Assessing Heart Failure in Long-Term Care Facilities

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Barbara and Richard Csomay Center for Gerontological Excellence

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Grading Scheme

This guideline was developed from an exhaustive literature review and synthesis of current evidence on identifying and assessing heart failure in older adults. Research and other evidence, such as guidelines and standards from professional organizations, were critiqued, analyzed, and used as supporting evidence.

The practice recommendations are assigned an evidence grade based upon the type and strength of evidence from research and other literature.

Scheme for grading the strength and consistency of evidence in the guideline:

- A1 = Evidence from well-designed meta-analysis or well-done systematic review with results that consistently support a specific action (e.g., assessment, intervention, or treatment)
- A2 = Evidence from one or more randomized controlled trials with consistent results
- B1 = Evidence from high quality Evidence-Based practice guideline
- B2 = Evidence from one or more quasi experimental studies with consistent results
- C1 = Evidence from observational studies with consistent results (e.g., correlational, descriptive studies)
- C2 = Inconsistent evidence from observational studies or controlled trials
- D = Evidence from expert opinion, multiple case reports, or national consensus reports

Introduction

Despite known best practices, long-term care facilities continue to experience gaps in quality of for high-risk medical conditions, including heart failure (Averill, Hughes, & Goldfield, 2011; Nazir, Dennis & Unroe, 2015; Stone & Hoffman, 2010). Heart failure (HF) is the only cardiovascular disease with escalating mortality, despite improvement in the use of evidence-based practices (Ahmed, Jones, & Hays, 2008; Heidenreich, Sahay, Kapoor, Pham, & Massie, 2010). The mean prevalence of heart failure within the long-term care setting is estimated to be 20% (17- 45%), depending on geographic location and study population (Daamen, Schols, Jaarsma, & Hamers, 2010). Within the long-term care setting, hospital readmission rates average 27% within the first thirty days post inpatient heart failure discharge (Foebel et al. 2013; Orr, Forman, De Matteis, & Gambassi, 2015). Individuals with heart failure who are admitted to long-term care facilities often have greater disease severity, comorbidities and distinctive vulnerabilities (Foebel et al., 2013). Interprofessional teams offer these individuals the benefit of diverse knowledge and experience and are designed to improve patient outcomes, especially in the nursing home setting (Titler, Treiger & Lattimer, 2011).

Direct caregivers provide 80–90% of residents' care. As crucial members of the interprofessional care team, they have the greatest potential to impact care (Boxer, Dolansky, Frantz, Prosser, & Piña, 2012; Caspar & O'Rourke, 2011; Dolansky, Hitch, Piña, & Boxer, 2013; Harrington, 2012; Lerner, Resnick, Galik, & Russ, 2010; Pennington, Scott, & Magilvy, 2003). Effective teamwork and working rapport can improve patient safety and clinical outcomes (Institute of Medicine [IOM] 2001; Kohn, Corrigan, & Donaldson, 2000; Titler, Treiger & Lattimer, 2011).

Long-term care interprofessional teams should include the patient and/or family members, managing practitioners (physicians, nurse practitioners, and physician assistants within the facility), nurses (Director of Nursing, registered, and licensed practical nurses) and certified nursing assistants (aides), clinical pharmacists, allied health professionals from physical therapy and occupational therapy, social worker, registered dieticians, dietary services, and chaplains. If palliative care teams, geriatricians, and/or primary care providers outside the facility are involved in the resident's care, they too are valuable members of the interprofessional heart failure team.

Evidence suggests the three most crucial elements to successful heart failure management in long-term care include improved heart failure staff knowledge, efficient interprofessional communication, and the integration of these into the daily workflow and processes (Heckman et al., 2017). Studies have shown that when all long-term care facility staff members, especially direct caregivers such as nursing assistants, are given an active role in the care plan implementation, patient quality of care and outcomes improve (Bryant, Heineman, & Stone, 2008; Caspar & O'Rourke, 2011; Kim, Ea, Parish, & Levin, 2016; Lerner, Resnick, Galik, & Russ, 2010; Nazir et al., 2015; Vickery, 2004). Efforts to encourage and support CNAs' competence and confidence that their work has important effects and meaning are crucial to job satisfaction and empowerment, which in turn positively affect patient outcomes (Caspar & O'Rourke, 2011; Cready, Yeatts, Gosdin & Potts, 2008; Kim, Ea, Parish, & Levin, 2016).

Use of all available resources and creative approaches to care provision is critical to the survival and quality of life for nursing home residents. Nurse, direct caregiver, family, and patient education should be provided. Staff in-service education using turnkey programs from the Heart Failure Society of America is a novel method to teach nurses and certified nursing assistants about the signs and symptoms of HF exacerbation Heart Failure Society of America, 2018; (Kim et al., 2016). Such programs can improve the quality of information provided, as well as standardize the content and cost of teaching. Moreover, assessment tests and process evaluation monitors included within this guideline can be used to fulfill requirements for nursing assistant certification and nursing license continuing education hours. Downloadable supplemental educational materials are available from the Heart Failure Society of America (HFSA). An example of the three-course educational program is provided in Appendix A.4.

Purpose

The purpose of the heart failure assessment guideline is to outline a systematic approach for assessment of heart failure and early recognition of symptoms of worsening heart failure in the long-term care setting, post-acute care units, and short-term rehabilitation units, using taught observation skills of direct caregivers. This evidence-based practice guideline is intended for use by healthcare workers in long-term care facilities.

Definitions of Key Terms

Long-term care setting refers to skilled nursing care facilities (SNF) and intermediate care facilities (ICF).

- ***Heart failure*** - Complex clinical syndrome resulting from structural or functional cardiac disorders that impair the ability of the heart to pump or eject blood.
- ***Dyspnea*** - Shortness of breath or increased effort in breathing--either at rest or with activity.
- ***Edema*** - The bilateral accumulation of fluid in the tissues, commonly known as swelling.
- ***Orthopnea*** - Inability to breathe, except when sitting up.
- ***Orthostatic hypotension*** - A drop in blood pressure upon standing or changing positions from lying to sitting or sitting to standing resulting in feeling light headed, dizzy or syncope. Recognized by a drop in the systolic blood pressure of more than 15-20 mm Hg or 10mm Hg in diastolic blood pressure three minutes following a change in position.
- ***Paroxysmal nocturnal dyspnea*** - Sudden attacks of dyspnea during sleep. Characterized by sudden awakening, gasping for breath, and attempting to sit up or get out of bed to relieve the symptom.

(Source: Nettina, 2014)

Individuals at Risk

Residents of long-term care facilities with a previous diagnosis of heart failure, coronary artery disease, myocardial ischemia, valvular heart disease, myocardial infarction, left ventricular dysfunction, dysrhythmias (e.g., atrial fibrillation), cardiomyopathy, or Charleson Index score of > 5 are at risk for repeated hospitalizations and have high morbidity and mortality rates (American Medical Directors Association, 2015; Foebel et al., 2013; Jurgens et al., 2015; Ouslander, Diaz, Hain, & Tappen, 2011). Residents with obstructive sleep apnea, chronic lung disease, poorly controlled thyroid disease (hyper- or hypo-), increased metabolic demand (anemia, pneumonia, urinary tract infection, or other acute illness), concomitant use of antidepressants, psychotropic medication, anticoagulants, nonsteroidal anti-inflammatory, or antiplatelet agents, or chronic kidney disease have increased risk for heart failure (American Medical Directors Association, 2015; Foebel et al., 2013; Jurgens et al., 2015). Residents taking non-steroidal anti-inflammatory agents are at risk for initial or recurrent episodes of heart failure due to precipitous effects on renal function and cardiac function (American Medical Directors Association, 2015; Jurgens et al., 2015; Yancy et al., 2017).

Assessment Criteria

Older adults who would most benefit from long-term care facilities' use of this heart failure guideline include older adults residing in long-term care settings with classification II, III, or IV heart failure, based on the NYHA criteria (Appendix H). In addition, older adults who live in long-term care facilities and have known risk factors for HF should be evaluated using a systematic approach as described in this clinical practice guideline.

Assessment Tools, Instruments, and Forms

Several assessment tools and forms are available to aid in the assessment of patients with heart failure; however, no available tool meets the specific characteristics of residents in long-term care facilities. In the Description of Practice section, you can find complete descriptions of the tools listed below. Additionally, scoring instructions can be found with the tools in the Appendices.

- The LTC Heart Failure Assessment (Appendix A.1) was developed specifically for use in LTC nursing facilities. The tool is composed of two profiles that address three components of activities of daily living and eleven components of dyspnea.
- Weight Graphic (Appendix A.2) is used to record patient weights. The goal is to keep patients' weights in the shaded area, with specific criteria provided in the Intervention Section.
- "A NEW LEAF" pocket card (Appendix A.3) is used by direct caregivers to screen for symptoms of HF exacerbation. The pocket card carried by facility nursing assistants serves as a reference for the signs and symptoms of HF exacerbation during routine daily resident care.
- Heart Failure Education Program Structure and Content Example (Appendix A.4) for Facility Staff, Direct Caregivers/ Nursing Assistants, and Family Members.
- The SBAR (Situation, Background, Assessment, and Recommendation) Interprofessional Communication Form; Appendix A.5) guides the direct caregivers and nurses in thorough and effective communication with the interprofessional team.
- An assessment algorithm (Appendix I) provides a flowchart for risk, assessment criteria, interventions, and outcome indicators for effective management of HF from a nursing perspective.

Description of the Practice

Assessment

Admission assessment by a registered nurse using the LTC Heart Failure Assessment tool (Appendix A.1) is recommended for baseline documentation for patients with:

- Documented diagnosis of heart failure, any cardiac diagnosis, hypertension, chronic kidney disease, or diabetes in the health record.
- Echocardiogram results suggestive of heart failure with reduced or preserved left ventricular ejection fraction. Any Minimum Data Set 3.0 that triggers a need for assessment by documentation of a new diagnosis of HF for cardiomyopathy or presence of respiratory, cardiac, or functional decline (Centers for Medicare & Medical Services [CMS], 2018).

The admission nurse should consult with the responsible health care provider in the facility and obtain an order to initiate the HF guideline for long-term care residents who meet any of the above criteria. The nurse should add the resident to the scheduled interprofessional team meetings for care plan updates.

Use of the LTC Heart Failure Assessment Tool

The LTC Heart Failure Assessment tool is composed of two profiles that address three components of activities of daily living (ADL) and eleven components of dyspnea. The assessing nurse observes for a decline in the resident's functional status and positive responses to questions in the dyspnea profile.

- The registered nurse documents the patient's status for the components in the ADL Profile on admission and at four-week intervals.
- The higher the score in the ADL profile, the lower the level of function. This score is compared with previous section totals at each assessment interval, monitoring for deterioration in functional status over time.
- The nurse then assesses the resident using the Dyspnea Profile. Any new positive response in this section should trigger an immediate referral to the responsible health care provider in the facility for evaluation (American Medical Directors Association, 2015; Jurgens et al., 2015; Nazir & Smucker, 2015) *[Evidence Grade = B1]*.
- If the responses in the dyspnea section are negative, the nurse should refer to the interprofessional team to assess for other causes in resident decline and schedule a visit with the responsible health care provider in the facility *[Evidence Grade = B2]*.

Each direct caregiver (certified nursing assistant) will:

- Be given "A NEW LEAF" card (Appendix A.3).
- Screen residents during the provision of care on a daily basis (Boxer et al., 2012; Dolansky, Hitch, Piña, & Boxer, 2013; Nazir & Smucker, 2015; Nazir, Dennis, & Unroe, 2015) *[Evidence Grade = B1]*.
- Notify the primary nurse if any signs or symptoms are present and provide current vital signs and the weight graphic (American Medical Directors Association, 2015; Jurgens et al., 2015; Nazir & Smucker, 2015) *[Evidence Grade = C1]*.

The assessment nurse will then:

- Perform an assessment using the LTC Heart Failure Assessment tool and contact the responsible health care provider for evaluation if positive findings of possible heart failure exacerbation are detected. This includes observation of:
  - Respiratory effort,
  - Bulging neck veins,
  - Extremity edema,
  - Rales or crackles upon auscultation of anterior and posterior breath sounds, and
  - Heart sounds listening for extra heart sounds and/or irregularity of rhythm (Jurgens & Smucker 2015)
- Make available for the provider the vital signs (blood pressure, pulse, respiration, and pulse oximetry, and finger stick glucose for those with diabetes) and weight graphic (American Medical Directors Association, 2015; Heckman et al., 2016; Jurgens et al., 2015; Nazir & Smucker, 2015) *[Evidence Grade= B1]*.
- Continue to monitor vital signs according to the primary provider's discretion or the long-term care facility's procedure and policy.

Interventions

Weight Monitoring

- Residents are placed on a weight regimen by the nursing staff. Weights are obtained three times until the resident's weight has been evaluated as stable (defined by a weight gain of fewer than two pounds for three measurements to maintain weight within shaded area on weight graphic) (American Medical Directors Association, 2015; Boxer et al., 2012; Heckman et al., 2016 Jurgens et al., 2015; Nazir & Smucker, 2015) *[Evidence Grade = B1]*. Weight is graphed on a weight graphic (Appendix A.2).

- Any weight gain of more than four pounds triggers:
    1. An assessment using the LTC Heart Failure Assessment tool.
    2. Vital signs, including measurement of oxygen saturation (American Medical Directors Association, 2015; Heckman et al., 2016; Jurgens et al., 2015; Nazir & Smucker, 2015) *[Evidence Grade = B1]*.
    3. Notification of the responsible health care provider in the facility (American Medical Directors Association, 2015; Heckman et al., 2016; Jurgens et al., 2015; Nazir & Smucker, 2015) *[Evidence Grade = B1]*.
- After the weight is stable, the resident is then weighed every week at the same time of day with the same scale and similar clothing (American Medical Directors Association, 2015; Heckman et al., 2016; Jurgens et al., 2015; Nazir & Smucker, 2015) *[Evidence Grade = B1]*.
- If the resident's weight registers outside the shaded area in the four-week period on the weight flow sheet, then HF assessment is triggered, and the responsible health care provider in the facility should be notified.

Dietary Management

Include dietary measures to control exacerbation of symptoms:

- Use of herbal seasonings should be encouraged in lieu of salt or potassium-based salt substitutes *[Evidence Grade = D]*.
- Sodium restriction is controversial; however, it is reasonable for those in late stages of heart failure to improve symptoms and comfort, which can be managed through the preparation of fresh foods as long as it does not affect the quality of life *[Evidence Grade= D]*.
- Registered dieticians consult upon initiation of the guideline *[Evidence Grade = B1]*.
- Fluid restriction is controversial with no definitive recommendation (American Medical Directors Association, 2015; Jurgens et al., 2015; Yancy et al., 2017) *[Evidence Grade= B1]*.

Immunizations

- Influenza vaccines given every fall if not contraindicated. (Kim, Riley, Harriman, Hunter, & Bridges, 2017; Udell et al., 2013) *[Evidence Grade = A1]*.
- Pneumococcal vaccines given as recommended based on current CDC recommendations if not contraindicated. Vaccinations are recommended to prevent respiratory infections which may be detrimental to patients with heart failure (Isturiz & Webber, 2015; Moberley, Holden, Tatham, & Andrews, 2008; Tomczyk et al., 2014) *[Evidence Grade = A1]*.

Exercise

- Weight reduction should be included in the treatment of obese chronic heart failure patients (American Medical Directors Association, 2015; Jurgens et al., 2015) *[Evidence Grade = B2]*.
- Aerobic and Resistance exercise should be encouraged in the stable heart failure patient within the limits of the severity of disease *[Evidence Grade = B2]*.
- The resident should be encouraged to carry out activities of daily living and leisure activities that do not induce HF symptoms (American Medical Directors Association, 2015; Jurgens et al., 2015; Heckman et al., 2016; Nazir & Smucker, 2015) *[Evidence Grade = B2]*.

Education

- Patient and family education should be provided on topics related to heart failure (American Medical Directors Association, 2015; Heckman et al., 2016; Jurgens et al., 2015; Nazir & Smucker, 2015) *[Evidence Grade = B2]*.
- Smoking should always be discouraged. The use of smoking cessation aids such as nicotine replacement therapies should be actively encouraged (American Medical Directors Association, 2015; Foebel et al., 2013; Jurgens et al., 2015; Heckman et al., 2016; Nazir & Smucker, 2015; Jurgens et al., 2015) *[Evidence Grade = A2]*.
- Patients and families should be taught the rationale for prescriber avoidance of nonsteroidal anti-inflammatory drugs, due to their deleterious effects on renal and cardiac function. Nursing staff should be alert, to avoid administering them to residents with cardiovascular disease (American Medical Directors Association, 2015; Foebel et al., 2013) *[Evidence Grade = B1]*.
- Alcohol intake should be discouraged in patients with severe heart failure (Jurgens et al., 2015; Yancy et al., 2017) *[Evidence Grade B1]*.

Anticipatory Planning

- Advanced Care Planning and Goal Setting should occur upon admission to the facility and should include (Albert, 2016):
  - Prognosis (including possibility of sudden death)
  - Palliative care and Hospice including end of life components
  - Preference for medical, psychosocial, and spiritual needs
  - Resuscitation preferences
  - Preferences for limiting/deactivating implantable cardioverter-defibrillator

  [*Evidence Grade = A1*]

Nursing Interventions Classification

"The ***Nursing Interventions Classification (NIC)*** is a comprehensive standardized classification of interventions that nurses perform. The Classification includes the interventions that nurses do on behalf of patients, both independent and collaborative interventions, both direct and indirect care. An *intervention* is defined as *any treatment, based upon clinical judgment and knowledge, that a nurse performs to enhance patient/client outcomes*. NIC can be used in all settings (from acute care to intensive care units, to home care, to hospice, to primary care) and all specialties (from critical care nursing to pediatric nursing and gerontological nursing) (Butcher, Bulechek, Dochterman, & Wagner, 2018).

Planning care and services using nursing standardized languages begins with assessment to generate accurate NANDA-I nursing diagnoses (Herdman & Kamitsuru, 2018). For the *Assessing Heart Failure in Long-Term Care Facilities* guideline, some of the nursing diagnoses that are particularly relevant are: Decreased Cardiac Output, Ineffective Breathing Pattern, Activity Intolerance, Self-Care Deficits (Bathing, Dressing, Toileting), Risk for Activity Intolerance, Activity Intolerance, Risk for Imbalanced Fluid Volume, and Deficient Knowledge (Herdman & Kamitsuru, 2018). Selected nursing interventions from the *Nursing Interventions Classification (NIC)* and outcomes from the *Nursing Outcomes Classification (NOC)* (Moorhead, Swanson, Johnson, & Maas, 2018) are listed to illustrate the process of clinical reasoning when assessing elders at risk for heart failure or worsening health failure. The listed interventions and outcomes are intended to serve as examples and are not an exhaustive list. A sample NIC intervention *Cardiac Care* is included in Appendix B.

Major Interventions

These are the obvious intervention(s) associated with the guideline. They were selected because they provide a good match with the focus of the guideline.

0180 Energy Management: Regulating energy use to treat or prevent fatigue and optimize function

0200 Exercise Promotion: Facilitation of regular physical activity to maintain or advance to a higher level of fitness and health

1100 Nutrition Management: Assisting with or providing a balanced dietary intake of foods and fluids

1260 Weight Management: Facilitating maintenance of optimal body weight and percent body fat

1800 Self-Care Assistance: Assisting another to perform activities of daily living

1850 Sleep Enhancement: Facilitation of regular sleep/wake cycles

2080 Fluid/Electrolyte Management: Regulation and prevention of complications from altered fluid and/or electrolyte levels

3350 Respiratory Monitoring: Collection and analysis of patient data to ensure airway patency and adequate gas exchange

4040 Cardiac Care: Limitation of complications resulting from an imbalance between myocardial oxygen supply and demand for a patient with symptoms of impaired cardiac function

4360 Behavior Modification: Promotion of a behavior change

4410 Mutual Goal Setting: Collaborating with patient to identify and prioritize care goals, then developing a plan for achieving those goals

5230 Coping Enhancement: Assisting a patient to adapt to perceived stressors, changes, or threats which interfere with meeting life demands and roles

5250 Decision-making support: Providing information and support for a patient who is making a decision regarding health care

5270 Emotional support: Provision of reassurance, acceptance, and encouragement during times of stress

5515 Health Literacy Enhancement: Assisting individuals with limited ability to obtain, process, and understand information related to health and illness

5602 Teaching: Disease Process: Assisting the patient to understand information related to a specific disease process

5612 Teaching: Prescribed Exercise: Preparing a patient to achieve or maintain a prescribed level of exercise

6490 Fall Prevention: Instituting special precautions with patient at risk for injury from falling

6610 Risk Identification: Analysis of potential risk factors, determination of health risks, and prioritization of risk reduction strategies for an individual or group.

6650 Surveillance: Purposeful and ongoing acquisition, interpretation, and synthesis of patient data for clinical decision making

6680 Vital Signs Monitoring: Collection and analysis of cardiovascular, respiratory, and body temperature data to determine and prevent complications

7800 Quality Monitoring: Systematic collection and analysis of an organization's quality indicators for the purpose of improving patient care

Nursing Outcomes Classification

The *Nursing Outcomes Classification (NOC)* is a standardized classification of patient/client outcomes developed to evaluate the effects of nursing interventions. A nursing-sensitive patient outcome is "an individual, family, or community state, behavior or perception that is measured along a continuum in response to nursing intervention(s). Each outcome has an associated group of indicators that are used to determine patient status in relation to the outcome", (Moorhead et al., 2018, p. viii). A sample NOC outcome most relevant to this guideline *Cardiopulmonary Status* is included in Appendix C.

Major Outcomes

0414 Cardiopulmonary Status: Adequacy of blood volume ejected from the ventricles and exchange of carbon dioxide and oxygen at the alveolar level

0004 Sleep: Natural periodic suspension of consciousness during which the body is restored

0005 Activity Tolerance: Physiologic response to energy-consuming movements with daily activities

0300 Self-Care: Activities of Daily Living (ADL): Ability to perform the most basic physical tasks and personal care activities independently with or without assistive device

0306 Self-Care: Instrumental Activities of Daily Living (IADL): Ability to perform activities needed to function in the home or community independently with or without assistive device

0415 Respiratory Status: Movement of air in and out of the lungs and exchange of carbon dioxide and oxygen at the alveolar level

0601 Fluid Balance: Water balance in the intracellular and extracellular compartments of the body

1211 Anxiety Level: Severity of manifested apprehension, tension, or uneasiness arising from unidentifiable source

1300 Acceptance: Health Status: Reconciliation to significant change in health circumstances

1302 Coping: Personal actions to manage stressors that tax an individual's resources

1307 Dignified Life Closure: Personal actions to maintain control during approaching end of life

1308 Adaptation to Physical Disability: Adaptive response to a significant functional challenge due to a physical disability

1628 Weight Maintenance Behavior: Personal actions to maintain optimum body weight

2000 Quality of Life: Extent of positive perception of current life circumstances

2007 Comfortable Death: Physical, psychospiritual, sociocultural, and environmental ease with the impending end of life

2008 Comfort Status: Overall physical, psychospiritual, sociocultural, and environmental ease and safety of an individual

2103 Symptom Severity: Severity of perceived adverse changes in physical, emotional, and social functioning

2301 Medication Response: Therapeutic and adverse effects of prescribed medication

Guideline Implementation Process

Implementation of a practice guideline is a challenging step to achieving evidence-based practice. "The Iowa Model Revised: Evidenced-Based Practice to Promote Excellence in Health Care©" (Appendix D.1) is a valuable resource to organizations, nurse leaders, and individuals who are interested in implementing an EBP Guideline into practice. To assist readers in implementing this guideline we have included the Iowa Model© and a diagram that highlights a number EBP implementation strategies that can be used to implement this guideline into a practice setting. Details on the Iowa Model can be found in *Evidence-based Practice in Action: Comprehensive Strategies, Tools, and Tips from the University of Iowa Hospital and Clinics* (Cullen et al., 2018). Specific implementation tools can be found in Chapter 8: Implementation, including how to develop tools on how to develop Sound Bites, Journal Clubs, Posters, Education, Pocket Guides, Case Studies, Incentives, Checklists, Documentation, and Peer Influence. The "Implementation Strategy for Evidence-based Practice" in Appendix D.2 of this guideline includes a list of strategies the are explained in detail in the *Evidence-based Practice in Action: Comprehensive Strategies, Tools, and Tips from the University of Iowa Hospital and Clinics* (2018) textbook.

Evaluation of Process and Outcomes

Process Indicators

Process Indicators are those interpersonal and environmental factors that can facilitate the use of a guideline. One process factor that can be assessed with a sample of nurses, certified nursing assistants, and health care providers is knowledge about heart failure in long-term care. The Heart Failure in Long-Term Care Knowledge Assessment Test (Appendix E) should be assessed before and following the education of staff regarding the use of this guideline.

The same sample of nurses, certified nursing assistants, and health care providers should also be given the Process Evaluation Monitor (Appendix F) approximately one month following use of the guideline. The purpose of this monitor is to determine understanding of the guideline and to assess the support for carrying out the guideline.

Outcome Indicators

Outcome indicators are those expected to change or improve from consistent use of the guideline. The major outcome indicators that should be monitored over time are:

- Heart failure hospitalizations or emergency room visits
- Transition to palliative care or hospice
- Quality of life and functional status as indicated by scores on the minimum data set or Minnesota Living with Heart Failure Questionnaire - requires site license (Appendix J)
- Number of clinical exacerbations of heart failure
- Symptom management
- Disease progression

Transition to Palliative Care or Hospice the Heart Failure in Long-Term Care Monitor/Chart Audit Form described in Appendix G is to be used for monitoring and evaluating the usefulness of the A*ssessing Heart Failure in Long-Term Care Facilities* guideline in improving outcomes of patients with Class II-IV heart failure. Please adapt this outcome monitor to your organization or unit and add outcomes you believe are important.

Appendix A

Assessment Tools

Appendix A contains examples of assessment tools, instruments, and forms to use in patient assessment of heart failure. The purpose and instructions for use accompany each tool or form. Tools, instruments, and forms in Appendix A are:

- Appendix A.1: Long-Term Care Heart Failure Assessment
- Appendix A.2: Heart Failure Weight Flow Sheet
- Appendix A.3: Acronym Pocket Card "A NEW LEAF"
- Appendix A.4: Heart Failure Education Program Example
- Appendix A.5: SBAR Form: Interprofessional Team Communication

Appendix A.1

Long-Term Care Heart Failure Assessment

Purpose: The LTC Heart Failure Assessment was developed specifically for use in long-term care settings, post-acute care units, and short-term rehabilitation units. The tool is composed of two profiles that address three components of activities of daily living and eleven components of dyspnea. Two adult nurse practitioners who specialize in the care of heart failure patients, one gerontological nurse practitioner specializing in the care of long-term care residents; and two associate professors of adult and gerontology primary care nurse practitioner programs verified the tool's face validity. The assessment tool has not been empirically tested for reliability and sensitivity in a long-term setting.

Instructions: A number score is applied to the functional assessment component and is used as a baseline for the first assessment. Thereafter, on a monthly basis or as indicated by the resident's symptoms, the assessing nurse is observing for downward decline indicated by the score rising toward the maximum score of nine. For the dyspnea component, a score of one is given for each symptom the resident reports or exhibits. Any score of one or greater in this section indicates a need for evaluation by the primary provider. Should the resident have a score of zero in the dyspnea section, but the functional status score indicates a decline, the nurse should refer the resident to the interprofessional team to assess for other causes in functional decline and schedule a visit with the primary care provider.

Scoring: Any score greater than 1 in the Dyspnea or Quality of Sleep section indicates need for the responsible health care provider in the facility evaluation. If all components of Dyspnea and Quality of Sleep are negative, assess and look for causes of decline other than HF.

Long-Term Care Heart Failure Assessment

Directions: Check the appropriate level of functioning, applicable components of Quality of Sleep and Dyspnea, and then total the points below.

Activities of Daily Living Profile	✓	Score
Able to groom and dress unaided		1
Someone must assist with grooming and dressing activities		2
Resident depends totally on someone else for grooming and dressing		3
Able to bathe and get to and from toilet unaided		1
Requires assistance with bathing or toileting activities (for supervision, transfers, or washing difficult to reach areas)		2
Resident depends totally on another person for toileting or bathing activities		3
Needs no human assistance to ambulate and does so without fatigue or dyspnea		1
Is chair fast		2
Is bedfast—unable to sit up in chair		3

TOTAL: 0

(This number is used as a baseline and comparison of functional status from previous assessments.)

Quality of Sleep	✓	Score
Resident reports difficulty getting quality sleep		1
Resident reports frequent awakenings		1
Resident reports difficulty getting to sleep		1
Resident reports daytime sleepiness		1

TOTAL: 0

Activities of Daily Living Profile	✓	Score
Resident reports or exhibits dyspnea at rest		1
Resident reports or exhibits waking up feeling short of breath at night		1
Resident reports or exhibits dyspnea walking on flat surfaces		1
Resident reports or exhibits dyspnea when bending or carrying objects		1
Resident reports or exhibits dyspnea when hurrying or walking on inclines		1
Resident reports or exhibits dyspnea when lying flat		1
Resident reports or exhibits dyspnea while sitting up		1
Resident reports or exhibits edema in extremities or sacral area		1
Resident reports or exhibits decreased appetite or feelings of fullness/bloating		1
Resident reports or exhibits feelings or signs of restlessness		1
Resident reports or exhibits feelings or signs of anxiety		1

TOTAL: 0

RESET FORM

Appendix A.2

Heart Failure Weight Flow Sheet

Instructions: Record the resident's weight on the "baseline wt" line. Each vertical block represents 1 pound. Each horizontal block represents 1 day. Place a dot inside appropriate block to chart the weight gained or lost since the previous day. Each arrow represents 5-pound increments above and below the resident's baseline weight.

Heart Failure Weight Flow Sheet

Note: Goal weight range in shaded area

	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14	Day 15	Day 16	Day 17	Day 18	Day 19	Day 20	Day 21	Day 22	Day 23	Day 24	Day 25	Day 26	Day 27	Day 28	Day 29	Day 30	Day 31
+10 lbs.																															
+5 lbs.																															
Baseline Wt.																															
- 5 lbs.																															
-10 lbs.																															
		W	E	E	K		1		W	E	E	K		2		W	E	E	K		3		W	E	E	K		4			

Patient Daily Fluid Restriction _____ cc

Patient Daily Sodium Restriction _____

RESET FORM

Patient Demographic Information:

DATES

1: _____
2: _____
3: _____
4: _____
5: _____
6: _____
7: _____
8: _____
9: _____
10: _____
11: _____
12: _____
13: _____
14: _____
15: _____
16: _____
17: _____
18: _____
19: _____
20: _____
21: _____
22: _____
23: _____
24: _____
25: _____
26: _____
27: _____
28: _____
29: _____
30: _____
31: _____

Appendix A.3

Acronym Pocket Card "A NEW LEAF"

Purpose: "A NEW LEAF" pocket card is used by direct caregivers to screen for symptoms of heart failure exacerbation. The pocket card carried by facility nursing assistants serves as a reference for the signs and symptoms of heart failure exacerbation during routine daily resident care. Upon recognition of any of the symptoms, the certified nursing assistant should notify the primary nurse for further assessment and follow-up.

"A N-E-W L-E-A-F"

Screening Tool for Direct Caregivers

A: Acute Agitation/Anxiety

N: Night time shortness of breath or ↑ night time urination

E: Edema in lower extremities

W: Weight gain (2-4 pounds/week)

L: Lightheadedness

E: Extreme shortness of breath lying down

A: Abdominal Symptoms (nausea, pain, decreased appetite, distension)

F: Fatigue

Appendix A.4

Heart Failure Education Program Example

Target Audience: Facility Staff, Direct Caregivers/ Nursing Assistants, and Family Members		
Class (20 minutes each)	Content	Learning Activities
Class 1 Heart Failure: What is it?	Simple pathophysiology • Sodium content in foods (NAS) – Food labels • 3 HF management strategies – Daily exercise (aerobic and resistance) – Medications – Daily weights (why daily?) • Orientation to *A NEW LEAF* pocket card (Appendix A.3) • What is *SBAR* (Appendix A.5) – S = Situation (a concise statement of the problem) – B = Background (pertinent and brief information related to the situation) – A = Assessment (analysis and considerations of options — what you found/think) – R = Recommendation (action requested or recommended — what you want)	Images and pictures with group discussion • Demonstration of heart failure pathogenesis using plastic bag with liquid and piston syringe • Hands on Learning • Reading nutrition labels • Fluid weight examples water bags

Target Audience: Facility Staff, Direct Caregivers/ Nursing Assistants, and Family Members		
Class (20 minutes each)	Content	Learning Activities
Class 2 Heart Failure Signs and Symptoms: The CNA's role	Review of Class 1 content • Early Recognition and Reporting Makes a Difference! – *SBAR* • HF signs and symptoms – *A NEW LEAF* • Role of the CNA working with HF patients • Review of Discussion of HF patient alert strategies • Health promotion measures	Images and pictures with group discussion • Hands-on learning • *SBAR* toolkit • Gum and Sour Candy (thirst reduction)
Class 3 Heart Failure-Putting It Together	• Review of Class 1 • Review of Class 2 • Case Scenarios "What should I do?" • Reiteration of *SBAR*	• Images and pictures • Group discussion Family Feud

Source: Heart Failure Society of America, 2018; Adapted with permission from Jennifer Kim, DNP, RN, GNP-BC, FANP, FAANP

Appendix A.5

SBAR Form: Interprofessional Team Communication

Instructions:

1. Use this tool when giving a verbal or written report. It is not the patient's medical record.
2. Attach a current medication list
3. Report must allow for clarification/questions (speak back what you hear)

S — Situation

The problem you are communicating:

Current BP: _____ Apical Pulse: _____ Resp: _____

O_2 Sat: _____ FSBS (if they have Diabetes): _____

Oxygen? _____ L/min via (✓): _____ Face mask _____ Nasal canula

Code status (✓): _____ Full _____ DNR

ACP? (✓): _____ MOST _____ MOLST _____ POST _____ POLST

On blood thinner? (✓): Yes _____ No _____ INR (Date and Level)_____

Allergies:

B — Background

Check all that apply (✓): _____ COPD _____ Dementia _____ Atrial Fib

_____ HF _____ CAD _____ MI _____ Stroke _____ Thyroid Dx _____ CKD

_____ Anemia _____ Cardiomyopathy _____ Antibiotics in the past two weeks

_____ Valvular Heart Disease _____ Obstructive Sleep Apnea

Most recent hospital discharge date: _____(mm)/ _____(dd)/ _____(yy)

Any other pertinent background information:

Assessing Heart Failure in Long-Term Care Facilities
Written 2006; Revised 2012; 2019

A

Assessment (be prepared to discuss any changes in prior assessments)

Findings from the body system (✓):

Neuro	☐ Alert ☐ Oriented (☐ x1 ☐ x2 ☐ x3) ☐ Combative ☐ Disoriented ☐ Stuporous ☐ Unresponsive
Head, Mouth	☐ Moist ☐ Pink ☐ Grooves in tongue ☐ Dry oral mucosa
Lung	☐ Resp unlabored ☐ labored ☐ Using diaphragm Nail bed color: _____ ☐ Rhonchi; Location: _____ ☐ Crackles; Location: _____
Heart	Rhythm (✓): ☐ Regular ☐ Regularly irregular ☐ Irregularly irregular ☐ ICD ☐ Jugular Vein Distention ☐ Pacemaker
Gastrointestinal	☐ Soft ☐ Firm ☐ Distended ☐ Tender Hepatojugular Reflux (✓): ☐ Yes ☐ No
Extremities	☐ Edema; Location: _____ Temperature (felt with the back of the hand) (✓): ☐ Cool ☐ Warm
Current Medication	☐ ACEI ☐ ARB ☐ Beta Blocker ☐ Diuretic (dosage): _____
Most Recent Labs	☐ Last Creatinine ☐ Potassium ☐ INR ☐ CBC ☐ BNP

R

Recommendations/Request

RESET FORM

Assessing Heart Failure in Long-Term Care Facilities
Written 2006; Revised 2012; 2019

Appendix B

Nursing Interventions Classification (NIC)

Cardiac Care – 4040

Definition: Limitation of complications resulting from an imbalance between myocardial oxygen supply and demand for a patient with symptoms of impaired cardiac function.

Activities:

- Monitor patient physically and psychologically per agency policy
- Ensure activity level that does not compromise cardiac output or provoke cardiac events
- Encourage gradual increase in activity when condition stabilized (i.e., encourage slower paced activities or shorter periods of activity with frequent rest periods after exercise)
- Instruct the patient on the importance of immediately reporting any chest discomfort
- Evaluate any episodes of chest pain (e.g., intensity, location, radiation, duration, and precipitating and alleviating factors)
- Monitor ECG for ST changes, as appropriate
- Perform a comprehensive appraisal of peripheral circulation (i.e., check peripheral pulses, edema, capillary refill, color, and temperature of extremity) per agency policy
- Monitor vital signs frequently
- Monitor cardiovascular status
- Monitor for cardiac dysrhythmias, including disturbances of both rhythm and conduction
- Document cardiac dysrhythmias
- Note signs and symptoms of decreased cardiac output
- Monitor respiratory status for symptoms of heart failure
- Monitor abdomen for indications of decreased perfusion
- Monitor fluid balance (e.g., intake/output and daily weight)
- Monitor appropriate laboratory values (e.g., cardiac enzymes, electrolyte levels)

- Monitor pacemaker functioning, if appropriate
- Evaluate blood pressure alterations
- Evaluate the patient's response to ectopy or dysrhythmias
- Provide antiarrhythmic therapy according to unit policy (e.g., antiarrhythmic medication, cardioversion, or defibrillation), as appropriate
- Monitor patient's response to antiarrhythmic medications
- Instruct the patient and family on treatment modalities, activity restriction and progression
- Arrange exercise and rest periods to avoid fatigue
- Restrict smoking
- Monitor the patient's activity tolerance
- Monitor for dyspnea, fatigue, tachypnea, and orthopnea
- Establish a supportive relationship with the patient and family
- Identify the patient's methods of handling stress
- Promote effective techniques for reducing stress
- Perform relaxation therapy, if appropriate
- Recognize psychological effects of underlying condition
- Screen patients for anxiety and depression, encouraging treatment with suitable antidepressants, as indicated
- Encourage noncompetitive activities for patients at risk for impaired cardiac function
- Discuss modifications in sexual activity with patient and significant other, if appropriate
- Instruct patient and family on the aims of care and how progress will be measured
- Ensure that all staff are aware of these goals and are working together to provide consistent care
- Refer to heart failure program or cardiac rehabilitation program for education, evaluation, and guided support to increase activity and rebuild life, as appropriate
- Offer spiritual support to the patient and family (e.g., contact a member of the clergy), as appropriate

1st edition 1992; revised 2000, 2013

Background Reading:

American Association of Critical Care Nurses. (2006). *Core Curriculum for Critical Care Nursing* (6th ed.) [J. G. Alspach, Ed.]. Philadelphia: W. B. Saunders.

Chummun, H., Lutchman, A., & Gopaul, K. (2009). Current guidance on the management of acute coronary syndrome. *British Journal of Nursing, 18*(21), 1292-1298.

Clancy, J., McVicar, A., & Hubbard, J. (2011). Homeostasis 4: Nurses as agents of control in myocardial infarction. *British Journal of Nursing, 20*(6), 373-378.

Marshall, K. (2011). Acute coronary syndrome: Diagnosis, risk assessment and management. *Nursing Standard, 25*(23), 47-57.

LeMone, P., Burke, K. & Bauldoff, G. (2011). Nursing care of patient with coronary heart disease. In *Medical-Surgical Nursing: Critical Thinking in Patient Care* (5th ed., pp. 908-969). Boston, MA: Pearson.

Smith, S. C., Allen, J., Blair, S. N., Bonow, R. O., Brass, L. M., Fonarow, G. C., ... & Mosca, L. (2006). AHA/ACC guidelines for secondary prevention for patients with coronary and other atherosclerotic vascular disease: 2006 update. Journal of the American College of Cardiology, 47(10), 2130-2139.

Thomas, S. A., Chapa, D. W., Friedmann, E., Durden, C., Ross, A., Lee, M. C. Y., & Lee, H. J. (2008). Depression in patients with heart failure: prevalence, pathophysiological mechanisms, and treatment. *Critical Care Nurse*, *28*(2), 40-55.

Source: Butcher, H. K., Bulechek, G. M., Dochterman, J. M., & Wagner, C. M. (Eds.). (2018). *Nursing interventions classification (NIC)* (7th ed.). St. Louis, MO: Elsevier.

Appendix C

Nursing Outcomes Classification (NOC)

Cardiopulmonary Status – 0414

Definition: Adequacy of blood volume ejected from the ventricles and exchange of carbon dioxide and oxygen at the alveolar level

Outcome Target Rating: Maintain at: _____ Increase to: _____

Deviation from the normal range:		Severe	Substantial	Moderate	Mild	None	N/A
OUTCOME OVERALL RATING		1	2	3	4	5	N/A
Indicators:							
041401	Systolic blood pressure						
041402	Diastolic blood pressure						
041403	Peripheral pulses						
041404	Apical heart rate						
041405	Cardiac rhythm						
041406	Respiratory rate						
041407	Respiratory rhythm						
041408	Depth of inspiration						
041409	Expulsion of air						
041410	Urinary output						
041411	Cardiac index						
041412	Oxygen saturation						
041413	Movement of sputum out of airway						
041414	Activity intolerance						
041415	Impaired cognition						
041416	Pallor						
041417	Cyanosis						
041418	Flushed						

Deviation from the normal range:	Severe	Substantial	Moderate	Mild	None	N/A
OUTCOME OVERALL RATING	1	2	3	4	5	N/A

Indicators:

041419	Neck vein distention						
041420	Chest retraction						
041421	Pursed lip breathing						
041422	Peripheral edema						
041423	Pulmonary edema						
041424	Dyspnea at rest						
041425	Dyspnea with mild exertion						
041426	Fatigue						
041427	Restlessness						
041428	Somnolence						
041429	Weight gain						
041430	Weight loss						

Domain-Physiologic Health (II) Class-Cardiopulmonary (E) 4th edition 2008

RESET FORM

Outcome Content References:

Berry, B. E., & Pinard, A. E. (2002). Assessing tissue oxygenation. *Critical Care Nurse, 22*(3), 22-36.

Dougherty, C. M. (2001). Decreased cardiac output. In M. Maas, K. Buckwalter, M. Hardy, T. Tripp-Reimer, M. Titler, & J. Specht (Eds.), *Nursing Care of Older Adults: Diagnoses, Outcomes & Interventions* (pp. 285-297). St. Louis: Mosby.

Smeltzer, S. C., & Bare, B. G. (2004). *Brunner & Suddarth's textbook of medical surgical nursing* (Vol. 1 & 2) (10th ed.). Philadelphia: Lippincott Williams & Wilkins.

Wakefield, B. (2001). Ineffective breathing pattern. In M. Maas, K. Buckwalter, M. Hardy, T. Tripp-Reimer, M. Titler, & J. Specht (Eds.), *Nursing Care of Older Adults: Diagnoses, Outcomes & Interventions* (pp. 313-323). St. Louis: Mosby.

Source: Moorhead, S., Swanson, E., Johnson, M., & Maas, M., (Eds.). (2018). *Nursing outcomes classification (NOC): Measurement of Health Outcomes* (6th ed.). St. Louis, MO: Elsevier

Appendix D

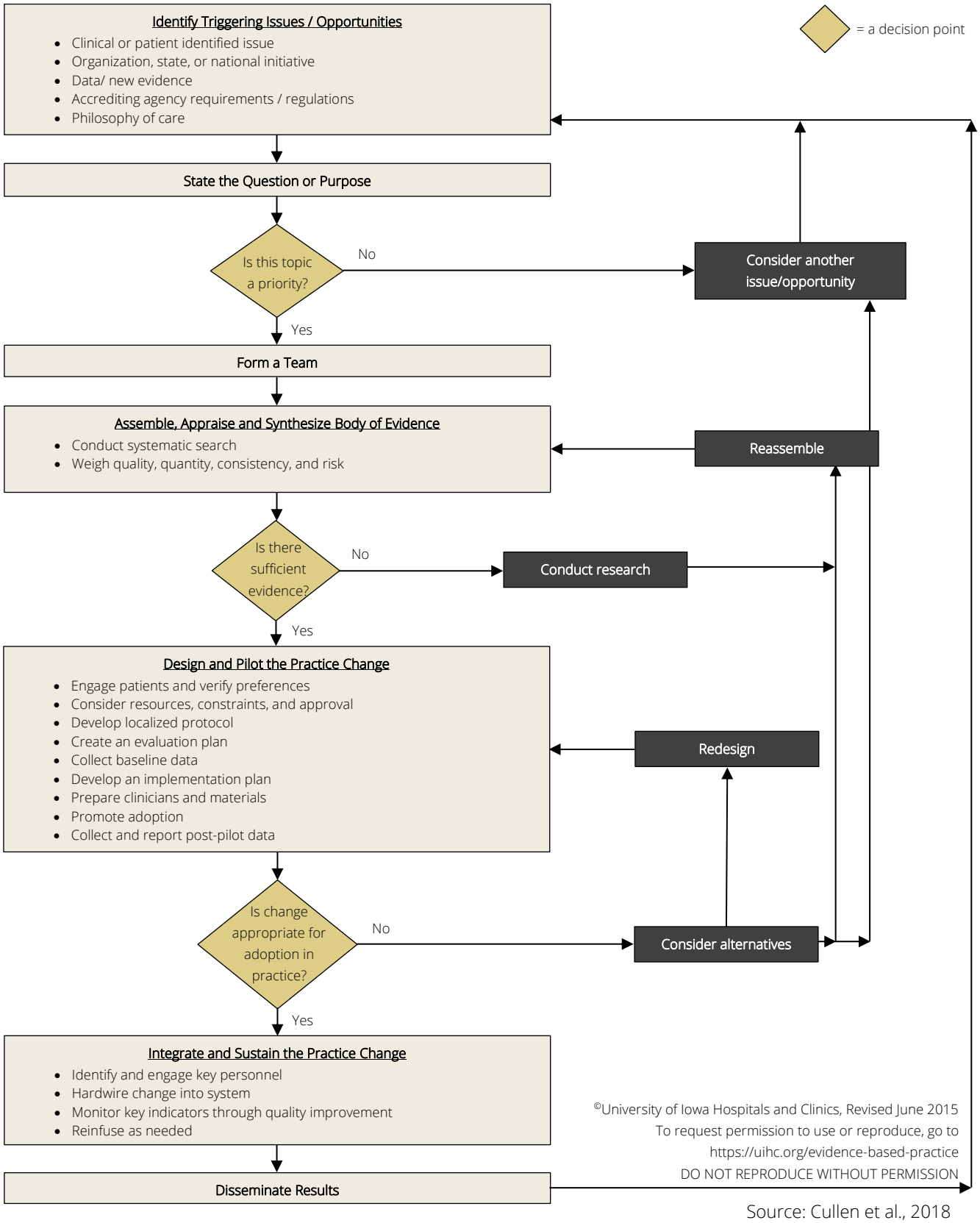
Guideline Implementation Process

Appendix D contains tools to assist in implementing this guideline into practice. These tools include:

- Appendix D.1: The Iowa Model Revised: Evidence-Based Practice to Promote Excellence in Health Care©
- Appendix D.2: Implementation Strategies for Evidence-Based Practice

Appendix D.1

The Iowa Model Revised: Evidence-Based Practice to Promote Excellence in Health Care©



Source: Cullen et al., 2018

Appendix D.2

Implementation Strategies for Evidence-Based Practice

	Create Awareness & Interest	Build Knowledge & Commitment	Promote Action & Adoption	Pursue Integration & Sustained Use
Connecting with Clinicians, Organizational Leaders and Key Stakeholders	• Highlight advantages* or anticipated impact* • Highlight compatibility* • Continuing education programs* • Sound bites* • Journal club* • Slogans & logos • Staff meetings • Unit newsletter • Unit inservices • Distribute key evidence • Posters and postings/ fliers • Mobile 'show on the road' • Announcements & broadcasts	• Education (e.g., live, virtual or computer-based)* • Pocket guides • Link practice change & power holder/stakeholder priorities* • Change agents (e.g., change champion*, core group*, opinion leader*, thought leader, etc.) • Educational outreach or academic detailing* • Integrate practice change with other EBP protocols* • Disseminate credible evidence with clear implications for practice* • Make impact observable* • Gap assessment/gap analysis* • Clinician input* • Local adaptation* & simplify* • Focus groups for planning change* • Match practice change with resources & equipment • Resource manual or materials (i.e., electronic or hard copy) • Case studies	• Educational • outreach/academic detailing* • Reminders or practice prompts* • Demonstrate workflow or decision algorithm • Resource materials and quick reference guides • Skill competence* • Give evaluation results to colleagues* • Incentives* • Try the practice change* • Multidisciplinary discussion & troubleshooting • "Elevator speech" • Data collection by clinicians • Report progress & updates • Change agents (e.g., change champion*, core group*, opinion leader*, thought leader, etc.) • Role model* • Troubleshooting at the point of care/ bedside • Provide recognition at the point of care*	• Celebrate local unit progress* • Individualize data feedback* • Public recognition* • Personalize the message to staff (e.g., reduces work, reduces infection exposure) based on actual improvement data • Share protocol revisions with clinician that are based on feedback from clinicians, patient, or family • Peer influence • Update practice reminders
Building Organizational System Support	• Knowledge broker(s) • Senior executives' announcements • Publicize new equipment	• Teamwork* • Troubleshoot use/ application* • Benchmark data* • Inform organizational leaders* • Report within organizational infrastructure* • Action plan* • Report to senior leaders	• Audit key indicators* • Actionable and timely data feedback* • Non-punitive discussion of results* • Checklist* • Documentation* • Standing orders* • Patient reminders* • Patient decision aides* • Rounding by unit & organizational leadership* • Report into quality improvement program* • Report to senior leaders • Action plan* • Link to patient/ family needs & organizational priorities • Unit orientation • Individual performance evaluation	• Audit and feedback* • Report to senior leaders* • Report into quality improvement program* • Revise policy, procedure or protocol* • Competency metric for discontinuing training • Project responsibility in unit or organizational committee • Strategic plan* • Trend results* • Present in educational programs • Annual report • Financial incentives* • Individual performance evaluation

* = Implementation strategy is supported by at least some empirical evidence in healthcare

Source: Cullen et al., 2018

Appendix E

Heart Failure in Long-Term Care Knowledge Assessment Test

Purpose: The individual who will be managing use of this evidence-based assessment guideline and coordinating education of the staff should be the only one who has access to the test key. Following proper education with regard to *heart failure in long-term care*, each member of the nursing staff and/or physician/mid-level provider should be given an opportunity to take this test. Use this test as a learning tool only. Please have the nursing staff and/or health care providers take this test without the answer key present, and once they are done, let them code how many questions they answered correctly and incorrectly. Guidance in determining why they answered as they did can also be part of the learning process.

Instructions: Please circle true, false, or the letter of the correct answer.

Test Key:

1. A
2. A (The patient is at highest risk for re-hospitalization for 30 days and continues to remain at risk for 3 months after discharge)
3. A
4. A
5. B (This is above the weight gain criteria and would be cause for concern—please refer to interventions)
6. A
7. B A current set of vital signs are necessary and include BP, apical pulse, respirations, oxygen saturation, and FSBS (if diabetic)
8. D
9. A
10. B (delay in notification should be avoided to prevent hospitalization)

Heart Failure in Long-Term Care
Knowledge Assessment Test

1. Symptoms of heart failure include shortness of breath while lying flat, weight gain, and swelling of the lower extremities.

2. After hospitalization, the resident is most at risk for returning to the hospital within the first 30 days.

3. When using the heart failure guideline, the registered nurse assesses the residents notifies the primary care provider of his or her findings using the SBAR tool

4. The goals of the guideline are to keep residents symptom free and decrease heart failure exacerbation-related hospitalizations.

5. When charting weights on the weight tracking form, the CNA or nurse would not be concerned if the resident gained 5 pounds in 5 days.

6. Any patient that has risk factors such as atrial fibrillation, anemia or diabetes is at risk for developing heart failure.

7. The CNA should use the most recent documented VS including oxygen saturation for the nurse when symptoms of heart failure are noticed:

8. When does the nurse use the heart failure assessment form?

9. Who develops the plan of treatment for the resident with heart failure?

10. You have assessed a resident with heart failure using the "A NEW LEAF" card, and you have discovered the resident has symptoms indicating HF exacerbation, in addition to positive assessment findings on the nurse's HF assessment. When should the primary provider be notified?

SCORE: 0%

RESET FORM

Appendix F

Process Evaluation Monitor

Purpose: The purpose of this monitor is to evaluate perceived understanding and support of each nurse, certified nursing assistant and health care provider in carrying out the *Assessing Heart Failure in Long-Term Care Facilities* guideline.

Instructions: Each nurse, certified nursing assistant, and health care provider who use the guideline will need to complete it approximately one month following initial use of this assessment tool.

Once the nursing/professional staff members that are using the assessment guideline complete the Process Evaluation Monitor, the individual in charge of implementing the guideline should provide feedback to each person who completed a form and offer further education or support as needed. For the 10 questions, please tally up the responses provided by adding up the numbers circled. For example, if Question 1 is answered '2' and Question 2 is answered '3' and Question 3 is '4' the nurse's score for those three questions (2+3+4) equal 9. The total score possible for this monitor is 40, while the lowest score is 10. Those who have the higher scores on this monitor are indicating that they are well equipped to implement the guideline and understand its use and purpose. On the other hand, those who have relatively low scores are in need of more education and support in the use of the guideline.

Process Evaluation Monitor

Directions: Please circle the number that best communicates your perception about your use of the *Assessing Heart Failure in Long-Term Care Facilities* guideline.

	Strongly Disagree (1)	Disagree (2)	Agree (3)	Strongly Agree (4)
1. I feel knowledgeable to carry out the LTC Heart Failure assessment guideline.				
2. Implementing the LTC Heart Failure assessment guideline enhances the quality of nursing care in the facility.				
3. I feel supported in my efforts to implement the LTC Heart Failure assessment guideline.				
4. I feel well prepared to carry out the LTC Heart Failure assessment guideline with the assistance of the facility management.				
5. I am able to identify symptoms of heart failure using "A NEW LEAF" symptom card.				
6. I am able to identify and carry out the essential activities of the LTC Heart Failure intervention.				
7. I had enough time to learn about the LTC Heart Failure assessment guideline before it was implemented.				

	Strongly Disagree (1)	Disagree (2)	Agree (3)	Strongly Agree (4)
8. We are managing residents with heart failure better with the use of the assessment guideline.				
9. The assessment guideline enables me to meet the health promotion needs for most heart failure residents.				
10. I feel included as part of the interprofessional team				

TOTAL: 0

RESET FORM

Appendix G

Assessing Heart Failure Outcomes Monitor/Chart Audit Form

Instructions: The four outcomes on this form should be assessed and recorded for each resident on a monthly basis. For residents receiving the intervention, please keep a record of the changes observed in their health records.

Place the appropriate criteria key next to each separate outcome for each resident assessment. We have provided a total of 8 boxes, which represent the first eight intervals to be measured. (An outcome may be evaluated through multiple data sources, for example, an individual being managed using the *Assessing Heart Failure in Long-Term Care Facilities* guideline may report a decrease in heart failure severity through resident interview, and the resident's health record may indicate no weight gain for the week.)

Assessing Heart Failure Outcomes Monitor/Chart Audit Form

Indicators:	Yes	No	N/A	Comments:
Diagnosis of Heart Failure confirmed by documentation in:				
• Previous H & P or				
Hospitalization D/C Summary or				
• Echocardiogram results documented				
Guideline initiated after diagnosis confirmed				
• Resident records flagged appropriately				
• Standing order for guideline initiated				
• LTC HF tool completed by admitting RN				
Weight Management Regime initiated admission or readmission post-hospitalization				
• Weights obtained 3-7x/wk until weight stable for 4 intervals and documented on flow chart				
• Weights decreased to 1x/wk appropriately				
Changes in resident status per CNA *A NEW LEAF* Screening reported to primary nurse and documented using the SBAR form				
• Vital Signs with O_2 Sat				
• Symptoms reported				
• Resident Status				

Indicators:	Yes	No	N/A	Comments:
Primary Nurse Assessment completed and documented per guideline				
Primary Provider notified of change in resident status with or without weight gain				
Smoking cessation efforts documented, or lack of efforts justified				
Resident education initiated and documented				
Family education initiated and documented				
Immunization status current				
• Influenza Vaccine				
• Prevnar 13 Vaccine				
• Pneumovax 23 Vaccine				

RESET FORM

Criteria Key

Y=Yes/met criteria N=No/criteria not met J=Justified Variation.

(Justified Variation e.g. patient not included in the monitor; note ***why*** patient is not included)

Directions: Place the appropriate criteria key next to the outcome indicators for each monitoring period.

Indicators:	Admission _____	Week 1 _____	Week 2 _____	Week 3 _____	Week 4 _____	Month 3 _____	Month 6 _____	Month 12 _____
Diagnosis confirmed on admission/readmission								
Guideline initiation documented								
Weight Management Regime initiated								
Screening results reported and documented								
Primary Nurse Assessment completed and documented								
Primary Care Provider notified of status changes and documented								
Smoking cessation activities initiated and documented								
Resident/Family HF education initiated and documented								
Immunization status current/up to date								

Indicators:	Admission _____	Week 1 _____	Week 2 _____	Week 3 _____
Document status of EF if done				
# Episodes of HF exacerbations (ED visits, hospitalizations for HF)				
Quality of Life Score (If chosen)				
HF hospitalization prevented				
Transition to palliative/hospice care				

Comments:

RESET FORM

Appendix H

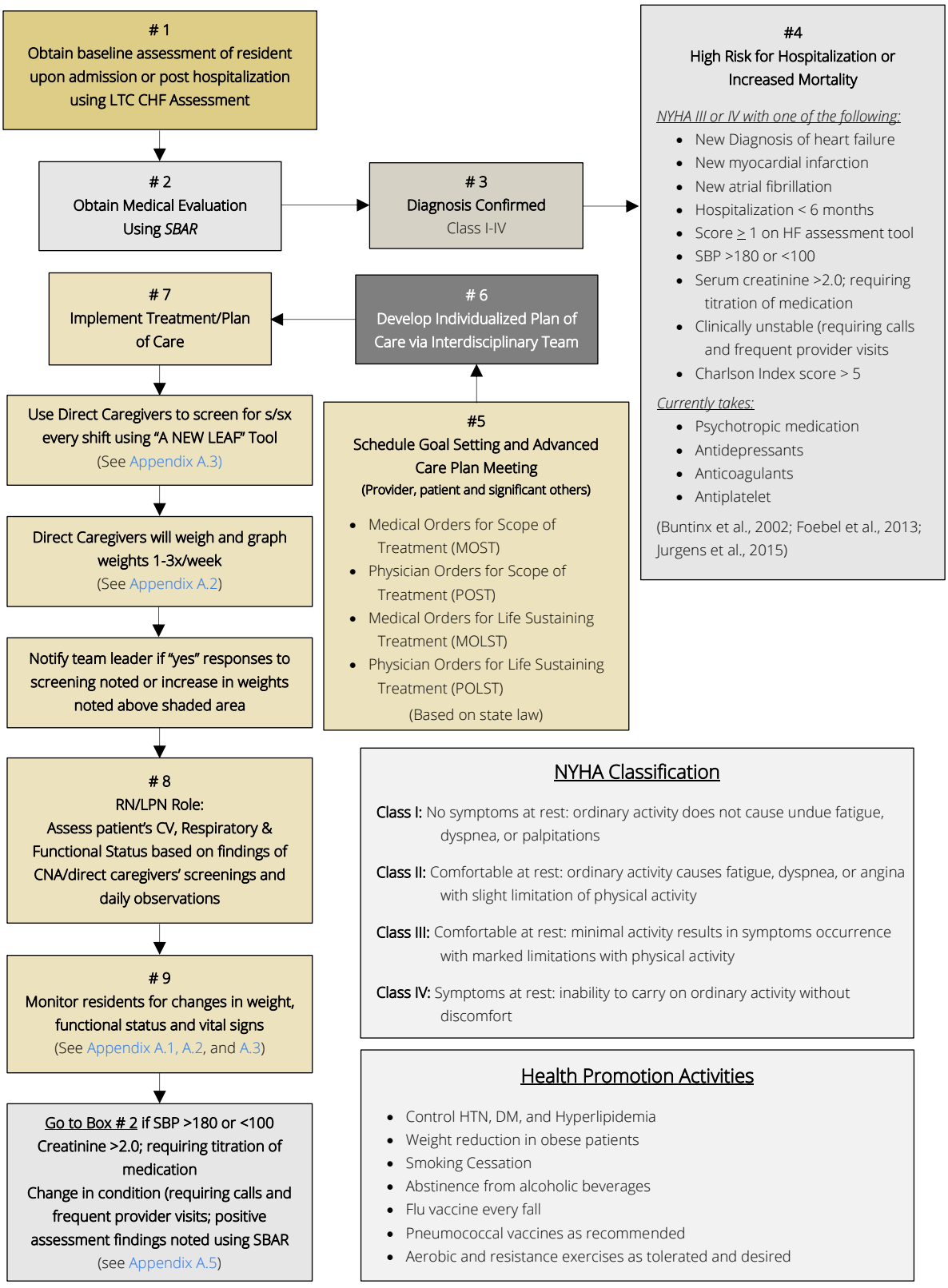
New York Heart Association Classification System

Additional materials that may be useful in implementing the *Assessing Heart Failure in Long-Term Care Facilities* guideline are Criteria for NYHA Functional Classification for Chronic Heart Failure. The NYHA functional classification is standard criteria based on functional ability for heart failure patients.

Class I	No limitation of physical activity. Ordinary physical activity does not cause undue fatigue, palpitations, or dyspnea.
Class II	Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity results in fatigue, palpitations, or dyspnea.
Class III	Marked limitation of physical activity. Comfortable at rest, but less than ordinary activity causes fatigue, palpitations, or dyspnea.
Class IV	Unable to carry out any physical activity without discomfort. Symptoms of cardiac insufficiency at rest. If any physical activity is undertaken, discomfort is increased.

Appendix I

Algorithm for Assessing Heart Failure



Appendix J

Minnesota Living with Heart Failure Questionnaire®

Instructions: Residents should respond to the questionnaire prior to other assessments and interactions that may bias their responses. The resident should read and respond to all 21 questions. The entire questionnaire may be read directly to the resident if one is careful not to influence responses by verbal or physical cues. If a question does not apply to a resident, a zero should be circled. The responses range from zero (0) for no effect at all on quality of life to a five (5) for very much of an effect on quality of life.

The questionnaire is scored by adding the responses to all 21 questions. In addition, a physical dimension score (items 2,3,4,5,6,7,12,13) and emotional dimension score (items 17,18,19,20,21) have been identified by factor analysis and may be scored by simple summation to further characterize the effect of heart failure on a resident's life.

Every effort should be made to assure that all questions have a response since intermittently missing data can greatly affect within-person changes in scores.

Minnesota Living with Heart Failure Questionnaire requires site license.

Minnesota Living with Heart Failure Questionnaire®

Directions: The following questions ask how much your heart failure (heart condition) affected your life during the past month (4 weeks). After each question, check 0, 1, 2, 3, 4 or 5 to show how much your life was affected. If a question does not apply to you, check 0 after that question.

	Did your heart failure prevent you from living as you wanted during the past month? (4 weeks) by –	0	1	2	3	4	5
1	Causing swelling in your ankles or legs?						
2	Making you sit or lie down to rest during the day?						
3	Making your walking about or climbing stairs difficult?						
4	Making your working around the house or yard difficult?						
5	Making your going places away from home difficult?						
6	Making your sleeping well at night difficult?						
7	Making your relating to or doing things with your friends or family difficult?						
8	Making your working to earn a living difficult?						
9	Making your recreational pastimes, sports or hobbies difficult?						
10	Making your sexual activities difficult?						
11	Making you eat less of the foods you like?						
12	Making you short of breath?						

Did your heart failure prevent you from living as you wanted during the past month? (4 weeks) by –		0	1	2	3	4	5
13	Making you tired, fatigued, or low on energy?						
14	Making you stay in a hospital?						
15	Costing you money for medical care?						
16	Giving you side effects from treatments?						
17	Making you feel you are a burden to your family or friends?						
18	Making you feel a loss of self-control in your life?						
19	Making you worry?						
20	Making it difficult for you to concentrate or remember things?						
21	Making you feel depressed?						

PHYSICAL SCORE: 0

EMOTIONAL SCORE: 0

TOTAL SCORE: 0

RESET FORM

Methods Used to Collect/Select the Evidence

Databases

An exhaustive literature review was conducted using the University of Iowa Gerontological Nursing Interventions Research Center's conceptual model for evidence-based guidelines (Titler & Mentes, 2001; Butcher, 2016). The review also included research studies, non-research literature, and national clinical practice guidelines. The searches were conducted for the years 1999-2011 using PubMed, Ovid ®, CINAHL®, EBSCO ®, ProQuest ®, MEDLINE ®, and the Agency for Health Research and Quality databases. Hand searches were then performed of all reference lists of relevant studies or non-research-based literature. Although dates of relevant studies were within the time frame specified, they were sparse; therefore, the primary sources were found and reviewed regardless of age.

Inclusion and Exclusion Criteria

Criteria for inclusion for research literature included studies published within the specified timeframe; conducted at long-term care facilities; described the symptoms of exacerbation and hospitalization of residents with heart failure or addressed the primary diagnosis of heart failure. Non-research-based literature was used to obtain the most relevant signs and symptoms of heart failure. In addition, studies that evaluated efficacy of certified nursing assistants in the long-term care setting, and studies that examined effective performance and outcome measures to reduce or eliminate premature and avoidable heart failure hospitalizations were searched. Only published sources written in English were used.

Keywords

The MeSH database was searched using: (("Heart Failure"[MeSH] OR "Heart Failure, Diastolic"[MeSH] OR "Heart Failure, Systolic"[MeSH])) OR ("Heart Failure"[MeSH] OR "Heart Failure, Diastolic"[MeSH] OR "Heart Failure, Systolic"[MeSH]))) AND "nursing"[Subheading] AND ("last 10 years"[PDat] AND (Humans[MeSH]) AND (English[lang]) AND (Clinical Trial[ptyp] OR Meta-Analysis[ptyp] OR Practice Guideline[ptyp] OR Randomized Controlled Trial[ptyp] OR Review[ptyp] OR Case Reports[ptyp] OR Classical Article[ptyp]) AND (aged[MeSH] OR aged, 80 and over[MeSH])). Keyword search terms included: "congestive heart failure," "heart failure," "chronic heart failure," "certified nursing assistant," "nursing," "nursing home," "skilled nursing facility," "long term care facility," "geriatric mortality," "nursing home patients," and "extended care facility," "congestive heart failure: mortality, complications, and diagnosis" combined with "aged 80 and over" and "aged."

Number of Documents Identified

One hundred eighty-five published articles or studies were found and reviewed based on inclusion criteria. Forty-four documents were used. No randomized controlled trials meeting inclusion criteria were found. Possible explanations include frailty and vulnerability of the target population, inability to control extraneous variables and internal validity, and ethical considerations.

A systematic review with meta-analysis evaluated the reliability, validity, and responsiveness of all heart failure specific health related quality of life instruments (Garin et al., 2009) *[Evidence Grade = A1]*. The findings provided high-level evidence for ongoing inclusion of the Minnesota Living with Heart Failure Questionnaire® (Garin et al., 2009). One updated clinical practice guideline provided supporting evidence for non-pharmacologic heart failure interventions within the long-term care setting (American Medical Directors Association, 2015) *[Evidence Grade = B1]*.

The body of evidence has grown considerably over the past five years in regard to performance and outcome measures that may reduce or eliminate avoidable hospitalization and readmission rates (Albert, 2016 *[Evidence Grade = D]*; Ouslander et al., 2011 *[Evidence Grade = C1]*). Several studies support the efficacy of certified nursing assistants in recognition of early changes in condition (Bryant, Heineman, & Stone, 2008; Pennington, Scott, & Magilvy, 2003; Vickery, 2004) *[Evidence Grade = C1]*. An evidence gap remains recognizing certified nursing assistants as valuable interdisciplinary team members for heart failure management and hospitalization avoidance within the long-term care setting.

Description of Method of Guideline Validation

Two experts knowledgeable about research on elders with heart failure who reside in long-term care settings reviewed this guideline. The reviewers suggested additional evidence and changes in the guideline to enhance its clinical usefulness.

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CONTACT RESOURCES

This guideline is one of a number of evidence-based guidelines made available by The University of Iowa Barbara & Richard Csomay Center for Gerontological Excellence. If you have any questions regarding this protocol, please contact the author or the Csomay Center:

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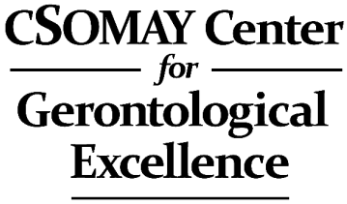

Assessing Heart Failure in Long-Term Care Facilities
Written 2006; Revised 2012; 2019

QUICK REFERENCE GUIDE

Assessing Heart Failure in Long-Term Care Facilities

Assessment:

The LTC Heart Failure Assessment tool (Appendix A.1 *in guideline*) is composed of two profiles that address three components of activities of daily living (ADL) and eleven components of dyspnea.

- The assessing nurse observes for decline in the resident's functional status and positive responses to questions in the dyspnea profile.
- The registered nurse documents the patient's status for the components in the ADL Profile on admission and at four-week intervals.
- The higher the score in the ADL profile, the lower the level of function.
  - This score is compared with previous section totals at each assessment interval, monitoring for deterioration in functional status over time.
- The nurse then assesses the resident using the Dyspnea Profile.
  - Any new positive response in this section should trigger an immediate referral to the responsible health care provider in the facility for evaluation.
- If the responses in the dyspnea section are negative,
  - The nurse should refer to the interprofessional team to assess for other causes in resident decline and schedule a visit with the responsible health care provider in the facility.
- Perform an assessment using the LTC Heart Failure Assessment tool.
- Make available for the provider the vital signs (blood pressure, pulse, respiration, and pulse oximetry, and finger stick glucose for those with diabetes) and weight graphic.

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Assessment Cont'd:

- Contact the responsible health care provider for evaluation using the SBAR Interprofessional Communication Form if positive findings of possible heart failure exacerbation are detected. This includes observation of:
  - respiratory effort,
  - bulging neck veins,
  - extremity edema,
  - rales or crackles upon auscultation of anterior and posterior breath sounds, and heart sounds listening for extra heart sounds and/or irregularity of rhythm
- Make available for the provider the vital signs (blood pressure, pulse, respiration, and pulse oximetry, and finger stick glucose for those with diabetes) and weight graphic
- Continue to monitor vital signs according to the primary provider's discretion or the long-term care facility's procedure and policy.
- *Each direct caregiver (certified nursing assistant) will:*
  - Be given "A NEW LEAF" card (Tool A).
    - Screen residents during the provision of care on a daily basis
    - Notify the primary nurse if any signs or symptoms are present and provide current vital signs and the weight graphic.
  - *The assessment nurse will then:*
    - Perform an assessment using the LTC Heart Failure Assessment tool
    - Contact the responsible health care provider if positive findings of possible HF, which include any of these:
      - Respiratory effort,
      - Bulging neck veins,
      - Extremity edema,
      - Auscultation of abnormal anterior and posterior breath sounds, and
      - Auscultation of extra heart sounds and irregular rhythm
    - Make available to the provider the most recent vital signs (blood pressure, pulse, respiration, and pulse oximetry) and weight graphic
    - Continue monitoring vital signs according to the primary provider's discretion or your facility's procedure and policy



Interventions:

Weight Monitoring

- Residents are placed on a weight regimen by the nursing staff.
- Weights are obtained three times until the resident's weight has been evaluated as stable as defined by a weight gain of less than two pounds for three measurements to maintain weight within shaded area on weight graphic (Appendix A.2 *in guideline*). Any weight gain of more than four pounds triggers:
  - An assessment using the LTC Heart Failure Assessment tool
  - Vital signs with oxygen saturation
- Notification of the responsible health care provider in the facility.
- After the weight is stable, the resident is then weighed every week at the same time of day, with the same scale, and similar clothing.
- If the resident's weight registers outside the shaded area in the four-week period on the weight flow sheet, HF assessment is triggered, and the responsible health care provider in the facility should be notified.

Dietary Management

Include dietary measures to control exacerbation of symptoms:

- Use of herbal seasonings should be encouraged in lieu of salt or potassium based salt substitutes.
- *Sodium restriction is controversial; however, it is reasonable for those in late stages of heart failure to improve symptoms and comfort, which can be managed through preparation of fresh foods as long as it does not affect quality of life.*
- Registered dieticians consult upon initiation of the guideline.
- Fluid restriction is controversial with no definitive recommendation.

Immunizations

- Influenza vaccines given every fall if not contraindicated.
- Pneumococcal vaccines given as recommended based on current CDC recommendations if not contraindicated. Vaccinations are recommended to prevent respiratory infections which may be detrimental to heart failure patients.

Interventions Cont'd:

Exercise

- Weight reduction should be included in the treatment of obese chronic heart failure patients.
- Aerobic and Resistance exercise should be encouraged in the stable heart failure patient within the limits of the severity of disease.
- The resident should be encouraged to carry out activities of daily living and leisure activities that do not induce HF symptoms.

Education

- Patient and family education should be provided on topics related to heart failure.
- Smoking should always be discouraged.
- The use of smoking cessation aids such as nicotine replacement therapies should be actively encouraged.
- Patients and families should be taught the rationale for prescriber avoidance of nonsteroidal anti-inflammatory drugs due to their deleterious effects on renal and cardiac function.
- Nursing staff should be alert to avoid administering them to residents with cardiovascular disease.
- Alcohol intake should be discouraged in patients with severe heart failure.

Anticipatory Planning

- Advanced Care Planning and Goal Setting should occur upon admission to the facility and should include:
  - Prognosis (including possibility of sudden death)
  - Palliative care and Hospice including end of life components
  - Preference for medical, psychosocial, and spiritual needs
  - Resuscitation preferences
  - Preferences for limiting/deactivating implantable cardioverter-defibrillator

Assessing Heart Failure in Long-Term Care Facilities
Written 2006; Revised 2012; 2019

Tool A

Acronym Pocket Card "A NEW LEAF"

Purpose: "A NEW LEAF" pocket card is used by direct caregivers to screen for symptoms of heart failure exacerbation. The pocket card, carried by facility nursing assistants serves as a reference for the signs and symptoms of heart failure exacerbation during routine daily resident care. Upon recognition of any of the symptoms, the certified nursing assistant should notify the primary nurse for further assessment and follow-up.

"A N-E-W L-E-A-F"

Screening Tool for Direct Caregivers

A: Acute Agitation/Anxiety

N: Night time shortness of breath or ↑ night time urination

E: Edema in lower extremities

W: Weight gain (2-4 pounds/week)

L: Lightheadedness

E: Extreme shortness of breath lying down

A: Abdominal Symptoms (nausea, pain, decreased appetite, distension)

F: Fatigue

Tool B

Algorithm for Assessing Heart Failure

 # 1
Obtain baseline assessment of resident upon admission or post hospitalization using LTC CHF Assessment

 # 2
Obtain Medical Evaluation Using *SBAR*

 # 3
Diagnosis Confirmed
Class I-IV

#4
High Risk for Hospitalization or Increased Mortality

NYHA III or IV with one of the following:

- New Diagnosis of heart failure
- New myocardial infarction
- New atrial fibrillation
- Hospitalization < 6 months
- Score ≥ 1 on HF assessment tool
- SBP >180 or <100
- Serum creatinine >2.0; requiring titration of medication
- Clinically unstable (requiring calls and frequent provider visits
- Charlson Index score > 5

Currently takes:

- Psychotropic medication
- Antidepressants
- Anticoagulants
- Antiplatelet

(Buntinx et al., 2002; Foebel et al., 2013; Jurgens et al., 2015)

 # 6
Develop Individualized Plan of Care via Interdisciplinary Team

 # 7
Implement Treatment/Plan of Care

#5
Schedule Goal Setting and Advanced Care Plan Meeting
(Provider, patient and significant others)

- Medical Orders for Scope of Treatment (MOST)
- Physician Orders for Scope of Treatment (POST)
- Medical Orders for Life Sustaining Treatment (MOLST)
- Physician Orders for Life Sustaining Treatment (POLST)

(Based on state law)

Use Direct Caregivers to screen for s/sx every shift using "A NEW LEAF" Tool
(See Tool A)

Direct Caregivers will weigh and graph weights 1-3x/week
(See Appendix A.2 *in guideline*)

Notify team leader if "yes" responses to screening noted or increase in weights noted above shaded area

 # 8
RN/LPN Role:
Assess patient's CV, Respiratory & Functional Status based on findings of CNA/direct caregivers' screenings and daily observations

 # 9
Monitor residents for changes in weight, functional status and vital signs
(See Appendix A.1, A.2, and A.3 *in guideline*)

Go to Box # 2 if SBP >180 or <100
Creatinine >2.0; requiring titration of medication
Change in condition (requiring calls and frequent provider visits; positive assessment findings noted using SBAR
(see Appendix A.5 *in guideline*)

NYHA Classification

Class I: No symptoms at rest: ordinary activity does not cause undue fatigue, dyspnea, or palpitations

Class II: Comfortable at rest: ordinary activity causes fatigue, dyspnea, or angina with slight limitation of physical activity

Class III: Comfortable at rest: minimal activity results in symptoms occurrence with marked limitations with physical activity

Class IV: Symptoms at rest: inability to carry on ordinary activity without discomfort

Health Promotion Activities

- Control HTN, DM, and Hyperlipidemia
- Weight reduction in obese patients
- Smoking Cessation
- Abstinence from alcoholic beverages
- Flu vaccine every fall
- Pneumococcal vaccines as recommended
- Aerobic and resistance exercises as tolerated and desired