Tackling the risks of perioperative hypothermia

Ensuring a smooth surgery and a swift recovery has never been more important, as the National Health Service looks to tackle the waiting lists for elective care that now stand at 6.6 million patients (BMA 2022).

Operating theatres are one of the areas most affected by the backlog caused by the pandemic. In order to tackle the backlog while upholding the highest standards of patient safety, surgical teams need to have the correct equipment and preparation to minimise any risk of complications arising. One factor that is critical, yet often overlooked, is the risk of perioperative hypothermia.

Hypothermia is defined by a core body temperature of less than 36°C and impacts upwards of 70% of patients undergoing surgery (Dostalova 2017). The incidence of unintended hypothermia ranges from 50% to 90% and research has shown that perioperative hypothermia poses serious risks to patients undergoing surgery, included prolonged lengths of stay, coagulation disorders, cardiac complications, delayed healing and increasing the risk of infection (Rosenkide et al 2017). Patients particularly at risk of hypothermia include those undergoing general anaesthesia, geriatric patients, patients with low body mass index (BMI) and patients undergoing surgery in low ambient operating room temperatures.

Yet these serious risks can be easily minimised by actively pre-warming patients for as little as half an hour prior to their surgery (Sessler & Kurz 2008). Costs associated with hypothermia have been estimated to be between $2,500 to $7,000 (£2,100 and £6,000), per patient (Mahoney & Odom 1999). The BARRIER® EasyWarm® blanket is a convenient active patient warming solution that can be used throughout the patient pathway to reduce the risk of perioperative hypothermia without contaminating ultra-clean air ventilation.

The risks of perioperative hypothermia

General anaesthesia is just one of the multiple aspects of surgery that impacts the core body temperature of patients, which can lead to hypothermia. Studies have shown that perioperative hypothermia can have significant negative impacts on patients, including impairing coagulation, drug metabolisation, and a three-fold increased risk of surgical wound infections (Koc et al 2017). Patients can also experience other complications including additional blood-loss and increased pain scores as a result (Sessler & Kurz 2008).

Furthermore, hypothermia delays wound healing and has been shown to prolong the patient's length of stay in hospital by 20% – even in patients who do not suffer an infection (Sessler & Kurz 2008) - leading to hospital stays that are on average two days longer than necessary (Sessler & Kurz 2008). Therefore, not only is avoiding hypothermia critical to improving patient safety and infection prevention; it is also critical to ensuring efficient use of hospital resources. Any clinical measures which can be taken to reduce length of hospital stays and rates of surgical site infections will help to ease the current elective care backlog facing the health system.

The importance of pre-warming patients

Considering the risks of perioperative hypothermia, it is vital that a patient's body temperature is kept within normothermic thresholds throughout the entire surgical process. Active pre-warming is an evidence-based intervention that can be easily implemented across the surgical pathway in order to reduce these risks. Public health organisations have been clear on the importance of active patient pre-warming. For instance, NICE recommends active warming preoperatively if a patient's temperature is below 36 °C (NICE 2008).

Similarly, the 2019 GIRFT Surgical Site Infection National Survey presented a case study in Ashford and St Peter's Hospitals NHS Foundation Trust, where it was shown that pre-warming with an EasyWarm blanket reduced perioperative hypothermia rates in a group of 422 patients from 44% to 3% (GIRFT 2019). Devices to keep the patient warm are therefore an integral element of the surgical patient pathway to promote efficient warming, which not only greatly reduces health risks, but is also endorsed by regulatory bodies in the UK.

The advantages of EasyWarm

EasyWarm is a versatile solution that can easily be implemented into the surgical patient pathway in any hospital. The BARRIER® EasyWarm self-warming blanket provides a convenient patient-warming solution that can be utilised by perioperative teams before, during and after surgery to counteract the risk of patient hypothermia. >>

With its active self-warming technology, it does not require an external power source, meaning it can be easily deployed; and can stay with the patient after surgery to reduce postoperative shivering. EasyWarm is a conductive warming device, which NICE has highlighted in its latest guidance as less likely to cause surgical site infections than forced-air warming (FAW) devices which are more likely to disrupt the air flow around surgical sites (NICE 2008). A 2019 study found EasyWarm self-heating blankets have a near identical performance in heating patients compared to forced-air warming (FAW) blanket cocoon, while having major advantages such as reducing clutter in the operating theatre and trip hazards due to the absence of electrical or other cords (Thapa et al 2019). EasyWarm's technology avoids possible complications, as it bypasses use of forced air-warming, while offering an effective solution that can be simply integrated into the patient pathway.

Conclusions

Given the risks of perioperative hypothermia for both patient safety and the wider health system, administering active patient pre-warming is a step that every hospital should consider taking as part of their plan to tackle the backlog and recover from the COVID-19 pandemic. Mölnlycke is proud to be a partner to the health service, our EasyWarm blanket provides a convenient patient pre-warming solution that can improve efficiency in and out of the operating theatre. ■

Article by **Dr Tod Brindle, Global Surgical Medical Director, Mölnlycke**

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Review of Time to Act: A State of the Nation Report on Surgical Site Infections in the UK

This article will provide a brief review of the key findings from Time to Act: A State of the Nation Report (ASNR) on Surgical Site Infections (SSIs) in the UK, published by Mölnlycke in December 2020.

This report, supported by clinical experts working on the frontline of infection prevention, provides an account of the devastating impact SSI rates are having throughout the United Kingdom, as well as highlighting the financial burden they are causing the National Health Service. This document has identified the effect SSIs have on patients by examining the best available evidence-based practice to reduce the incidence of Hospital Acquired Infections (HAI).

At the time of this report SSIs represented around 20% of all Healthcare Associated Infections (HCAIS) with 5% of patients undergoing a surgical procedure going on to develop an SSI. The Getting It Right First Time (GIRFT 2019) survey identified significant levels of variation in SSIs reported by surgical units.

The evidence provided in this review demonstrates SSIs continue to present significant challenges for both patients and healthcare professionals (HCPs) across the NHS and four nations.

The financial burden to the NHS identified in the GIRFT survey (2019) was estimated to be between £10,000 and £100,000 per patient. An SSI is the most surveyed and frequent HAI, of which, 60% are preventable (Diaz & Newman 2015).

With the body flora on the patient's skin a major contributing risk factor for infection (AfPP 2022), NICE published guidance in 2019 advising patients to have a shower, bath, or bed bath either the day before surgery or on the day of surgery as part of the preoperative phase to reduce the risk of developing an SSI.

The World Health Organization (WHO 2018) introduced its evidence-based global guidelines on the prevention of SSIs to be used as a starting point for the development of national and local SSI protocols and policies. However, evidence suggests (ASNR 2020) a nationwide inconsistency in practice, gaps in evidence-based practice, and a lack of training and education on infection prevention.

WHO (2018) identified the patient's journey (pathway) through surgery as the main contributing factor to SSIs. A successful implementation of clinical practice guidelines using a multimodal improvement strategy is required for 'building' the right system, 'teaching' the right things, 'checking' the right things, 'selling' the right messages and, ultimately, 'living' Infection Prevention Control (IPC) (WHO 2016) which is fundamental in the translation of guideline recommendations into practice.

WHO guidelines (2018)

Before surgery:

- Ensure patients bathe or shower
- Do not shave patients
- Only use antibiotics when recommended
- Surgical scrub technique: hand wash or alcohol-based hand rub
- Use chlorhexidine alcohol-based antiseptic solutions to prepare skin.

During surgery:

- Limit the number of people and doors being opened
- Ensure all surgical equipment is sterile and maintain asepsis throughout surgery.

After surgery:

- Do not continue antibiotics to prevent infection – this is unnecessary and contributes to the spread of antibiotic resistance
- Check wounds for infection and use standard dressings on primary wounds.

One of the key recommendations established by the ASNR report was the introduction of annually reporting SSI rates across all surgical specialities from all four nations of the UK. Other recommendations to reduce the frequency of SSI included sharing best practice, setting out clear accessible information on guidelines, surveillance data and policy initiatives.

ASNR key recommendations

Policy makers should:

- Establish a Preventable Infections Taskforce to produce a UK-wide strategy from all four nations (England, Scotland, Wales, and Northern Ireland), to reduce further HCAI rates.
- A need to set a deliverable target to reduce SSIs across all surgical specialities within the lifetime of the five-year Antimicrobial Resistance (AMR) Plan (2019), and subsequently for the NHS 20-year plan (2019).

Hospitals should:

- Introduce mandatory training and an education programme on infection prevention to reducing SSIs for all healthcare professionals.
- Work with procurement teams to formulate value-based products that are of a high quality, safe and meet budget requirements.

Healthcare professionals should:

- Implement all evidence-based preventative measures throughout the patients' journey using a multidisciplinary approach through to surgery to reduce the risk of an SSI.

Medical Royal Colleges and other healthcare professional organisations should:

- Develop 'infection prevention hubs' on their websites, intranet, or member communications, to share best practice and set out clear and accessible information on guidelines, surveillance data and policy initiatives to reduce SSIs.

Patients and patient organisations

Patients should:

- Be signposted to the NICE (NG125 2019) guidelines which provides important information and a clear explanation on preventative measures to be taken pre and post-surgery to reduce SSIs. >>

Patient organisations should:

- Before being discharged from hospital, patients to be provided with information on how to spot the key signs and symptoms of an SSI and what actions to be taken.

Conclusion

It is the responsibility of everyone working within the UK healthcare system to act and reduce infection rates, from policy makers, patient organisations to the Royal Colleges (including other healthcare membership organisations), they all have their role to play.

Using the guidance from WHO (2018) and NICE (2019), NHS trusts can take preventative steps to eradicate SSIs from the patient's surgical journey, starting with providing and instructing patients to use antimicrobial whole-body wash prior to surgery.

The executive summary from the AMR report identified the need to reduce inconsistent practice across the UK and to embed good examples of evidence-based practice by working collaboratively to reduce the incidence of SSIs to improve patient outcomes ASNR (2020).

All four nations to gradually expand the remit of their SSI surveillance programmes to enhance the quality of patient care by encouraging hospitals to use data obtained from surveillance to compare their rates of SSI over time and against a national benchmark by using this information to review and guide clinical practice.

Finally, the report recommended creating a Preventable Infections Taskforce (PIT) and setting clear and deliverable targets to reduce SSIs across all surgical specialties. ■

Article by **Lindsay Keeley, AfPP Patient Safety & Quality Lead**

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