Chemotherapy Services in England: Ensuring quality and safety

A report from the National Chemotherapy Advisory Group

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Chemotherapy Services in England:
Ensuring quality and safety

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Foreword

Use of chemotherapy and other systemic agents for cancer is rapidly changing – treatment is improving steadily, sometimes dramatically; the rate of introduction of new drugs is accelerating; the number of patients benefiting from such treatments is increasing quickly; patients are increasingly being treated closer to home. With these very significant benefits come difficulties in delivering an optimal service with equitable access; chemotherapy services have tended to concentrate on the actual administration of treatment rather than the whole chemotherapy pathway.

The National Chemotherapy Advisory Group was established to advise the National Cancer Director and the Department of Health on the development and delivery of high quality chemotherapy services. It was asked to produce a report to address the significant concerns raised over the past year in the National Confidential Enquiry into Patient Outcomes and Death (NCEPOD) and from cancer peer review regarding the safety and quality of chemotherapy services in this country. Their report, addressing these concerns, was published for consultation.

This current report takes account of the responses received in the consultation and sets out clear actions that when taken by commissioners, providers of elective oncology services and providers of emergency services will ensure that all patients receive high quality care. The Department of Health welcomes the recommendations in this report.

We have undertaken an impact assessment of the recommendations which we have published alongside the report. This concludes that the majority of the recommendations clarify and reinforce existing best practice and should not require additional resources and that potential savings from reducing emergency bed days could make the other recommendations cost neutral overall. I have asked the National Cancer Action Team (NCAT) to develop a commissioning framework and chemotherapy service specification to help commissioners deliver these improvements through World Class Commissioning of Chemotherapy services. These will be available on the NCAT website. We will continue to work with the NHS to determine how the recommendations can be taken forward.

The report highlights improvements to three key areas.

- The provision of elective chemotherapy services, based around a care pathway approach.

- The provision of emergency care not only for cancer patients who develop complications following chemotherapy, but also for patients admitted suffering from the consequences of their cancer. It recommends that all hospitals with an Accident and Emergency (A&E) department establish an “acute oncology service” (AOS), bringing together relevant staff from A&E, general medicine, haematology and clinical/medical oncology, oncology nursing and oncology pharmacy.
• The leadership, information systems, governance, monitoring, and commissioning of chemotherapy services.

This report emphasises the need for teamwork and for teams to work together within hospitals and across Networks. The careful provision of care by teams who communicate well is central to this. The National Chemotherapy Advisory Group believes that the implementation of the recommendations made in this report will ensure that these ‘3 Cs’ are ever present in cancer chemotherapy so that the patient remains the true focus of all our efforts.

I would like to thank the members of the National Chemotherapy Advisory Group for their work in developing this report and, in particular, Peter Clark who co-chaired the Group. We must have safe, quality services and we believe that implementing the NCAG recommendations will enable us to deliver these.

Professor Mike Richards
National Cancer Director
Executive Summary and Key Recommendations

1. The aim of this report is to bring about a step change in the quality and safety of chemotherapy services for adult patients with either solid cancers or haematological malignancies. The report sets out a framework for planning, implementing and monitoring services based on a care pathway model and the proposed actions that need to be taken by commissioners and providers to ensure high quality care.

2. The use of chemotherapy has expanded markedly in recent years, with an increase of around 60% in the amount of chemotherapy delivered over a four year period. This has brought undoubted benefits to many thousands of patients. However, three recent reports have identified serious concerns about the quality and safety of service delivery.

3. Firstly, the national overview of the peer review appraisals undertaken between 2004 and 2007 showed that only around one half of chemotherapy services had Cancer Network-wide lists of agreed acceptable regimens and guidelines/protocols for chemotherapy service delivery. Secondly, the National Patient Safety Agency (NPSA) issued a Rapid Response Alert in 2008 on oral chemotherapy following a significant number of safety incidents. Finally, the National Confidential Enquiry into Patient Outcome and Death (NCEPOD) has recently analysed the care given to patients who received systemic anticancer therapy in June and July 2006 and who died within 30 days of treatment. In only 35% of cases was care judged to have been good by the advisors, with 49% having room for improvement and 8% receiving less than satisfactory care.

4. The focus of this report is entirely on safety and quality. Other aspects of chemotherapy services, such as access to new medicines and the uptake of drugs which have been approved by the National Institute for Health and Clinical Excellence (NICE) are covered elsewhere. This report should be read in conjunction with the revised guidance on intrathecal chemotherapy published by the Department of Health (DH) in August 2008 and with recent safety alerts from the National Patient Safety Agency (NPSA) related to oral chemotherapy and to the use of vinca alkaloids.

5. This report highlights the need to improve both elective chemotherapy services and Acute Oncology Services (AOSs). Acute oncology encompasses both the management of patients who develop severe complications following chemotherapy or as a consequence of their previously diagnosed cancer, as well as the management of patients who present as emergencies with previously undiagnosed cancer. Acute oncology therefore necessarily involves clinicians working in emergency departments and in acute medicine, as well as in oncology and related disciplines. Provision of AOSs will save the NHS money and resources.
6. Starting with access to and referral to an oncologist (clinical, medical or haematological) the chemotherapy care pathway also includes: assessment and decision to treat; formal patient consent; prescribing, prescription verification and dispensing; delivery; information, education, advice and support for patients and carers; urgent assessment and management of complications and the use of all relevant information along this pathway to determine the prescribing or otherwise of a subsequent cycle of chemotherapy. At the end of the pathway a record of treatment delivered and a subsequent care plan should be made.

**Key recommendations for best practice in chemotherapy services.**

7. **Acute oncology:** All hospitals with emergency departments should establish an AOS, which brings together the necessary expertise from emergency medicine, general medicine and oncological disciplines. This service should be responsible for the development of local policies and procedures and for ensuring appropriate training for senior and junior doctors and other staff. Arrangements for access to urgent specialist oncological advice need to be put in place where this is not already available. Oncologists will work closely with admitting physicians/surgeons and with palliative care physicians to provide advice on the care for cancer patients admitted as an emergency. Audit of emergency admissions of patients with cancer and cancer treatment-related complications should be routine.

8. **Assessment, decision to treat and consent:** Decisions on the initiation of a programme of chemotherapy should be made at consultant level unless there are exceptional circumstances, which should be documented. Patients should be fully involved in decisions regarding their care and treatment. Standardised consent forms should be used which include details of both common and serious toxicities which have been discussed with the patient. Written information should always be provided for the patient and this should be recorded on the consent form.

9. **Prescribing and dispensing:** Prescribing, prescription verification and dispensing of chemotherapy should only be undertaken by appropriately trained staff. All chemotherapy services should maintain up to date lists of staff that are designated to prescribe (either first or subsequent cycles), check prescriptions and dispense chemotherapy. Protocols should be agreed across a Cancer Network, incorporated into a protocol “book” (actual or web-based) and updated at least annually. The protocol book should also include treatment guidelines for the management of common chemotherapy toxicities (e.g. neutropenic sepsis). The current protocol book should be available wherever chemotherapy is prescribed, dispensed or delivered and where chemotherapy patients are assessed and treated (e.g. emergency departments, acute admission wards etc.). Handwritten
prescribing of parenteral chemotherapy should be replaced as soon as possible by pre-printed forms or preferably by electronic prescribing systems.

10. **Delivery:** To improve the experience of patients receiving chemotherapy all Cancer Networks should undertake rigorous capacity planning. The C-PORT chemotherapy planning tool can facilitate this. Inpatient delivery of chemotherapy should be minimised. Where clinically appropriate, chemotherapy services should be localised. Care processes within chemotherapy units should be streamlined to minimise delays. Patients’ views on the experience of receiving chemotherapy should be sought and acted upon.

11. **Information, education, support and advice:** All patients should be given both verbal and written information about their treatment, likely side effects and whom they should contact if problems arise (either within or outside normal working hours). All patients should have access to 24-hour telephone advice with active management of access to appropriate emergency care. Service providers should strongly consider establishing proactive telephone support for patients to identify problems before they become serious.

12. **Urgent assessment and management of complications:** Patients should know which hospital/unit to go to should they develop complications within or outside normal working hours. AOSs should have clear and readily accessible policies for managing complications including neutropenic sepsis. These should be agreed across a Network. At a minimum there should be 24-hour access to telephone advice from a consultant oncologist. Treat and transfer arrangements should be in place at hospitals which do not have appropriate expertise for inpatient management (i.e. those without an AOS). Whenever a patient receiving chemotherapy presents to Accident and Emergency (A&E) or is admitted to hospital the Acute Oncology Team (AOT) should be informed within 24 hours.

13. **Febrile Neutropenia:** Each Trust must have its own regularly updated policies and procedures for the treatment of patients suffering febrile neutropenia as a consequence of chemotherapy. In order to assist providers and commissioners, the DH has formally asked NICE to urgently develop a National Clinical Guideline on the clinical management and prevention of febrile neutropenia.

14. **Knowledge and recording of toxicity:** Systems must be put in place to ensure that clinical staff prescribing and administering chemotherapy are aware of previous significant toxicities related to treatment. In addition, clinicians assessing patients for chemotherapy must record any significant toxicity experienced by the patient and use this information prior to treatment administration (e.g. to delay therapy or reduce doses).
15. **End of treatment record:** All chemotherapy services should complete a treatment summary record after completion of a programme of chemotherapy and should discuss this and its implications with the patient, and subsequently send written copies to the patient, the GP and other relevant healthcare professionals. A subsequent care plan should then be drawn up, discussed with the patient and communicated to relevant healthcare professionals.

16. **Reporting of deaths within 30 days of chemotherapy:**
Most deaths within 30 days of chemotherapy are as a consequence of cancer progression but some are due to complications of chemotherapy. Advice from the Coroner’s Society of England and Wales reminds all of the clinicians involved in the care of cancer patients who die within 30 days of chemotherapy that patients whose death is caused by or hastened by treatment should be reported to HM Coroner.

17. **Leadership:**
Effective leadership is needed at Network and Trust levels for both elective chemotherapy services and acute oncology. All NHS Trusts providing elective chemotherapy and/or acute oncology should ensure they have appropriate leadership teams in place. Leadership teams for acute oncology should include representatives from emergency medicine and general medicine as well as oncological disciplines. Chemotherapy and Acute Oncology Teams (AOTs) should be responsible for overseeing capacity planning, clinical governance, workforce and training, patient information and support, financial management, facilities and IT support.

18. **Clinical governance:**
Major deficiencies in clinical governance of chemotherapy services have been shown by peer review, NCEPOD and the NPSA. Each chemotherapy service needs to ensure they have protocols and policies described in this report are developed, implemented and regularly audited. Each chemotherapy service must have regular morbidity/mortality meetings to review practice, policies and procedures in relation to the safety and quality of chemotherapy.

19. **Peer Review:**
The National Cancer Peer Review Team should revise the existing chemotherapy measures and develop new measures taking account of the recommendations in this report as soon as possible. A further round of self assessment should then be undertaken by Networks and service providers, followed by a further round of peer review.

20. **Workforce:**
The medical workforce in oncology has expanded considerably since 2000 and is set to grow further by 2012. However, growth in the workforce has been exceeded by increases in activity. Information on the workforce for other related professional groups (e.g. chemotherapy nurses and oncology pharmacists) is not routinely collected at a national level. Given the rapid increase in chemotherapy activity this should be remedied. The National Cancer Action Team
should work with Cancer Networks on this. New roles have started to emerge within the oncology workforce (e.g. nurse-led chemotherapy) and should be encouraged in order to improve quality and safety and to meet rising demand. These include the development of consultant pharmacists, consultant nurses in oncology, advanced practitioners and assistant practitioners.

21. Training: Skills for Health developed competences for oncology in 2005. These should now be updated. Royal Colleges, working with Skills for Health, should develop competences for all those involved in acute oncology. Training programmes should then be developed. The current e-learning programme for oncology should urgently take account of these developments.

22. Data collection: Information on chemotherapy activity and outcomes is not currently collected in a systematic way across the country. The National Cancer Intelligence Network (NCIN) is leading work to define a national core dataset in association with members of the National Chemotherapy Advisory Group. Once approved, collecting the new dataset will be mandatory as set out in the Cancer Reform Strategy (CRS).

23. Information technology: Electronic prescribing has been shown to promote patient safety by reducing errors. It also facilitates collection of standardised data. Those chemotherapy services which do not currently use electronic prescribing should strongly consider doing so at the earliest opportunity.

24. Commissioning: Primary Care Trusts (PCTs) should work together across a Cancer Network to plan, procure and monitor service delivery. They should ensure that AOSs are available in all hospitals with A&E departments. If chemotherapy is given elsewhere, PCTs should ensure that there are appropriate arrangements in place for patients to access telephone advice and emergency care. They will wish to achieve an appropriate balance between centralisation and localisation and to ensure that all services deliver safe and effective services in line with this guidance.

25. Children and Young Adults: These key recommendations will be directly relevant to and underpin safe chemotherapy services for young people treated in adult services. All recommendations bar ones for AOSs are applicable to the care of children/teenagers who are treated in children’s services. Development of paediatric shared care is being dealt with separately through implementation of the Improving Outcomes Guidance (IOG) for Cancer in Children and Young People, which will take account of this report.
26. **Chemotherapy in non-malignant disease**: It is anticipated that Trusts will use this report not only to improve the quality of cancer chemotherapy services, but also to inform the development of chemotherapy services for patients with non-malignant conditions.
Chapter 1: Introduction

Increasing chemotherapy utilisation

1.1 The use of systemic anti-cancer therapy (this includes chemotherapy, monoclonal antibodies and small molecule targeted agents but is referred to for simplicity as ‘chemotherapy’ throughout this report) has increased markedly over the past decade. This has led to undoubted benefits for very many patients with improved cure or long term remission rates for some and prolongation of life and/or improvements in quality of life for others.

1.2 An audit undertaken across four cancer centres serving a combined population of around three million has shown that the total number of programmes of chemotherapy (a planned period of repeated cycles of treatment) increased by around 60% over a four year period (2002/03 to 2006/07) [Appendix 2]. Scaling up the figures from that audit to the population of England as a whole would indicate an increase from around 40,000 to around 65,000 programmes of chemotherapy per annum. This level of increase is commensurate with the overall increase in expenditure on systemic therapies for cancer (approximately 60%) between 2002 and 2006 reported in the Cancer Reform Strategy (2007) (CRS).

1.3 Increases in usage are observed across a range of different cancers, though the rate of increase varies between tumour types. In the four cancer centres audit, the number of chemotherapy programmes given for colorectal cancer more than doubled over a three year period, while those for breast and ovarian cancer increased by around 40% (Appendix 2).

1.4 The observed increase in chemotherapy utilisation can be attributed to several different factors:

- The availability of new drugs, which are predominantly given in addition to existing treatments rather than as substitution and are often given for longer durations than conventional chemotherapy.

- Patients receiving more lines of chemotherapy than previously.

- Chemotherapy now being used in a wider range of solid cancers than previously.

- Increasing adjuvant and neoadjuvant indications for treatment especially in the commoner malignancies.

1.5 The pattern of chemotherapy utilisation is also changing. Oral drugs are in some cases replacing intravenous drugs (eg capecitabine being
given in place of 5-fluorouracil) bringing greater convenience to patients. The use of monoclonal antibodies, such as rituximab for non-Hodgkin’s lymphoma and trastuzumab for breast cancer, has increased dramatically. As these treatments involve more prolonged infusions, they have a major impact on the workload of chemotherapy departments. New targeted therapies have been introduced such as imatinib for chronic myeloid leukaemia, erlotinib for lung cancer and sunitinib for renal cancer.

1.6 Alongside the introduction of new drugs and the overall increase in chemotherapy utilisation, models of service delivery for chemotherapy have also evolved. Ten to fifteen years ago a very high proportion of all chemotherapy for solid cancers was given in a limited number (around 50) tertiary cancer centres. In contrast, much of the less complex chemotherapy both for solid cancers and haematological malignancies is now being given in cancer units in district general hospitals, and some treatments are now being delivered close to or in patients’ homes. In addition, the percentage of all chemotherapy administered as an inpatient continues to steadily decline in favour of outpatient or day case treatment. In the 2004 to 2007 round of cancer peer review a total of 163 clinical chemotherapy services were assessed across England.

Concerns related to quality and safety

1.7 Concerns regarding the quality and safety of chemotherapy services have emerged recently from doctors, nurses and pharmacists working within the service and from two authoritative reports published in 2008. The first is the national overview of the findings from the cancer peer review programme 2004-2007 (The Peer Review Report). The second is ‘For better or Worse’ – a report of the National Confidential Enquiry into Patient Outcome and Death reviewing the care of patients who died within 30 days of receiving systemic anticancer therapy (The NCEPOD Report, published in November 2008). In addition, the National Patient Safety Agency (NPSA) issued a Rapid Response Alert on Oral Chemotherapy in early 2008.

1.8 The peer review report (Appendix 3) identified many instances of good practice, but also raised concerns regarding:

- Leadership of chemotherapy services.
- Equitable access to chemotherapy drugs.
- Arrangements for emergency admissions.
- Standards of some facilities in relation to safety and dignity for patients.
- Poor availability of computer generated prescribing.
1.9 The Manual for Cancer Services (2004) sets out a total of 54 measures for clinical chemotherapy services and 11 measures for oncology pharmacy services. In addition to these there are a further 50 measures specifically related to intrathecal chemotherapy. During the 2004 to 2007 cancer peer review round overall compliance with the clinical chemotherapy measures was 74%, while rates for oncology pharmacy and intrathecal chemotherapy were 81% and 92% respectively.

1.10 Analysis of individual measures reveals compliance rates below 60% on seven measures for clinical chemotherapy and one for oncology pharmacy (Annex 3). These are:

- Network wide lists of agreed acceptable regimens (46%).
- Agreed policies for preventing regular use of regimens not on the accepted list (53%).
- Records of instances of use of a regimen not on the list (52%).
- Network agreed common guidelines/protocols (54%).
- Network agreed staff training programmes (56%).
- Capacity/demand studies (49%).
- Resulting service improvement action(s) (39%).
- Computer-generated cytotoxic chemotherapy prescribing (40%).

1.11 The NCEPOD report published in November 2008 involved analysis of the care given to patients who received systemic anti-cancer therapy (SACT) in June and July 2006 and died within 30 days of the start of their last cycle of treatment. A total of 47,050 systemic anti-cancer treatments were reported to have been given during that period and 1044 patients (around 2%) were confirmed to have died within 30 days. The Chairman of NCEPOD, Professor Tom Treasure, made clear in his foreword to the report that the design of the study was deliberately biased towards discovering things that might have been handled better and that death within 30 days only occurred in a small minority of treatments.

1.12 The NCEPOD report does, however, raise very significant concerns about quality and safety (Annex 4). In only 35% of the cases reviewed was care judged by the advisors to have been good, with 49% being classified as having ‘room for improvement’, and 8% receiving ‘less than satisfactory’ care. In addition, the response rate in terms of returned questionnaires was only 63%, poor in comparison with other NCEPOD audits. Specific concerns related to:
• Recording of toxicities on consent forms.

• Initiation of chemotherapy when no benefit can realistically be expected and/or when patients have a very poor performance status.

• Failure to undertake essential pre-treatment investigations or to act on abnormal results.

• Poor recording of toxicity from previous cycles of treatment.

• Handwritten prescriptions for parenteral chemotherapy.

• Low rates of recorded checking of chemotherapy prescriptions by pharmacists.

• Inadequate care for patients readmitted with complications following chemotherapy, especially for neutropenic sepsis.

• Variable routes by which ill patients re-accessed clinical services after chemotherapy.

• Poor advance care planning and suboptimal end of life care.

• Lack of oncology input into care of patients after admission to the acute specialties.

1.13 The NPSA Rapid Response Alert on Oral Chemotherapy was issued in 2008 as over a four year period three deaths and 400 incidents had been reported. The most frequent incidents involved the wrong dosage, frequency, quantity and/or duration of treatments. Another key issue was the continuation of oral cancer medication by primary and secondary care, when the duration of such therapy should have been limited.

Aims and scope of this report

1.14 The overall aim of this report is to bring about a step change in the quality and safety of chemotherapy services in England, taking account of the concerns from peer review and from NCEPOD. The report primarily relates to services for adults with either solid cancers or haematological malignancies but many of the recommendations will be relevant to services for children and young people. It is anticipated that Trusts will use this report not only to improve the quality of cancer chemotherapy services, but also to inform the development of chemotherapy services for patients with non-malignant conditions. The report has implications for every commissioner and every service provider.
1.15 This report covers all aspects of the management of patients undergoing chemotherapy. Many of these services are delivered in an elective setting. However, ‘acute’ aspects of oncology are also of great importance and need to be considered alongside the provision of acute medical services. On the provider side, it is therefore important to note that the report has implications for acute medicine and for emergency departments as well as for clinical oncologists, medical oncologists, haemato-oncologists, oncology pharmacists, chemotherapy nurses and oncology service managers.

1.16 In support of this aim, the report sets out:

- A framework for planning and monitoring chemotherapy services based on a care pathway model.

- A new emphasis on the management of the acute consequences of chemotherapy, but also on the care of patients admitted as an emergency with complications of their known tumour or with symptoms of previously undiagnosed cancer (Acute Oncology).

- Metrics which can be used to monitor safety and quality.

- Advice on cross cutting issues including leadership, workforce, audit and information technology.

- Advice on commissioning.

1.17 Other important issues related to chemotherapy services are not dealt with in this report as they are covered elsewhere. The recent Richards Review deals with issues related to improving access to expensive new medicines for cancer and other conditions. (http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_089927)


Revised guidance on intrathecal chemotherapy was issued by the Department of Health in August 2008 in parallel with a Rapid Response Alert from the National Patient Safety Agency on using Vinca Alkaloid Minibags. (http://www.npsa.nhs.uk/nrls/alerts-and-directives/rapidrr/using-vinca-alkaloid-minibags/)
Chapter 2: The Chemotherapy Pathway

2.1 The chemotherapy process can be considered as a care pathway which starts with initial referral to an oncologist and ends with completion of treatment and the development of a subsequent care plan (Figure 1). This chapter considers each step in the care pathway outlining features of current service provision (both good and poor), actions that ensure high quality care and measures for monitoring service delivery. The provision of patient and carer information, support and advice crosses all steps (see below), but is set out as step 6 in view of the need for patients to act if there are problems after chemotherapy.

Figure 1: The Chemotherapy Care Pathway

- Step 1: Access and referral to an oncologist
- Step 2: Assessment and decision to treat, patient consent
- Step 3: Prescribing first cycle
- Step 4: Dispensing
- Step 5: Delivery and treatment environment
- Step 6: Patient and carer information, education, support and advice
- Step 7: Urgent assessment and management of complications
- Step 8: Prescribing subsequent cycles
- Step 9: End of treatment record and subsequent care plan
Step 1: Access and referral to an oncologist

Current service provision

2.2 The referral of patients to non-surgical oncology services has improved immeasurably over the past 10-15 years with the widespread establishment of site-specific multidisciplinary team (MDT) working. These teams bring together a wide range of health professionals involved in cancer care and help to ensure that patients who may benefit from chemotherapy are appropriately identified. MDT working is almost certainly responsible for some of the increase in chemotherapy utilisation over recent years.

2.3 A significant minority of cancer patients do not present through an elective route, but are admitted as emergencies. Patients may, for example, present with breathlessness due to a pleural effusion, abdominal swelling due to ascites or abdominal pain due to liver metastases. These patients will typically be admitted via emergency departments under the care of acute medical specialties. Pathways for investigation of these patients have not been as clearly defined as for patients presenting electively and audits at individual hospitals have shown that there are frequently delays between admission, referral to oncology and assessment by an oncologist and referral to other appropriate teams such as the palliative care team.

2.4 The Cancer Reform Strategy (CRS) places very significant emphasis on the need for cancer inpatient stays to be reduced. Inpatient cancer care is the most expensive care setting. It accounts for around one half of all cancer expenditure and inpatient cancer care accounts for 12% of all acute inpatient bed stays. Inpatient admissions for cancer have risen by 25% over the past eight years, mostly relating to emergency admissions. 40% of cancer inpatients stays are non elective admissions, and these admissions are largely (60%) managed by acute medical physicians (general medicine).

2.5 There were 273,000 emergency admissions with a diagnosis of cancer in 2006/7. This is up by 30% from 1997/98. This is roughly equivalent to 750 emergency admissions each day across England, so that a typical Trust may have five emergency admissions with cancer per day (two under medicine, one under surgery, one under oncology/haematology and one under ‘other’).

2.6 Increasing numbers of patients receiving systemic therapy lead to increasing numbers experiencing toxicity and the greater need for admissions. This also applies to treating older patients with co-morbidities. District General Hospitals (DGHs) bear the brunt of “acute oncology” – toxicity of treatments delivered in the DGH and elsewhere, ill patients with undiagnosed cancer and ill patients with diagnosed cancer.
Carcinoma of unknown primary: Inpatient pathways
St. Helen’s & Knowsley Hospitals NHS Trust

A retrospective audit covering a 15 month period showed delays in referral of inpatients with suspected cancer to appropriate specialists, inappropriate lengths of stay, lack of coordination and inappropriate investigations with poor understanding of results and management.

A joint Unknown Primary Pathway between acute medicine, radiology, histopathology and oncology was tested that involved the multidisciplinary approach, radiology alerts and improved clinical decision making within 24 hours of referral.

The impact of this approach has resulted in a reduction in unnecessary investigations and reduction in length of stay by 50%.

“Early assessment by specialist services is essential if further progress is to be made in this often complex area of diagnosis and management. All cases of suspected cancer should be referred to oncology at the earliest opportunity and before extensive and often unhelpful investigations.” Dr Ernie Marshall, Macmillan Consultant in Medical Oncology.

Proposed Actions

2.7 All hospitals with Accident and Emergency (A&E) departments should establish an Acute Oncology Service (AOS) and/or a pathway to ensure the rapid and appropriate management of patients presenting with previously undiagnosed cancer. These services will also have a major role in the effective management of patients admitted with complications during a course of chemotherapy (see below) and with the urgent complications of malignancy (e.g. hypercalcaemia, spinal cord compression and management of pleural effusions etc.). The aim is to incorporate oncology input early in the inpatient journey rather than near the end.

2.8 The AOS should bring together expertise in emergency medicine, general (acute) medicine, haematology, oncology (clinical and medical), palliative care, oncology nursing and oncology pharmacy. An overall service lead should be identified with representatives of all of the other disciplines. The establishment of close links between oncology and general (acute) medicine is particularly important in hospitals without a resident 24/7 oncology service.
2.9 The AOS should be responsible for the development of local policies and procedures which are in line with those of the Cancer Network. These policies should cover the management of cancer patients in the emergency department, the training of senior and junior doctors from medical specialties in acute oncology and processes for ensuring rapid referral and assessment by an oncologist and other members of the acute oncology team.

2.10 All hospitals admitting cancer patients as emergencies should urgently work towards being able to provide expert oncological assessment within 24 hours at least five days a week. This assessment will best be provided by a consultant oncologist or oncologists with expertise in acute oncology working with a trained (generic) oncology nurse specialist(s) or oncology pharmacist.

2.11 The National Cancer Action Team (NCAT) will work closely with the Royal Colleges/Professional Bodies and Skills for Health to define the competences needed for acute oncology and the training that will be needed to achieve these competences.

**Measures**

2.12 Measures related to acute oncology will include:

- Establishment of at least five days a week AOS with appropriate professional involvement.

- Numbers of patients presenting with cancer as emergencies, (known and previously undiagnosed cancer patients identified separately).

- Interval between admission and oncological assessment.

- Time to referral to appropriate specialist team.

- Total length of stay for previously undiagnosed cancer patients.

**Step 2: Assessment and decision to treat**

*Current service provision*

2.13 Comprehensive patient assessment and good communication between an oncologist and a patient are central to the delivery of high quality services. Assessment will include the extent of a patient’s disease, their general fitness or frailty (performance status – see Table 1), any existing co-morbidities and any investigations required to ensure safe delivery of chemotherapy or as a baseline for measuring response to treatment. Accurate assessment and recording of performance status are very important: the more unfit the patient, the less the chance of
benefit but the greater the chance of serious and potential life threatening toxicity.

Table 1: Eastern Cooperative Oncology Group (ECOG) / World Health Organisation Performance Status Scale

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<td>0</td>
<td>Fully active, able to carry on all pre-disease performance without restriction</td>
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<tr>
<td>1</td>
<td>Restricted in physically strenuous activity, but ambulatory and able to carry out work of a light or sedentary nature</td>
</tr>
<tr>
<td>2</td>
<td>Ambulatory and capable of self care, but unable to carry out any work activities. Up and about more than 50% of waking hours</td>
</tr>
<tr>
<td>3</td>
<td>Capable of only limited self care, confined to bed or chair more than 50% of waking hours</td>
</tr>
<tr>
<td>4</td>
<td>Completely disabled. Cannot carry on any self care. Totally confined to bed or chair</td>
</tr>
<tr>
<td>5</td>
<td>Dead</td>
</tr>
</tbody>
</table>

2.14 Decisions on the initiation of a course of chemotherapy should, unless in exceptional circumstances, be made at consultant level with the patient and carer fully involved on an informed choice basis. The benefits and risks associated with chemotherapy need to be carefully discussed with the patient who should also be provided with high quality written information to supplement face to face communication. Consent should then be obtained and recorded in detail in terms of the aims of treatment and both the common and serious side effects of treatment.

2.15 Careful reassessment is needed before the start of any subsequent cycle of treatment. This should include reassessment of performance status, documentation of any serious toxicity (e.g. grade 3 or 4 toxicities) and appropriate blood tests. Dose modifications should be made where necessary. Response to treatment should be documented at appropriate intervals.

2.16 The NCEPOD report revealed that:

- Initial assessment is not always made at consultant level.
- Pre-chemotherapy investigations are not always done or are out of date.
- Abnormal results are not always acted upon (e.g. good practice would mean delaying treatment or reducing doses).
- Performance status is not always recorded.
• Consent is not always recorded fully, with both common and serious toxicities not being documented and the name and grade of the doctor taking consent being unclear.

2.17 A recent study from South West England indicated that a large proportion of cancer patients were not being given clear information about the survival gains to be expected with palliative chemotherapy (Audrey et al BMJ 2008; 337:752).

Proposed Actions

2.18 All hospitals providing chemotherapy services should ensure that:

- Decisions to initiate a programme of chemotherapy are made at consultant level unless there are exceptional circumstances, which should be documented.

- Standardised consent forms are used which include details of the toxicities discussed and which identify whether a patient has been provided with written information. A copy of the consent form should be given to the patient as well as one being filed in the patient’s case record.

- Standardised written information and other forms of information are given to patients, which are relevant to a particular chemotherapy regimen.

- All patients should have a treatment plan for each line of chemotherapy they undergo. This treatment plan must be authorised and signed by a consultant oncologist or haematologist.

- This treatment plan should include the following information as a minimum:
  
  - Diagnosis and staging according to an internationally recognised staging system
  - Performance status and co-morbidities
  - Treatment Intent
  - Tests required pre-chemotherapy
  - Planned numbers of cycles
  - Frequency and method of assessment if appropriate
  - Any deviation from protocol and why.

2.19 All clinicians should ensure that they have the necessary skills to communicate complex information accurately, effectively and in a balanced way.

2.20 Relevant Royal Colleges and Professional Bodies should consider how assessment of communication skills could best be
incorporated into re-certification processes, and this should also be linked to the Peer Review process.

Measures

2.21 The quality of assessment and decision making should be assessed through:

- Audits of consent procedures.
- Documentation of attendance at communication skills courses.
- Surveys of the patients’ experience with their assessment, the subsequent decision making and the communication of these decisions.

Steps 3, 4 and 8: Prescribing and dispensing

Current service provision

2.22 Prescribing of chemotherapy for cancer patients should only be undertaken by appropriately trained staff (clinical oncologists, medical oncologists, haematological oncologists, and non medical independent and supplementary oncology nurse and oncology pharmacist prescribers). Unless there are exceptional circumstances, (which must be documented), chemotherapy should be prescribed according to predefined protocols, which should be agreed across a Cancer Network.

2.23 Over recent years some chemotherapy services have introduced electronic prescribing, especially for parenteral chemotherapy. Those who have introduced electronic prescribing report that it facilitates standardised protocol-based prescribing and reduces the risk of errors. Electronic prescribing also greatly facilitates monitoring of the use of chemotherapy.

2.24 Because of the complexity of chemotherapy prescribing it is easy for errors to occur (e.g. in dosing). It is therefore essential for all chemotherapy prescriptions to be checked by a trained oncology pharmacist.

2.25 Some chemotherapy services have introduced pre-prescribing of chemotherapy, so that doses can be prepared in advance of a patient attending for treatment. This can be done safely and with minimal wastage, especially for commonly used anticancer drugs. Pre-prescribing has the advantage that it reduces waiting in chemotherapy day case clinics. It can also lead to greater flexibility in the delivery of treatment (e.g. through nurse-led clinics).
2.26 The Peer Review and NCEPOD reports have drawn attention to the facts that:

- Some chemotherapy services do not have agreed lists of protocols.
- Some services do not keep a record of patients treated off-protocol.
- Many services still use handwritten prescriptions and these may have crossings out and corrections, poor legibility and ambiguities.
- Some prescriptions are not recorded as having been checked by a pharmacist.

2.27 A particular issue has recently been raised in relation to the prescribing of oral anti-cancer medicines. The National Patient Safety Agency (NPSA) has received reports of three recent deaths and a further 400 patient safety incidents concerning oral anti-cancer medicines between November 2003 and July 2007. Half of these reports concern the wrong dosage, frequency, quantity or duration of oral anti-cancer medicines. It is also likely that there are substantial numbers of unreported incidents. The NPSA issued a Rapid Response Report on this in January 2008. This issue is of particular importance as the number of orally active agents available, particularly the targeted therapies, is likely to increase substantially in the near future.

2.28 The same quality and safety framework and process of care that is used for parenteral chemotherapy should equally apply to oral chemotherapy.

Proposed Actions

2.29 The following actions are required by all chemotherapy service providers:

- Protocols should be agreed across a Network and up to date lists of protocols should be available in all locations where chemotherapy is prescribed or delivered. Protocols should also be reviewed annually and be available to all relevant emergency departments and acute medical wards.

- A record should be kept of all instances where patients are treated off-protocol and regular audits conducted to examine the reasons why such off-protocol treatments were necessary.

- Handwritten prescriptions for parenteral chemotherapy should be replaced as soon as possible by pre-printed forms or, preferably, by fully validated electronic prescribing systems.

- Lists of clinical staff who are designated to prescribe, check, dispense and administer cancer chemotherapy should be
maintained and updated at least annually. These should make clear which staff can prescribe a first cycle of chemotherapy and who can prescribe subsequent cycles. Trusts should have a similar process in place that is used for intrathecal chemotherapy. Trusts should also have a list for those clinicians able to prescribe intravesical therapy. It is recommended that GPs do not prescribe any cancer chemotherapy nor should clinicians in hospital request GPs to prescribe cancer chemotherapy.

- Standardised processes should be established for recording performance status, investigation results and serious toxicities following a previous cycle of chemotherapy.

- All chemotherapy prescriptions should be checked by an oncology pharmacist, who has undergone specialist training, demonstrated their appropriate competence and is locally authorised/accredited for the task. This applies to oral as well as parenteral treatments. A list of designated pharmacists should be kept in each hospital where chemotherapy is prescribed/delivered.

- Trusts using electronic prescribing systems should ensure that these systems are fully validated and that as for paper based prescribing, a clinical pharmacy check is required to authorise the prescription. This needs to be auditable. In addition there should be clear medical, pharmacy, nursing checks of the e-prescribing template for each chemotherapy regimen.

- Pre-prescribing should be introduced for a large majority of elective chemotherapy treatments.

- Network-wide protocol lists should be developed with approved and agreed treatment regimens. The up to date protocol “book” (actual or web-based) should be available at all sites of chemotherapy prescribing, dispensing, delivery and where patients may be admitted with acute complications of treatment.

- Each chemotherapy service should require multidisciplinary training and agreed competencies for prescribing, dispensing, checking, patient assessment and administration of chemotherapy.

- Each chemotherapy service should ensure that exactly the same process of care is used for oral chemotherapy as is the case for parenteral chemotherapy.
Measures

2.30 The quality and safety of prescribing should be monitored through:

- Checks on the availability of up to date protocol lists.
- Audits of off-protocol usage of chemotherapy.
- Checks on the proportion of prescriptions which are handwritten, pre-printed or electronic.
- Checks on the availability of up to date lists of prescribers and pharmacists who are designated checkers.
- Audits of prescribing including the seniority of the prescriber, the legibility of the prescription and evidence that the prescription was checked by a pharmacist.
- Audits of documentation of performance status, investigation results and toxicities.
- Checks that oral chemotherapy is dealt with in exactly the same way as parenteral chemotherapy

Step 5: Delivery

Current service provision

2.31 The vast majority of all intravenous chemotherapy doses are delivered in dedicated day case units. A much smaller proportion of doses are delivered to inpatients (either because the patient is too unwell to be at home or because of the complexity of the regimen) or to patients at home (sometimes through independent home health care providers).

2.32 Whatever the setting, chemotherapy needs to be given by staff who are appropriately trained so that safety is maximised. In this country almost all chemotherapy injections are delivered by chemotherapy nurses. Direct problems related to the delivery of chemotherapy, such as extravasation, are rare.

2.33 Improving patients’ experiences when they have to receive chemotherapy should clearly be a high priority. Patients should wait no longer than one hour for the delivery of their chemotherapy. In addition to the personal support and care delivered by oncology nurses, it is important that chemotherapy should be delivered in a pleasant environment, as conveniently as possible for patients and without any avoidable delays.

2.34 While some chemotherapy facilities are well designed, many are overcrowded – largely because of the very rapid increases in
workloads over recent years. Some patients have to wait for unnecessarily long periods between arrival at a day case unit, having blood tests and starting treatment, largely because care processes have not been streamlined. Some patients are receiving chemotherapy as inpatients when this could be done on a day case basis and some are being treated at cancer centres when they could receive treatment closer to home. Nurse-led or pharmacist-led chemotherapy within agreed working protocols offers great opportunities for increasing capacity and flexibility to reduce waiting times and to move at least part of the care closer to the home of the patient.

2.35 Capacity issues in chemotherapy suites and pharmacy services were raised by some Networks when the National Cancer Director was reviewing the uptake of NICE drugs. A recommendation from his report was to develop a capacity toolkit to help support chemotherapy services to more effectively use their resources and to plan for the safe introduction of new drugs. C-PORT is a web based software tool that has been developed in response to this and can be used to simulate the impact of changing drugs and regimens and altering resources in chemotherapy departments. C-PORT allows planning for change to happen rapidly and to ensure the safe and most effective use of resources. Benefits that flow from this include:

- Reduction in patient delays.
- Improved patient experience on treatment days.
- Less congestion on the unit.
- Smoother workload for staff leading to improved working conditions.
- Effective planning for the introduction of new drugs.
- Tighter compliance with regimen protocols.
- Enhanced communication between professionals within the care team.
- Better management of resources.
- Establishment and sharing of good practice.

Proposed Actions

2.36 To improve the experience of patients receiving chemotherapy the following actions are required:

- All cancer Networks and the providers of chemotherapy services should undertake rigorous and ongoing capacity planning. The C-PORT chemotherapy planning tool can help in this regard.

- Inconvenience to patients attending day case units should be minimised by streamlining care. Capacity and demand at different times of day should be carefully examined to make
best use of available resources, including the use of extended opening hours.

- All Cancer Networks and the providers of chemotherapy services should urgently assess the potential for nurse-led or pharmacist-led chemotherapy and agree appropriate working protocols.

- Inpatient delivery of chemotherapy should be kept to a minimum. This can be achieved by maximising the use of oral medicines (e.g., capecitabine in place of fluorouracil) and by using central lines (e.g., PICC or Hickman) for delivering prolonged infusions. The use of day case units in delivering more prolonged infusions can also offer the opportunity of reducing inpatient treatments.

- Each Cancer Network should consider whether there are further opportunities to devolve chemotherapy delivery from cancer centres to cancer units (or closer to home) while still maintaining safety and quality.

- Patients’ views on their experience of receiving chemotherapy and the facilities in which it was delivered should be sought on a regular basis. This should include issues related to dignity and privacy.

Measures

2.37 The quality of chemotherapy service delivery should be monitored through:

- Checking the adequacy of capacity planning – across a Network as a whole and within individual day case units.

- Monitoring the overall proportion of cycles of treatment delivered on an inpatient versus day case basis.

- Monitoring the proportion of treatment cycles given at a cancer centre, cancer unit or closer to home.

- Monitoring the introduction and expansion of nurse-led and pharmacist-led chemotherapy.

- Undertaking patient surveys. These should be aligned with the national cancer patient experience surveys when available.

- Assessing the quality of the environment in which chemotherapy is delivered. Macmillan Cancer Support is currently developing an Environmental Quality Mark and associated assessment tools for piloting during 2009.
Step 6: Patient and carer information, support and advice

2.38 This “step” in the pathway does in fact cover the whole patient journey and is vital both for safety and for improving the quality of a patient’s experience. Chemotherapy is complex and will be unfamiliar to the vast majority of new cancer patients. Patients and their carers have a great deal of information to assimilate, often at a time of very considerable anxiety. They need extensive information, education, support and advice. They need to know what to expect at different times. Importantly they need to know what to do should side effects or complications occur.

2.39 The advice and support that is given to patients should take account of the needs of different groups within society. For example, advice on scalp cooling may need to be tailored for certain black and minority ethnic groups and appropriate wigs should be made available.

2.40 Most chemotherapy services provide considerable amounts of information to patients who are about to receive chemotherapy. Indeed, in the 2004-2007 peer review round, 93% of chemotherapy services were compliant with the measure relating to patients and carers being given information covering action to be taken regarding specified complications of chemotherapy. However only 64% of chemotherapy services were compliant with the measure related to recording holistic pre-treatment assessments and only 65% were compliant in relation to the provision of a 24-hour telephone advice.

2.41 However, despite the current levels of information giving, the NCEPOD report showed that:

- 17% of patients delayed seeking advice for more than 24 hours when they had a grade 3 or 4 event.
- Patients had sought advice from a variety of different sources prior to hospital admission (Helpline 19%; GP 30%; Emergency department 43%; Outpatient clinic 8%).
- Only 50% of NHS hospitals reported running nurse-led education clinics.
- Only 22% of NHS hospitals initiated follow up phone calls to patients (16% of cancer centres and 30% of district general hospitals).

2.42 Patients frequently report that when their pre-chemotherapy assessment by oncology nurses directly precedes the administration of their first chemotherapy, they do not fully appreciate the value and
information of the pre-chemotherapy visit as it is overshadowed by their anxiety relating to the imminent administration of treatment.

2.43 There is a potential to reduce admissions with proactive support of patients who are encouraged to take responsibility for monitoring their condition during treatment. In addition, nurses should make regular telephone calls to assess the patient’s condition with the aim of picking up on potential problems early.

Proposed Actions

2.44 To improve the quality of information, education, support and advice given to patients, all chemotherapy service providers should:

- Provide written information to patients about the chemotherapy they will be receiving, the likely side effects and whom they should contact if problems arise (including out of hours). Delivery of such information should be documented. Language and literature support should be provided for those for whom English is not their first language.

- Ensure that copies of this information are sent to the patient’s GP.

- Provide face to face education to patients and carers on a one to one basis.

- The individual pre-chemotherapy assessment (including holistic assessment) by oncology nurses/pharmacists at the start of a programme of chemotherapy should be separated from the imminent administration of chemotherapy. This should preferably be on different days, but could be at very different times on the same day so as to allow the patient and carers time to assimilate the information and come back with questions before treatment is administered.

- Provide each patient with a card containing key information about the treatment and contact details.

- Ensure that a 24-hour telephone advice service is available for patients receiving chemotherapy. This may be provided across a number of hospitals, but those providing the telephonic advice should have access at least to basic information about a patient’s condition and chemotherapy treatment and should actively manage entry into the pathway of care if an emergency assessment is required. Processes and algorithms should be put in place to track/follow up any actions that occur following the call.
• Strongly consider establishing proactive targeted support services to pick up problems before they become serious. This might involve routine telephoning of patients at defined intervals after delivery of chemotherapy.

• Trusts should ensure that chemotherapy patients have easy access to support and rehabilitation services eg social workers, advice on nutrition, wig suppliers and psychological support.

Measures

2.45 The quality of patient education and support should be monitored through:

• Checks on provision of written information materials.

• Checks on processes for delivering face-to-face education.

• Assessing availability and usage of 24-hour helplines.

• Audit of outcome of 24-hour helpline advice.

• Assessing availability of proactive support to patients following chemotherapy delivery.

Step 7: Urgent assessment and management of complications

Current service provision

2.46 Patients who develop significant complications following chemotherapy need expert assessment and potential hospitalisation. Early assessment and intervention will reduce the need for and duration of hospitalisation.

2.47 Common side effects and complications following chemotherapy include infections (related to low white cell counts), stomatitis (ulceration of the mouth and/or gut) and nausea, vomiting and diarrhoea. Patients can also develop haemorrhages, thrombosis, renal impairment, liver impairment, cardiac problems and multiorgan failure. As chemotherapy reduces the body’s ability to fight infections, patients may need to be treated urgently and with broad spectrum antibiotics, even if they appear only to be mildly unwell or febrile.

2.48 Patients should ideally be assessed in a dedicated oncology or haematology assessment unit, but this is not always possible, especially out of hours. It is important to recognise that patients may present as an emergency to a hospital other than that in which they
received chemotherapy. This occurred in 15% of cases reported by NCEPOD.

2.49 It is also important to recognise that much of the immediate and early care given to patients presenting with complications of chemotherapy is not delivered by oncology specialists. Front line emergency department staff and junior doctors on acute medical rotas in many cases are responsible for the initial assessment and treatment. Around half of all the patients in the NCEPOD study were admitted under the care of general medicine or other non-oncological services.

2.50 The NCEPOD report highlighted specific concerns in relation to the management of neutropenic sepsis. Some emergency departments did not have policies for managing this or had staff who were unaware of the policies. Junior doctors failed to make the diagnosis. There were delays in prescribing and administering antibiotics.

2.51 A number of Trusts including the Royal Berkshire have developed pathways for managing neutropenic sepsis and now have a robust audit programme to ensure compliance with the protocol.

Proposed Actions

2.52 To improve the care given to patients presenting with complications following chemotherapy, actions are required both by providers of chemotherapy services and by all hospitals with acute facilities to which patients may present.

2.53 Chemotherapy service providers should:

- Rehearse with patients what they should do in the event of developing a complication (see Step 6). This should include consideration of which hospital they would go to and how they would get there both during and out of working hours.

- Consider providing an urgent assessment unit/facility for patients who develop complications staffed by an appropriately trained clinical team.

- Develop close links with all neighbouring hospitals with A&E departments. This should include ensuring that policies and commissioned pathways are in place for the management of complications of cancer and its treatment and provision of training for relevant non-oncology staff. This should be coordinated at Network level.

2.54 All hospitals which might receive patients with acute complications of cancer and its treatment should:
• Develop an “acute oncology” service to respond effectively to these patients.

• Have clear and readily accessible policies and pathways on the management of complications, which should be agreed across a Cancer Network. These should include policies for the management of neutropenic sepsis.

• Have 24-hour access to telephone advice from a consultant oncologist.

• Have “treat and transfer” arrangements in place if they do not have appropriate expertise for inpatient management i.e. if they do not have an AOS.

• Ensure delivery of antibiotics occurs within one hour (i.e. “door to needle” times for intravenous antibiotics or “door to swallow” times for oral antibiotics) for patients presenting with neutropenic sepsis. Trusts are required to have a pathway of care for the rapid assessment and treatment of chemotherapy patients presenting with potential neutropenic sepsis.

• Ensure that the on-site “acute oncology” service is made aware of a patient’s admission by the admitting team the same day if in day time hours or the following day as part of the post-take ward round.

• Inform the team treating the patient’s cancer of a patient’s attendance at A&E and/or admission within 24 hours (even if the treating team is at another hospital). This will be the responsibility of the Acute Oncology Team (AOT).

2.55 The Department of Health has formally asked NICE to develop a National Clinical Guideline for the management and prevention of neutropenic sepsis.

Step 9: End of treatment record and subsequent care plan

Current service provision

2.56 At the end of a programme of chemotherapy, it is good practice to assess the outcome of treatment, summarise the treatment which has been delivered and to develop a care plan with a patient regarding the next steps in their care. A summary of the treatment and a care plan should be held in the patient’s records and copied both to the patient, the GP and other relevant healthcare professionals.

2.57 In the 2004-2007 peer review round only 63% of chemotherapy services had treatment records which fulfilled the minimum criteria after the final cycle of treatment was given.
Proposed Actions

2.58 All chemotherapy services should complete a summary record after the completion of chemotherapy and should copy this to the patient, GP and other relevant healthcare professionals.

2.59 A care plan should be drawn up for each patient after the completion of a programme of treatment. The format of these care plans is a matter for Cancer Networks to determine, but will be informed by work emanating from the National Cancer Survivorship Initiative.
Chapter 3: The Acute Oncology Service

3.1 Chemotherapy services both for solid cancers and for haematological malignancies have expanded markedly in the past 15-20 years, with current service delivery often reflecting the historical origins of the disciplines involved. Thus chemotherapy services for solid tumours generally started in major centres, where they were often co-located with radiotherapy services. More recently outreach services for solid tumours have been established in almost all District General Hospitals (DGHs), but sometimes without due consideration being given to the management of the whole chemotherapy care pathway.

3.2 In contrast many services for haematological malignancies grew out of haematology services based in DGHs, sometimes with inadequate links to major centres. Joint working between the haematology and oncology disciplines involved in the non-surgical management of cancer has been variable across the country.

3.3 Since 1995 the British Committee for Standards in Haematology (BCSH) has found it useful to define four levels of care required for the management of adult patients with haematological malignancies and marrow failure. The higher levels of care require increasing specialist expertise, staffing and resources.

3.4 The BCSH guidelines indicate to providers and purchasers the issues to be considered in placing contracts for the care of these patients. These guidelines were used for the development of Improving Outcomes in Haematological Cancers, published by the National Institute for Clinical Excellence (NICE) in 2003. Work is currently in progress within BCSH to update the definitions of the four levels of service.

3.5 The National Chemotherapy Advisory Group has carefully considered whether it would be useful for levels of chemotherapy service to be set out for solid tumour chemotherapy. It has come to the conclusion that delineating such levels of service delivery would be unhelpful once Acute Oncology Services (AOSs) are in place in those hospitals with Accident and Emergency (A&E) departments and acute admission wards.

3.6 There are a number of reasons for this:

- The need for outpatient/day case chemotherapy for solid cancers continues to rise as opposed to inpatient delivery of chemotherapy
- Much chemotherapy currently given as an inpatient could be switched to day case treatment if appropriate staffing and day case unit space were available
• Nearly all of the new chemotherapy treatments expected to come into clinical practice in the future will not involve inpatient delivery

• Nurse led chemotherapy allows patients whose care may be coordinated in a central MDT location to receive part of their chemotherapy in a more local setting eg shared care.

• Networks and PCTs are beginning to be more proactive in switching chemotherapy for certain treatments from the centre to DGHs

• The provision of an AOS in every hospital with an A&E department and acute admission wards means that the local hospital (rather than the traditional cancer centre) becomes the main focus of care for complications of treatment.

3.7 Across a Cancer Network, decisions need to be made on the configuration of services for patients undergoing chemotherapy. Consideration also needs to be given to the need for high quality care for cancer patients who may present through A&E departments anywhere within a Network (the AOS).

3.8 It will be for commissioners, working with providers, to determine the appropriate balance of services across a Network whether it be at the traditional Cancer Centre or at the DGH or at a Community Hospital or in the patients home. Nevertheless, NCAG believes that development of services at DGH level with its integrated AOS offers the best safeguard:

• for future rises in activity and complexity of systemic therapy, at least for the common three cancers, and also provides significant opportunities for shared care of chemotherapy with central services for patients with the less common malignancies.

• for the current and future management of toxicity of chemotherapy administered at centres, DGHs, Community Hospitals, home etc.

• for reducing inpatient stay of cancer patients, particularly in acute medical and surgical beds.

• for integration of oncology and haematology and leadership of chemotherapy in the level of service where most patients will receive their treatment.

3.9 A likely model for the provision of an AOS in any hospital with an A&E department and acute admission wards would be for the oncology team to be structured such that:
• A minimum of two oncologists are responsible for providing acute oncology input.

• The oncologists provide a five day service for acute oncology, working opposite each other, between them contributing one programmed activity (PA) of acute oncology per day (i.e. five PAs in total between the acute oncologists)

• In the great majority of hospitals with AOSs, the acute oncologists will each deliver site specialised services in the same unit for at least two of the three common cancers (breast, lung, colorectal). It is recognised that a few hospitals with A&E departments and acute admission wards will not have chemotherapy clinics on site (e.g. large city hospitals with chemotherapy clinics on a “cold” site away from the “hot” site incorporating the A&E department/acute admissions ward e.g. where DGHs are close to each other where chemotherapy clinics are in one but not the other), but such hospitals still need an AOS.

• Two specialist oncology nurses to provide rapid input into the care of patients suffering complications of chemotherapy, those with complications related to the disease itself and those admitted as emergencies with previously undiagnosed cancers. These nurses will also work opposite each other between them contributing 1.0 wte, but have other cancer related activities in the hospital (e.g. chemotherapy, haematology, palliative care, specialist tumour activities).

• There is an Acute Oncology Team (AOT) office and part time secretary (probably also shared with other cancer related activity) to take referrals and provide a physical focus for all clinical enquiries on cancer patients.

• Oncologists will not usually have their own beds, (as palliative care physicians do not either), but will be available in the hospital on a Monday to Friday basis. They will participate in an on-call arrangement with oncology colleagues outside of these daytime weekday hours.

• The extended acute oncology management team is defined as the acute oncologists, the acute oncology nurses, the lead haematologist, the lead haematology nurse, the lead A&E physician, the lead general physician, the hospital cancer manager or hospital lead nurse and the lead palliative care representative. For day to day patient activity, the core AOT should comprise the acute oncologist and acute oncology nurses with close liaison with the palliative care team.
• An information technology system which automatically flags up to the AOT when known cancer patients are seen in A & E or when admitted via the acute services.

• The oncologists and specialist oncology nurses will be fully integrated within the Trust pathways and protocols, clinical meetings, management meetings, research groups, clinical governance and audit and chemotherapy morbidity/mortality meetings.

• The AOT will be seen as a service which is integrated into the hospital's portfolio of cancer services working across A&E, the acute wards, palliative care and specialist oncology clinics. In addition the AOT will need to be linked to other chemotherapy services particularly in respect of sharing information with colleagues of patients treated elsewhere.

• Different AOT models will suit different services/Trusts but the above key components will need to be met.

3.10 An ideal arrangement would be that an AOS incorporating two oncologists would be provided by one medical oncologist and one clinical oncologist, both bringing complementary expertise to help patients in a timely fashion.

3.11 Some traditional cancer centres have evolved on sites that do not incorporate acute medical and surgical services. For these institutions there must be defined pathways of care for patients to access and receive emergency assessment and treatment on another site at any time and without delay.

3.12 The above proposals will be directly relevant to and underpin safe chemotherapy services for young people treated in adult services, but not the care of children/teenagers who are treated in children’s services.

3.13 The development of paediatric shared care is being covered separately by the Advisory Group on Children and Young People’s Cancers.

3.14 The AOS requires investment in terms of oncology consultant time, oncology nurse posts and both administrative and management support. The Department of Health has undertaken an impact assessment on the consequences of establishing an AOT and has observed that there is reduced inpatient stay in patients suffering complications of chemotherapy if there is inpatient review available by consultant oncologists during the working week. It has thus concluded that an AOT will lead to savings achieved by reducing length of inpatient stay within the current funding envelope.
3.15 This Department of Health impact assessment has not factored in the large number of inpatient days and hospital resources saved by an AOT’s impact on the management of patients admitted with a new cancer diagnosis (as set out above).

Proposed Actions

3.16 **Commissioners and providers should work together to develop AOTs and services in all hospitals with A&E departments and these should be in place by 2011 at the latest.**

### Key features of an Acute Oncology Service

An Acute Oncology Service brings together the skills and expertise of staff working in Accident and Emergency (A&E) departments, general (acute) medicine, haematology, clinical/medical oncology, nursing and pharmacy. The acute oncologists and nurses provide the cohesion between these staff groups such that the following key features can be readily identified:

- **A&E:** Protocols for the management of oncological emergencies and training for Accident and Emergency staff.

- **General (acute) medicine:** Training for physicians contributing to acute on-take rotas in the management of acutely unwell cancer patients.

- **Access to information on individual cancer patients:** Arrangements must be in place to provide on-take physicians with immediate access to up-to-date basic information on the condition and treatment of all patients undergoing chemotherapy across a Cancer Network. This may be achieved by IT systems, hand-held records or other means.

- **Early review by an oncologist and oncology nurse specialist.** All patients admitted as emergencies with cancer or suspected cancer should be reviewed within 24 hours. Ideally this service would be available seven days per week, but at a minimum it should be available five days per week.

- **24/7 access to telephone advice from an oncologist.**

- **Fast track clinic access from A&E:** A&E staff should be able to book patients with suspected cancer into fast track assessment clinics. These fast track services may be provided by an “acute oncologist” or through holding designated slots in other rapid access clinics. It is anticipated that this will reduce the need for emergency admissions.
Chapter 4: Infrastructure for chemotherapy services

4.1 Delivery of high quality chemotherapy services is critically dependent on having an effective infrastructure, including:

- Leadership.
- Clinical governance, safety and audit processes.
- Workforce and training.
- Data and information technology.
- Effective communication systems and processes.

Leadership

4.2 Leadership is required at Cancer Network and at individual hospital and locality levels in relation to both:

- Elective chemotherapy service delivery.
- Acute Oncology Services (AOSs).

4.3 Leadership roles for elective chemotherapy services should encompass:

- Capacity planning – especially in relation to the introduction of new treatments and the rapid growth of chemotherapy services.
- Effective clinical governance – including ensuring that policies and protocols related to each step in the care pathway are in place and are audited. There must be explicit links to the provider trust's governance processes.
- Workforce planning - ensuring the chemotherapy workforce is of an appropriate size and is adequately trained. Work will be undertaken with the professional colleges to determine appropriate safe working limits around patient numbers. This will be aligned to work around levels of competences.
- Ensuring services are in place for patient information, education, support and advice.
- Ensuring collection of appropriate data/information.
- Ensuring appropriate facilities and IT support are in place.
• Financial management.

4.4 Leadership teams will be needed both at Network and local levels to undertake these roles. Leadership team members will include at least one oncologist and haematologist (where both solid and non-solid chemotherapy is given), pharmacist, nurse and service manager. Dedicated time will be needed for clinicians to take on leadership roles.

4.5 The leadership team for acute oncology overlaps with that for elective oncology, but is considerably broader involving senior representatives from Accident and Emergency (A&E) and general medicine and surgery (and where appropriate care of the elderly) as well.

4.6 The leadership roles for acute oncology should encompass:

- ensuring that emergency departments, acute medicine, surgery and oncology services work together effectively to provide high quality care both for previously undiagnosed patients with cancer and those presenting with acute complications of cancer or its treatment.

- ensuring that policies are in place

- ensuring that appropriate training is available for non-oncology staff.

4.7 It is important to recognise that all hospitals with Accident and Emergency (A&E) departments will require an AOS, even if no chemotherapy is delivered on site. It should be made clear that establishing an AOS is expected to require recruitment of some additional staff: oncologists and oncology nurse specialists. The appointment of additional oncologists should be coordinated across the Network. Some existing oncologists and oncology nurse specialists will contribute to the AOS, but each Acute Oncology Team (AOT) will need a minimum of 0.5 whole time equivalent (wte) on-site commitment to acute oncology from two oncologists. This service would be undertaken alongside site-specific oncology activity. The nurse specialists involved in the AOS will also have other cancer orientated responsibilities. In addition, AOSs will represent the formalisation of working arrangements between oncology and other acute services. It is anticipated that the costs of recruitment of extra staff could be offset by reductions in inappropriate admissions and in lengths of stay, as well as reduced investigations and procedures performed.

Proposed Actions

4.8 All NHS Trusts providing elective chemotherapy services and/or A&E departments should ensure that they have appropriate leadership teams in place for elective and/or AOSs. The head of the service(s) within a Trust could be from any of the professional
groups, (ie a consultant oncologist/haematologist, a consultant nurse or a consultant pharmacist).

4.9 All Cancer Networks will wish to ensure that they have appropriate leadership within each of their Trusts to support and drive this work agenda.

4.10 All Trusts/Networks need to plan for their clinical lead(s) to have at least one formal Programmed Activity (PA) (session) to undertake the role of elective chemotherapy lead and another PA to be the acute oncology lead. The post holder should be considered as an integral part of the Trusts management structures.

Clinical governance, safety and audit processes

4.11 Both the peer review and the NCEPOD reports have highlighted deficiencies in clinical governance related to chemotherapy services. Compliance with several important peer review measures is well below that which should be expected and the NCEPOD report shows gaps at each step in the care pathway.

4.12 There is a wide agenda for improving and assuring patient safety across the NHS. The High Quality Care for All: NHS Next Stage Review Final Report proposed that a policy on Never Events should be introduced in the NHS in England from April 2009. It is expected (pending legislation later this year) that Never Events will be published in Quality Accounts.

4.13 The National Patient Safety Agency (NPSA) has recently published its Never Events Framework 2009/10. Included in the core list of Never Events that focuses on acute care is ‘Wrong route administration of chemotherapy’. This highlights the current guidance available to providers on administering intrathecal chemotherapy. The NHS in England: Operating Framework for 2009/10 states that PCTs will monitor the occurrence of Never Events within the services they commission and publicly report them on an annual basis.

4.14 Key risks were identified in the NCEPOD report. This NCAG report provides a framework for how PCTs should work with their providers to develop an infrastructure for reviewing incidents. NCAG recommends that this includes all chemotherapy administration irrespective of route of administration. (See earlier comment in paragraph 2.28).

4.15 A number of chemotherapy departments are considering drawing up proposals to work towards ISO 9001 for chemotherapy. This would complement the work undertaken by radiotherapy departments in the 1990s. NCAG supports this development as a way of ensuring high quality services. This is particularly important when patients receive care in different settings.
4.16 It is recommended that incidents/errors are reviewed regularly by the Trust Chemotherapy Lead Team, with shared learning being reported to the Trust’s Clinical Governance Committee. Reports of these errors should be appropriately discussed by the Network chemotherapy group. This should cover both elective chemotherapy services and the AOS once this is established.

4.17 It is recommended that all deaths within 30 days of chemotherapy in which death is caused or hastened by chemotherapy are routinely reported to the coroner as unnatural deaths. The Coroners and Justice Bill currently before Parliament will place a statutory duty on doctors to report deaths to the coroner in cases or circumstances prescribed in secondary legislation by the Lord Chancellor (in consultation with the Secretary of State for Health and the new Chief Coroner). The Department of Health will work with the Ministry of Justice to develop the relevant secondary legislation and associated guidance for doctors, with the aim of ensuring that deaths within 30 days of chemotherapy in which death is caused or hastened by chemotherapy are routinely reported to the coroner. The Ministry of Justice will consult publicly on all secondary legislation before the Coroners and Justice Bill is enacted.

Proposed Actions

4.18 All chemotherapy service providers should urgently ensure that:

- Specific safety measures highlighted by the NPSA regarding oral chemotherapy and vinca alkaloids are in place.

- Processes are in place to review aggregated trend reports or incidents of a certain grade and that these are discussed at Network level. These should include elective chemotherapy and acute oncology services.

- Tasks requiring particular training and expertise are only carried out by designated staff.

- Policies and protocols related to each step in the chemotherapy care pathway are developed, implemented and commissioned.

- Care given at each step in the care pathway is audited.

- Patient experience is assessed and appropriate action is taken based on the findings.

- Convenience for patients is maximised through streamlining and remodelling of care processes.
• All deaths occurring within 30 days of the administration of chemotherapy in which death is caused or hastened by chemotherapy are reported to the relevant coroner’s office.

4.19 It would be good practice for every chemotherapy service to provide a report on quality to the relevant Trust Board and Network Board at least once a year. This report should be made public within the Provider Trust Annual Quality Report.

4.20 At a national level, the peer review programme provides a useful independent mechanism for assessing quality across the country. In light of the findings from the 2004-2007 peer review round and the NCEPOD report:

• All chemotherapy services should undertake a self assessment against the current measures to identify gaps in their performance. They should also take urgent steps to improve quality in line with the issues and actions outlined in this report.

• The national peer review team should revise the existing measures and develop new measures to take account of the recommendations in this report. Work on this is already underway.

• A further round of self assessment followed by peer review should commence in early 2010.

Workforce and training

4.21 The workforce for elective chemotherapy services comprises:

• Oncologists (clinical, medical and haematological).

• Chemotherapy nurses.

• Pharmacists and pharmacy technicians.

• Service managers.

• Research staff

• Administrative staff.

• Psychological and support staff.
4.22 The medical workforce in oncology has expanded considerably since 2000 and is set to expand further by 2012. However it is important to note that this growth has certainly not kept up with the expansion of activity described in Chapter 1. The oncology community now needs to look at aspects of training in relation to acute care, and how it links with colleagues in other disciplines to provide appropriate training for all those involved in such pathways of care.

Consultant Workforce in Oncology

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<td>75%</td>
<td>915</td>
<td>19%</td>
</tr>
<tr>
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<td>527</td>
<td>684</td>
<td>30%</td>
<td>802</td>
<td>17%</td>
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*Source: 2000 and 2008 data from IC NHS Annual Census and 2012 from WRT

4.23 There is currently no routine system for collecting data on changes in the chemotherapy nursing workforce. However, a survey of the chemotherapy nursing workforce supporting outpatient and day case administration was undertaken in September 2006. This showed a total of over 1100 full time equivalent nursing staff, with the majority of staff being at career framework levels 5 and 6, see table below.

Source: Survey of the Chemotherapy Nursing Workforce September 2006
4.24 Collecting accurate data on oncology pharmacy is difficult, not least because oncology-related duties account for only 50% or less of the role of the majority of the workforce. It is therefore reasonable to assume that the workforce situation for oncology pharmacy mirrors that for hospital pharmacy as a whole. In 2007 the vacancy rate for all grades of pharmacists was 12%, with vacancy rates of 17% for those in band 6 and 18% for those in band 7. For technicians the vacancy rate was 8.6%. In all grades the vacancy rates were higher in 2007 than 2006. Increasing vacancy rates are inevitably a cause for concern, especially in the context of a rapidly escalating workload.

4.25 In response to the changing needs of chemotherapy services a range of new roles have started to emerge. These include:

- Consultant chemotherapy nurses – who can undertake nurse prescribing of chemotherapy (following an initial plan agreed by a consultant), assess patients with toxicities and complications, lead independent clinics and undertake research.

- Consultant pharmacists – who can advise Trusts, PCTs and clinical colleagues on cancer medicines, clinical evidence, health economics etc. and who can provide both professional and chemotherapy service leadership and undertake clinical roles.

- Advanced practitioner pharmacists – who can take a major role in checking prescriptions and can also be independent prescribers.

- Assistant practitioners (foundation degree level).

Proposed Actions

4.26 Given the rapid growth in chemotherapy services it is particularly important to ensure there is an adequate workforce both in terms of size and expertise. It is therefore recommended that:

- The National Cancer Action Team (NCAT) should work with Cancer Networks to develop a benchmarking tool for the chemotherapy workforce.

- The NCAT will work closely with Skills for Health and Royal Colleges/Professional Bodies to update the competences developed in 2005 related to chemotherapy.

- Royal Colleges/Professional Bodies, working with Skills for Health, should be asked to develop competences in relation to acute oncology.

- Training programmes for junior doctors working in A&E and in acute medicine should then take account of the competences
developed. This should also be taken forward across other professional groups including nursing and pharmacy staff.

- The e-learning programme for oncology should take account of competences related to acute oncology.
- A national process of accreditation of training programmes in chemotherapy and acute oncology should be developed.

Data and information technology

4.27 Information on chemotherapy activity and outcomes is needed both by commissioners and providers for planning and monitoring of local services. Although local service providers collect considerable amounts of information about their services, this has not been done in a uniform way. This impedes the collection and analysis of aggregated data at a national level. Data collection and analysis are further hampered by the patchy use of electronic prescribing of chemotherapy.

4.28 At a minimum all commissioners of chemotherapy services are likely to want to know:

- How many (and what proportion of) patients with different cancers are accessing chemotherapy.
- How chemotherapy utilisation locally compares with that in other parts of the country.
- The indications in which chemotherapy is being used (eg curative, adjuvant or life-prolonging/palliative).
- How many cycles of treatment patients receive and how closely this corresponds with that expected from clinical trial findings.
- The outcomes (eg how many patients died within a specified time of receiving treatment).

4.29 To answer these questions it will be necessary to record the following details for each patient/treatment:

- Patient identifiers (eg NHS Number, gender, date of birth, postcode).
- Tumour type.
- Stage of tumour according to an internationally recognised staging system.
- Performance status and significant co-morbidities.
• Indication (curative, palliative, adjuvant and neoadjuvant).
• Treatment regimen.
• Line of treatment (e.g. second line or third line for palliative treatment).
• Number of cycles planned.
• Number of cycles delivered.
• Start date.
• Date of death (available by linkage to cancer registries and thereby to the office for National Statistics).

4.30 Work to define a core dataset for chemotherapy is currently being led by the National Cancer Intelligence Network (NCIN) in association with the NCAT and members of the NCAG. Once the dataset has been approved collection and reporting of data would become mandatory.

4.31 Oncologists on call also need to be able to access information relating to a patient’s recent chemotherapy, the indications for treatment and the line of therapy in order to be able to offer acute medical/surgical colleagues the necessary oncological background to important decisions as to further management (e.g. whether referral for intensive care is appropriate or not).

4.32 Since patients are often admitted to hospitals which were not involved in their chemotherapy, Cancer Networks and Trusts must develop information systems and on call arrangements which allow the clinical details of the chemotherapy to be accessed by the on call oncologists.

**Proposed Actions**

4.33 **Commissioners and providers of chemotherapy services should urgently work together to ensure local data is collected in line with the parameters set out above. Commissioners will want to agree with providers a migration path to collecting the full dataset in paragraph 4.29 as well as an integrated chemotherapy data collection system (e-prescribing) across the Network.**

4.34 **Commissioners and providers should review current prescribing processes. They should strongly consider implementing electronic prescribing of chemotherapy if it is not already in place.**

**Effective communication systems and processes**
4.35 Some patients who have received chemotherapy will inevitably require emergency care for the management of complications. This care may well be needed outside normal working hours and at a location distant from that where the chemotherapy was delivered. To provide appropriate emergency care the receiving staff need to have access to information about the patient’s condition. They also need to inform the AOT about a patient’s admission which will also in turn need to inform the team responsible for the delivery of chemotherapy in a timely way.

4.36 It is therefore essential that effective communication systems and processes are put in place both within Acute Trusts and across Cancer Networks. There is currently no single preferred model for doing this, but consideration should be given to:

- Patient held chemotherapy records.
- IT systems which automatically alert relevant staff when a patient is logged onto a hospital patient administration system (eg Recurring Admission Patient Alert (RAPA) system) developed by Sherwood Forest Hospitals Trust).

Proposed Actions

4.37 Commissioners and providers of chemotherapy services should urgently work together to ensure that effective communication systems and processes are in place to inform emergency staff about a patient’s treatment and condition and to alert all relevant teams that a patient has been admitted.
Chapter 5: Commissioning chemotherapy services

5.1 In line with World Class Commissioning, commissioners of chemotherapy services will want to be assured that:

- Patients who might benefit from chemotherapy are able to access quality services.
- Treatments which are delivered are appropriate to a patient’s condition.
- Services are delivered safely.
- Services are convenient for patients.
- Patient experience is good.
- Services represent good value for money.

5.2 Commissioning organisations will want to undertake a baseline assessment of current chemotherapy services across the Cancer Network. This would include an analysis of what and how much chemotherapy is being provided where, as well as the governance arrangements and agreements about the safe supervision of the service that are in place between providers. As explained in chapter 4, the information on which commissioners can base their assessments of these dimensions of quality is patchy. However:

- Hospital Episode Statistics (HES) can provide comparative information on day case attendances for clinical oncology, medical oncology and haematology. This is likely to be a reasonably accurate proxy for day case chemotherapy.
- HES can also provide information on emergency admissions and bed use.
- Contracting currencies have in the past varied across the country but commissioners should ensure that all providers are coding regimens and activity in accordance with HRG 4, as specified in the national acute contract. This will provide a baseline of activity.
- C-PORT provides a good platform for providers to assess activity and the infrastructure for delivery, enabling commissioners to review consistency in service provision across a Network.
- The results of peer review of local services can be benchmarked against those reported in the national overview of peer review (2008). Commissioners can ask for peer review assessments to be presented in provider quality accounts.
5.3 As chemotherapy services are necessarily organised at a Network level with some aspects being delivered more centrally and others closer to home, it is also logical for Primary Care Trusts (PCTs) to work together across a Network to commission these services, through a lead PCT arrangement. PCTs should, for example, commission against a Network-wide chemotherapy protocol book which sets out agreed and standard regimens of treatment with indications for treatment and other such core information. It is well recognised that chemotherapy is a complex and specialised area of healthcare, as well as an area of high spend. PCTs will therefore want to draw on the expertise that cancer Network teams can provide, particularly the Network lead pharmacist and Network lead nurse.

5.4 Whatever the configuration of elective chemotherapy services, commissioners and the Network team will need to ensure that appropriate arrangements are in place for acute oncology in all hospitals with Accident and Emergency (A&E) services. In those chemotherapy services which deliver treatment on a site without the provision of acute admissions arrangements for patients to be treated and transferred should be put in place.

5.5 Commissioners will wish to achieve an appropriate balance between centralisation and localisation. It should be recognised that financial flows can mitigate against centres devolving care to cancer units. It should also be recognised that the consultant staff in clinical and medical oncology are largely based in cancer centres and provide outreach services to other hospitals. This is less the case with haematology. Commissioners will need to be assured that there are formal provider to provider agreements in place across the Network about the supervision and support that each provider in the Network is expected to give patients, wherever they are treated.

5.6 Different models of contracting for chemotherapy services operate in different parts of the country. In many places, PCTs contract directly with individual hospitals, but this arrangement does not help support integrated chemotherapy service provision across providers and may actively work to fragment patient care. Many of the problems identified by NCEPOD relate to breakdown in communications across providers, with patients’ records not being available when they need emergency treatment at different hospitals in the Network (see paragraph 2.47). PCTs in the Cancer Networks will need to consider how they can collectively commission an integrated network of chemotherapy/Acute Oncology Service (AOS) provision, supported by integrated chemotherapy (e-prescribing) information systems. One solution is to commission through a ‘lead provider’ and this model has been adopted in some Networks, with service level agreements ensuring that appropriate work is devolved to hospitals closer to a patient’s home. Another model might be to contract with a formalised consortium/network of providers. This may include NHS, independent
or third sector providers. Again commissioners will want to specify what services are provided where; to which patients in the Network; and assure themselves that the provider consortium has sound governance arrangements in place to ensure patients get the right care, from the right person in the right place and in the right way from all its constituent organisations.

5.7 Commissioners will want to ensure that the recommendations set out in the report are implemented. A standard service specification template for adult systemic cancer therapy services incorporating these actions and measures is being developed by the National Cancer Action Team (NCAT) to help commissioners formalise their requirements with providers.

5.8 It is well recognised that the number of new drugs licensed for use in different cancers is likely to grow considerably over the next decade. Commissioners working with service providers, will need to look ahead each year to plan which drugs will be introduced and where they should be provided. The Cancer Commissioning Toolkit (CCT) has a 'horizon scanning module' which identifies where drugs are in the pipeline. This is updated regularly by the Network Pharmacist Group. Good practice guidance for PCTs on making decisions about the introduction of new drugs/new indications for drug use is available at in the recent Richards Review and the Cancer Reform Strategy (CRS). PCTs within each Cancer Network should formalise and publish their approach to decision making around new drugs.

5.9 The CCT also provides an activity planning module to help commissioners assess the overall chemotherapy activity required each year. C-PORT enables providers to model the impact of new demand on their services and help them plan for their safe, but cost effective introduction.

5.10 Commissioners should ensure that all providers use C-PORT or a similar capacity and demand modelling tool, in view of the year on year changes in activity and the recognition in this NCAG report that service infrastructure has not adequately responded in increases in demand.

5.11 HRG v4 for chemotherapy provision has been structured to take account of both the costs of the drug regimen and the cost of the complexity of delivery of that regimen. The aim is to ensure that a safe infrastructure for delivery is resourced. Commissioners should work with their chemotherapy service providers to prepare for the introduction of HRG v4 in 2012/13. To meet this timetable providers should already be costing and coding activity in line with HRG v4. If data collection for HRG v4 is not happening, commissioners should ask providers to put systems in place with immediate effect. However, the commissioning dataset to support HRG v4 is not sufficient to establish whether a service is safe. Commissioners will want to agree with providers a migration path to collecting the full
dataset described in paragraph 4.29 as well as an integrated chemotherapy data collection system (e-prescribing) across the Network to support patient management. They will also want to see from provider’s trend reports on incidents and an annual quality report.

5.12 Commissioners should pay particular attention to non-elective inpatient care for cancer patients including those with complications following chemotherapy. Detailed studies undertaken in a small number of cancer centres and District General Hospitals (DGHs) during the development of the Cancer Reform Strategy (CRS) showed that many acute admissions could have been prevented and lengths of stay could have been shortened had appropriate arrangements been in place. Commissioners should work with providers to establish new models of care outlined in this report (acute oncology teams (AOTs), community support, proactive management of patients) and set thresholds in contracts to reduce emergency admissions over time.

5.13 The Cancer Commissioning Guidance (CCG) will be updated to reflect the key recommendations in this report.

Proposed Actions

5.14 PCTs in the Cancer Network, supported by their Cancer Network teams, will want to undertake a baseline assessment of chemotherapy provision across the Network, review its appropriateness and develop a strategic framework for chemotherapy delivery, setting out what chemotherapy should be given where in line with the recommendations of this report.

5.15 PCTs across the Cancer Network will want to assure themselves that they have sufficient expert advice to guide their commissioning in this high cost, complex area. Investment in expertise will lead to savings from the rationalisation of chemotherapy provision and reduced complications from chemotherapy treatment.

5.16 PCTs should develop collaborative procurement agreements that are sensitive to local needs and consider agreeing a lead PCT for commissioning services on behalf of PCTs across the Network. (The service specification should reflect the key recommendations and standards set out in the document.)

5.17 PCTs will need to agree the most appropriate model of contract for promoting an integrated network of chemotherapy service provision, and governance that ensures continuity of clinical care across provider boundaries. Contracting with a lead provider or a formalised consortium of providers is strongly recommended in view of the movement of both patients and core clinical staff between organisations.
5.18 PCTs should assure themselves that providers have agreed clear responsibilities regarding AOSs and clinical leadership of chemotherapy services; as well as how information on patient treatment will be accessible across the network of service provision. These arrangements should be in place by 2011.

5.19 PCTs in the Cancer Network should agree a Network wide chemotherapy protocol book (actual or web-based) and specify its use with providers. PCTs should formalise and publish their collective arrangements for making decisions about the introduction of new drugs/new drug indications in line with best practice advice.

5.20 An annual assessment of the impact of the introduction of new drugs should be made with providers, using supportive tools such as the ‘Horizon Scanning Module’ on the Cancer Commissioning Toolkit. Commissioners should assure themselves that providers are planning appropriate capacity through the use of C-PORT or an equivalent capacity planning tool. The quality of the environment for giving chemotherapy should also be assessed.

5.21 PCTs should review the level of emergency admissions for cancer patients, including those with complications following chemotherapy. Commissioners supported by their Networks will want to work with providers to ensure new models of care are put in place to address these (acute oncology teams (AOTs), community support, proactive management of patients, patient education). Once new models of care are in place it will be helpful if thresholds to reduce non elective admissions are explicitly agreed in contracts with providers.

5.22 In addition, PCTs will want to monitor the overall proportion of cycles of treatment delivered on an inpatient or day case basis; and the proportion of treatment cycles given at a cancer centre, cancer unit or community/home settings.

5.23 Commissioners should specify the need for information systems to be put in place, both to support the management of patient care (such as e-prescribing) as well as to record activity and costs across the Network of service provision. Commissioners should ensure coding and costing to support HRG 4 is in place in all providers of chemotherapy services with immediate effect. Commissioners should work with providers to prepare for the implementation of tariff in 2012/13. This will require a year of shadow running against their current contracting methodology, followed by a year of using local costs applied to the national HRG framework, before full tariff is implemented.
5.24 Commissioners will want to agree a migration path with providers to collect the full chemotherapy dataset when it is published. They will also want to specify a requirement for reports on incident trends and an annual quality report to be made available for Network wide review.

**Measures**

5.25 Measures relating to Commissioning should include:

- A Network wide baseline assessment of chemotherapy provision and has been undertaken and an explicit strategic framework for delivering chemotherapy is in place.

- Network wide PCT collaborative decision making arrangements in place for:
  - The introduction of new drugs/new drug indications.
  - An annual assessment of the impact of the introduction of new drugs with providers.
  - A Network wide chemotherapy protocol book to be used by providers.

- A formalised service specification for a network of chemotherapy provision.

- Provider to provider documentation setting out mutual responsibilities/service governance arrangements.

- Agreed thresholds for reducing emergency admissions in contracts with providers.

- Routine monitoring of inpatient vs day case chemotherapy, proportion of and which, regimens are being delivered at agreed chemotherapy sites, patient experience surveys.

- Aggregated trend reports on incidents of a certain grade reviewed at Network level. Annual quality report available.

- Agreed systems between commissioners and providers for collecting activity and costs in preparation for the introduction of HRG 4 in 2012/13.

- Agreed implementation timescales for collecting full chemotherapy dataset.
Appendix 1: National Chemotherapy Advisory Group

Professor Mike Richards  National Cancer Director - Co-chair
Professor Peter Clark  Medical oncologist - Co-chair
Dr Jane Barrett  Clinical oncologist
Liz Bishop  Nurse consultant
Hazel Brock  Patient representative
Ann Fox  Network Nurse Director
Dr Jane Hanson  Observer for Welsh Assembly Government
Prof Roger James  Clinical oncologist
Dr Jonathan Joffe  Medical oncologist
Dr Alison Jones  Medical oncologist
Mary Maclean  Observer for NHS Scotland
Elspeth McDonald  Network Director
Dr Don Milligan  Haemato-oncologist
Donna Mills  Patient representative
Professor Adrian Newland  President of Royal College Pathologists – Haemato-oncologist
Tim Root  Pharmacist
Dr David Smith  Medical oncologist
Andrew Stanley  Pharmacist
Prof Will Steward  Medical oncologist
Deborah Tomalin  Network Director
Dr Colin Trask  Clinical oncologist
Dr Charles Wilson  Clinical oncologist

**DH/CAT**

Glenis Freeman  Cancer Policy Team
Teresa Moss  National Cancer Action Team
Marie Palmer  NHS Improvement – Cancer
Tracy Parker  Cancer Policy Team
Jane Whittome  National Cancer Action Team
Justine Windsor  Cancer Policy Team
Appendix 2: Growth in chemotherapy utilisation: Data from four cancer centres

This series of charts below demonstrating trends in chemotherapy is extracted from a comprehensive range of analyses provided by the Clinical Information Analysis programme, based at the Oxford Cancer Intelligence Unit. These analyses cover the population of Thames Valley Cancer Network and Northamptonshire, which contain a mix of urban and rural communities. Chemotherapy provided in the private sector is not included.

The information is provided by the trusts in the form of whole programmes of solid tumour chemotherapy with details of regimen or drugs administered. The data are converted to a consistent format using standard rules developed by the clinical and analytical team managing the programme. Completeness and accuracy are maintained by a programme of validation and feedback to the clinical services involved.

Drug regimens are grouped using a hierarchy of complexity or special interest to highlight changes in practice. Regimens which are comprised of sequential elements are counted as a single programme.

Geographical mapping of treatment activity, over several years, confirms that the population covered corresponds closely to the expected geographical area of Thames Valley and Northamptonshire, which is approximately three million. Estimated outflow of patients to other centres at the geographical margins is compensated by known inflow from surrounding areas.
Lung cancer chemotherapy trends
Population approx. 3m – four cancer centres

Many instances of good practice were identified, for instance the carrying of patient chemotherapy cards, excellent extravasation policies, good Network wide approach to capacity and demand for new drugs and localities being asked to review their services at the point that the scoping phase is announced by the National Institute for Health and Clinical Excellence (NICE) (for technology appraisals).

Some key concerns emerged through the reviews of chemotherapy services both at an individual service and Network level, for example leadership of services, equitable access to chemotherapy drugs, arrangements for emergency admissions and the standards of some facilities to maintain safety and dignity for patients. Oncology pharmacy services, though generally of a good standard, had poor availability of computer generated cytotoxic prescribing.

Reviews raised some concerns with regard to the degree of robustness of leadership of chemotherapy services and this may have contributed to some of the challenges of governance and clinical risk identified in a number of the chemotherapy services reviewed. For example the requirement to have an agreed single named Head of Service for each clinical chemotherapy service in the Network had an overall national compliance of 76%, with compliance for an agreed named single Network Lead Pharmacist and an agreed named single Network Lead Chemotherapy Nurse both standing at 64%.

There were some issues which recurred through the Network reviews with regard to chemotherapy, in particular inequity of access to chemotherapy drugs within a Network, the challenges of providing 24-hour advice, management of patients presenting with complications of chemotherapy including neutropenic sepsis, and a number of instances where facilities were not considered by reviewers to be fit for purpose, often due to capacity problems and overcrowding. In a few Networks there were also governance issues relating to the quality of outreach chemotherapy services.

Whilst overall national compliance for clinical chemotherapy services and oncology pharmacy was 77% and 82% respectively, there were a number of concerns for the services. Forty eight issues of immediate risk were raised nationally. These related to inadequate temporary storage of chemotherapy agents; facilities which compromised safety and dignity; arrangements for emergency admissions and poor document control.

No measures received 100% compliance nationally, and two measures had 40% or under overall national compliance; implementation of one service improvement action point to address waiting times (Clinical Chemotherapy Services) and computer generated cytotoxic prescribing (Oncology Pharmacy).
| 3C-101 - Agreed Head of Service responsibilities | 91% |
| 3C-102 - Named single lead chemotherapy nurse | 88% |
| 3C-103 - Agreed list of responsibilities for the role of lead chemotherapy nurse | 88% |
| 3C-104 - Agreed policy for administration of inpatient chemotherapy | 85% |
| 3C-105 - Agreed policy for administration of outpatient chemotherapy | 83% |
| 3C-106 - Availability of specified regimens/protocols/emergency equipment | 71% |
| 3C-107 - Area for the temporary storage of chemotherapy agents | 84% |
| 3C-108 - CCS chemotherapy group Membership list | 85% |
| 3C-109 - CCS chemotherapy group agreed terms of reference | 82% |
| 3C-110 - Network CCS group list of agreed acceptable regimens | 46% |
| 3C-111 - CCS group representative on the drug and therapeutics committee(s) | 85% |
| 3C-113 - Network agreed policy for preventing regular use of regimens not on the accepted list | 53% |
| 3C-114 - Network CCS record of instances of use of a regimen not on agreed list | 52% |
| 3C-115 - Network agreed chemotherapy guidelines/protocols covering generic and specific parameters to be fulfilled prior to starting chemotherapy, before a whole course and before individual cycles | 63% |
| 3C-116 - Cytotoxic guidelines/protocols | 88% |
| 3C-117 - Guidelines/protocols for care of venous access devices | 88% |
| 3C-118 - Guidelines/protocols for the use of mechanical drug delivery devices | 71% |
| 3C-119 - Guidelines/protocols for the use of devices to prevent alopecia | 84% |
| 3C-120 - Guidelines/protocols for the recognition and treatment of neutropenic sepsis | 82% |
| 3C-121 - Guidelines/protocols for the use of haemopoietic growth factors and patient support using blood and blood products | 73% |
| 3C-122 - Guidelines/protocols for the prevention and treatment of cytotoxic-induced emesis | 87% |
| 3C-123 - Guidelines/protocols for the recognition and treatment of cytotoxic extravasation | 85% |
| 3C-124 - Guidelines/protocols for the recognition and treatment of allergic reactions including anaphylaxis | 82% |
| 3C-125 - Guidelines/protocols for the prevention and treatment of stomatitis, other mucositis and diarrhoea | 75% |
| 3C-126 - Guidelines/protocols for the treatment and/or prevention of regimen-specific complications | 72% |
| 3C-127 - Guidelines/protocols common throughout an individual hospital as specified | 82% |
| 3C-128 - Network agreed common guidelines/protocols as specified | 54% |
| 3C-129 - Guidelines/protocols specify which refer to solid tumour oncology and which refer only to haematology-oncology and which are common to both | 73% |
| 3C-130 | Guidelines/protocols for primary care practitioners, for the management of patients undergoing chemotherapy | 78% |
| 3C-131 | Guidelines/protocols for primary care practitioners, covering regimen-specific complications | 63% |
| 3C-132 | Patients and carer information covering actions to take, regarding specified complications of chemotherapy | 93% |
| 3C-133 | Patients and carer information covering information specific to regimens on the agreed list | 91% |
| 3C-134 | The Consent form to acknowledge receipt of generic written information | 88% |
| 3C-135 | Policy for holistic pre-treatment patient/carer assessment | 73% |
| 3C-136 | Record of holistic assessment | 64% |
| 3C-137 | Treatment records for each patient fulfilling the minimum criteria prior to the start of a course of chemotherapy | 67% |
| 3C-138 | Treatment records for each patient fulfilling the minimum criteria, prior to each cycle | 73% |
| 3C-139 | Treatment records for each patient fulfilling the minimum criteria, after the final cycle is given in a course | 63% |
| 3C-140 | Agreed patient identification verification procedure | 79% |
| 3C-141 | Agreed arrangement to limit the number of chemotherapy patients being treated when the workload is considered unsafe | 65% |
| 3C-142 | Agreed policy for the administration of chemotherapy in exceptional circumstances | 72% |
| 3C-143 | Network/trust agreed minimum service specification for 24hr telephone advice | 65% |
| 3C-144 | Named chemotherapy nurse responsible for chemotherapy administration training | 73% |
| 3C-145 | Agreed list of responsibilities and minimum time allowed for nurse trainer | 71% |
| 3C-146 | Agreed administration/authorisation policy | 83% |
| 3C-147 | List of staff authorised to administer chemotherapy unsupervised | 82% |
| 3C-148 | Network agreed staff training programme | 56% |
| 3C-149 | List of specified medical staff authorised to administer chemotherapy | 85% |
| 3C-150 | Agreed and distributed prescribing policy first cycle of chemotherapy should be prescribed by a solid tumour oncologist or haemato-oncologist (as applicable) at consultant/specialist staff grade/SpR level | 81% |
| 3C-151 | Annual competency assessment for administration of chemotherapy | 72% |
| 3C-152 | CCS agreed team member responsible for integration of service improvement | 92% |
| 3C-153 | Patient cancer journey process mapping and action plan | 64% |
| 3C-154 | Network service improvement lead capacity/demand study | 49% |
| 3C-155 | One resulting service improvement action point with supporting data | 39% |
## ONCOLOGY PHARMACY (3C-2)

| 3C-201 - Agreed list of responsibilities for the role of lead chemotherapy pharmacist | 84% |
| 3C-202 - Agreed named pharmacist(s) for the service | 91% |
| 3C-203 - Agreed specified duties and list of responsibilities | 91% |
| 3C-204 - Agreed single designated pharmacist responsible for the aseptic chemotherapy preparation facilities | 87% |
| 3C-205 - Agreed designated pharmacist responsible for clinical trials and/or other clinical research involving the drug treatment of malignant diseases | 83% |
| 3C-206 - Pharmacy department organisational chart | 87% |
| 3C-207 - External pharmacy aseptic preparation audit results | 86% |
| 3C-208 - External pharmacy aseptic preparation audit action plan | 81% |
| 3C-209 - Cytotoxic chemotherapy prescriptions checked and authorised by a pharmacist | 93% |
| 3C-210 - Computer-generated cytotoxic chemotherapy prescribing | 40% |
| 3C-211 - COSHH service review | 60% |

*Source: Manual of Cancer Services 2004*
Appendix 4: For better or worse? Key findings from the NCEPOD report on patients who died within 30 days of receiving systemic anticancer therapy (November 2008).

1 Methods

- NCEPOD covers England, Wales, Northern Ireland, Isle of Man, Guernsey and Jersey including independent hospitals.
- 47,050 Systemic Anti-Cancer Treatments (SACT) were reported to NCEPOD during the study period (June and July 2006).
- 1044 (~2%) of these cases were confirmed to have died within 30 days of their last SACT.
- 659 (63%) questionnaires were returned.
- 546 (52%) case notes were returned.
- The response to this enquiry was poor in comparison with other NCEPOD audits.

2 Patients

- The study population was considered by the advisors to be similar to the total population receiving SACT in terms of age, tumour site and co-morbidities but differed with respect to performance status, stage of disease, medical complications of malignancy and previous treatments.
- 73% had solid tumours; 27% haematological malignancies.
- Most patients had advanced disease (77% distant metastases; 15% locally advanced).
- Median age 65 years.
- 37% had co-morbidities.
- 50% had received at least one previous course of SACT.
- 86% were treated with palliative intent.
- ECOG performance status:
  - 0 or 1 38%
  - 2 41%
  - 3 or 4 21%
- Location at time of last cycle of chemotherapy:
o 35% inpatient
o 57% outpatient
o 8% home (all taking oral treatments)

3 Overall standard of care

- 35% received care judged as good.
- 49% had room for improvement.
  - 38% in clinical care.
  - 6% in organisational care.
  - 5% in both.
- 8% received less than satisfactory care.
- 8% had insufficient data.
- In 27% of cases (115/429) chemotherapy was judged to have caused or hastened death.

4 Initiation of chemotherapy course

- SACT was initiated by a consultant in 92% of cases (593/647).
- Consent forms were only available for review in 310/546 (57%) of cases.
- The grade of the doctor taking consent was unclear in 14% of cases.
- Common toxicities of chemotherapy were not recorded on 25% of consent forms (76/310).
- The most serious toxicities were not recorded on 48% of consent forms (150/310).
- Advisors believed that the decision to treat was inappropriate in 19% of cases (96/513), with poor performance status and lack of evidence that further treatment would be of benefit being most frequently cited.
- Issues raised by NCEPOD:
  - Decision to treat should be made by a consultant.
  - Consent forms should be standardised.
  - Name and grade of doctor taking consent should be stated.
  - Caution is needed before giving chemotherapy to patients with poor performance status. Discussion at a multidisciplinary team meeting is advised.
Full information about benefits and toxicities should be given to patients.

5 Prescribing of last cycle

- The last cycle of chemotherapy was prescribed by a consultant in 57% and by a junior doctor in 43% (269/630) of cases.

- Review on the day of chemotherapy was undertaken by:
  - Consultants: 41% of cases.
  - Junior doctors: 34% of cases.
  - Chemotherapy nurses: 24% of cases.

- Essential pre-treatment investigations were not done in 14% of cases (64/461).

- Results of pre-treatment investigations were unacceptable for full doses of SACT in 18% of cases (79/434).

- There was failure to act on unacceptable pre-treatment investigations in 65 of 77 cases.

- The interval from the most recent blood count was more than 72 hours in 32% of cases (120/379).

- Recording of toxicity was poor – toxicity from previous cycle of treatment was not recorded in 36% of cases (97/267).

- Method of prescribing:

<table>
<thead>
<tr>
<th></th>
<th>Parenteral SACT</th>
<th>Oral SACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand written</td>
<td>23%</td>
<td>44%</td>
</tr>
<tr>
<td>Pre-printed</td>
<td>48%</td>
<td>38%</td>
</tr>
<tr>
<td>Electronic</td>
<td>29%</td>
<td>18%</td>
</tr>
</tbody>
</table>

- Handwritten prescriptions for parenteral chemotherapy were of poor quality with additions and crossings out.

- Only 53% of prescriptions available for review (196/369) had been signed to indicate they had been checked by a pharmacist.

6 Admissions following chemotherapy

- 85% (557/659) were admitted to hospital during the last 30 days of life.
• 15% (84/557) of admissions were to a hospital other than the one where SACT has been administered.

• 51% of admissions were under the care of oncologists or haematologists.

• 49% of admissions were under the care of other specialties (predominantly general medicine).

• Patients (n=287) sought advice before admission in the following ways:
  o Helpline 19%
  o GP 30%
  o Emergency department 43%
  o Outpatient clinic 8%

• 17% of patients (43/250) with a grade 3 or 4 event delayed seeking advice for at least 24 hours.

• 83 admissions related to neutropenic sepsis. Problems relating to these cases included:
  o Delays in admission.
  o Lack of policies in emergency departments.
  o Lack of awareness of policies.
  o Failure of junior doctors to make the diagnosis.
  o Lack of assessment by senior medical staff.
  o Delays in prescribing antibiotics.
  o Delays in administering antibiotics.

7 End of Life Care

• There was very little documentation of patients’ wishes in the event of a sudden deterioration.

• Do Not Attempt Resuscitation (DNAR) orders were completed in 304 of 546 cases.

• Only 29% (157/546) received advice from palliative care.

• Only 57 patients were identified as having an end of life care pathway (e.g. Liverpool Care Pathway) in place at the time of death.

• The peak of deaths occurred at 11-15 days following the last cycle of chemotherapy. This was probably related to the development of neutropenic sepsis.

• In 27% (115/429) the advisors believed that SACT caused or hastened death.
• In around three quarters of cases death was due to progression of disease.

• Only 16% of cases (76/485) were discussed at a morbidity and mortality meeting.
Appendix 5: Bibliography


5 Improving access to medicines for NHS patients, Professor Mike Richards, Department of Health, November 2008.

6 For better, for worse? National Confidential Enquiry into Patient Outcome and Death, November 2008.


### Appendix 6: Glossary

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AOT</td>
<td>Acute Oncology Team</td>
</tr>
<tr>
<td>BCSH</td>
<td>The British Committee for Standards in Haematology</td>
</tr>
<tr>
<td>C-PORT</td>
<td>Chemotherapy Planning Oncology Resource Tool</td>
</tr>
<tr>
<td>DGH</td>
<td>District General Hospital</td>
</tr>
<tr>
<td>DH</td>
<td>Department of Health</td>
</tr>
<tr>
<td>IOG</td>
<td>Improving Outcomes Guidance</td>
</tr>
<tr>
<td>MDT</td>
<td>Multi-Disciplinary Team</td>
</tr>
<tr>
<td>NCAG</td>
<td>National Chemotherapy Advisory Group</td>
</tr>
<tr>
<td>NCAT</td>
<td>National Cancer Action Team</td>
</tr>
<tr>
<td>NCEPOD</td>
<td>National Confidential Enquiry into Patient Outcome and Death</td>
</tr>
<tr>
<td>NCIN</td>
<td>National Cancer Intelligence Network</td>
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<tr>
<td>NICE</td>
<td>National Institute for Health and Clinical Excellence</td>
</tr>
<tr>
<td>NPSA</td>
<td>National Patient Safety Agency</td>
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<tr>
<td>PCT</td>
<td>Primary Care Trust</td>
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<tr>
<td>RAPA</td>
<td>Recurring Admission Patient Alert System</td>
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<tr>
<td>SACT</td>
<td>Systemic Anti-Cancer Therapy</td>
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