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Post hospitalization management of patients with COPD

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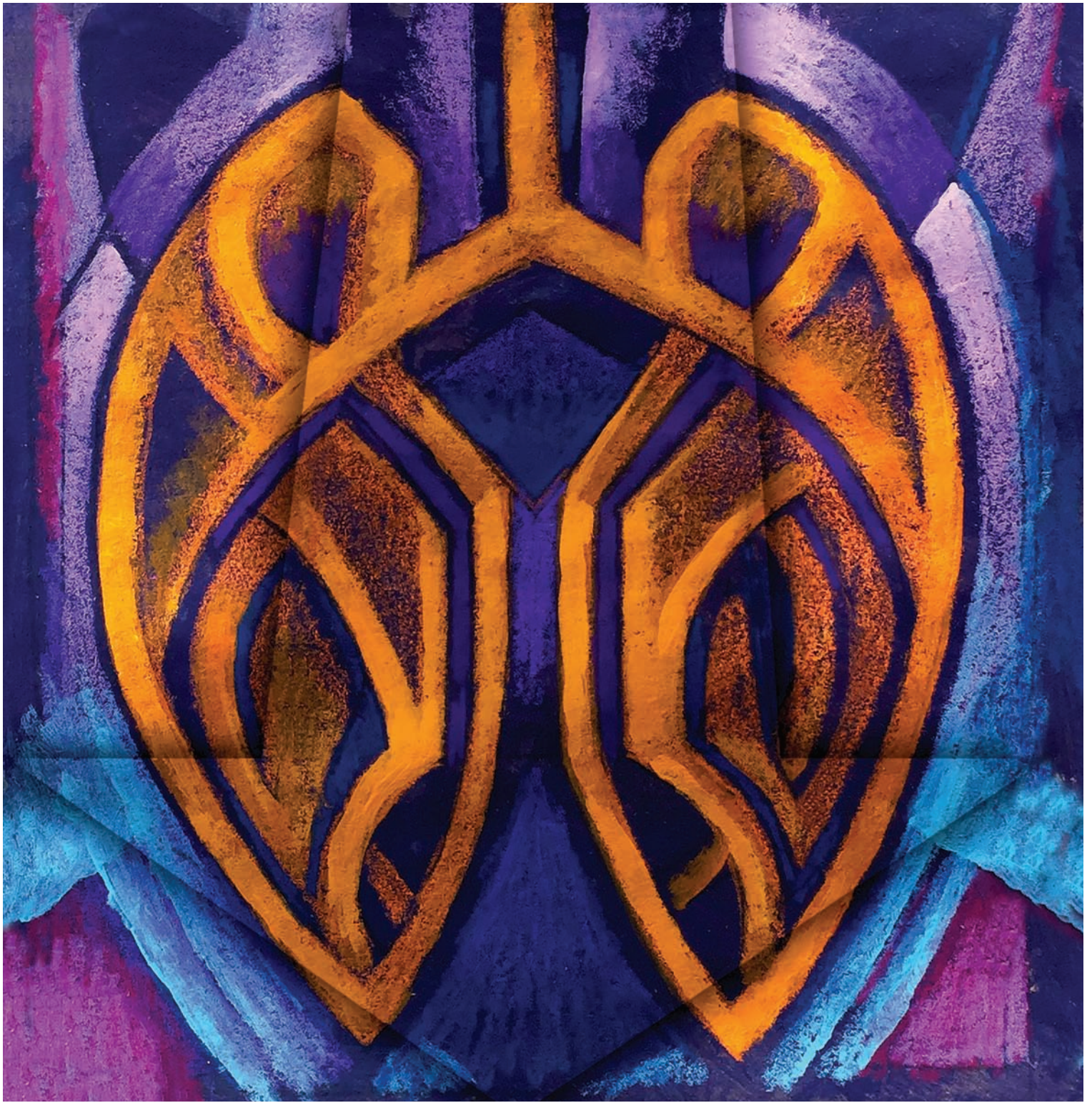
One of the leading causes of morbidity and mortality in the United States, chronic obstructive pulmonary disease (COPD) impacts over 15 million Americans. In addition to lost lives, COPD has a significant economic and social burden.[1,2] It's estimated that the United States spends $13.2 billion annually to manage patients with COPD, with hospital inpatient costs encompassing the majority of spending.[3,4] Managing COPD patients continues to challenge health systems. These challenges directly impact financial performance, with the Centers for Medicare and Medicaid Services imposing penalties on hospitals whose COPD readmission rates are in the bottom quartile.

Although multiple factors often unrelated to COPD contribute to readmission risk, health systems use many strategies to reduce the risk of readmission. Unfortunately, no clear data exist regarding how effective these strategies are at preventing readmissions following a hospitalization for COPD.[5,6] Despite a lack of evidence supporting one approach to COPD readmission risk reduction, guidelines and recommendations exist regarding postacute interventions and services. This improvement project incorporated nursing interventions based on transitions theory and published guidelines from the American College of Chest Physicians and Canadian Thoracic Society into the design of a COPD readmission reduction initiative.[7]

Setting

A 167-bed, Midwestern Level 3 trauma center was used for this improvement project. The pilot site is part of a larger multihospital system. Nationally, the readmission rate for COPD patients with Medicare is 20%.[8] The institution's COPD readmission rate in the 12-month period before the project was 22.6%, exceeding the target institutional COPD readmission



rate. To better understand factors influencing COPD readmission, an analysis of nursing-specific interventions, postacute follow-up care, and target medical interventions was completed. Results suggested that several gaps existed, including occasional lack of specialty follow-up, inconsistent prescribing of and adherence to scheduled and as-needed medications, and inconsistent postdischarge follow-up by the transition nurse.

Based on recent studies, it was noted that an opportunity existed to reduce readmission rates among patients with COPD. These studies support the use of pulmonary rehabilitation; self-management education; specialty and primary care follow-up; medication management, particularly as it pertains to the use of inhalers; management of exacerbations; smoking cessation; and timely follow-up with a health coach or transition nurse to reduce COPD readmissions.[1,2,7-12]

Patients with a COPD exacerbation being discharged home experience role transition requiring them to change not only their behavior, but also their definition of self.

Theoretical framework

COPD has a complex, nonlinear disease trajectory, with varying and unpredictable patient adaptation to the disease process.[13] This project employed Meleis' transitions theory in the design of a transitional management plan for patients with COPD discharged from the hospital setting. Professionals planning and supporting transitions must understand that transitions not only result from change, but also result in changes to health, relationships, and the individual's environment.[14] Because transition involves vulnerability and complex change in developmental, health, situational, and organizational areas, management of such transitions can't be addressed in an overly simplistic manner.[14] Psychosocial factors, as well as patient and health system complexity, were identified as causative factors for readmission.[8,15] That's why it's important for transition management to be individualized and holistic, including medical intervention, emotional support, and lifestyle promotion.[13]

Patients with a COPD exacerbation being discharged home experience role transition. Successfully moving through this transition requires patients to incorporate new knowledge and change not only their behavior, but also their definition of self.[16] By using transitions theory to guide patient interactions and care planning, nurses facilitate the process of learning new skills, enhancing well-being, and improving confidence and coping during this critical period of transition.[14,17-19]

Transitions theory identifies important nursing therapeutics to support patient role transition, such as readiness assessment; preparation for transition, including provision of education; and role supplementation as patients transition.[20] Specific approaches using transitions theory to support patients with COPD include supporting health state awareness, self-management, and ownership of symptom control; supporting the concept of hope; and ensuring social role fulfillment.[17] This approach utilizes the strengths of nursing therapeutic interventions in providing holistic management of patients as they move across the COPD continuum.

Project design

This quality improvement project examined the impact of a transitions theory-based model by comparing pre- and postintervention readmission rates among COPD patients. The institution uses transitions-based care for chronic disease management. Transition nurses were already

in place and used to address the needs of patients with chronic conditions as they transitioned from inpatient to outpatient settings. Before the project, the transition nurse focused primarily on task-related checks, such as determining if patients obtained prescriptions, ensuring patients had a follow-up appointment, and checking to see if patients were experiencing exacerbation symptoms.

For this project, transition nurses received training on transitions theory, optimal COPD management strategies, and targeted medical interventions based on guidelines from the American College of Chest Physicians and Canadian Thoracic Society. These guidelines outline elements required to optimize care of COPD patients postdischarge, including follow-up with a pulmonologist within 1 to 2 weeks of discharge, use of scheduled and as-needed medications, referral to a pulmonary rehabilitation clinic, use of home healthcare and telehealth, and creation of a self-management plan.[7] Self-management plans included exacerbation management, medication self-administration, healthcare provider follow-up, and smoking cessation.

As a member of the multidisciplinary team, the transition nurse worked with patients and healthcare providers to promote and facilitate optimal COPD management strategies. As part of the management plan, transition nurses completed follow-up phone calls 3 days' postdischarge, followed by weekly calls through 30 days' postdischarge. These calls used a structured assessment and interventions guided by previously identified nursing therapeutics. As compared with actions before the project, the transition nurse engaged the patient in discussions regarding self-management, including barriers to success and goal setting.

Adherence to treatment regimens and medication concerns were correlated with readmission.

Data collection and analysis

Institutional Review Board approval was received from the university and healthcare organization. Consenting patients discharged home with a primary diagnosis of COPD between January 12, 2017, and May 11, 2017, were included in this project. Patients discharged to a skilled nursing facility were neither included in the project nor in the comparative historical readmission data because the project examined the impact of transition nursing interventions on patient readmission rates. Patients who weren't initially identified as having a primary diagnosis of COPD but were later coded as such were also excluded because the transition nurse didn't have an opportunity to initiate all aspects of the project during the inpatient phase. To determine the impact of the use of a transition model on COPD readmission rates, results were compared with the readmission rate of COPD patients discharged home during the same time frame in 2016.

The transition nurse tracked nursing-specific interventions, postacute medical follow-up care, and targeted medical interventions for each patient, noting whether the patient accepted or refused each. The transition nurse also recorded the readmission risk using the LACE Index Scoring Tool for Risk Assessment of Hospital Readmission, a validated tool that predicts the risk of readmission by calculating a risk score based on length of stay, acuity of admission, comorbidities, and use of ED services.[21] The transition nurse determined whether patients adhered to the self-management plan, defined as verbalizing the treatment plan; expressing no questions;

verbalizing how to take medications, including inhalers; and verbalizing the follow-up plan, as well as indicating the intent to adhere to these, expressing no major barriers, and indicating nonsmoking status or intent to engage in smoking cessation.

If the patient changed to nonadherent at any point in the 30-day window, this was indicated on the data collection tool. (See *Figure 1.*) Once identified as nonadherent, a patient couldn't be changed back to adherent during the 30-day window. Medication concerns included the patient's inability to obtain

Figure 1: Data collection tool

Patient ID	Smoking status	LACE	Date of birth	Gender	Deidentifier key	Index admit discharge date	Index diagnosis	Pulmonary consult inpatient	Discharge disposition	Clinic 1-2 week follow-up	First follow-up detail	Attended first follow-up	Follow-up with pulmonary	Attended pulmonary follow-up	Pulmonary rehab

Home healthcare/telehealth	Transition nurse in-hospital meeting	Self management plan—teach back, action plan, confidence, comfort, barriers	3-day call	Call 2	Call 3	Call 4	Medication concerns	30-day readmission	Readmission info—diagnosis	Readmission info—readmitted from	Readmission info—days in between	Comments	Pneumonia vaccine	Comorbid conditions

or use a medication, or stated intent not to follow the prescribed treatment plan. These data, along with demographic information, were analyzed to determine the impact each had on readmission rates.

The 30-day readmission rate was calculated for index COPD discharges occurring between January 12, 2017, and May 11, 2017, with comparison of readmission rates for the same time period in the previous year (January 12, 2016, through May 11, 2016). This comparison eliminated seasonal factors that influence COPD exacerbation. Additional data included demographic information and whether the patient accepted or refused interventions ordered/offered.

SPSS 23.0 software was used to analyze factors influencing the COPD readmission rate 30 days' post hospital discharge.[22] Among patients discharged home, the readmission rate within the sample population was 15.2% (n = 46) as compared with the 2016 readmission rate of 23.5% (n = 34). The Pearson's chi-squared test was used to determine the correlation between interventions and attributes and the readmission rate among patients discharged in 2017. A significant correlation existed between COPD patients who were readmitted and self-management plan nonadherence ($p = 0.01$), expression of medication concerns ($p = 0.02$), and a LACE score of 10 or greater ($p = 0.04$).

Discussion

This quality improvement project identified several important findings. Although components of a COPD management program were in place, silos and coordination gaps between inpatient and outpatient services were discovered. The transition nurse could better coordinate inpatient and outpatient services, and support continuity in the care plan between pulmonary and hospitalist services. Use of a multidisciplinary readmission committee also supported effective implementation of proposed interventions and generated additional interventions for use with this patient population. For example, the committee identified the value of using online education modules for patient learning needs.

Gaps, including access to pulmonology, introduction to phase one pulmonary rehabilitation care, and use of effective educational tools, were identified and addressed. As a result of this project, patients with COPD now consistently receive pulmonology consultation to ensure medication optimization. We've also seen a significant increase in the number of hospitalized COPD patients introduced to pulmonary rehabilitation through phase one completion. Unfortunately, the large majority of patients don't progress to phase two pulmonary rehabilitation due to lack of insurance coverage or patients not being sufficiently stable.

Although all COPD patients are at risk for exacerbation and readmission, limited resources should target patients at the highest risk for readmission.

Use of transitions theory to guide nursing care was an effective approach to managing this complex disease. The framework guided a more structured process during in-person and phone interactions with patients, and ensured that conversations occurred around key transitional areas. The transition nurse is also continuing to develop education videos and materials for patients while in the hospital or at home.

It isn't surprising that adherence to treatment regimens and medication concerns were correlated with readmission. COPD is a complex, chronic disease that includes complex psychosocial factors. Nurses need to identify and develop nurse-sensitive interventions to assist patients, particularly those with a high

LACE score. Although all COPD patients are at risk for exacerbation and readmission, limited resources should target patients at the highest risk for readmission. Targeted interventions with this high-risk group have the greatest potential to reduce readmissions. For example, the transition nurse can provide additional psychosocial support to patients with a high LACE score.

This quality improvement project demonstrated that evidence-based approaches to transition management of COPD patients can improve coordination of services and optimize care. Additionally, use of a theoretical framework to guide the development of nursing interventions is important. Such a theoretical framework also takes greater advantage of nursing expertise based on the nursing process of assessment, care planning, intervention, and evaluation. It's essential to not only complete interactions with patients, but also engage them in self-management of their condition as emphasized through transitions theory. Ongoing development of this approach is warranted within the project setting and likely in many healthcare settings across the nation.

Limitations

Results of this pilot project demonstrated factors impacting readmission of COPD patients; however, the small sample size and limited data collection period limit the generalizability of the findings. Although a reduction in the overall readmission rate was noted, comparison of a larger sample over a longer time span will provide further evidence to support the proposed interventions.

Nursing implications

The utilization of transitions theory supported a more structured approach to care, resulting in improved nursing assessment, intervention, and patient participation. The use of transitions theory was effective in the ongoing evolution of transitions management processes and procedures. Additional education regarding transitions theory and related transitional care models will enhance the program and support patient and family engagement. It's also important to recognize that nursing care can't operate in isolation of other disciplines, including inpatient and outpatient healthcare providers. In fact, nurses are the key to the successful case management of chronic conditions. The use of transitions theory-based interventions supports optimized patient care throughout the continuum.

Nurse leaders need to ensure that transitions management is more than simply a list of tasks. Organizations benefit from a comprehensive transitions model, which includes structured processes and formalized roles that take advantage of nurses' skills, knowledge, and abilities.[23] It's incumbent on nurse leaders to ensure that new or current transitional care programs are evidence-based, continuum-focused, and grounded in nursing theory. NM

This quality improvement project demonstrated that evidence-based approaches to transition management of COPD patients can improve coordination of services and optimize care.

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