Needs Evidence Report

Final report

Starting and titrating guideline-directed therapy in heart failure with reduced ejection fraction
Larkspur Medical Education
May 4 – October 31, 2026

Sample report. Larkspur Medical Education, this activity, its learners' questions and every number in this report are fictional. They were made up to show what the report looks like.

Summary

286 learners used the activity's cited AI assistant; 46 typed their own question (60 questions), and 42 of them asked a clinical question (54 questions). 15 clinical questions went beyond what the activity materials covered, and 11 more were only partly covered.

Top needs

- 11 of 42 learners who asked a clinical question asked how to start or titrate therapy when blood pressure is low; 5 of their 13 questions were only partly answered and 1 was not covered.
- 10 of 42 asked about potassium and kidney function during titration, including whether to keep a mineralocorticoid receptor antagonist when potassium rises.
- 4 of 42 asked whether therapy can be reduced or stopped after the ejection fraction improves, and 3 of their 4 questions went beyond the materials.

For the commercial supporter: a Learner Questions Summary is attached.

Needs by topic

Clinical topics, ranked by the number of learners who asked. The base is the 42 learners who asked a clinical question. A question can belong to two topics, so counts across topics do not add up.

1. Starting and titrating therapy when blood pressure is low

In this activity, 11 of 42 learners who asked a clinical question asked about starting and titrating therapy when blood pressure is low.

What they asked

- "pt with EF 25% and SBP 92, which med do I start first?"
- "My patient gets dizzy on carvedilol 6.25 bid, BP 94/60. Lower the dose or switch to metoprolol succinate?"
- "Should I stop the diuretic to make room for GDMT if BP is low"
- "BP 90s, HR 58, on carvedilol 3.125. add ivabradine or not?"

Covered by the activity: Partly. 7 of 13 questions were answered from the materials, 5 only in part and 1 not covered. The materials give an order for starting therapy at low blood pressure but no threshold for holding or reducing the next step.

Learning objective: Start and titrate guideline-directed therapy, including in patients with low blood pressure.

Who asked: 6 physicians, 4 nurse practitioners, 1 physician assistant.

For a needs assessment: In a 2026 accredited activity on guideline-directed therapy for heart failure with reduced ejection fraction, 11 of 42 learners who asked the activity's cited AI assistant a clinical question asked how to start or titrate therapy when blood pressure is low (source: Larkspur Medical Education learner-question data, May–October 2026).

2. Potassium and kidney function during titration

In this activity, 10 of 42 learners who asked a clinical question asked about potassium and kidney function during titration.

What they asked

- "K is 5.4 on spironolactone, stop or reduce?"
- "creatinine went up 25% after starting sacubitril valsartan, is that acceptable"
- "eGFR 28 can I still use spironolactone"
- "dialysis patient with HFrEF, which drugs are safe"

Covered by the activity: Mostly. 8 of 12 questions were answered from the materials, 3 only in part and 1 not covered. The partly answered questions were on potassium binders, an eGFR below 30 and what to teach patients; the activity does not cover dialysis.

Learning objective: Monitor potassium, kidney function and blood pressure during titration, and respond to changes.

Who asked: 3 physicians, 2 pharmacists, 2 nurse practitioners, 2 nurses, 1 physician assistant.

For a needs assessment: In a 2026 accredited activity on guideline-directed therapy for heart failure with reduced ejection fraction, 10 of 42 learners who asked the activity's cited AI assistant a clinical question asked how to manage potassium and kidney function while titrating therapy (source: Larkspur Medical Education learner-question data, May–October 2026).

3. The order and pace of starting the four medication classes

In this activity, 8 of 42 learners who asked a clinical question asked about the order and pace of starting the four medication classes.

What they asked

- "what order to start the 4 drugs in?"
- "can all four be started in the hospital before discharge"
- "do I need to reach target dose of beta blocker before adding MRA"
- "86yo frail with EF 30, do I really push all four"

Covered by the activity: Yes. 8 of 10 questions were answered from the materials and 2 only in part, both on how far to push titration when blood pressure or frailty limits it.

Learning objective: Start and titrate guideline-directed therapy, including in patients with low blood pressure.

Who asked: 3 physicians, 2 physician assistants, 2 nurse practitioners; profession not recorded for 1.

For a needs assessment: In a 2026 accredited activity on guideline-directed therapy for heart failure with reduced ejection fraction, 8 of 42 learners who asked the activity's cited AI assistant a clinical question asked in what order and how quickly to start the four medication classes (source: Larkspur Medical Education learner-question data, May–October 2026).

4. Using SGLT2 inhibitors in heart failure

In this activity, 8 of 42 learners who asked a clinical question asked about using SGLT2 inhibitors in heart failure.

What they asked

- "SGLT2 inhibitor in HFrEF without diabetes, same benefit?"
- "do I need to lower insulin when starting empagliflozin"
- "SGLT2i and euglycemic DKA risk before surgery, when to hold"
- "patient on furosemide 40 bid, euvolemic now. reduce diuretic when starting SGLT2i?"

Covered by the activity: Partly. 4 of 9 questions were answered from the materials, 2 only in part and 3 not covered. The materials cover the trial evidence and the kidney-function threshold, touch on insulin and diuretic doses only briefly, and do not cover holding the drug before surgery.

Learning objective: Describe the four medication classes of guideline-directed therapy for heart failure with reduced ejection fraction and the evidence for each.

Who asked: 3 nurse practitioners, 2 pharmacists, 2 physicians, 1 physician assistant.

For a needs assessment: In a 2026 accredited activity on guideline-directed therapy for heart failure with reduced ejection fraction, 8 of 42 learners who asked the activity's cited AI assistant a clinical question asked how to use SGLT2 inhibitors in heart failure, including alongside insulin and diuretics and around surgery (source: Larkspur Medical Education learner-question data, May–October 2026).

5. Starting sacubitril/valsartan, including the switch from an ACE inhibitor

In this activity, 5 of 42 learners who asked a clinical question asked about starting sacubitril/valsartan, including the switch from an ACE inhibitor.

What they asked

- "how long washout from lisinopril before starting sacubitril/valsartan"
- "angioedema hx on ACE inhibitor, is ARNI contraindicated"
- "can I go straight to ARNI without trying ACEi first"

Covered by the activity: Yes. All 6 questions were answered from the materials.

Learning objective: Start and titrate guideline-directed therapy, including in patients with low blood pressure.

Who asked: 2 physicians, 1 nurse practitioner, 1 pharmacist; profession not recorded for 1.

For a needs assessment: In a 2026 accredited activity on guideline-directed therapy for heart failure with reduced ejection fraction, 5 of 42 learners who asked the activity's cited AI assistant a clinical question asked how to start sacubitril/valsartan, including the switch from an ACE inhibitor (source: Larkspur Medical Education learner-question data, May–October 2026).

6. Continuing or stopping therapy after ejection fraction improves

In this activity, 4 of 42 learners who asked a clinical question asked about continuing or stopping therapy after the ejection fraction improves.

What they asked

- "EF improved from 30 to 50, can we stop any of the meds?"
- "HFimpEF - continue all 4 forever?"
- "pt wants off the beta blocker now that EF 55%, what is the risk"

Covered by the activity: No. 3 of 4 questions went beyond the materials and 1 was only partly answered. The activity does not discuss heart failure with improved ejection fraction.

Learning objective: Outside the stated objectives.

Who asked: 2 nurse practitioners, 1 physician, 1 physician assistant.

For a needs assessment: In a 2026 accredited activity on guideline-directed therapy for heart failure with reduced ejection fraction, 4 of 42 learners who asked the activity's cited AI assistant a clinical question asked whether therapy can be reduced or stopped after the ejection fraction improves (source: Larkspur Medical Education learner-question data, May–October 2026). This rests on 4 learners; pair it with other evidence.

7. Weighing cost and coverage when choosing therapy

In this activity, 3 of 42 learners who asked a clinical question asked about weighing cost and coverage when choosing therapy.

What they asked

- "patient can't afford sacubitril/valsartan, what's the next best option"
- "prior auth denied for SGLT2i, any tips"
- "Medicare part D coverage for these drugs, how do other clinics handle it"

Covered by the activity: No. All 4 questions went beyond the materials.

Learning objective: Outside the stated objectives.

Who asked: 2 nurse practitioners, 1 pharmacist.

For a needs assessment: In a 2026 accredited activity on guideline-directed therapy for heart failure with reduced ejection fraction, 3 of 42 learners who asked the activity's cited AI assistant a clinical question asked how to keep patients on therapy when cost, coverage or prior authorization stood in the way (source: Larkspur Medical Education learner-question data, May–October 2026). This rests on 3 learners; pair it with other evidence.

8. Heart failure with preserved ejection fraction

In this activity, 3 of 42 learners who asked a clinical question asked about heart failure with preserved ejection fraction.

What they asked

- "do these drugs work in HFpEF too"
- "SGLT2i in HFpEF?"
- "spironolactone for HFpEF, any evidence"

Covered by the activity: No. All 3 questions went beyond the materials, which are about reduced ejection fraction only.

Learning objective: Outside the stated objectives.

Who asked: 2 physicians, 1 nurse practitioner.

For a needs assessment: In a 2026 accredited activity on guideline-directed therapy for heart failure with reduced ejection fraction, 3 of 42 learners who asked the activity's cited AI assistant a clinical question asked whether the same therapies apply in heart failure with preserved ejection fraction (source: Larkspur Medical Education learner-question data, May–October 2026). This rests on 3 learners; pair it with other evidence.

9. Referral for an ICD or cardiac resynchronization therapy

In this activity, 2 of 42 learners who asked a clinical question asked about referral for an ICD or cardiac resynchronization therapy.

What they asked

- "when to refer for ICD if EF still 33% after 3 months of GDMT"
- "LBBB QRS 140, CRT referral now or after titration"
- "does a wearable defibrillator make sense while titrating"

Covered by the activity: Mostly. 2 of 3 questions were answered from the materials; the question on a wearable defibrillator went beyond them.

Learning objective: Identify patients who should be referred for an implantable cardioverter-defibrillator or cardiac resynchronization therapy.

Who asked: 2 physicians.

For a needs assessment: In a 2026 accredited activity on guideline-directed therapy for heart failure with reduced ejection fraction, 2 of 42 learners who asked the activity's cited AI assistant a clinical question asked when to refer for an ICD or cardiac resynchronization therapy (source: Larkspur Medical Education learner-question data, May–October 2026). This rests on 2 learners; pair it with other evidence.

10. Add-on therapies beyond the four classes

In this activity, 2 of 42 learners who asked a clinical question asked about add-on therapies beyond the four classes.

What they asked

- "BP 90s, HR 58, on carvedilol 3.125. add ivabradine or not?"
- "Is there a role for vericiguat after all four are on board"

Covered by the activity: No. Both questions went beyond the materials.

Learning objective: Outside the stated objectives.

Who asked: 1 nurse practitioner, 1 pharmacist.

For a needs assessment: In a 2026 accredited activity on guideline-directed therapy for heart failure with reduced ejection fraction, 2 of 42 learners who asked the activity's cited AI assistant a clinical question asked about adding ivabradine or vericiguat to the four medication classes (source: Larkspur Medical Education learner-question data, May–October 2026). This rests on 2 learners; pair it with other evidence.

Questions the activity could not answer

These 15 clinical questions went beyond what the activity's materials covered. They are the clearest evidence of need beyond this activity's scope. Each question is listed once, under its first topic.

Starting and titrating therapy when blood pressure is low

- "BP 90s, HR 58, on carvedilol 3.125. add ivabradine or not?"

Potassium and kidney function during titration

- "dialysis patient with HFrEF, which drugs are safe"

Using SGLT2 inhibitors in heart failure

- "SGLT2i and euglycemic DKA risk before surgery, when to hold"

Continuing or stopping therapy after ejection fraction improves

- "EF improved from 30 to 50, can we stop any of the meds?"
- "what to do with GDMT once EF is normal"
- "HFimpEF - continue all 4 forever?"

Weighing cost and coverage when choosing therapy

- "patient can't afford sacubitril/valsartan, what's the next best option"
- "prior auth denied for SGLT2i, any tips"
- "cheapest way to get a pt on all four pillars"
- "Medicare part D coverage for these drugs, how do other clinics handle it"

Heart failure with preserved ejection fraction

- "do these drugs work in HFpEF too"
- "SGLT2i in HFpEF?"
- "spironolactone for HFpEF, any evidence"

Referral for an ICD or cardiac resynchronization therapy

- "does a wearable defibrillator make sense while titrating"

Add-on therapies beyond the four classes

- "Is there a role for vericiguat after all four are on board"

Questions by learning objective

Learning objective	Learners	Questions
1. Describe the four medication classes of guideline-directed therapy for heart failure with reduced ejection fraction and the evidence for each	8	9
2. Start and titrate guideline-directed therapy, including in patients with low blood pressure	18	24
3. Monitor potassium, kidney function and blood pressure during titration, and respond to changes	10	12
4. Identify patients who should be referred for an implantable cardioverter-defibrillator or cardiac resynchronization therapy	2	3
Outside the stated objectives	12	13

Objective 2 drew the most learners (18 of 42). 12 learners asked about something outside the stated objectives, mostly therapy after the ejection fraction improves, cost and coverage, and preserved ejection fraction. A question can map to two objectives, so the rows do not add up.

For the next proposal

1. **Titrating therapy when blood pressure is low or falling.** Evidence: 11 of 42 learners asked about it (13 questions). This activity covered it in part: 5 questions were only partly answered and 1 was not covered, mostly on when to hold or reduce the next step.
2. **Using SGLT2 inhibitors alongside insulin and diuretics, and around surgery.** Evidence: 8 of 42 learners asked about SGLT2 inhibitors (9 questions). This activity covered it in part: 2 questions were only partly answered and 3 were not covered.
3. **Managing therapy after the ejection fraction improves.** Evidence: 4 of 42 learners asked about it (4 questions). This activity did not cover it: 3 questions went beyond the materials and 1 was only partly answered.
4. **Applying the evidence in heart failure with preserved ejection fraction.** Evidence: 3 of 42 learners asked about it (3 questions). This activity did not cover it. The evidence is thin; use it only with other sources.
5. **Keeping patients on therapy when cost, coverage or prior authorization stands in the way.** Evidence: 3 of 42 learners asked about it (4 questions). This activity did not cover it. The evidence is thin; use it only with other sources.

Who used it

Professions

Profession	Learners who used the assistant	Learners who typed a question
Physician	97	16

Profession	Learners who used the assistant	Learners who typed a question
Nurse practitioner	68	13
Physician assistant	38	6
Pharmacist	31	6
Nurse	24	3
Other	8	0
Not recorded	20	2
All learners	286	46

Profession was recorded for 266 of 286 learners.

Suggested questions

263 of 286 learners clicked a suggested question. 46 typed their own question, and 23 of them never clicked a suggested question. The most-clicked suggested questions:

Suggested question	Clicks
What are the four medication classes for heart failure with reduced ejection fraction?	171
In what order should I start them?	118
How quickly can I titrate to target doses?	74

Low blood pressure was the most-asked topic and has no suggested question. Consider replacing the least-clicked one ("Which patients need an ICD?", 29 clicks) with "What do I do when blood pressure limits titration?"

Follow-up questions

109 learners clicked a follow-up question the assistant offered (187 clicks); 81 of them never typed a question. 142 of the clicks came in chats that began with a suggested question. The assistant writes these follow-ups from the activity's materials, so a click shows engagement, not a need in the learner's own words. They are not counted in the topics above.

Topic	Learners who chose a follow-up	Learners who typed a question
The order and pace of starting the four medication classes	41	8
Starting and titrating therapy when blood pressure is low	23	11
Potassium and kidney function during titration	19	10
Using SGLT2 inhibitors in heart failure	17	8
Starting sacubitril/valsartan, including the switch from an ACE inhibitor	12	5

Operational questions

5 learners typed 6 questions about the activity rather than its content: CME credit and certificates (3), the video not playing on a phone (1), downloading the slides (1) and the post-test deadline (1).

Not counted as learner need

- 4 post-test items from 2 learners
- 2 repeats of a suggested question from 2 learners
- 2 test messages from 1 learner
- 1 question about the learner's own health from 1 learner

2 learners pasted post-test items into the assistant, which answered them. Consider where the assistant appears relative to the post-test.

How this was collected

Learners in this activity could ask a cited AI assistant on the activity page from May 4 to October 31, 2026. It answered only from the activity's own slides and video, cited the slide or the moment in the video, and declined what the materials did not cover. Counts are learners who chose to type a question: 46 of the 286 learners who used the assistant (16%). This report shows educational need and engagement, not knowledge gain, confidence, competence or practice change.

How the numbers were made: a language model named the topics, assigned each typed question to one or two of them, judged from each answer and its citations whether the materials covered it, and marked what to leave out. Code counted every number. Code then checked every number and every quote against the learner's exact words before the report was released.

Exclusions: 9 typed messages from 6 learners were not counted: post-test items (4), repeats of a suggested question (2), test messages (2) and a question about the learner's own health (1).

Appendix: every question learners typed

Grouped by topic, with the date and the learner's profession. Each question is listed once, under its first topic. Operational questions come last; the 9 messages not counted are left out.

Starting and titrating therapy when blood pressure is low

- May 6 · Physician · "pt with EF 25% and SBP 92, which med do I start first?"
- May 6 · Physician · "is it ok to start an SGLT2i first when BP is too low for an ARNI"
- May 11 · Physician · "can you start sacubitril/valsartan if systolic BP is under 100"
- May 19 · Nurse practitioner · "My patient gets dizzy on carvedilol 6.25 bid, BP 94/60. Lower the dose or switch to metoprolol succinate?"
- June 15 · Nurse practitioner · "hypotension limiting titration - which drug to reduce first"
- June 17 · Physician · "BP 88/56 but asymptomatic, do I keep titrating?"
- June 18 · Physician · "Should I stop the diuretic to make room for GDMT if BP is low"
- August 20 · Physician · "what do you do when BP drops after adding spironolactone"
- August 25 · Nurse practitioner · "BP 90s, HR 58, on carvedilol 3.125. add ivabradine or not?"

- October 6 · Physician · "BP 95 systolic, HR 72: titrate beta blocker or ARNI first?"

Potassium and kidney function during titration

- May 13 · Pharmacist · "K is 5.4 on spironolactone, stop or reduce?"
- May 13 · Pharmacist · "patiromer to keep MRA on?"
- May 21 · Physician · "creatinine went up 25% after starting sacubitril valsartan, is that acceptable"
- May 21 · Physician · "when is a rise in creatinine a reason to stop"
- June 25 · Nurse · "how often to check labs after starting MRA"
- June 30 · Physician · "eGFR 28 can I still use spironolactone"
- August 18 · Physician assistant · "dialysis patient with HFrEF, which drugs are safe"
- September 15 · Nurse · "what labs and symptoms should I teach patients to watch for when the dose goes up"
- October 13 · Nurse practitioner · "what K level is too high to start an MRA"

The order and pace of starting the four medication classes

- May 8 · Nurse practitioner · "what order to start the 4 drugs in?"
- May 8 · Nurse practitioner · "how fast should I titrate, every 2 weeks?"
- May 27 · Physician assistant · "can all four be started in the hospital before discharge"
- May 27 · Physician assistant · "rapid titration: what did STRONG-HF actually show"
- June 23 · Physician assistant · "Is it better to get all 4 on at low dose or max out one at a time when BP is borderline"
- August 6 · Not recorded · "do I need to reach target dose of beta blocker before adding MRA"
- August 11 · Physician · "how many weeks to get to full GDMT if BP only allows small steps"
- August 13 · Nurse practitioner · "86yo frail with EF 30, do I really push all four"

Using SGLT2 inhibitors in heart failure

- June 9 · Pharmacist · "do I need to lower insulin when starting empagliflozin"
- June 9 · Pharmacist · "SGLT2i and euglycemic DKA risk before surgery, when to hold"
- July 9 · Physician · "SGLT2 inhibitor in HFrEF without diabetes, same benefit?"
- July 14 · Nurse practitioner · "lowest eGFR to start dapagliflozin for heart failure"
- August 27 · Pharmacist · "will the eGFR dip after starting an SGLT2i recover"
- September 22 · Physician assistant · "patient on furosemide 40 bid, euvolemic now. reduce diuretic when starting SGLT2i?"

Starting sacubitril/valsartan, including the switch from an ACE inhibitor

- May 11 · Physician · "what dose of sacubitril valsartan to start if pt was on lisinopril 10"
- June 2 · Physician · "how long washout from lisinopril before starting sacubitril/valsartan"
- June 2 · Physician · "angioedema hx on ACE inhibitor, is ARNI contraindicated"
- July 2 · Nurse practitioner · "switching from losartan to ARNI, do I need 36 hrs?"

- July 7 · Pharmacist · "can I go straight to ARNI without trying ACEi first"
- September 29 · Not recorded · "Can sacubitril/valsartan be started at the lowest dose in elderly"

Continuing or stopping therapy after ejection fraction improves

- May 19 · Nurse practitioner · "EF improved from 30 to 50, can we stop any of the meds?"
- July 16 · Physician assistant · "what to do with GDMT once EF is normal"
- July 21 · Physician · "HFimpEF - continue all 4 forever?"
- July 23 · Nurse practitioner · "pt wants off the beta blocker now that EF 55%, what is the risk"

Weighing cost and coverage when choosing therapy

- June 4 · Nurse practitioner · "patient can't afford sacubitril/valsartan, what's the next best option"
- June 4 · Nurse practitioner · "prior auth denied for SGLT2i, any tips"
- July 28 · Pharmacist · "cheapest way to get a pt on all four pillars"
- September 3 · Nurse practitioner · "Medicare part D coverage for these drugs, how do other clinics handle it"

Heart failure with preserved ejection fraction

- July 30 · Physician · "do these drugs work in HFpEF too"
- August 4 · Nurse practitioner · "SGLT2i in HFpEF?"
- September 10 · Physician · "spironolactone for HFpEF, any evidence"

Referral for an ICD or cardiac resynchronization therapy

- June 11 · Physician · "when to refer for ICD if EF still 33% after 3 months of GDMT"
- June 11 · Physician · "LBBB QRS 140, CRT referral now or after titration"
- September 1 · Physician · "does a wearable defibrillator make sense while titrating"

Add-on therapies beyond the four classes

- October 20 · Pharmacist · "Is there a role for vericiguat after all four are on board"

Operational: credit, access and the activity itself

- May 14 · Physician · "how do I claim my CME credit"
- May 14 · Physician · "the video wont play on my phone"
- May 19 · Nurse practitioner · "where do I find my certificate"
- June 24 · Nurse practitioner · "is this activity also approved for pharmacy credit"
- August 19 · Physician assistant · "can I download the slides"
- September 24 · Nurse · "how long do I have to finish the post test"