NICE National Institute for Health and Care Excellence

NICE guideline

Neutropenic sepsis: prevention and management in people with cancer

Clinical guideline

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Contents

Introduction

Neutropenic sepsis is a potentially fatal complication of anticancer treatment (particularly chemotherapy). Mortality rates ranging between 2% and 21% have been reported in adults. Aggressive use of inpatient intravenous antibiotic therapy has reduced morbidity and mortality rates and intensive care management is now needed in fewer than 5% of cases in England.

Systemic therapies to treat cancer can suppress the ability of bone marrow to respond to infection. This is particularly the case with systemic chemotherapy, although radiotherapy can also cause such suppression.

Chemotherapy is most commonly given in a day-case or outpatient setting so most episodes of obvious sepsis, and fever in a person with potential sepsis, present in the community. People receiving chemotherapy and their carers need to be told about the risk of neutropenic sepsis and the warning signs and symptoms. Neutropenic sepsis is a medical emergency that requires immediate hospital investigation and treatment.

A report by the National Confidential Enquiry into Patient Outcome and Death (Systemic anti-cancer therapy: for better for worse? [2008]) and a follow-up report by the National Chemotherapy Advisory Group (Chemotherapy services in England: ensuring quality and safety [2010]) highlighted problems in the management of neutropenic sepsis in adults receiving chemotherapy. These problems included inadequate management of neutropenic fever leading to avoidable deaths, and a need for systems for urgent assessment and organisation-level policies for dealing with neutropenic fever. The reports also noted variation in the provision of information on the treatment of side effects and on access to 24-hour telephone advice.

In addition, there is national variation in the use of:

- primary and secondary prophylaxis
- risk stratification in episodes of febrile neutropenia
- oral or intravenous antibiotics
- growth factors
- inpatient or outpatient management policies.

This guideline aims to improve outcomes by providing evidence-based recommendations on the prevention, identification and management of this life-threatening complication of cancer treatment.

The guideline will assume that prescribers will use a drug's summary of product characteristics to inform decisions made with individual patients.

This guideline recommends some drugs for indications for which they do not have a UK marketing authorisation at the date of publication, if there is good evidence to support that use. The prescriber should follow relevant professional guidance, taking full responsibility for the decision. The patient (or their parent or carer) should provide informed consent, which should be documented. See the General Medical Council's Good practice in prescribing medicines – guidance for doctors and the prescribing advice provided by the Joint Standing Committee on Medicines (a joint committee of the Royal College of Paediatrics and Child Health and the Neonatal and Paediatric Pharmacists Group) for further information. Where recommendations have been made for the use of drugs outside their licensed indications ('off-label use'), these drugs are marked with a footnote in the recommendations.

Patient-centred care

This guideline offers best practice advice on the care of children, young people and adults having anticancer treatment.

Treatment and care should take into account patients' needs and preferences. Patients should have the opportunity to make informed decisions about their care and treatment, in partnership with their healthcare professionals. If patients do not have the capacity to make decisions, healthcare professionals should follow the Department of Health's advice on consent and the code of practice that accompanies the Mental Capacity Act. In Wales, healthcare professionals should follow advice on consent from the Welsh Government.

If the patient is under 16, healthcare professionals should follow the guidelines in Seeking consent: working with children.

Good communication between healthcare professionals and patients is essential. It should be supported by evidence-based written information tailored to the person's needs. Treatment and care, and the information people are given about it, should be culturally appropriate. It should also be accessible to people with additional needs such as physical, sensory or learning disabilities, and to people who do not speak or read English.

If the patient agrees, families and carers should have the opportunity to be involved in decisions about treatment and care.

Families and carers should also be given the information and support they need.

Care of young people in transition between paediatric and adult services should be planned and managed according to the best practice guidance described in the Department of Health's Transition: getting it right for young people.

Adult and paediatric healthcare teams should work jointly to provide assessment and services to young people having anticancer treatment. Diagnosis and management should be reviewed throughout the transition process, and there should be clarity about who is the lead clinician to ensure continuity of care.

Terms used in this guideline

Anticancer treatment Treatment that is given with the intent to reduce the level of cancer cells in a patient. It includes, but is not limited to, chemotherapy and radiotherapy.

Empiric An action undertaken prior to determination of the underlying cause of a problem.

Empiric antibiotic An antibiotic given to a person before a specific microorganism or source of the potential infection is known. It is usually a broad-spectrum antibiotic and the treatment may change if the microorganism or source is confirmed.

G-CSF (granulocyte-colony stimulating factor) A type of protein that stimulates the bone marrow to make white blood cells (granulocytes).

Key priorities for implementation

The following recommendations have been identified as priorities for implementation.

Information, support and training

Information and support for patients and carers

- Provide patients having anticancer treatment and their carers with written and oral information, both before starting and throughout their anticancer treatment, on:
    - neutropenic sepsis
    - how and when to contact 24-hour specialist oncology advice
    - how and when to seek emergency care.

Reducing the risk of septic complications of anticancer treatment

- For adult patients (aged 18 years and older) with acute leukaemias, stem cell transplants or solid tumours in whom significant neutropenia (neutrophil count 0.5×10^9 per litre or lower) is an anticipated consequence of chemotherapy, offer prophylaxis with a fluoroquinolone during the expected period of neutropenia only.

Managing suspected neutropenic sepsis in secondary and tertiary care

Emergency treatment and assessment

- Treat suspected neutropenic sepsis as an acute medical emergency and offer empiric antibiotic therapy immediately.
- Include in the initial clinical assessment of patients with suspected neutropenic sepsis:
    - history and examination
    - full blood count, kidney and liver function tests (including albumin), C-reactive protein, lactate and blood culture.

Starting antibiotic therapy

All patients

- Offer beta lactam monotherapy with piperacillin with tazobactam[1] as initial empiric antibiotic therapy to patients with suspected neutropenic sepsis who need intravenous treatment unless there are patient-specific or local microbiological contraindications.
- Do not offer an aminoglycoside, either as monotherapy or in dual therapy, for the initial empiric treatment of suspected neutropenic sepsis unless there are patient-specific or local microbiological indications.

Confirming a diagnosis of neutropenic sepsis

- Diagnose neutropenic sepsis in patients having anticancer treatment whose neutrophil count is 0.5×10^9 per litre or lower and who have either:
  - a temperature higher than 38°C **or**
  - other signs or symptoms consistent with clinically significant sepsis.

Managing confirmed neutropenic sepsis

Assessing the patient's risk of septic complications

- A healthcare professional with competence in managing complications of anticancer treatment should assess the patient's risk of septic complications within 24 hours of presentation to secondary or tertiary care, basing the risk assessment on presentation features and using a validated risk scoring system[2].

Patients at low risk of septic complications

- Consider outpatient antibiotic therapy for patients with confirmed neutropenic sepsis and a low risk of developing septic complications, taking into account the patient's social and clinical circumstances and discussing with them the need to return to hospital promptly if a problem develops.

Patients at high risk of septic complications

- Offer discharge to patients having empiric antibiotic therapy for neutropenic sepsis only after:

- the patient's risk of developing septic complications has been reassessed as low by a healthcare professional with competence in managing complications of anticancer treatment using a validated risk scoring system[2] **and**
- taking into account the patient's social and clinical circumstances and discussing with them the need to return to hospital promptly if a problem develops.

[1] At the time of publication (September 2012) piperacillin with tazobactam did not have a UK marketing authorisation for use in children aged under 2 years. The prescriber should follow relevant professional guidance, taking full responsibility for the decision. The child's parent or carer should provide informed consent, which should be documented. See the General Medical Council's Good practice in prescribing medicines – guidance for doctors and the prescribing advice provided by the Joint Standing Committee on Medicines (a joint committee of the Royal College of Paediatrics and Child Health and the Neonatal and Paediatric Pharmacists Group) for further information.

[2] Examples of risk scoring systems include The Multinational Association for Supportive Care in Cancer risk index: a multinational scoring system for identifying low-risk febrile neutropenic cancer patients (Journal of Clinical Oncology 2000; 18: 3038–51]) and the modified Alexander rule for children (aged under 18) (European Journal of Cancer 2009; 45: 2843–9).

1 Guidance

The following guidance is based on the best available evidence. The full guideline gives details of the methods and the evidence used to develop the guidance.

The recommendations in this guideline were developed after discussion of the relevance of the evidence to children, young people and adults with cancer. The recommendations are intended for use in patients of any age. Where age-limited or disease-specific recommendations are made they are clearly indicated as such.

1.1 Information, support and training

1.1.1 Information and support for patients and carers

1.1.1.1 Provide patients having anticancer treatment and their carers with written and oral information, both before starting and throughout their anticancer treatment, on:

- neutropenic sepsis
- how and when to contact 24-hour specialist oncology advice
- how and when to seek emergency care.

1.1.2 Training for healthcare professionals

1.1.2.1 Healthcare professionals and staff who come into contact with patients having anticancer treatment should be provided with training on neutropenic sepsis. The training should be tailored according to the type of contact.

1.2 Reducing the risk of septic complications of anticancer treatment

1.2.1.1 For adult patients (aged 18 years and older) with acute leukaemias, stem cell transplants or solid tumours in whom significant neutropenia (neutrophil count 0.5×10^9 per litre or lower) is an anticipated consequence of chemotherapy, offer prophylaxis with a fluoroquinolone during the expected period of neutropenia only.

1.2.1.2 Rates of antibiotic resistance and infection patterns should be monitored in treatment facilities where patients are having fluoroquinolones for the prophylaxis of neutropenic sepsis[3].

1.2.1.3 Do not routinely offer G-CSF for the prevention of neutropenic sepsis in adults receiving chemotherapy unless they are receiving G-CSF as an integral part of the chemotherapy regimen or in order to maintain dose intensity.

1.3 When to refer patients in the community for suspected neutropenic sepsis

1.3.1.1 Suspect neutropenic sepsis in patients having anticancer treatment who become unwell.

1.3.1.2 Refer patients with suspected neutropenic sepsis immediately for assessment in secondary or tertiary care.

1.4 Managing suspected neutropenic sepsis in secondary and tertiary care

1.4.1 Emergency treatment and assessment

1.4.1.1 Treat suspected neutropenic sepsis as an acute medical emergency and offer empiric antibiotic therapy immediately.

1.4.1.2 Include in the initial clinical assessment of patients with suspected neutropenic sepsis:

- history and examination
- full blood count, kidney and liver function tests (including albumin), C-reactive protein, lactate and blood culture.

1.4.2 Further assessment

1.4.2.1 After completing the initial clinical assessment (see recommendation 1.4.1.2) try to identify the underlying cause of the sepsis by carrying out:

- additional peripheral blood culture in patients with a central venous access device if clinically feasible

- urinalysis in all children aged under 5 years.

1.4.2.2 Do not perform a chest X-ray unless clinically indicated.

1.4.3 Starting antibiotic therapy

All patients

1.4.3.1 Offer beta lactam monotherapy with piperacillin with tazobactam[4] as initial empiric antibiotic therapy to patients with suspected neutropenic sepsis who need intravenous treatment unless there are patient-specific or local microbiological contraindications.

1.4.3.2 Do not offer an aminoglycoside, either as monotherapy or in dual therapy, for the initial empiric treatment of suspected neutropenic sepsis unless there are patient-specific or local microbiological indications.

Empiric glycopeptide antibiotics in patients with central venous access devices

1.4.3.3 Do not offer empiric glycopeptide antibiotics to patients with suspected neutropenic sepsis who have central venous access devices unless there are patient-specific or local microbiological indications.

1.4.3.4 Do not remove central venous access devices as part of the initial empiric management of suspected neutropenic sepsis.

1.4.4 Confirming a diagnosis of neutropenic sepsis

1.4.4.1 Diagnose neutropenic sepsis in patients having anticancer treatment whose neutrophil count is 0.5×10^9 per litre or lower and who have either:

- a temperature higher than 38°C **or**
- other signs or symptoms consistent with clinically significant sepsis.

1.5 Managing confirmed neutropenic sepsis

1.5.1 Assessing the patient's risk of septic complications

1.5.1.1 A healthcare professional with competence in managing complications of anticancer treatment should assess the patient's risk of septic complications within 24 hours of presentation to secondary or tertiary care, basing the risk assessment on presentation features and using a validated risk scoring system[5].

1.5.2 Patients at low risk of septic complications

1.5.2.1 Consider outpatient antibiotic therapy for patients with confirmed neutropenic sepsis and a low risk of developing septic complications, taking into account the patient's social and clinical circumstances and discussing with them the need to return to hospital promptly if a problem develops.

1.5.3 Patients at high risk of septic complications

1.5.3.1 For patients with confirmed neutropenic sepsis and a high risk of developing septic complications, a healthcare professional with competence in managing complications of anticancer treatment should daily:

- review the patient's clinical status
- reassess the patient's risk of septic complications, using a validated risk scoring system[5].

1.5.3.2 Do not switch initial empiric antibiotics in patients with unresponsive fever unless there is clinical deterioration or a microbiological indication.

1.5.3.3 Switch from intravenous to oral antibiotic therapy after 48 hours of treatment in patients whose risk of developing septic complications has been reassessed as low by a healthcare professional with competence in managing complications of anticancer treatment using a validated risk scoring system[5].

1.5.3.4 Offer discharge to patients having empiric antibiotic therapy for neutropenic sepsis only after:

- the patient's risk of developing septic complications has been reassessed as low by a healthcare professional with competence in managing complications of anticancer treatment using a validated risk scoring system[5] **and**
- taking into account the patient's social and clinical circumstances and discussing with them the need to return to hospital promptly if a problem develops.

1.5.4 Duration of empiric antibiotic treatment

1.5.4.1 Continue inpatient empiric antibiotic therapy in all patients who have unresponsive fever unless an alternative cause of fever is likely.

1.5.4.2 Discontinue empiric antibiotic therapy in patients whose neutropenic sepsis has responded to treatment, irrespective of neutrophil count.

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[3] For more information see the Department of Health's Updated guidance on the diagnosis and reporting of Clostridium difficile and guidance from the Health Protection Agency and the Department of Health on Clostridium difficile infection: how to deal with the problem.

[4] At the time of publication (September 2012) piperacillin with tazobactam did not have a UK marketing authorisation for use in children aged under 2 years. The prescriber should follow relevant professional guidance, taking full responsibility for the decision. The child's parent or carer should provide informed consent, which should be documented. See the General Medical Council's Good practice in prescribing medicines – guidance for doctors and the prescribing advice provided by the Joint Standing Committee on Medicines (a joint committee of the Royal College of Paediatrics and Child Health and the Neonatal and Paediatric Pharmacists Group) for further information.

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[5] Examples of risk scoring systems include the Multinational Association for Supportive Care in Cancer risk index: a multinational scoring system for identifying low-risk febrile neutropenic cancer patients (Journal of Clinical Oncology 2000; 18: 3038–51) and the modified Alexander rule for children (aged under 18) (European Journal of Cancer 2009; 45: 2843–9).

2 Notes on the scope of the guidance

NICE guidelines are developed in accordance with a scope that defines what the guideline will and will not cover.

Groups that are covered

- Children, young people and adults with cancer (haematological and solid tumour malignancies) receiving anticancer treatment.
- No subgroups needing special consideration have been identified.

Groups that are not covered

- Children, young people and adults with neutropenia or neutropenic sepsis not caused by anticancer treatment.

How this guideline was developed

NICE commissioned the National Collaborating Centre for Cancer to develop this guideline. The Centre established a Guideline Development Group (see appendix A), which reviewed the evidence and developed the recommendations.

There is more information about how NICE clinical guidelines are developed on the NICE website. See also NICE's How NICE clinical guidelines are developed: an overview for stakeholders, the public and the NHS.

3 Implementation

NICE has developed tools to help organisations implement this guidance.

4 Research recommendations

The Guideline Development Group has made the following recommendations for research, based on its review of evidence, to improve NICE guidance and patient care in the future.

4.1 Service provision for neutropenic sepsis in patients with cancer

A prospective national cohort study should be carried out to assess the incidence of suspected and proven neutropenic sepsis in patients having anticancer treatment.

Why this is important

The incidence of suspected neutropenic sepsis in England and Wales is difficult to determine. A national cohort study of patients referred for suspected neutropenic sepsis, including diagnoses and clinical outcomes, should be undertaken to improve service planning and delivery. Such a study may also generate hypotheses concerning more and less efficient methods of delivering services for neutropenic sepsis, which could then be formally tested.

4.2 Patient support and information

A descriptive study involving patients who have had neutropenic sepsis and their carers should be undertaken to find out what types of support and information patients and carers were given, which of these they found helpful or unhelpful, and whether they think additional or different types of support or information are needed.

Why this is important

There is a lack of research on the experience of patients who have had neutropenic sepsis and their carers. Better knowledge of the support and information patients and carers are given, how helpful they find it and how they think it could be improved will allow the development of different approaches to providing information and support and test these in practice. This research could improve the experience of patients, and potentially their clinical outcomes. It may also highlight important inequities and suggest ways of addressing them.

4.3 Signs and symptoms that predict neutropenic sepsis in the community

A prospective study should be carried out to determine which signs and symptoms experienced by patients in the community predict neutropenic sepsis and the outcomes of these episodes.

Why this is important

The initial decision to refer to secondary or tertiary care for investigation for suspected neutropenic sepsis is an important step that has both risks and benefits. An overly inclusive approach will inconvenience many patients and carers, expose patients to unnecessary invasive testing and increase resource use by the health service. Referral criteria that are too narrow will delay the emergency treatment of infection and may lead to death, increased need for intensive or critical care facilities, and reduced overall quality of life for patients with cancer and their carers. The current research base in this area is weak and largely extrapolated from selected populations in hospitals. A clearer, quantitative understanding of how the features of neutropenic sepsis appear in patients may lead to more accurate referral criteria for suspected neutropenic sepsis.

4.4 Reducing the risk of complications of anticancer treatment in children and young people, and in adults diagnosed with lymphoma

Randomised studies should investigate primary prophylaxis of neutropenic sepsis in 2 populations: children and young people (aged under 18) having treatment for solid tumours or haematological malignancies, or stem cell transplantation; and adults (aged 18 and older) diagnosed with lymphoma. The studies should compare the effectiveness of fluoroquinolone antibiotics given alone, fluoroquinolone antibiotics given together with G-CSF preparations, and G-CSF preparations given alone. Outcome measures should include overall mortality, infectious episodes and adverse events. In addition, quality of life should be determined using quantitative and qualitative methods. The resulting data should be used to develop a cost-effectiveness analysis comparing these 3 forms of prophylaxis in children and young people having anticancer treatment, and in adults diagnosed with lymphoma.

Why this is important

Data from studies of adults with leukaemia, stem cell transplantation and many solid tumours suggest that prophylaxis with fluoroquinolone antibiotics reduces the risk of neutropenic sepsis. However, the benefit of fluoroquinolone antibiotics in adults diagnosed with lymphoma is unclear. Children and young people having anticancer treatment are a distinct population and differ from adults in a number of ways, including the types of cancer they have, the anticancer treatment they are given, their reactions to fluoroquinolones and subcutaneous injections, and the ease with which they can adhere to daily medication. The effects of these differences are not known, but it is known that death rates from neutropenic sepsis are higher in children and young people than in adults. Studies of primary prophylaxis of neutropenic sepsis in children and young adults, and in adults

with lymphoma, could be of great value in helping to reduce the risk of neutropenic sepsis in these 2 patient populations.

4.5 Switching from inpatient intravenous to outpatient oral antibiotic therapy in patients with neutropenic sepsis

A randomised controlled trial should be undertaken to evaluate the clinical and cost effectiveness of stopping intravenous antibiotic therapy and switching to oral therapy within the first 24 hours of treatment in patients with neutropenic sepsis who are having treatment with intravenous antibiotics. The outcomes to be measured are overtreatment, death, need for critical care, length of hospital stay, duration of fever and quality of life.

Why this is important

Moderately strong evidence was found to support the use of outpatient therapies for patients with neutropenic sepsis who are at low risk of severe infection. These studies switched from inpatient to outpatient treatment at a variety of time points. A meta-regression undertaken by the Guideline Development Group suggested that very early (before 24 hours) discharge is associated with a greater risk of readmission and need to change treatments, but the evidence was sparse. If a short period of hospital admission was found to be safe and effective for selected patients with neutropenic sepsis, it could provide considerable improvements in their quality of life and reduce the resource burden on hospitals.

5 Other versions of this guideline

5.1 Full guideline

The full guideline, Neutropenic sepsis: prevention and management of neutropenic sepsis in cancer patients, contains details of the methods and evidence used to develop the guideline. It is published by the National Collaborating Centre for Cancer.

5.2 NICE pathway

The recommendations from this guideline have been incorporated into a NICE pathway.

5.3 Information for the public

NICE has produced information for the public explaining this guideline.

We encourage NHS and voluntary sector organisations to use text from this information in their own materials.

6 Related NICE guidance

Published

- Patient experience in adult NHS services. NICE clinical guideline 138 (2012).
- Colorectal cancer. NICE clinical guideline 131 (2011).
- Ovarian cancer. NICE clinical guideline 122 (2011).
- Lung cancer. NICE clinical guideline 121 (2011).
- Metastatic malignant disease of unknown primary origin. NICE clinical guideline 104 (2010).
- Advanced breast cancer. NICE clinical guideline 81 (2009).
- Early and locally advanced breast cancer. NICE clinical guideline 80 (2009).
- Medicines adherence. NICE clinical guideline 76 (2009).
- Prostate cancer. NICE clinical guideline 58 (2008).
- Acutely ill patients in hospital. NICE clinical guideline 50 (2007).
- Improving outcomes for people with brain and other CNS tumours. NICE cancer service guidance (2006).
- Improving outcomes for people with sarcoma. NICE cancer service guidance (2006).
- Improving outcomes for people with skin tumours including melanoma. NICE cancer service guidance (2006).
- Improving outcomes in children and young people with cancer. NICE cancer service guidance (2005).
- Improving outcomes in colorectal cancers. NICE cancer service guidance (2004).
- Improving outcomes in head and neck cancers. NICE cancer service guidance (2004).
- Improving supportive and palliative care for adults with cancer. NICE cancer service guidance (2004).
- Improving outcomes in haematological cancers. NICE cancer service guidance (2003).

- Improving outcomes in breast cancer. NICE cancer service guidance (2002).
- Improving outcomes in urological cancers. NICE cancer service guidance (2002).
- Improving outcomes in upper gastro-intestinal cancers. Service guidance (2001).
- Improving outcomes in gynaecological cancers. Service guidance (1999).
- Improving outcomes in lung cancer. Service guidance (1998).

Under development

NICE is developing the following guidance (details available from the NICE website):

- Familial breast cancer. NICE clinical guideline. Publication expected April 2013.
- Prostate cancer. NICE clinical guideline. Publication expected November 2013.
- Referral for suspected cancer. NICE clinical guideline. Publication date to be confirmed.
- Bladder cancer. NICE clinical guideline. Publication expected September 2014.

7 Advice from the Health Protection Agency

The Health Protection Agency has provided the following advice about NICE's recommendation on reducing the risk of septic complications of anticancer treatment (see recommendation 1.2.1.1).

Fluoroquinolone prophylaxis is advocated as beneficial for some patients with neutropenia (see Antibiotic prophylaxis in neutropenic patients: new evidence, practical decisions). However, it raises 2 concerns:

- fluoroquinolone prophylaxis can contribute to selection of resistance, particularly in Enterobacteriaceae
- fluoroquinolones are associated with the selection of *Clostridium difficile*.

Attention should be paid to both risks.

Colonisation with resistant Enterobacteriaceae should be examined at induction of neutropenia and weekly thereafter until prophylaxis is stopped. The easiest method is to plate a rectal swab, or faeces, onto MacConkey agar, and to place a 1 mg (that is, standard) ciprofloxacin disc on the first series of streaks after the inoculum pool. After incubation the plate should be examined for bacterial colonies within the inhibition zone. If growth is found, the bacteria should be identified and their antibiograms determined, since many fluoroquinolone-resistant isolates are resistant to multiple other agents. The results should inform initial empiric therapy if the patient experiences a subsequent febrile episode. Time trends in resistance should be monitored, both in individual patients and within units.

Advice on the diagnosis of *Clostridium difficile*-related disease is provided in Updated guidance on the diagnosis and reporting of Clostridium difficile. This advice should be followed for patients with symptoms of diarrhoea.

Appendix A: The Guideline Development Group, National Collaborating Centre and NICE project team

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[10] From September 2010 – RIP December 2011

About this guideline

NICE clinical guidelines are recommendations about the treatment and care of people with specific diseases and conditions in the NHS in England and Wales.

The guideline was developed by the National Collaborating Centre for Cancer, which is based at the Velindre NHS Trust. The Collaborating Centre worked with a group of healthcare professionals (including consultants, GPs and nurses), patients and carers, and technical staff, who reviewed the evidence and drafted the recommendations. The recommendations were finalised after public consultation.

The methods and processes for developing NICE clinical guidelines are described in The guidelines manual.

The recommendations from this guideline have been incorporated into a NICE pathway. We have produced information for the public explaining this guideline. Tools to help you put the guideline into practice and information about the evidence it is based on are also available.

Changes after publication
July 2013: minor maintenance

Your responsibility
This guidance represents the view of NICE, which was arrived at after careful consideration of the evidence available. Healthcare professionals are expected to take it fully into account when exercising their clinical judgement. However, the guidance does not override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer, and informed by the summary of product characteristics of any drugs they are considering.

Implementation of this guidance is the responsibility of local commissioners and/or providers. Commissioners and providers are reminded that it is their responsibility to implement the guidance, in their local context, in light of their duties to avoid unlawful discrimination and to have regard to promoting equality of opportunity. Nothing in this guidance should be interpreted in a way that would be inconsistent with compliance with those duties.

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