**NATIONAL INSTITUTE FOR HEALTH AND CLINICAL EXCELLENCE**

# SCOPE

## 1   Guideline title

Management of perioperative hypothermia

### 1.1   Short title

Perioperative hypothermia

## 2   Background

(a)   The National Institute for Health and Clinical Excellence ('NICE' or 'the Institute') has commissioned the National Collaborating Centre for Nursing and Supportive Care to develop a clinical guideline on the management of perioperative hypothermia for use in the NHS in England and Wales. This follows referral of the topic by the Department of Health. The guideline will provide recommendations for good practice that are based on the best available evidence of clinical and cost effectiveness.

(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 Institute after an NSF has been issued will have the effect of updating the Framework.

(c)   NICE clinical guidelines support the role of healthcare professionals in providing care in partnership with patients, taking account of their individual needs and preferences, and ensuring that patients (and their carers and families, where appropriate) can make informed decisions about their care and treatment.

# 3 Clinical need for the guideline

a) Inadvertent perioperative hypothermia is a recognised and common event that occurs during surgery. Hypothermia may be found at any stage of the perioperative pathway, from pre-induction to 24 hours postoperatively. It is not unusual for a patient's core temperature to drop to less than 35°C within the first 30–40 minutes of surgery. If hypothermia is not managed intraoperatively, up to 70% of patients may be hypothermic on admission to the recovery ward.

b) For the purpose of this guideline, the definition of hypothermia is a core temperature less than 36°C.

c) The reasons for hypothermia include:
- the loss, under anaesthesia, of the behavioural response to cold and the impairment of thermoregulatory heat-preserving mechanisms
- anaesthetic-induced peripheral vasodilation, with associated heat loss
- patients getting cold while waiting for surgery, and exposure of the body during surgery
- fluid deprivation before general anaesthesia, which varies from 2 to more than 12 hours, resulting in patients being dry and poorly perfused, so impairing heat distribution
- unwarmed intravenous solutions.

The degree of heat loss is also influenced by ambient temperature and airflow in the theatre, and skin preparation methods.

d) Patients at high risk of perioperative hypothermia are thought to include those having surgical procedures:
- that last longer than 30 minutes
- in which large surface areas of the body are exposed or large body cavities are opened (for example, peritoneal, abdominal, thoracic)

- in which large amounts of unwarmed irrigation or intravenous fluids are used.

  Other groups at risk within the scope of this guideline include elderly people, patients with low body–mass index and those with comorbidities.

e) Inadvertent perioperative hypothermia is distinguished from therapeutic hypothermia. This is the deliberate induction of hypothermia, to reduce the basal metabolic rate and the risk of tissue hypoxia and ischaemia.

f) Consequences of hypothermia can include:
   - increased perioperative blood loss
   - longer post-anaesthetic recovery
   - postoperative shivering and oxygen consumption
   - thermal discomfort
   - morbid cardiac events including ventricular tachycardia
   - altered drug metabolism
   - delayed wound healing
   - surgical wound infection
   - longer stay in hospital
   - death.

g) The main aim of this guideline is to identify optimal clinical and cost effective management of inadvertent perioperative hypothermia.

## 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' (2006 edition) describes how organisations can become involved in the development of a guideline. 'The guidelines manual' 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 (see appendix).

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) Adults (18 years and older) undergoing surgery under general and regional anaesthesia.

b) Adults undergoing emergency surgery for trauma.

c) Subgroups will be considered where appropriate, based on the duration and/or grade of surgery (see 'Preoperative tests: the use of routine preoperative tests for elective surgery' [*NICE clinical guideline no. 3*]).

### 4.1.2 Groups that will not be covered

a) Infants and children.

b) Obstetric patients undergoing caesarean section.

c) Patients undergoing operative procedures under local anaesthesia.

d) Patients who are treated with therapeutic hypothermia.

e) Patients with severe head injuries resulting in impaired temperature control.

## 4.2 Healthcare setting

a) The guideline will be relevant to secondary and tertiary care.

### 4.3 Clinical management

a) What are the mechanisms of heat loss pre-, intra- and postoperatively?

b) What risk factors contribute to perioperative hypothermia?

c) How should perioperative hypothermia be detected and what is the optimum frequency of recorded temperature measurement?

d) What environmental management approaches are clinically and cost effective in the prevention of perioperative hypothermia, pre-, intra- and up to 24 hours postoperatively?

e) Which warming devices used pre-, intra- and/or postoperatively are clinically and cost effective in the prevention and treatment of perioperative hypothermia?

f) Which pharmacological interventions are clinically and cost effective in the prevention and treatment of perioperative hypothermia? Note that guideline recommendations will normally fall within licensed indications; exceptionally, and only where clearly supported by evidence, use outside a licensed indication may be recommended. The guideline will assume that prescribers will use a drug's 'Summary of product characteristics' to inform their decisions for individual patients.

g) What other clinical management approaches are clinically and cost effective in the prevention and treatment of perioperative hypothermia, pre-, intra- and up to 24 hours postoperatively?

### 4.4 Clinical management that will not be covered

Postoperative care beyond the initial 24-hour period following surgery.

### 4.5 Status

#### 4.5.1 Scope

This is the consultation draft of the scope.

The guideline will, where relevant, cross refer to the following NICE guidance:

- Preoperative tests: the use of routine preoperative tests for elective surgery' (*NICE clinical guideline* no. 3)
- Surgical site infection: prevention and treatment of surgical site infection (*NICE clinical guideline*; expected date of publication September 2006).
- Laparoscopic surgery for inguinal hernia repair (*NICE technology appraisal* no. 83)

The development of the guideline recommendations will begin in July 2006.

# 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 (2006 edition)

- The guidelines manual (2006 edition)

These booklets are available as PDF files from the NICE website (www.nice.org.uk/guidelinesmanual). Information on the progress of the guideline will also be available from the website.

## Appendix – Referral from the Department of Health

The Department of Health asked the Institute to develop a guideline:

'on the management of perioperative hypothermia.'