



## TARGET: HEART FAILURE™ HONOR ROLL MEASURE LOGIC/RATIONALE

**BACKGROUND:** This document is intended to provide a brief rationale for each of the measures that are measured under Target: Heart Failure for each of the three key categories: (1) Medication Optimization, (2) Early Follow-up Care Coordination, and (3) Enhanced Patient Education. To qualify for the Target: Heart Failure Honor Roll, hospitals must demonstrate 50% or greater compliance on the following measures within those key areas for at least one calendar quarter.

For more information on Target: Heart Failure, visit [Heart.org/TargetHF](https://www.heart.org/TargetHF)

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### HEART FAILURE: MEDICATION OPTIMIZATION MEASURES

#### **ACE Inhibitor (ACEI) and Angiotensin Receptor Blocker (ARB) or Angiotensin Receptor/ Nepriylsn Inhibitor (ARNI)at Discharge:**

##### **Guideline Recommendations:**

###### *Class I*

The clinical strategy of inhibition of the renin-angiotensin system with ACE inhibitors (Level of Evidence: A) OR ARBs (Level of Evidence: A) OR ARNI (Level of Evidence: B-R) in conjunction with evidence-based beta blockers (20-22), and aldosterone antagonists in selected patients, is recommended for patients with chronic HFrEF to reduce morbidity and mortality. (Citation 1, p. e285)

The use of ACE inhibitors is beneficial for patients with prior or current symptoms of chronic HFrEF to reduce morbidity and mortality (Level of Evidence: A). (Citation 1, p. e285)

The use of ARBs to reduce morbidity and mortality is recommended in patients with prior or current symptoms of chronic HFrEF who are intolerant to ACE inhibitors because of cough or angioedema (Level of Evidence: A) (p.e286) (Citation 1, p. e286)

In patients with chronic symptomatic HFrEF NYHA class II or III who tolerate an ACE inhibitor or ARB, replacement by an ARNI is recommended to further reduce morbidity and mortality (Level of Evidence: B-R). (Citation 1, p. e286)

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## **Rationale:**

Benefits of ACE inhibitors with regard to decreasing HF progression, hospitalizations, and mortality rate have been shown consistently for patients across the clinical spectrum, from asymptomatic to severely symptomatic HF. ACE inhibitors reduce morbidity and mortality in heart failure with reduced ejection fraction (HFrEF). RCTs clearly establish the benefits of ACE inhibition in patients with mild, moderate, or severe symptoms of HF and in patients with or without coronary artery disease. ARBs have been shown to reduce mortality and HF hospitalizations in patients with HFrEF in large RCTs. Patients intolerant to ACE inhibitors because of cough or angioedema should be started on ARBs; patients already tolerating ARBs for other indications may be continued on ARBs if they subsequently develop HF. An ARNI has recently been approved for patients with symptomatic HFrEF and is intended to be substituted for ACE inhibitors or ARBs. In an RCT that compared the first approved ARNI, valsartan/sacubitril, with enalapril in symptomatic patients with HFrEF tolerating an adequate dose of either ACE inhibitor or ARB, the ARNI reduced the composite endpoint of cardiovascular death or HF hospitalization significantly, by 20%. The benefit was seen to a similar extent for both death and HF hospitalization and was consistent across subgroups. One of these three medications should be prescribed at discharge for patients with HFrEF (Citation 1, p. e286)

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## **Evidence-Based Specific Beta-Blockers:**

### **Guideline Recommendations:**

#### *Class I*

Use of 1 of the 3 beta blockers proven to reduce mortality (i.e., bisoprolol, carvedilol, and sustained-release metoprolol succinate) is recommended for all patients with current or prior symptoms of HFrEF, unless contraindicated, to reduce morbidity and mortality. (Level of Evidence: A) (Citation 2, p. e267)

In patients with HFrEF experiencing a symptomatic exacerbation of HF requiring hospitalization during chronic maintenance treatment with GDMT, it is recommended that GDMT be continued in the absence of hemodynamic instability or contraindications. (Level of Evidence: B) (Citation 2, p. e286)

Initiation of beta-blocker therapy is recommended after optimization of volume status and successful discontinuation of intravenous diuretics, vasodilators, and inotropic agents. Beta-blocker therapy should be initiated at a low dose and only in stable patients. Caution should be used when initiating beta blockers in patients who have required inotropes during their hospital course (Level of Evidence: B) (Citation 2, p. e286)

# TARGET:HF<sup>SM</sup>

Throughout the hospitalization as appropriate, before hospital discharge, at the first post-discharge visit, and in subsequent follow-up visits, the following should be addressed.

(Level of Evidence: B): a. initiation of GDMT\* if not previously established and not contraindicated; (Citation 2, p. e289) \* GDMT, guideline-directed medical therapy

## **Rationale:**

Long-term treatment with beta blockers can lessen the symptoms of HF, improve the patient's clinical status, and enhance the patient's overall sense of well-being. In addition, like ACE inhibitors, beta blockers can reduce the risk of death and the combined risk of death or hospitalization. These benefits of beta blockers were seen in patients with or without CAD and in patients with or without diabetes mellitus, as well as in women and blacks. The favorable effects of beta blockers were also observed in patients already taking ACE inhibitors.

Three beta blockers have been shown to be effective in reducing the risk of death in patients with chronic HFrEF: bisoprolol and sustained-release metoprolol (succinate), which selectively block beta-1 receptors; and carvedilol, which blocks alpha-1-, beta-1-, and beta-2-receptors. Positive findings with these 3 agents, however, should not be considered a beta-blocker class effect. Bucindolol lacked uniform effectiveness across different populations, and short-acting metoprolol tartrate was less effective in HF clinical trials. Beta-1 selective blocker nebivolol demonstrated a modest reduction in the primary endpoint of all-cause mortality or cardiovascular hospitalization but did not affect mortality alone in an elderly population that included patients with HFpEF.

Beta blockers should be prescribed to all patients with stable HFrEF unless they have a contraindication to their use or are intolerant of these drugs. Because of its favorable effects on survival and disease progression, a clinical trial-proven beta blocker should be initiated as soon as HFrEF is diagnosed. Even when symptoms are mild or improve with other therapies, beta blocker therapy is important and should not be delayed until symptoms return or disease progression is documented. Therefore, even if patients have little disability and experience seemingly minimal symptomatic benefit, they should still be treated with a beta blocker to reduce the risks of disease progression, clinical deterioration, and sudden death.

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Patients need not take high doses of ACE inhibitors before initiation of beta-blocker therapy. In patients taking a low dose of an ACE inhibitor, the addition of a beta blocker produces a greater improvement in symptoms and reduction in the risk of death than does an increase in the dose of the ACE inhibitor, even to the target doses used in clinical trials. In patients with a current or recent history of fluid retention, beta blockers should not be prescribed without diuretics, because diuretics are needed to maintain sodium and fluid balance and prevent the exacerbation of fluid retention that can accompany the initiation of beta-blocker therapy. Beta blockers may be considered in patients who have reactive airway disease or asymptomatic bradycardia but should be used cautiously in patients with persistent symptoms of either condition.

Treatment with a beta blocker should be initiated at very low doses (Table 15), followed by gradual increments in dose if lower doses have been well tolerated. Patients should be monitored closely for changes in vital signs and symptoms during this up-titration period. Planned increments in the dose of a beta blocker should be delayed until any adverse effects observed with lower doses have disappeared. When such a cautious approach was used, most patients (approximately 85%) enrolled in clinical trials who received beta blockers were able to tolerate short- and long-term treatment with these drugs and achieve the maximum planned trial dose. Data show that beta blockers can be safely started before discharge even in patients hospitalized for HF, provided they do not require intravenous inotropic therapy for HF. Clinicians should make every effort to achieve the target doses of the beta blockers shown to be effective in major clinical trials. Even if symptoms do not improve, long-term treatment should be maintained to reduce the risk of major clinical events. Abrupt withdrawal of treatment with a beta blocker can lead to clinical deterioration and should be avoided.

Initiation of treatment with a beta blocker may produce 4 types of adverse reactions that require attention and management: fluid retention and worsening HF; fatigue; bradycardia or heart block; and hypotension. The occurrence of fluid retention or worsening HF is not generally a reason for the permanent withdrawal of treatment. Such patients generally respond favorably to intensification of conventional therapy, and once treated, they remain excellent candidates for long-term treatment with a beta blocker. The slowing of heart rate and cardiac conduction produced by beta blockers is generally asymptomatic and thus requires no treatment; however, if the bradycardia is accompanied by dizziness or lightheadedness or if second- or third-degree heart block occurs, clinicians should decrease the dose of the beta blocker. Clinicians may minimize the risk of hypotension by administering the beta blocker and ACE inhibitor at different times during the day. Hypotensive symptoms may also resolve after a decrease in the dose of diuretics in patients who are volume depleted. If hypotension is accompanied by other clinical evidence of hypoperfusion, beta-blocker therapy should be decreased or discontinued pending further patient evaluation. The symptom of fatigue is multifactorial and is perhaps the hardest symptom to address with confidence. Although fatigue may be related to beta blockers, other causes of fatigue should be considered, including sleep apnea, overdiuresis, or depression. (Citation 2, p. e267-268)

# TARGET:HF<sup>SM</sup>

## Aldosterone Antagonist at Discharge:

### Guideline Recommendations:

#### *Class I*

Aldosterone receptor antagonists [or mineralocorticoid receptor antagonists] are recommended in patients with NYHA class II-IV and who have LVEF of 35% or less, unless contraindicated, to reduce morbidity and mortality. Patients with NYHA class II should have a history of prior cardiovascular hospitalization or elevated plasma natriuretic peptide levels to be considered for aldosterone receptor antagonists. Creatinine should be 2.5 mg/dL or less in men or 2.0 mg/dL or less in women (or estimated glomerular filtration rate >30 mL/min/1.73 m<sup>2</sup>), and potassium should be less than 5.0 mEq/L. Careful monitoring of potassium, renal function, and diuretic dosing should be performed at initiation and closely followed thereafter to minimize risk of hyperkalemia and renal insufficiency. (Level of Evidence: A) (Citation 2, p. e268)

Aldosterone receptor antagonists are recommended to reduce morbidity and mortality following an acute MI in patients who have LVEF of 40% or less who develop symptoms of HF or who have a history of diabetes mellitus, unless contraindicated. (Level of Evidence: B) (Citation 2, p. e268)

#### *Class III:*

Inappropriate use of aldosterone receptor antagonists is potentially harmful because of lifethreatening hyperkalemia or renal insufficiency when serum creatinine is more than 2.5 mg/dL in men or more than 2.0 mg/dL in women (or estimated glomerular filtration rate <30 mL/min/1.73 m<sup>2</sup>), and/or potassium more than 5.0 mEq/L. (Level of Evidence: B) (Citation 2, p. e269)

# TARGET:HF<sup>SM</sup>

## **Rationale:**

The landmark RALES trial (Randomized Aldactone Evaluation Study) showed a 30% reduction in all-cause mortality as well as a reduced risk of SCD and HF hospitalizations with the use of spironolactone in patients with chronic HFrEF and LVEF <35%. Eplerenone has been shown to reduce all-cause deaths, cardiovascular deaths, or HF hospitalizations in a wider range of patients with HFrEF.

Clinicians should strongly consider the addition of the aldosterone receptor antagonists spironolactone or eplerenone for all patients with HFrEF who are already on ACE inhibitors (or ARBs) and beta blockers. Although the entry criteria for the trials of aldosterone receptor antagonists excluded patients with a creatinine >2.5 mg/dL, the majority of patients had much lower creatinine (95% of patients had creatinine ≤1.7 mg/dL). In contrast, one third of patients in EMPHASIS-HF (Eplerenone in Mild Patients Hospitalization and Survival Study in Heart Failure) had an estimated glomerular filtration rate of <60 mL/min/1.73m<sup>2</sup>. Note also that the entry criteria for the EMPHASIS-HF trial were age of at least ≥55 years, NYHA class II symptoms, and an EF of no more than 30% (or, if >30% to 35%, a QRS duration of >130 ms on ECG). To minimize the risk of life-threatening hyperkalemia in euvolemic patients with HFrEF, patients should have initial serum creatinine <2.5 mg/dL (or an estimated glomerular filtration rate >30 mL/min/1.73 m<sup>2</sup>) without recent worsening and serum potassium <5.0 mEq/L without a history of severe hyperkalemia. Careful patient selection and risk assessment with availability of close monitoring is essential in initiating the use of aldosterone receptor antagonists.

Spironolactone should be initiated at a dose of 12.5 to 25 mg daily, while eplerenone should be initiated at a dose of 25 mg/d, increasing to 50 mg daily. For those with concerns of hyperkalemia or marginal renal function (estimated glomerular filtration rate 30 to 49 mL/min/1.73 m<sup>2</sup>), an initial regimen of every-other-day dosing is advised (Table 16). After initiation of aldosterone receptor antagonists, potassium supplementation should be discontinued (or reduced and carefully monitored in those with a history of hypokalemia; Table 17), and patients should be counseled to avoid foods high in potassium and NSAIDs. Potassium levels and renal function should be rechecked within 2 to 3 days and again at 7 days after initiation of an aldosterone receptor antagonist. Subsequent monitoring should be dictated by the general clinical stability of renal function and fluid status but should occur at least monthly for the first 3 months and every 3 months thereafter. The addition or an increase in dosage of ACE inhibitors or ARBs should trigger a new cycle of monitoring.

# TARGET:HF<sup>SM</sup>

There are limited data to support or refute that spironolactone and eplerenone are interchangeable. The perceived difference between eplerenone and spironolactone is the selectivity of aldosterone receptor antagonism and not the effectiveness of blocking mineralocorticoid activity. (Page e269) (Citation 1) In RALES, there was increased incidence (10%) of gynecomastia or breast pain with use of spironolactone (a nonselective antagonist). The incidence of these adverse events was <1% in EPHESUS (Eplerenone Post-Acute Myocardial Infarction Heart Failure Efficacy and Survival Study) and EMPHASIS-HF without any difference in adverse events between the eplerenone and placebo. (Citation 2, p. e270)

The major risk associated with use of aldosterone receptor antagonists is hyperkalemia due to inhibition of potassium excretion, ranging from 2% to 5% in large clinical trials, to 24% to 36% in population-based registries. Routine triple combination of an ACE inhibitor, ARB, and aldosterone receptor antagonist should be avoided. The development of potassium levels >5.5 mEq/L (approximately 12% in EMPHASIS-HF) should generally trigger discontinuation or dose reduction of the aldosterone receptor antagonist unless other causes are identified. The development of worsening renal function should lead to careful evaluation of the entire medical regimen and consideration for stopping the aldosterone receptor antagonist. Patients should be instructed specifically to stop the aldosterone receptor antagonist during an episode of diarrhea or dehydration or while loop diuretic therapy is interrupted. (Citation 2, p. e269-70)

## **HEART FAILURE: EARLY FOLLOW-UP AND CARE COORDINATION**

### **Follow-Up Visit Within 7 Days or Less:**

#### **Guideline Recommendations:**

The use of performance improvement systems and/or evidence-based systems of care is recommended in the hospital and early postdischarge outpatient setting to identify appropriate HF patients for Guideline-Directed Medical Therapy (GDMT), provide clinicians with useful reminders to advance GDMT, and assess the clinical response. (Level of Evidence: B) (Citation 2, p. e288)

# TARGET:HF<sup>SM</sup>

Throughout the hospitalization as appropriate, before hospital discharge, at the first postdischarge visit, and in subsequent follow-up visits, the following should be addressed. (Level of Evidence: B) (Citation 2, p. e289-90)

- a. initiation of GDMT if not previously established and not contraindicated;
- b. precipitant causes of HF, barriers to optimal care transitions, and limitations in postdischarge support;
- c. assessment of volume status and supine/upright hypotension with adjustment of HF therapy as appropriate;
- d. titration and optimization of chronic oral HF therapy;
- e. assessment of renal function and electrolytes where appropriate;
- f. assessment and management of comorbid conditions;
- g. reinforcement of HF education, self-care, emergency plans, and need for adherence; and
- h. consideration for palliative care or hospice care in selected patients.

Every patient with HF should have a clear, detailed, and evidence-based plan of care that ensures the achievement of GDMT goals, effective management of comorbid conditions, timely follow-up with the healthcare team, appropriate dietary and physical activities, and compliance with Secondary Prevention Guidelines for cardiovascular disease. This plan of care should be updated regularly and made readily available to all members of each patient's healthcare team. (Level of Evidence: C) (Citation 2, p.e295):

## *Class IIa*

Scheduling an early follow-up visit (within 7 to 14 days) and early telephone follow-up (within 3 days) of hospital discharge is reasonable. (Level of Evidence: B) (Citation 2, p.e290)

## **Rationale:**

The prognosis of patients hospitalized with HF, and especially those with serial readmissions, is suboptimal. Hence, appropriate levels of symptomatic relief, support, and palliative care for patients with chronic HF should be addressed as an ongoing key component of the plan of care, especially when patients are hospitalized with acute decompensation. The appropriateness of discussion about advanced therapy or end-of-life preferences is reviewed in Section 11.

For patients with HF, the transition from inpatient to outpatient care can be an especially vulnerable period because of the progressive nature of the disease state, complex medical regimens, the large number of comorbid conditions, and the multiple clinicians who may be involved. Patient education and written discharge instructions or educational material given to the patient, family members, and/or caregiver during the hospital stay or at discharge to home are essential components of transition care. These should address all of the following: activity level, diet, discharge medications, follow-up appointment, weight monitoring, and what to do if symptoms worsen. Thorough discharge planning that includes special emphasis on ensuring adherence to an evidence-based medication regimen is associated with improved patient outcomes.



# TARGET:HF<sup>SM</sup>

More intensive delivery of discharge instructions, coupled tightly with subsequent well-coordinated follow-up care for patients hospitalized with HF, has produced positive results in several studies. The addition of a 1-hour, nurse educator–delivered teaching session at the time of hospital discharge, using standardized instructions, resulted in improved clinical outcomes, increased self-care and treatment adherence, and reduced cost of care. Patients receiving the education intervention also had a lower risk of rehospitalization or death and lower costs of care. There are ongoing efforts to further develop evidence-based interventions in this population. Transitional care extends beyond patient education. Care information, especially changes in orders and new diagnostic information, must be transmitted in a timely and clearly understandable form to all of the patient’s clinicians who will be delivering follow-up care. Other important components of transitional care include preparation of the patient and caregiver for what to expect at the next site of care, reconciliation of medications, follow-up plans for outstanding tests, and discussions about monitoring signs and symptoms of worsening conditions. Early outpatient follow-up, a central element of transitional care, varies significantly across US hospitals. Early post-discharge follow-up may help minimize gaps in understanding of changes to the care plan or knowledge of test results and has been associated with a lower risk of subsequent rehospitalization. A follow-up visit within 7 to 14 days and/or a telephone follow-up within 3 days of hospital discharge are reasonable goals of care. (Citation 2, p. e290)

## Heart Failure Disease Management Program Referral

### Guideline Recommendations:

#### *Class I*

The use of performance improvement systems and/or evidence-based systems of care is recommended in the hospital and early post-discharge outpatient setting to identify appropriate HF patients for GDMT, provide clinicians with useful reminders to advance GDMT, and assess the clinical response. (Level of Evidence: B) (Citation 2, p. e288-9)

Throughout the hospitalization as appropriate, before hospital discharge, at the first postdischarge visit, and in subsequent follow-up visits, the following should be addressed. (Level of Evidence: B) (Page 94):

- a. initiation of GDMT if not previously established and not contraindicated;
- b. precipitant causes of HF, barriers to optimal care transitions, and limitations in postdischarge support;
- c. assessment of volume status and supine/upright hypotension with adjustment of HF therapy as appropriate;
- d. titration and optimization of chronic oral HF therapy;
- e. assessment of renal function and electrolytes where appropriate;
- f. assessment and management of comorbid conditions;
- g. reinforcement of HF education, self-care, emergency plans, and need for adherence; and
- h. consideration for palliative care or hospice care in selected patients.

Multidisciplinary HF disease-management programs are recommended for patients at high risk for hospital readmission, to facilitate the implementation of GDMT, to address different barriers to behavioral change, and to reduce the risk of subsequent rehospitalization for HF. (Level of Evidence: B) (Citation 2, p. e290)

### Rationale:

Decisions about pharmacological therapies delivered during hospitalization likely can impact postdischarge outcome. Continuation or initiation of HF GDMT prior to hospital discharge is associated with substantially improved clinical outcomes for patients with HF<sub>rEF</sub>. However, caution should be used when initiating beta-blockers in patients who have required inotropes during their hospital course or when initiating ACE inhibitors, ARBs, or aldosterone antagonists in those patients who have experienced marked azotemia or are at risk for hyperkalemia. The patient should be transitioned to oral diuretic therapy to verify its effectiveness. Similarly, optimal volume status should be achieved, blood pressure should be adequately controlled, and, in patients with AF, ventricular response should also be well controlled. The hospitalization is a “teachable moment” to reinforce patient and family education and develop a plan of care, which should be communicated to the appropriate healthcare team.

# TARGET:HF<sup>SM</sup>

Safety for patients hospitalized with HF is crucial. System changes necessary to achieve safer care include the adoption by all US hospitals of a standardized set of 30 “Safe Practices” endorsed by the National Quality Forum and National Patient Safety Goals espoused by The Joint Commission. Improved communication between clinicians and nurses, medication reconciliation, carefully planned transitions between care settings, and consistent documentation are examples of patient safety standards that should be ensured for patients with HF discharged from the hospital.

The prognosis of patients hospitalized with HF, and especially those with serial readmissions, is suboptimal. Hence, appropriate levels of symptomatic relief, support, and palliative care for patients with chronic HF should be addressed as an ongoing key component of the plan of care, especially when patients are hospitalized with acute decompensation. The appropriateness of discussion about advanced therapy or end-of-life preferences is reviewed in Section 11.

For patients with HF, the transition from inpatient to outpatient care can be an especially vulnerable period because of the progressive nature of the disease state, complex medical regimens, the large number of comorbid conditions, and the multiple clinicians who may be involved. Patient education and written discharge instructions or educational material given to the patient, family members, and/or caregiver during the hospital stay or at discharge to home are essential components of transition care. These should address all of the following: activity level, diet, discharge subsequent rehospitalization. A follow-up visit within 7 to 14 days and/or a telephone follow-up within 3 days of hospital discharge are reasonable goals of care. (Citation 2, p. e290)

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## Heart Failure Disease Management Program Referral

### Guideline Recommendations:

#### *Class I*

The use of performance improvement systems and/or evidence-based systems of care is recommended in the hospital and early post-discharge outpatient setting to identify appropriate HF patients for GDMT, provide clinicians with useful reminders to advance GDMT, and assess the clinical response. (Level of Evidence: B) (Citation 2, p. e288-9)

# TARGET:HF<sup>SM</sup>

Throughout the hospitalization as appropriate, before hospital discharge, at the first postdischarge visit, and in subsequent follow-up visits, the following should be addressed. (Level of Evidence: B) (Page 94):

- a. initiation of GDMT if not previously established and not contraindicated;
- b. precipitant causes of HF, barriers to optimal care transitions, and limitations in postdischarge support;
- c. assessment of volume status and supine/upright hypotension with adjustment of HF therapy as appropriate;
- d. titration and optimization of chronic oral HF therapy;
- e. assessment of renal function and electrolytes where appropriate;
- f. assessment and management of comorbid conditions;
- g. reinforcement of HF education, self-care, emergency plans, and need for adherence; and
- h. consideration for palliative care or hospice care in selected patients.

Multidisciplinary HF disease-management programs are recommended for patients at high risk for hospital readmission, to facilitate the implementation of GDMT, to address different barriers to behavioral change, and to reduce the risk of subsequent rehospitalization for HF. (Level of Evidence: B) (Citation 2, p. e290)

## **Rationale:**

Decisions about pharmacological therapies delivered during hospitalization likely can impact postdischarge outcome. Continuation or initiation of HF GDMT prior to hospital discharge is associated with substantially improved clinical outcomes for patients with HFrEF. However, caution should be used when initiating beta-blockers in patients who have required inotropes during their hospital course or when initiating ACE inhibitors, ARBs, or aldosterone antagonists in those patients who have experienced marked azotemia or are at risk for hyperkalemia. The patient should be transitioned to oral diuretic therapy to verify its effectiveness. Similarly, optimal volume status should be achieved, blood pressure should be adequately controlled, and, in patients with AF, ventricular response should also be well controlled. The hospitalization is a “teachable moment” to reinforce patient and family education and develop a plan of care, which should be communicated to the appropriate healthcare team.

Safety for patients hospitalized with HF is crucial. System changes necessary to achieve safer care include the adoption by all US hospitals of a standardized set of 30 “Safe Practices” endorsed by the National Quality Forum and National Patient Safety Goals espoused by The Joint Commission. Improved communication between clinicians and nurses, medication reconciliation, carefully planned transitions between care settings, and consistent documentation are examples of patient safety standards that should be ensured for patients with HF discharged from the hospital.

The prognosis of patients hospitalized with HF, and especially those with serial readmissions, is suboptimal. Hence, appropriate levels of symptomatic relief, support, and palliative care for patients with chronic HF should be addressed as an ongoing key component of the plan of care, especially when patients are hospitalized with acute decompensation. The appropriateness of discussion about advanced therapy or end-of-life preferences is reviewed in Section 11.

# TARGET:HF<sup>SM</sup>

For patients with HF, the transition from inpatient to outpatient care can be an especially vulnerable period because of the progressive nature of the disease state, complex medical regimens, the large number of comorbid conditions, and the multiple clinicians who may be involved. Patient education and written discharge instructions or educational material given to the patient, family members, and/or caregiver during the hospital stay or at discharge to home are essential components of transition care. These should address all of the following: activity level, diet, discharge medications, follow-up appointment, weight monitoring, and what to do if symptoms worsen. Thorough discharge planning that includes special emphasis on ensuring adherence to an evidence-based medication regimen is associated with improved patient outcomes. (Page 95)

More intensive delivery of discharge instructions, coupled tightly with subsequent well-coordinated follow-up care for patients hospitalized with HF, has produced positive results in several studies. The addition of a 1-hour, nurse educator–delivered teaching session at the time of hospital discharge, using standardized instructions, resulted in improved clinical outcomes, increased self-care and treatment adherence, and reduced cost of care. Patients receiving the education intervention also had a lower risk of rehospitalization or death and lower costs of care (365). There are ongoing efforts to further develop evidence-based interventions in this population. Transitional care extends beyond patient education. Care information, especially changes in orders and new diagnostic information, must be transmitted in a timely and clearly understandable form to all of the patient’s clinicians who will be delivering follow-up care. Other important components of transitional care include preparation of the patient and caregiver for what to expect at the next site of care, reconciliation of medications, follow-up plans for outstanding tests, and discussions about monitoring signs and symptoms of worsening conditions. Early outpatient follow-up, a central element of transitional care, varies significantly across US hospitals. Early post-discharge follow-up may help minimize gaps in understanding of changes to the care plan or knowledge of test results and has been associated with a lower risk of subsequent rehospitalization. A follow-up visit within 7 to 14 days and/or a telephone follow-up within 3 days of hospital discharge are reasonable goals of care. (Citation 2, p. e290)

# TARGET:HF<sup>SM</sup>

## Outpatient Cardiac Rehabilitation Program Referral:

### Guideline Recommendations:

#### *Class I*

Exercise training (or regular physical activity) is recommended as safe and effective for patients with HF who are able to participate to improve functional status. (Level of Evidence: A) (Citation 2, p. e264)

#### *Class IIa*

Cardiac rehabilitation can be useful in clinically stable patients with HF to improve functional capacity, exercise duration, Health-Related Quality of Life (HRQOL), and mortality. (Level of Evidence: B) (Citation 2, p. e264)

It is recommended that HF disease management include integration and coordination of care between the primary care physician and HF care specialists and with other agencies, such as home health and cardiac rehabilitation. (Strength of Evidence 5 C) (Citation 3, p. e103)

### Rationale:

Exercise training in patients with HF is safe and has numerous benefits. Meta-analyses show that cardiac rehabilitation reduces mortality; improves functional capacity, exercise duration, and HRQOL; and reduces hospitalizations. Other benefits include improved endothelial function, blunted catecholamine spillover, increased peripheral oxygen extraction, and reduced hospital admission. (Citation 2, p. e264) A key component to outpatient CR program utilization is the appropriate and timely referral of patients. Generally, the most important time for this referral to take place is while the patient is hospitalized for a qualifying event/diagnosis. Effective referral of appropriate inpatients to an outpatient CR program is the responsibility of the health care team within a health care system that is primarily responsible for providing cardiovascular care to the patient during the hospitalization. (Citation 4, p. 1626)

# TARGET:HF<sup>SM</sup>

## HEART FAILURE: ENHANCED PATIENT EDUCATION

Provision of at least 60 minutes of heart failure education by a qualified heart failure educator:

### **Guideline Recommendations:**

#### *Class I*

Patients with HF should receive specific education to facilitate HF self-care (Level of Evidence: B)  
(Citation 2, p. e262)

Throughout the hospitalization as appropriate, before hospital discharge, at the first post-discharge visit, and in subsequent follow-up visits, the following should be addressed. (Level of Evidence: B)  
(Citation 2, p. e289)

- a. initiation of GDMT if not previously established and not contraindicated;
- b. precipitant causes of HF, barriers to optimal care transitions, and limitations in post-discharge support;
- c. assessment of volume status and supine/upright hypotension with adjustment of HF therapy as appropriate;
- d. titration and optimization of chronic oral HF therapy;
- e. assessment of renal function and electrolytes where appropriate;
- f. assessment and management of comorbid conditions;
- g. reinforcement of HF education, self-care, emergency plans, and need for adherence; and
- h. consideration for palliative care or hospice care in selected patients.

### **Rationale:**

The self-care regimen for patients with HF is complex and multifaceted. Patients need to understand how to monitor their symptoms and weight fluctuations, restrict their sodium intake, take their medications as prescribed, and stay physically active. Education regarding these recommendations is necessary, albeit not always sufficient, to significantly improve outcomes. After discharge, many patients with HF need disease management programs, which are reviewed in Section 11. (Citation 2, p. e262-63)

# TARGET:HF<sup>SM</sup>

A systematic review of 35 educational intervention studies for patients with HF demonstrated that education improved knowledge, self-monitoring, medication adherence, time to hospitalization, and days in the hospital. Patients who receive in-hospital education have higher knowledge scores at discharge and 1 year later when compared with those who did not receive in-hospital education. Data have called into question the survival benefit of discharge education. However, prior data have suggested that discharge education may result in fewer days of hospitalization, lower costs, and lower mortality rates within a 6-month follow-up. Patients educated in all 6 categories of the HF core measures from The Joint Commission were significantly less likely to be readmitted for any cause, including HF. Even a single home-based educational intervention for patients and families has been shown to decrease emergency visits and unplanned hospitalizations in adults with HF.

(Citation 2, p.e263)

For patients with HF, the transition from inpatient to outpatient care can be an especially vulnerable period because of the progressive nature of the disease state, complex medical regimens, the large number of comorbid conditions, and the multiple clinicians who may be involved. Patient education and written discharge instructions or educational material given to the patient, family members, and/or caregiver during the hospital stay or at discharge to home are essential components of transition care. These should address all of the following: activity level, diet, discharge medications, follow-up appointment, weight monitoring, and what to do if symptoms worsen. Thorough discharge planning that includes special emphasis on ensuring adherence to an evidence-based medication regimen is associated with improved patient outcomes. More intensive delivery of discharge instructions, coupled tightly with subsequent well-coordinated follow-up care for patients hospitalized with HF, has produced positive results in several studies. The addition of a 1-hour, nurse educator– delivered teaching session at the time of hospital discharge, using standardized instructions, resulted in improved clinical outcomes, increased self-care and treatment adherence, and reduced cost of care. Patients receiving the education intervention also had a lower risk of rehospitalization or death and lower costs of care. There are ongoing efforts to further develop evidence-based interventions in this population. (Citation 2, p. e290)



# TARGET:HF<sup>SM</sup>

Education, support, and involvement of patients with HF and their families are critical and often complex, especially during transitions of care. Failure to understand and follow a detailed and often nuanced plan of care likely contributes to the high rates of HF 30-day rehospitalization and mortality seen across the United States. One critical intervention to ensure effective care coordination and transition is the provision of a comprehensive plan of care, with easily understood, culturally sensitive, and evidence-based educational materials, to patients with HF and/or caregivers during both hospital and office-based encounters. A comprehensive plan of care should promote successful patient self-care. Hence, the plan of care for patients with HF should continuously address in detail a number of complex issues, including adherence to GDMT, timely follow-up with the healthcare professionals who manage the patient's HF and associated comorbidities, appropriate dietary and physical activities, including cardiac rehabilitation, and adherence to an extensive list of secondary prevention recommendations based on established guidelines for cardiovascular disease (Table 34). Clinicians must maintain vigilance about psychosocial, behavioral, and socioeconomic issues that patients with HF and their caregivers face, including access to care, risk of depression, and healthcare disparities. For example, patients with HF who live in skilled nursing facilities are at higher risk for adverse events, with a 1-year mortality rate >50%. Furthermore, community-dwelling patients with HF are often unable to afford the large number of medications prescribed, thereby leading to suboptimal medication adherence. (Citation 2, p. e295-96)

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## **Provision of AHA heart failure interactive workbook:**

### **Guideline Recommendations:**

It is recommended that patients with HF and their family members or caregivers receive individualized education and counseling that emphasizes self-care. This education and counseling should be delivered by providers using a team approach in which nurses with expertise in HF management provide the majority of education and counseling, supplemented by physician input and, when available and needed, input from dietitians, pharmacists, and other health care providers (Strength of Evidence B) (Citation 3, p. e98)

Teaching is not sufficient without skill building and specification of critical target behaviors. It is recommended that essential elements of patient education (with associated skills) are utilized to promote self-care with associated skills shown in Table 8.1 (Strength of Evidence B) (Citation 3, p. e98)

It is recommended that educational sessions begin with an assessment of current HF knowledge, issues about which the patient wants to learn, and the patient's perceived barriers to change. Education sessions should address specific issues (eg. medication non-adherence) and their causes (eg. lack of knowledge vs. cost vs. forgetting) and employ strategies that promote behavior change, including motivational approaches (Strength of Evidence B) (Citation 3, p. e99)

# TARGET:HF<sup>SM</sup>

It is recommended that the frequency and intensity of patient education and counseling vary according to the stage of illness. Patients in advanced HF or with persistent difficulty adhering to the recommended regimen require the most education and counseling. Patients should be offered a variety of options for learning about HF according to their individual preferences:

- Video tape
- One-on-one or group discussion
- Reading materials, translators, telephone calls, mailed information
- Internet
- Visits

Repeated exposure to material is recommended because a single session is never sufficient (Strength of Evidence B). (Citation 3, p. e100)

## **Rationale:**

Successful education is an interactive process in which patients and caregivers participate by asking questions and by demonstrating that they have comprehended and retained what they were told. Misperceptions by patients and family are very common, but they can be avoided when an interactive learning process is used. Very few clinicians have strategies in place for assessing that patients have understood and retained the education given to them. Retention of learned material is poor among the elderly and any patient with a chronic disease, but it is enhanced when the learner shows mastery of the learned material by recitation of specific details or by demonstration.

(Citation 3, p. e101)

Although most clinicians would argue for the value of face-to-face education and counseling, studies have shown that select patients who are motivated to learn and change can derive significant benefit from interventions delivered by mail, telephone, or technology. (Citation 3, p. e100)

# TARGET:HF<sup>SM</sup>

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