
Editorial

Perioperative care: who, when, and why?

Perioperative care aims to improve outcomes for patients around the time of their operation. If this benefit is viewed as achieving a complication-free, early discharge following a surgical episode, then good care before, during, and after the operation is encompassed within it. In order to span this timeframe, perioperative care needs to be delivered collaboratively across the broad team looking after the patient, including anaesthetists, surgeons, and nursing staff.

Jocum, et al's article¹ in this edition of the journal highlights the limitations of anaesthetists' knowledge of the antibiotic prophylaxis needed for surgical procedures. Surgical site infection (SSI) is one of the most common complications following surgery, with a high morbidity. It has been shown to be more common in low and middle-income countries, than in high-income countries.² In Africa, mortality following surgical complications (or 'failure to rescue') approached 10% in the African Surgical Outcomes Study (ASOS).³ Unnecessary or excess SSI may therefore drive mortality, and therefore it is important to prevent SSIs. Preventing death after surgery is typically taken as the primary objective of effective perioperative care. Whilst the mortality rate in high-risk groups (e.g. emergency laparotomy) is as high as 30%,⁴ the overall hospital level mortality for all procedures is typically less than 2%. With over 300 million operations annually,⁵ this translates into several million deaths annually within 30 days of surgery. Some of these deaths are potentially preventable. Mortality as a sole indicator of perioperative care, however, ignores the other 98% of patients who are subject to a wide range of morbidity. Indeed, between 13 and 18% of surgical patients suffer some postoperative complication, of which SSI is one of the leading postoperative complications.³ Targeting these perioperative morbidities can bring benefit to a far greater number of patients, and may decrease surgical mortality.

Perioperative complications have implications for quality of life, timely discharge from hospital, return to normal activities, and the ability to work. Other common preventable morbidities that strike patients within 30 days of an operation may have a similar impact, including pneumonia, acute kidney injury, venous thromboembolism, myocardial infarction, urinary tract infections.³ Additionally, complications that have traditionally been considered surgical may also be influenced by perioperative care, including anastomotic leak and the volume of intraoperative fluids.⁶ Furthermore, complications that may have traditionally been seen as medical, such as acute kidney injury, are influenced by the intraoperative and postoperative care.⁷ These examples illustrate the potential wider impact of optimum perioperative care on patients' outcomes, and have allowed perioperative medicine to develop into a speciality in its own right in some parts of the world.

Jocum, et al's paper elegantly shows that anaesthetists' knowledge of best practice to reduce SSI is imperfect.¹ It is possible that the anaesthetists' role in antibiotic administration may directly impact on the incidence

of SSI and hence the patients' subsequent outcome. I suspect that surgeons' knowledge, based on the same questions, will be similarly low. In order to further reduce SSI, robust research is needed in knowledge translation, to ensure successful implementation of case-appropriate antibiotic prophylaxis, as well as targeting other specific measures to ensure that antibiotic prophylaxis is successfully implemented across diverse working environments. Further work is needed which shows how best to implement these interventions. Successful implementation therefore needs education and can only be successful once it becomes a sustainable implementation. As surgical services expand globally, a larger focus on quality assurance is needed. Research programmes are themselves a vehicle to expanding safe surgical practice. Collaborative networks between surgeons and anaesthetists have delivered such programmes and improvements.⁸ Doing so at a global scale presents a new challenge that will require even greater international and inter-specialty collaboration.³ Jocum, et al's study shows that, although there is some distance to go to achieve optimum perioperative care,¹ the potential gains to patients in doing so will be great.

Aneel Bhangu

*Clinical Lecturer in Surgery
NIHR Global Health Research Unit on Global Surgery
University of Birmingham*

References

1. Jocum J, Lowman W, Perrie H, et al. Anaesthetists' knowledge of surgical antibiotic prophylaxis: a prospective descriptive study. *South Afr J Anaesth Analg* 2018;24(4):[needs to be completed].
2. Surgical site infection after gastrointestinal surgery in high-income, middle-income, and low-income countries: a prospective, international, multicentre cohort study. *The Lancet Infectious Diseases* 2018 doi: 10.1016/s1473-3099(18)30101-4 [published Online First: 2018/02/18].
3. Biccard BM, Madiba TE, Kluyts HL, et al. Perioperative patient outcomes in the African Surgical Outcomes Study: a 7-day prospective observational cohort study. *Lancet* 2018;391(10130):1589-98. doi: 10.1016/S0140-6736(18)30001-1 [published Online First: 2018/01/08].
4. Mortality of emergency abdominal surgery in high-, middle- and low-income countries. *Br J Surg* 2016;103(8):971-88. doi: 10.1002/bjs.10151 [published Online First: 2016/05/05].
5. Weiser TG, Haynes AB, Molina G, et al. Size and distribution of the global volume of surgery in 2012. *Bull World Health Organ* 2016;94(3):201-09f. doi: 10.2471/blt.15.159293 [published Online First: 2016/03/12].
6. Marjanovic G, Villain C, Juettner E, et al. Impact of different crystalloid volume regimens on intestinal anastomotic stability. *Ann Surg* 2009;249(2):181-5. doi: 10.1097/SLA.0b013e31818b73dc [published Online First: 2009/02/13].
7. Outcomes after kidney injury in surgery (OAKS): protocol for a multicentre, observational cohort study of acute kidney injury following major gastrointestinal and liver surgery. *BMJ Open* 2016;6(1):e009812. doi: 10.1136/bmjopen-2015-009812 [published Online First: 2016/01/16].
8. Hamilton E, Ravikumar R, Bartlett D, et al. Dexamethasone reduces emesis after major gastrointestinal surgery (DREAMS). *Trials* 2013;14:249. doi: 10.1186/1745-6215-14-249 [published Online First: 2013/08/14].