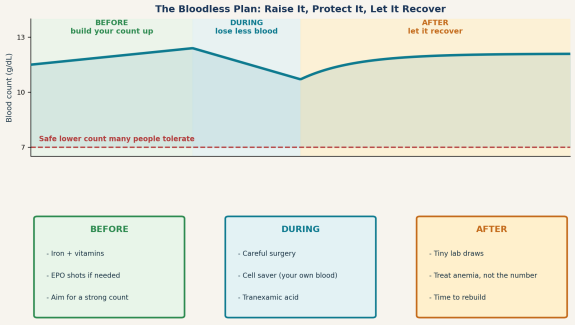
Understanding Bloodless Medicine and Surgery

Caring for you safely with little or no donor blood — a planned, team-based approach

Your wishes guide your care. A good plan, made early, keeps bloodless surgery safe.



Online: https://go.riasalimd.com/bloodless-medicine-guide

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Names & Terms You Will Hear

Term	Meaning
Bloodless medicine and surgery	Caring for you with no donor (someone else's) blood, or as little as possible. It is planned in advance with a team.
Patient Blood Management (PBM)	The medical name for the plan. It has three parts: build your blood count up, lose less blood, and safely tolerate a lower count.
Transfusion-free care	Care given without a blood transfusion. Many surgeries can be done this way when planned ahead.
Cell saver (cell salvage)	A machine that collects your own blood lost during surgery, cleans it, and gives it back to you. Whether to use it is your personal choice.
Tranexamic acid (TXA)	A medicine that helps blood clot stay in place, so you bleed less during surgery.
Erythropoietin (EPO)	A shot that tells your bone marrow to make more red blood cells. It is used to build your count up before surgery.
Hemoglobin (Hgb)	The part of blood that carries oxygen. A blood test reports it as a number, like 12 g/dL. It is your blood count.
Hospital Liaison Committee (HLC)	A group of trained volunteers. They help patients and doctors work together to find bloodless-friendly care.
Advance directive / blood-refusal form	A signed paper that records your wishes about blood. It speaks for you if you cannot speak for yourself.

Your choice, your plan. Bloodless care starts with what you want. Tell your team early what is and is not acceptable to you, and put it in writing with an advance directive or blood-refusal form. For Jehovah's Witness patients, a Hospital Liaison Committee can help connect you with bloodless-friendly doctors and support your wishes.

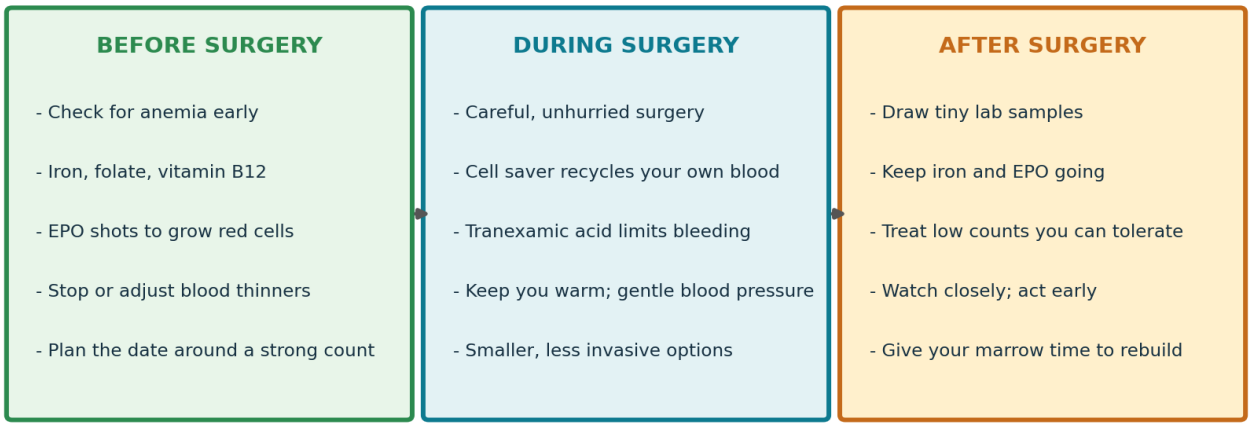
What Is Bloodless Medicine and Surgery?

- Bloodless medicine and surgery means caring for you safely with little or no donor blood. It is not an emergency last resort. It is a careful plan made before surgery.
- The plan has three parts: build your blood count up BEFORE surgery, lose less blood DURING surgery, and safely tolerate a lower count AFTER surgery.
- It is a team effort. Your surgeon, your cardiologist, the anesthesia team, a blood-management coordinator, and you all share the plan.
- It is for anyone who wants to limit or avoid donor blood. This includes Jehovah's Witness patients, people worried about transfusion risks, and people having planned heart or blood-vessel surgery.
- Many large hospitals now have a named Bloodless Medicine or Patient Blood Management program with a coordinator who guides you through each step.
- Your written wishes are part of the plan from the start. Your care team documents exactly what is and is not acceptable to you.

Why It Matters

- It respects your wishes and your beliefs. For many patients this is the whole point. Your choice is honored and written into the chart.
- It avoids the risks of donor blood. Reactions, infections passed in blood, and immune effects are uncommon today, but a transfusion you never get carries none of them.
- Modern care needs less blood than it used to. Doctors now wait for a lower blood count before transfusing because studies show patients do just as well. A common threshold is a hemoglobin below 7 g/dL (and below 7.5 for many heart surgeries).
- In experienced programs, outcomes are good. At one long-running program, deaths within 30 days of bloodless heart surgery fell from about 3% to about 1% over time. Results can match those of patients who do get blood.
- Planning early is what makes it safe. The earlier you build your count up, the more room you have. A plan made weeks ahead is far safer than a decision made the day of surgery.
- The figure below shows the whole plan on one timeline: raise the count, protect it during surgery, and let it recover after.

Three Steps That Keep You Safe With Little or No Donor Blood



The same plan, step by step. Before surgery we raise your count; during surgery we lose less blood; after surgery we let your marrow rebuild while watching closely.

BEFORE Surgery — Build Your Blood Count Up

- We check for anemia weeks ahead. A low count found early is a low count we can fix before you ever reach the operating room.
- Iron is the foundation. We give it by mouth, or through a vein when you need to build up faster or cannot absorb pills.
- EPO shots tell your bone marrow to make more red blood cells. Programs may aim for a strong starting count, sometimes around 14 g/dL, before bigger surgery.
- We plan the surgery date around your count and adjust blood thinners safely. Never stop a blood thinner on your own.

DURING Surgery — Lose Less Blood

- Careful, unhurried surgery is the biggest factor. Keeping you warm and steady also helps your blood clot normally.
- Tranexamic acid is a medicine that helps clots hold, so you bleed less. It is widely used and well studied.
- A cell saver collects blood you lose during the operation, cleans it, and returns it to you. Whether to use it is your personal choice.
- Less invasive options can mean less bleeding. In heart care, catheter-based valve and artery procedures sometimes replace open surgery.

AFTER Surgery — Tolerate a Safe Lower Count and Rebuild

- A lower count after surgery is expected. Healthy bodies tolerate it well, and we treat how you feel rather than chasing a number.
- We draw tiny lab samples so testing itself takes very little blood. Small draws add up over a hospital stay.
- Iron and EPO continue so your marrow can rebuild. Recovery of the count happens over weeks, not days.
- We watch closely and act early. If symptoms of a low count appear, we step in quickly with the tools in your plan.

The Three Pillars of a Bloodless Plan

BEFORE — Build It Up	DURING — Lose Less	AFTER — Let It Recover
• Find and treat anemia early	• Careful surgery; keep you warm	• Tiny lab draws
• Iron, folate, B12, vitamin C	• Cell saver (your own blood)	• Keep iron and EPO going
• EPO shots to grow red cells	• Tranexamic acid	• Treat how you feel
• Adjust blood thinners safely	• Less invasive options	• Time to rebuild the count

Risk Factors

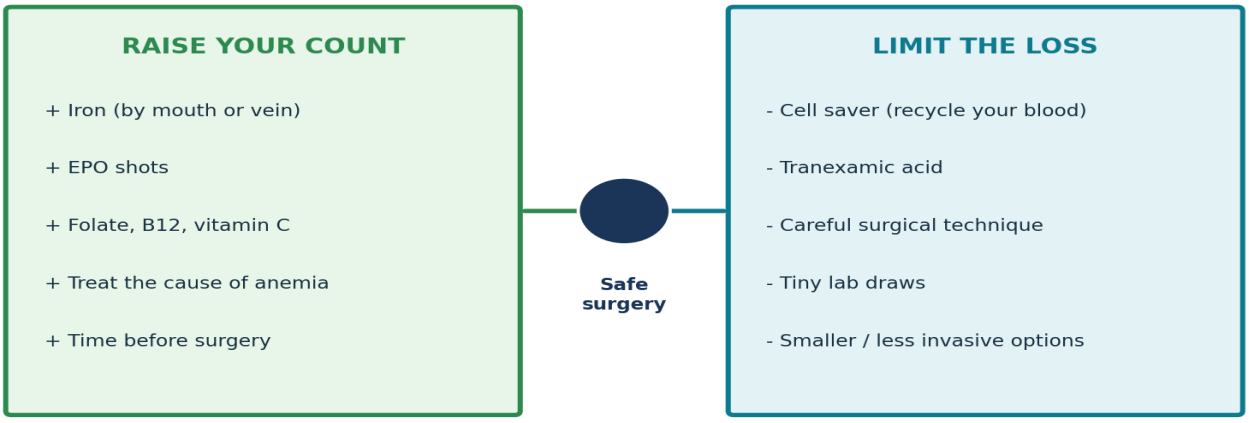
Some patients are more likely to develop this condition. Knowing your risk helps your care team take extra precautions.

Risk Factor	Why It Increases Risk
Low blood count (anemia) before surgery	Less reserve to start with. Finding and treating it early is the single biggest step. This is why we test weeks ahead.
Iron, B12, or folate deficiency	Your marrow cannot build red cells without these. Replacing them lets the count rise before surgery.
Blood thinners (aspirin, warfarin, newer agents)	Can raise bleeding during surgery. We adjust the timing carefully so you are protected without bleeding more.
Kidney disease	Sick kidneys make less natural EPO, so anemia is common. EPO shots and iron help correct it before surgery.
Bigger or urgent operations	More expected blood loss and less time to prepare. Planning, careful technique, and cell salvage matter even more.
Starting surgery without a plan	A last-minute decision leaves no time to build the count up. Bringing your wishes early is the best protection.

Treatment Options

- BEFORE surgery, build your count up. We check for anemia early, then treat it with iron (by mouth or through a vein), folate, vitamin B12, and EPO shots when needed.
- Stop or adjust blood thinners safely. We time aspirin, warfarin, and newer blood thinners so you clot well during surgery without raising other risks. Never stop them on your own.
- DURING surgery, lose less blood. The team uses careful technique, keeps you warm, and may use tranexamic acid to limit bleeding.
- A cell saver can recycle your own blood during the operation and give it back to you. Whether this is acceptable is your personal choice — tell your team.
- Smaller, less invasive options can mean less bleeding. Examples in heart care include catheter-based valve and artery procedures instead of open surgery, when they fit your case.
- AFTER surgery, tolerate a safe lower count and rebuild. We draw tiny lab samples, keep iron and EPO going, and treat how you feel — not just the number on the report.
- The figure below shows the two jobs of the plan side by side: grow more red cells, and lose less blood. Both push toward a safe surgery.
- See our companion guide, Blood Conservation and Alternatives, for more detail on each tool: https://go.riasalimd.com/blood-conservation-guide.

Two Jobs of a Bloodless Plan: Grow More, Lose Less



Two jobs, one goal. Things on the left grow more red blood cells. Things on the right limit how much blood you lose. Together they make surgery safe with little or no donor blood.

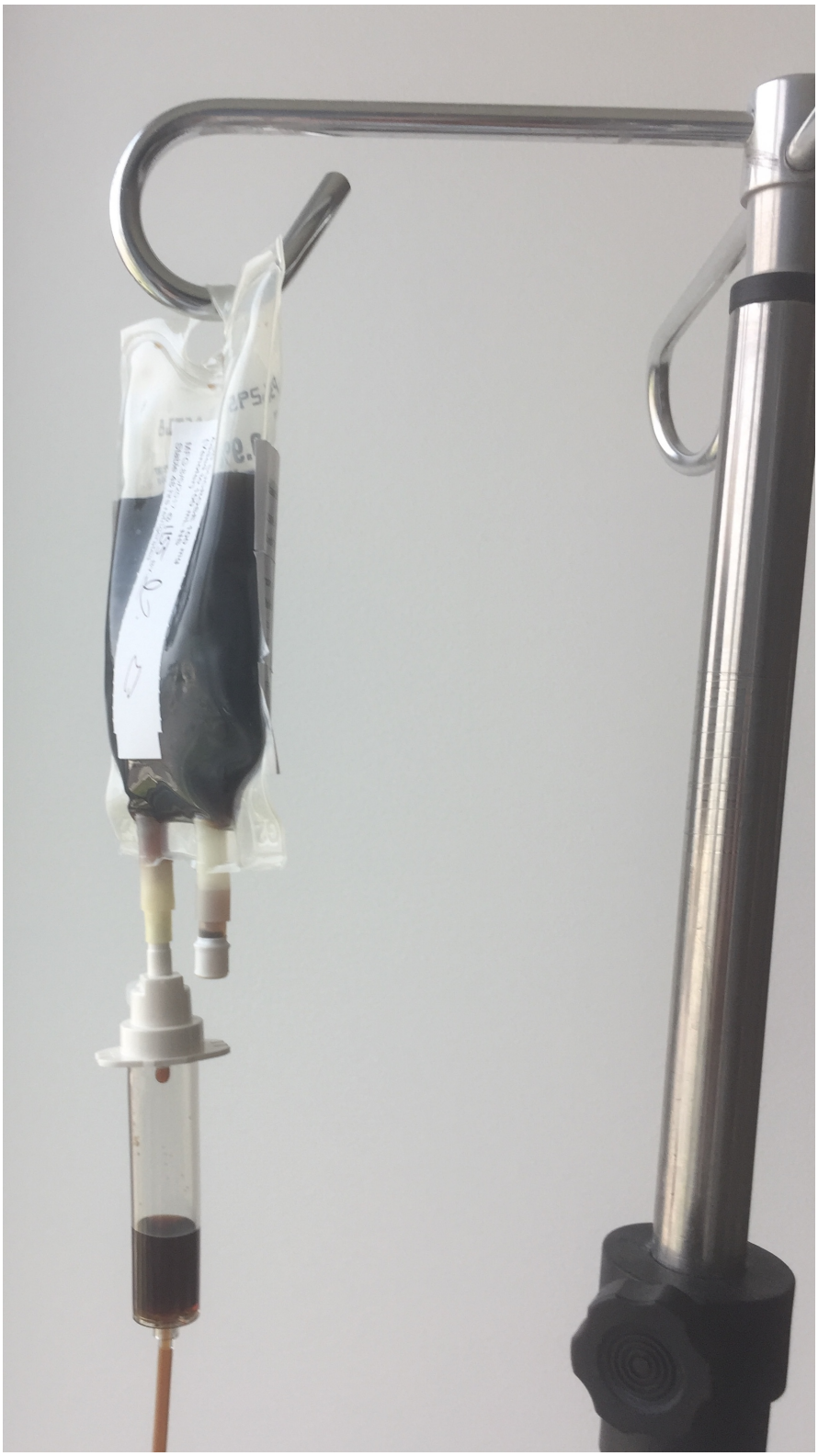
What Raises Your Blood Count vs. What Limits Blood Loss

Raises your blood count (BEFORE)	Limits blood loss (DURING and AFTER)
Iron — by mouth or through a vein	Cell saver recycles your own blood back to you
EPO shots tell the marrow to make red cells	Tranexamic acid helps clots hold and limits bleeding
Folate, vitamin B12, and vitamin C	Careful, unhurried surgical technique; keeping you warm
Treating the cause of anemia early	Tiny lab draws so testing takes very little blood
Time before surgery to let the count rise	Smaller, less invasive options when they fit your case

Comfort Measures at Home (No Medication Needed)

These simple steps support healing and ease symptoms. Use them alongside any medication your doctor prescribes.

- Eat iron-rich foods while you build your count: lean red meat, beans, lentils, spinach, and fortified cereals.
- Pair iron with vitamin C (citrus, peppers, strawberries) at the same meal — it helps your body absorb iron.
- Keep all pre-surgery lab and EPO appointments. Building a blood count takes weeks, not days.
- Bring your advance directive or blood-refusal form to every visit, and tell each new team member your wishes.
- If you are a Jehovah's Witness, your Hospital Liaison Committee can help you find bloodless-friendly doctors.
- Ask your team to write down exactly what is and is not acceptable to you, so every member of the team follows the same plan.
- Rest and gentle activity after surgery help recovery while your marrow rebuilds your count.



An IV iron infusion (iron sucrose) hanging on a drip stand. Iron given through a vein is one of the main tools used to build your blood count up in the weeks before surgery.

Risks, Benefits, and Alternatives

Every choice has trade-offs. Use this table to start the shared decision conversation.

Option	Risks	Benefits	Alternatives
Bloodless (transfusion-free) approach	Needs early planning. If a count drops very low, fewer rescue options. Some tools may not fit every case.	Honors your wishes. Avoids donor-blood risks. In experienced programs, outcomes can match standard care.	Standard care with transfusion if you accept it. A mixed plan that limits but does not fully avoid blood.
Standard care (donor blood available if needed)	Reactions, infections in blood, and immune effects are uncommon but possible. May not match your beliefs or wishes.	A simple backup if bleeding is heavy. Familiar to every hospital.	Bloodless approach. Patient Blood Management to use far less blood while keeping transfusion as a backup.
Build the count up first (iron, EPO), then operate	Adds weeks before surgery. EPO has a small clot risk and a cost. Iron by vein can rarely cause a reaction.	Raises your starting count, giving more safety room. Lowers the chance of ever needing blood.	Operate sooner with a lower count and rely more on careful technique and cell salvage.
Cell saver during surgery (recycle your own blood)	A continuous circuit is a personal choice for some patients. Not used for certain infected or cancer fields.	Returns your own blood, so less is lost. Reduces the need for any donor blood.	Decline cell salvage and rely on other blood-sparing steps. Discuss what is acceptable to you.

For Jehovah's Witness Patients — Your Choices, Respected

- Your beliefs guide your care. Bloodless programs exist so you can have excellent surgery while your wishes are honored.
- Many choices are personal. Decisions about blood fractions, cell salvage, and a continuous circuit are left to each person. We do not decide them for you here.
- Discuss what is acceptable to you with your care team, and, if you wish, with your Hospital Liaison Committee. We will write your choices into the plan so every team member follows them.
- Bring an advance directive or blood-refusal form to every visit. It records your wishes and speaks for you if you cannot speak for yourself.
- Your Hospital Liaison Committee can help connect you with doctors and hospitals experienced in bloodless care.
- You can change your mind or ask questions at any time. The goal is a plan that fits both your safety and your beliefs.

Common Misconceptions

Myth	Reality
Bloodless surgery is unsafe or a last resort.	Not in planned care. When the plan is made ahead of time by an experienced team, results can match standard care. It is a deliberate, well-studied approach — not a desperate measure.
Only Jehovah's Witnesses choose bloodless care.	Many people choose it. Some want to avoid donor-blood risks; some are planning surgery and want the safest, most modern path. Patient Blood Management is now standard good care for everyone, not a special exception.
If I refuse blood, doctors will refuse to treat me.	Your wishes are respected and built into the plan. Bloodless programs exist exactly so you can get excellent surgery while your choices are honored. Your team works with you, not against you.
A low blood count after surgery means something went wrong.	A lower count is expected and planned for. Healthy bodies tolerate a lower count well, and your marrow rebuilds it over weeks. We treat how you feel, not just the number.
There is nothing you can do to prepare your own blood.	There is a lot you can do. Iron, vitamins, and EPO shots can raise your count well before surgery. Treating anemia early is the single most powerful step.
Bloodless care means no medicines or machines can help me bleed less.	The opposite is true. Tranexamic acid, the cell saver, careful technique, and less invasive procedures all limit blood loss. A bloodless plan uses every safe tool available.
My wishes about blood fractions and cell salvage are decided by the church.	These are personal decisions. Many choices about specific blood fractions, cell salvage, and continuous circuits are left to each individual. Discuss what is acceptable to you with your team and, if you wish, your Hospital Liaison Committee.

Possible Complications

Knowing what can go wrong helps you spot problems early. Most complications are uncommon, especially with treatment.

Where / What	What Can Happen
Low blood count (anemia) after surgery	Expected and planned for. A lower count is usually tolerated well and rebuilds over weeks with iron and EPO. We watch closely and treat symptoms early.
Symptoms from a very low count	If the count falls low enough, you may feel very tired, dizzy, short of breath, or have a racing heart. Report these right away so we can act.
Heart strain	A very low blood count makes the heart work harder to deliver oxygen. In people with heart disease this matters more, which is why a slightly higher transfusion threshold is often used for heart patients.
Bleeding during or after surgery	Careful technique, tranexamic acid, and cell salvage limit this. Heavy bleeding is the main reason a bloodless plan is harder, which is why early planning matters.
Side effects of preparation	Iron by vein can rarely cause a reaction. EPO has a small risk of blood clots and raises blood pressure in some people. We monitor for both.
Slower recovery if the count stays low	Healing and energy can lag while the count is low. Keeping iron, vitamins, and EPO going, plus rest, helps your marrow catch up.

Points to Know

If you remember nothing else, remember these key points.

- Bloodless care is a planned, team-based approach — not an emergency last resort.
- The plan has three parts: build your count up BEFORE, lose less blood DURING, and tolerate a safe lower count AFTER.
- Start early. Building a blood count takes weeks, so the sooner you share your wishes, the safer your surgery.
- Treating anemia before surgery with iron, vitamins, and EPO is the single most powerful step.
- Tools like the cell saver, tranexamic acid, careful technique, and less invasive procedures all limit blood loss.
- Personal choices about blood fractions and cell salvage are individual. Discuss what is acceptable to you with your team and your Hospital Liaison Committee.
- Put your wishes in writing. An advance directive or blood-refusal form speaks for you if you cannot.
- In experienced programs, outcomes after bloodless surgery can match standard care.

When to Call Us - and When to Call 911

If you are not sure, call. We would rather hear from you twice than miss a real problem.

- Heavy or new bleeding from your surgical site or anywhere else — call us today; if it will not stop, call 911.
- Black, tarry, or bloody stools, or vomiting blood — call us today; if you feel faint with it, call 911.
- Feeling very weak, dizzy, or short of breath, or a racing heartbeat — these can be signs of a low blood count; call us today.
- Chest pain or pressure, or fainting — call 911.
- Fast, heavy bleeding while on a blood thinner — call us today and ask before taking your next dose.
- New questions about what is and is not acceptable to you before surgery — call us; we want your plan exactly right.
- Trouble keeping iron pills down, or a reaction after an iron infusion or EPO shot — call us this week.
- Confusion about which blood thinners to stop or restart around surgery — call us before changing anything.

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Trusted Resources

The links below are the trusted resources Dr. Ali used to write this guide and that he recommends you visit for more information. Each is a clickable link in the digital version and a Short.io tracked URL on the printed version.

- Mayo Clinic — Bloodless Medicine and Surgery Program - How a major center describes its bloodless program and what patients can expect.
- Cleveland Clinic — Patient Blood Management - Plain-language overview of the steps in a blood-conservation pathway.
- Society for the Advancement of Patient Blood Management (SABM) - The professional group that defines patient blood management and its three pillars.
- Jehovah's Witnesses — Medical Library and Hospital Liaison Committees - Explains the Hospital Liaison Committee network and the personal advance-directive system.
- AABB — Patient Blood Management - National resource on how programs use less blood while keeping patients safe.

Sources Used to Build This Guide

Every recommendation in this guide is grounded in one or more of the studies, guidelines, or trusted resources below. Short links are tracked so Dr. Ali can see which references patients are reading; nothing personally identifying is captured.

- SABM — Society for the Advancement of Patient Blood Management (sabm.org) *[Professional Society]*
  Defines patient blood management as a patient-centered, evidence-based model and frames how a bloodless-medicine program is organized around the three PBM pillars (manage anemia, minimize blood loss, optimize tolerance of anemia). Anchors the guide's 'care-team approach' section.
- SABM Administrative and Clinical Standards for Patient Blood Management Programs, 5th ed. *[Standards]*
  Source for what a formal bloodless/PBM program offers patients — a named program, a coordinator, documented preferences, and a multidisciplinary team. Supports the 'what's offered' and 'what to discuss' sections.
- Practice Guidelines for Perioperative Blood Management — ASA Task Force (Anesthesiology 2015;122:241-275) *[Guideline]*
  Authoritative anesthesiology framework for transfusion avoidance, multimodal blood-conservation protocols, and shared decision-making before surgery — the clinical backbone of how bloodless surgery is planned.
- Frank SM et al. — Clinical Outcomes and Costs of a Bloodless Medicine and Surgery Program (Transfusion / Johns Hopkins program data) *[Study]*
  Evidence that dedicated bloodless-medicine programs achieve outcomes comparable to or better than transfusion-based care in selected patients — supports realistic expectation-setting in the guide.
- Jehovah's Witnesses — Hospital Liaison Committees and Medical Library (jw.org) *[Patient Community Resource]*
  Explains the Hospital Liaison Committee network and the advance-directive / blood-card system patients may carry. Used so the guide can describe HLC support respectfully and accurately for patients who decline blood on religious grounds.
- Carson JL et al. — Red Blood Cell Transfusion: 2023 AABB International Guidelines (JAMA 2023;330:1892-1902) *[Guideline]*
  Establishes the restrictive transfusion threshold (Hb < 7 g/dL) that underpins modern PBM, giving patients the context for why fewer transfusions are now standard even outside bloodless programs.
- Mayo Clinic — Bloodless Medicine and Surgery Program (patient page) *[Patient Education]*
  Plain-language model for how a major center describes its bloodless program to patients — informs the guide's tone and the 'what to expect / what to discuss with your team' framing.
- Cleveland Clinic — Patient Blood Management / Blood Conservation (patient page) *[Patient Education]*
  Patient-facing reference for the components of a blood-conservation pathway, used to keep the guide's vocabulary at a 6th-grade reading level and aligned with how patients hear these terms elsewhere.
- AABB — Patient Blood Management resources (aabb.org) *[Professional Society]*
  Reference for AABB's definition of PBM and the standard menu of bloodless/conservation options a program may offer, supporting the 'what's available' section.

About This Guide

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Reviewer note: Reviewed: Mayo Clinic, Cleveland Clinic, and Johns Hopkins bloodless-program patient pages. This guide adds a before/during/after conservation timeline, a grow-more-lose-less concept figure, a tinted table separating what raises your count from what limits blood loss, and a respectful, choice-first section for Jehovah's Witness patients.

Disclaimer

This guide is for educational purposes only and does not replace medical advice from your physician. Recommendations may not apply to every patient. Always follow the specific instructions of Dr. Ali and your care team. In an emergency call 911 or go to the nearest emergency department.

Take This Guide With You

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