Anemias, bleeding and oncologic emergencies

Iron and B12 anemia, bleeding disorders, DIC, chemotherapy safety, neutropenia, oncologic emergencies

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1 AT A GLANCE

Too few red cells starve the tissues, and clotting problems turn small injuries dangerous. In cancer care, protect the client from the treatment's side effects, and staff from the treatment itself.

Iron or B12 deficiency

	Iron deficiency	B12 deficiency
Cause	Low intake, blood loss (GI bleeding, heavy periods), poor absorption; pregnancy and growth raise the need	Often poor absorption: no intrinsic factor (pernicious anemia), stomach or bowel surgery, Crohn's disease
Red cells	Small, pale	Large
★ **Special signs**	**Pica** (craving ice, clay or dirt), brittle spoon-shaped nails, a smooth, sore tongue	Nerve damage: **tingling and numbness**, especially in the legs; gait problems and falls; memory or mood changes in older adults
Labs	Low hemoglobin, ferritin and serum iron	Low cobalamin, large red cells; antibodies to intrinsic factor point to pernicious anemia
★ **Treatment**	Treat the cause. Oral iron, like ferrous sulfate; IV iron if oral iron fails	Pernicious anemia: **lifelong B12, usually by injection**, because usual oral doses are poorly absorbed; some clients use large prescribed oral doses

Severe anemia: Pulse oximetry can look normal, because the little hemoglobin there is fully saturated: watch the heart rate, breathing and activity tolerance.

Iron teaching

- Best on an empty stomach; with food if it upsets the stomach.
- ★ **Not with dairy, antacids or calcium**: they block absorption. Vitamin C, from citrus or peppers, helps.
- Constipation is common: add fiber and fluids. Black or greenish-black stools are expected; report tarry stools, red streaks, or stomach cramps or pain right away.
- Liquid iron stains teeth: dilute it and use a straw. IM iron goes in by Z-track.
- Iron-rich foods: red meat, poultry, fish, beans, lentils, spinach, fortified cereals.

Bleeding precautions: low platelets

- ★ **No IM injections**, rectal suppositories or straining.
- Soft toothbrush, electric razor; prevent falls. Avoid aspirin, anti-inflammatories and other drugs that raise bleeding, as appropriate.
- ★ Early internal bleeding: a **fast heart rate and fast breathing**. Low pressure may come later, so a normal pressure isn't reassuring.
- Watch trends: a swelling body part, soaked dressings, restlessness, less urine. Heavy bleeding: apply pressure and notify the provider at once.

Blood and clotting disorders

	What happens	Nursing care
Polycythemia vera	Marrow cancer: too many red cells, white cells and platelets. Thick blood clots (DVT, heart attack, stroke); bleeding too. Ruddy face, itching, headache	Routine phlebotomy; low-dose aspirin, hydroxyurea. Fluids and mobility to prevent clots
Thrombocytopenia	Low platelets: easy bruising, petechiae (tiny red or purple dots), purpura, nosebleeds, bleeding gums, blood in urine or stool	Bleeding precautions. May include stopping the drug, steroids, and platelet transfusions when counts are very low
Hemophilia A	X-linked lack of factor 8, so most affected are male. **Bleeding into joints**: pain and swelling, even without injury	Replace factor 8 at the first sign of bleeding, and before dental work or surgery. Desmopressin: selected mild or moderate hemophilia A, not B, once the response is tested; watch sodium and fluid balance
★ **DIC**	Clotting switches on throughout the body (sepsis, cancer, severe injury, burns, pregnancy complications), then factors run out: **bleeding from many sites**. Falling platelets and fibrinogen, high D-dimer	Treat the cause. Heavy bleeding: plasma, platelets or fibrinogen, guided by platelet, fibrinogen and clotting results. Heparin may be used when clotting dominates. Report new bleeding at once

Radiation and lymphedema

- Radiated skin: keep it clean and dry, mild recommended products only. **No heating pads, ice packs or bandages** on the area; protect it from the sun.
- Sealed source: visits follow the source, dose and radiation safety plan. While the source is in place, pregnant women and children under 1 stay away; once a temporary source is removed, no radiation remains.
- ★ After underarm node removal: **when possible, and per facility policy, the other arm for blood pressures and draws**; always avoid an arm with lymphedema. Report heaviness, tightness or swelling early; watch for cellulitis.

Educational use only. Not a substitute for clinical judgment, your facility's policy or the provider's orders. Where practice varies, follow facility policy and state law. No patient information.

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1 AT A GLANCE, CONTINUED

Oncologic emergencies

	Cause and signs	Treatment
★ **Hypercalcemia**	Tumor in bone, or tumor hormones. Confusion, weakness, nausea, constipation, thirst, frequent urination, rhythm changes	Individualized IV saline, plus an IV bisphosphonate or denosumab. Loop diuretics are generally kept for fluid overload after rehydration. Check the albumin
★ **Tumor lysis**	Treatment breaks open tumor cells, often after the first doses: **potassium, phosphorus and uric acid rise, calcium falls**; the kidneys can fail	Aggressive hydration, urine output checks, ECG for rhythm changes. Rasburicase for uric acid, after screening for G6PD deficiency
Superior vena cava syndrome	A tumor squeezes the vein draining the head and arms: **swelling of the face, neck and arms**, distended neck veins, cough, breathlessness	Radiation or chemotherapy shrinks the tumor, with steroids and sometimes a stent

Neutropenia

- The low point varies by regimen: commonly 7 to 12 days after a dose.
- Infection risk rises as the ANC falls below 1,500 cells/mcL; serious infection below 500.
- ★ **38 °C (100.4 °F) or higher during chemotherapy is an emergency.** Fever may be the only sign: call right away, even at night. No fever reducer first.
- Strict hand hygiene. Limit visitors; avoid crowds and anyone just given a live vaccine. Cook meat, fish and eggs well; wash raw produce, or avoid it as advised.

Chemotherapy safety

- **Double chemotherapy gloves** and a resistant gown to give IV chemotherapy or handle excreta; eye protection for splashes.
- Trace waste: the labeled hazardous-drug container; bulk waste as policy directs. Bin colors vary by facility, vendor and jurisdiction.
- ★ **Extravasation** (pain, swelling, redness): stop the infusion at once, draw back the drug left in the cannula, leave the cannula in. Then follow the drug's plan.
- Doxorubicin: red urine for a day or two is expected. Cyclophosphamide: push fluids, void often, report pink urine. Vincristine: IV only; nerve damage, constipation.

2 PRIORITY AND SAFETY CALLS

★ Fever during chemotherapy, and she asks to take acetaminophen and wait: **tell her to come in now**. Acetaminophen can hide the fever.

★ Sepsis with oozing IV sites, new bruising and blood in the urine; falling platelets and fibrinogen, high D-dimer: suspect DIC and report it now.

Very low platelets and an IM injection ordered: ask the provider about another route.

Hemoglobin 6.8 g/dL with chest pain on activity: anticipate a red cell transfusion, individualized and given as ordered. Vital signs first, start slowly, stay for the first 15 minutes. Early fever, chills, back pain, chest pain or low pressure can mean a hemolytic reaction.

A boy with hemophilia has a hot, swollen, painful knee after a minor bump: suspect a joint bleed.

4 SELF-QUIZ

1. B12 is absorbed mainly after it binds _____ factor.
2. Give IM iron by the _____ method.
3. Hemophilia A is an inherited lack of clotting factor _____.
4. In DIC, the D-dimer is _____.
5. Serious infection risk starts when the ANC falls below _____ cells/mcL.
6. Before rasburicase, screen for _____ deficiency.

ANSWER KEY 1. intrinsic · 2. Z-track · 3. 8 · 4. high · 5. 500 · 6. G6PD

3 EXAM ANCHORS

1. Take iron with orange juice, not milk or antacids. Dark stools are expected, not a reason to stop.
2. Trap: swapping prescribed B12 for an oral supplement. Pernicious anemia needs lifelong B12, usually by injection.
3. Low platelets: no IM injections or aspirin; soft brush, electric razor.
4. Hemophilia: joint bleeding. DIC: oozing from many sites.
5. Facial swelling with neck veins: SVC syndrome. High potassium after the first dose: tumor lysis. Confusion: high calcium.
6. A painless swollen node with drenching night sweats: lymphoma, Hodgkin or non-Hodgkin.

5 SOURCES

1. Open RN, Health Alterations, 3.6 Iron Deficiency Anemia. wtcs.pressbooks.pub/healthalts/chapter/3-6-iron-deficie…
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Built from RN PocketPal course lessons: Anemias and bleeding disorders (c14-l01); Cancer care and oncologic emergencies (c14-l02). Every line on this sheet comes from those lesson scripts.

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