- undertake and convey metabolic risk assessment to patients
- use motivational approaches to help patients set relevant and feasible goals and balance this with the needs of other health promotion areas such as smoking
- be aware of local community services and bariatric care pathways and signpost patients to them
- targeted prevention of obesity or early manifestations of its metabolic impact (eg pre-diabetes).

### 10.3 GPs with a special interest in weight management

The role of GPs with a special interest in weight management has yet to be determined but may include:

- offering in-house weight management support for patients who have been unsuccessful with initial community/commercial weight management approaches or cannot afford such services
- supporting patients with weight-related multi-morbidity
- targeting disadvantaged groups who have particular weight issues
- assessment and support for those entering bariatric pathways with lifelong follow-up in general practice
- ongoing support and potential adjustment of gastric band following bariatric surgery
- promoting family weight management to minimise obesity in children
- integrating GP and community obesity management with local obesity services.

### 10.4 Should GPs run in-house weight management clinics?

The provision of primary care led in-house weight management clinics has been brought into question by two recent publications,<sup>2,3</sup> having been shown not to be as clinically effective or cost-effective as commercial community services. The evidence indicates that GPs should not offer in-house clinics as a first-line approach for patients with uncomplicated obesity but should direct patients to a community service. GPs and practices should, however, continue to promote weight management opportunistically and as an integral part of regular reviews of patients with long-term conditions. There should be exploration of whether obesity-related activity can be included in the quality and outcomes framework to provide widespread and consultant engagement in obesity work.

Group weight management interventions like Weight Watchers are not for everyone. There is still a need for 1:1 services which practice nurses and GPs can provide for patients.

Many overweight and obese patients are unconcerned about their weight and are not ready to change. GPs have the most important role here in using key elements of personally relevant health information to motivate these types of patients to lose weight.

Further evaluation is required as to whether GP-led in-house services might help patients who found first-line community/commercial services unhelpful or unsuitable. Many GP practices currently offer

weight management clinics under a locally enhanced service (LES)-funded scheme and this provision forms part of the bariatric pathways for many clinical commissioning groups. Practitioners providing such a service are encouraged to audit their service and contribute to the developing knowledge in this area. The National Obesity Observatory's standard evaluation framework<sup>4</sup> outlines how this can be done.

Although evidence for first-line in-house weight management clinics is unconvincing, other promising health promotion programmes have been developed, such as the Lifestyle Support programme run by NHS Stoke on Trent.<sup>5</sup> The remit of this population-based programme is to reduce cardiovascular risk; hence the end points and opportunities for demonstrating effectiveness, ie health gain, are broader and possibly more attainable than those services that focus solely on weight reduction. Evaluation of the extensive scope of this programme – which offers a personalised health improvement plan, free physical activity sessions, weight management support, dietary education and mental health support – may produce a clearer model for GP involvement in promoting health improvements within a primary care setting. This may be of particular relevance to service development for patients unsuccessful with first-line community approaches or who already have significant multi-morbidity.

### 10.5 What role do GPs have in prevention?

The evidence of effectiveness for delivery of prevention messages supports targeting specific groups (children, pregnant and postnatal women, those with long-term conditions such as diabetes) who are at risk of predictable weight gain, rather than a universal approach. For example, there is evidence to support targeting women around the time of pregnancy,<sup>6</sup> and people who are quitting smoking.<sup>7</sup> Resources to support this are not, however, widely available at present.

Further evidence clarifying which brief intervention messages GPs should deliver and for which target audience will be very useful in engaging GPs to carry out this work. Education should aim to ensure that obesity prevention messages are consistent across all healthcare workers and that consistent resources are used.

### 10.6 GP training curriculum

The Royal College of General Practitioners has responded to the need to raise awareness and improve training amongst GPs by making 'Nutrition for health' (including obesity) a clinical priority, supported through the College's Clinical Innovations and Research Centre. A clinical champion has been appointed (2011) to run a three-year work programme, which has a strong training and resource development focus.

Progress is being made on introducing obesity into two areas of the GP training curriculum. The latest publication of the GP curriculum (2012), which uses problem-based learning case scenarios, highlights the need to address obesity and a variety of lifestyle behaviours in both the health promotion section and the metabolic section. Further work will address how to include obesity scenarios in the examination system to embed this approach in training.

### 10.7 Commissioning weight management services

There needs to be public health input and more seamless pathways for signposting patients who are obese/overweight to lifestyle services, lifestyle coaches, NHS and other exercise programmes.

There should be a clear community programme for the follow-up of patients who have had bariatric surgery.

There is a need to address the particular requirements of some disadvantaged groups who find difficulty accessing community weight management groups, such as people with learning disability, physical disability, mental health issues, those living in rural locations, socially excluded groups and those with severe degrees of morbid obesity.

## Recommendations

- 1 Primary care has a core responsibility for obesity prevention, assessment of risk and morbidity in the obese, facilitating access to weight management support, and providing shared care in the long-term for patients who have been managed in specialist services.
- 2 GPs should, where possible and appropriate, deal with weight issues as part of their agenda to address risk factors. Each consultation provides a potential opportunity for this, although patient receptiveness also needs assessing for maximum effectiveness.
- 3 It is therefore important that GPs have training in a range of practical behavioural techniques such as in motivational interviewing. The effective application of these skills to weight management and obesity should be part of GP training and ongoing continuing professional development.
- 4 Inclusion of evidence-based targets for successful obesity management should be included in the Quality Outcome Framework (QOF) in order to support this practice.
- 5 A model for the commissioning of community services that integrates where required the specialist needs of patients should be developed.
- 6 The particular needs of some disadvantaged groups who find difficulty accessing community weight management groups should be addressed. These groups include people with learning disability, physical disability, mental health issues, those living in rural locations, socially excluded groups and those with severe degrees of morbid obesity.

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# 11 Weight management for health service employees

## 11.1 Introduction

Investing in the health and wellbeing of employees makes business sense.<sup>1</sup> It has been estimated that working age ill-health costs the UK £100 billion per annum,<sup>2</sup> more than the annual budget for the NHS.<sup>3</sup> In 2009–10, 23.4 million days were lost due to work-related ill-health.<sup>4</sup>

The NHS is not just an important provider of healthcare services, but also employs thousands of workers. A report into health and wellbeing in the NHS suggested that if current rates of sickness were reduced by a third, this would result in 3.4 million additional available working days for NHS staff per annum; equivalent to an extra 14,900 whole time equivalent (WTE) staff, with an estimated annual direct cost saving of £555m.<sup>5</sup> Obesity is recognised as contributing significantly both to illness and employee absence.<sup>6</sup> It is estimated that 700,000 NHS employees are obese, but only 15% are seen or assessed.

Despite this, an audit of London PCTs showed that few had policies targeting broad health issues; only 19% reported having healthy eating policies and 8% specific policies for physical activity.<sup>7</sup> Lack of funding and lack of time were cited as the main barriers to proactive wellbeing programmes. To date, workplace health initiatives have tended to be reactive, concentrating on recovery after illness rather than actively promoting health and wellbeing.<sup>5</sup> With an ageing population, and the increasing prevalence of chronic lifestyle-related diseases including obesity, the scope of workplace wellbeing initiatives needs to reflect the changing needs of the population they serve.

## 11.2 What should be put in place?

Workplace health and wellbeing should be placed high on the agendas of NHS trusts, to capitalise on the potential benefits to their organisations.<sup>7</sup> Initiatives should be proactive, using a broad conceptual wellness model encompassing prevention, health promotion, health and safety (legal requirements) and management of ill-health (reactive).<sup>8</sup>

Staff wellbeing and health should become embedded within the culture of the NHS and the core work of the staff,<sup>5</sup> in order to meet the recommendation of the Marmot review to ‘promote wellbeing and physical and mental health at work’<sup>9</sup> and the NHS constitution commitment to ‘provide support and opportunities for staff to maintain their health, well-being and safety’ and ‘have healthy and safe working conditions’.<sup>10</sup>

To ensure this, training in health and wellbeing should be an integral part of management training and leadership development at all levels.<sup>5</sup> Specific policies should be developed with staff and trade union input following a needs assessment to identify key health priorities and risk factors.<sup>5</sup>

Equity of access to all staff (eg location, timing of initiatives) must be assured, and inequalities amongst staff addressed as part of the needs assessment.<sup>5</sup> Policies should be aligned with the wider public health agenda, integrating both health promotion and prevention strategies.<sup>5</sup>

NHS trusts should implement policies to promote healthy behaviours like healthy eating and physical activity.<sup>6</sup> Specifically they should (at a minimum) provide healthy food choices in their restaurants, improve staff awareness of healthy food choices, ensure staff have access to smoking cessation clinics, and support the achievement and maintenance of a healthy weight, with a widely communicated target for reducing obesity amongst staff.<sup>5</sup>

## Recommendations

- 1 Employers should encourage healthy eating among staff by:
  - implementing the National Institute for Health and Clinical Excellence (NICE) recommendations for obesity in the workplace (NICE CG43)
  - ensuring that healthy food is available in the workplace at affordable or subsidised prices
  - encouraging nutritional labelling to allow employees to make informed food choices
  - setting strict nutritional criteria as part of procurement contracts for food made available in food outlets and vending machines.
- 2 Employers should encourage physical activity by:
  - signposting to and encouraging the use of walking and cycling routes and stairs, including the provision of safe cycle storage areas
  - recommending the use of active travel methods to and from work, and provision of changing room facilities
  - working with local authorities to enhance access to health services by public transport
  - considering the use of staff incentives such as discounted membership of fitness clubs.
- 3 Employers should encourage healthy behaviour change by:
  - developing a strategy for staff health and wellbeing
  - encouraging staff to take regular breaks to move around as well as sufficient time to eat well
  - using innovative ways to encourage lifestyle change amongst staff, eg intranet messages on health, and signposting local activity/weight management opportunities
  - using staff training as an opportunity to ensure that leaders are aware of the importance of encouraging proactive approaches to staff health
  - enabling equitable staff access to a range of weight management and activity options, by commissioning weight management services which have proven effectiveness.
- 4 Occupational health departments have a responsibility to diagnose overweight and obesity in new employees, and wherever employees make health contacts (eg winter influenza vaccination) to communicate the health benefits of weight loss, and signpost obese employees either to 'in-house' or community-based services. Occupational health services could contribute to the monitoring of those engaged in weight management programmes by providing weighing facilities and information on healthy eating and activity opportunities within and outside the workplace.

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## 12 Local and national leadership on obesity

The Foresight project recognised the role of leadership as one of the ten key drivers of change for obesity. This chapter reviews current leadership within hospitals, and proposes a lead physician on obesity in each trust, with further support from a new intercollegiate group at the RCP, against a background of government interdepartmental action.

### 12.1 Obesity in hospital: the need for leadership

The prevalence of obesity amongst general hospital inpatients has been reported to be 32–34%,<sup>1</sup> and 52% in patients with type 2 diabetes attending secondary care diabetes clinics.<sup>2</sup>

NHS trusts were required to identify adult inpatients with a BMI >30, or >27 with comorbidity, and have in place a process for the onward referral of these patients to weight advice and management services (including specialist services), either within or outside of the trust.<sup>3</sup>

An audit of two NHS hospitals in 2008 reported that weight was recorded in less than three-quarters of inpatients, despite a median hospital stay of 5 days, and that patients receiving treatment for diseases that make up the metabolic syndrome were less likely to be weighed than those without.<sup>4</sup> In both hospitals BMI was recorded in less than 50% patients on anti-anginal and anti-diabetic medications.

Nutritional screening to detect and diagnose patients with overweight and obesity has been recommended in European guidelines.<sup>5</sup>

*Choosing health*<sup>6</sup> recognised that to achieve the changes needed in health improvement, effective use of the developing structural and organisational frameworks involving NHS bodies, local authorities, and the business, voluntary and community sectors was needed. The report continued ‘local leadership and commitment is vital ... to develop a shared vision and agenda for action to improve health’.

In their report on ‘junk food’ in hospitals, the Soil Association commented that when it came to communicating healthy-eating messages or the sale of healthier foods in hospitals ‘there is a conspicuous lack of leadership from the Department of Health and individual NHS trusts’.<sup>7</sup>

For leadership in coordinating care between primary and secondary care, see Chapters 4 and 10. For leadership in commissioning obesity services, see Chapter 9.

## 12.2 Physicians as advocates

There should be a physician in each trust to lead on obesity. This person should interact with commissioning groups, be a source of patient information and act as a link between the hospital and the community. They will be part of a national network, working together for the benefit of patients with obesity problems, coordinating local resources in a hub-and-spoke manner, and ensuring the delivery of a patient charter. They will work with others in the local delivery of prevention and nutrition advice, advise on physical activity, and coordinate with those involved with children's services.

The obesity lead physician will need at least one session per week to undertake these duties, but if they are responsible for delivering patient care additional programmed activities will form part of their job plan.

## 12.3 The Royal College of Physicians: a new advisory and monitoring group

Higher level support for lead physicians in trusts should be provided by the RCP, and by government.

The RCP should develop an independent multidisciplinary intercollegiate group leading on obesity advocacy, modelled on the successful example of Action on Smoking and Health (ASH) in relation to tobacco, to advocate for more effective treatment and prevention policies. This already has the buy-in of the Royal College of Surgeons and the Royal College of General Practitioners. It should also include the Royal College of Nursing and public health representatives. This group should meet 2–3 times a year with activity between meetings.

This group should be called the Royal College of Physicians' Advisory Group on Weight and Health. It should monitor progress of the development of obesity services up and down the country.

This group should develop a patient charter for obesity services. It could also have a role in accrediting hospitals with a health and nutrition policy.

The date for the next formal review of obesity services should be within two years.

## 12.4 Multiple government departmental involvement

The effective delivery of a package to prevent obesity in children and adults, encourage good nutritional advice and education in schools and in the home, encourage the development of resources for physical activity including cycling, and the production of healthy food, requires coordinated action from several governmental departments. There should be one person who should lead a cross-departmental government group and coordinate action across all relevant government departments. This would involve among others the Department of Health, the Department of Education, the Ministry of Sport, the Department of Culture, Media and Sport, the Department of Agriculture and Rural Development, and the Treasury. This post would require effective and dynamic leadership. Similarly, prevention needs to be led and coordinated by government – both national and local, spanning a range of departments. There should be a single figure leading this to add visible leadership and momentum, and to take responsibility for integrating prevention and treatment activity.

## Recommendations

- 1 There should be a lead physician, ideally in due course a bariatric physician, within each hospital trust to lead on obesity. This person should interact with commissioning groups, be a source of

- patient information and act as a link between the hospital and the community. S/he will be part of a national network, working together for the benefit of patients with obesity problems, coordinating local resources in a hub-and-spoke manner and ensuring the delivery of the patient charter. S/he will work with others in the local delivery of prevention and nutrition advice, and advise on physical activity, and coordinate with those involved with children's services.
- 2 The obesity lead physician will need at least one session per week to undertake these duties.
  - 3 The RCP should develop an independent multidisciplinary intercollegiate group to lead on obesity advocacy. The Royal College of Surgeons and the Royal College of General Practitioners have agreed to this, but the group should also develop to include other royal colleges (eg the Royal College of Obstetricians and Gynaecologists, the Royal College of Paediatrics and Child Health, the Royal College of Anaesthetists), as well as the Royal College of Nursing and public health representatives. This group should meet two to three times a year with a programme of activity addressing the needs of the public and patients with obesity.
  - 4 This group should be called the Royal College of Physicians' Advisory Group on Weight and Health.
  - 5 This group should monitor progress of the development of obesity services up and down the country.
  - 6 This group should develop a patient charter for obesity services.
  - 7 This group should also have a role in accrediting hospitals' health and nutrition policy.
  - 8 Obesity services should be formally reviewed within two years.
  - 9 The RCP recognises that this report does not deal with the details of prevention, nutrition, diet, physical activity or pharmacotherapy – all important and indeed essential aspects of this problem. It is therefore recommended that the RCP group address these aspects in the near future in further reports.
  - 10 There should be one person who should lead a cross-departmental government group and coordinate action across all relevant government departments. This post requires effective and dynamic leadership.
  - 11 Prevention also needs to be led and coordinated by government – both national and local, spanning a range of departments. There should be a single figure leading this to add visible leadership and momentum, and to take responsibility for integrating prevention and treatment activity.

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## 13 Education and training of healthcare professionals

### 13.1 Introduction

The rapid increase in the prevalence of overweight and obesity and the recognition of their growing impact on a widening variety of diseases has not been matched by an increase in the amount of education and training provided for health professionals irrespective of their discipline. There is a poor understanding of weight control and a lack of knowledge and skills about its management. There is limited information provided in both undergraduate and postgraduate training programmes and scant attention in specialist medical training. The medical profession's appreciation of the medical consequences of obesity is reflected by the absence of specialist units in most regional hospitals and reluctance to consider pharmacotherapy or surgery for patients most at risk. Since clinical teachers have had little or no training in the subject they tend not to teach it. As a result, many doctors neglect to manage overweight and obesity because of uncertainties about likely success and consequent health benefits.

### 13.2 Context: why is it important to educate health professionals about nutrition?

The primary role of every health professional is to care for their patients, promote health and support self-care and self-reliance. Health professionals need to understand the fundamentals of nutritional science, physical activity and the social, psychological and environmental factors that underpin obesity, and be able to apply these to their clinical practice.

Modern lifestyle has resulted in overweight and obesity being accepted as near normal conditions caused by changes over three decades in work patterns, transport, leisure pursuits, food production, high calorie drinks and food sales. The Foresight report in 2007 predicted that, by 2050, around 60% of the adult population will be obese with a further 35% overweight.<sup>1</sup> An understanding of these changes is critical to effectively supporting individuals in combating those influences which promote obesity.

To meet the increased demand, every health professional will need to be trained to identify those at risk from increasing body weight, and be skilled in the initial management of the condition.

Good nutrition, sufficient physical activity and a healthy weight are essential goals for health at every stage of life from conception through to old age. Physical inactivity needs to become recognised as a serious independent risk factor for ill health; so, the importance of regular physical activity should be emphasised to health professionals from the earliest stages of their training and incorporated within the foundations of a student's understanding of health and wellbeing.

### 13.3 Education and training in overweight and obesity: where to start?

There is a need to establish systems of education and training which are standardised across all health professional groups. These systems should ensure that all professional groups are appropriately competent to react to the demands of clinical service. Nevertheless, it is generally acknowledged that many recently trained health professionals still have an inadequate knowledge of the nutritional aspects of health promotion and disease treatment and the potential benefits of regular physical activity.

Every health professional should know the 10 essential facts about obesity (Box 1).

#### Box 1. Ten essential facts about obesity.

- 1 In the UK 1 in 4 adults are obese (2012).
- 2 In the UK 1 in 5 children aged 10 to 11 are obese (2011).
- 3 Obesity is strongly heritable (60% of weight variance is attributed to heredity) yet currently known gene mutations and polymorphisms account for <5% of weight variability.
- 4 Diagnosis by BMI requires measuring height and weight accurately; risk stratification in overweight and modest obesity requires measuring waist circumference and possibly the use of a clinical staging system (Edmonton Obesity Staging System (EOSS)).<sup>2</sup>
- 5 Prevention and long-term weight loss maintenance require sustained changes in diet and physical activity habits.
- 6 Obesity is a major risk factor in diabetes (5 x), cancer (3 x the risk of colon cancer), and heart disease (2.5 x).
- 7 Obesity is a major cause of health inequality and impaired quality of life and costs the NHS £5.0 billion per year (2012).
- 8 Modest weight loss (~10 kg) helps to improve diabetes, improves quality of life and reduces morbidity.
- 9 An energy deficit of only 100 calories per day predicts a 0.5 kg weight loss in a month.
- 10 Cost-effective treatments in appropriate patients include weight loss programmes (commercial: eg WeightWatchers; GP delivered: eg Counterweight); pharmacotherapy (eg orlistat); and bariatric surgery.

### 13.4 Undergraduate and pre-registration training

#### *Teaching and learning methodologies*

Nutrition should be promoted as a model subject for teaching across the entire undergraduate curriculum and relevant to what a health professional needs to know for clinical practice. Human nutrition (including obesity) can be incorporated as an integrated theme to link basic sciences, and clinical and public health aspects of health and disease in the core curriculum.

Both nutrition and physical activity offer the potential of 'horizontal integration' across disciplines as a component of problem-based approaches. Problem-based learning engages students in small groups to investigate and solve clinically based problems presented as case scenarios.

Teaching of nutrition and physical activity should draw widely on available skills across disciplines, including medicine, pharmacy, physiotherapy, dietetics and nursing.

Nutrition and physical activity are well suited to project work.

Undergraduate study is an excellent time to introduce both the public health and clinical aspects of nutrition and physical activity. Traditionally, exercise science and coaching have been seen as falling under the remit of sport science education only, and are not in health professionals' curricula. All health professional students should learn how to apply exercise training principles for their future patients, as physical activity becomes increasingly utilised as a therapeutic modality. (See the Intercollegiate Faculty of Sport and Exercise Medicine, a Faculty of the Royal College of Physicians of London and the Royal College of Surgeons of Edinburgh: [www.fsem.co.uk](http://www.fsem.co.uk).)

Obesity management provides an excellent opportunity to study and learn from multidisciplinary inter-professional care of patients.

In communication skills training, obesity should be an example where effective and empathic dialogue can be developed.

### *Fundamental principles*

Each student should understand the importance of maintaining good nutrition and regular physical activity throughout life. The science of nutrition and physical activity starts at a cellular level with questions about energy storage and utilisation.

Nutrition and physical activity (or inactivity) are key components of health and illness and must be identified as such by students. There is every reason for students to feel engaged because good nutrition and regular physical activity should be principles that they follow for themselves.

### *Clinical and practical skills*

An agreed procedure for clinical assessment of the nutritional status of patients should be included as a core skill and be part of any routine examination. Physical activity screening should additionally be included as part of the teaching of clinical skills.

Undergraduate clinical training allows refinement of these skills through patient contact.

Students should recognise that there are a number of specific factors which should be sought as part of the clinical assessment, and a brief list is given in Box 2.

Students should undertake and incorporate the principles of motivational interviewing in taking a history. They should learn about the importance of taking a detailed 'social and weight change history', and enquiring about risk factors as part of their assessment. This includes questions about occupation, alcohol consumption and smoking. Students should be able to undertake a brief assessment of dietary and physical activity habits within this part of their assessment. The high prevalence of affective and eating disorders among obese patients requires knowledge and appropriate interviewing skills.

## Box 2. Points that should be elucidated in any clinical history taken from a patient before obesity management

### Medical history:

- risk factors
- presence of established complications of obesity

Remember to ask about snoring, sleep and daytime somnolence

### Body weight history:

- when was weight gained
  - puberty, stopping sport, employment, marriage, pregnancies etc
- previous treatment(s) for obesity (including successes and failures)

### Family history of obesity, and related diseases and risk factors:

- type 2 diabetes, hypertension, premature coronary heart disease

### Diet history:

- eating pattern and amount (compared to friends)
- hunger
- stress or emotional eating, binges
- alcohol intake

### Regular physical activity pattern

### Relevant social history:

- cigarette smoking and cessation (?did they gain weight then)

### Drug history:

- antipsychotics
- antidepressants
- steroids
- anticonvulsants
- lithium
- $\beta$ -blockers

### Reproductive history

- irregular periods
- polycystic ovary syndrome

Students should understand that a number of underlying diseases may be associated with weight gain, though uncommonly with severe obesity, and clinical features of these should be sought. There are particular drugs that are associated with weight gain and a history of the use of such drugs should be obtained.

Students should recognise the importance of a detailed physical examination. Weight and height should be measured and BMI calculated. The distribution of fat tissue should also be recorded by measuring the waist circumference. Examination of the skin is important, and measurement of the neck circumference if obstructive sleep apnoea (OSA) is suspected. Note should always be taken of blood pressure and cardiovascular function. Evidence of insulin resistance from acanthosis nigricans is an important clinical sign.

A limited number of investigations prove useful in the management of obesity and students should understand the rationale for their selection and appropriateness for individual patients.

Students should understand the importance of risk assessment for their patients and the patient's insight and understanding of factors underlying the weight gain. This understanding should include interpreting BMI in relation to ethnic criteria. An initial risk measure is the presence of abdominal adiposity, but the use of clinical staging systems is also of growing importance (eg the Edmonton Obesity Staging System).<sup>2</sup>

As well as the presence of hypertension, assessment must be made of the presence of cardiac disease and of diabetes. Obstructive sleep apnoea is an added risk. Dyslipidaemia confers additional risk; cigarette smoking and excessive alcohol consumption are major risk factors. Abnormalities of liver function in relation to non-alcoholic steatosis are important and need to be interpreted in the light of alcohol consumption.

Students should appreciate physical inactivity as an independent risk factor for disease, and should be encouraged to promote physical activity to all people, even those with apparent good health. This includes recognition of particularly sedentary occupations and children's sedentary activity.

Students should understand the principles of dietary therapies, especially those that are evidence-based, and based on sound nutritional principles. They should understand why certain diets that are nutritionally unsound should not be recommended.

Students should appreciate the importance of adjunctive therapies in obese patients at particular risk of comorbidity; such therapies will include pharmacotherapy and/or surgery. The use of adjunctive therapies will require an understanding of therapeutic indications, possible hazards, and an assessment of benefit to risk.

Any curriculum that seeks to have an impact on future health professionals' ability to manage overweight and obesity must adequately prepare them to be able to both promote healthy living at an individual and population level, and safely recommend or prescribe physical activity and nutrition, as part of a holistic weight management programme for an individual.

Students should recognise that not all patients are prepared or are ready to lose weight despite the need, or medical indication, and the importance of assessing patients' readiness and motivation by direct questioning or using the 'Stages of Change' model.<sup>3</sup>

### *Assessment of learning*

Nutritional and physical activity topics should be assessed at all levels throughout undergraduate/pre-registration training. The objective structured clinical examination provides a practical examination format.

## **13.5 Postgraduate and post-registration training and continuing professional development**

Postgraduate nutritional training should form a continuum with undergraduate training and lead to an appreciation that nutrition and physical activity are relevant and important to all disciplines of medicine

and professions allied to medicine. This is crucial for the effective management and prevention of obesity.

All qualified health professionals must ensure that a written statement is always made in the clinical notes of patients about their nutritional state as part of the history and physical examination of every new patient.

Inter-professional teaching should include nutrition within clinical training. Courses should reflect the breadth of professional expertise in delivering the teaching including practitioners (eg dietitians, psychologists/behavioural therapists, physiotherapists, and pharmacists) who can provide nutrition knowledge, practical skills and the application of these skills in a patient-centred approach. Such training should include guidance on nutritional assessment and nutritional requirements in health and disease, and an appreciation of nutrition and physical inactivity as determinant of risks.

Crucially, clinical teachers must be encouraged to attend training courses on obesity management and prevention, nutrition and physical activity. Education and training will become successful only when a multidisciplinary core of staff is established with the necessary experience and teaching skills.

Postgraduate training programmes should include formative assessments to evaluate how well knowledge and competence are maintained through practice. For doctors, there is a nutrition component in the foundation years curriculum. The Intercollegiate Group on Nutrition of the Academy of Medical Royal Colleges runs an Intercollegiate Course in Human Nutrition that fulfils the prescribed learning needs.<sup>4</sup>

As complications of obesity involve virtually every medical specialty, every discipline should include an appropriate reference to nutrition, physical activity and obesity in their core curriculum and questions should be included in examinations for higher qualifications. Inclusion of questions on obesity in professional examinations, and incorporation into assessment procedures, are the key to the acceptance of obesity by teachers and students as an important and valued subject area.

### **13.6 Training programmes for the prevention and management of overweight and obesity**

Although the assessment of attitudes towards obesity has been limited, available evidence suggests a very negative approach to obese people with many health professionals believing its management to be frustrating, time consuming and pointless.<sup>5</sup> Many health professionals do not consider that obesity is a 'medical problem' and thus abdicate professional responsibility.

They should be motivated to regard nutrition as important in the prevention and management of disease. They should understand their own attitudes to obesity, the aetiology and pathophysiology of increasing body fatness, and appreciate the importance of prevention and intervention where the condition is established. They should also acknowledge the familial and environmental basis to obesity, as well as the relationship between childhood weight gain and adult obesity, and bear this in mind when managing the individual and their family.

Obesity management could be divided in a modular training programme to enable health professionals to gain knowledge and skills in a stepwise manner. Importantly, this may also facilitate the acquisition of appropriate attitudes towards individuals who are overweight.

Health professionals should be able to recognise low-risk individuals and safely recommend dietary restriction and physical activity without further assessment, in addition to recognising individuals who need more detailed assessment or referral to a specialist.<sup>6,7</sup>

Physical activity includes activities other than sport, and health professionals should be able to discuss opportunities with their patients for physical activity that realistically fit into their lives.<sup>8,9</sup>

Appropriately trained health professionals will use their assessment of an obese patient to opportunistically advise on smoking cessation or moderating alcohol consumption.

Health professionals should understand the principles and indications for drug treatment and surgery and when to refer within or outside their MDT. Similarly, health professionals should recognise that special groups that include adolescent and childhood obesity, obesity during pregnancy and morbid obesity generally require more specialist input.

### 13.7 Long-term weight maintenance

Continuous vigilance appears to be the key for patients who successfully lose and maintain significant amounts of weight loss.

Ongoing contact with health professionals can help monitor changes and lapses, provide opportunities to change direction when necessary, and allows referral to new therapeutic options if required. Continuing contact with a well motivated and trained multidisciplinary health team is the key to long-term success.

### 13.8 Evaluating the success of training

Successful education and training programmes for physicians and other health professionals will facilitate the following associated professional roles:

- *Educational* – healthcare professionals are held in high regard by the public as providers of authoritative information and advice on weight management. Healthcare professionals need to ensure that they remain familiar with up-to-date information about nutritional health. This should be regarded as an essential element of their continuing professional development.
- *Advisory* – health professionals can influence obesity policies in their own hospital setting and within the local community.
- *Organisational* – health professionals should be encouraged to initiate or contribute to programmes on weight management by working as individuals, through professional societies or other healthcare organisations.
- *Therapeutic* – there are high demands placed on healthcare resources arising from diseases of malnutrition that include overweight and obesity. There is therefore an imperative to introduce appropriate screening in order to be able to provide prevention and interventions for those at greatest risk. This responsibility is shared across a wide range of health professionals.
- *Investigatory* – health professionals should be encouraged to consider research into weight management topics as part of their work. The National Institute for Health Research has acknowledged the importance of such research through the provision of research funding.

- *Financial management* – health professionals should appreciate the escalating cost of overweight and obesity for the national economy from loss of production or ill health. Effective measures to prevent and manage excessive body weight will promote long-term sustainable cost savings.

## Recommendations

- 1 All healthcare professionals should know and understand the ‘Ten essential facts about obesity’ (p 51).
- 2 Knowledge, understanding and training in nutrition, physical activity, exercise and the public health aspects of obesity should be an essential part of undergraduate and postgraduate curricula. This knowledge should be examined.
- 3 Every discipline in medicine should include training in the role of nutrition, physical activity and obesity in their core curricula which should be examined because complications of obesity cross all specialty and professional boundaries.

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## 14 Obesity as a subspecialty

The growing prevalence and severity of obesity has resulted not just in a need for specialism to assess and manage obesity, but also in the understanding of how obesity affects other diseases and vice versa. It has been suggested that the ubiquitous presence of obesity now presents a parallel with the needs of the 1970s when the growing elderly population (with its own risks, diseases and special considerations of old age) generated the medical specialty of geriatrics.<sup>1</sup>

Many obesity-related diseases require a staged comprehensive bariatric care model and should incorporate the ability to combine advice on lifestyle and nutrition, drugs, surgery, devices, and emerging therapies to adequately manage the serious chronic relapsing condition of obesity. The management of hypertension provides an example of such staging: also recognition and management of factors such as obstructive sleep apnoea that can cause resistant hypertension; treatment with diet and lifestyle that may obviate the need for hypotensive pharmacotherapy; appropriate use of pharmacological and surgical anti-obesity therapies alongside appropriate choice of hypotensive therapies for the obese individual.<sup>2</sup>

In the field of diabetes, it is clear that lifestyle interventions can have profound and long-term benefits in preventing diabetes, and substantially improving glycaemic control in those with the disease.<sup>3</sup> The dramatic effects of bariatric surgery on normalising blood glucose levels in the majority of patients with type 2 diabetes, have led to it being proposed as a first-line treatment for the obese diabetic.<sup>4</sup> Management of patients during and after bariatric surgery requires specialist knowledge and practical skills. New endocrine consequences are being recognised in some patients who have had bariatric surgery (eg hypoglycaemia, orthostatic hypotension), which would fall within the scope of a specialist bariatric physician. The importance of considering weight in the choice of diabetes pharmacotherapy has also been reviewed.<sup>5</sup> Specific skills, such as motivational interviewing, can be a beneficial adjunct to behavioural obesity treatment.<sup>6</sup>

Obesity as a subspecialty would require competence in, and a thorough understanding of the treatment of obesity and the genetic, biologic, environmental, social, and behavioural factors that contribute to obesity. The obesity medicine physician employs therapeutic interventions involving diet, physical activity, behavioural change, and pharmacotherapy. S/he utilises a comprehensive approach, and may include additional resources such as registered nutritionists, exercise physiologists, psychologists and bariatric surgeons as indicated to achieve optimal results. Additionally, the obesity medicine physician maintains competence in providing pre- peri- and post-surgical care of bariatric surgery patients, promotes the prevention of obesity, and advocates for those who suffer from obesity.

The European Association for the Study of Obesity (EASO) has developed a network of accredited specialised obesity centres, where the quality and efficacy of the care offered to patients are of the highest standards. Under the EASO Collaborating Centres for Obesity Management (COM) scheme, centres will be accredited in accordance with accepted European and academic guidelines. Participating centres, under the umbrella of EASO, will work closely for quality control, data collection and analysis, as well as education and research for the advancement of obesity care and obesity science.<sup>7</sup>

The International Association for the Study of Obesity has a voluntary accreditation in obesity through its ‘Specialist certification in obesity professional education (SCOPE)’ programme. Certification requires evidence of 6 months practical experience related to obesity management within a medical or allied healthcare professional setting and the equivalent of 32 hours postgraduate education from courses or online e-learning.

In the USA, Board Certification in obesity medicine is now available (see Appendix, p 60), in collaboration with learned societies in the field of obesity, endocrinology, nutrition, gastroenterology, bariatric surgery, sports and exercise medicine, among others.

The RCP recommended a framework to educate and train health professionals about overweight and obesity in its report to Foresight.<sup>8</sup> It defined specialists as ‘health professionals who work in a specialist setting that has particular interest and expertise for the management of overweight and obesity. This will include physicians, anaesthetists and surgeons with particular expertise, specialist nurses and dietitians with specific interests, public health directors, exercise specialists and so forth.’

## Recommendations

- 1 **There is a need to establish a subspecialty of obesity medicine for physicians. The terms ‘bariatric medicine’ and ‘bariatric physician’ are proposed.**
- 2 **The subspecialty should be within the umbrella of diabetes and endocrinology, although this does not preclude physicians with other primary specialties from developing subspecialty recognition in bariatric medicine.**
- 3 **A core curriculum and relevant experience for accreditation in this specialty is needed.**
- 4 **Physicians specialised in bariatric medicine will provide local leadership in the planning, provision and delivery of obesity treatments, within secondary care and in collaboration and partnership with primary care.**

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## Appendix. US Board Certification in Obesity Medicine: test content outline

### I Basic concepts – 25%

- A Causes of obesity
  - 1 Lifestyle/behavioral
  - 2 Environmental/cultural
  - 3 Genetic
  - 4 Secondary
  - 5 Epigenetics and fetal environment
  - 6 Interaction between genetics and cultural/social factors
- B Physiology/pathophysiology
  - 1 Neurohormonal
  - 2 Enterohormonal
  - 3 Body fat distribution
  - 4 Pathophysiology of obesity-related disorders
  - 5 Body composition and energy expenditure
  - 6 Energy balance and hormonal adaptation to weight loss
  - 7 Obesity related cell physiology and metabolism
  - 8 Brain, gut, adipocyte interaction
- C Epidemiology
  - 1 Incidence and prevalence, demographic distribution
  - 2 Across the life cycle
- D Nutrition
  - 1 Dietary Reference Intakes (DRI) for macro and micronutrients
  - 2 Gastrointestinal sites of nutrient absorption
  - 3 Obesity related vitamin and mineral metabolism
  - 4 Macronutrient diet composition and effects on body weight and metabolism
- E Physical activity
  - 1 Biomechanics
  - 2 Kinesiology
  - 3 Cardiorespiratory fitness
  - 4 Body composition and body shaping
  - 5 Muscular strength and endurance

### II Diagnosis and evaluation – 30%

- A History
  - 1 Medications
  - 2 Family history
  - 3 Previous weight loss
  - 4 Weight gain
  - 5 Comorbidities
  - 6 Sleep

### B Lifestyle

- 1 Demographic/socioeconomic/cultural/lifestyle/occupational
- 2 Physical activity
- 3 Behavior/psychosocial
- 4 Nutrition/diet

### C Physical assessment

- 1 BMI
- 2 Waist circumference
- 3 Neck circumference
- 4 Obesity-related physical findings
- 5 Vital signs
- 6 Underlying syndromes
- 7 Lipomatosis
- 8 Signs of nutritional deficiency
- 9 Tanner stage

### D Indications and interpretation

- 1 Resting metabolic rate
- 2 Body composition analysis
- 3 Diagnostic tests
  - a Comorbidities
  - b Secondary obesity

### E Screening questionnaires

### F Medical clearance

### G Research tools

### III Treatment – 40%

#### A Behavior

- 1 Techniques/therapies
- 2 Self-monitoring tools

#### B Family support and participation

#### C Individual, group, family therapy

#### D Diet

- 1 Calorie and micro/macronutrient
- 2 Very low calorie diet
- 3 Meal replacement
- 4 Available resources
- 5 Comorbid conditions
- 6 Pediatric guidelines

#### E Physical activity

- 1 FITTE
- 2 Mechanisms of action
- 3 Prescription tailoring
- 4 Exercise tools
- 5 Methods to reduce sedentary behaviors
- 6 Partnerships with community based programs

- F Pharmacotherapy, pharmacology
    - 1 Risks, benefits, and adverse effects
    - 2 Indications/contraindications
    - 3 Monitoring and follow up
    - 4 Prescription dose and frequency
    - 5 Drug-drug, drug-nutrient, drug-herbal interactions
    - 6 Off label usage/OTC
    - 7 Multi-drug/combination therapy
    - 8 Interaction between obesity and pharmacokinetics
    - 9 Management of drug-induced weight gain
    - 10 Local regulations
  - G Alternative, emerging, and investigational therapies
  - H Surgical procedures
    - 1 Types, risks, benefits
    - 2 Indications and contraindications
    - 3 Complications
    - 4 Pre-operative assessment and preparation
      - a Medical
      - b Nutritional
      - c Psychological
    - 5 Post-operative management
      - a Medical inpatient
      - b Medical outpatient
      - c Nutritional
      - d Psychological
    - 6 Adolescent surgery
  - I Medical/legal consent forms
  - J Patient education
  - K Strategies
    - 1 Age-related treatment
    - 2 Appropriate rate of weight loss and weight goal
    - 3 Risks associated with excessive weight loss
    - 4 Treatment of the resistant patient
    - 5 Weight gain prevention strategies
    - 6 Management of weight plateau
    - 7 Strategies to prevent obesity
    - 8 Management of comorbid conditions during weight loss
    - 9 Patient management with special populations
- IV Practice management – 5%**
- A Initial
    - 1 Motivational interviewing
    - 2 Recognition and management of weight bias
    - 3 Stigma/discrimination
    - 4 Patient/family/caregiver engagement
    - 5 Culturally tailored communication
    - 6 Mental health
  - B Office procedures
    - 1 Policies and protocols
    - 2 Obesity management guidelines and recommendations
    - 3 Staff training techniques
    - 4 Physician personal health behaviors
  - C Interdisciplinary team
    - 1 Role of team
    - 2 Communication and collaboration
    - 3 Advocacy
  - D Other
    - 1 Inpatient and outpatient medical complications
    - 2 Cost effectiveness of treatment options
    - 3 Awareness of societal cost of obesity
    - 4 Reimbursement and coding
    - 5 Presentation of success rates

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## Glossary and abbreviations

**Bariatric medicine:** the branch of medicine that deals with the causes, prevention, and treatment of obesity. The term bariatrics was created around 1965 from the Greek root 'bar-' ('weight', as in barometer), suffix '-iatr' ('treatment', as in paediatrics), and suffix '-ic' ('pertaining to').

**BMI – body mass index:** defined as weight (kg)/ height (m) x height (m) and expressed as kg/m<sup>2</sup>. The threshold for overweight in Caucasians is 25 kg/m<sup>2</sup>, and for obesity 30 kg/m<sup>2</sup>.

**CCGs – clinical commissioning groups:** groups of GPs that from April 2013 will be responsible for local health services in England. They will commission or buy health and care services including:

- elective hospital care
- rehabilitation care
- urgent and emergency care
- most community health services
- mental health and learning disability services.

**Clinical nurse specialist:** a registered nurse with a high degree of knowledge, skill and competence in a specialised area of nursing, and usually with a master's degree in nursing.

**DALY – disability-adjusted life-year:** a measure of overall disease burden, expressed as the number of years lost due to ill health, disability or early death.

**EQ5D:** applicable to a wide range of health conditions and treatments, the EQ-5D health questionnaire provides a simple descriptive profile and a single index value for health status ([www.euroqol.org](http://www.euroqol.org)).

**EOSS:** Edmonton Obesity Staging System.

**GORD:** gastro-oesophageal reflux disease.

**ICER – Incremental cost-effectiveness ratio:** an equation used to provide a practical approach to decision making about health interventions. ICER is the ratio of the change in costs to incremental benefits of a therapeutic intervention or treatment.

**IHD:** ischaemic heart disease.

**IWQOL-Lite© – impact of weight on quality of life-lite:** a validated, 31-item, self-report measure of obesity-specific quality of life.

**MDT:** multidisciplinary team.

**Motivational interviewing:** this recognises and accepts the fact that patients who need to make changes in their lives approach counselling at different levels of readiness to change their behaviour. It is non-judgmental, non-confrontational and non-adversarial. The approach attempts to increase the client's awareness of the potential problems caused, consequences experienced, and risks faced as a result of the behaviour in question.

**Obesity:** usually defined as a body mass index (BMI)  $\geq 30$  kg/m<sup>2</sup>. For non-Caucasians a BMI  $>27$  kg/m<sup>2</sup> is often used to define obesity.

**OSA:** obstructive sleep apnoea.

**Overweight:** usually defined as a body mass index (BMI)  $\geq 25.0$  kg/m<sup>2</sup> and  $<30.0$  kg/m<sup>2</sup>. For non-Caucasians a BMI  $>23$  kg/m<sup>2</sup> is often used to define overweight.

**NOO – National Obesity Observatory:** one of 12 NHS Public Health Observatories that provides a single point of contact for wide-ranging authoritative information on data, evaluation and evidence related to weight status and its determinants. NOO works closely with a wide range of organisations and provides support to policy makers and practitioners involved in obesity and related issues.

**NAFLD – Non-alcoholic fatty liver disease:** one cause of a fatty liver, occurring when fat is deposited (steatosis) in the liver not due to excessive alcohol use. In a minority of cases this may progress to NASH (non-alcoholic steato-hepatitis) an increasingly common cause of hepatitis and hepatocellular carcinoma.

**QRISK2** (the most recent version of QRISK): a prediction algorithm for cardiovascular disease (CVD) that uses traditional risk factors (age, systolic blood pressure, smoking status and ratio of total serum cholesterol to high-density lipoprotein cholesterol) together with body mass index, ethnicity, measures of deprivation, family history, chronic kidney disease, rheumatoid arthritis, atrial fibrillation, diabetes and antihypertensive treatment ([www.qrisk.org](http://www.qrisk.org)).

**QALY – quality-adjusted life-year:** takes into account both the quantity and quality of life generated by healthcare interventions. It is the arithmetic product of life expectancy and a measure of the quality of the remaining life-years. A year of perfect health is worth 1 and a year of less than perfect health is worth less than 1.

**QOF – Quality and Outcomes Framework:** the annual reward and incentive programme detailing GP practice achievement results. QOF is a voluntary process for all GP practices in England and was introduced as part of the GP contract in 2004.

**Registered nurse:** a nurse with a high degree of knowledge, skill, and competence in a specialised area of nursing, and usually with a master's degree in nursing.

**STOP:** The STOP questionnaire is a concise and easy-to-use screening tool for OSA. It has been developed and validated in surgical patients at preoperative clinics. Combined with body mass index, age, neck size, and gender, it has a high sensitivity, especially for patients with moderate to severe OSA. (Chung F, Yegneswaran B, Liao P *et al.* STOP questionnaire: a tool to screen patients for obstructive sleep apnea. *Anesthesiology* 2008 May;108(5):812–21.)



‘Thou seest I have  
more flesh than  
another man, and  
therefore more frailty’

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