

# CARDIAC CARE: ENHANCE CAPABILITIES FOR IMPROVED OUTCOMES

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## Introduction

Post-acute care providers get it. With nearly 1.37 million people residing in about 15,500 Skilled Nursing and Rehabilitation facilities, caring for patients with a cardiac diagnosis isn't new.<sup>1</sup> But advances in healthcare mean adults 65 years of age and older are surviving cardiac events and are living longer with cardiac conditions.<sup>2</sup>

Even with advances in medicine, the Center for Disease Control and Prevention (CDC) reports heart disease is still the number one cause of death for both men and women over the age of 65.<sup>3</sup>

Improving care and services for cardiac patients is top of mind for many post-acute care providers. And for good reason, as cardiovascular disease is not only the most prevalent condition facing older adults, but it's one of the most costly as well. Adults 65 years of age and older account for 36.5% of the total cost of cardiovascular disease in the US. In 2011, the US spent \$116.8 billion on cardiovascular disease in this population alone.<sup>4</sup>

Advances in cardiac care, including surgical procedures like coronary artery bypass, valve surgery and improved medications, are resulting in older and sicker patients surviving cardiac events, like myocardial infarction, and surviving longer with cardiac conditions, like heart failure.<sup>5</sup> Older adults with a cardiac condition are often frailer and have additional comorbidities, such as high blood pressure, diabetes and depression. Seniors experiencing a cardiac event or undergoing cardiac surgery often require post-acute rehabilitation, often at a Skilled Nursing and Rehabilitation facility.

In a 2013 report from the Office of Inspector General (OIG), data indicates 25% of all Medicare Skilled Nursing and Rehabilitation facility residents go back to the hospital at some point during their stay. Of this group, 68% go back to the hospital at least once and 20% go back at least twice. Congestive heart failure is one of the top three reasons for rehospitalization, and 24.5%

return to the hospital with a diagnosis of congestive heart failure with an average cost of \$8,731 per hospitalization.<sup>6</sup>

By 2018, the Centers for Medicare and Medicaid Services (CMS) expects 50% of all Medicare beneficiaries will be part of an alternate payment structure, either receiving care and services from providers who are part of an Accountable Care Organization (ACO) or bundled payments. For post-acute providers competing for Medicare patients and dollars, the ability to demonstrate a low rehospitalization rate, successful discharges to the community and strong quality measures (QMs) will be critical to their success.<sup>7</sup>

The purpose of this paper is to offer clinical and operational executives and leaders of post-acute care providers with insight on some of the impacts and implications of caring for older adults with cardiovascular disease. It offers ideas to help you begin thinking about building a program for providers who are transitioning from a traditional model of care to providing more specialized cardiac care services to improve outcomes, reduce rehospitalizations and improve the successful discharge of residents back to the community.

## The Current Landscape

### Risk Factors and Heart Disease

There are many risk factors for heart disease. According to the CDC, 49% of Americans 20 years or older have at least one of these risk factors:

- Uncontrolled hypertension
- Uncontrolled high cholesterol
- Smoking<sup>8</sup>


Heart failure in older women is most likely caused by hypertension. In older men, heart failure is more commonly attributed to coronary artery disease. Diabetes is a significant risk factor for cardiovascular disease in both men and women, and it's also an independent risk factor for heart failure.<sup>9</sup>


Because of the increasing prevalence of hypertension and diabetes, researchers predict incidents of heart failure will increase approximately 46% in the next 15 years, resulting in more than 8 million American adults with heart failure by 2030.<sup>10</sup>

Cardiovascular disease is the largest diagnostic category for seniors being discharged from the hospital to Skilled Nursing and Rehabilitation facilities, and heart failure is common in the older adult population.<sup>11</sup> In 2010, 51% of all cardiovascular surgical procedures were performed on people 65 or older.<sup>12</sup>

Very elderly patients often have a higher risk-adjusted mortality, have longer hospitalizations, receive less evidenced-based care and are less likely to be discharged to their original place of residence.<sup>13</sup>

## Increases in Heart Disease Prevalence\*

 Men	60-79	80+	Rate of Change
	CARDIOVASCULAR DISEASE	69.1%	84.7%
HEART FAILURE	7.8%	8.6%	10.3%
STROKE	6.1%	15.8%	159%

 Women	60-79	80+	Rate of Change
	CARDIOVASCULAR DISEASE	67.9%	85.9%
HEART FAILURE	4.5%	11.5%	155.6%
STROKE	5.2%	14%	169.2%

\*79 is the average age upon admittance to a Skilled Nursing facility.

## The Costs of Cardiac Disease

With nearly 80% of patients hospitalized with heart failure aged 65 and older, and an estimated 10 per 1,000 individuals 65 and older developing heart failure, the facts indicate seniors account for a large percentage of cardiovascular disease and related costs.<sup>15</sup>

- Total cost for cardiovascular disease in 2009 was \$121.2 billion for patients 65 and older. That was 39% of the total cardiovascular disease costs in the US<sup>16</sup>
- The total cost of heart failure in the US in 2012 was estimated at \$30.7 billion and is projected to increase to \$69.7 billion by 2030. 70% of the costs were related to medical costs<sup>17</sup>
- Hospitals receive slightly more than \$6,000 from Medicare for each admission, and the average stay lasts about 5.8 days<sup>18</sup>
- Total medical expenditures on heart failure patients in the last six months of life increased from \$28,766 in 2000 to \$36,216 in 2007<sup>19</sup>

Cardiovascular disease not only costs a significant amount to treat and prevent, it also increases the chances for rehospitalization and mortality rates:

- When an adult 64 years or older is hospitalized for any condition, there is a 10% chance the person will die within one year. If an older adult is rehospitalized within 30 days of a hospital discharge, the likelihood of dying within one year increases to 30%<sup>20</sup>
- In the US, as many as 25% of heart failure patients are readmitted within 30 days of discharge<sup>21</sup>

- Heart failure is the most common discharge diagnosis among patients older than 65 years and the primary cause of readmission within 60 days. 80% of heart failure patients experience a hospitalization within the last six months of life<sup>22</sup>


## Healthcare Reform & Post-Acute Care

The Affordable Care Act (ACA) has ushered in unprecedented changes in how post-acute providers manage their business.

The Hospital Readmission Reduction Program (HRRP), a provision of the Affordable Care Act, impacts hospital revenue by cutting Medicare rates for hospitals with high readmission rates. The care and services a person receives after being discharged from the hospital, especially within the first 30 days after discharge, is becoming increasingly important to hospitals, discharge planners and physicians to prevent rehospitalizations. CMS plans to make all hospital discharges apply to this program. Currently, the HRRP is focused on 30-day readmission rates for Medicare beneficiaries with a diagnosis of:

- Congestive heart failure
- Pneumonia
- Myocardial infarction
- Orthopedic surgery
- Chronic obstructive pulmonary disease (COPD)

By October 2018, Skilled Nursing and Rehabilitation facilities will also begin experiencing the direct impact of the HRRP. CMS expects to implement a measure for rehospitalization and discharge to the community in 2016. The results of this publicly reported data will be used to reward or penalize Skilled Nursing and Rehabilitation facilities by linking payment to quality and outcomes.<sup>24</sup>

Rehospitalization  
rates in Skilled Nursing facilities  
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27% to 43%<sup>25</sup> 

Currently, congestive heart failure and myocardial infarction are two of the top three drivers for 30-day rehospitalization rates for Medicare beneficiaries. Rehospitalization rates in Skilled Nursing facilities for heart failure can range from 27% to 43%.<sup>25</sup>

Because heart failure, myocardial infarction and COPD attribute to a high level of rehospitalization, many post-acute care providers are looking for ways to build or enhance a cardiac care program for these residents.

The IMPACT Act was signed into law in 2014. According to the Centers for Medicare and Medicaid Services, this new law requires post-acute care providers across the continuum of care to incorporate standardized clinical assessments. These will help providers publicly report on common quality measures, provide information to consumers when transitioning into a post-acute care setting and support interoperability of information at transfer. This new requirement is expected to be implemented by October 2018. Standardized clinical assessments will be required for Long Term Care Hospitals (LTCH), In-Patient Rehabilitation Facilities (IRF), Skilled Nursing Facilities (SNF), Home Health (HH) and acute care hospitals.<sup>26</sup>

As part of the IMPACT Act, public reporting of quality measures across care settings will be required to help beneficiaries with their post-acute care decision making. Failure to collect and report data will result in payment penalties. According to the CMS, measures include:

- “Skin integrity and changes in skin integrity;
- Functional status, cognitive function, and changes in function and cognitive function;
- Medication reconciliation;
- Incidence of major falls;
- Transfer of health information and care preferences when an individual transitions;
- Resource use measures, including total estimated Medicare spending per beneficiary;

- Discharge to community; and
- All-condition risk-adjusted potentially preventable hospital readmissions rates<sup>27</sup>

As a result of these changes in healthcare policy, as well as the desire for more affordable healthcare, the rate of hospital discharges to Skilled Nursing and Rehabilitation facilities is steadily increasing in the Medicare population, including many hospitalized, older cardiac patients. Of those using Skilled Nursing services:

- 30% have had a myocardial infarction
- 25% have had heart failure
- 11% have had coronary artery bypass surgery
- 20% have had valve surgery<sup>28</sup>

Patients qualify for Skilled Nursing care if a physician certifies they need either Skilled Nursing care (e.g., intravenous medication, extensive wound care) or additional physical, occupational or speech therapy. Skilled services include continuous nursing care, observation and assessment of the patient's changing condition, ongoing assessment of rehabilitation needs and potential, therapeutic exercises or activities, and gait evaluation and training.<sup>29</sup> Physical and occupational rehabilitation services are delivered usually once per day, but sometimes more.

## Cardiac Care Considerations for Post-Acute Providers

### What is a Cardiac Care Program?

For a post-acute provider, a cardiac care program provides nursing and rehabilitation to residents with cardiac conditions in a Skilled Nursing and Rehabilitation center or Transitional Care facility. When caring for cardiac patients, the goal is usually to achieve and maintain stability of their blood pressure, heart rate and oxygen saturation while simultaneously improving their

strength, endurance and ability to regain independence in daily living activities.<sup>30</sup> Most residents will have a goal to return home. Depending on diagnosis and treatment decisions, some patients may become long-term residents and/or choose hospice or palliative care.

A comprehensive cardiac program in a Skilled Nursing and Rehabilitation facility may include, but is not limited to, nursing assessment, observation, medication management, exercise, activities, nutrition counseling, fluid management, rehabilitation services, management of comorbidities, respiratory services (as needed), prevention, resident education, discussion of outpatient cardiac rehabilitation and post-discharge monitoring.<sup>31</sup>

### Program Need & Definition

Most Skilled Nursing and Rehabilitation providers recognize that improving the care and services for cardiac patients in their centers helps reduce rehospitalizations and improve quality outcomes. In a time when providers may be competing to grow or maintain their census, many are also looking for programs to help differentiate themselves in their market.

Defining the scope of services is important. Get your medical director involved. Talk to the cardiologists in your area. What is unique about your community? What would it take for your center to provide additional cardiac care services? What does the staff need in order to feel comfortable caring for your residents?

### Program Components

The following considerations are compiled from research, recognized clinical practice guidelines and experience with our customers. This list is not inclusive of all considerations when delivering cardiac care

services, but is provided to give insight into some of the key areas that may drive outcomes for resident care and center success.

There is limited research documenting the most effective methods for reducing rehospitalizations in Skilled Nursing and Rehabilitation facilities. The Institute for Healthcare Improvement and The Commonwealth Fund assessed effective interventions to reduce rehospitalizations in the report “Effective Interventions to Reduce Rehospitalizations: A Compendium of 15 Promising Interventions.” Much of the evidence today has been obtained from studying people who have been discharged from the hospital back to the community, although some studies include Skilled Nursing and Rehabilitation facilities. Until there is a larger body of evidence to draw from, Skilled Nursing and Rehabilitation providers can glean insight into the most promising practices from this body of work.

Several organizations and publications provide Skilled Nursing and Rehabilitation providers with evidence-based guidance for implementing cardiac care services. Resources to consider include, but are not limited to:

- American Medical Association Clinical Practice Guidelines, “Heart Failure in the Post-Acute and Long-Term Care Setting”
- American Association of Cardiovascular and Pulmonary Rehabilitation
- American Heart Association and Heart Failure Society of America’s scientific statement, “Heart Failure Management in Skilled Nursing Facilities”
- American Geriatric Society
- Hartford Institute for Geriatric Nursing

A scientific statement from the American Heart Association and the Heart Failure Society of America offers a way to organize residents based on heart failure management goals:

- Rehabilitation group: Patients recently discharged from the hospital with the goal to recover independent function and return home



- Uncertain prognosis group: Patients discharged from the hospital with complications, frailty or multiple comorbidities with hope of improvement, but recovery is less certain. A focus is on rehabilitation to regain independent function, but going home or requiring another level of care depends on how well they recover
- Long-term group: Residents with frailty and dependency who are expected to remain in the center for the remainder of their life.<sup>32</sup>

This structure may be helpful in considering the scope of services your center is planning to offer and where to apply resources and planning. For example, a center with a focus on rehabilitation may consider adding a nurse practitioner to its staff and/or add products and services, such as on-site ECG monitoring and in-house labs, to help staff more effectively manage changes in condition to prevent rehospitalizations.

Another example is a center focused on caring for long-term care residents that expands its focus to understanding the resident's goals, advanced care planning and palliative care to minimize new and/or aggressive treatment interventions.

## Staffing

Skilled Nursing and Rehabilitation providers who are adding specialized cardiac services should consider evaluating their existing care models. A traditional nursing model of a RN supervisor and LPNs to administer medications and provide treatments may need to evolve to effectively assess and plan care for patients with higher acuity.

Below are some trends in staffing that customers have shared:

- Changing the nursing staff mix toward more RNs and fewer LPNs. Although it's more expensive to

staff with RNs, providers are recognizing the value of more RNs to complete assessments, identify changes in condition, develop comprehensive care plans, coordinate care between multiple disciplines, assess responses to medications and provide patient education to support a successful discharge home

- Hiring a nursing practitioner with cardiac specialization. NPs can provide advanced assessment skills, prescribe and adjust medications, interpret tests, and provide additional education and support to nursing staff. Research shows Skilled Nursing and Rehabilitation facilities with an NP providing assessments and care coordination reduced rehospitalization rates by 45%, with estimated cost savings at \$103,000 per hospital visit<sup>33</sup>
- Additional training for nurses, such as Advanced Cardiac Life Support (ACLS) and/or the American Nurses Credentialing Center (ANCC) Cardiac-Vascular Nursing certification. Additional certifications are not required, but serve to improve nurses' overall knowledge and competency in cardiac care
- Partnering with cardiologists to provide cardiology-focused consultations, on-site rounds or phone consults
- Therapists with knowledge of applying modified principles of cardiac rehabilitation, including exercise prescription, monitoring during exercise, resistance and cardio exercises for cardiac patients, and patient education
- Dietitians to provide nutrition education and counseling specific to cardiovascular disease and preparing to be discharged

Introducing **exercise** and **education**   
may positively impact a resident's return home and help prevent rehospitalizations.<sup>36</sup>

- Trained staff, such as social workers or recreational therapists, to provide guidance on incorporating lifestyle changes into daily activities, such as stress management, diet and exercise changes, and smoking cessation

## Staff Education

Nurses, therapists and other licensed and non-licensed staff may acquire and maintain competencies in assessing, monitoring and caring for residents with cardiac conditions in a Skilled Nursing and Rehabilitation setting. Educational resources are available to assist staff educators in developing and delivering competency-based educational content. Competency-based tests and return demonstrations can be used to assess and document completion. Use of simulation aids, case studies and teaching during multidisciplinary rounds are potential ways to strengthen staff assessment and critical-thinking skills. The American Heart Association and Heart Failure Society of America recommend the following topics to consider including in an education program:

- Physiology of heart failure
- Knowledge of common heart failure medications, dosing and side effects
- Signs and symptoms of fluid retention
- Monitoring changes in lab values
- Signs and symptoms of decreased cardiac output
- Precipitants of heart failure
- Knowledge of implantable devices, such as pacemakers, cardiac resynchronization therapy and implanted cardiac defibrillators (ICD)
- Proper weighing procedures
- Discharge plan and education
- When to notify the nurse or therapy supervisor
- When to call the healthcare provider
- How to respond in an emergency situation<sup>34</sup>

## Interdisciplinary Team Assessment & Management

According to the American Association of Cardiovascular and Pulmonary Rehabilitation (AACVPR), integrating cardiac-specific exercise and education into post-acute care can help ensure safe and comprehensive cardiac care.<sup>35</sup>

In “Cardiac Rehabilitation in Skilled Nursing Facilities: A Missed Opportunity,” Dolansky et al. review the clinical benefits of cardiac rehabilitation and highlight the missed opportunity for residents with cardiac conditions in Skilled Nursing and Rehabilitation facilities to recognize the clinical and health benefits of cardiac rehabilitation. Although a Skilled Nursing and Rehabilitation facility does not meet the CMS definition of cardiac rehabilitation for program or reimbursement purposes, the clinical benefits of introducing specific components such as exercise and education may positively impact a resident’s return home and help prevent rehospitalizations, both significant incentive drivers for Skilled Nursing and Rehabilitation providers today.<sup>36</sup>

Interdisciplinary teams in a Skilled Nursing and Rehabilitation center can find guidance from the AACVPR, as well as the American Heart Association and the Heart Failure Society of America, when developing a cardiac program for residents and families. Key considerations from those organizations include:

- Identification of residents with cardiac conditions upon admission. If heart failure has not been previously diagnosed, the physician and nursing staff should follow a process to identify individuals with symptoms of heart failure for further evaluation.<sup>37</sup> The American Medical Director Association Clinical Practice Guideline, “Heart Failure in the Post-Acute and Long Term Care Setting,” provides detailed guidelines on how to identify residents with heart failure
- Assessment and documentation of advance directives, including the type and location of cardiac implantable electronic devices and residents’ wishes regarding resuscitation
- Clinical assessments to establish a baseline for the resident and to monitor for changes in condition. Assessments include blood pressure, heart rate, oxygen saturation, weight, labs and functional status
- Individualized treatment plans for residents with a focus on interventions that align with the resident’s diagnosis, prognosis and individualized goals
- Medical supervision to oversee an exercise program, assess exercise tolerance and provide ongoing assessment of cardiac function as the resident increases exercise and daily activities
- Plans to optimize the treatment for cardiac risk factors and comorbidities, including hypertension, high cholesterol, diabetes, depression, weight management and smoking
- Medication management that includes the review and management of all medications by the resident’s physician, nurse and pharmacist. Medication reconciliation when transitioning from the hospital to the Skilled Nursing provider and from the Skilled Nursing facility to home are critical opportunities to focus on medications to avoid unintended adverse effects
- Coordinated physical and occupational therapies that incorporate cardiac rehabilitation principles, including progressive cardio and strength exercises. The AACVPR provides exercise recommendations for older adults with cardiac conditions

- Specialty services, including telemedicine, lab services with 24/7 capabilities and cardiology consultations, should be considered to meet the needs of residents
- Comprehensive educational programs for patients and their families that include lifestyle changes, such as exercise, diet and stress management
- Supportive resources to help patients deal with the emotional issues associated with heart disease and associated lifestyle changes
- Dedicated care coordinators to arrange home care, if needed, and to facilitate ongoing treatments, outpatient therapy or services with community resources
- Emergency planning, including a code plan, role definition and expectations, and a process for engaging emergency medical services<sup>38</sup>

## Emergency Planning

Many Skilled Nursing and Rehabilitation providers are evaluating their emergency response plans and adding products to their communities to be prepared in the event of an emergency situation. An important element of emergency planning is advance directive care planning. Understanding the resident's goals and requests related to end-of-life care and resuscitation is a critical component of providing holistic, person-centered care.

According to the American Heart Association, there are approximately 424,000 cardiac arrests outside of a hospital each year. Of those, only 5.2% survive. Immediate response with CPR and early defibrillation with an automated external defibrillator (AED) can more than double the chance of survival.<sup>39</sup>

In a study done by Ghush et al., researchers compared cardiac arrest survival rates of older adults in nursing homes with those residing in the community. They found when the resident's CPR/DNR wishes were followed and there was an effective emergency response, survival rates were comparable. Skilled

Nursing facilities should consider evaluating response to cardiac arrest, including how to improve immediate response with CPR and early defibrillation for residents without a CPR/DNR order.<sup>40</sup> This is important to note as short stay or Transitional Care patients may be younger.

Providers should consider reviewing policies and guidance regarding advance directives, do not resuscitate (DNR) orders and emergency planning. Below are three parts of an emergency plan to consider:

### **Advance Directives**

Given the incidence of cardiac disease in the elderly and the seriousness of conditions that are often incurable or irreversible, it's critical for providers to focus on developing robust policies and procedures to support effective dialogue, education and communication about a resident's advance directive.<sup>41</sup> Many resources exist, such as the INTERACT Advance Care Planning Tools, to help clinicians and caregivers have open conversations to document a resident's wishes so they can be honored when making treatment and care decisions.<sup>42</sup>

Heart failure is a progressive disease associated with decreased life expectancy. For residents in the uncertain prognosis group or long-term group, center staff should be prepared to discuss palliative and hospice care options. Having conversations early in the admission process can benefit the residents and their families. A study of Medicare beneficiaries found among patients with congestive heart failure, those who chose hospice care lived an average of 81 days longer than those who did not.<sup>43</sup> The American Medical Directors Association provides guidance for physicians and clinicians on end-of-life treatment considerations to maximize quality of life and minimize suffering. If the patient has an implanted defibrillator in place, a joint decision between the patient and physician should be made as to when to turn it off.<sup>44</sup>

### **Automatic External Defibrillator (AED)**

Many Skilled Nursing and Rehabilitation providers are adding, or considering adding, automatic external defibrillators (AED) to their communities with the goal of improving response times and survival rates of victims of cardiac arrest. Skilled Nursing and Rehabilitation providers should review their state laws and consult with their medical directors and other stakeholders before installing an AED.

### **Emergency Carts**

Carts stocked with equipment and supplies to respond to emergencies are becoming more popular in Skilled Nursing and Rehabilitation facilities, especially those with designated Transitional Care units. Emergency carts in Skilled Nursing and Rehabilitation centers often differ from emergency carts in hospitals due to not having the staff or training to provide ACLS levels of care.

The contents of the cart may vary, but most carts contain supplies to:

- Assess vital signs
- Administer oxygen
- Start an IV and provide fluids
- Provide suction
- Start CPR
- Minimize exposure to blood and body fluids

## **Improving Assessment and Monitoring Capabilities**

Historically, the types of assessments completed in a Skilled Nursing and Rehabilitation facility were very basic. The ability to measure blood pressure, temperature, oxygen saturation and weight has been standard for years. In the past 5 to 10 years, many providers have added more tools to their assessment

arsenal, in part due to the rising acuity needs of residents, the trend to treat residents in the facility instead of sending to the hospital and the affordability of equipment to allow for more advanced assessment. Examples include integrated vital signs monitors with continuous monitoring capabilities, point-of-care laboratory testing and electrocardiograms.

Tools also exist to help nurses identify and manage a change in condition in a cardiac patient and effectively communicate those changes to a physician. INTERACT tools developed by Florida Atlantic University provide a “pathway” of steps to support evidence-based data collection, assessment and treatment decisions for all members of the care team.

Implementing the INTERACT program demonstrated a 28% reduction in avoidable hospital admissions over six months. INTERACT tools are available to the public and can be accessed by visiting [www.interact2.net](http://www.interact2.net).

## **Telemedicine Capabilities**

There have been many advances in tele-health technology over the past few years. Common tele-health products range from asynchronous (store and forward) technology, which allows information to be collected and later transmitted, to real-time communication (face-to-face). The Affordable Care Act provides Medicare beneficiaries receiving home-health services in specific rural markets the opportunity for face-to-face interactions with physicians and nurse practitioners via tele-health.<sup>46</sup> Skilled Nursing and Rehabilitation providers, to date, have not been eligible to receive additional Medicare or Medicaid funding to implement tele-health. Despite lack of funding, some providers are implementing elements of telemedicine to support improved care and services to their residents.

Perhaps the most common telemedicine products implemented in Skilled Nursing and Rehabilitation centers today are electrocardiograms (ECGs). Bringing ECG technology in-house provides nurses and physicians the opportunity to quickly assess a change in a resident’s cardiac rhythm and make better

decisions about whether to send the resident to the hospital or treat in-house. ECG technology has evolved to allow for real-time evaluation and store-and-forward technology, allowing the nurse to collect a reading on the spot and later send the results to another location.

Research has demonstrated the benefit of using tele-health for successfully diagnosing disease. In many cases, remote interpretation and diagnosis with electrocardiogram results is as good as interpretation in person.<sup>47</sup>

There is limited data that identifies how many residents have avoided a hospitalization due to an on-site ECG in a Skilled Nursing and Rehabilitation center. Anecdotal information shared by our customers suggests the ECG is an important tool that provides critical information. It can lead to a more comprehensive approach to assessing and treating patients in the facility, which in turn impacts rehospitalization rates.

Face-to-face telemedicine capabilities are making it easier for nursing staff to consult with physicians or other care providers and for physicians to meet with patients to conduct assessments and make treatment decisions from a different location. Researchers in Massachusetts studied the impact of telemedicine in reducing rehospitalizations of older adults in Skilled Nursing and Rehabilitation facilities, and they found rehospitalizations were reduced by 11.3% for those who were “more engaged,” meaning they used the telemedicine service regularly. The “less engaged” group experienced a 9.7% decrease in rehospitalizations. Facilities in a control group with no telemedicine services saw a decline in rehospitalizations of 5.3%. Researchers projected Skilled Nursing and Rehabilitation centers that were “more engaged” with telemedicine could save Medicare an average of \$151,000 per year. In the study, the telemedicine product cost approximately \$30,000.<sup>48</sup>

## Vital Signs Monitors with Continuous or Spot Monitoring Capabilities

The use of electronic vital signs monitors (VSM) that collect blood pressure, heart rate, oxygen saturation and temperature has been growing in popularity in Skilled Nursing and Rehabilitation facilities in the past 5 to 7 years. There are many makes and models at varying price points on the market. For Skilled Nursing providers implementing a cardiac care program, the most common VSMs allow nursing staff the option of completing a quick “spot” check of vital signs or providing ongoing, continuous monitoring of blood pressure, heart rate and oxygen saturation status. Continuous monitoring allows nurses and therapists improved flexibility for monitoring patients before, during and after exercising.

## Point-of-Care Laboratory Testing

Unlike a hospital setting, a Skilled Nursing and Rehabilitation facility does not usually have an on-site lab. Providers regularly use off-site labs to manage routine, non-emergent lab draws. Many providers recognize the need for on-site laboratory services to more quickly assess and respond to a resident’s changing condition. Improved technology in mobile laboratory products, as well as appropriate CLIA-waived tests, give Skilled Nursing and Rehabilitation providers more options in managing lab tests onsite, such as chemistry panels, cardiac markers, coagulation, hematology tests and more.

## Exercise Programs for Older Adults with Cardiac Conditions

Good evidence exists on the benefits of exercise to improve and maintain health in older adults as well as prevent premature mortality. Exercise can also reduce the incidence of myocardial infarction and diminish the

## Exercise



improves quality of life, reduces depression and agitation, and delays cognitive decline.<sup>50</sup>

impact of other comorbid conditions, such as hypertension, diabetes and high cholesterol.<sup>49</sup>

Residents with heart failure in a Skilled Nursing and Rehabilitation facility, regardless of whether they are considered part of the rehabilitation group, uncertain prognosis group or long-term group, can benefit from an exercise program. Exercise improves quality of life, reduces depression and agitation, and delays cognitive decline.<sup>50</sup>

In a large study done of a cardiac rehabilitation program for coronary heart disease, Mehta et al. compared outcomes in key areas of participants who were older than 80 years to persons younger than 80 years. The study looked at quality of life, lipid profile, blood pressure, weight and physical performance. Improvements were noted across all areas, and researchers concluded age should not be a determinant in initiating an exercise program, and patients 80 years or older experience benefits in risk factors and well-being.<sup>51</sup>

In addition to the benefits of exercise for older adults with cardiac conditions, it's also important to note the impact of exercise on other comorbid conditions, such as depression. Depression affects approximately 42% of all residents in a Skilled Nursing and Rehabilitation facility.<sup>52</sup> Residents experiencing depression have an increased risk of morbidity and mortality from comorbid conditions such as cardiovascular disease. Research has shown physical activity is a protective factor against depression in older adults.<sup>53</sup>

### Exercise Program Considerations

Recommendations provided here are often found in traditional cardiac rehabilitation facilities as well, combining aerobic, resistance and wellness-oriented products for patient education.

In "Guidelines for Cardiac Rehabilitation and Secondary Prevention Programs," AACVPR recommends exercise training programs for older coronary heart disease patients should optimally include resistance training and walking. Circuit



training can be easily adapted to the functional status of older adults and offers a comprehensive set of exercises for both aerobic and resistance training. Circuit training is a form of body conditioning or resistance training that targets strength building and muscular endurance. A “circuit” is one completion of all prescribed exercises in the program. Aerobic exercises for older adults include:

- Walking – walk in the hallways or outdoors with adequate supervision. Always carefully evaluate the resident’s ability to safely mount, use and dismount treadmills before incorporating them into an exercise program
- Cycling – recumbent bicycles offer residents more stability and support than traditional bicycles
- Rowing – rowing with an ergometer provides a good overall exercise for the upper and lower body and allows for adjustable resistance

Historically, resistance therapy has been achieved with the use of dumbbells, wrist weights, weight bars, therapy bands and exercise balls. Increasingly, strength machines are being considered in a skilled therapy or post-acute rehabilitation gym, moving from pulley systems and weight plates to alternative options, such as pneumatic, resistance bands or hydraulic machines. The benefits are:

- Low starting weight (near zero)
- Low weight adjustments (¼ lb. increments)
- Range of motion inhibitors to ensure proper form
- Data capture

According to Jurgen et al., evidence suggests aerobic exercise is not enough, and stable heart failure patients experienced significant improvements in

muscle strength and endurance when resistance training was added to the exercise program. Residents in their 80s and 90s who resided in Skilled Nursing facilities and participated in resistance training improved. Many demonstrated increases in strength of 100% to 200%, and some even reduced their dependence on walking aids.<sup>54</sup>

The American Heart Association and the Heart Failure Society provide the following guidelines for resistance training in a Skilled Nursing and Rehabilitation facility:

- Start residents with a low-intensity, high-repetition routine
- Intensity shouldn’t be more than 50 - 70% of one repetition maximum, which is the maximum amount of weight that can be lifted one time
- A good routine for residents includes performing 4 to 6 exercises working the arms and legs two times per week<sup>55</sup>

AACVPR recommends the following guidelines to optimize cardiac exercises and the experience for older adults:

- Consider increased musculoskeletal dysfunction, decreased mobility, slower reflexes, impaired senses, diminished short-term memory, comorbidities, and limitations of balance and range of motion
- Add safety accessories to equipment for mounting and dismounting (e.g., grab bars when using a rowing machine or recumbent bike)
- Allow more time for progression of activities to prevent overexertion
- Provide written materials and post instructions on exercises that are adapted for sensory impairments such as visual or hearing impairments

- Encourage socialization and activity enjoyment
- Monitor frequently during exercise<sup>56</sup>

Traditional cardio therapy post-rehabilitation uses training stairs and parallel bars for functional activities and an upright exercise bike or upper-body ergometer. Ongoing use and maintenance is becoming the challenge. Many therapy and wellness programs are now moving to a more robust cardio circuit, including treadmills, recumbent bikes, ellipticals, rowing machines and ergometers. It's important to give older adults different options to best meet their needs.

### Barriers to Exercise in Older Adults

Despite the plethora of research and evidence that exercise training has major health benefits for older adults, barriers still exist. Skilled Nursing and Rehabilitation providers must actively work to address these barriers so residents can experience the physical and psychological benefits of exercise.

"Aerobic Exercise in the Elderly: A Key to Successful Aging" offers ideas on how to identify barriers and address them. Multiple comorbidities, such as arthritis, depression, peripheral artery disease, chronic obstructive lung disease and others, can limit the types of exercise an individual can participate in. The diligence and creativity of the interdisciplinary team can help residents find activities and exercises they can take part in. Walking to the dining room instead of traveling there in a wheelchair, tabletop ergometers, recumbent cycling and modified tai chi or chair yoga are examples of exercises that can be adapted in many ways.<sup>57</sup>

There is an increasing body of evidence that indicates one of the biggest barriers to older adults participating in exercise programs is lack of physician referrals or physician orders for exercise. Even formalized programs, like cardiac rehabilitation, have a low referral rate. In one study, only 12.2% of more than 600,000 eligible patients participated in a cardiac rehabilitation program even though the benefits of participation are clearly documented. Of those patients who did participate, 21% to 34% had a lower mortality over the next five years than nonparticipants.<sup>58</sup>

Enhancing patient and family  
**education** can result  
 in a 50% reduction in  
 hospitalizations.<sup>61</sup>



Formal cardiac rehabilitation programs provide a valuable framework for post-acute and long-term care settings interested in developing an informal cardiac rehabilitation program.

There are several ways a facility might integrate more exercise into a resident's day. An interdisciplinary team approach that integrates more exercise into the resident's care plan is often a good place to start. Providing physician education and simplifying the process for physicians to refer residents to exercise programs may help build a solid foundation for an exercise program. It may also be helpful to establish a process to ask and obtain a prescription or physician order for exercise during the admission process to integrate exercise early in the continuum of care. Building exercise opportunities into the resident's care plan and daily activities is key to making exercise routine.

A resident who has been living with a disability or slow decline over many years may require education and information on the benefits of exercise and positive encouragement to try. It's never too late to start exercising.

## Resident Engagement & Education

Residents who are actively participating in their healthcare are more likely to engage in activities and adopt behaviors that promote and maintain health.<sup>59</sup> Resident and family education is a critical component of cardiac care.<sup>60</sup> Regardless of the resident's prognosis and plan, whether discharge to home or remaining in the Skilled Nursing and Rehabilitation facility, there are important opportunities to engage the resident in his or her care and provide educational opportunities at each stage. Enhancing patient and family education can result in a 50% reduction in hospitalizations.<sup>61</sup>

## Cardiac Rehabilitation Education Plans

Skilled Nursing professionals may find the AACVPR's resources and tools for providing patient education helpful. The American Heart Association also provides tools and a preset curriculum for heart failure patients in "State of the Science: Promoting Self-Care in Persons with Heart Failure: A Scientific Statement from the American Heart Association."

Consider at least the following when developing an individualized educational plan:

- Assess the resident and family capacity to perform self-care after discharge. Include in the assessment physical and cognitive dysfunction, sensory impairments, health literacy and psychosocial support. Provide adapted materials as needed (e.g., recorded audio instructions instead of print for a resident with a visual impairment)<sup>62</sup>
- Information about the resident's diagnosis and what to expect
- Presence of cognitive impairment and the impact on the resident's ability to learn and retain new information. Consider how educational materials might be adapted or how prompts can be implemented to help residents engage as much as possible in their self-care
- How to recognize signs and symptoms of changes and when to contact the physician. It's common for older adults to wait for heart failure symptoms to spontaneously get better. As a result, older adults often let symptoms, such as dyspnea on exertions, fatigue and edema, become increasingly severe for more than a week before seeking assistance, and this can often lead to hospitalization.<sup>63</sup> Teach the resident to assess symptoms daily with activity versus at rest

Medicare beneficiaries who are discharged and readmitted to the hospital within 30 days are nearly **three times more likely to die within one year.**<sup>64</sup>

- How to monitor and record weight and respond to changes. Review how to select and use home scales and how to ensure consistent weight readings at home
- How to monitor blood pressure changes, both hypertension and hypotension, and when to notify the physician. Teach how to use home blood pressure monitoring devices and proper technique to obtain consistent readings
- How to monitor oxygen saturation and heart rate at home. Teach how to use home pulse oximetry equipment to obtain consistent readings. Review when to notify the physician
- Dietary changes, especially restricting dietary sodium in residents with heart failure. Review meal planning and the plan for shopping, selecting and preparing food at home
- Managing medications, both prescription and non-prescription with a focus on medications with the highest potential for adverse outcomes (e.g., anticoagulants). Provide opportunities to practice identifying medications, removing them from a container, and deciding when and how to take them. Also be sure to discuss what side effects to watch for. Provide education on how to record all medications and encourage residents to take this information with them every time they visit a doctor, dentist or other healthcare provider. Refer to the AMDA Clinical Practice Guidelines for Heart Failure for more information specific to medications
- Physical activity, including aerobic and resistance training exercises, to do after discharge. Provide instruction and encourage a return demonstration. Discuss safety considerations and how to self-assess for exertion when exercising
- Education on how to manage comorbid conditions, such as diabetes and depression, and when to notify the physician with any changes
- Education on how to stay well, including the importance of immunizations, managing alcohol intake and how to access smoking cessation courses
- Managing follow up appointments. Teach residents and families a recent hospitalization makes a person more vulnerable to additional hospitalizations and it's important to follow up with the physician after discharge

## Summary

Nearly 1 in 5 Medicare patients discharged from the hospital are readmitted within 30 days at a cost of more than \$15 billion every year.<sup>64</sup>

The consequences of hospitalization on an older adult are significant. Medicare beneficiaries who are discharged and readmitted to the hospital within 30 days are nearly three times more likely to die within one year.<sup>65</sup>

Implementing a cardiac care program or expanding an established program often comes down to improving outcomes. Linking reimbursement and payment to outcomes is what the post-acute industry has been moving toward for years, and it's finally arriving with many changes occurring at once. Today, providers are feeling the effects of CMS's goal of transitioning 50% of Medicare beneficiaries to an alternative payment system by 2018, and value-based purchasing programs, Accountable Care Organizations and bundled payments are all becoming more prevalent.<sup>66</sup>

The implementation of the IMPACT Act and new Quality Measures for Re-hospitalization and Discharge to the Community will provide the next pieces to link payment to quality.<sup>67</sup>

Reducing rehospitalizations for patients with cardiac conditions may be realized when providers focus their program efforts on building a program that includes key elements, like:

- Implementing evidence-based practices, such as guidelines from the American Medical Directors Association, American Heart Association, Heart Failure Society of America and the American Association of Cardiovascular and Pulmonary Rehabilitation
- Implementing a staffing model that includes physicians and nurse practitioners to provide

more frequent consultations, staff education and assessment, especially when a patient is experiencing a change in condition

- Using the INTERACT program to improve clinical knowledge, skill and capabilities of rehabilitation staff to reduce rehospitalizations
- Ensuring access to appropriate equipment to assess, monitor and treat onsite to avoid rehospitalization
- Implementing a well-rounded exercise program for residents to encourage a healthy lifestyle and help decrease effects of comorbidities
- Resident and family education that includes information about the resident's disease process, signs and symptoms to look for, medications, nutrition counseling, smoking cessation and stress management. Education should include written materials and the opportunity to do a teach-back with clinical staff when appropriate
- Post-discharge follow up by phone or in-person to answer questions and confirm understanding of discharge instructions

The future success of Skilled Nursing and Rehabilitation providers will be influenced by how successfully they can deliver high quality care, achieve sustainable outcomes and improve efficiencies in care delivery. Providers who evaluate their current programs and determine opportunities to improve their ability to care for residents with cardiac conditions can position their communities for success both now and in the future.

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This document is intended to provide interested individuals a summary of certain factors with respect to providing cardiac care in Skilled Nursing and Rehabilitation centers in the U.S. It is not intended to be nor is it legal, clinical, billing, or medical advice, and it may be changed, improved or updated without notice. You should not rely upon this document; it is provided to you for informational purposes only.

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