

IMPROVING INTRAOPERATIVE HYPOTHERMIA

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UNDERSTANDING THE SYSTEM

Clinical Importance

Leads to:

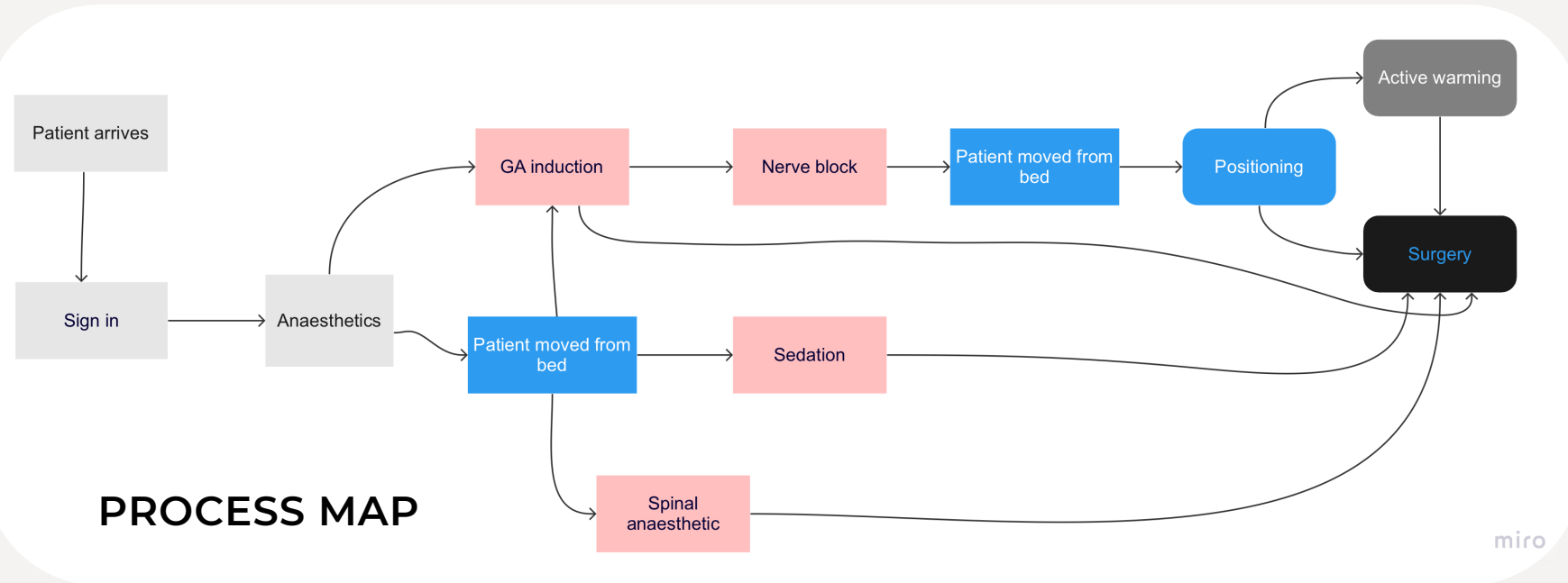
- ↑ blood loss & shivering
- ↑ risk of surgical site infection
- Impaired drug metabolism
- Impaired coagulation

Baseline data:

Thanks to a nursing audit, it was established that **18%** of all and **9%** of emergency theatre patients arrive to recovery colder than 36 °C

AIM

Reduce the number of hypothermic patients (T under 36 °C) arriving to recovery from the emergency theatre by **half (4.5%)** by 03/05 by encouraging more robust temperature monitoring and interventions



PROCESS MAP

CHANGE IDEA #2

While continuing to understand the system, I became aware that anaesthetic charts were not always completed with respect to T monitoring.

An **algorithm** was introduced to:

- Encourage paperwork
- Help identifying patients at risk
- Highlight recent guidelines
- Provide an easy-to-use tool for choice of warmer

CHANGE IDEA #1

The process of an emergency operation is **complex** for various reasons: different specialties, surgeries, and a spectrum of patient health. The above generalised process map simplifies this complexity.

Potential times when a patient can lose heat in the process are marked in **blue**. So I set out to **verbally encourage** the team to be more mindful of interventions during these steps.

CHANGE IDEA #3

Nursing team **education** on current guidelines:

NICE and AOA recommendations emailed with focus on:

- *Monitoring
- *Active warming
- *Exposure
- *Fluids
- *Ambient T

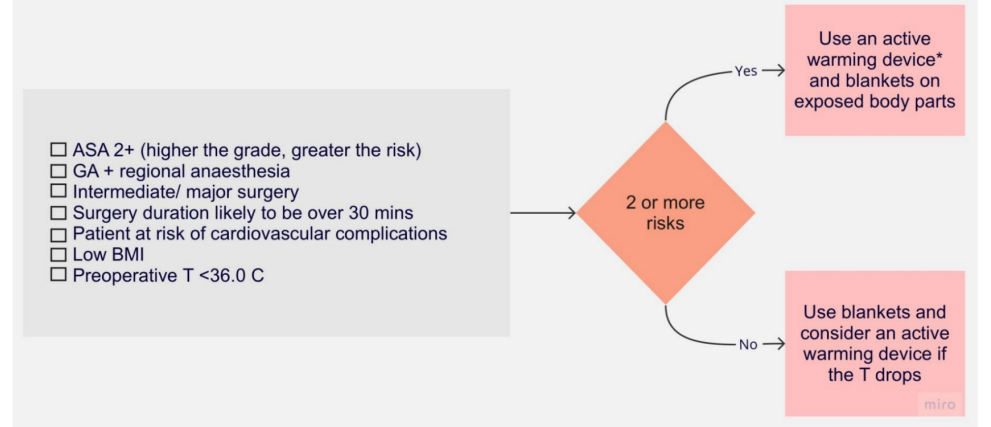
Intraoperative Temperature Management

As per NICE guidelines, please monitor and document in the anaesthetic chart:

- Temperature readings before induction and then every 30 minutes. (Oesophageal probes are available for longer surgeries)
- The choice of warming device

Active warming should commence as soon as possible after the induction of anaesthesia. Please ensure the length of time while the patient is uncovered is minimised.

Identifying patients at risk of perioperative hypothermia:



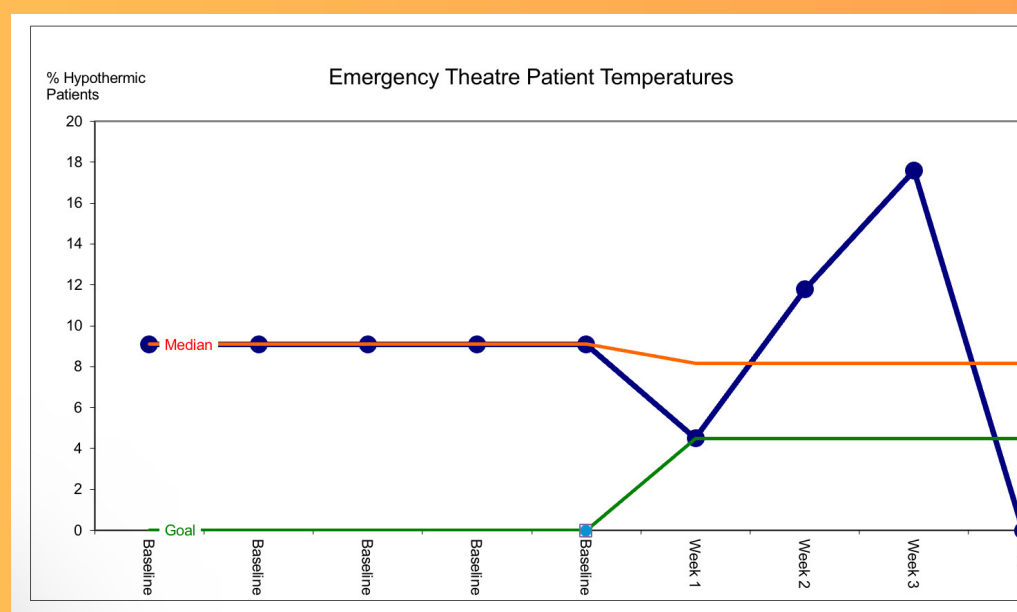
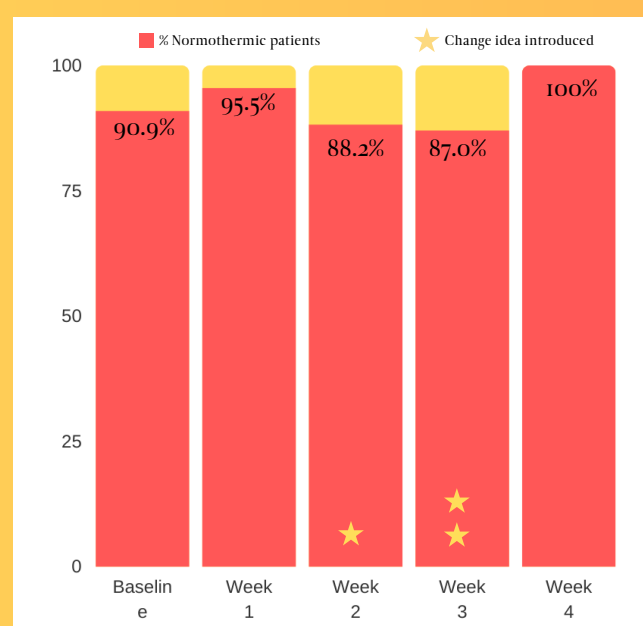
*BAIR Hugger to be used on maximum setting then adjusted to maintain T over 36.5 C

Please consider using a fluid warmer when giving over 500 mL of fluids



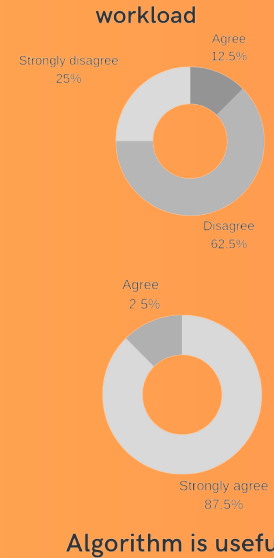
RESULTS

As both the bar graph and the run charts show, the change ideas took time to bring improvement. However, by week 4, the number of hypothermic patients reached 0. This highlights the importance of time in quality improvement.

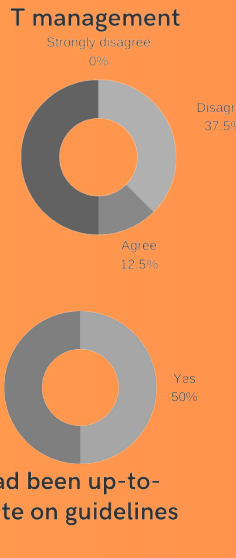


In week 4, I collected feedback from the department on the algorithm and the impact of the project. The feedback was overwhelmingly positive. Most found the algorithm useful and became more mindful of T management.

Algorithm increases workload



More mindful of T management



Challenges: variety of staff and processes, cost of potential solutions, time

Scan the QR code for the QI tools used



Although time was short for this QIP, I was happy to learn that the department will use my findings in a comprehensive audit. Moreover, this project inspired further work exploring intraoperative hypothermia.

Special thanks to Dr David Wright, Angela Miller, Wenda McBride, Paul McLaren, Helen Houghton, and the amazing anaesthetic, and recovery departments for their help with this project!