

# 15. SURGICAL TECHNIQUE

Meticulous surgical technique is the cornerstone of intraoperative blood conservation (PBM pillar 2).<sup>1</sup>

## Key Messages

- Choice of surgical technique or access influences the amount of blood loss and transfusion requirements.<sup>2</sup>

## Clinical implications

- Surgical haemostasis options should be considered and utilised where appropriate. Some options include but are not limited to:
  - ♦ Vascular conserving anatomical operative approaches,
  - ♦ Minimally invasive surgery,
  - ♦ Limb exsanguination before the application of a tourniquet,
  - ♦ Use of a surgical tourniquet at correct limb occlusion pressure to enable surgeons to work in a bloodless operative field,
  - ♦ Electrosurgical diathermy and harmonic scalpel techniques (e.g. argon beam cavitation ultrasonic surgical aspirator [CUSA]),
  - ♦ Use of topical haemostatic agents.<sup>1</sup>
- Techniques including preventing hypothermia, patient positioning, and cell salvage should also be considered.

## Background

Meticulous surgical technique is the cornerstone of intraoperative blood conservation. Close communication between the surgeon, anaesthetists and other members of the PBM team is essential to plan the approach, and when needed, adapt the strategy to conditions arising intraoperatively. Minimally invasive arthroplasty has been shown to reduce bleeding, but not to a clinically significant extent and computer-assisted knee arthroplasty shows a greater reduction in surgical intervention but no significant influence on transfusion rate. Nevertheless, such techniques contribute in a multimodal approach to reduction of blood loss and improved patient care.<sup>3</sup>

The haemostat, sealant and adhesive components of the surgical toolbox continue to evolve and enter clinical practice at a rapid rate.<sup>3</sup> A controlled study in patients undergoing cardiac surgery has shown that the use of topical haemostatics can result in less blood loss and fewer transfusions.<sup>4,5</sup>

### *Emergency radiological/surgical interventions to reduce blood loss*

The European Society of Anaesthesiology guidelines suggest that endovascular embolisation is a safe alternative to open surgical intervention after failed endoscopic treatment for upper gastrointestinal bleeding; super-selective embolisation as primary therapy for treatment of angiogram positive lower gastrointestinal bleeding; and embolisation as first-line therapy for arterial complications in pancreatitis.<sup>6</sup>

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## References

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3. Bisbe E, Molto L. [Pillar 2: Minimising bleeding and blood loss](#). Best Practice & Research Clinical Anaesthesiology. 2013;27:99-110.
4. Spotnitz WD, Burks S. [Hemostats, sealants, and adhesives III: a new update as well as cost and regulatory considerations for components of the surgical toolbox](#). Transfusion 2012;52:2243-55.
5. Nasso G, Piancone F, Bonifazi R, Romano V, Visicchio G et al. [Prospective, randomized clinical trial of the FloSeal matrix sealant in cardiac surgery](#). Ann Thorac Surg. 2009;88: 1520-6.
6. Kozek-Langenecker SA, Afshari A, Albaladejo P, Santullano CA, De Robertis E, et al. [Management of severe perioperative bleeding: guidelines from the European Society of Anaesthesiology](#). Eur J Anaesthesiol. 2013;30:270-382.