

Clinical Practice Guidelines

Heart Failure

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This reference is a guide for Agrace clinicians who work with patients requiring management of heart failure. Whether you are new to hospice care, are new to Agrace or are an experienced professional, this resource provides updated guidance for the care of patients with heart failure.



The “Teach” icon in these guidelines marks concepts that most often give patients and families difficulty. Providing education is an important part of your role as an end-of-life practitioner.

Heart Failure at a Glance

In heart failure (HF), the heart cannot supply the heart muscle or the rest of the body with adequate arterial pressure and circulatory volume because the heart's pumping power is weaker than normal. Potential causes of this syndrome include coronary artery disease, myocardial infarction, cardiomyopathy, hypertension, valve disease, thyroid disease, kidney disease, diabetes mellitus, certain congenital heart defects and amyloidosis. Heart failure is associated with high mortality, frequent hospitalization and reduced quality of life, and patients with HF often require a complex therapeutic regimen.

When a patient has heart failure:

- blood moves through the heart and body at a slower than usual rate, and pressure in the heart increases;
- the heart begins to struggle to pump, and as a result, oxygen and nutrient delivery is impaired;
- the heart may start stretching to hold more blood to pump through the body, or it may become stiff and thickened. This helps keep blood flowing, but eventually the heart may weaken and become unable to pump as efficiently; and
- the renin-angiotensin-aldosterone system is activated, causing salt and water retention, arteriolar vasoconstriction and increased cardiac afterload (the tension in the wall of the left ventricle during ejection). ***This sodium retention and related congestion is a chief feature of HF.***

Heart failure can be systolic, diastolic, or both. If a person has systolic dysfunction—also referred to as heart failure with reduced ejection fraction (HFrEF)—the heart muscle does not contract with appropriate force. This leads to less oxygen-rich blood circulating. With diastolic dysfunction—also referred to as heart failure with preserved ejection fraction (HFpEF)—contraction is normal, but the ventricle can't relax or is stiff, so less blood re-enters during filling.

Heart failure can be right-sided, left-sided, or both. The chart that follows outlines signs or symptoms your patient may experience, depending on the side of the heart affected.

| Symptoms of Left-sided Heart Failure | Symptoms of Right-sided Heart Failure |
|---|---|
| Congestion in lungs | Congestion in systemic circulation |
| Dyspnea, tachypnea | Less blood flow through kidneys, causing fluid retention |
| Orthopnea | Swelling, peripheral edema, weight gain |
| Dry, hacking cough; hemoptysis | Nocturia, oliguria |
| Basilar rales, bronchial wheezes | Nausea (related to bloating in stomach) |
| Tachycardia, palpitations | Anorexia, decreased appetite (related to bloating in stomach) |
| Anxiety, restlessness, confusion | Weakness, fatigue |
| Fatigue, decreased exercise tolerance | Ascites |
| Cyanosis (a late sign of hypoxia in adults), pallor | Distended jugular veins, enlarged liver and spleen |
| Elevated pulmonary capillary wedge pressure | Increased peripheral venous pressure |

What has led up to hospice enrollment for our patients with heart failure?

Prior to their hospice enrollment, our patients may have undergone various diagnostic tests or procedures throughout the course of their HF: lab draws, chest X-rays, echocardiograms (including measuring of ejection fraction), electrocardiograms, cardiac catheterizations and/or stress tests. Some patients will have had surgery, such as a CABG, valve repairs or replacements, pacemaker or defibrillator (ICD) placement, or placement of an implanted ventricular assist device (VAD) in cases of severe systolic failure. Some of our patients have had a heart transplant.

Advanced heart failure diagnosis carries with it a high mortality rate, with increased symptom burden, functional limitations, and increased psychological and spiritual burdens. However, HF has an unpredictable course of exacerbations and improvement, which makes prognostication difficult.

Most patients with HF may experience death in an inpatient hospital setting (Warrach, Hernandez, & Allen, 2017). While referral to palliative and hospice care has increased over time for HF patients, the percentage of those referred who carry a diagnosis of HF compared with other terminal illnesses remains very low (Warrach, et al., 2018). Many who do use hospice are referred late, with the average death within three days of enrollment (Warrach, et al., 2017). Caregiving for those with HF also takes a toll on those providing care, with increased reports of anxiety, social isolation and financial concerns (Chi, Demiris, Pike, Washington, & Oliver, 2018). **Access to hospice and palliative care for people with end-stage HF opens doors to comfort and quality of life that otherwise might not exist for them and their caregivers.**

Hospice Eligibility and Prognosis

Heart failure often has a relatively stable primary phase that requires routine chronic-disease management. For many, the next phases of decline require a variety of supportive strategies and repeat hospitalizations. There may be unpredictable decompensations and improvements, with a subtle decline over time. The terminal phase is usually one of inevitable deterioration, lasting from days to weeks. **Even so, death is frequently unanticipated, due to a previous pattern of decline and partial recovery. The patient and family often believe that the patient will recover as they have done before.**



Teach

Prognostic data for six- to 12-month mortality in HF is difficult to gather for several reasons:

- Heart failure has an unpredictable disease trajectory.
- There is a predisposition in treatment of HF toward intervention to prolong life, which may increase a patient's or caregiver's optimism about the prognosis (Hill et al., 2020).
- There are variabilities among providers on when to refer a patient to palliative care and hospice care (Chen-Scarabelli, Saravolatz, Hirsh, Agarwal, & Scarabelli, 2015).

Heart failure has a unique course of illness and demands a different approach to treatment than other primary hospice diagnoses:

- Management by the patient checking vitals, including weights and monitoring diet and fluid intake can be important for symptom management in this patient population. This may involve more active patient self-monitoring than other diagnoses.

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- Heart failure medications and treatments that are disease-modifying and life-prolonging are also the ones that influence symptom severity. In other words, medications used to manage symptoms of HF can extend life as well. Consider continuing those medications and treatments that support the heart rather than make the heart work harder and potentially cause distress to the patient.

Understanding the patient’s clinical history and current status is critically important in recognizing when hospice is indicated. According to Centers for Medicare & Medicaid Services (CMS) guidelines, to be eligible for hospice services with a primary diagnosis of HF, the patient must meet criteria 1 or 2, and 3, below:

- Poor response to optimal medical treatment
- Angina at rest that cannot be treated with standard therapies
- New York Heart Association Class IV symptoms (dyspnea at rest)—*see chart that follows:*

| NYHA Class | Stages of Heart Failure—Patient Symptoms |
|----------------------|---|
| Class I (Mild) | No limitation of physical activity. Ordinary physical activity does not cause undue fatigue, palpitation or dyspnea (shortness of breath). |
| Class II (Mild) | Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity results in fatigue, palpitation or dyspnea. |
| Class III (Moderate) | Marked limitation of physical activity. Comfortable at rest, but less than ordinary activity causes fatigue, palpitation or dyspnea. |
| Class IV (Severe) | Unable to carry out any physical activity without discomfort. Symptoms of cardiac insufficiency at rest. If any physical activity is undertaken, discomfort is increased. |

The following are also supporting evidence for hospice eligibility; however, these are only guides. A patient’s functional status, as well as comorbid diseases, should be considered in the prognosis, as heart dysfunction affects all major organs:

- Echocardiogram demonstrating an ejection fraction of < 20%
- Treatment resistant symptomatic dysrhythmias
- History of unexplained or cardiac related syncope
- CVA secondary to cardiac embolism
- History cardiac arrest or resuscitation

The fact that accurate prognostication is difficult for patients with HF justifies initiating end-of-life discussions with patients and families early, and continuing these discussions regularly with symptom increases or with noted changes in patient functioning (Hill et al., 2020; Yancy et al., 2017). It is important that clinicians initiate planning before a crisis and to readdress end-of-life discussions with any HF related hospitalization or noted changes in quality of life.

Our role is to educate about the unpredictable and usually terminal nature of advanced heart disease. Patients should be aware of the possibility of a sudden death event, even if they are

feeling well. The Agrace care team needs to help patients articulate their goals and assess options for achieving them. For example, how do *quality* and *quantity* of life relate? What are the differences between being home and being in the hospital?



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The chart below outlines factors to consider, specific to heart failure, that may help you in determining whether a patient is eligible for **recertification** of service. This is a guide to aid in HF assessment, and other comorbidities should be considered along with this information.

| Factors to Consider for Hospice Eligibility | Checklist of Recommended Assessments |
|--|--|
| Inability to tolerate optimal treatment | Are HF medications, such as beta blockers, ACE inhibitors, angiotensin receptor blockers, angiotensin-receptor inhibitors, or diuretics no longer tolerated? Assess for dizziness, confusion, edema despite ongoing diuretic treatment, hypotension or intolerable side effects of medications. |
| Increased fatigue | <ul style="list-style-type: none"> • Has there been decreased participation in activities of daily living (ADLs)? • A need for more frequent CNA visits? • An increase in hours spent in bed/asleep—is more time spent sleeping than awake during a 24-hour period? • A decreased ability to ambulate—does the patient need to take frequent rests while walking? |
| Changes in HF symptoms | <ul style="list-style-type: none"> • Have there been medication changes? What was the response? • Is there any change in the use of oxygen? Is this at rest or with activity? • Does the patient note a decrease in pulse ox with movement ? • Is there increased edema or dyspnea? |
| Changes in coronary artery disease (CAD) | <ul style="list-style-type: none"> • Is there increased angina (frequency/intensity)? • Is there a new or increased need for nitroglycerin, morphine or oxygen related to angina pain? |
| Changes in heart rhythm | <ul style="list-style-type: none"> • Is the patient experiencing syncope or dizziness? • Is the patient’s defibrillator firing? • Has the patient’s baseline rhythm changed? |
| Changes in vital signs | <ul style="list-style-type: none"> • Is there an increase or decrease in heart rate or blood pressure? • Has the patient had an increase in weight related to edema? |
| Other organ function changes, including changing lab values, if available <i>Decreased heart function affects all organs due to decreased perfusion, so consider any dysfunction of other organs and how this may be related to HF.</i> | <ul style="list-style-type: none"> • Renal changes: Has there been an increase in BUN or creatinine? Any decrease in urine? Consider cardiorenal syndrome. • Hematology changes: Has there been a decrease in Hgb/HCT? Is fatigue increasing or the patient more short of breath? Are there indications of bleeding? • Liver changes: Has there been an increase in LFTs? Does the patient have in increase in ascites or appear jaundiced? Is there increased bleeding due to dysfunction or abnormal clotting times (INR/PT)? Consider cardiohepatic syndrome. • Overall signs of decreased perfusion: Is the patient getting more confused or forgetful? Are the extremities cold and/or mottled? |
| Nutritional status | <ul style="list-style-type: none"> • What is the patient’s weight loss vs. gain from edema? • Has there been a change in mid-upper arm circumference? • Does the patient have a loss of appetite? |

Assessment

People with poor cardiac function may experience a number of signs and symptoms of heart failure. A good assessment of the patient can assist with patient management and discussions with providers to help manage symptoms. Depending on the situation in which you are seeing or speaking with the patient and/or caregiver, consider the following assessments in a cardiac patient:

1. **Vitals**, including blood pressure, heart rate and weight. Is this a change from baseline? If the patient has a remote monitoring device (e.g., Cardiomems), can that information be obtained? The patient should take weights around the same time each day after voiding, with the same scale and with similar dress each time. A patient's baseline weight without extra fluid is referred to as "dry weight."
2. **Heart sounds and rhythm** (regular or irregular). Has the rate or rhythm changed, and is the patient symptomatic with this change (e.g., assess for shortness of breath, lightheadedness or decrease in blood pressure)?
3. If the patient has a **cardiac device** (pacemaker, ICD, VAD) has there been a recent interrogation or adjustment of the parameters in this device? What was the response to any changes made?
4. **Any changes in edema**—both in extremities and trunk. Assess change in fluid intake, sodium intake and changes in urination. If able to assess, do they have any jugular distension?
5. Assess for changes in **perfusion** that might be noted by change in mentation and cold or mottled extremities.
6. **Assess lung sounds** and listen for changes. Is there any change in dyspnea? When does patient experience dyspnea? Are they able to lie flat or bend down? Do they need to elevate the head of the bed or use more pillows to elevate upper body while sleeping? Do they wake during the night with shortness of breath? Assess any change in cough and if this is productive or not. Any changes in oxygen use?
7. **Any changes in dietary habits**. Is the patient getting full early, or are they feeling increased nausea?
8. **Any changes in pain**. Assess frequency, type, location, onset and duration. Any changes in angina? Is the patient needing to use nitroglycerine? How often, and are they getting relief?
9. Are there any recent **changes in medications**, including over-the-counter medication use? Is the patient using more PRN medications? Any missed doses of medications? Did symptoms change or improve with any therapeutic adjustments? If the patient is on an IV inotrope infusion, was there any concern with the delivery of the medication?
10. Has the patient had any **recent laboratory testing** or **cardiac testing** that can be reviewed?

With any change in symptoms, take note if this change was sudden or gradual. Also note if symptoms occur continuously or only with certain activities. The above is not meant to be a complete assessment, but reviewing the above can be helpful when assessing a cardiac patient and adjusting therapies.



Teach

Many HF patients have already been tracking vital signs, weight and symptoms at home and should be encouraged to continue to do so or to start when transitioning to hospice or palliative care, as this will aid in the management of their care.

[The Advanced Cardiac Care Program Patient and Caregiver Handbook](#) provides useful tracking tools for patients and caregivers. If patients already have a method of

tracking vitals and symptoms that works for them, it is OK to continue to use these methods. This tracking should be reviewed with patients and caregivers with any visit or with reports of change in symptoms and is often helpful in monitoring trends. This handbook also provides patients and their caregivers with information about the disease process and symptom management specific to HF.

Medications and Symptom Management

Heart failure patients experience symptoms similar to other patients at the end of life. The American Heart Association (AHA) recommends that all HF patients, regardless of where they are in their heart failure trajectory, be assessed for appropriateness of goal-directed medical therapy with consideration being given to a patient's goals of care (Yancy, et al., 2017). As HF treatment is often aimed at treating symptoms of heart failure, stopping any HF therapies may exacerbate heart failure symptoms and should be done in a controlled manner with reassessment of symptoms after discontinuation.

Medications

Optimal drug use improves symptoms in patients with HF. Become familiar with your patient's medication profile. You can help patients by providing ongoing assessment of the pros/cons of medication use and education about maximizing comfort.

Medications described throughout are recommended by the AHA for goal-directed therapy (Yancy, et al., 2017). You may see some or all of these medication types on the patient's medication profile. There are different uses, side effects and precautions for each of the medications listed below.

Know that in HF, antihypertensives are not only used for managing hypertension, but are also used to offload the work of the heart, so a low blood pressure alone may not be reason to stop these medications. Be sure to collaborate with physicians and pharmacists, knowing that patients should be encouraged to make decisions about continuing versus discontinuing medication based on burden-to-benefit.

Diuretics flush extra salt and water from the body and reduce preload. There are three types of diuretics: Thiazide, loop and potassium-sparing. Each works by affecting a different part of the kidneys.

- Furosemide (loop)
- Bumetanide (loop)
- Torsemide (loop)
- Spironolactone (potassium-sparing)
- Hydrochlorothiazide (thiazide)
- Metolazone (thiazide)

As HF progresses, it is not uncommon for the patient to experience diuretic resistance. There are ways we can help overcome this condition:

- Make sure to optimize loop diuretic dosing, including consideration of changing between loop diuretics if a patient is experiencing decreased effect with current diuretic.
- Add a thiazide diuretic (like HCTZ or metolazone) to help reestablish diuresis. Thiazide diuretics can "boost" loop diuretics so should be timed appropriately with administration.

- If necessary, make a change to IV or subcutaneous delivery of medications.
- Consider electrolyte monitoring with needed electrolyte replacement when death is not imminent.

Vasodilators dilate vessels and reduce afterload:

- Nitroglycerin
- Isosorbide mono/di-nitrate
- Hydralazine
- Clonidine

Note that isosorbide and hydralazine are often used in combination for treatment of HF, and this combination is a recommended treatment for African American patients with advanced HF.

Beta Blockers decrease blood pressure and heart rate and may relieve symptoms of a reduced ejection fraction (EF):

- Atenolol
- Metoprolol
- Propranolol

ACE Inhibitors widen vessels to improve the amount of blood the heart pumps:

- Lisinopril
- Enalapril
- Lotensin
- Captopril

Angiotensin Receptor Blocker decreases blood pressure and reduce afterload:

- Losartan
- Valsartan

Calcium Channel Blockers decrease heart rate and blood pressure—effective for diastolic failure:

- Amlodipine
- Nifedipine
- Diltiazem

Inotropes increase force of heart pumping so it can pump less frequently and more effectively (for IV medications please review [Agrace's Inotrope Initiation and Management Policy](#)):

- Digoxin
- Dobutamine (continuous IV medication)
- Milrinone (continuous IV medication)
- Dopamine (continuous IV medication)

Aldosterone Receptor Antagonists or Mineralcorticoid Receptor Antagonists are weak potassium-sparing diuretics that also have antifibrotic effects in HF:

- Spironolactone

Symptom Management and Interventions

Patients with HF have specific concerns for treatment of symptoms at end-of-life, due to reduced heart function which causes decreased blood flow to other organs. This section contains a list of HF symptoms and interventions that should be considered along with [Agrace's Pain and Symptom Management Protocol](#).



Prevention can lead to increased success in the management of HF. Patients often know their triggers and can make plans to prevent symptom increases.

Here are a few examples of these triggers, with prevention strategies:

- Does the patient have a special event or holiday during which they anticipate they will eat more salty foods? Make a plan to decrease salt intake on days before or after, or have a plan for an increased diuretic, as needed around this occasion.
- Is there a busy day when increased activity will lead to more fatigue? Make a plan for the patient to rest on days leading up to and/or after this event. Patients and caregivers can make a plan with others to help with activities that may cause increased fatigue.
- Is the patient traveling a longer distance or be unable to elevate lower extremities, which may lead to more edema? A plan for them may include wearing compression garments as directed by providers, making frequent stops to move around and elevating extremities, if possible.

Anxiety

Assessment: Anxiety is a common component of HF and can increase with disease progression (Lemond & Goodlin, 2015). This may be related to the stress of living with a prolonged chronic illness or may precede and/or accompany exacerbation of symptoms related to HF.

- If the patient is able to report/respond, ask if they are feeling anxious or restless. Monitor the patient's body language and/or tone of voice throughout the interaction.
- Explain that it is common for patients with HF to experience anxiety. Validate feelings and educate the patient and family that anxiety can be minimized through numerous interventions.
- Work to determine what contributing factors may exist. Was there a triggering event or could other, unmanaged symptoms be exacerbating the anxiety?

Interventions:

- Teach both the patient and caregivers techniques to reduce anxiety in the moment, such as simple breathing techniques, distraction, guided imagery or other immediate interventions. Review with the patient and/or caregiver ways in which they have minimized anxiety in the past, and encourage them to try those methods as well.
- Encourage them to try multiple options to discover what works for them.
- [Review Agrace's anxiety symptom management protocol](#) for more options, including medications that can be used if needed.
- Discuss the benefits and risks of anti-anxiety medication, bearing in mind both short- and longer-acting options.

Collaboration/IDT: Minimizing non-physical sources of anxiety is a team effort. Assess whether there are spiritual or existential concerns contributing to the anxiety. Determine whether the patient has anxiety related to loved ones and caregiving needs; find out if they feel their caregivers are well-supported. Remember, too, that caregiver anxiety can impact the patient—increased anxiety is well documented in HF caregivers (Chi et al., 2018)—so be sure to consider the patient and family as a unit of care. Discuss as a team the multiple stressors in the patient’s and caregivers’ lives and strategies for minimizing them.



Teaching Tip: Anxiety in HF is often related to symptom exacerbation or loss of control. Continue to review with patients and caregivers that while HF has an up-and-down progression, we can plan ahead about how to control many HF symptoms according to the patient’s goals of care. Use the [“Stoplight Tool” in the Advanced Cardiac Care Patient Handbook](#) to build confidence in the patient’s ability to manage the good days and bad days. Reassure them they can contact Agrace providers around the clock to review symptoms during exacerbations.

Delirium and Confusion

Assessment: There are many potential causes of confusion in patients with HF, so a skilled assessment is required. Remember that due to the failing heart, all organs in the body can be experiencing decreased blood flow—the patient may be hypoxic, delirious, declining or just overwhelmed with information. The possibilities are many. Use the CHIMBOP acronym to help guide assessment.

Interventions: Possible interventions depend on the cause of the confusion. When an underlying cause is identified, efforts at correcting or reversing that underlying cause come first—in alignment with goals of care. Additionally, nonpharmacologic strategies for supporting confused patients often make a significant difference.

When medication is needed, haloperidol is most often the drug of choice for delirium. Please see [Agrace’s delirium protocol](#) for related information.

Collaboration/IDT: Discuss with the patient and caregiver ways to accommodate the patient’s confusion without escalating their anxiety or frustration. **The IDT must remember that not only is it exhausting for the person experiencing delirium, but also for the caregiver of someone who is confused or delirious.** Collaborate with an Agrace medical director when brainstorming assessment and intervention strategies for confusion and delirium.

Teaching tips:



- When a patient is confused, talk to the caregiver about when a change in cognition may be considered more concerning and when to call Agrace.
 - Explain that confusion can have many, varied causes. Let family know that sometimes we can intervene and correct the underlying disturbance, and sometimes the confusion may be due to disease progression and may not be reversible.
- Focus on safety interventions with the caregiver, especially fall risk reduction.

Emotional Health: Depression, despair, anger, guilt, suicidal ideation

Assessment: With HF, there often comes a sense of isolation, difficulty navigating the health care system and uncertainty regarding prognosis. Patients with HF have learned to live with the threat of mortality and with their functional limitations. As with other illnesses, there can be a financial burden as medical costs accumulate. There is also a perception with heart disease that there is always something more that can be done; the “ups and downs” can keep the patient and family thinking that the patient will always recover again (Chi et al., 2018; LeMond & Goodlin, 2015; Warraich et al., 2017).

Depression is common in patients with HF and often worsens with increased symptoms and hospitalizations. Caregivers often also experience emotional concerns and may have lack of social support due to concurrent commitments with caregiving (Chi et al., 2018; Warraich et al., 2017). The social work assessment is a key component in understanding emotional health symptoms for both the patient and caregiver.

Interventions: In addition to depression, patients can experience despair, anger, regret, guilt and suicidal ideation. It is important to distinguish between situational sadness and depression, and understand how to support patients in times of great stress or emotional crisis. Review [Agrace's suicide protocol](#).

- Acknowledging the difficult journey through chronic illness and creating an opportunity to share their experience can be helpful for both patient and caregiver.
- Work with the patient to identify factors contributing to the patient's despair or possible depression.
- Consider whether the patient may benefit from an anti-depressant medication. SSRIs are first choice in HF patients, as they lack side effects that tricyclic antidepressants have that may worsen HF (LeMond & Goodlin, 2015). [Review Agrace's depression protocol here](#).

Collaboration/IDT: Talk about resources for the patient and caregiver with other members of the IDT; include spiritual & grief counselors as well as social workers. Consider using volunteers. Suggest psychiatric consult, if needed. Assess patient's ability to cope with change in daily function including strategies for dealing with these changes.



Teaching tips: Patients often hesitate to discuss their feelings of depression or struggle to explain what they feel; some clinicians find assessment difficult as well. Ask patients about their feelings. Open a conversation with something similar to these sentiments: “Many people with illnesses like yours struggle with feelings of depression. I want to understand your feelings and help you as best I can. Do you feel like you're struggling with sadness or depression?”

Dyspnea and Cough

Assessment: Dyspnea is the most common symptom of HF. When the left ventricle starts to fail, fluid collects in the lungs (pulmonary edema). Airways have a harder time expanding. Breathing becomes more difficult, and the patient may feel short of breath, particularly with activity, when lying down or bending over. Remember that information about shortness of breath is obtained via patient self-report. As with pain, it is what they say it is. As fluid overload is one of the most common causes of dyspnea in a HF patient, assess if there are increases in edema or weight that were noted along with reports of dyspnea.

Interventions: To minimize HF symptoms, it is important to optimize HF treatments, including goal-directed medication therapy. Always consider medication changes as a cause for any increase in symptoms with HF. Assess for any reversible causes of dyspnea, such as fluid or sodium overload, pleural or pericardial effusions, dysrhythmias or a COPD exacerbation. **Remember that simple air movement from a fan directed at the face, an open window, or sitting the patient up can make a significant difference in perception of breathlessness.**

Assess that the patient is using home oxygen, CPAP or BiPap, inhalers or nebulizers, if ordered; however, use caution with inhalers and nebulizers, which often increase heart rate. Consider diuretics as a first-line medication treatment if a patient is noted to have increased edema or a noted “wet cough” along with dyspnea. Some HF medications may cause a cough, so review with the patient the description of their cough and if this started with any medication changes. Review [Agrace’s dyspnea protocol](#).

Collaboration/IDT: Discuss activities that exacerbate dyspnea or cough for the patient, and explore strategies for timing activities, planning breaks and utilizing CNA services to reduce the patient’s physical effort related to personal care. Explore non-pharmacological techniques for dyspnea reduction, such as a fan blowing on the face, positioning or breath coaching.

Teaching tips:



- Encourage patients and caregivers to monitor symptoms and vitals, including weight, at home. If they note changes happening, they may be able to prevent a dyspnea exacerbation related to fluid overload.
- Pre-medicating before a shower or other strenuous activity may help relieve dyspnea and keep the patient functional longer.
- Teach breathing and relaxation techniques that may help in the middle of an exacerbation.
- Talk with the patient and caregiver about calling Agrace when a dyspnea episode is not relieved.

Edema

Assessment: Edema is one of the most common symptoms of HF and is often associated with dyspnea. When the right ventricle starts to fail, fluid begins to collect in the feet and lower legs. Puffy leg swelling is a sign of right side HF, especially if the edema is pitting. As right HF worsens, the upper legs and scrotum can swell, and eventually the abdomen can collect fluid (ascites). Weight gain accompanies the fluid retention, so monitoring weight can be a helpful measure when assessing how much fluid is being retained.

Interventions:

- For your patients’ comfort, it may be helpful to discuss sodium or fluid restrictions; assess their goals and priorities before making recommendations. Common restrictions are less than 2 grams of sodium daily and less than 2 L of fluid daily.
- If patient is able to perform daily weights, encourage them to do so and report weight changes of more than 2 to 3 lbs. in one day or 3 to 5 lbs. in one week, depending on the size of the patient (smaller patients tolerate smaller changes in weight).
- Elevating the affected limb can help with blood return to the heart and reduce the accumulation of fluid. Compression stockings, Tubigrips or ACE wraps may help with edema, but each situation should be reviewed carefully, as poor-fitting items may cut off blood flow and worsen skin condition on the affected extremity.

- Diuretics are often titrated in an effort to help with edema. If the patient is having less effect with their current diuretic, a dose adjustment or medication change may be needed.
- In rare cases, paracentesis may be considered for refractory ascites.
- In areas of edema, assess skin thoroughly, as these areas are at greater risk of breakdown. Caregivers need to understand how to manage skin care if the skin starts weeping. Consider collaborating with Agrace’s wound care team if drainage or open sores are issues.
- Patients experiencing edema are at greater risk of fall, as it becomes more awkward for them to move around.



Teach

Collaboration/IDT: It may help to use Agrace CNAs for providing cares (especially skin care and repositioning) and demonstrating these techniques to the caregiver. Diuretics may often need to be adjusted in patients with increased edema. As these affect electrolytes and renal function, close collaboration with providers is needed for

ongoing management with these adjustments.

Teaching tips: Explain to the patient and caregiver that the body produces more urine when the legs are elevated or the patient lies down for sleep, which will increase frequency of urination. Diuretics should be given as early in the day as possible to promote good sleep and decrease nocturia.

Fatigue and Weakness

Assessment: Fatigue and weakness have a profound effects on quality of life. The basis of treatment for fatigue and weakness are identifying and responding to underlying causes, such as anemia, infection, dehydration, electrolyte abnormalities, thyroid dysfunction and depression (Yancy et al., 2017). Heart failure itself causes fatigue and weakness, because the heart cannot keep up with the demands of the body.

Interventions: Teach energy conservation, self-care, limit-setting and the consequences of “overdoing it.” Help patients identify what times of day they have the most energy, and encourage them to plan activities then. Identify barriers that a patient has due to fatigue and weakness, and assess if there are needs that can be met with supplies or assistive devices.

Collaboration/IDT: Ensure the IDT is aware of the immense impact fatigue and weakness has on the quality of life of HF patients. As fatigue and weakness are a normal part of disease progression, the team can provide outlets for the patient and caregiver to talk about the emotional impact of these changes. Explore benefits of using the full IDT, including CNAs and volunteers, as the patient’s needs change.



Teach

Teaching tips: The fatigue patients feel is beyond usual tiredness and the feeling of not getting a good night’s sleep. Focus on patient goals when talking about energy conservation. Determine where the patient wants to focus their energy, knowing it is limited. Secure DME that would be helpful with adjusting to new limitations. We also must validate and support caregivers, as the depth of the patient’s fatigue can cause patients to retreat, limiting their engagement and interactivity with loved ones.

Gastrointestinal Symptoms

Assessment: As HF progresses with decreased blood flow to all organs, gastrointestinal symptoms may increase, and patients may experience nausea, vomiting and early satiety. For some patients, appetite is suppressed and the taste sense is altered (Arestedt, Brannstrom, Evangelista, Stromberg, & Alvariza, 2021). Like many end-of-life patients, HF patients may also have issues with constipation, which may be exacerbated by fluid restrictions. Be aggressive in evaluating bowel comfort and assessing underlying processes, because preserving bowel function is vital to the patient's comfort.

Interventions:

- Consider whether a pro-motility agent would help, and have medication on hand to manage constipation and/or nausea.
- Sometimes adjusting medication administration to a different time of day or changing whether the medication is taken with or without food may help with nausea. Review with pharmacy if there are any contraindications to this.
- Assess other sources of decreased appetite, such as increased edema or ascites in the abdomen that may cause patient to feel "full."
- Reinforce a consistent bowel regimen where indicated. Review [Agrace's GI protocols](#).
- If the patient is using morphine or other narcotic, be sure to consider starting a stool softener and laxative to prevent constipation.

Collaboration/IDT: The IDT should talk about food and fluids as the patient changes and normalize the decrease in intake. Consider a dietary consult when necessary.



Teaching tip: Prepare the patient and caregivers for the possibility of abdominal pain or nausea after meals. Encourage the patient to explore whether they find smaller, more frequent meals more tolerable. As with other patients that Agrace serves, decreased appetite or lack of eating is a normal part of the dying process. Review with caregivers that this is expected.

Pain

Assessment: Pain is experienced by most patients with advanced HF (LeMond & Allen, 2011). Some HF patients experience angina or pain related to edema. Others have unrelated, chronic pain from other conditions. Pain is not always physical in nature and can be existential pain (LeMond & Goodlin, 2015). There may be multiple locations and types of pain involved, and a comprehensive pain assessment is vital to identifying effective intervention strategies.

Interventions:

- Some patients have been stented in the past or have coronary occlusions that could not be intervened upon. Patients with pain from the coronaries may benefit from anti-anginal medication (nitroglycerin).
- Diuretics may be helpful, especially if pain comes from the feeling of fullness and swelling associated with edema.
- If the patient's pain from other sources is impacting their quality of life, prioritize helping them manage that as well.

Important note: Many pain medications are not ideal with end-stage HF due to their effect on heart rhythm or because of overall worsening renal function often seen in these patients. NSAIDs should be avoided, when possible, given risks of GI bleed, renal failure and/or worsening fluid retention. NSAIDs also antagonize the effects of many cardiac medications (LeMond & Allen, 2011; Yancy, 2017).

Review Agrace's [pain assessment and management protocol](#) for further recommendations on the treatment of pain.

Collaboration/IDT: Explore the meaning of pain for the patient. Encourage an open discussion about its effects and how families and cultures think about pain differently. Explore wishes for comfort level and sedation level. Reinforce that all members of the IDT are concerned about pain, and that we will keep working to make the patient comfortable on their terms.

Teaching tips:



- Review opioids as treatment for both pain and dyspnea.
- Talk to caregivers about behavioral indicators of pain so they can share their observations with the team. For nonverbal patients, explain how we approach a pain assessment using different scales and observations, and for verbal patients, discuss the pain scales used.
- Ensure that caregivers know how to administer nitroglycerin, as the patient may have been managing medication independently up until now. Also review caregivers' understanding of and ability to administer Agrace's emergency comfort medications.

Heart Failure Emergencies

We must teach the patient and family to be prepared for heart-failure related possibilities. Talking about potential emergencies in advance helps patients and families think about how they might react in situations and what plan they might like to make to minimize anxiety or fear, and to avoid unnecessary ER visits or hospitalizations. Encourage patients and caregivers to utilize their [“Stoplight Tool” in the Advanced Cardiac Care Patient Handbook](#) for plan recommendations.

In the event of a symptom-management concern, **always encourage patients and families to contact Agrace first** so we can help determine options for care. **Patient with a ventricular assist device (VAD) should always call their VAD center prior to calling Agrace with any device-related concerns.**

Continuous Care in the home setting or general inpatient (GIP) care at one of Agrace's inpatient units might be options when symptoms are not well managed under Routine Home Care.

The symptoms listed below are often perceived by patients and families as emergencies and should be treated as such.

- **Dyspnea that is not resolving with normal treatment**
 - > Fluid overload and treatment with a diuretic should always be the first consideration in a HF patient with dyspnea. In the absence of any contraindication, always have an opioid available as additional treatment in the failure of a diuretic to relieve symptoms of fluid overload.
 - > Use of supplemental oxygen can be a comfort measure for many with HF.
 - > Remember the importance of position changes and breath coaching throughout assessment and treatment.

- **Seizures**

- > Ensure availability of a benzodiazepine, if indicated.
- > Provide safety and fear-reduction teaching for family.

- **Flash Pulmonary Edema**

Flash pulmonary edema—often coming on suddenly—can cause significant distress, leading to a respiratory crisis that leaves the patient gasping for air and feeling unable to breathe. If there is enough fluid in the lungs, it can feel like drowning. The patient may cough up frothy sputum and become sweaty, cool and clammy. In addition, if other organs are affected by the poor oxygenation, people may experience confusion or angina.

- > Ensure adequate ventilation and oxygenation.
- > Treat underlying cause of flash pulmonary edema.
 - ◇ Reduce pulmonary venous return (preload reduction) with diuretics or nitrates. Preload reduction decreases pulmonary capillary hydrostatic pressure and reduces fluid in the pulmonary interstitium and alveoli.
 - ◇ Reduce systemic vascular resistance (afterload reduction) with antihypertensives. In some cases, the patient will need inotropic support. Afterload reduction increases cardiac output and improves renal perfusion, which allows for diuresis in the patient with fluid overload.

ICDs, VADs and Pacemakers

Agrace has formal policies for implanted cardiac devices that are helpful when taking care of patients with these devices:

[Agrace's Defibrillator Policy](#) [Agrace's Pacemaker Policy](#) [Agrace's VAD Policy](#)

Implantable cardioverter defibrillator (ICD): This small device is placed in the chest or abdomen and is used to help treat irregular heartbeats or arrhythmias. An ICD uses electrical pulses or shocks to help control life-threatening arrhythmias, especially those that can cause sudden cardiac arrests.

Pacemaker: A pacemaker is a small device placed in the chest or abdomen to help control abnormal heart rhythms. It uses electrical pulses to prompt the heart to beat at a normal rate. A pacemaker lead ends in various locations of the heart, depending on the purpose of therapy. A pacemaker can have one, two or three leads—or even be leadless, depending on the purpose of treatment. Leadless pacemakers are newer and may not be as common. One- or two-lead pacemakers go to the right side of the heart and can go to the atria, ventricle or both. A cardiac resynchronization therapy (CRT) or biventricular pacemaker (BiV) device can be either two or three leads, but it goes to both ventricles to coordinate the pumping function of the two largest chambers of the heart.

Ventricular assist device (VAD): This mechanical pump is used to support heart function and blood flow in people who have NYHA Class IV severe HF. The VAD takes blood from a lower chamber of the heart and helps pump it to the body. A VAD can be left-sided, right-sided or both, with most patients receiving a left VAD (or LVAD) only. VADs are used when a patient has exhausted all medical therapy. They can be either utilized as a bridge to transplant or as destination therapy for those who are not heart transplant candidates. As a VAD has a high risk of clotting, patients with VADs will be on antico-

agulation for the lifetime of the VAD. VADs can prolong life and improve function, but there is a high mortality and treatment burden. Caregivers of VAD patients are often greatly involved in the management of the device and have an increased burden of care in relation to other treatments (Chi et al., 2018; Dunlay et al., 2016).

Teach

It is important that Agrace clinicians understand the potential complexities and nuances of navigating life with any of these three devices. There are many physical, emotional, spiritual and ethical implications to making decisions related to cardiac support. We must be able to encourage and facilitate these discussions with our patients and families and their physicians.

Can you turn it off?

All of these devices can be deactivated, but first, discussions are needed between patient, physician, family and the hospice team. For example, if someone has a pacemaker and becomes terminally ill with a condition unrelated to the heart, it's possible the pacemaker could prolong the process of dying. Doctors and researchers have varied opinions about turning off a pacemaker at the end of life. Patients should talk to family members and their care team about what they prefer to do in end-of-life care situations like these. ICDs are often deactivated to avoid any unnecessary shocks at the end of life.

Discussions about end points for VAD therapy should take place before implantation and include addressing quality of life below which the patient would not want circulatory support anymore. The Centers for Medicare and Medicaid Services (CMS) require that all patients undergoing VAD placement for destination therapy meet with palliative care prior to insertion. VAD patients are not required to continue with palliative care beyond the pre-implant meeting, so patients may have different experiences and expectations in how they feel that VAD therapy will impact end of life care. (Dunlay et al., 2017).

All patients with cardiac devices who start hospice services with Agrace should have early discussions regarding plans with implanted devices. Patients' wishes can change, and it is important that Agrace staff be able to help facilitate discussions with patients and caregivers as they process what the end of life with an implanted cardiac device means to them. Agrace provides opportunity for and encourages an ethics consult when situations are unclear.

Should it be turned off?

ICD: Many patients have their ICD turned off when their goal changes from living longer (aggressive treatment) to getting the most comfort possible at end of life (allowing for a natural death). Turning off an ICD alleviates symptoms that a patient may experience with a shock at the end of life.

Pacemakers: Typically, pacemakers do not need to be deactivated in end-of-life situations unless the patient or family requests it, which typically happens if they feel the device is prolonging the dying process. If a patient is dependent on the pacemaker, death may occur within days of deactivation. In most situations, deactivation is not indicated, as a patient may become more symptomatic (with increased fatigue and dyspnea). These symptoms can be more severe in the deactivation of a CRT pacemaker, due to lack of synchronization between ventricles. **Contrary to common belief, it is rare that disabling a pacemaker would result in a swift and painless death, as few patients are 100 percent pacemaker dependent, especially during imminent dying.** Pacemakers are not resuscitative de-

vices; they do not keep dying patients alive through active death—in which time the myocardium is usually too sick to respond to electrical impulses of the pacemaker.

VAD: The decision to deactivate a VAD is similar to the decision to withdraw a ventilator. As this device is functioning as part of the patient's heart, symptoms of deactivation can be severe and the deactivation should be coordinated with other providers with a prioritization placed on patient comfort.

How do you turn it off?

ICD: Turning off an ICD is not invasive and can be done in many settings with the correct equipment. The vendor or Agrace staff will re-program an external computer placed near the patient's device to turn off the defibrillator. This will not cause death. It will not make the patient feel worse. If the patient were to have a life-threatening rhythm after the device is turned off, it will not deliver a shock.

Pacemaker: Newer pacemakers have been designed to withstand magnetic fields and need the intervention of a cardiologist, the vendor or Agrace staff to be deactivated. Pacemakers are reprogrammed similar to an ICD, with an external programmer.

See [Agrace instructions regarding deactivation of ICDs and pacemakers.](#)

Some patients have one implanted device that functions as both a pacemaker and an ICD. If deactivating a combined device, please work closely with the manufacturer representative to ensure that you are turning off the settings only to the function which you have planned to deactivate.

VAD: A VAD is turned off by removing an external power source and associated controlling unit—similar to removing a ventilator. It is not common that a patient will have a VAD deactivated outside of the hospital; however, as VADs are used for destination therapy more commonly, this may change.

If a patient or their surrogate makes the decision to deactivate a VAD outside of the hospital, a thorough plan should be in place to premedicate and to rapidly address dyspnea, agitation and discomfort after the device is stopped. The process should be clearly explained to everyone involved. A patient may die from within a few minutes to days after VAD deactivation. [Agrace's VAD deactivation policy can be found here.](#)

A patient with a VAD may die of other causes with the VAD still in place. A VAD has a series of safety mechanisms which cause alarms when the VAD is not functioning as it should be. The alarms can be distressing to caregivers and others around at the time of death. If death happens unexpectedly, caregivers can silence the alarm and call the patient's VAD center for help to remove all power to the device and to prevent further alarms.

When do we use magnets at Agrace?

Magnets can be useful if a patient starts to actively die and has not had their ICD turned off. Device manufacturers supply special magnets that can be used for this purpose. If an ICD fires during active dying, it can be uncomfortable for the patient and distressing to the family. Placing a magnet over the device to deactivate the ICD at this time would be indicated.

Why are my patients calling or going to the clinic to have their devices checked?

Patients can have their pacemaker checked remotely using wireless technology. Using cellphone or radiofrequency signals, the pacemaker transmits and receives information between the patient and the doctor's office, where the doctor can access the data, including the heart rate and rhythm, how the pacemaker is functioning and the remaining battery life.

Patients may also go to a clinic for routine implanted device interrogations. VADs cannot be downloaded remotely. They may require an in-person visit to ensure that the device is working appropriately and to learn whether adjustments need to be made to the device to minimize patients' symptoms as their HF progresses.

Continuous IV Inotropic Drugs for Heart Failure

Patients with HF have often experienced several hospitalizations prior to coming to Agrace. During these hospitalizations they may have been on continuous IV inotropic medications for treatment of HF. In many patients with HF, these IV medications can be weaned off to oral HF therapy, or the patient may proceed to VAD placement or heart transplant. There is a small population of HF patients who cannot be weaned off of IV therapy and may require ongoing treatment with continuous IV inotropic infusion to avoid refractory symptoms of HF (Yancy et al., 2017). These are medications used for inotropic support:

- **Milrinone** increases stroke volume and cardiac output through increased pumping action of the heart and vasodilation of the vessels. This has a long half-life (hours), but is more expensive than other inotropes and can cause decreased blood pressure (Malotte, Saguros, & Groninger, 2018).
- **Dobutamine** improves stroke volume and cardiac output due to mixed hormonal effects on the heart and vasculature muscles. This has a very short half-life (minutes), but is less expensive than milrinone (Malotte, Saguros, & Groninger, 2018).
- **Dopamine** is rarely used outside of the hospital for ongoing treatment of HF. This medication has different effects on the heart depending on the dose used. (Lyons & Carey 2013).

Inotropic medications are not used to prolong life, but to treat symptoms of HF. These medications are not without risks. The risks should be reviewed with the patient prior to discharge from the hospital and can be addressed routinely to review risk versus benefit. Risks to consider include these:

- These medications require a long-term central access, which increases the patient's risk of infection (Malotte, Saguros & Groninger, 2018). Inotropes generally cannot be given peripherally.
- A short interruption in medication administration may exacerbate patient's HF symptoms very quickly. A plan should be in place to avoid a lapse in care. (Malotte, Saguros, & Groninger, 2018)
- Inotropes can increase the risk of sudden cardiac death due to arrhythmia. Patients should be aware that while inotropes may relieve symptoms of HF, they also increase the risk of death (Maciver & Ross, 2018). If a patient has an ICD along with inotrope infusion, deactivation should be discussed and performed, depending on patient's goals of care, to avoid any unnecessary shocks.

Discontinuing inotropes: Some patients may have a plan in place prior to starting service with Agrace about when they would like to stop inotropes. As patients may want to have better control of symptoms during transport from the hospital to wherever they are planning on experiencing end of life, they may have a plan to continue inotropes for a very brief period until they are settled where they wish to be. Others may have a specific time frame in mind to continue therapy, such as through a holiday, birthday or special occasion. Other patients may not have any specific time frame for inotropic therapy continuation in mind, and discussions about continuation should be done frequently throughout the patients' care trajectory.

No matter when a patient is planning to stop inotropes, plans should be made by all involved at the time of therapy discontinuation. Due to the short half-life of these medications, the plan should be in place before the IV inotrope is discontinued. It should include premedication and how to rapidly address dyspnea, agitation and discomfort that a patient may feel due to exacerbation of HF symptoms.

Please review [Agrace's inotrope policy here](#).

Closing Thoughts

Heart failure is epidemic in developed countries and is expanding rapidly worldwide. Hospice and supportive (palliative) care help to:

- relieve symptoms,
- improve patient satisfaction,
- decrease the cost of caring for patients at the end of life,
- enhance well-being and dignity,
- promote communication between health care providers,
- offer emotional and spiritual support to patients and their families,
- and to help patients to potentially meet their goals regarding their death.

As Agrace care team members, we play an integral role in improving the quality of life for our patients with HF. This practice guideline will be useful to you in your efforts to support patients with HF and their families. Remember to team. Remember to teach. Be a part of the final gift.

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