National Institute for Health and Clinical Excellence

Perioperative Hypothermia Clinical Guideline - Draft consultation 25 Oct to 20 Dec 2007

Comments Table – Ordered by Guideline Section

Status	Organisation	Order no.	Version	Section	Comments	Responses
SH	Actamed Limited	1	Full and NICE	General	First, we fully support the intent of the guideline to better manage inadvertent perioperative hypothermia as it is a preventable complication of perioperative procedures. We also fully agree with and support many of the recommendations contained within the existing guideline draft.	Thank you for your comment.
SH	Actamed Limited	2	Full and NICE	General	One area that we believe would strengthen the guideline is the inclusion of recommendations for clinical pre-warming for the prevention of inadvertent perioperative hypothermia. While pre-warming may not fit neatly with current clinical practice, there is evidence to suggest that pre-warming can contribute significantly to normothermia maintenance and the prevention of redistribution temperature drop, a phenomenon to which nearly every anaesthetized patient is susceptible. Without pre-warming, the initial decrease in core temperature is predominantly adiabatic and post-induction cutaneous warming will be only marginally beneficial during the early intraoperative phase during which redistribution dominates. 1 There is no question that intraoperative warming can be effective at limiting hypothermia; however, the prevention of intraoperative hypothermia by pre-warming is more consistent with the basic clinical need articulated in the IPH guideline. Pre-warming the peripheral thermal compartment prior to redistribution and storing more thermal energy can prevent the initial rapid decrease in core temperature, and, in many cases, pre-warming alone produces a durable normothermia for the entire period of surgical anaesthesia. Certain studies that support pre-warming were	Thank you for your comment. We have reviewed the evidence for pre-warming and there is no evidence for prewarming normothermic patients and this has been covered in the research recommendations section (Section 4 in the NICE version). We recognise the evidence gap and have therefore prioritised it for research. Volunteer studies (Sessler 1989, Moayeri 1991) were excluded because patients are not undergoing surgery and were therefore an indirect population. We had indicated in the inclusion criteria that

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					excluded from evaluation because they used volunteers instead of actual patients. The volunteer studies that were excluded by the GDG provide good evidence for the basic physiological response to pre-warming, and there is no reason to suppose that the volunteers' responses should be qualitatively different from ASA 1-2 patients who make up the bulk of the evaluable studies. Moreover, many of these studies provide evidence that confirms redistribution as the initial cause of post-induction hypothermia and that augmented cutaneous heat loss does not accelerate its onset. Although volunteer studies may have less external validity than patient studies, they have better internal validity, and the baseline core temperatures between the treatment and control groups tend to be nearly equivalent, unlike some of the patient studies. Granted, such trials many not reflect the reality of everyday clinical practice, but the control of variables is precisely why such studies are important. They show that potential treatments can work if done correctly. I encourage you to reconsider at least some of the excluded studies, as well as the two others in the following list: Moayeri 1991, and Ikeda 2001.2, 3 Also, the paper by Kim and colleagues was not included in the set of evaluable studies, although it apparently meets the inclusion requirements.4 Pre-warming is the only therapy that has the potential to prevent post-induction hypothermia, which is the stated purpose of the IPH guideline; for this reason, it deserves reconsideration. Bibliography 1 Sessler DI, Ponte J. Hypothermia during epidural anesthesia results mostly from redistribution of heat within the body, not heat loss to the environment. Anesthesiology. Vol 71; 1989. 2. Moayeri A, Hynson J, Sessler DI, McGuire J. Pre-induction skin-surface warming prevents	volunteer studies (along with studies with pregnant women and patients undergoing off-pump bypass surgery [Kim 2006]) would be used only if there was no available evidence. The paper by Ikeda (2001) cited by this stakeholder is not an RCT and therefore did not meet the inclusion criteria.

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					redistribution hypothermia. Anesthesiology. 1991;75(Suppl)(3A). 3. Ikeda T, Mori K, Sessler D, Hosoda R, Kazama T. Preinduction skin-surface temperature gradients predict the magnitude of post-induction redistribution hypothermia. Anesthesiology. Vol 99; 2001:A197. 4. Kim JY, Shinn H, Oh YJ, Hong YW, Kwak HJ, Kwak YL. The effect of skin surface warming during anesthesia preparation on preventing redistribution hypothermia in the early operative period of off-pump coronary artery bypass surgery. Eur J Cardiothorac Surg. Jan 21 2006	
SH	Association of Anaesthetists of Great Britain and Ireland	1	NICE	1.2.2	The statement that healthcare professionals "should not commence induction of anaesthesia unless the patient's temperature is above 36.0°C" must be qualified to allow induction in emergencies, where there is occasionally insufficient time to allow rewarming.	Thank you for your comment. The consideration about clinical urgency will be added to this recommendation. .
SH	Association of Anaesthetists of Great Britain and Ireland	2	NICE	1.2.2	The statement that healthcare professionals "should measure and document the patient's temperature prior to induction of anaesthesia" needs to be clarified. You have already said that the temperature should be measured before leaving the ward – who do you envisage should take the temperature before induction and what equipment should be used?	Thank you for your comment. The GDG did not believe it was appropriate to specify which member of the perioperative care team should measure and document temperature before the induction of anaesthesia. However, recommendations 1.1.2 and 1.1.3 should be followed to ensure that the healthcare professional measuring temperature is trained to use the equipment available, and is able to obtain an estimate of core temperature from the temperature at the site of measurement.
SH	Association of Anaesthetists of Great Britain and Ireland	4	Full	General	OVERALL COMMENT The draft guidance seems to presume (naively) that all methods for measuring body temperature are equally reliable and accurate. Nothing could be further from the truth! There is a huge literature on different ways of measuring temperature, and consideration must be given to making mention of different methods and	Thank you for your comment. The GDG have added recommendation 1.1.3 which provides more specific advice on the knowledge required by healthcare professionals when using temperature monitoring equipment. This should include an understanding of the normal

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					different sites of measurement.	variations in temperature across the different measurement sites and awareness of any offsets that need to be applied (or have been automatically applied) to estimate core temperature from the temperature at the site of measurement.
SH	Inditherm Medical	1	Full	4.1.1.1	If the preoperative core temperature is below 36.0°C, then hypothermia is a certainty not a risk. We suggest consideration is given to raising this threshold as a risk, possibly to 36.5°C, to allow for the temperature drop that is expected at induction of anaesthesia. This is particularly so if two of the indications are required to constitute a risk.	Thank you for your comment. We have recommended that patients with a low (<36.0°C) preoperative temperature are rewarmed prior to induction. However, this may not always be possible if there is a need to expedite surgery due to clinical urgency. Whilst we accept that these patients will almost certainly be hypothermic intraoperatively, we have included this risk factor to ensure that these patients are recognised as being at increased risk of experiencing the adverse consequences of hypothermia.
SH	Inditherm Medical	2	Full	4.1.1.6	We believe that mandating forced air warming as a technology is unfair and unreasonable. It has already been established clinically that a flexible carbon polymer mattress system gives equivalent warming performance. Additional clinical audit data is available if required and the system has been proven in many NHS hospitals.	Thank you for your comment. The evidence considered by the GDG when forming recommendations on warming devices was restricted to randomised controlled trials. Weaker forms of evidence, such as audit data, were not considered to be a sufficiently robust source of evidence on which to base recommendations. All devices licensed for use in the UK were included in the evidence reviews. The GDG considered that weak or poor quality evidence was not sufficiently reliable as a basis for recommending warming devices. Weak evidence was defined as an RCT, or meta-analysis of several RCTs, with less than 50 patients in total. Devices with acceptable or good evidence of clinical effectiveness were included in the

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						economic model in order to determine their cost-effectiveness. The GDG did not believe that it was reasonable to recommend carbon polymer systems (referred to as "electric heated mattress" in the guideline) as the clinical effectiveness evidence was weak.
SH	Inditherm Medical	3	Full	4.1.2.2	We support the guideline that induction of anaesthesia should not commence unless the patient's core temperature is above 36.0°C. However, if the core temperature is close to this limit then the aim stated in section 1.2.7 will not be achieved. We suggest the threshold specified in this section is reviewed in light of section 1.2.7, and that perhaps active warming should be commenced before induction if the patient's core temperature is below 36.4°C.	Thank you for your comment. There is evidence that a low preoperative core temperature is a risk factor for IPH. Patients with a temperature below 36.0°C preoperatively are already hypothermic and therefore at increased risk of experiencing an adverse consequence of hypothermia after induction of anaesthesia. The GDG have recommended that they should not receive anaesthesia until their temperature has been raised. The GDG did not consider it reasonable to delay surgery in patients with a core temperature above this threshold but instead recommended forced air warming to prevent IPH developing in all patients having anaesthesia lasting greater than 30 minutes and in all higher risk patients.
SH	Inditherm Medical	4	Full	4.1.2.5	We believe that mandating forced air warming as a technology is unfair and unreasonable. It has already been established clinically that a flexible carbon polymer mattress system gives equivalent warming performance. Additional clinical audit data is available if required and the system has been proven in many NHS hospitals.	Thank you for your comment. This is a repetition of a previous comment from this stakeholder. Please see response to comment 2.
SH	Inditherm Medical	5	Full	4.1.2.6	We believe that mandating forced air warming as a technology is unfair and unreasonable. It has already been established clinically that a flexible carbon	Thank you for your comment. This is a repetition of a previous comment from this stakeholder. Please see response to

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					polymer mattress system gives equivalent warming performance. Additional clinical audit data is available if required and the system has been proven in many NHS hospitals.	comment 2.
SH	Inditherm Medical	6	Full	4.1.2.7	As mentioned above, the aim will not be met if lower threshold temperatures are allowed in the preoperative phase and at induction of anaesthesia.	Thank you for your comment. This is a repetition of a previous comment from this stakeholder. Please see response to comment 1.
SH	Inditherm Medical	7	Full	4.1.2.9	We believe these requirements should apply to any warming devices and should not be limited to forced air warming.	Thank you for your comment. This recommendation has been amended to include all devices recommended for use within the guideline.
SH	Inditherm Medical	8	Full	4.1.3.1	It seems inconsistent that the patient can be transferred if temperature is above 36.0°C, yet if they are below this threshold they must be warmed to 36.5°C. We also note that the method of temperature measurement is not defined, and this has significance (e.g. tympanic, skin and core temperatures are likely to be different in any given patient).	Thank you for your comment. Recommendation 1.4.1 has been reworded to improve clarity. The monitoring and detection review has been augmented. The GDG recognised that it is important for healthcare professionals to have an understanding of the normal variations in temperature across the different measurement sites and awareness of any offsets that need to be applied (or have been automatically applied) to estimate core temperature from the temperature at the site of measurement. Recommendation 1.1.3 has been added to address this.
SH	Inditherm Medical	9	Full	4.1.3.3	We believe that mandating forced air warming as a technology is unfair and unreasonable.	Thank you for your comment. This is a repetition of a previous comment from this stakeholder. Please see response to comment 2.
SH	Inditherm Medical	10	Full	4.2.5 A5	This finding will depend on the technology used in the electric heating pad. It is not reasonable to make this assumption for all technologies. We believe flexible carbon polymer technology would be equivalent or better than forced air warming at 120 minutes from clinical experience.	Thank you for your comment. The evidence for electric heating pads and electric mattresses has been considered separately in the guideline. The evidence statements for electric heated mattresses made from flexible carbon polymer technology are given on pages 490 &

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						495, The GDG's consideration of this evidence is provided on page 49.
SH	Inditherm Medical	11	Full	4.2.6	**Duration of anaesthesia of at least 30 minutes:** Reference to forced air warming is not a balanced view as flexible carbon polymer would be even more cost effective than usual care.	Thank you for your comment.The GDG did not believe that it was reasonable to recommend carbon polymer systems (referred to as "electric heated mattress" in the guideline) as the clinical effectiveness evidence was weak. Their cost-effectiveness was not explicitly assessed for this reason. The GDG's considerations are summarised in Chapter 4 of the full guideline. These include a discussion of the potential cost savings achievable if these devices can be shown to be clinical effective.
SH	Inditherm Medical	12	Full	4.2.6	**Anaesthesia duration of less than 30 minutes:** Reference to forced air warming is not a balanced view as flexible carbon polymer would be even more cost effective than usual care.	Thank you for your comment. This is a repetition of a previous comment from this stakeholder. Please see response to comment 11.
SH	Inditherm Medical	13	Full	4.2.6	**Anaesthesia duration of less than 30 minutes:** Using flexible carbon polymer all patients could be warmed at the same running cost as a light-bulb and with no inconvenience.	Thank you for your comment. This is a repetition of a previous comment from this stakeholder. Please see response to comment 11.
SH	Inditherm Medical	14	Full	4.2.6	**Electric heated mattress**: The second study referenced was small as it showed that this was statistically significant and to show statistical superiority would require 984 patients. It is unreasonable to dismiss this as weak evidence. The system has also been shown to be at least as effective as forced warm air in a number of audit studies in the NHS, resulting in current routine use in over 30 NHS hospitals.	Thank you for your comment. The evidence considered by the GDG when forming recommendations on warming devices was restricted to randomised controlled trials. Weaker forms of evidence, such as audit data, were not considered to be a sufficiently robust source of evidence on which to base recommendations. All devices licensed for use in the UK were included in the evidence reviews. The GDG considered that weak or poor quality evidence was not sufficiently reliable as a basis for recommending warming devices. Weak evidence was defined as an RCT, or meta-analysis of several RCTs, with less

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						than 50 patients in total. The GDG did not believe that it was reasonable to recommend carbon polymer systems (referred to as “electric heated mattress” in the guideline) as the clinical effectiveness evidence was weak.
SH	Inditherm Medical	15	Full	4.3	**Preoperative phase:** We believe that mandating forced air warming as a technology is unfair and unreasonable. It has already been established clinically that a flexible carbon polymer mattress system gives equivalent warming performance. Additional clinical audit data is available if required and the system has been proven in many NHS hospitals.	Thank you for your comment. This is a repetition of a previous comment from this stakeholder. Please see response to comment 2.
SH	Inditherm Medical	16	Full	4.3	**Intraoperatively:** We believe that mandating forced air warming as a technology is unfair and unreasonable. It has already been established clinically that a flexible carbon polymer mattress system gives equivalent warming performance. Additional clinical audit data is available if required and the system has been proven in many NHS hospitals.	Thank you for your comment. This is a repetition of a previous comment from this stakeholder. Please see response to comment 2.
SH	Inditherm Medical	17	Full	4.3	**Postoperatively:** We believe that mandating forced air warming as a technology is unfair and unreasonable. It has already been established clinically that a flexible carbon polymer system can be used effectively in this setting.	Thank you for your comment. This is a repetition of a previous comment from this stakeholder. Please see response to comment 2.
SH	Inditherm Medical	19	Full	General	In the NCC responses to Stakeholder comments on the Draft Scope for this study, it was stated that evidence for warming devices licensed for use in the UK would be taken into account. The response specifically referred to the comment that limiting evidence to peer-reviewed studies would exclude modern, innovative cost-effective products. It does not appear that the wealth of experience of the flexible carbon polymer system that could be obtained from within the NHS has been considered.	Thank you for your comment. The evidence considered by the GDG when forming recommendations on warming devices was restricted to randomised controlled trials. Weaker forms of evidence, such as audit data, were not considered to be a sufficiently robust source of evidence on which to base recommendations.
SH	Inditherm Medical	20	Full	General	We believe that the recurrent recommendations for patient warming that only refer to forced air warming as a technology to be used are prejudicial to our business. As we have a product that is licensed for	Thank you for your comment. The evidence considered by the GDG when forming recommendations on warming devices was restricted to randomised

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					use in the UK and that is in widespread use throughout the NHS we consider this is unacceptable.	controlled trials. Weaker forms of evidence, such as audit data, were not considered to be a sufficiently robust source of evidence on which to base recommendations. All devices licensed for use in the UK were included in the evidence reviews. The GDG considered that weak or poor quality evidence was not sufficiently reliable as a basis for recommending warming devices. Weak evidence was defined as an RCT, or meta-analysis of several RCTs, with less than 50 patients in total. Devices with acceptable or good evidence of clinical effectiveness were included in the economic model in order to determine their cost-effectiveness. Forced air warming was recommended as it is both clinically and cost-effective compared to the alternatives.
SH	Inditherm Medical	21	Full	General	The document does not seem to consider the impact that the use of forced air warming as indicated by the guideline is likely to have on increasing running cost budgets in the NHS, and the consequences on uptake. Equally, the guideline does not seem to consider that the use of conductive carbon polymer systems would have a significant decrease in running cost budgets in the NHS, despite the higher indication to warm, and the consequences on uptake.	Thank you for your comment. The GDG did not believe that it was reasonable to recommend carbon polymer systems (referred to as “electric heated mattress” in the guideline) as the clinical effectiveness evidence was weak. Their cost-effectiveness was not explicitly assessed for this reason. The GDG’s considerations are summarised in section 4 in the full guideline. These include a discussion of the potential cost savings achievable if these devices can be shown to be clinical effective. The GDG considered whether each recommendation would result in the efficient use of NHS resources by considering their cost-effectiveness from an NHS and PSS perspective. The cost

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						impact of the guideline will be considered in the Costing Report which will be available when the Final Guideline is published.
SH	Inditherm Medical	22	NICE	Intro	We fully support the definition of “intraoperative period” in the Introduction. We feel this should be explicitly stated as a definition in the Guidance section. We also feel that the implications of this in the use of Anaesthetic Rooms should be highlighted.	Thank you for your comment. This term ‘intraoperative period’ has been defined in the glossary in the full guideline and in the introduction of the NICE version.
SH	Inditherm Medical	23	NICE	Key Priorities	“Key priorities for implementation” section should take into account all the comments hereafter relating to the corresponding section numbers.	Thank you for your comment. All comments on recommendations will be carried through to the key recommendations.
SH	Inditherm Medical	24	NICE	4.1	We do not accept that it is reasonable that the active warming technology in this proposed study is confined to forced air warming. We request consideration of using flexible carbon polymer technology mattresses also. This technology will deliver greater convenience during the intraoperative period and very significant cost advantages to the NHS. The latter may make uptake of the guidelines much easier and more affordable to the NHS. The current wording is prejudicial to our business.	Thank you for your comment. The evidence considered by the GDG when forming recommendations on warming devices was restricted to randomised controlled trials. Weaker forms of evidence, such as audit data, were not considered to be a sufficiently robust source of evidence on which to base recommendations. All devices licensed for use in the UK were included in the evidence reviews. The GDG considered that weak or poor quality evidence was not sufficiently reliable as a basis for recommending warming devices. Weak evidence was defined as an RCT, or meta-analysis of several RCTs, with less than 50 patients in total. The GDG did not believe that it was reasonable to recommend carbon polymer systems (referred to as “electric heated mattress” in the guideline) as the clinical effectiveness evidence was weak. Their cost-effectiveness was not explicitly assessed for this reason. The GDG’s considerations are summarised in Chapter 4 of the full guideline. These

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						include a discussion of the potential cost savings achievable if these devices can be shown to be clinical effective.
SH	Inditherm Medical	25	NICE	4.2	It is important to distinguish between different types of electric heating mattress and electric heating pad. The technology used to deliver heat in such systems has a fundamental effect on warming performance. We suggest that careful choice of technology should be made before this study is undertaken and that results cannot be extrapolated from one technology to another.	Thank you for your comment. Research recommendation 4.2 discusses the distinct evidence base for electric heating mattresses and electric heating pads. The GDG considered that further evidence would be beneficial for both of these devices and this is reflected in the research recommendation.
SH	Inditherm Medical	26	NICE	Appendix C	We believe that mandating forced air warming as a technology is unfair and unreasonable. It has already been established clinically that a flexible carbon polymer mattress system gives equivalent warming performance. Additional clinical audit data could be obtained by NICE if required and the system has been proven in many NHS hospitals. The current wording is prejudicial to our business.	Thank you for your comment. This is a repetition of a previous comment from this stakeholder. Please see response to comment 2.
SH	Pennine Healthcare	1	NICE	General	I just note that all the procedures refer to forced air warming when it isn't the only option.	Thank you for your comment. The evidence considered by the GDG when forming recommendations on warming devices was restricted to randomised controlled trials. Weaker forms of evidence, such as audit data, were not considered to be a sufficiently robust source of evidence on which to base recommendations. All devices licensed for use in the UK were included in the evidence reviews. The GDG considered that weak or poor quality evidence was not sufficiently reliable as a basis for recommending warming devices. Weak evidence was defined as an RCT, or meta-analysis of several RCTs, with less than 50 patients in total. Devices with acceptable or good evidence of clinical effectiveness were included in the economic model in order to determine

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						their cost-effectiveness. Forced air warming was recommended as it is both clinically and cost-effective compared to the alternatives.
SH	Pennine Healthcare	2	NICE	1.2.1	Other non air warming methods can operate at a reduced cost without the need to cool theatre staff saving on both counts. Scrubbed staff can operate in a temperature that is suitable for them as the patient can be warmed without affecting them.	Thank you for your comment. Recommendation 1.3.3 has been amended to reflect the importance of ambient temperature whilst the patients is exposed
SH	Pennine Healthcare	3	NICE	4.2	Has any thought been given to effective decontamination of thermal mattresses?	Thank you for your comment. Recommendation 1.1.2 states that devices should be used and maintained in accordance with manufacturer's instructions and that local infection control policies should be complied with.
SH	Pennine Healthcare	4	NICE	Appendix C	It again refers to Applying Forced Warm Air' As the only option for warming the patient. Other formats are available.	Thank you for your comment. This is a repetition of a previous comment from this stakeholder. Please see response to comment 1.
SH	Royal College of Nursing	1	Full	General	The RCN welcomes this guideline.	Thank you for your comment.
SH	Royal College of Nursing	2	Full and NICE	General	The only thing that we would want to see expanded is the advice on the devices on offer for measuring the temperature of high-risk patients. There are a number of devices with varying attributes regarding cost, accuracy, hygiene, infection risk (the list goes on); since NICE would be responsible for giving advice in this area, it would be helpful if this is incorporated into the guideline. To illustrate: a single use only internal thermistor is expensive compared to a single use only paper and plastic cover for a tympanic thermometer, which is similarly relatively expensive compared to a single-patient use re-usable cover, clearly there are indications for the more expensive devices (e.g. surgery > 3 hours or a need for precise and ongoing monitoring) but would the GDG be willing to come up with some advice for the indications for deployment of	Thank you for your comment. In discussion with the GDG, it was agreed that we would refer to the MHRA/PASA 04144 Thermometer Review which reviews the alternative technologies currently available to the NHS. We have advised users of the guideline that effective temperature management is essential in both the prevention and management of perioperative hypothermia. It is also essential to other areas of perioperative care such as detecting infection. The guideline is not about vital sign recording and it maybe that the subject of 'temperature recording' should be submitted as a technology review by NICE. We would be supportive of this.

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					the most common device. Some guidance on this would be helpful particularly to practitioners in theatre and PACU. For example an outline of the advantages and disadvantages of each device in the contexts of short/long duration and low/high risk surgery would be useful to inform the decision making process.	The GDG have added recommendation 1.1.3 which provides more specific advice on the knowledge required by healthcare professionals when using temperature monitoring equipment. This should include an understanding of the normal variations in temperature across the different measurement sites and awareness of any offsets that need to be applied (or have been automatically applied) to estimate core temperature from the temperature at the site of measurement.
SH	Sheffield Teaching Hosptials NHS Foundation Trust	1	NICE	General	Noted that this is about adults. Basically agree but it is written as “one size fits all” unless excluded.	Thank you for your comment. The groups covered by the guideline are clearly specified in section 3.2 of the Full Guideline. Recommendations apply to all patients unless otherwise stated.
SH	Sheffield Teaching Hosptials NHS Foundation Trust	2	NICE	Intro	Do not see why “follow drug product info” in the para 4 pg 3 is there.	Thank you for your comment. The statement on ‘following drug product information’ is included as it is a standard statement in NICE version of the guideline.
SH	Sheffield Teaching Hosptials NHS Foundation Trust	3	NICE	1.2	Agreement with additional reasons why patients have low temperatures as the ambient temperature may be low and patient may have minimal “covering” during anaesthetic procedures. The systems used (both for staff in theatres and for warming / covering patients) need to be adjustable and reliable	Thank you for your comment. Recommendation 1.2.1. has been amended to reflect the importance of ambient temperature whilst the patients is exposed
SH	Sheffield Teaching Hosptials NHS Foundation Trust	4	NICE	1.2.2	In order to measure temperature prior to induction and every 30 minutes in awake patients would require the availability of temperature measuring devices appropriate for use in conscious patients	Thank you for your comment. When implementing the guideline, trusts should assess the equipment available to health care professionals and ensure that suitable equipment is provided to allow the guideline recommendations to be followed.

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SH	Sheffield Teaching Hosptials NHS Foundation Trust	5	NICE	1.2.2	The guidelines advise against anaesthetising patients unless their core temperature is at least 36C. While this may be ideal, in the real world (with the pressure on lists / beds / waiting time pressures etc) the potential disruption wreaked by adhering to this point - and cancelling patients with a temp of, say, 35.8C - could be dramatic. This will ultimately lead to delays in starting cases and there are the logistics of where and how patients will be checked / monitored for the right temperature and where they will wait if there are problems. The governance issues attached to changing list orders also need to be considered.	Thank you for your comment. We appreciate this. However, it is better to find other efficient and effective ways of preparing patients for surgery than to have them risk adverse consequences perioperatively
SH	Sheffield Teaching Hosptials NHS Foundation Trust	6	NICE	1.2.2	Surprised that the guidelines have been produced without clearly indicating the evidence base for some of the recommendations. However the recommendation to not perform surgery unless the temperature is above 36C is not clearly referenced and colleagues are not aware of the evidence that says that starting a longish case with a temperature below this and the opportunity to re-warm during the case is not adequate. This needs more explanation if NICE wish to apply it as a blanket recommendation regardless of the proposed length of surgery.	Thank you for your comment. There is good evidence to show that a low patient preoperative core temperature is a significant independent risk factor for IPH. Patients who are hypothermic at induction (T<36°C) will almost certainly be exposed to hypothermia intraoperatively and will therefore be at increased risk of experiencing an adverse consequence associated with hypothermia. This recommendation aims to prevent these adverse outcomes for patients.
SH	Sheffield Teaching Hosptials NHS Foundation Trust	7	NICE	1.2.3	There is mention that all warmed fluids should be given at 37 degrees C, but there is general uncertainty about whether any fluid giving devices have the capacity to measure fluid temp as it arrives at the patient from the giving set. Not sure how accurate the existing warmers are at providing fluid at 37, not below and not above.	Thank you for your comment. The GDG considered the evidence available on fluid warming, including the method of warming used in the various trials, and the likely impact of fluids on normal physiology. They agreed that fluids should be delivered at 37°C and felt that this may not achieved if fluids are warmed in a warming cabinet and allowed to cool during delivery. For this reason they have specified that a fluid warming device should be used to deliver the fluids. This recommendation should

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						be used to inform decisions regarding device provision at a local level.
SH	Sheffield Teaching Hosptials NHS Foundation Trust	8	NICE	1.2.6	"Patients undergoing surgery for more than 30 minutes should have forced air warming". Many patients undergoing major surgery under regional anaesthesia with or without sedation do not tolerate forced air warming, they find it uncomfortable or feel too warm.	Thank you for your comment. We have recommended that the patient's core temperature should be measured (recommendation 1.3.1) and that the device's setting be adjusted to achieve a temperature of at least 36.5^{O}C (recommendation 1.3.8). This is necessary as a patient's perception of their warmth may not reflect their core temperature and therefore their risk of hypothermia. However, all guideline recommendation should be implemented within the context of person-centred care as described in section 2.1 of the full guideline. This should include involving patients in shared decision making regarding their individualised care.
SH	Sheffield Teaching Hosptials NHS Foundation Trust	9	NICE	1.2.6	There is a significant cost implication if all patients having anaesthesia over 30 minutes require forced air warming as this will be the majority of patients.	Thank you for your comment. The GDG considered whether each recommendation would result in the efficient use of NHS resources by considering their cost-effectiveness from an NHS and PSS perspective. The cost impact of the guideline will be considered in the Costing Report which will be available when the Final Guideline is published.
SH	Sheffield Teaching Hosptials NHS Foundation Trust	10	NICE	4.3	Lines 4 and 8 of the sub-paragraph entitled 'Why this is important', 'metaraminol is misspelled as 'metaranimol'.	Thank you for your comment. This has been corrected.
SH	Sheffield Teaching Hosptials NHS Foundation Trust	11	NICE	General	Many of the problems occur due to large incisions and large ambient loss eg laparatomy. Do ALL patients need forced air warming for minimal incision eg some ENT surgery ?. Do ALL patients need temperature monitoring with cost of disposables? Do ALL fluids (in excess of 500 mls?) need warming?	Thank you for your comment. NICE guidelines are advisory based on review of the best available evidence.

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					By all means recommend that any / all of these should be considered but currently written as must do.	
SH	Sheffield Teaching Hosptials NHS Foundation Trust	12	NICE	General	The guidelines don't state how 'core temperature' should be measured: is tympanic sufficient? Or is something like a nasopharyngeal probe required?	Thank you for your comment. The GDG have added recommendation 1.1.3 which provides more specific advice on the knowledge required by healthcare professionals when using temperature monitoring equipment. This should include an understanding of the normal variations in temperature across the different measurement sites and awareness of any offsets that need to be applied (or have been automatically applied) to estimate core temperature from the temperature at the site of measurement.
SH	Sheffield Teaching Hosptials NHS Foundation Trust	13	NICE	General	The potential range of error of tympanic thermometer readings needs to be considered as does the level of investment required for tympanic patient thermometers. Nasal probes could lead to potentially more problems eg nose bleeds.	Thank you for your comment. We recognise there is variation in methods of temperature measurement. The MHRA/PASA 04144 Thermometer Review overview is acknowledged in this guideline as the definitive source information on the alternative technologies currently available to the NHS.
SH	Sheffield Teaching Hosptials NHS Foundation Trust	14	NICE	General	Some emergency patients will be pyrexial but peripherally shut down - i.e. above normal core temperature but peripherally cold. Should such patients be actively warmed? Comment in the guidelines would be helpful.	Thank you for your comment. That is why the patient “core” temperature has to be regularly measured (refer to full guideline)
SH	Sheffield Teaching Hosptials NHS Foundation Trust	15	NICE	General	There are some very good warm water gel pads around which look good for awkward access eg for cardiothoracic surgery.	Thank you for your comment. Gel pads were considered under the inclusion criteria. The literature search did not highlight any randomised controlled trials in peer reviewed journal with warm water gel pads as an intervention.
SH	Sheffield Teaching Hosptials NHS Foundation	16	NICE	General	There is evidence (Stoneham M, Anaesthesia 2000; 51, 79-82) that not anaesthetising the patient until after	Thank you for your comment. The body of the evidence suggests that patients

Status	Organisation	Order no.	Version	Section	Comments	Responses
	Trust				invasive procedures have been carried out, i.e. epidurals, central and arterial lines, reduces the fall in body temperature.	should be anaesthetised

No Comment		
SH	British National Formulary (BNF)	No Comment
SH	Cytyc UK Limited	No Comment
SH	Department of Health	No Comment
SH	National Public Health Service for Wales	No Comment
No Response		
SH	Addenbrooke's NHS Trust	This organisation was invited to comment but did not respond.
SH	Aintree Hospitals NHS Trust	This organisation was invited to comment but did not respond.
SH	Association for Perioperative Practice	This organisation was invited to comment but did not respond.
SH	Association of Paediatric Anaesthetists of Great Britain and Ireland	This organisation was invited to comment but did not respond.
SH	Barnsley Hospital NHS Foundation Trust	This organisation was invited to comment but did not respond.
SH	Barnsley PCT	This organisation was invited to comment but did not respond.
SH	Bournemouth and Poole PCT	This organisation was invited to comment but did not respond.
SH	Brighton & Sussex University Hospitals Trust	This organisation was invited to comment but did not respond.
SH	British Association of Day Surgery	This organisation was invited to comment but did not respond.
SH	British Association of Paediatric Surgeons	This organisation was invited to comment but did not respond.
SH	British Geriatrics Society	This organisation was invited to comment but did not respond.
SH	BUPA	This organisation was invited to comment but did not respond.
SH	Calderdale PCT	This organisation was invited to comment but did not respond.

SH	Central Medical Supplies Ltd	This organisation was invited to comment but did not respond.
SH	Commission for Social Care Inspection	This organisation was invited to comment but did not respond.
SH	Connecting for Health	This organisation was invited to comment but did not respond.
SH	Conwy & Denbighshire Acute Trust	This organisation was invited to comment but did not respond.
SH	Coventry and Warwickshire Cardiac Network	This organisation was invited to comment but did not respond.
SH	Department of Health, Social Security and Public Safety of Northern Ireland	This organisation was invited to comment but did not respond.
SH	East and North Herts. NHS Trust	This organisation was invited to comment but did not respond.
SH	Guys and St Thomas NHS Trust	This organisation was invited to comment but did not respond.
SH	Health and Safety Executive	This organisation was invited to comment but did not respond.
SH	Health Protection Agency	This organisation was invited to comment but did not respond.
SH	Healthcare Commission	This organisation was invited to comment but did not respond.
SH	Heart of England Acute Trust	This organisation was invited to comment but did not respond.
SH	KCI Medical Ltd.	This organisation was invited to comment but did not respond.
SH	Kimal Plc	This organisation was invited to comment but did not respond.
SH	Kimberly-Clark Health Care	This organisation was invited to comment but did not respond.
SH	Leeds PCT	This organisation was invited to comment but did not respond.
SH	Luton and Dunstable Hospital NHS Trust	This organisation was invited to comment but did not respond.
SH	Maidstone and Tunbridge Wells NHS Trust	This organisation was invited to comment but did not respond.
SH	Medicines and Healthcare Products Regulatory Agency (MHRA)	This organisation was invited to comment but did not respond.
SH	National Patient Safety Agency	This organisation was invited to comment but did not respond.
SH	NCEPOD	This organisation was invited to comment but did not respond.
SH	NHS Plus	This organisation was invited to comment but did not respond.
SH	NHS Purchasing & Supply Agency	This organisation was invited to comment but did not respond.

SH	NHS Quality Improvement Scotland	This organisation was invited to comment but did not respond.
SH	North Yorkshire and York PCT	This organisation was invited to comment but did not respond.
SH	Nottingham City PCT	This organisation was invited to comment but did not respond.
SH	Paediatric Intensive Care Society	This organisation was invited to comment but did not respond.
SH	Papworth Hospital NHS Trust	This organisation was invited to comment but did not respond.
SH	Patient Liaison Group	This organisation was invited to comment but did not respond.
SH	PERIGON Healthcare Ltd	This organisation was invited to comment but did not respond.
SH	Peterborough & Stamford NHS Hospitals Trust	This organisation was invited to comment but did not respond.
SH	Queen Victoria Hospital NHS Trust	This organisation was invited to comment but did not respond.
SH	Royal Brompton and Harefield NHS Trust	This organisation was invited to comment but did not respond.
SH	Royal College of Anaesthetists	This organisation was invited to comment but did not respond.
SH	Royal College of General Practitioners	This organisation was invited to comment but did not respond.
SH	Royal College of Midwives	This organisation was invited to comment but did not respond.
SH	Royal College of Paediatrics and Child Health	This organisation was invited to comment but did not respond.
SH	Royal College of Pathologists	This organisation was invited to comment but did not respond.
SH	Royal College of Surgeons of England	This organisation was invited to comment but did not respond.
SH	Sandwell PCT	This organisation was invited to comment but did not respond.
SH	Scottish Intercollegiate Guidelines Network (SIGN)	This organisation was invited to comment but did not respond.
SH	Sheffield PCT	This organisation was invited to comment but did not respond.
SH	Society of Cardiothoracic Surgeons	This organisation was invited to comment but did not respond.
SH	South Tees Hospitals NHS Trust	This organisation was invited to comment but did not respond.
SH	Staffordshire Moorlands PCT	This organisation was invited to comment but did not respond.
SH	Stockport PCT	This organisation was invited to comment but did not respond.
SH	Tameside and Glossop Acute Trust	This organisation was invited to comment but did not respond.

SH	The Association of the British Pharmaceutical Industry (ABPI)	This organisation was invited to comment but did not respond.
SH	The David Lewis Centre	This organisation was invited to comment but did not respond.
SH	The National Association of Assistants in Surgical Practice	This organisation was invited to comment but did not respond.
SH	The Royal Society of Medicine	This organisation was invited to comment but did not respond.
SH	Tyco Healthcare	This organisation was invited to comment but did not respond.
SH	University College London Hospitals (UCLH) Acute Trust	This organisation was invited to comment but did not respond.
SH	University Hospital Birmingham NHS Foundation Trust	This organisation was invited to comment but did not respond.
SH	University Hospital Birmingham NHS Trust	This organisation was invited to comment but did not respond.
SH	University of Cardiff	This organisation was invited to comment but did not respond.
SH	Walsall PCT	This organisation was invited to comment but did not respond.
SH	Welsh Assembly Government	This organisation was invited to comment but did not respond.
SH	Welsh Scientific Advisory Committee (WSAC)	This organisation was invited to comment but did not respond.
SH	Western Cheshire Primary Care Trust	This organisation was invited to comment but did not respond.
SH	Wiltshire PCT	This organisation was invited to comment but did not respond.
SH	Withybush Hospital	This organisation was invited to comment but did not respond.
SH	York NHS Trust	This organisation was invited to comment but did not respond.