

# Surgical Patient Optimization Guideline Checklist

## Preoperative Clinicians

### Level 3



## The current state of the issue

Anemia and poor glycemic control are key modifiable risk factors that worsen perioperative outcomes in those undergoing major surgery. Both preoperative anemia and perioperative hyperglycemia are associated with longer hospital stays<sup>[i]</sup>, increased costs, higher morbidity and mortality<sup>[ii],[iii]</sup>, and worse recovery. Even mild anemia can affect 30-day outcomes, and perioperative glucose levels predict short-term mortality<sup>[iv]</sup>, while evidence shows hyperglycemia impacts non-diabetic patients more negatively than those with diabetes. In Washington state, there is significant variation in practices regarding

### Perioperative Anemia Control

- Take steps to optimize preoperative red blood cell production, such as administering supplementary iron (even with normal iron stores) or using r-HuEPO to increase slightly low hematocrit before anticipated major blood loss or for patients with ischemic heart disease
- For patients with anemia (Hb <13g/dL), identify underlying cause of anemia. Assessment should include the following
  - Reflexively test iron studies.
- Communicate anemia optimization plan with the surgical team, including relevant lab values, underlying cause as identified, and treatment goals and plan.
  - Repeat lab testing to assess response to treatment (CBC, iron studies, etc.)
    - If response is adequate, proceed to surgery
    - If response is inadequate (Hb <12 g/dL)
      - Consider changing formulation (oral  $\otimes$  iv) or adding ESA if response is inadequate
- Discuss and determine goals of treatment for anemia with the patient, including likely time course needed for treatments (4-6 weeks or more), including cause of anemia and individual patient factors and circumstances.
- Treat anemia to optimize prior to surgery (goal = HgB > 12 g/dL)
  - For those with identified cause of anemia, treat the underlying cause
  - For patients with isolated iron deficiency anemia, supplement with iron formulation unless contraindicated. Consult pharmacy as able to support selecting iron

supplementation methods that meet hemoglobin/iron goals, cost and timeline limitations.

- If 8+ weeks until surgery, can consider oral iron therapy
- IV supplementation is recommended in patients with <8 weeks until surgery, oral iron is not effective or tolerated, or with severe anemia (Hb <10g/dL)
- Consider addition of erythropoietin stimulating agents
  - In patients with anemia of inflammation (e.g., kidney disease, autoimmune disease)
  - Those who cannot accept transfusions
  - Those with severe anemia with urgent surgery needing more rapid response

## Resources

- The Bree Report on Surgical Patient Optimization is meant to supplement these resources.
  - [Full Bree Report on Surgical Patient Optimization](#)
  - [Implementation Guide on Surgical Patient Optimization](#)
  - [Surgical COAP](#)
  - [Spine COAP](#)
  - [Guidelines - ERAS® Society](#)
  - [Clinical Strategies to Avoid Blood Transfusion](#)

**Read the full Bree Report on Surgical Patient Optimizations online by scanning the QR code:**



**Connect with the Bree Collaborative at [bree@qualityhealth.org](mailto:bree@qualityhealth.org)**

References: [\[1\]](#) Schatz C, Plötz W, Beckmann J, Bredow K, Leidl R, Buschner P. Associations of preoperative anemia and postoperative hemoglobin values with hospital costs in total knee arthroplasty (TKA). *Arch Orthop Trauma Surg.* 2023 Nov;143(11):6741-6751. [\[2\]](#) Musallam KM, et al. Preoperative anaemia and postoperative outcomes in non-cardiac surgery: a retrospective cohort study. *Lancet.* 2011 Oct 15;378(9800):1396-407. [\[3\]](#) Myles, P. S., Richards, T., Klein, A., Wood, E. M., Wallace, S., Shulman, M. A., Martin, C., Bellomo, R., Corcoran, T. B., Peyton, P. J., Story, D. A., Leslie, K., Forbes, A., & RELIEF Trial Investigators (2022). Postoperative anaemia and patient-centred outcomes after major abdominal surgery: a retrospective cohort study. *British journal of anaesthesia,* 129(3), 346-354. <https://doi.org/10.1016/j.bja.2022.06.014> [\[4\]](#) van den Boom, W., Schroeder, R. A., Manning, M. W., Setji, T. L., Fiestan, G. O., & Dunson, D. B. (2018). Effect of A1C and Glucose on Postoperative Mortality in Noncardiac and Cardiac Surgeries. *Diabetes care,* 41(4), 782-788.