A photograph of surgeons in an operating room, wearing blue scrubs and masks, performing a surgical procedure. The text 'Clinical Strategies to avoid blood transfusion' is overlaid on the left side of the image.

## Clinical Strategies to avoid blood transfusion

The avoidance of blood transfusion involves the optimized use of strategies **to control blood loss, manage autologous blood, enhance hematopoiesis, and maximize tolerance of anemia**. This is achieved through the timely utilization of appropriate combinations of medical and surgical blood conservation techniques, devices, and pharmaceuticals. The planned and systematic use of multiple transfusion-alternative strategies by interdisciplinary teams can avoid allogeneic blood transfusion in a simple, safe, and effective manner.

*“Caring for patients without transfusion requires a wide range of blood conservation strategies, taken to the extreme, in order to avoid rather than reduce transfusions.”*

—Guinn NR, et al. Perioperative management of patients for whom transfusion is not an option. *Anesthesiology* 2021;134(6):939-48.

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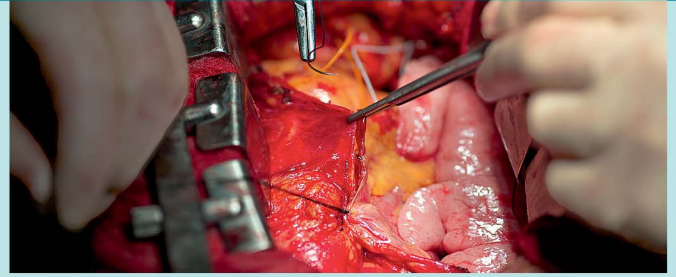
# OBJECTIVES

- minimize blood loss
- enhance hematopoiesis
- autologous blood management (intraoperative and postoperative)
- tolerance of anemia



## Preoperative assessment and planning

- Accurate history and physical examination
- Early recognition/management or prophylaxis of anemia (erythropoiesis-stimulating agents, iron)
- Clinical assessment and optimization of coagulation status
- Judicious management of anticoagulants, antiplatelet agents, and other products that may adversely affect coagulation
- Restricted phlebotomy (quantity and frequency) to decrease iatrogenic blood loss
- Management planning (staging of complex procedures, enlarged surgical team/ minimal time, minimally invasive techniques, prophylactic preoperative or intraoperative angiographic embolization)



## Intraoperative management

- Meticulous hemostasis and surgical technique
- Hemostatic surgical devices (e.g., thermal, electrocautery, ultrasonic)
- Pharmacological agents to enhance hemostasis (e.g., systemic agents such as tranexamic acid, aminocaproic acid, coagulation factor concentrates,\* and rFVIIa,\* as well as topical hemostatic agents\*) and mechanical hemostasis/occlusion
- Autologous blood management\* (e.g., cell salvage, hemodilution)
- Other blood conservation techniques (e.g., hypotensive anesthesia, surgical positioning, normothermia)
- Minimally invasive approaches (e.g., laparoscopic, endoscopic, stereotactic radiosurgery)
- Angiographic embolization

\* Confirm acceptability with patient.



## Postoperative management

Maximize tolerance of anemia

Continuous assessment of coagulation status/monitoring for bleeding

Prompt arrest of any bleeding (reoperation, hemostatic agents,\* patient positioning, radiology-guided arterial occlusion)

Postoperative blood salvage\*

Anemia management

Volume management (judicious use of nonblood volume expanders)

Avoidance of hypertension and hypothermia

Restricted phlebotomy

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\* Confirm acceptability with patient.



## Positive outcomes

- Reduced adverse events
- Lower infection rates
- Shorter length of stay in hospital and intensive care unit
- Decreased short- and long-term mortality
- Avoidance of canceled surgery due to blood inventory shortages
- Lower overall hospital and patient-care costs

## What medical professionals say

“The principle of patient autonomy mandates quality bloodless care for patients who object to blood transfusion. Bloodless medicine and surgery involves the use of various simple but standard techniques in a multimodal and multidisciplinary fashion tailored to the individual patient, following a protocol.”

—Usono NI, et al. Bloodless management of severe obstetric hemorrhage with very severe anemia: a case report. *A A Pract* 2021;15(2):e01396.

“Blood management makes good economic sense and (consistent with the evidence presented here) good medical sense.”

—Adamson JW. New blood, old blood, or no blood? *N Engl J Med* 2008;358(12):1295-6.

“[T]he successful implementation of PBM [patient blood management] was associated with a significant reduction in complication rate and mortality.”

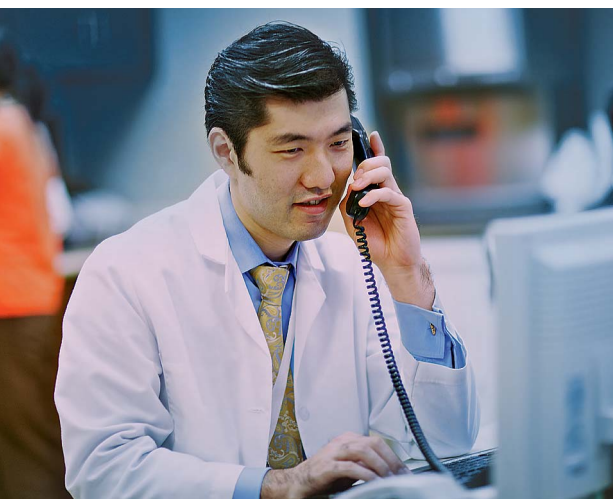
—Althoff FC, et al. Multimodal patient blood management program based on a three-pillar strategy: a systematic review and meta-analysis. *Ann Surg* 2019;269(5):794-804.

“Health care systems worldwide have adopted PBM [patient blood management] programs enthusiastically, in part because those programs reduce transfusions, lower costs, and have been associated with better patient outcomes.”

—Zeller MP, et al. Safeguarding the patient's own blood supply. *JAMA* 2019;321(10):943-5.

“[T]here is an increasing body of evidence illustrating the potential disadvantages of blood product administration, including prolonged mechanical ventilation, increased risk of infection, and prolonged hospital stay, in both adults and children.”

—Kato H, et al. Are blood products routinely required in pediatric heart surgery? *Pediatr Cardiol* 2020;41(5):932-8.



### For more information

Jehovah's Witnesses have a worldwide network of more than 2,000 Hospital Liaison Committees (HLC). This network provides authoritative information regarding clinical strategies to avoid blood transfusion and facilitates access to health care for patients who are Jehovah's Witnesses.

To contact a local HLC representative, go to [www.jw.org/medical](http://www.jw.org/medical) and select "Contact Local Representative."



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