

# HEART FAILURE HOSPITALIZATION PATHWAY TOOLKIT: KEY TABLES AND FIGURES FOR POINT-OF-CARE

This toolkit serves as a companion to the **2019 ACC Expert Consensus Decision Pathway on Risk Assessment, Management, and Clinical Trajectory of Patients Hospitalized with Heart Failure** and its **2024 Focused Update**.

The goal of the pathway is to help clinicians consider the short-term and long-term outlook for their patients hospitalized with heart failure (HF)—to institute therapies to reduce symptoms and optimize outcomes, to ensure that those plans are conveyed clearly to caregivers after discharge, and to engage patients to share in decisions and become active participants in their care.

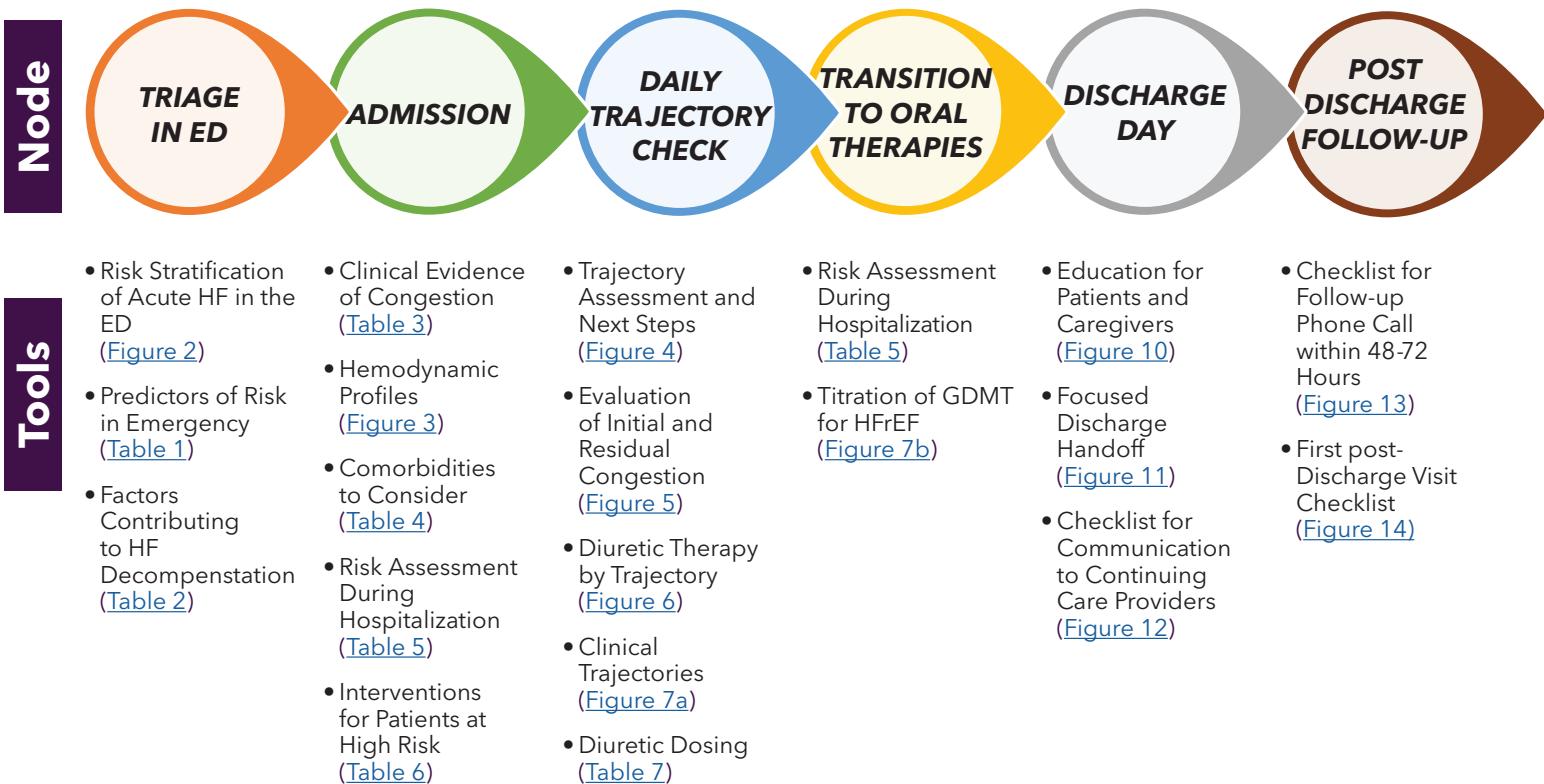
The toolkit provides the tables and figures from the documents, adapted to help clinicians implement key principles from the pathway at the point of care by posting them for reference, filling in provided forms and checklists to help standardize processes, or using these figures as templates for your institution's EHR programming teams.



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# Heart Failure Hospitalization Pathway Toolkit: Key Tables and Figures for Point-of-Care

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**OVERVIEW****Major Nodes and Tools****Roadmap for Risk Assessment, Management, and Clinical Trajectory of Patients Hospitalized with Heart Failure****PALLIATIVE CARE**

- Aspects of Palliative Care ([Figure 15](#))
- Goals of Care/Advanced Care Planning ([Table 9](#))





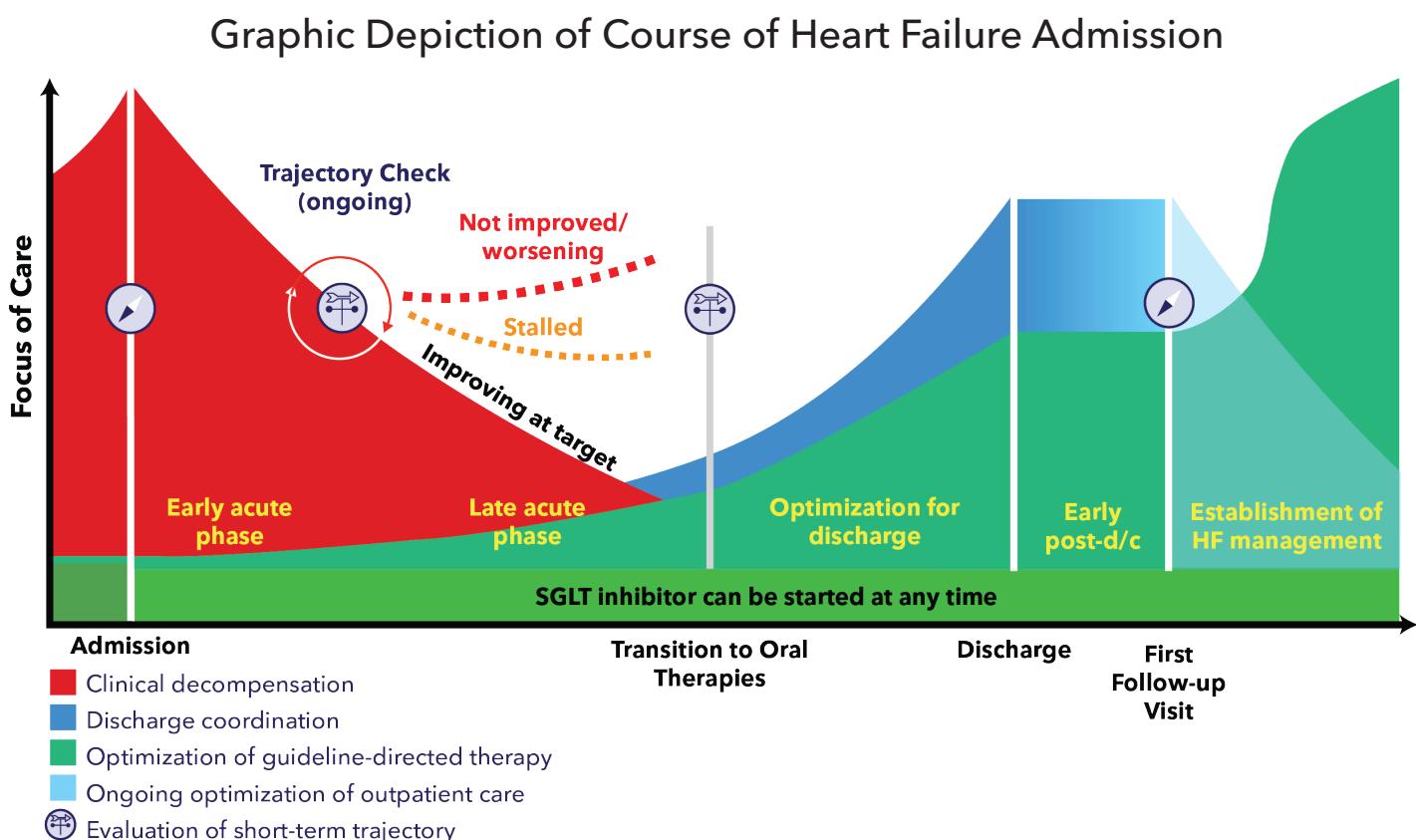
## OVERVIEW

## Pathway Summary Graphic

**Figure 1**

This shows the degree of focus on clinical decompensation (**red**), discharge coordination (**blue**), ongoing coordination of outpatient care (**light blue**), and optimization of guideline-directed medical therapy (**green**), with ongoing assessment of the clinical course (**circle with arrows**), and key time points for review and revision of the long-term disease trajectory for the HF journey (**compass signs**).

→ For optimization of guideline directed medical therapy, refer to the 2024 ECDP for Optimization of Heart Failure Treatment and the 2022 ACCF/AHA/HFSA Heart Failure Guidelines.



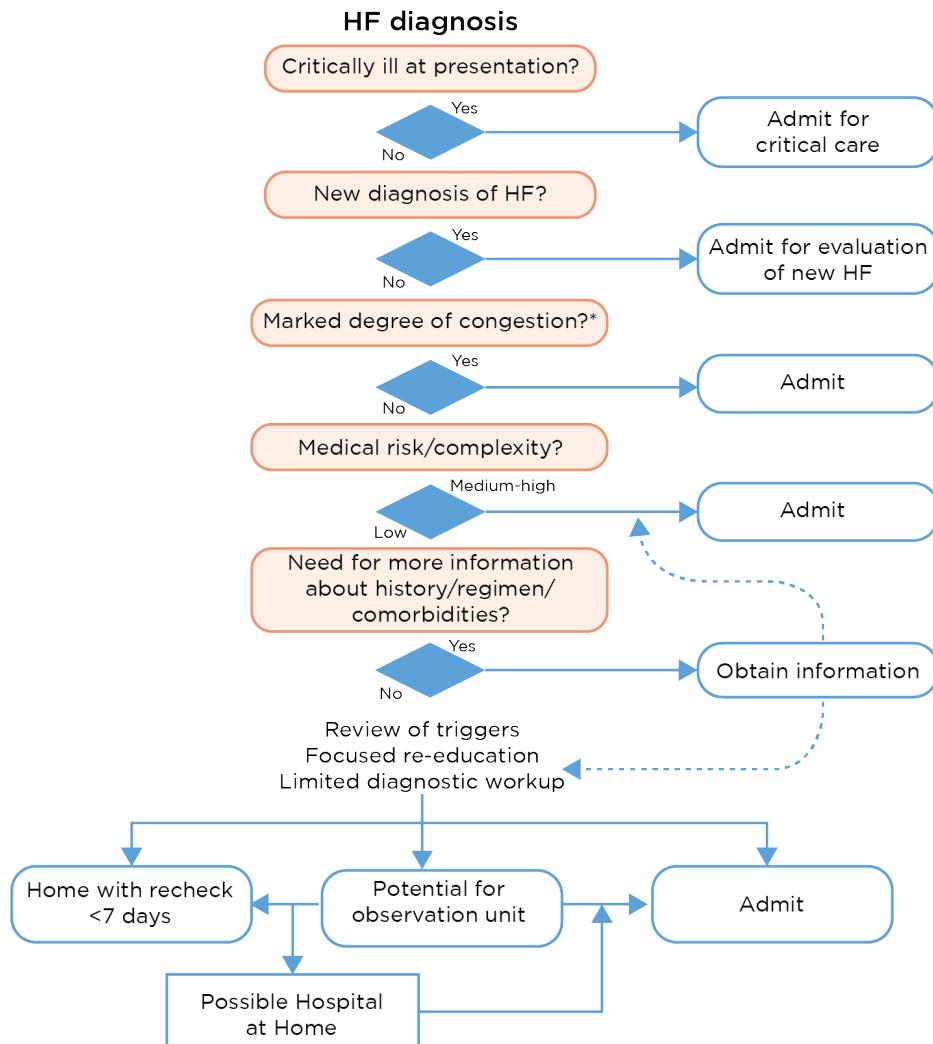
TRIAGE  
IN ED

## Risk Stratification of Acute Heart Failure in the Emergency Department

**Figure 2**

Use this triage algorithm about admission and initial therapy to guide thought processes during admission evaluations rather than as a formal description of admission criteria and administrative processes surrounding admission.

### High Likelihood of HF Diagnosis



\* Marked leg edema, ascites, or scrotal or perineal edema may be clinical signs of marked congestion. The degree of radiographic and biochemical abnormalities may also indicate the degree of congestion.

Abbreviations: ED = emergency department; HF = heart failure

TRIAGE  
IN ED

## Predictors of Risk in Emergency Care Studies Evaluating Patients With Acute Heart Failure

**Table 1**

Use this table to evaluate a patient's risk and help determine additional next steps.

<b>Immediate Risk</b> (measures of acute severity)	<input type="checkbox"/> Hypoxia <input type="checkbox"/> Shock/hypoperfusion <input type="checkbox"/> Respiratory distress <input type="checkbox"/> Anuria <input type="checkbox"/> Acute and worsening condition (sepsis, stroke, acute coronary syndrome, hemodynamically significant arrhythmia)
<b>Intermediate Risk</b> (predictors of events through 30 days)	<input type="checkbox"/> New onset heart failure <input type="checkbox"/> Low BP without shock or hypoperfusion <input type="checkbox"/> Tachycardia <input type="checkbox"/> Kidney dysfunction <input type="checkbox"/> Hyponatremia <input type="checkbox"/> Elevated cardiac troponin without ACS <input type="checkbox"/> Degree of BNP elevation <input type="checkbox"/> Liver dysfunction
<b>Lower Risk</b>	<input type="checkbox"/> Normal BP and HR <input type="checkbox"/> Brisk response to initial intravenous diuretic with diuresis and symptom relief <input type="checkbox"/> Rapid resolution of symptoms in the ED <input type="checkbox"/> Normal kidney and liver function without recent decline <input type="checkbox"/> Normal BNP and cardiac troponin

ACS = acute coronary syndrome; BP = blood pressure; BNP = B-type natriuretic peptide; HR = heart rate; ED = emergency department

TRIAGE  
IN ED

## Common Factors That Can Contribute to Worsening Heart Failure

**Table 2**

Use this table to support the evaluation of patients for factors, both cardiac and non-cardiac, that may contribute to worsening heart failure.

<b>Common Factors That Can Contribute to Worsening Heart Failure</b>
<input type="checkbox"/> Acute myocardial ischemia
<input type="checkbox"/> Uncontrolled hypertension
<input type="checkbox"/> Atrial fibrillation and other arrhythmias
<input type="checkbox"/> Medications with negative inotropic effect
<input type="checkbox"/> Medications that increase sodium retention (NSAIDs, thiazolidinediones, steroids)
<input type="checkbox"/> Non-adherence with medication regimen, sodium or fluid restriction
<input type="checkbox"/> Anemia
<input type="checkbox"/> Acute infections (upper respiratory infection, pneumonia, urinary tract infections)
<input type="checkbox"/> Additional acute cardiovascular diagnoses (aortic valve disease, endocarditis, myopericarditis)

**ADMISSION**

## Clinical Evidence of Congestion

**Table 3**

Use this table to identify signs and symptoms of congestion, which may be tracked as targets during decongestion and may serve as sentinel symptoms for recurrent congestion after discharge.

<b>Clinical Evidence of Congestion</b>	
<b>Symptoms</b>	<b>Signs<sup>†</sup></b>
<ul style="list-style-type: none"><li>• Orthopnea</li><li>• Dyspnea on minimal exertion</li><li>• Paroxysmal nocturnal dyspnea</li><li>• Nocturnal cough*</li><li>• Bounding pulse</li><li>• Abdominal swelling</li><li>• Early satiety</li><li>• Anorexia, nausea</li><li>• Right upper quadrant pain</li><li>• Peripheral swelling</li><li>• Rapid weight gain</li></ul>	<ul style="list-style-type: none"><li>• Elevated jugular venous pressure</li><li>• Rales‡</li><li>• Pleural effusion‡</li><li>• Increased intensity of pulmonary component of second sound</li><li>• Third heart sound</li><li>• Murmurs of mitral and/or tricuspid regurgitation</li><li>• Pulsatile hepatomegaly</li><li>• Ascites§</li><li>• Pre-sacral, scrotal, or perineal edema</li><li>• Peripheral edema</li></ul>

\* Often when supine; † JVP is the most sensitive sign. Rales may not always be present; ‡ Not common in chronic HF; § May be difficult to distinguish from central adiposity



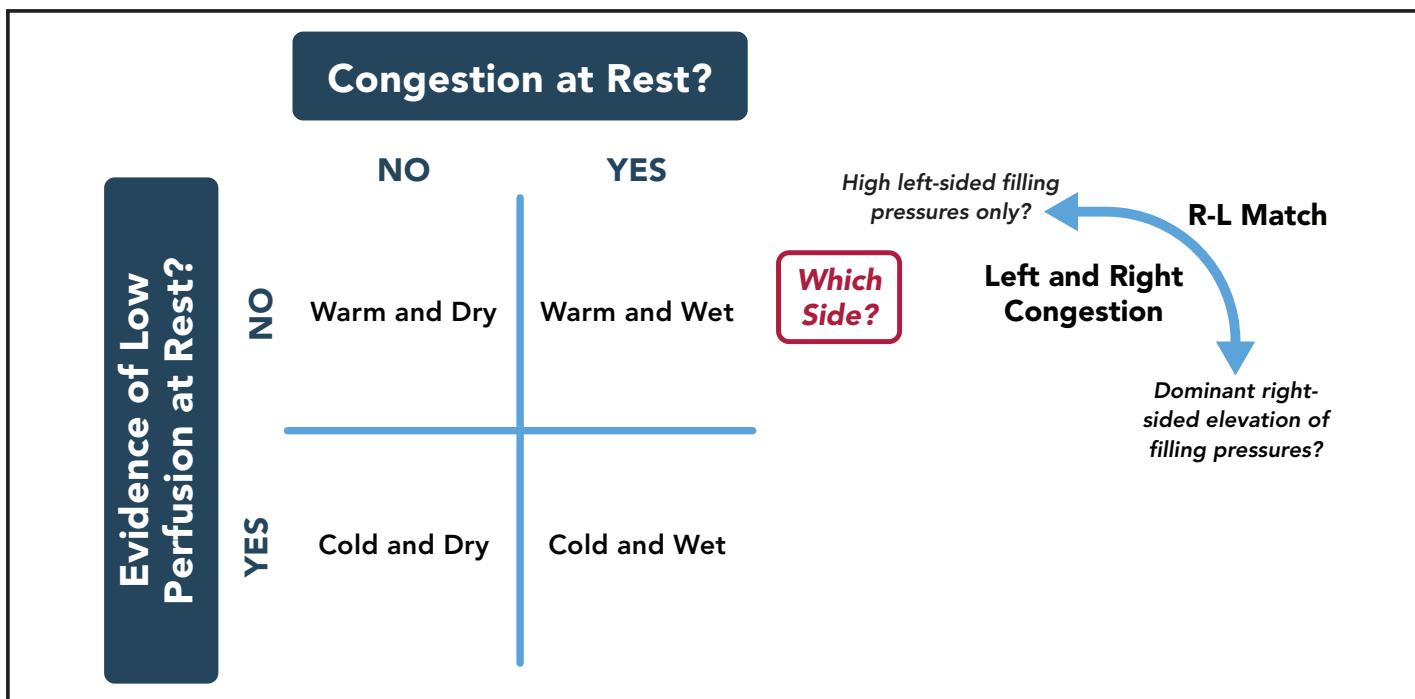
ADMISSION

## Classification of Patients Presenting With Acutely Decompensated Heart Failure

**Figure 3**

Use this figure to identify signs and symptoms of congestion, which may be tracked as targets during decongestion and may serve as sentinel symptoms for recurrent congestion after discharge.

### Hemodynamic Profiles





ADMISSION

## Key Comorbid Conditions to Consider

**Table 4**

Evaluation of patient comorbidities is a key component of patient assessment. Consider this list of comorbidities and their therapies in relation to their role in HF decompensation and as independent targets for intervention.

Key Comorbid Conditions to Consider	
Cardiovascular	<input type="checkbox"/> Coronary artery disease/acute coronary syndrome <input type="checkbox"/> Atrial fibrillation/flutter <input type="checkbox"/> Cerebrovascular disease, TIA/stroke <input type="checkbox"/> Peripheral vascular disease <input type="checkbox"/> Structural valvular heart disease
Systemic Disease	<input type="checkbox"/> Hypertension <input type="checkbox"/> Diabetes mellitus <input type="checkbox"/> Chronic kidney disease <input type="checkbox"/> Chronic lung disease <input type="checkbox"/> Liver disease <input type="checkbox"/> Infection <input type="checkbox"/> Sleep apnea <input type="checkbox"/> Anemia/iron deficiency <input type="checkbox"/> Rheumatologic diseases <input type="checkbox"/> Amyloidosis <input type="checkbox"/> Cancer <input type="checkbox"/> Thyroid disease
General Conditions	<input type="checkbox"/> Obesity <input type="checkbox"/> Malnutrition <input type="checkbox"/> Frailty, deconditioning
Psychosocial	<input type="checkbox"/> Dementia/cognitive decline <input type="checkbox"/> Depression <input type="checkbox"/> Substance abuse <input type="checkbox"/> Tobacco abuse <input type="checkbox"/> Alcohol abuse <input type="checkbox"/> Inadequate social support <input type="checkbox"/> Nonadherence



**ADMISSION**

## Assessing Risk During Hospitalization

**Table 5**

Use this table to identify risk factors that are most likely to be modifiable. These should help to set patient goals, guide inhospital management, and re-assess integrated risk at discharge. (Table will continue on the next page)

Modification of bolded/italicized items decreases risk. Note that the references for risk factors are provided as examples and are not meant to list all sources of validation.

<b>Chronic History Prior to Admission</b>	
<b>Assessment at Admission</b>	<b>Re-Assessment at Discharge</b>
<input type="checkbox"/> Older Age (robust in all models)	
<input type="checkbox"/> Number of Previous HF hospitalizations	
<input type="checkbox"/> Comorbidities, especially diabetes, COPD, liver disease, cancer, dementia	
<input type="checkbox"/> Frailty	
<input type="checkbox"/> Known low LVEF in HFrEF	
<input type="checkbox"/> RV dysfunction	
<b>Class IV symptoms</b>	Effective decongestion improves prognosis.
<b>Non-adherence to medications or salt/fluid restriction</b>	Focused education during hospitalization with increased home and community support may improve adherence.
<b>Progressively higher risk with higher admission natriuretic peptide (NP) levels</b>	Larger % reduction (>30-60%) in NP levels associated with better outcomes. Progressively higher risk with higher discharge NP levels.
Renal dysfunction markers: <ul style="list-style-type: none"><li>• Elevated serum creatinine or low clearance</li><li>• Additional risk of high BUN</li><li>• Low spot urine sodium after first IV diuretic dose</li><li>• Diuretic resistance with high outpatient doses</li></ul>	Risk increased, but small increases in creatinine accompanying successful decongestion are associated with better prognosis. High BUN at discharge increases risk. Low total urinary sodium excretion may be a more important marker than total urine output during hospitalization. Diuretic resistance in-hospital associated with longer LOS and worse outcomes. High risk if discharged on high loop diuretic doses.
<b>Degree of congestion at admission not predictive of outcome except longer length of stay with greater excess volume</b>	Residual congestion after treatment confers high risk. <ul style="list-style-type: none"><li>• High measured filling pressures</li><li>• Orthopnea</li><li>• Edema</li><li>• Composite congestion scores</li><li>• Lack of hemoconcentration</li></ul>



**ADMISSION**

## Assessing Risk During Hospitalization

**Table 5 (Continued)**

Assessment at Admission	Re-Assessment at Discharge
<b>Hemodynamic profile of “Cold and Wet” at admission</b>	Discharge with either cold or wet profile associated with higher risk.
Low systolic blood pressure	Low systolic blood pressure at discharge also identifies high risk.
Troponin elevation	Risk if elevated at any time during hospitalization.
Hyponatremia	Lower sodium at discharge predicts higher risk.
<b>Increased risk at admission if:</b> • No RAS therapy • No beta blocker therapy	Discontinuation of ACEI/ARB in hospital for hypotension or kidney dysfunction is associated with poor outcomes.  Unknown impact of re-initiation after discontinuation for circulatory and/or renal reasons.  Discharge without RAS inhibition or discharge without beta-blocker associated with high risk.
Unexpected In-hospital Events Conferring Additional Risks	
<ul style="list-style-type: none"><li>Resuscitation or Intubation</li><li>Intravenous inotropic therapy even if brief</li></ul>	
<b>Integrated Risk at Transition to Discharge =</b> $\left\{ \begin{array}{l} \bullet \text{Admission Risk} \\ \bullet \text{In-hospital Trajectory} \\ \bullet \text{Unexpected Events} \end{array} \right\}$	

ACEI = angiotensin-converting enzyme inhibitor; ARB = angiotensin receptor blocker; BUN = blood urea nitrogen; COPD = chronic obstructive pulmonary disease; eGFR = estimated glomerular filtration rate; HF = heart failure; IV = intravenous; LOS = length of stay; LV = left ventricular; NP = natriuretic peptide; RAS = renin-angiotensin system; RV = right ventricular.



ADMISSION

## Interventions for Patients at High Risk of Unfavorable Outcomes

**Table 6**

Once you have assessed a patient's comorbidities and other risk factors, and determined them to be at high risk for unfavorable outcomes, use this table to guide additional steps.

### Interventions for Patients at High Risk of Unfavorable Outcomes

- Discussion of prognosis
- Evaluation for advanced *therapies*\* if appropriate
- Review/revision of goals of care and advanced directives
- Consideration before interventions<sup>†</sup> that may be difficult to discontinue
- Education regarding palliative care and hospice options

\* Transplantation, mechanical circulatory support

† Intravenous inotropic therapy, temporary circulatory support, mechanical ventilation, dialysis



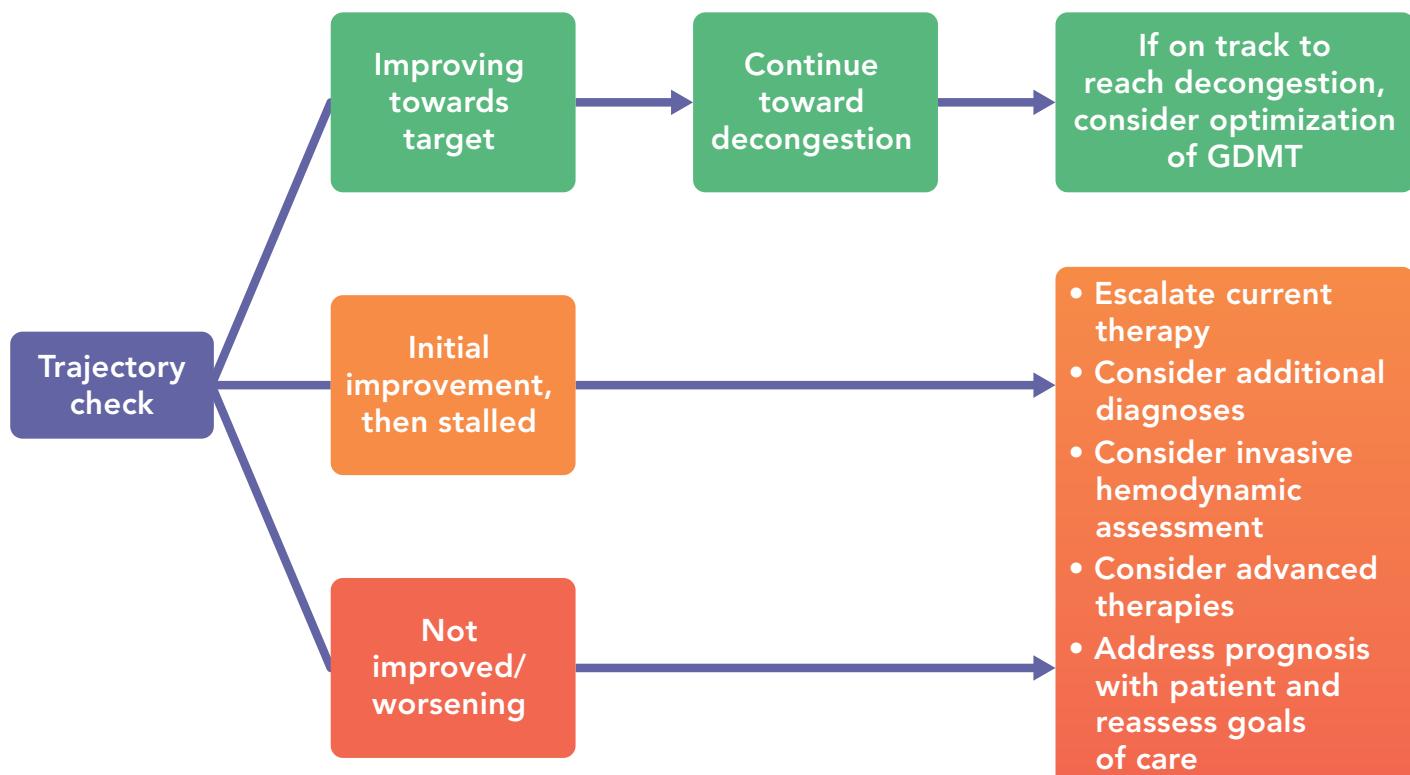
DAILY  
TRAJECTORY  
CHECK

## Clinical Trajectories and Their Implications for Therapy

**Figure 4**

Use figures 4 (*this page*) and 7a (*next page*) to assess a patient's daily clinical trajectory. These trajectories translate into different management strategies throughout the hospitalization and post-discharge.

### Trajectory Assessment and Next Steps



GDMT= guideline-directed medical therapy



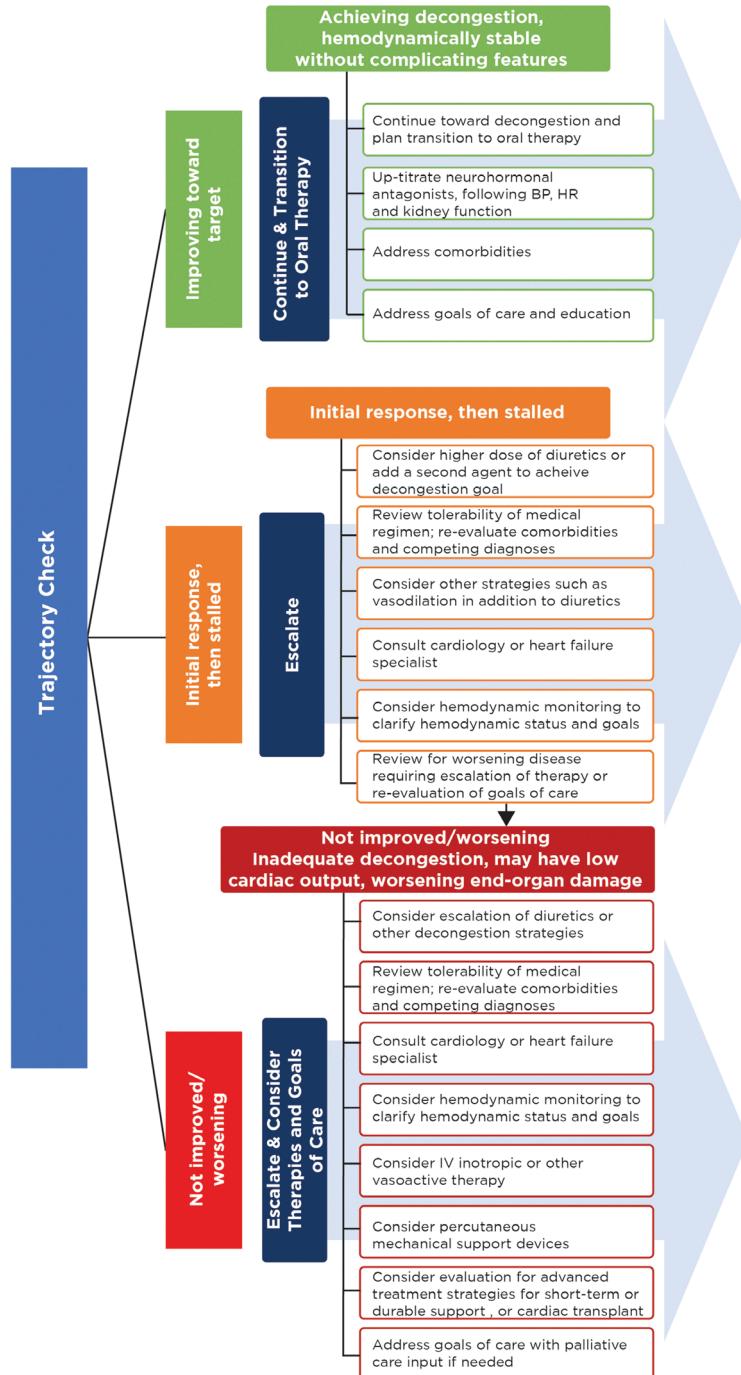
DAILY  
TRAJECTORY  
CHECK

## Clinical Trajectories

**Figure 7a**

Identification of patient's clinical trajectory translates into different management strategies throughout hospitalization and post-discharge.

→ To optimize GDMT, refer to the [2024 ECDP for Optimization of Heart Failure Treatment](#).



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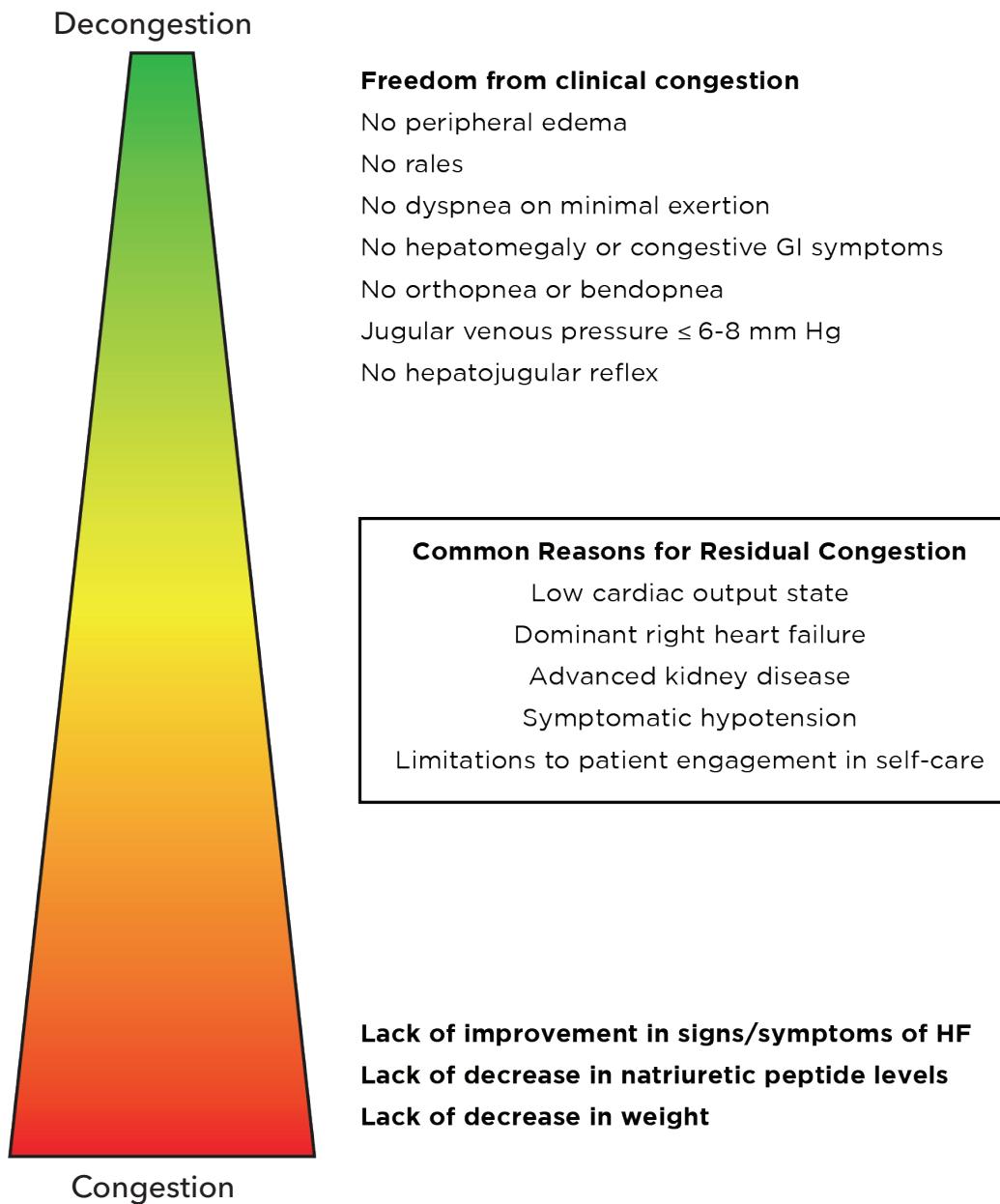


DAILY  
TRAJECTORY  
CHECK

## Evaluation of the Degree of Clinical Congestion, With Common Reasons for Residual Congestion Listed in the Text Box

**Figure 5**

Inpatient trajectories are primarily defined by the pace and extent of decongestion. Use the figure below for evaluation of the success of de-congestion for a patient.



GI = Gastrointestinal; HF = heart failure



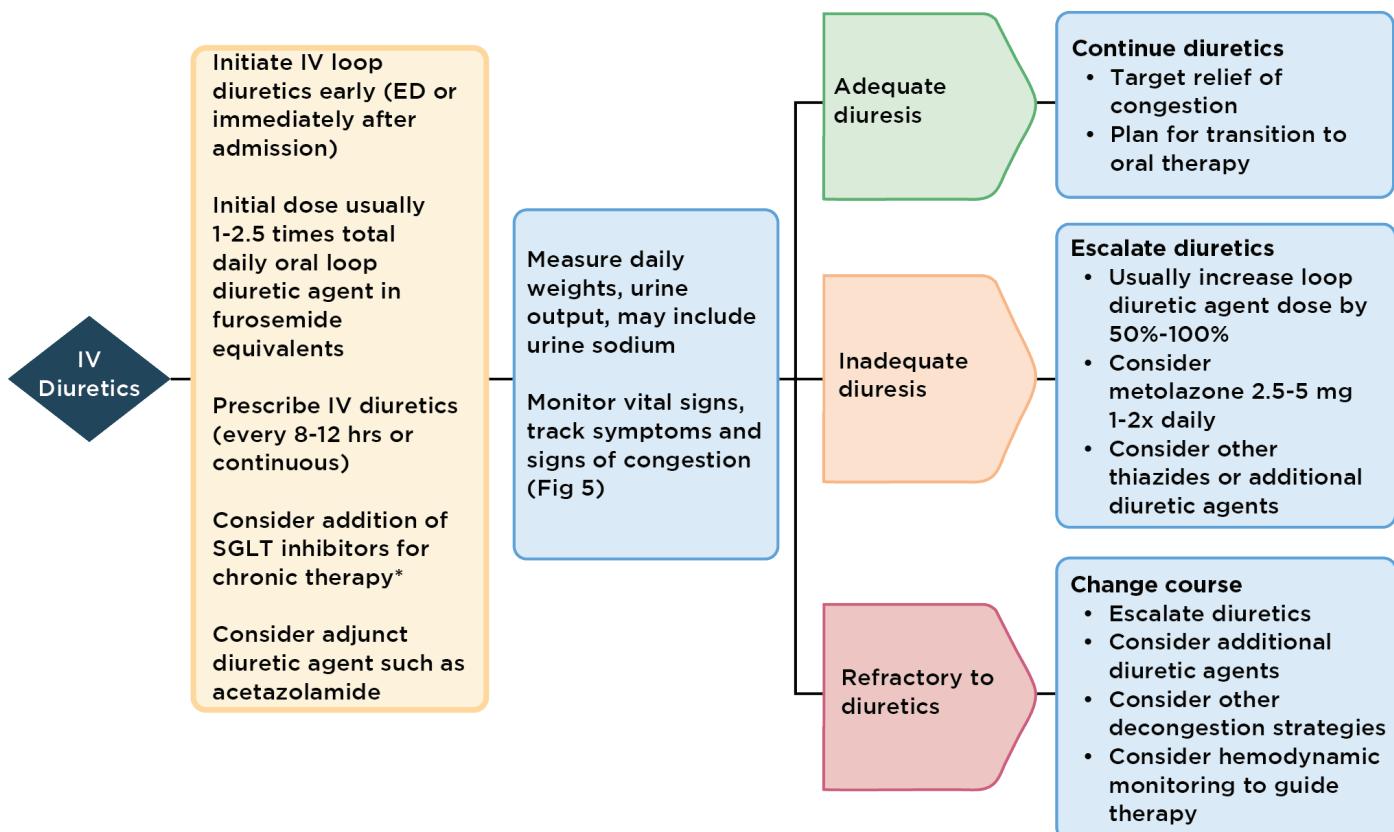
DAILY  
TRAJECTORY  
CHECK

## Diuretic Therapy in Different Clinical Trajectories

**Figure 6**

Use this figure to guide therapy at different clinical trajectories.

### Guidance on Diuretic Therapy



BP = blood pressure; ER = emergency room; IV = intravenous

**DAILY  
TRAJECTORY  
CHECK**

## Diuretic Dosing

**Table 7**

Use the table to help establish an effective diuretic regimen.

### Guidance on Diuretic Dosing

Class	Drug	Usual Outpatient Dosing (Maximum†)	Usual Inpatient Dosing* (Maximum†)
Loop diuretics	Bumetanide	0.5–2 mg orally once to twice daily (10 mg/day)	0.5–4 mg IV once to three times daily (5 mg/dose) <i>Or</i> 0.5–2 mg/hour IV infusion (4 mg/hour)
	Furosemide	20–80 mg orally once to twice daily (600 mg/day)	40–160 mg IV once to three times daily (200 mg/dose) <i>Or</i> 5–20 mg/hour IV infusion (40 mg/hour)
	Torsemide	10–40 mg orally once daily (200 mg/day)	N/A‡
Thiazide-type diuretics	Chlorothiazide	N/A	0.5–1 g IV once to twice daily (2 g/day)
	Hydrochlorothiazide	25–50 mg orally once daily (100 mg/day)	25–50 mg orally once to twice daily (100 mg/day)
	Chlorthalidone	25–50 mg orally once daily (100 mg/day)	12.5–25 mg orally once to twice daily (100 mg/day)
	Metolazone	2.5–5 mg orally once daily (20 mg/day)	2.5–5 mg orally once to twice daily (20 mg/day)

\* For patients receiving loop diuretics prior to admission, the oral dose should be changed to an intravenous dose of 1–2.5 times the home dose. For patients naïve to therapy, the lower end of the dosing interval should be used.

† “Usual” dose ranges reflect approved product labeling and safety and efficacy results from large, randomized controlled trials. Higher ranges may be considered on the basis of observational data and clinical experience.

‡ Torsemide is not available as an intravenous formulation in the United States; oral therapy may be initiated prior to discharge to assess patient response.

IV = intravenous; N/A = not applicable

**TRANSITION  
TO ORAL  
THERAPIES**

## Assessing Risk During Hospitalization

**Table 5**

Use this table after the patient has undergone clinical stabilization and is being transitioned to oral therapy for discharge. This assessment should help clarify goals and guide plans for longitudinal follow-up after discharge. The integrated risk for discharge includes non-modifiable risk factors from admission, residual congestion or unexpected events during hospitalization, and lack of guideline-directed therapies for chronic heart failure. The transition node offers further opportunity for additional adjustment of these therapies to be continued after discharge. (Table will continue on the next page.)

Modification of bolded/italicized items decreases risk. Note that the references for risk factors are provided as examples and are not meant to list all sources of validation.

<b>Chronic History Prior to Admission</b>	
<b>Assessment at Admission</b>	<b>Re-Assessment at Discharge</b>
<input type="checkbox"/> Older Age ( <b>robust in all models</b> ) <input type="checkbox"/> Number of Previous HF hospitalizations <input type="checkbox"/> Comorbidities, especially diabetes, COPD, liver disease, cancer, dementia <input type="checkbox"/> Frailty <input type="checkbox"/> Known low LVEF in HFrEF <input type="checkbox"/> RV dysfunction	
<b>Class IV symptoms</b>	Effective decongestion improves prognosis.
<b>Non-adherence to medications or salt/fluid restriction</b>	Focused education during hospitalization with increased home and community support may improve adherence.
<b>Progressively higher risk with higher admission natriuretic peptide (NP) levels</b>	Larger % reduction (>30-60%) in NP levels associated with better outcomes. Progressively higher risk with higher discharge NP levels.
Renal dysfunction markers: <ul style="list-style-type: none"><li>• Elevated serum creatinine or low clearance</li><li>• Additional risk of high BUN</li><li>• Low total urinary sodium excretion after first IV diuretic dose</li><li>• Diuretic resistance with high outpatient doses</li></ul>	Risk increased, but small increases in creatinine accompanying successful decongestion are associated with better prognosis. High BUN at discharge increases risk. Low total urinary sodium excretion may be a more important marker than total urine output during hospitalization. Diuretic resistance in-hospital associated with longer LOS and worse outcomes. High risk if discharged on high loop diuretic doses.
<b>Degree of congestion at admission not predictive of outcome except longer length of stay with greater excess volume</b>	Residual congestion after treatment confers high risk. <ul style="list-style-type: none"><li>• High measured filling pressures</li><li>• Orthopnea</li><li>• Edema</li><li>• Composite congestion scores</li><li>• Lack of hemoconcentration</li></ul>



**TRANSITION  
TO ORAL  
THERAPIES**

## Assessing Risk During Hospitalization

**Table 5 (Continued)**

Modification of bolded/italicized items decreases risk. Note that the references for risk factors are provided as examples and are not meant to list all sources of validation.

Assessment at Admission	Re-Assessment at Discharge
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Low systolic blood pressure	Low systolic blood pressure at discharge also identifies high risk.
Troponin elevation	Risk if elevated at any time during hospitalization.
Hyponatremia	Lower sodium at discharge predicts higher risk.
<b>Increased risk at admission if:</b> <b>- No RAS therapy</b> <b>- No beta blocker therapy</b>	<p>Discontinuation of ACEI/ARB in hospital for hypotension or kidney dysfunction is associated with poor outcomes.</p> <p>Unknown impact of re-initiation after discontinuation for circulatory and/or renal reasons.</p> <p>Discharge without RAS inhibition or discharge without beta-blocker associated with high risk.</p>
<b>Unexpected In-hospital Events Conferring Additional Risks</b>	
<ul style="list-style-type: none"><li>• Resuscitation or Intubation</li><li>• Intravenous inotropic therapy even if brief</li></ul>	
<b>Integrated Risk at Transition to Discharge =</b> $\left\{ \begin{array}{l} \bullet \text{Admission Risk} \\ \bullet \text{In-hospital Trajectory} \\ \bullet \text{Unexpected Events} \end{array} \right\}$	

ACEI = angiotensin-converting enzyme inhibitor; ARB = angiotensin receptor blocker; BUN = blood urea nitrogen; COPD = chronic obstructive pulmonary disease; eGFR = estimated glomerular filtration rate; HF = heart failure; IV = intravenous; LOS = length of stay; LV = left ventricular; NP = natriuretic peptide; RAS = renin-angiotensin system; RV = right ventricular.

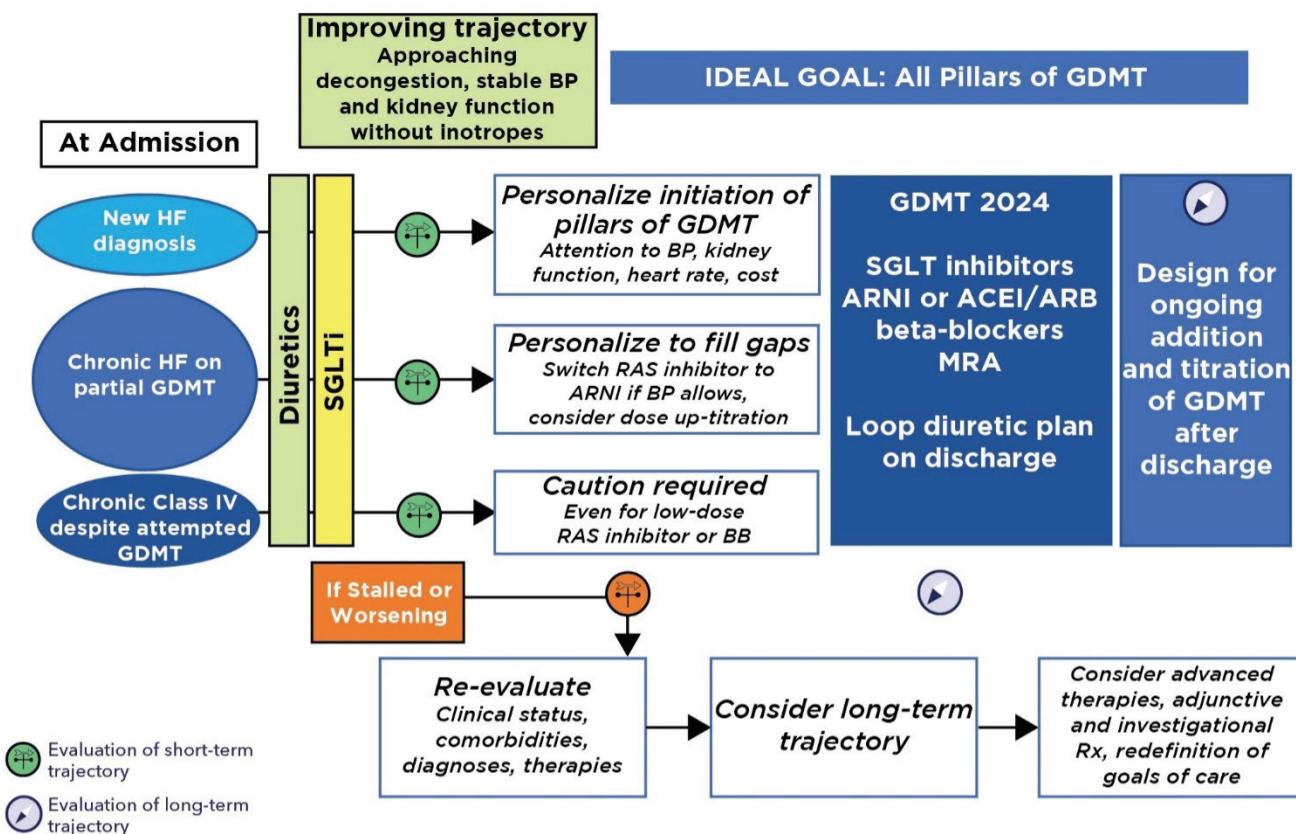
**TRANSITION  
TO ORAL  
THERAPIES**

## Titration of GDMT in HFrEF

**Figure 7b**

Use this figure to guide titration of GDMT in HFrEF based on patient's initial presentation and clinical trajectory.

→ To optimize GDMT, refer to the 2024 ECDP for Optimization of Heart Failure Treatment.



Titration of GDMT in HFrEF by initial presentation and trajectory. Patients with decompensated HFrEF should be diuresed and started on SGLT inhibitor unless contraindicated or cost prohibitive. Those with an improving trajectory (denoted by the green weathervane icon) should have optimization of GDMT. Patients may have a new HF diagnosis, in which case initiation of all 4 pillars of GDMT should be attempted. Patients with chronic HF on partial GDMT should have personalized therapy to fill in gaps, considering a switch from an ACE inhibitor/ARB to ARNI if appropriate. Caution is required for patients with chronic Class IV HF with decompensated HF; these patients may tolerate even low doses of beta-blockers and RAS poorly, although an attempt at titration may be made. Patients whose short-term trajectory is stalled, or worsening (denoted by the orange weathervane icon) should have re-evaluation of comorbidities and consideration of other diagnoses. The long-term trajectory (denoted by the compass icon) should be reevaluated, with consideration of goals of care, candidacy for advanced therapies, and experimental treatments. The ideal goal is initiation of all 4 pillars of GDMT for HFrEF in the hospital on a baseline of diuretic therapy. A plan for ongoing addition and titration of GDMT after discharge should be fashioned as well.

ACE = angiotensin-converting enzyme; ARB = angiotensin receptor blocker; ARNI = angiotensin receptor/neprilysin inhibitor; BB = beta-blocker; BP = blood pressure; d/c = discharge; GDMT = guideline-directed medical therapy; MRA = mineralocorticoid antagonist; RAS = renin-angiotensin system; SGLT = sodium-glucose cotransporter.

DISCHARGE  
DAY

## Education for Patients, Families, and Caregivers

**Figure 10**

Use this checklist to guide education for the patient, family, and caregivers. Education provided should be culturally appropriate, and delivered verbally and in written form.

- Current medications
    - Indication
    - Dose/frequency
    - Potential side effects
    - Potential adherence barriers
  - Activity level
  - Dietary sodium restriction \_\_\_\_\_ mg/day
  - Fluid restriction       Yes \_\_\_\_\_ L/day or       No
  - Daily weight monitoring
    - Has scale       Yes       No
    - Records daily weights       Yes       No
  - Assessment for peripheral edema
  - Smoking cessation counseling for current or recent smokers
  - Substance use counseling, if applicable
  - List of warning signs of decompensation
  - What to bring to each outpatient appointment
    - List of meds
    - Recordings of daily weights
  - Who to call for increased weight / worsening symptoms / ICD discharge
- 
- Diuretic management plan
  - Plans for continuation of care
    - Cardiology specialty clinic follow-up appointment \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

DISCHARGE  
DAY

## Model Focused Discharge Handoff

**Figure 11**

Use this form to convey crucial patient information to continuing care providers to support direct communication. This form is specifically designed to travel with the patient. Areas that are shaded can be formatted as selection menus if this form is being used as a template in a clinical decision tool.

### FOCUSED DISCHARGE HANDOFF

Name _____	Age _____	MRN _____	Admission Date _____ / _____ / _____	Discharge Date _____ / _____ / _____
HF TYPE: <input type="checkbox"/> HFrEF <input type="checkbox"/> HFpEF ( $\geq 50$ ) <input type="checkbox"/> HFmrEF (41-49)			Last LVEF _____	
HF ETIOLOGY: <input type="checkbox"/> Ischemic <input type="checkbox"/> Non-isch <input type="checkbox"/> Other _____			Triggers for Hospitalization _____	
Arrhythmia history <input type="checkbox"/> VT <input type="checkbox"/> AF <input type="checkbox"/> Other _____		Device type _____		

**CONDITION AT DISCHARGE:**  Discharged to Rehab or other facility

D/C BP \_\_\_\_\_ / \_\_\_\_\_ HR \_\_\_\_\_ Rhythm  Sinus  AF  paced Weight At D/C \_\_\_\_\_ lbs Est. target weight \_\_\_\_\_ lbs

Residual congestion at D/C  Y  N Edema 0-4+ \_\_\_\_\_ JVP \_\_\_\_\_ Rales  Y  N Ascites  Y  N

If still wet, limited by  Dominant R heart failure  Kidney function  Hypotension  Other

**Kidney Function** Discharge BUN/Cr \_\_\_\_\_ eGFR \_\_\_\_\_ Worst CR in hospital \_\_\_\_\_ Baseline \_\_\_\_\_

**Biomarkers** Admission BNP/proBNP \_\_\_\_\_ "Dry" BNP/proBNP (if known) \_\_\_\_\_

**Comorbidities:** \_\_\_\_\_

**Psychosocial Factors:** \_\_\_\_\_

**Other hospital events**  code  sepsis  dialysis  intubation IV inotropes used?  Y  N

**Code Status**  Full code  Full code but discussed  DNR/DNI  DNI only  POLST  Needs discussion

**DISCHARGE HF MEDICATIONS:**

**Diuretic** Loop \_\_\_\_\_ dose/freq \_\_\_\_\_ Metolazone dose/freq \_\_\_\_\_ Other: dose/freq \_\_\_\_\_

In-hospital effective loop dose \_\_\_\_\_ mg IV  Daily  BID  TID  Drip at \_\_\_\_\_ mg/hr Metolazone used?  Y  N

Triggers for rescue dose: If \_\_\_\_\_ lbs up, or \_\_\_\_\_ (sentinel symptom)

Rescue dose \_\_\_\_\_ orally and/or metolazone \_\_\_\_\_ for \_\_\_\_\_ days before recheck

K+ replacement \_\_\_\_\_ meQ/day Plan for more K+ with rescue dose?  Y  N

**GUIDELINE DIRECTED MEDICAL THERAPY:**

**RAS meds** ACEI \_\_\_\_\_ mg/day ARB \_\_\_\_\_ mg/day ARNI \_\_\_\_\_ mg/day Dose ↓ in hospital?  Y  N

If not given or dose ↓, why?  Hypotension  Dizziness  Kidney fx  Cough

If no ARNI, why?  Hypotension  Cost  Hyperkalemia  Angioedema

**Beta-blocker** \_\_\_\_\_ mg/day Dose ↓ in hospital?  Y  N

If not given or dose ↓, why?  Hypotension  bradycardia

**MRA**  Y  N If not, why not?  Hypotension  Kidney function  Hyperkalemia

**SGLT1**  Y  N If not, why not?  Kidney function  DKA  UTI/GMI  Cost

**PLAN**

Start  Titrate

ARNI

Start  Titrate

Start  Continue

**Other HF meds** Hydral/nitrates  Y  N Ivabradine  Y  N Digoxin  Y  N Inotropes  Y  N

- Anticoagulation for  AF  DVT/PE  Mech valve  LV thrombus with  DOAC  Warfarin

- Antiplatelet for  ACS  PCI  Stroke/TIA with  ASA  Clopidogrel  Prasugrel  Ticagrelor

- Antiarrhythmic  Amiodarone  Dofetilide  Sotalol  Other \_\_\_\_\_

See patient discharge document and full discharge summary for complete medication list

**FOLLOW-UP:** Follow-up team \_\_\_\_\_ Appt date and time \_\_\_\_\_

Home health referrals (visiting nurses, PT, home infusion) \_\_\_\_\_

Post-discharge labs: Will be drawn at: \_\_\_\_\_ Results sent to \_\_\_\_\_

HF medication refills to \_\_\_\_\_

For worsening heart failure, contact \_\_\_\_\_ Phone Number \_\_\_\_\_

For non-cardiac issues, contact \_\_\_\_\_ Phone Number \_\_\_\_\_

Other clinicians \_\_\_\_\_  Research Study

Additional support needed for optimal care: \_\_\_\_\_



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AMERICAN  
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**DISCHARGE  
DAY**

## Checklist for Communication to Continuing Care Providers

**Figure 12**

Use this checklist as a guide for communication with continuing care providers about pertinent patient information and potential issues.

**HOSPITAL COURSE**

- Reason for admission
- Sentinel symptoms
- Congestion status
  - Admission, discharge, and target weight
  - Admission and discharge kidney function
  - Diuretic dosing
  - Rescue dosing
- Unexpected events

**PLANNED THERAPIES AND MONITORING**

- Plan for initiation, titration, and optimization of GDMT
  - ARNI/ACEI/ARB
  - Beta blockers
  - Aldosterone mineralocorticoid antagonists
  - SGLT inhibitor
  - Ivabradine
  - Hydralazine/isosorbide
- Adjustment of diuretics
- Plan to monitor electrolytes and kidney function
- Follow-up for pending or planned diagnostic tests
- Plan for EP consult if sudden death risk or potential candidate for device therapy OR AF
- Recommendations for when to assess response to therapy and in what venue (in person vs telehealth)
- COVID, Pneumovax and Influenza vaccination

**FOLLOW-UP RELATED TO COMORBIDITIES**

- Kidney function
- Diabetes
- Sleep-disordered breathing
- Depression
- Anemia
- IV iron given?
- Other

**POST  
DISCHARGE  
FOLLOW-UP**

## Checklist for Follow-Up Phone Call

**Figure 13**

Use this checklist to help organize and streamline the follow-up phone call to ensure that it is comprehensive yet focused.

### Early Post-Discharge: Checklist for 48-72 Hour Follow-Up Phone Call

TOPIC	VITAL QUESTION	CAUSE FOR IMMEDIATE CONCERN	TEACHING POINTS TO BE COVERED IN CALL/CLINIC, USING TEACH BACK
<b>Symptoms</b> Sentinel symptom from hospitalization Shortness of breath Orthopnea Edema	How is _____? <input type="checkbox"/> Same <input type="checkbox"/> Better <input type="checkbox"/> worse than at discharge	Alert If WORSE	Do you know what symptoms you should be paying attention to?
<b>Dizziness</b>	Are you having trouble with dizziness? <input type="checkbox"/> Yes <input type="checkbox"/> No Is it just when you first stand up or does it last longer? _____	FREQUENT DIZZINESS	Review dizziness as potential symptom of concern
<b>Daily Weights</b>	Are you weighing yourself daily? <input type="checkbox"/> Yes <input type="checkbox"/> No If not, do you have a scale? <input type="checkbox"/> Yes <input type="checkbox"/> No What was your first weight at home after discharge? _____ What is your weight now? _____	ALERT If no weights or if weight increase > trigger	Importance of weights as short-term indication of fluid balance. Review diuretic plan from discharge Do you have a plan for what to do if your weight increases?
<b>Medications</b> (Refer to discharge list)	Do you have these medications prescribed at discharge? <input type="checkbox"/> Yes <input type="checkbox"/> No Do you know how to take them? <input type="checkbox"/> Yes <input type="checkbox"/> No Do you think you are having side effects from any of them? _____	ALERT If Not obtained, Or not taking correctly	Types and purposes of HF medications
<b>Salt restriction</b>	Are you watching your salt intake? <input type="checkbox"/> Yes <input type="checkbox"/> No What is your daily limit? _____  What are you doing to make sure you don't eat too much salt? _____		Review contribution of salt to fluid retention Common high-salt items How to read labels
<b>Fluid restriction</b> (for patients who have one)	Are you keeping track of your fluid intake? <input type="checkbox"/> Yes <input type="checkbox"/> No What is your daily limit? _____  What are you doing to stay within your limit? _____		Review contribution of fluid to symptoms, Importance of fluid restriction for fluid balance and how to account for fluids in food as well as beverages. Reassure this is often not a sign of dehydration in heart failure Present alternatives such as frozen fruit, etc
<b>Follow-up</b>	When is your follow-up appointment? and in what venue (in person, telehealth)? _____  If going in person, do you have a way to get there? _____	NO follow-up appt or no way to get there	
<b>Physical Activity</b>			Consider cardiac rehabilitation



**POST  
DISCHARGE  
FOLLOW-UP**

## First Post-Discharge Visit Checklist

**Figure 14**

Consider the key components listed in this checklist to guide the first post-discharge visit to reassess clinical status, review medications, provide additional education, and address issues that may lead to worsening HF.

<input type="checkbox"/> <b>History</b> <ul style="list-style-type: none"><li>• Discharge summary reviewed.</li><li>• Etiology of cardiomyopathy identified.</li><li>• Precipitant of exacerbation identified.</li><li>• Heart failure compensated?<ul style="list-style-type: none"><li>- NYHA class.</li><li>- Weight log reviewed?</li><li>- Symptoms reviewed?</li></ul></li><li>• Important concomitant disease states<ul style="list-style-type: none"><li>- CKD</li><li>- Diabetes</li><li>- Hypertension</li><li>- AF</li><li>- COPD</li><li>- OSA</li><li>- Others</li></ul></li></ul>	<input type="checkbox"/> <b>Medications</b> <ul style="list-style-type: none"><li>• Comprehensive medication reconciliation</li><li>• Beta-blocker<ul style="list-style-type: none"><li>- Dose optimized?</li></ul></li><li>• ARNI/ACEI/ARB<ul style="list-style-type: none"><li>- Dose optimized?</li><li>- Eligible to switch to ARNI?</li></ul></li><li>• Mineralocorticoid antagonist<ul style="list-style-type: none"><li>- Dose optimized?</li></ul></li><li>• SGLT inhibitor</li><li>• Diuretic agents<ul style="list-style-type: none"><li>- Dose adjustment?</li></ul></li><li>• Ivabradine? (Consider initiation if heart rate remains elevated despite beta-blocker optimization)</li></ul>
<input type="checkbox"/> <b>Goals of Care changed</b>	<input type="checkbox"/> <b>Interventional therapies (if applicable)</b> <ul style="list-style-type: none"><li>• Revascularization</li><li>• CRT</li><li>• ICD</li><li>• AV node or AF ablation</li><li>• Valvular intervention</li><li>• Remote monitoring</li></ul>
<input type="checkbox"/> <b>Physical Exam</b> <ul style="list-style-type: none"><li>• Vital signs</li><li>• BMI</li><li>• Orthostatic blood pressure</li><li>• Jugular venous distention</li><li>• Rales +/-</li><li>• "cold/warm", "wet/dry" profile</li><li>• S3 present/absent</li></ul>	<input type="checkbox"/> <b>Patient education</b> <ul style="list-style-type: none"><li>• Importance of adherence</li><li>• Medication education</li><li>• Dietary education</li><li>• Activity education</li><li>• Smoking cessation</li><li>• Alcohol consumption</li><li>• Follow-up appointment scheduled<ul style="list-style-type: none"><li><input type="checkbox"/> In-person</li><li><input type="checkbox"/> Telehealth</li></ul></li></ul>
<input type="checkbox"/> <b>Diagnostic Testing</b> <ul style="list-style-type: none"><li>• Basic metabolic panel</li><li>• Complete blood count</li><li>• BNP or NT-proBNP</li><li>• Liver function panel (per discretion of clinician)</li><li>• Iron studies (per discretion of clinician)</li><li>• High-sensitivity Troponin, sST2, Gal-3 (per discretion of clinician)</li><li>• 12-lead ECG</li><li>• Chest x-ray (per discretion of clinician)</li><li>• Review LVEF (<u>  </u>%). If not available, attain TTE</li><li>• Follow-up EF:<ul style="list-style-type: none"><li>- 40 days post-MI</li><li>- 3 months post-NICM</li></ul></li><li>• Ischemia Evaluation Needed?</li></ul>	<input type="checkbox"/> <b>Consultations</b> <ul style="list-style-type: none"><li>• Home health services</li><li>• Cardiac rehab referral</li><li>• Advanced heart failure clinic referral</li><li>• Palliative/hospice referral</li></ul>



**PALLIATIVE CARE****Aspects of Palliative Care****Figure 15**

Consider the aspects of palliative care listed in the figure to help set goals around advance care planning.

**Advanced Care Planning**

- Identification of surrogate decision-maker
- Exploration of values and general preferences
- Execution of living will

**Goals of Care Discussions**

- Resuscitation status
- Return to ICU
- Inactivation of defibrillation
- Services, limitations, and family role during hospice care
- End of life at home or in skilled facility

**Determination of Need for Specialist Palliative Care**

- Complicated advanced care planning
- Symptom control
- Disagreement between clinicians and patient/family
- Marked caregiver or family distress
- Hospice referral

**Caregiver/Family Support**

- Referral to social, psychological, and respite services

This figure reflects recent data and publications, including:

1. A study demonstrating that a palliative care referral trigger tool decreased hospital readmission rates up to 90 days postdischarge while also increasing the completion of advanced directives.
2. The 2022 AHA/ACC/HFSA HF Guideline, which advocates a need-based approach to palliative care, with emphasis on shared decision-making, caregiver and bereavement support, and hospice care.

HF = heart failure; ICU = intensive care unit

**PALLIATIVE  
CARE**

## Goals of Care/Advance Care Planning

**Table 9**

The table is intended to guide clinician-patient discussions on goals of care and advance care planning.

### Advance Care Planning Discussion

<b>Assess Readiness to Discuss Goals of Care</b>
<b>Assess Understanding of Prognosis</b>
<b>Confirm/Discuss Goals of Care</b> <ul style="list-style-type: none"><li>• Confirm/Elicit patient values and preferences pertaining to quality of life and life prolongation (cultural, religious).</li><li>• Discuss aspects of what the patient would consider an unacceptable quality of life.</li><li>• Discuss benefits/burdens of reasonable therapeutic options.</li></ul>
<b>Confirm/Establish Surrogate Decision Maker</b> <ul style="list-style-type: none"><li>• Person best able and willing to represent patient's values and preferences and patient's best interests.</li></ul>
<b>Establish/Reassess Code Status</b> <ul style="list-style-type: none"><li>• Based on Goals of Care Discussion.</li><li>• Do Not Attempt Resuscitation (DNAR).</li><li>• Full Code.</li><li>• Attempt shock without other measures.</li></ul>
<b>Discuss Management of Defibrillator when appropriate</b> <ul style="list-style-type: none"><li>• Pacing function is often left intact even if defibrillation is deactivated.</li></ul>
<b>Determine need for specialist palliative care consultation</b>



# HEART FAILURE HOSPITALIZATION PATHWAY TOOLKIT

## Links to Additional Resources

### ■ ACC Resources:

TreatHF App:

<Tools.ACC.org/TreatHF/>

HF Advance Care Planning Toolkit:

<CvQuality.ACC.org/clinical-toolskits/advance-care-planning-toolkit>

HF Condition Center:

<CardioSmart.org/Heart-Conditions/Heart-Failure>

HF Action Plan:

<CardioSmart.org/MyHFActionPlan>

HF Infographics:

<CardioSmart.org/~/media/Images/Infographics/2016/Heart%20Failure%20resize.ashx>

<CardioSmart.org/~/media/Images/Infographics/Heart-Failure-Journey.ashx>

2022 AHA/ACC/HFSA Guideline for the Management of Heart Failure:

[https://www.jacc.org/doi/10.1016/j.jacc.2021.12.012?  
ga=2.74773586.1174326798.1737484184-1586257890.1733853887](https://www.jacc.org/doi/10.1016/j.jacc.2021.12.012?ga=2.74773586.1174326798.1737484184-1586257890.1733853887)

2024 ECDP for Optimization of HF Treatment:

[https://www.jacc.org/doi/10.1016/j.jacc.2023.12.024?  
ga=2.3585904.1174326798.1737484184-1586257890.1733853887](https://www.jacc.org/doi/10.1016/j.jacc.2023.12.024?ga=2.3585904.1174326798.1737484184-1586257890.1733853887)

2024 ECDP Focused Update of the 2019 ACC ECDP on Heart Failure Hospitalization:

[https://www.jacc.org/doi/10.1016/j.jacc.2024.06.002?  
ga=2.6160243.1174326798.1737484184-1586257890.1733853887](https://www.jacc.org/doi/10.1016/j.jacc.2024.06.002?ga=2.6160243.1174326798.1737484184-1586257890.1733853887)

2019 ACC ECDP on Heart Failure Hospitalization:

[https://www.jacc.org/doi/pdf/10.1016/j.jacc.2019.08.001?  
ga=2.74896466.1174326798.1737484184-1586257890.1733853887](https://www.jacc.org/doi/pdf/10.1016/j.jacc.2019.08.001?ga=2.74896466.1174326798.1737484184-1586257890.1733853887)

### ■ External Resources:

HFSA Advanced Care Training Module:

<HFSA.org/wp-content/uploads/2018/03/HFSA-Module-9-03.14.2018-LR.pdf>