SCOPE

1 Guideline title

Surgical site infection: prevention and treatment of surgical site infection

1.1 Short title

Surgical site infection

2 Background

a) The National Institute for Clinical Excellence ('NICE' or 'the Institute') has commissioned the National Collaborating Centre for Nursing and Supportive Care to develop a clinical guideline on the prevention and treatment of surgical site infection for use in the NHS in England and Wales. This follows referral of a guideline topic on the prevention, management and treatment of wounds by the Department of Health and Welsh Assembly Government (see Appendix A). This remit is being covered by a suite of clinical guidelines known as the 'Woundcare Suite', which includes this guideline on surgical site infection (please refer to NICE website www.nice.org.uk). This guideline will provide recommendations for good practice that are based on the best available evidence of clinical and cost effectiveness. Reference will be made to existing good quality guidelines of relevance.

b) The Institute’s clinical guidelines will support the implementation of National Service Frameworks (NSFs) in those aspects of care where a Framework has been published. The statements in each NSF reflect the evidence that was used at the time the Framework was prepared. The clinical guidelines and technology appraisals published by the
3 Clinical need for the guideline

a) Surgical site infection (SSI) is a postoperative complication occurring within 30 days following a surgical procedure and is an important cause of morbidity and mortality for patients undergoing surgery. The National Prevalence Survey of Infections in Hospitals (1996) conducted in 157 hospitals in England, Scotland, Wales and Ireland involving data from 37,111 patients reported an overall prevalence of hospital-acquired infection of 9.0%. Four major groups of infections were identified: urinary tract infections; lower respiratory tract infections; skin infections; and SSIs. The prevalence of SSI was 10.7%. Furthermore, Surveillance of surgical site infection in English hospitals reported an incidence of SSI of 4.2% from the 152 hospitals that participated in the surveillance between 1997 and 2001.

b) Patient-related conditions and operation characteristics may influence the risk of SSI development. The assessment and identification of the presence of these factors facilitates both surveillance and the implementation of targeted prevention measures. In addition, the incidence of infected surgical wounds may be influenced by factors such as preoperative care, the operating room environment, postoperative care, type of surgery, and care in the community. The classification of the surgical wound is determined by the degree of contamination at the time of surgery as follows (see Appendix B):

- clean wounds
- clean-contaminated wounds
- contaminated wounds
- dirty or infected wounds.

Classification of infection is determined by the depth of invasion of micro-organisms. Such classification is described as:
• superficial incisional – involving the skin and subcutaneous tissues
• deep incisional – involving the soft tissues (fascia and muscle)
• organ/space.

c) The Nosocomial Infection National Surveillance Scheme (NINSS), established in response to the need for a defined programme of surveillance of infection in English hospitals, uses a risk index (developed by NINSS, Centre for Disease Control, Atlanta USA) to stratify surgical wound infection rates by risk factors. Risk category is determined by allocating a point for the presence of each of the following risk factors:
• a contaminated or dirty wound class (see Appendix B)
• American Society of Anesthesiologists score of 3, 4 or 5 (see Appendix C)
• a procedure lasting longer than the expected duration of surgery for that particular operation.

4 The guideline

a) The guideline development process is described in detail in two publications which are available from the NICE website (see ‘Further information’). The Guideline Development Process – An overview for Stakeholders, the public and the NHS describes how organisations can become involved in the development of a guideline. The Guideline Development Methods – Information for National Collaborating Centres and Guideline Developers provides advice on the technical aspects of guideline development.

b) This document is the scope. It defines exactly what this guideline will (and will not) examine, and what the guideline developers will consider. The scope is based on the referral from the Department of Health and Welsh Assembly Government (see Appendix A).
c) The areas that will be addressed by the guideline are described in the following sections.

4.1 Population

4.1.1 Groups that will be covered
a) The guideline will consider all patients, including children, undergoing an incisional surgical procedure, including surgical implant.

4.1.2 Groups that will not be covered
a) People undergoing a surgical procedure that does not involve a visible surgical incision, and therefore does not result in the presence of a conventional surgical wound (for example, vaginal hysterectomy, TURP, and oral surgery). However, many general principles of management will be generalisable.

b) The guideline will not make recommendations for specific groups of patients at high risk of developing an SSI or for particular types of surgical intervention.

The following interventions will not be included:

- management of antibiotic resistant bacterium
- management of the operating theatre environment and environmental factors
- antibiotic prophylaxis in surgery (this will be included in the Scottish Intercollegiate Guidelines Network guideline update, expected to be published in 2007)

4.2 Healthcare setting

a) Patients undergoing surgical procedures in acute hospital trusts and primary healthcare settings.
b) Patients discharged to a home care setting (own home or extended care settings) with a recent surgical intervention and subsequent wound.

### 4.3 Clinical management

The recommendations in this guideline will be patient-focused and specific to the prevention and treatment of SSI. It is anticipated that general principles will apply to all patients and types of surgery. Existing risk indices and methods of assessment will be referred to within the guideline.

Recommendations will be made for the specific management of the patient’s surgical site pre-, intra- and postoperatively and for interventions or procedures which healthcare professionals perform during the surgical procedure to prevent infection.

a) Preoperative

*Patient specific*

- Hair removal.
- Bathing and washing.

b) Intraoperative

*Patient specific*

- Skin preparation solutions and technique.
- Normothermia and warming.
- Topical intra-wound solutions and antibiotics.
- Suturing materials and techniques.
- Wound closure techniques.
- Dressings.

*Surgical personnel*

- Theatre wear and masks.
- Drapes.
- Hand washing solutions and technique.
c) Postoperative prevention and treatment

**Patient specific**

- Use of drains.
- Dressings and cleansing.
- Debridement for wounds healing by secondary intention.
- Antibiotics.

d) Recommendations will address the information needs of patients and their carers.

e) Due to the number of settings covered and associated interventions/preventive actions, it is likely that referral will be made to existing guidelines and principles of prevention and management within the guidelines.

f) Debridement for infected surgical wounds¹.

### 4.4 Audit support within guideline

The guideline will incorporate review audit criteria and advice.

The audit will complement any existing and proposed work of relevance.

### 4.5 Status

#### 4.5.1 Scope

This is the final version of the scope.

#### 4.5.2 Guideline

¹ When this guideline is published the Institute’s guidance on the use of debriding agents (NICE Technology Appraisal No.24. London: National Institute for Clinical Excellence. Available from [www.nice.org.uk](http://www.nice.org.uk)) will be withdrawn.
The development of the guideline recommendations will begin in July 2004.

5 Further information

Information on the guideline development process is provided in:

- The Guideline Development Process – An Overview for Stakeholders, the Public and the NHS

These booklets are available as PDF files from the NICE website (www.nice.org.uk). Information on the progress of the guideline will also be available from the website.
Appendix A – Referral from the Department of Health and Welsh Assembly Government

The Department of Health and Welsh Assembly Government asked the Institute:

‘To prepare guidance for the NHS in England and Wales on the prevention, management and treatment of wounds. The guidance should include the prevention of skin breakdown, prevention of pressure sores, prevention of diabetic foot ulceration, prevention of recurrence of venous leg ulcers and prevention of breakdown of surgical wounds.’
Appendix B: Surgical wound classification

**Clean:** An uninfected operative wound in which no inflammation is encountered and in which the respiratory tract, alimentary, genital, or uninfected urinary tracts are not entered.

**Clean-contaminated:** Operative wounds in which the respiratory, alimentary, genital, or urinary tract is entered under controlled conditions and without unusual contamination.

**Contaminated:** Open, fresh, or accidental wounds; operations with major breaks in sterile technique or gross spillage from the gastrointestinal tract; and incisions in which acute, non-purulent inflammation is encountered.

**Dirty or infected:** Old traumatic wounds with retained devitalised tissue, and those that involve existing clinical infection.

(National Academy of Science 1964)
### Appendix C: American Society of Anesthesiologists (ASA) physical status classification

<table>
<thead>
<tr>
<th>Code</th>
<th>Patient’s preoperative physical status</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Normal, healthy patient.</td>
</tr>
<tr>
<td>2</td>
<td>Patient with mild systemic disease.</td>
</tr>
<tr>
<td>3</td>
<td>Patient with severe systemic disease that is not incapacitating.</td>
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<tr>
<td>4</td>
<td>Patient with an incapacitating systemic disease that is a constant threat to life.</td>
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<tr>
<td>5</td>
<td>Moribund patient who is not expected to survive 24 hours with or without operation.</td>
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