



Preventing Avoidable Hospitalizations— A Clinical Approach

Recognizing the role of nurses

The Hospital Readmission Reduction Program implemented by the Centers for Medicare & Medicaid Services (CMS) in 2012 reduces payments to acute care facilities with a high 30-day readmission rate. The key to keeping 30-day readmission rates low is preventing potentially avoidable hospitalizations by improving transitions of care and by providing effective primary care interventions, which are interventions initiated outside of an acute care setting. Considering the fact that the Medicare Payment Advisory Committee (MedPAC) identifies that an avoidable hospitalization followed between 9.9 percent and 15.3 percent of all Medicare admissions,¹ there is significant room for improvement.

While organizational changes are oftentimes necessary, the fundamental concept for the prevention of potentially avoidable hospitalizations is providing effective primary care interventions—a clinical approach.

The nursing staff within post-acute organizations must be proficient in caring for individuals with conditions included in CMS's Hospital Readmission Reduction Program. Nurses must be aware of how to prevent the conditions that contribute to avoidable hospitalization and they must have the appropriate assessment skills to identify when these conditions occur so that the healthcare provider can quickly initiate treatment.

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Heart Failure

An acute heart failure exacerbation not only increases a person's risk for hospitalization, but also decreases their quality of life.² An exacerbation occurs when there is an increased workload on the heart, so the prevention of exacerbations, and therefore potentially avoidable hospitalizations, involves reducing the workload on the heart using medical and nursing interventions.



MEDICAL AND NURSING MANAGEMENT

ACE inhibitors, diuretics, and beta-blockers are the frontline therapy for heart failure. These medications act by blocking the effects of the compensatory mechanisms at work, including the renin-angiotensin-aldosterone system (RAAS) and the sympathetic nervous system (SNS). Angiotensin receptor blockers (ARBs) are the recommended alternative for individuals with a contraindication or intolerance to ACE inhibitors.

Medical management also involves eliminating or reducing the contributing factors that put additional strain on the already overworked heart. For example, if an individual with heart failure has uncontrolled hypertension or diabetes, controlling these contributing factors is a critical component of their medical management.

The plan of care for an individual with heart failure should include the following interventions:

- 1. Encourage the individual to avoid foods high in sodium.** The excess consumption of sodium increases fluid volume, which increases the workload on the heart and contributes to the pulmonary and systemic congestion commonly seen with heart failure.
- 2. Encourage the individual to adopt healthy lifestyle changes,** such as smoking cessation, weight reduction, and avoidance of alcohol. Tobacco use, obesity, and alcohol consumption are all factors that increase the workload on the heart.
- 3. Elevate the head of the bed** at least 30 degrees when pulmonary congestion is present to improve oxygenation.
- 4. Administer oxygen** to keep oxygen saturations above 90 percent as hypoxia increases the workload on the heart.
- 5. Teach the individual how to utilize energy-conserving techniques to prevent fatigue,** which is commonly associated with heart failure. However, to prevent deconditioning, individuals should not avoid physical activity.
- 6. Encourage the individual to get the influenza vaccination annually** and ensure they have received the pneumococcal vaccination as acute illnesses can contribute to an exacerbation.
- 7. Avoid non-steroidal anti-inflammatory drugs (NSAIDs)** as they can decrease the effectiveness of ACE inhibitors.

ASSESSMENT

When exacerbations are not preventable, nurses must be able to recognize when there is a change in condition that may indicate an exacerbation so that the healthcare provider

can implement treatment changes before hospitalization is necessary.

Identify if the individual is experiencing dyspnea or a cough. A sudden change in dyspnea or a moist, productive cough may indicate an increase in fluid within the pulmonary circulation.

Determine the presence and extent of fatigue and activity intolerance. Fatigue and activity intolerance are often the first signs that the heart is not able to keep up with the energy demands of the body.

Assess the rate and quality of pulses. A decrease in cardiac output can cause an elevated heart rate and weak, thready peripheral pulses. Capillary refill may be slow or even absent if tissue perfusion is impaired.

Auscultation of the lungs may reveal the presence of bibasilar crackles and auscultation of the heart may reveal the presence of a third heart sound. Both of which are signs of fluid overload. If pulmonary congestion is present, the individual's oxygen saturation may be decreased indicating impaired gas exchange.

Assess for dependent edema, which indicates peripheral congestion. Individuals in bed for prolonged periods often have edema in the back and sacral area rather than in the lower extremities. While examining dependent parts of the body, look at the color and temperature of the skin to identify the degree of perfusion to these areas. Pale, cool, clammy skin is the result of vasoconstriction from stimulation of the sympathetic nervous system.

Monitor the individual's weight. A change in body weight is the most sensitive indicator of fluid retention. A two to three pound weight gain indicates a gain of one liter of fluid.

The plan of care for an individual with heart failure should include the following interventions:

- Avoid foods high in sodium
- Adopt healthy lifestyle changes
- Elevate the head of the bed
- Administer oxygen
- Utilize energy-conserving techniques
- Get the influenza vaccination annually
- Avoid NSAIDs

Educate the individual to weigh before breakfast, after voiding, wearing the same type of clothing, without shoes, and on the same scale to promote consistent weights.

Identify any changes in urine output. Decreased perfusion to the kidneys during the day when the heart is working harder reduces urine output. At night when the workload on the heart decreases, perfusion to the kidneys increases resulting in an increase in urine output.

Assess for changes in the individual's level of consciousness and mental status. Impairment in either of these may indicate decreased perfusion to the brain or severe hypoxia. In older adults, excessive drowsiness is often one sign that indicates an exacerbation.



Pneumonia

Research has shown that pneumonia accounts for 13 percent of potentially avoidable hospitalizations and is the leading cause of potentially avoidable hospitalization in dual eligible beneficiaries in institutional settings.³ The reduction of avoidable hospitalizations for pneumonia requires post-acute organizations to prevent the development of pneumonia.

PREVENTING PNEUMONIA

The first step in preventing the development of pneumonia is the identification of those individuals who are at high risk. The risk factors for pneumonia include age (65 years or older), presence of co-morbid conditions, impaired immunity, a recent upper respiratory tract infection, a prolonged hospitalization, prolonged immobility, dysphagia, recent surgery, smoking, and residence in a healthcare facility.

The plan of care should include interventions to mitigate these risk factors, if possible. Preventative interventions include:

- Following the appropriate infection control measures to prevent exposure from healthcare workers' hands or equipment
- Encouraging the use of respiratory hygiene and cough etiquette to minimize the transmission of pathogens

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- Assisting the individual with controlled coughing and deep breathing exercises (incentive spirometry and diaphragmatic breathing) to help clear secretions and increase lung expansion
 - Providing frequent oral care to reduce the amount of pathogens in oropharyngeal secretions
 - Keeping the head of the bed elevated at least 30 degrees and using proper swallowing techniques to prevent aspiration

Individuals with enteral feeding tubes are at especially high risk for aspiration pneumonia, so additional precautions are necessary. These include ensuring proper tube placement, checking for residual volume, and administering small volumes of enteral formula.



Pneumococcal Vaccination

The current recommendations by the Advisory Committee on Immunization Practices (ACIP) for administration of the pneumococcal polysaccharide vaccine (PPV or PPV23) in adults are as follows:

- Unvaccinated individuals age 65 or older should receive one dose of the PPV23.
- Individuals between the ages of 19 and 64 with certain risk factors should receive two doses of the PPV23 with the second dose given at the age of 65 once at least five years has passed since the first dose.
- Individuals who are immunocompromised and those with asplenia should receive two doses of the PPV23 with the second dose administered five years after the first dose regardless of age.⁴

ACIP recently recommended the use of the pneumococcal conjugate vaccine (PCV13) in all adults age 65 or older even if previously vaccinated with PPV23. Individuals not vaccinated with PPV23 should first receive the PCV13 followed by the PPV23.⁵



ASSESSMENT

Despite implementation of preventative interventions, some individuals will still develop pneumonia. However, if identified early, antibiotic therapy and nursing interventions to promote the expectoration of secretions and improve gas exchange (deep breathing exercises, controlled coughing, hydration, and humidification) are often effective.

Be on the lookout for the presence of the classic signs of pneumonia—a cough with sputum production, fever, and pleuritic chest pain. Auscultation of the lungs may identify the presence of crackles, which indicate pulmonary congestion, or wheezing, which indicates airway narrowing. In older adults, these classic signs may be absent. Rather the older adult may present with general deterioration, weakness, anorexia, and confusion.



Myocardial Infarctions

Individuals post myocardial infarction (MI) have, on average, a 20 percent chance of readmission to the hospital within 30 days of discharge.⁶

In these individuals, preventing avoidable hospitalizations requires the appropriate medical management to prevent heart failure as well as the management of coronary artery disease (CAD) to prevent recurrent myocardial infarctions.

MEDICAL MANAGEMENT

When a myocardial infarction damages an area of the myocardium, the remaining healthy myocardial cells must work harder to maintain an adequate cardiac output, eventually leading to heart failure.

Therefore, the medical management of individuals post acute MI must include medications to reduce the incidence of heart failure—ACE inhibitors and beta-blockers. Both of these medications act by decreasing the workload on the heart, which decreases mortality and the incidence of heart failure. In addition, the appropriate medical management of individuals post acute MI includes statin therapy to lower the risk of CAD by slowing the formation of new atherosclerotic plaques.



Coronary Artery Disease

Coronary artery disease (CAD) is one of the most common causes of myocardial infarctions, especially in the elderly. CAD is the result of the slow build-up of atherosclerotic plaques against the lining of the artery wall resulting in a reduction of blood flow to that area of the myocardium. With a reduction in blood flow comes a reduction in the delivery of oxygen which eventually causes an infarction.

Individuals with certain risk factors are at a greater risk for developing coronary artery disease.

Modifiable Risk Factors

- Abnormal cholesterol levels
- Tobacco use
- Obesity
- Lack of physical activity
- Hypertension
- Diabetes
- Metabolic syndrome

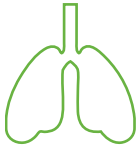
Non-Modifiable Risk Factors

- Age and (45 in men, 55 in women)
- Race
- Family history

The management of coronary artery disease involves modifying these risk factors primarily with the use of health promotion activities. Health promotion activities that address the modifiable risk factors of coronary artery disease will help prevent recurrent myocardial infarctions.

- 1. Encourage the consumption of a healthy, well-balanced diet.** A healthy diet should include no more than 25 to 35 percent of daily intake from fats with saturated fats accounting for less than 7 percent and trans fats less than 1 percent.⁷ In addition, individuals should increase their daily intake of fiber as fiber helps prevent the absorption of cholesterol in the digestive tract.
- 2. Encourage an increase in physical activity.** The benefits of an increase in physical activity in older adults go far beyond a reduction in cholesterol levels and a decrease in the risk of CAD. Educate the individual on beginning all physical activity with a five minute warm up and ending with a five minute cool down to allow the heart to adjust to changes in cardiac output.
- 3. Encourage the cessation of tobacco use.** The risk of heart disease begins to decrease as early as one year after a person quits smoking. If willing, help the individual develop a smoking cessation program that addresses both the physical habit of smoking as well as the psychological habit.

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COPD

Acute COPD exacerbations lead to a severe decrease in quality of life as each exacerbation causes a progressive loss of lung function. They also result in an increase in healthcare costs, deaths, and hospitalizations⁸. As with heart failure, preventing avoidable hospitalization in individuals with COPD hinges on the prevention of exacerbations by ensuring the appropriate medical and nursing management.

MEDICAL MANAGEMENT

The goals of pharmacologic therapy for COPD are to relieve symptoms and prevent exacerbations with the mainstay of treatment being bronchodilators. Inhaled bronchodilators, which include the beta₂-agonists and anticholinergics, can be short acting, which are generally used for quick relief, or long acting, which are preferred for COPD maintenance. These medications improve health status, reduce symptoms, and increase the time between exacerbations.⁹ Many inhaled bronchodilators combine both a beta₂-agonist and an anticholinergic.

In addition to bronchodilators, COPD maintenance includes the use of inhaled corticosteroids to decrease swelling in the airways by reducing inflammation. Optimal treatment for COPD maintenance involves the combination of an inhaled corticosteroid with an inhaled beta₂-agonist.

INHALED MEDICATIONS

It is important for individuals with COPD to administer inhaled medications exactly as indicated to get the full benefit of the medication. Failure to administer the medication appropriately results in the majority of

medication being deposited in the mouth instead of the airways. This decreases the efficacy of the medication leading to an exacerbation.



Each type of inhaler requires a special technique to ensure proper administration so it is important for the individual to be instructed in the proper technique for that medication.

Inhaled medications given through a metered dose inhaler (MDI) require the coordination of slow inhalation with actuation of the device. Spacers for MDIs are beneficial for individuals who have difficulty with this coordination. Nebulizers are a great alternative for those unable to use inhalers properly.

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Important considerations the individual must be educated on when taking inhaled medications include:

- Rinsing their mouth out to help prevent systemic absorption of the medication
- Making sure respiratory equipment is clean to prevent infections
- Shaking the inhaler, if indicated, prior to use
- Inhaling and exhaling deeply several times prior to administration
- Waiting one minute between inhalation of the same medication and two minutes between inhalation of different medications



Smoking Cessation

Once an individual expresses a desire to quit smoking, the individual will need help developing a smoking cessation plan that addresses both pharmacologic and nonpharmacologic interventions. The smoking cessation plan should address withdrawal, cravings, and smoking triggers.

Nicotine replacement agents, bupropion, and varenicline can help manage the effects of withdrawal. Each has different uses, contraindications, warnings, side effects, and cost, so the individuals should weigh each option with the healthcare provider.

Cravings are the intense urge one feels to smoke. However, they only last a few minutes so the smoking cessation plan should identify activities to distract the individual from the craving. Common strategies include:

- Chewing gum, hard candy, or raw vegetables
- Keeping the hands busy (twirl a pencil, squeeze a stress ball)
- Slowly drinking a large glass of water
- Exercising
- Deep breathing

Smoking triggers are people, places, or activities that an individual associates with smoking. It is best to avoid these triggers the first few days after quitting if possible. If not possible, the individual can employ activities associated with managing cravings.

NURSING MANAGEMENT

The plan of care for individuals with COPD must address the two most problematic issues—impaired gas exchange and ineffective airway clearance. First and foremost, education must be provided to the individual about avoiding lung irritants to stop any further damage. Smoking Controlled coughing techniques, deep breathing exercises, and adequate fluid intake all help to loosen secretions allowing expectoration. Encourage the individual to get the annual influenza vaccine as well as the pneumococcal vaccine to help prevent these two types of lung infections.

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Keep oxygen levels greater than 90 percent by administering oxygen as this improves survival, exercise, sleep, and cognitive performance in individuals with COPD.¹⁰ Individuals should also be encouraged to stay active to prevent deconditioning. A recent study showed that individuals who increased their physical activity, even in small amounts, had a lower risk of readmission.¹⁰

ASSESSMENT

Not all incidences of COPD exacerbations are preventable, so nurses must be familiar with the assessment findings that indicate the beginning of an exacerbation so the healthcare provider can make treatment changes. There are three primary symptoms of COPD—a chronic cough, sputum production, and dyspnea especially with physical activity. With an exacerbation, there will be an acute increase in these symptoms. A change in the amount and color of sputum is one of the key indicators of an exacerbation.



Elective Total Hip and Total Knee Arthroplasty



Medicare is the primary payer for approximately two-thirds of all total hip and total knee arthroplasties (THA/TKA),¹¹ and as with all surgical procedures, several complications are common after these two procedures. Prevention of these complications is the key to preventing avoidable hospitalization in individuals post THA/TKA.

PAIN

Inadequate pain management after surgical procedures is all too common and can lead to a variety of negative outcomes including readmissions. Pain management first begins with a thorough, ongoing pain assessment that occurs multiple times throughout the day. The components of this assessment need to include quality, intensity, timing, location, any aggravating and alleviating factors, behavioral symptoms, and the effect pain has on the individual's functional ability.

The next step in effective pain management is to establish the individual's pain goal. Some people would rather deal with mild pain than deal with the side effects of pain medications, while others want to be completely pain free, if possible,

regardless of side effects. Pain management for individuals post arthroplasty includes a combination of nonpharmacologic pain relief methods, opioid analgesics, and NSAIDs.

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SURGICAL SITE INFECTION

Surgical site infections (SSIs) are more likely to occur in older adults, smokers, individuals who take steroids, individuals who required a perioperative transfusion, and those with malnutrition, diabetes, a prolonged hospital stay, and nasal colonization with *S. aureus*.¹²

Prevention measures for surgical site infections include keeping the surgical site clean and dry, following the appropriate infection control measures, and avoiding room placement with individuals colonized or infected with pathogenic organisms such as MRSA or VRE.

THROMBOEMBOLISMS

Thromboembolisms, which include deep vein thrombosis (DVTs) and pulmonary embolisms, are common post arthroplasty because venous stasis occurs from immobility. Therefore, one of the most important measures to prevent thromboembolisms is early ambulation keeping in mind any restrictions the individual may have. Even those individuals who are not able to ambulate right away benefit from getting up in a chair several times a day. Leg exercises are also a great way to help prevent thromboembolisms when early ambulation is not possible. Other interventions include the use of anti-embolism stockings, pneumatic compression, and short-term anticoagulation therapy.



RESPIRATORY COMPLICATIONS

Pneumonia and atelectasis are two common respiratory complications after an arthroplasty, and as with thromboembolisms, these complications relate to immobility. The most important intervention is to encourage early ambulation or some other type of physical activity. Keep in the mind the other preventative interventions discussed earlier as well.

DELIRIUM

Delirium is probably the complication that most people forget about in the elderly population and it is especially prevalent in those individuals who have a diagnosis of dementia. As with all the other complications, prevention of delirium is the key to preventing avoidable hospitalization and improving outcomes. Most importantly, prevention involves preventing the causes of delirium, such as infection, dehydration and electrolyte imbalances, hypoxia, and abnormal blood glucose levels. Other preventative interventions include:

- Reality orientation
- Ensuring the individual uses any visual or hearing aids
- Early ambulation or other physical activity

- Sleep hygiene measures
- Noise reduction measures

HIP DISLOCATION

For individuals who have undergone a total hip arthroplasty, dislocation of the hip is always a potential complication. Dislocation is more common when the surgeon uses the posterior or posterior-lateral approach. In these instances, hip precautions are necessary for several months after surgery to prevent dislocation.

Organizations must provide training to their nurses on these skills and then follow up with the utilization of a skills checklist to verify competency—like those in Relias Learning's Advanced Clinical Skills library.

Hip precautions require the individual to keep the affected leg in abduction, and avoid internal and external rotation, hyperextension, and acute flexion of the affected leg. Educate the individual on not crossing the legs, not bending at the waist, and not flexing the hip more than 90 degrees.

These precautions are generally not necessary when the surgeon uses the anterior approach, which is actually becoming more common, so fewer individuals post total hip arthroplasty are requiring hip precautions.

Conclusion

Post-acute organizations can stop avoidable hospitalizations by remembering two key words—prevention and assessment.

Nurses need to implement interventions to prevent pneumonia, heart failure exacerbations, and COPD exacerbations. They also need to implement interventions to prevent the complications associated with myocardial infarctions and total hip and total knee arthroplasty.

However, these issues may not always be preventable, so the next key point is appropriate assessment. When these complications cannot be prevented, nurses must be able to quickly identify these conditions so that early treatment can be initiated before hospitalization is required. This ultimately comes down to training. Post-acute care organizations cannot

automatically assume that their nurses have the assessment and clinical skills necessary to care for these more acutely ill individuals.

Organizations must provide training to their nurses on these skills and then follow up with the utilization of a skills checklist to verify competency. Relias Learning has a series of short video-based courses that provide a refresher for nurses on the assessment and clinical skills necessary to prevent avoidable hospitalization. Each of the Rapid Review courses comes with an associated skills checklist that you can use to verify nurses' competency.

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Resources

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