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FirstHealth
OF THE CAROLINAS

**Best Practices in
Managing Patients With
Chronic Obstructive
Pulmonary Disease
(COPD)**

FirstHealth of the Carolinas Case Study

Organization Profile

FirstHealth of the Carolinas is a private, nongovernmental, not-for-profit healthcare network located in Pinehurst, North Carolina, with a primary service area of 4 counties and a primary and secondary service area of 15 counties in the mid-Carolinas. The system's 3 hospitals maintain a collective 582 beds and all major medical and surgical specialties are offered; subspecialties include open-heart surgery, neurosurgery, and neonatology. FirstHealth has an active medical staff of 266 of whom more than 93% are board-certified. Additional services include a heart center, rehabilitation centers, dental clinics, sleep disorders centers, family care centers, fitness centers, hospice, home health services, insurance plan, critical care transport, and emergency medical services.

FirstHealth and its home care services have been acknowledged for excellence in healthcare on many occasions. For example, the home care service received the 2009 Fazzi Associates Patient Satisfaction Award of Distinction, and in 2008, FirstHealth received several HealthGrade awards, including the Superior Clinical Performance in Cardiac Care and Distinguished Hospital for Patient Safety.

Project Summary

FirstHealth's Hospital to Home Transitions of Care pilot program aimed to create a seamless continuum of care on 2 medical floors of FirstHealth's flagship facility, Moore Regional Hospital, for inpatients with COPD and congestive heart failure (CHF), being transferred to home care and ultimately to self-management. This initiative is the first part of a larger pilot to manage care transitions for all patients with chronic disease. The overall objectives are to improve patients' quality of life and build their skills and confidence in self-management while reducing costs by avoiding preventable readmissions and emergency department (ED) visits.

Program Goals and Measures of Success

Goals and objectives

The 4 primary goals of the Hospital to Home Transitions of Care pilot are to

1. Facilitate collaboration among providers across the healthcare system
2. Reduce clinical practice variations by utilizing evidence-based interventions adapted from the Medicare Quality Improvement Community
3. Reduce unanticipated hospital admissions and ED visits, as compared with national and systemwide benchmarks
4. Improve the management of medications

Clinical standards

A variety of evidence-based standards in transitional care and clinical practice were integrated into the Hospital to Home Transitions of Care pilot to improve quality and reduce costs. In preparation for the pilot, the home care team conducted a systematic review of current literature in transitional care and summarized 5 of the most cited models: the Care Transitions Program,¹ Transitional Care Model,²⁻⁵ Project BOOST,⁶ Project Re-Engineered Discharge (RED),⁷⁻⁸ and the Institute for Healthcare

Improvement's Transforming Care at the Bedside.⁹ Interventions that revealed positive effects on desired measures and aligned with available resources were incorporated to develop the FirstHealth Home Care Chronic Disease Transitional Care Model (Figure 1). Many of the successful interventions shared key components, such as the use of the teach-back method, home visits, and assessment of patient readiness and activation.

Figure 1

FirstHealth Home Care Chronic Disease Transitional Care Model			
HOSPITAL	HOME HEALTH	COMPLEX CARE MANAGEMENT	CARE MANAGEMENT
Admission to Hospital	T	Chronic Disease Pathways	T
Patients identified upon admission	R	Pathway determined by patient activation	R
Transitional planning begins	A	Telemonitoring and coaching for activation	A
Podiatric needs assessed	N	Multidisciplinary visits and conferencing	N
Multidisciplinary Rounding	S	Patient's Goals and Concerns Addressed	S
Daily rounding	I	Establishes patient trust and buy-in	I
Hospitalists, RN, OM, liaisons, and PharmD	T	Demonstrates continuity of care	T
Patient's needs identified and discussed	I	Aligns healthcare and personal goals	I
Standardized Patient Education	O	Risk-Driven Care Plan	O
Unit RNs begin education	N	Smoking cessation	N
Standardized educational material	S	Nutritional counseling	S
Self-management skills initiated	I	Behavioral health nurse intervention	I
Medication Review and Reconciliation	T	Medication Self-Management	T
Facilitated by pharmacist	I	Meds reconciled to hospital EMR	I
Medication counseling (if indicated)	O	Discrepancies addressed within 24 hours	O
Recommendations to hospitalists	N	PharmD review for complex med regimens	N
Home Health Referral	T	Teaching of "Red Flags"	T
Liaison establishes patient relationship	I	Signs and symptoms to report to MD	I
Assesses needs for palliative care/hospice	O	Emergency care plans implemented	O
Begins teaching of "Red Flags"	N	Instruction on who to call for "Red Flags"	N
Home Care Coaching	O	7-Day PCP Follow-up Facilitated	O
Patient activation measure administered	N	Verify appointment made	N
Identify patient's goals and concerns	S	Verify transportation to and from	S
PHQ-2 depression assessment	I	Confirm visit was made	I
Patient Transitioned to Home Health	T	Transitions from Home Health	T
Transition coordinated by liaison	I	Next level of care based on patient activation	I
Home health access to hospital EMR	O	Facilitate appropriate referrals	O
7-day PCP follow-up facilitated	N	Confirmation of completed transition	N
			SELF-MANAGEMENT
			Self-Management
			Quarterly follow-up phone calls
			Self-monitoring of health indicators
			Effective symptom management
			Maintain lifestyle changes
			Ensure ongoing compliance with PCP
			© 2011, 2012 FirstHealth Home Care

RN=registered nurse; OM=office manager; PHQ-2=Patient Health Questionnaire-2.

In order to demonstrate nationally recognized best practices in COPD management, the home care service revised the patient education COPD booklet, which is used systemwide. The booklet serves as a common foundation in the clinical management of patients with COPD across care settings. The booklet was primarily developed from evidence-based standards from the Quality Insights of Pennsylvania in partnership with OASIS Answers, Inc.,¹⁰ Agency for Healthcare Research and Quality,¹¹ and the Global Initiative for COPD.¹²

Data collection and measurement

Patient data, including demographics, were collected from 2 electronic medical record (EMR) systems used at the hospital level and in home health: Physician Portal powered by McKesson and Cerner's Beyond Now software. Program group measures were also obtained from the software used by FirstHealth's telehealth program, a central component of the pilot.

Group measures from EMR

- Rates of rehospitalization and ED utilization
- Frequency of COPD exacerbation
- Prevalence of advance directives on file
- Volume of referrals to social worker and physical/occupational therapist
- Frequency of scheduled follow-up appointment with primary care provider (PCP)
- Occurrence of medication reconciliation on admission to home health

Group measures from telehealth system

- Average length of stay in home care
- Number of patients utilizing telehealth
- Depression assessment
- Patient satisfaction and experience

Outcomes

- Acute care hospital all-cause readmissions postdischarge were 42% (n=30) for 0 to 30 days, 18% (n=13) for 31 to 60 days, and 12% (n=17) for 61 to 90 days
- Average hospital length of stay was 6 days
- Pilot patients experienced 11 ED visits during the home health episode, with an ED utilization rate of 15.3%
- In comparison with hospitalizations for pilot patients during the home health episode to 90 days posthome health discharge, readmissions decreased by 24%, from 58% to 44%. In a similar comparison of ED utilization, patients experienced a 64% decrease, with 15% of patients with an ED visit during the home health episode compared with 6% at 90 days after home health discharge
- 17 patients (24%) had an advance directive on file
- During the home health episode, referrals were generated for the following services: 54 for physical therapy evaluation, 37 for occupational therapy evaluation, 16 for registered dietician consult, 12 for social work assistance, and 16 for a visit from the behavioral health nurse
- Posthome health referrals to further facilitate appropriate transitional care included 7 referrals to hospice, 4 to diabetes self-management, 6 to pulmonary rehabilitation, and 12 to cardiac rehabilitation
- 29 patients (40%) had a documented follow-up scheduled with their PCP upon hospital discharge
- 100% of patients had medication reconciliation upon admission to home health
- Average length of stay in home health was 65 days (median=52)
- 58 patients (81%) actively used telehealth
- Patients' average PHQ-2 depression assessment was 2
- Patient satisfaction was rated at 90%
- Health-related quality of life improved from 20 unhealthy days upon admission to home health to 14 unhealthy days at 6 weeks from admission
- Patients were discharged from the hospital with an average of 16 medications listed in their discharge instructions

The home care team is currently in the process of analyzing inpatient length of stays 90 days pre- and postenrollment in the pilot study for additional comparison data. Furthermore, continuing into a second year of transitional care will provide comparison data for a larger intervention group.

Population Identification

The main source of pilot participants are hospitalist patients with a diagnosis of COPD (ICD-9-CM codes 491.20 through 491.22, 492.8, 493.20 through 493.22, 496) and determined eligible to receive home care services following referral from a hospitalist.

Demographics (for pilot patients with COPD)

- Enrolled patients* n=54
- Gender 59% (n=32) female
- Percentage >65 years 39% (n=21) female, 28% (n=15) male

Disease severity

- Mild: FEV₁[†] >80% of predicted 5% (n=1)
- Moderate: FEV₁ between 50% and 80% 15% (n=3)
- Severe: FEV₁ between 30% and 49% 60% (n=12)
- Very severe: FEV₁ <30% 20% (n=4)

*Of the 54 pilot patients with COPD, 37% (n=20) had documented spirometry results within the hospital EMR system. This incidence is likely higher; however, testing could not be confirmed without access to patient information outside the health system. All patients with an FEV₁/forced vital capacity (FVC) <70% and who were symptomatic received a prescription for an inhaled bronchodilator. Sixteen patients (30%) experienced a COPD exacerbation.

[†]FEV₁=forced expiratory volume in 1 second.

The Intervention

Background

Discharge from the hospital is a period of vulnerability for patients. Medication regimens are commonly altered at this transition, with patients asked to discontinue or hold some medications, change dosage strength and frequency, or begin new medications. Self-care responsibilities also increase in importance, presenting additional challenges. Ineffective planning and coordination of care at this critical transition in care can compromise patient safety and satisfaction and contribute to a greater likelihood of hospital readmission.

In a 2009 report to Congress, the Medicare Payment Advisory Committee reported that 18% of Medicare hospital admissions result in readmissions within 30 days, with \$15 billion spent on readmissions and \$12 billion on preventable hospital admissions.¹³ Compounding this matter, following hospital discharge, nearly half (49%) of hospitalized patients experience at least one medical error in medication management, diagnostic work-up, follow-up on inpatient tests, and continuity of care.¹⁴ Half of adverse drug events resulting from medication mismanagement are considered preventable and result from a breakdown in communication during the hospital to home transition of care.¹⁵

Care team

To achieve a seamless, integrated approach to care management for patients with COPD, FirstHealth utilizes an interdisciplinary team including

- Vice President of Quality for FirstHealth Moore Regional Hospital
- Medical Director, Hospitalist Services for FirstHealth Moore Regional Hospital
- Administrative Director, Hospitalist Services for FirstHealth Moore Regional Hospital
- Nursing Director, Medical Services for FirstHealth Moore Regional Hospital
- Director, FirstHealth Home Care
- Associate Director, FirstHealth Home Care
- Quality Management Coordinator, FirstHealth Home Care

- Coordinator, Pulmonary Rehabilitation, FirstHealth Center for Health and Fitness
- Consultant, The Foundation of FirstHealth

Process

While individual patients' specific transitions of care vary based on a variety of health-related factors, the pilot management team typically takes the following specific steps to help ensure optimal, successful care coordination and effective, efficient transitions of care

1. Following hospital admission, the designated outcomes manager identifies eligible patients for the pilot.
2. The outcomes manager refers all appropriate patients who meet eligibility criteria and choose FirstHealth Home Care service to the organization's home care liaisons.
3. A home care liaison promptly makes initial contact with the patient and begins the transition process by identifying patient-driven goals and introducing the patient to the home health process. Home care's goal setting tool is utilized to include goals related to medication reconciliation and management, follow-up with the primary care provider within 7 days postdischarge, and exacerbation warning signs. Acting as a health coach, the home health liaison bridges the information gap between hospital and home. In addition, the liaison initiates the patient's home care EMR in Cerner Beyond Now, which is maintained by the home health nursing staff throughout the patient's enrollment in home care.
4. The home care liaison also determines the status of the patient's advanced directive and, if necessary, the inpatient patient advocate helps the patient complete this document and submit a copy to be maintained on file in the patient's hospital EMR.
5. In accordance with the patient's identified goals, prior to discharge the inpatient nursing staff provides COPD education using standardized care plans tailored to the patient's learning needs and preferred learning style.
6. Prior to discharge, a clinical pharmacist completes a medication reconciliation to review the medication plan and, when indicated, to reduce the overall number of medications and eliminate contraindications and unsafe interactions.
7. Within 24 to 48 hours of hospital discharge, the patient is admitted to the FirstHealth Home Care service. As there are frequent medication discrepancies upon return home, medication reconciliation is again conducted and the PCP receives a copy of the reconciled medications. The home health nurse verifies coordination of the postdischarge follow-up visit with the patient's PCP within 7 days of hospital discharge. Throughout the home health episode, which is typically 60 days, the patient participates in a best practice, standardized home health COPD care plan tailored to the individual's goals and disease process, based upon the previously noted clinical standards. The care plan may include telehealth monitoring, a guided pathway of visits, telephone calls by the home health nurse, educational modules, and self-assessments over the 60-day period to develop self-management skills. The care plan may also include depression and quality of care assessments to identify potential psychosocial barriers to compliance and self-management readiness. This plan also includes standardized educational and communication tools, telemonitoring, and medication management throughout the entire home health episode of care.
8. Upon completion of the home health episode of care, patients transition to community care management, if eligible under Medicaid, or to home healthcare management with continued telemonitoring for 60 to 90 days. Depending upon needs and health status, the patient may also receive home visits from the care manager, telephone follow-up using scheduled survey

questionnaires and, as clinically indicated, additional outpatient support services such as cardiac rehabilitation, palliative care, or Exercise is Medicine, a locally adopted national initiative calling on all healthcare providers to assess and review patient's physical activity at every encounter.

9. After this period, if the patient remains stable, he or she is transitioned to self-management. Self-management skills are reinforced through periodic telephone follow-up. This entire follow-up phase is projected to last 9 to 12 months.

Workflow and staffing changes

As a result of the pilot study, the following has occurred without hiring of additional staff to support the FirstHealth Transitional Care Model

- Development of standardized education booklets that are utilized across the system for patients with COPD and CHF
- Development and implementation of inpatient teaching check-off sheets for bedside nurses
- Implementation of daily multidisciplinary rounding on the 2 pilot floors
- Training of FirstHealth Home Care liaisons in health coaching
- Identification of patient-specific goals and concerns by FirstHealth Home Care liaisons prior to discharge
- Administration of PHQ-2 prior to discharge by FirstHealth home care liaisons (if the patient scores 3 or higher, referral to the behavioral health hospital team is made)
- Administration of the Patient Activation Measure (PAM), which was implemented late in the pilot. Preliminary results for the 7 patients who have completed the PAM reveal an overall increase in patient activation from 47.7 (Level 2) on admission to 63.9 (Level 3) at discharge. The PAM is an evidenced-based tool, licensed through Insignia Health, for assessing a patient's skills, knowledge, and confidence in managing their own healthcare.¹⁶ Using a 6-question survey, the PAM tool stratifies patients into 4 levels of activation. Lowly activated patients (Levels 1 and 2) do not have the confidence or awareness that they can have an impact on their healthcare. Typically, these patients cannot utilize evidence-based techniques and tend to become quickly overwhelmed. These patients are also at highest risk for rehospitalizations and medical errors. Conversely, highly activated patients (Levels 3 and 4) tend to take a more active role in managing their health and can more effectively utilize evidence-based guidelines¹⁶
- Development of collaboration and communication processes between FirstHealth Home Care and Community Care of the Sandhills
- Implementation of home health patient team conferences
- Development of processes for transition referrals after home health (such as diabetes self-management, cardiac rehabilitation, or pulmonary rehabilitation)
- Adjustment of home health visit patterns to front-load during the high-risk period for rehospitalization, which was identified as the first 10 days postdischarge
- Implementation of a transition report that is completed by the home health nurse 2 weeks prior to discharge to proactively identify patients' next level of care for referrals
- Development of a detailed tracking report to track all posthome health referral sources
- Assistance to patients in obtaining a blood pressure cuff/scale/glucometer prior to home health discharge

Leadership Involvement and Support

FirstHealth's Vice President of Quality is the primary senior champion for the Hospital to Home Transitions of Care pilot and plays a critical role in encouraging collaboration and ensuring needed staff resources are allocated to support the successful implementation of the pilot. She also coordinates and facilitates team meetings and workgroups and provides quality improvement expertise. Furthermore, she serves as a mentor to the pilot team and an advocate within hospital administration by maintaining ongoing awareness of and dedication to the pilot within the organization.

Leadership support for the program was recently strengthened with FirstHealth's application to the Centers for Medicare & Medicaid Innovation's Health Care Innovation Challenge. The leadership team has made it a strategic priority to execute effective care management for all patients, but particularly those with COPD and other preventable, treatable, chronic diseases.

Lessons Learned

Challenges

- Almost half of pilot participants did not have a PCP follow-up visit scheduled 7 to 10 days after hospital discharge. FirstHealth is continuing its work to overcome this challenge by faxing appointment requests after-hours and reminding home health staff to help facilitate appointments within 72 hours of discharge
- It is difficult to provide optimal, day-to-day patient education during hospitalization. It is hoped that potential systemwide incorporation of the PAM will facilitate patient-tailored education based upon diagnosis, readiness, existing knowledge, and activation
- Patients who are ineligible for home care services (ie, patients who are not considered temporarily or long-term homebound, defined as trips outside of the home are infrequent and/or require taxing efforts) need help finding alternative care sources. FirstHealth developed a postacute care services team to identify and raise awareness of these alternatives, such as the FirstHealth Diabetes Self-Management Program, FirstHealth Hospice and Palliative Care, FirstHealth Cares Medication Assistance Program, and CARE-Net programs, a nationally recognized volunteer model of support and advocacy
- Despite referrals for patients to the next level of care, the majority did not make it to the next level of care. FirstHealth is working on identifying the barriers to accessing the next level of care within the community to develop safeguards and ensure that the patient achieves the next level of care

Lessons

- Appropriately transitioning patients throughout the care continuum and tailoring efforts to the patient's level of activation is still a relatively new concept that requires a change in thinking
- Additional processes to ensure that patients are scheduled for and attend a postdischarge follow-up appointment with their PCP are needed to facilitate effective transitions from hospital to home care
- An executive-level champion is vital to any system effort and was the key to FirstHealth's success with this pilot
- A systemwide, shared EMR database would increase the ability to smoothly transition patients throughout care settings. FirstHealth is currently exploring participation in a state-level Health Information Exchange to help remedy this issue

Next Steps

- Encourage increased involvement of direct patient care staff as care transition focus expands to additional patients with chronic disease
- Review the effectiveness of the inpatient teaching checklist
- Identify ways to maintain implemented process changes (avoid change-back)
- Work to improve rounding consistency
- Add a Heart Failure Transitions nurse
- Implement Project RED to improve the discharge process

References:

1. Coleman EA, Parry C, Chalmers S, Min S-J. The care transitions intervention: results of a randomized controlled trial. *Arch Intern Med.* 2006;166:1822-1828.
2. Naylor M, Brooten D, Jones R, Lavizzo-Mourey R, Mezey M, Pauly M. Comprehensive discharge planning for the hospitalized elderly: a randomized clinical trial. *Ann Intern Med.* 1994;120:999-1006.
3. Naylor MD, Brooten D, Campbell R, et al. Comprehensive discharge planning and home follow-up of hospitalized elders: a randomized clinical trial. *JAMA.* 1999;281:613-620.
4. Naylor MD, Brooten DA, Campbell RL, Maislin G, McCauley KM, Schwartz JS. Transitional care of older adults hospitalized with heart failure: a randomized controlled trial. *J Am Geriatr Soc.* 2004;52:675-684.
5. Foust JB, Naylor MD, Boling PA, Cappuzzo KA. Opportunities for improving post-hospital home medication management among older adults. *Home Health Care Serv Q.* 2005;24(1-2):101-122.
6. Project BOOST Team. *The Society of Hospital Medicine Care Transitions Implementation Guide: Project BOOST: Better Outcomes for Older adults through Safe Transitions.* Society of Hospital Medicine Web site, Care Transitions Quality Improvement Resource Room. <http://www.hospitalmedicine.org/Boost>. Accessed June 19, 2012.
7. Greenwald JL, Denham CR, Jack BW. The hospital discharge: a review of a high risk care transition with highlights of a reengineered discharge process. *J Patient Saf.* 2007;3:97-106.
8. Jack BW, Chetty VK, Anthony D, et al. A reengineered hospital discharge program to decrease rehospitalization: a randomized control trial. *Ann Intern Med.* 2009;150:178-187.
9. Rutherford P, Lee B, Greiner A. Transforming Care at the Bedside. IHI Innovation Series white paper. Boston: Institute for Healthcare Improvement; 2004. <http://www.ihl.org/knowledge/Pages/IHIWhitePapers/TransformingCareattheBedsideWhitePaper.aspx>. Accessed June 19, 2012.
10. OASIS Answers. *Chronic Obstructive Pulmonary Disease (COPD): Patient Self-Care Workbook.* <http://www.docstoc.com/docs/107063175/Patient-Self-Care-Workbook-Jeny>. Accessed June 28, 2012. Publication # 8SOW-PA-HH05.180.
11. National Guideline Clearinghouse (NGC). Guideline synthesis: Chronic obstructive pulmonary disease: diagnosis and management of stable COPD. In: National Guideline Clearinghouse (NGC) [Web site]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2005 Oct (revised 2011 Nov). <http://www.guideline.gov>. Accessed June 19, 2012.
12. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management, and prevention of chronic obstructive pulmonary disease; revised 2011. <http://www.goldcopd.org/>. Accessed June 19, 2012.
13. Medicare Payment Advisory Committee. Reforming America's Health Care Delivery System. <http://www.medpac.gov/documents/Hackbarth%20Statement%20SFC%20Roundtable%204%2021%20FINAL%20with%20header%20and%20footer.pdf>. Published April 21, 2009. Accessed July 30, 2012.

14. Moore C, Wisnivesky J, Williams S, McGinn T. Medical errors related to discontinuity of care from an inpatient to an outpatient setting. *J Gen Intern Med.* 2003;18:646-651.
15. Forster AJ, Murff HJ, Peterson JF, Gandhi TK, Bates DW. Adverse drug events occurring following hospital discharge. *J Gen Intern Med.* 2005;20:317-323.
16. Hibbard JH, Mahoney ER, Stockard J, Tusler M. Development and testing of a short form of the patient activation measure. *Health Serv Res.* 2005;40(6 Pt 1):1918-1930.



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