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**Report to the Department of Health Lung Cancer and Mesothelioma Advisory Group**

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**The impact of the Lung Cancer Nurse Specialist (LCNS) on Inpatient Stays for Patients with Lung Cancer**

**Introduction**

Following the Department of Health Lung Cancer and Mesothelioma Group meeting in February 2010 it was recommended that a report demonstrating the impact of LCNSs on lung cancer inpatient stay be undertaken.

This report features information from a variety of sources including The Department of Health, NHS Improvement, The National Lung Cancer Forum for Nurses and Macmillan Cancer Support.

**Background**

The Cancer Reform Strategy (1) provided information stating that:

- inpatient care for patients diagnosed with cancer accounted for around 12% of all inpatient bed days in England;
- cancer patients occupied a total of around 5.3 million bed days a year = to around 14,550 cancer patients being in a hospital bed on any one day;
- 60% of these beds are occupied by patients admitted non-electively;
- a typical cancer network servicing a population of 1.5 million would have around 440 cancer patients in hospital at any one time;
- over the previous eight years inpatient admissions for cancer rose by 25% from around 625,000 to 785,000 per annum. Most of the increase related to emergency inpatient episodes, which increased by 47%, while elective inpatient episodes increased by 8.6%;
- a large proportion of emergency admissions for cancer were managed by physicians in general medicine or geriatricians;
- over the same time period elective day case episodes rose by 50% (from around 520,000 per annum to around 780,000 per annum);
- the increase in cancer inpatient admissions was to a certain extent offset by a reduction in average lengths of stay;
- overall bed days rose by one percent per annum;
- elective bed days rose by around one percent per annum;
- emergency bed days rose by around 2.5% per annum;

- cancer incidence in England was projected to increase by 25% over the next 15 years, mostly due to the anticipated effects of population growth and ageing;
- inpatient costs for cancer were expected to increase by 24% in the same period;
- inpatient costs for the over 70s were expected to increase by 37% compared to 13% for the under 70s;
- given the projected increase in incidence of cancer and the age profile of cancer patients it can be anticipated that bed utilisation for cancer will continue to rise year on year.

The following tables (provided by NHS Improvement 2006) examine the breakdown of elective and non-elective admissions, inpatient bed days by tumour group, costs by tumour group and specialities.

<b>In Patient Bed Days by Tumour Group</b>			
	<b>Elective</b>	<b>Emergency</b>	<b>Total</b>
<b>Haematology</b>	290,632	508,134	798,766
<b>Urology</b>	305,789	404,510	710,299
<b>Colorectal</b>	323,484	311,471	634,955
<b>Lung</b>	<b>116,633</b>	<b>434,273</b>	<b>550,906</b>
<b>Upper GI</b>	187,038	346,819	538,857
<b>Breast</b>	200,203	154,599	354,802
<b>Gynaecology</b>	137,619	129,949	267,568
<b>Neurology</b>	102,457	138,504	240,961
<b>Head and Neck</b>	90,237	60,706	150,943
<b>Musculoskeletal</b>	53,936	35,858	89,794
<b>Skin</b>	54,912	31,942	86,836
<b>All other</b>	209,245	515,114	724,359

## Inpatient Costs By Tumour Group

	<b>In Patients</b>	<b>Day Cases</b>	<b>Total</b>
<b>Breast</b>	£161,766,566	£29,547,803	£191,314,369
<b>Colorectal</b>	£237,498,834	£34,980,438	£272,479,272
<b>Lung</b>	£205,589,816	£17,333,829	£222,923,645
<b>Upper GI</b>	£187,176,356	£16,274,844	£203,451,200
<b>Urology</b>	£264,262,283	£34,909,932	£299,172,215
<b>Haematology</b>	£278,799,020	£103,878,769	£382,677,789
<b>Gynaecology</b>	£99,156,465	£13,701,543	£112,858,008
<b>Neurology</b>	£96,617,619	£3,710,744	£100,328,363
<b>Head &amp; Neck</b>	£60,996,098	£2,432,666	£63,428,764
<b>All Others</b>	£316,267,883	£66,340,939	£382,608,822
<b>TOTAL</b>	£1,908,130,940	£323,111,507	£2,231,242,447

Excludes Regular Day Attenders (Total Costs £63m)

## In Patient Bed Days by Treatment Specialty

	<b>Elective</b>	<b>Emergency</b>	<b>Total</b>
<b>General Medicine</b>	95,962	925,341	1,021,303
<b>Care of the Elderly</b>	99,938	394,541	494,479
<b>Surgery</b>	544,623	410,921	955,544
<b>Haematology</b>	201,898	219,204	421,102
<b>Clinical Oncology</b>	174,013	192,170	366,183
<b>Medical Oncology</b>	101,271	155,691	256,962
<b>All Others</b>	854,480	773,773	1,628,473
<b>TOTAL</b>	2,072,185	3,071,861	5,144,046

As can be seen above the cost of lung cancer admissions is the 3rd highest overall with the 2<sup>nd</sup> highest of emergency bed days and 7<sup>th</sup> highest of elective bed days.

In Transforming Care for Cancer Inpatients, Spreading the Winning Principles and Good Practice (2), Professor Mike Richards wrote that the Cancer Reform Strategy highlighted the need to focus attention on inpatient care for cancer patients. The reason for this focus was to improve length of stay management, avert unnecessary admission, deliver care in the appropriate care settings, improve efficiency, quality, promote value for money and importantly value the patients` time. The Winning Principles were promoted to achieve the above and are:

1. Unscheduled (emergency patients) should be assessed prior to the decision to admit. Emergency admission should be the exception not the norm;
2. Patients should be on defined inpatient pathways based on their tumour type and reasons for admission;
3. Clinical decisions should be made on a daily basis to promote proactive case management;
4. Patient and carers need to know about their condition and symptoms to encourage self-management and to know who to contact when needed.

In lung cancer, there have been many examples of good practice promoting the ethos of the Winning Principles. Many of these examples are only possible because of the role of the LCNS and are outlined below.

### **Electronic Alert Systems**

The Sherwood Forest Hospital NHS Foundation Trust **(3)** reduced the average length of stay by 25% for lung cancer patients by developing and testing a **Recurring Admission Patient Alert System (RAPA)** and identified the potential to release 560 bed days per annum. In lung cancer, the LCNSs were issued with Blackberry`s which provided an instant alert of admission to them. The success of this approach has now been implemented across the whole hospital and won the 2007 Medical Innovation Futures Award.

The **RAPA** system is known to be utilised across the United Lincoln Hospital NHS Trust and also King Mill Hospital in Mansfield.

In Nottingham General Hospital NHS Trust (4) an **Emergency Admission Unit (EAU) Alert** was developed through the existing patient administration system which searches for all known cancer patients and alerts the relevant CNS when the patient arrives in the EAU. For lung cancer patients the reduction in length of stay was **7.4 days** per patient.

At Northampton General Hospital NHS Trust a review was carried out of all emergency admissions to A&E and the Emergency Admission Unit (EAU) for cancer patients in 2005. Breathlessness in patients with either a known lung cancer diagnosis or who went on to be identified as having lung cancer was the most common reason for emergency admission after the grouping for reasons for admission. A strategy was developed which included an **Alert System**, involvement of a Keyworker (the LCNS) and a Breathlessness management strategy. Due to the success of the project the alert system was extended to other tumour sites where there was a relevant CNS.

At the Hillingdon Hospital NHS Trust (5) a palliative care pathway was integrated into mainstream medical and surgical care with the aim of improving end of life patients. The pathway was triggered by **electronic alert** notifications to community team and CNSs for acute cancer admissions, to optimise the appropriateness of admission, place of admission, management and length of stay. Lung cancer patients and liaison with the LCNSs were one of the 3 chosen tumour groups.

Doncaster and Bassetlaw Hospitals has a **Patient Electronic Alert to Keyworker Alert System (PEAKS)** alerting the Lung CNS when patients are admitted. The alerts are received by mobile phone text and email. As this was successful within the lung team the system has been rolled out to all cancer patients across the Trust.

In Leeds there is a **Keyworker alert system** to CNSs once a patient is admitted as an inpatient to the hospital. This was successfully piloted within the lung CNS team and has now been rolled out to all cancer CNSs in the Trust. From 1st May 2009 to 1st May 2010 there were 565 e-mail alerts for lung cancer patients being admitted to the hospital. 30 case notes are currently being analysed to provide more detailed data of these admissions. Data is now being captured on prevention of admission, planned admission and facilitating early discharge.

At St Peters Hospital, Chertsey, CNS's are **e-mailed patient details on entry to A&E**. There are Blackberry's for the most frequent attending teams. Each of the LCNSs has a Blackberry due to the frequency of attendance of lung cancer patients. With each e-mail there is an audit template to allow evaluation of the data. As some patients attend with non-cancer related problems a registration system is being developed to allow the CNSs to put patients most at risk to allow prioritisation. A business case was developed for IT support.

### **Empowering patients to manage their symptoms**

In NHS Highland, patients are advised on managing symptom control, who to contact in differing situations and are provided with contact numbers. GPs and community teams are

also advised of the patient's situation and aware of how to facilitate rapid admission when appropriate.

### **Thoracic Surgery - shortened inpatient stay**

At the University Hospitals in Bristol a significant reduction in the length of stay for thoracic surgical patients was achieved following a project to improve patient flow and quality of patient care. Thoracic beds were protected and created a more efficient service, a better quality service, improved patient experience and improved staff morale.

### **Other initiatives**

In South Cumbria a new 24/7 Hospice at Home team allows LCNSs to refer to the service and means that hospital admissions can be prevented or rapid discharge to the hospice team.

In South Devon Healthcare Foundation Trust there are 'Keyworker' stickers in front of medical notes and an alert card for patients undergoing chemotherapy. This allows patients to be fast tracked through emergency department.

An audit undertaken in Teeside following anecdotal evidence from patients, carers and health professionals suggested that lung cancer patients and carers had experienced problems following admission to the local Emergency Assessment Unit (EAU). These include unnecessary investigations, poor symptom management, lack of recognition of end of life, delays in discharge and inadequate communication. There was a negative impact on patients' confidence in the service and also on length of stay which had a cost implication. Data was collected from all patients diagnosed with lung cancer from July 2007 to December 2007 and included the number of admissions, length of stay, referral to LCNS and by whom. 50 patients had one or more admissions to EAU with a total of 94 inpatient episodes resulting in 964 bed days. The LCNS were informed of 50 admissions, 13 of which were arranged by the lung cancer team. Of the remaining 37, only one patient was referred to the LCNS by EAU staff, 26 admissions were reported by relatives, one patient self reported and the rest were referred by other health professionals. The average length of stay for those patients not referred to the LCNS was **10.8 days**, however there was a reduction in length of stay to **9.7 days** for those patients who had LCNS input during their admission. Further analysis of the data regarding reasons for admission is ongoing and should reveal any correlation with length of stay.

An audit undertaken by the National Lung Cancer Forum for Nurses in 2007 asking "Does LCNS Intervention reduce unplanned hospital admissions" revealed that the most common interventions provided by the LCNS for patients who were admitted were for:

- Symptom control - 90%
- Explanations of illness / treatment - 90%
- Psychological support - 90%
- Medication advice / prescribing - 80%
- **Involvement in discharge planning - 67%**
  - end of life care - 50%
- Liaison with MDT for further treatment - 30%
- Breathlessness intervention - 27%
- Liaison with MDT for further investigation - 20%
- Referral to hospice - 17%
- Referral to other specialities - 30%

Although the audit could not demonstrate that the LCNS interventions reduced length of inpatient stay it could be argued that the specific interventions given above would have enhanced the quality of the inpatient stay, the discharge process, the length of stay, follow up following discharge and reduce the likelihood of readmission.

### **The Macmillan - Manchester Study An Assessment of the Potential Economic and Broader Social Value of Macmillan Interventions, Macmillan Cancer Support 2010**

This is due to be reported soon and are grateful for Macmillan to share its findings prior to its publication. The Macmillan Cancer Support report concluded that investing in improving key aspects of care such as coordination, communication and information as well as new services to support people immediately post-treatment, has the potential to deliver economic benefit to the wider health and social care system as well as being of benefit to the patient. The analysis has showed that in Manchester, the impact of targeted service improvements within the care pathways for breast and lung cancer could release an estimated **£650,000 per year** to the health, social care and wider economy. In addition, one main conclusion reached was that the CNS represents economic as well as patient benefit.

### **Discussion**

The role of the LCNS is pivotal in the care of patients with lung cancer. For inpatients with lung cancer, the LCNS is the health professional who is most likely to be intimate with the patient's condition, symptoms, treatment plan and care needs. The patient journey can potentially span the disciplines of respiratory medicine, oncology, surgery and palliative care with many patients who are admitted having care within elderly medicine or other specialities. It therefore means that when patients are admitted to hospital the LCNS maybe the best person to facilitate advice and care to ward teams.

Nearly £206, 600,000 is the cost per annum on lung cancer inpatient care with 434,273 emergency bed days. This equates to £473 per emergency bed day. Reducing length of stay by 1 – 7.4 days day (as demonstrated by the Teeside and Nottingham work) would have a significant economic impact.

With reference to the NLCFN audit where the involvement of the LCNS in discharge planning of 67% of patients + involvement in 90% of patients symptom management it is inconceivable that the involvement of the LCNS does not have an impact in reducing the length of inpatient stay.

The Teeside Audit (as above) concluded that the risks of not having a LCNS involved with lung cancer patients care whilst in hospital could result in;

1. poor care patient and carer experience;
2. a fragmented lung cancer pathway and lack of access to the specialist respiratory/oncology support;
3. delays in discharge;
4. risk of inappropriate admissions and readmissions;
5. complaints;
6. costs incurred through length of stay and inappropriate investigations;
7. risk of suboptimal palliative care for lung cancer patients;
8. poor experience of End of Life care for lung cancer patients, carers and health professionals.

The above conclusion is also supported in a press release by The United Kingdom Lung Cancer Coalition (6) who said that the National Lung Cancer Audit published by the NHS Information Centre on 2nd December 2009 revealed that:

- only half (51%) of lung cancer patients are currently seen by a LCNS and only one in four have a LCNS present at the time of the diagnosis;
- where patients are seen by a LCNS, six out of ten (59.4%) receive active treatment / treatment to halt the spread of their disease;
- conversely, where lung cancer patients do not have access to a LCNS only three in ten (30.9%) receive any form of active treatment.

The UKLCC do acknowledge that these relationships had not been measured previously with further work required to define the significance of the findings. However, they said that it does suggest, at the very least, a strong association between good specialist nursing and other aspects of high quality care.

## **Conclusion**

In lung cancer alone, the number of inpatient bed days is the 4th largest amount of all tumour groups at 550,906 per annum. This accounts for approximately 10% of all inpatient cancer bed days and costs £222,923,645 per annum. Reduction of length of stay would be economically significant and the LCNS can be key to this. The Macmillan Cancer Support study highlights the potential savings to the health, social and wider economy. In addition to cost savings, reducing the time that patients spend in hospital unnecessarily will hopefully improve the patient and carers experience and give more quality time at home.

There are many examples of progressive work highlighted above and many more not reported to ease the burden of bed pressures of lung cancer patients within the NHS. There are also opportunities for all Lung Cancer MDTs and Clinical Management Teams to promote good practice to manage care more efficiently by avoiding admission, improving discharge, utilising new models of care and this report can act as a guide.

There are two important roles of the LCNS that this report does not cover. That is of admission avoidance or planned admissions for patients with lung cancer. These are also 2 key areas where the role of the LCNS can be instrumental. For many patients the LCNS is the Keyworker who undertakes the patient's holistic assessment (7) at diagnosis, beginning and end of treatment, at disease recurrence, and in follow up.

Initiatives such as nurse led follow up (which can include clinic, telephone and home visits) and advice lines are services which aim to help coach patients in self-management to help recognise when to seek advice with the potential to avoid unnecessary hospitalisation. Accessibility of LCNSs to patients and carers is key to this avoidance. This also involves liaising with primary care and specialist hospital based teams to ensure a proactive, dynamic service which triages care appropriately.

The information provided above reflects many examples of good practice from around the UK with other examples included in the ***National Lung Cancer Forum for Nurses Good Practice Guide – Leading the Way towards and Ideal Lung Cancer Service*** (8).

From the work outlined above it can be concluded that the LCNS can be key in the lung cancer pathway and can improve length of stay management, avert unnecessary admission, deliver care in the appropriate care settings, improve efficiency, quality, promote value for money and importantly value the patients` time as promoted in the Cancer Reform Strategy.

## References

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