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## Busting persistent myths about perioperative hypothermia

Perioperative hypothermia occurs when a patient's core temperature drops below 36 °C during their surgical journey. Research spanning more than thirty years highlights the negative effects of hypothermia on clinical outcomes and patient comfort.

Perioperative hypothermia prevention is a classic example of an evidence–practice gap. Despite proven prevention methods, as many as half of all surgical patients continue to experience perioperative hypothermia.<sup>1</sup>

I have spent the last decade teaching people how to lead practice change and implement evidence-based guidelines. An important aspect of successful knowledge translation involves recognising and addressing obstacles that hinder adoption. One common obstacle is the existence of misconceptions surrounding a specific practice. Over the course of my career, I have collected many myths concerning perioperative hypothermia, and I share some of them below.

### Myth: Cold operating rooms prevent infections

This is a myth that I once believed and even promoted during my early nursing career. I mistakenly thought that, just as refrigeration prevents bacterial growth in food, keeping the operating room cold would reduce the risk of surgical site infections. However, this notion is false. The evidence consistently supports that maintaining normal body temperature actually reduces the occurrence of surgical site infections. This is because it prevents thermoregulatory vasoconstriction, which ensures adequate tissue oxygenation to the wound.<sup>2</sup>

### Myth: Warm patients are more likely to bleed during surgery

I can relate to this misconception, as I once believed that warmer patients have dilated blood vessels, making them more susceptible to surgical bleeding. However, this belief is not accurate. In reality, even mild hypothermia (<1°C) increases blood loss, by approximately 16 per cent, and the risk for transfusion, by approximately 22 per cent.<sup>3</sup> This occurs because hypothermia-induced coagulopathy disrupts natural clotting by affecting platelet function, interfering with the coagulation cascade, triggering fibrinolysis and slowing enzymatic activity.

### Myth: No one has ever died of being cold

This misconception downplays the significance of perioperative hypothermia and undermines the urgency of preventing it. Studies have revealed a threefold increase in mortality from all causes among critical care patients with perioperative hypothermia.<sup>4</sup> While the precise mechanism is unclear, hypothermia can trigger hypertension, tachycardia and shivering, which is linked to myocardial ischaemia, angina and reduced PaO<sub>2</sub> post-operatively.<sup>5</sup> Surgical teams undertake many time-sensitive and life-saving actions and preventing perioperative hypothermia should be among them.

### Myth: Being cold is not a concern for patients

Personally, I struggle to connect with this misconception. In my role as an anaesthetic and recovery nurse, I have encountered numerous patients expressing discomfort due to feeling cold. Additionally, I have gathered many anecdotal accounts from friends and family, recounting how waking up cold was the most unpleasant aspect of their surgical encounters. Further, it has been well established by research that thermal comfort plays a crucial role in a surgical patient's sense of well-being, and memories of thermal discomfort significantly impact their overall perception of the surgical journey.<sup>6</sup>

### Myth: Warming blankets are an unnecessary cost

Given the current financial climate, I understand the need for staff and managers to be cost conscious and seek ways to cut expenses. However, underestimating the importance of effective warming strategies is short-sighted. Economic analyses highlight that preventing hypothermia actually results in lower costs compared to treating the complications it causes. A study conducted in 2020<sup>7</sup> revealed that preventing perioperative hypothermia yielded an annual net benefit of \$602 million to the Australian health system.

### Myth: Perioperative hypothermia is only a problem in recovery

This misunderstanding is sometimes reinforced by the Australian Council on Healthcare Standards (ACHS) Clinical Indicator Program, which emphasises the percentage of patients who experience hypothermia in recovery. However, it is important to recognise that guidelines recommend maintaining a patient's temperature above 36 °C throughout the entire perioperative period, not just in the recovery phase.<sup>8</sup> Preventing hypothermia is a collective responsibility of the entire health care team. Interventions

should start before admission with proper patient education and should persist throughout the patient's entire perioperative journey.

### Myth: Non-invasive thermometers are not accurate

Many perioperative nurses doubt the accuracy of non-invasive thermometers. I have even heard them cynically referred to as 'random number generators'. Unfortunately, this scepticism results in inadequate temperature monitoring practices. A recent Australian study<sup>9</sup> discovered that over 50 per cent of audited patients had just two temperatures recorded – one before the operation and another in recovery. Another third of patients had only one temperature recorded, and that was taken during recovery.<sup>9</sup>

### Myth: My patients receive hypothermia prevention

A disparity between perception and reality often serves as a significant obstacle to implementing evidence-based practices. This tendency of people to overestimate their competence is a recognised cognitive bias, called the Dunning-Kruger effect.<sup>10</sup> If you ask a health care professional if they provide quality patient care, they will inevitably tell you they do. However, when we examined the state of perioperative hypothermia prevention in Australia, we discovered that only 10 per cent of patients received temperature monitoring across all perioperative phases (pre-, intra- and post-operative), and 45 per cent of patients did not receive active warming even when it was indicated.<sup>1</sup>

Recognising and addressing staff members' beliefs is crucial for rectifying misconceptions and enhancing the adoption of evidence-based perioperative hypothermia prevention. The myths I've shared are typical misconceptions that I've come across during my career and I strongly urge you to validate the presence of these beliefs in

your department and uncover any additional common myths. You can engage in casual conversations with colleagues or opt for a more structured approach, like organising focus groups or distributing staff surveys. These methods will aid in gaining a comprehensive understanding of perspectives and enable targeted efforts to address misconceptions.

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