Heart failure

Left vs right, BNP and ejection fraction, drug checks, daily weights

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1 AT A GLANCE

Heart failure means impaired filling, pumping, or both. It can occur with a preserved ejection fraction, and resting output isn't always low.

Left-sided or right-sided

	Left-sided: fluid backs into the lungs	Right-sided: fluid backs into the body
Common causes	High blood pressure, coronary disease, a heart attack, valve disease	Left-sided failure, or pulmonary hypertension
★ Signs	Breathless on exertion, crackles, trouble breathing lying flat, sudden breathlessness that wakes the client at night	Swollen legs and ankles, a swollen belly, poor appetite, an enlarged liver, distended neck veins
Output and EF	Can fall: an extra heart sound (S3), weak pulses, cool, pale hands and feet	Ejection fraction often normal
Complications	Pulmonary edema, with pink, frothy sputum	Liver and kidney damage; venous stasis ulcers

Simple rule: Left is lungs; right is the rest of the body. Many clients have both: over time, left-sided failure strains the right side too.

Tests

Test	What it shows
BNP	A protein the heart releases under strain; a high level points to heart failure
★ BNP under 100 pg/mL	Failure less likely, not impossible: BNP can be low in obesity and some failure with a preserved ejection fraction
Echocardiogram	Ejection fraction: normal about **55 to 70%**. Left-sided failure can reduce it or leave it preserved
Chest X-ray, ECG	Heart size and fluid in the lungs; rhythms that lower output

Acute decompensation

- A sudden or gradual worsening that needs unplanned care. In up to half of cases, no cause is found.
- ★ Triggers: **missed medicines**, too much salt, uncontrolled blood pressure, arrhythmias, lung flares, kidney disease, anemia.
- Report promptly: worse breathing, swelling and lung sounds, new confusion, less urine.
- Treatment often includes IV diuretics and oxygen.

Heart association classes: I: no limits. II: slight. III: marked. IV: symptoms at rest. Know each client's baseline class.

Heart failure drugs: what to check

Drug	Watch for	Check and teach
Loop diuretic: furosemide	Low potassium and dehydration: thirst, weakness, cramps, low pressure, little urine, arrhythmias. Fast IV infusion can damage hearing	Check potassium first. Give in the morning when you can. Give IV slowly
Spironolactone (potassium-sparing)	High potassium; breast enlargement in men	Check potassium within a week of starting, then regularly. Higher risk with kidney problems, potassium supplements, potassium-containing salt substitutes, ACE inhibitors or ARBs
ACE inhibitor (-pril), ARB (-sartan)	Dry cough (less with ARBs), high potassium, angioedema	Monitor pressure, potassium and kidney function. Teach clients not to use salt substitutes that contain potassium without asking their provider. Boxed warning: fetal harm, so stop when pregnancy is found
Beta blocker	Slow pulse, low pressure	Stable HFrEF: specific evidence-based beta blockers, not just any. Apical pulse first. Never stop suddenly: it's tapered over 1 to 2 weeks
★ Digoxin	Toxicity: nausea, vomiting, poor appetite, fatigue, halos and arrhythmias, which can come first, especially in children. Low potassium raises the risk	Apical pulse for a full minute: **under 60, hold** and notify the prescriber, unless other parameters are ordered. Antidote: digoxin immune fab

Follow the order: Before these drugs, check the pulse, blood pressure and potassium. Orders often include hold parameters: below them, hold the drug and notify the prescriber.

Diet, fluids and nursing care

- ★ Avoid excessive sodium; the **exact goal is set by the clinician's orders**.
- Fluid limits are individual, and their benefit is uncertain. Ice chips count in the limit.
- Daily weights, intake and output, and lung sounds tell you whether the plan is working.
- Breathless: raise the head of the bed, give oxygen as ordered, balance activity with rest.
- Know each client's baseline edema, lung sounds, mental status and kidney function, so you can spot a change.

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.

Heart failure

1 AT A GLANCE, CONTINUED

Teaching: daily weights and what to report

- Weigh every morning on the same scale, at the same time, in similar clothing. Keep a journal of weight and blood pressure for each appointment.
- ★ Report a gain **over 2 to 3 lb in a day, or 5 lb in a week**. A kilogram gained in a day is about a liter of fluid.
- Also report more breathlessness or tiredness, a racing heart, worse swelling, rising home blood pressures or a tight waistband. Family may notice confusion first.
- Sleep with the head raised on pillows or in a recliner. Choose low-sodium, heart-healthy foods.
- Take every dose, even when feeling well. Rise slowly. Take a morning diuretic early, to avoid getting up at night.

Is the plan working?

- Example goals: oxygen saturation above 92%, less edema, a lower weight, better exercise tolerance.
- Working: fewer crackles, less swelling, a falling weight.
- Goals not met: the plan is revised with the team.
- Encourage structured exercise, weight control and stopping smoking. Cardiac rehab helps clients stay out of hospital.

2 PRIORITY AND SAFETY CALLS

★ Pulmonary edema (anxiety, severe breathlessness, crackles, falling oxygen, pink frothy sputum): **raise the head of the bed and report it at once**.

★ A weight gain since yesterday and needing more pillows to sleep: **assess lung sounds and oxygen saturation first**.

Digoxin with nausea and yellow halos, and a low potassium: hold the digoxin and notify the prescriber.

Swelling of the lips, tongue, face or throat on an ACE inhibitor is angioedema, an emergency: stop the drug, protect the airway, get help.

Don't lie a breathless client flat; it makes breathing worse.

A client who stops a potassium supplement, thinking it's just a vitamin, can slide into digoxin toxicity: teach why it matters.

3 EXAM ANCHORS

1. Left-sided failure fills the lungs; right-sided failure swells the body.
2. Daily weights catch it early: report 2 to 3 lb a day, or 5 lb a week.
3. A high BNP points to heart failure; under 100 pg/mL makes it less likely, not impossible.
4. Furosemide drops potassium; spironolactone raises it. Low potassium makes digoxin toxicity more likely.
5. Digoxin or a beta blocker: full-minute apical pulse; under 60, hold and notify unless other parameters are ordered.
6. Treatment is working when crackles, swelling and weight fall.
7. Traps: weighing at different times, lying a breathless client flat, and potassium salt substitutes on an ACE inhibitor.

4 SELF-QUIZ

1. Left-sided failure backs fluid into the _____.
2. A BNP under _____ pg/mL makes heart failure less likely, not impossible.
3. A normal ejection fraction is about 55 to _____ %.
4. Report a weight gain over 2 to 3 lb in a day, or _____ lb in a week.
5. Hold digoxin for an apical pulse under _____, unless other parameters are ordered.
6. The antidote for digoxin toxicity is digoxin immune _____.
7. Fast IV furosemide can damage the _____.

ANSWER KEY 1. lungs · 2. 100 · 3. 70 · 4. 5 · 5. 60 · 6. fab · 7. hearing

5 SOURCES

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Built from RN PocketPal course lessons: Heart failure (c08-l01); Cardiovascular drugs I: blood pressure and heart failure (c05-l07). Every line on this sheet comes from those lesson scripts.

CARDIOVASCULAR

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