Innovative Care Model to Improve Clinical Quality and Safety of Transitional Care: Early Outcomes

Brooke Roeper, MSPH, MS; Eric Beck, DO, MPH, FACEP; Daniel Castillo, MD, MBA; J. Brent Myers, MD, MPH; Brandy Sparkman, RN, BSN; Jonathan Cox, MHS; Scott Bourn, PhD, RN, EMT-P*

All the authors are employees of Evolution Health, Dallas, Texas

ABSTRACT

Background: The high rate of 30-day hospital readmissions among Medicare patients highlights a glaring care gap in the treatment of elderly patients. To improve quality of care, increase patient safety, and reduce the associated costs of these readmissions, transitional care programs are being implemented to facilitate continuity of care from hospital to home with the goal of preventing return visits to the hospital.

Intervention: Evolution Health, a provider of mobile integrated health care, evaluated transitional care best practices, and developed and implemented an evidence-based transition of care (TOC) program to effectively reduce 30-day readmission rates among high-risk Medicare patients.

Evaluation: Data were collected and analyzed to assess the effectiveness of the TOC program among Medicare patients discharged from a five-hospital health system between Dec. 1, 2014, and Oct. 31, 2016. The 30-day program featured an interprofessional mobile integrated team, overseen by a medical command center, providing 24/7/365 support to Medicare patients following their hospital discharge. Post-intervention readmission rates were calculated for patients discharged with one of five ACA Hospital Readmissions Reduction Program (HRRP 5) reportable discharge diagnoses: total hip or knee replacement, myocardial infarction, heart failure, pneumonia, or chronic obstructive pulmonary disease.

Results: For the five discharge diagnoses collectively, 30-day readmission rates for participants in the TOC program (11.0%) were substantially lower than those reported for the general Medicare population (18.3%).

Conclusion: Preliminary outcomes suggest that Evolution Health's TOC program was effective in improving clinical outcomes, thereby reducing 30-day readmission rates for Medicare patients discharged with an ACA HRRP reportable discharge diagnosis.

INTRODUCTION

The U.S. health care system is suffering from what can be called "the revolving door syndrome" (Goodman 2013), where one in five elderly patients returns to the hospital within 30 days of leaving (Leppin 2014). These rehospitalizations are a common and costly occurrence among Medicare beneficiaries, with the 30-day hospital readmission rate among Medicare fee-for-service beneficiaries averaging 17.5% in 2013 (HHS 2014). Unplanned rehospitalizations cost Medicare $26 billion annually, with an estimated $17 billion spent on potentially avoidable readmissions (Brennan 2014). High rates of unplanned readmissions suggest substandard quality of care that results in unnecessary expenses. For this reason, reducing unnecessary rehospitalizations among Medicare beneficiaries has become a high priority for both clinical quality and cost reasons.

The Patient Protection and Affordable Care Act instituted the Hospital Readmissions Reduction Program, which holds hospitals accountable for unnecessary rehospitalizations by imposing financial penalties on hospitals with greater than expected readmission rates. According to a Kaiser Health News analysis, the federal government's readmission penalties on hospitals will total more than half a billion dollars in payments in the 2017 fiscal year (Oct. 1, 2016–Sept. 30, 2017) (Rau 2016). The average penalty was 0.73% of each Medicare payment.

Despite uncertainty regarding the survival of some ACA programs, those aimed at reducing waste in the health care system are likely to remain. Thus, the change in Medicare's approach to preventable rehospitalizations has motivated payers and providers to seek new solutions for managing patients following discharge.

The lack of postacute transitional care and the inability of patients to receive help from their primary care physicians outside of traditional business hours impede the timely delivery of care to elderly patients. Recognition of this care gap has driven the development and implementation of transitional care models, such as Project RED (Jack 2009), the Transitional Care Model (Naylor 2004), and Care Transitions Intervention (Coleman 2006).

Evolution Health adapted and combined current transitional care best practices (Boutwell 2009a, Boutwell 2009b) and evidence-based care plans (Rutherford 2013, Feltner 2014, Ward 2014) to create a care program

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Acronyms and initialisms

HCO=Health Care Organization
HRRP=Hospital Readmissions Reduction Program
MCC=Medical command center
MIT=Mobile integrated team
TOC=Transition of care

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that seeks to provide appropriate care for high-risk elderly patients in their own homes.

TOC program

This TOC program builds upon the previously described mobile integrated health care practice (MIHP) strategy (Beck 2013, Castillo 2016), a model designed to serve a range of patients in an outpatient setting by providing 24/7 needs-based at-home care. For this TOC program, the model was refined to successfully deliver transitional care to elderly, high-risk patients.

Medical command center

The TOC program utilizes an interprofessional mobile integrated team (MIT), supported by a medical command center (MCC). The MCC is a comprehensive, integrated, 24/7 coordinating resource for managing the health of a designated patient population. The MCC serves as a communication hub that is equipped with clinical expertise and the ability to provide need-matched, timely resource allocation for both planned and unplanned care. The interprofessional team comprises nurses, clinical pharmacists, social workers, and nonclinical support staff. A physician medical director provides clinical oversight around the clock.

The MCC is supported by a clinical triage and care management platform with predictive capabilities to enhance the coordination of longitudinal patient care and postacute transitional care for high-risk individuals. A computer-assisted dispatch program optimizes resources for planned care (e.g., avoiding acute visits via follow-up care and medical treatment for elderly patients with congestive heart failure) and the rapid deployment of an MIT member directly to the home of patients requiring urgent, emergent, or unplanned care.

A telephone system with auto-mated call distribution facilitates the efficient routing of incoming calls and enhanced caller experience (i.e., ability to manage the patient's problem during the call rather than leaving a message for the physician).

Built upon established experience utilizing telemedicine and telehealth monitoring, the MCC is designed to communicate relevant patient information to community care team members, which include primary care providers, case managers, and home health agencies.

The MCC enables streamlined communication among the patient care team and uninterrupted, around-the-clock access to a physician-led, interprofessional MIT. In addition, the MCC triages and escalates unplanned, urgent, and emergent patient issues and manages patients safely in their homes.

Mobile integrated team

Supported by the MCC, the physician-led MIT consists of field-based nurses (licensed visiting nurses or registered nurses); emergency medical technicians or paramedics; licensed social workers; clinical pharmacists; and prescribing providers (physician, advanced practice nurse, or physician assistant). A medical director who is a physician oversees the team and works under the oversight of a physician medical director.

At any time, the team can be deployed to the patient's home when acute, urgent, or time-sensitive care is required, thereby preventing unnecessary and inappropriate emergency department visits or hospital admissions.

Protocol-driven escalation procedures guide the nonprescribing team's response to unplanned, urgent, and emergent medical situations, and may include in-person or virtual involvement of an physician, advanced practice nurse, or a physician assistant.

Application in an HCO setting

The health care organization (HCO)* is a network of five acute-care hospitals that provide care for patients throughout a large metropolitan area of more than 2 million people. The hospitals are accredited by the Joint Commission and offer a comprehensive range of health care services.

Once patients are enrolled in the 30-day TOC program, they receive a predischarge visit with an RN to introduce the care team, establish rapport with the patient, ascertain the presence of any unusual issues that may affect the postacute care transition, obtain consent for the program, and plan for the initial postdischarge contact. Utilizing a registered nurse with a high level of expertise at this stage differentiates this TOC program from other transitional care models. The predischarge visit is followed within 24 hours by an initial in-home visit by an advanced practice nurse or physician assistant. During this visit, the clinician:

- Assesses cultural and literacy levels
- Assesses patient activation level
- Obtains a medical history
- Evaluates home safety
- Reviews discharge instructions
- Obtains vital signs and height/weight/body mass index
- Performs physical examination and functional assessment
- Reconciles medications
- Manages acute issues and identifies potential care gaps
- Initiates the patient's care plan
- Provides patient education and health coaching for self-management, including a discussion of contingency plans for changes in status
- Provides a plan for upcoming calls or in-home visits and assists with scheduling primary care provider appointments

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* Name anonymized for this publication

- Provides MCC contact information and reinforces the importance of contacting the MCC with all health concerns.

Over the course of the 30-day program, participants receive additional in-home visits and weekly telephone calls as determined by their plan of care developed during the predischarge and initial in-home visits. During these visits and calls, the interprofessional team members review the patient's interim health status, reconcile medications, provide any necessary health coaching and patient education, discuss contingency plans for any change in health status, and plan for upcoming calls or scheduled in-home visits.

Evaluation method
Participants in this study were Medicare fee-for-service beneficiaries discharged from an HCO hospital between Dec. 1, 2014, and Oct. 31, 2016, with one of five ACA Hospital Readmissions Reduction Program (HRRP 5) diagnoses: hip or knee replacement (hip/knee), myocardial infarction (AMI), heart failure (CHF), pneumonia (PNA), and chronic obstructive pulmonary disease (COPD). Prospec-

tive participants were selected and referred by the HCO, and enrollment was voluntary. Patients discharged to group homes or long-term care facilities were excluded.

The primary outcome measure was the rate of readmission at 30 days after discharge from the index hospitalization. The HRRP 5 readmission rates were measured individually, and a core diagnoses aggregate readmission rate was calculated by combining the data from these five groups.

RESULTS
From Dec. 1, 2014, through Oct. 31, 2016, 684 Medicare fee-for-service patients with one of the HRRP 5 diagnoses were referred by the HCO and enrolled in Evolution Health's TOC program. Of these patients, 75 were rehospitalized within 30 days of hospital discharge (11.0%).

Pre-intervention and direct comparison data were not made available by the HCO. However, Medicare fee-for-service enrollment and claims data are available from the CMS Hospital Compare (CMS 2017). A review of 30-day unplanned readmission data for all patients discharged from any of the HCO's five hospitals with HRRP 5 from July 1, 2012, through June 30,

2015, revealed a collective rehospitalization rate of 18.3% (1,072 of 5,855).

The table below contains descriptive summary statistics of the total number of patients, the number of readmissions, and the readmission rates for TOC program patients and for the general population of Medicare fee-for-service patients discharged from the HCO hospitals with one of the five diagnoses. Although a direct comparison cannot be drawn, the 30-day readmission rates for the five diagnoses were lower for program participants than those for nonparticipants whether viewed collectively or individually.

DISCUSSION
The current emphasis on value-based health care and hospital accountability has heightened the health system's interest in promoting high-quality, safe, and cost-effective health care. Evolution Health developed and implemented its TOC program to address the quality of care and safety problems during postacute transitional care.

Early outcomes suggest the program may be an effective means for reducing 30-day readmission rates among Medicare fee-for-service pa-

TABLE

Comparison of total number of patients, number of readmissions, and readmission rates by ACA Hospital Readmissions Reduction Program core diagnoses for Evolution Health's TOC program patients (Dec. 1, 2014, through Oct. 31, 2016) vs. general Medicare patient population (July 1, 2012, through June 30, 2015)

Core diagnosis	TOC Program			General Medicare patient population		
	N	Readmits	%	N	Readmits	%
Hip/knee	241	10	4.1	899	44	4.9
Acute myocardial infarction	56	6	10.7	778	156	20.1
Congestive heart failure	178	29	16.3	1,380	338	24.5
Pneumonia	107	10	9.3	1,525	277	18.2
Chronic obstructive pulmonary disease	102	20	19.6	1,273	257	20.2
Total	684	75	11.0	5,855	1,072	18.3

tients discharged from the HCO with an ACA HRRP-reportable discharge diagnosis, particularly those with congestive heart failure (16.3% readmission rate vs. 24.5% for the general Medicare population) and pneumonia (9.3% readmission rate vs. 18.2% for the general Medicare population).

Here are some of the actions taken by the physician-led, interdisciplinary teams of this TOC program that may have contributed to lower readmission rates:

1) Laying groundwork for the hospital/home transition by sending a registered nurse into the hospital prior to discharge to develop the patient's care plan;

2) Reviewing medications for therapeutic duplications, drug-drug interactions, and other medication-related issues that could have had a negative impact on patient safety;

3) Getting a prescribing provider into the patient's home within 24 hours of discharge to evaluate home safety, initiate the care plan, and empower the patient by providing education and health coaching;

4) Providing around-the-clock support by triaging patients when they call the MCC for unplanned care, and then rapidly deploying the appropriate member of the care team to the patient's home; and

5) Coordinating care between the patient's primary care physician, spe-

Correspondence:

Brooke Roeper
Manager of Outcomes
and Epidemiology
Evolution Health
13737 Noel Road, Suite 120
Dallas, TX 75240
(214) 470-7333
brooke.roeper@evhc.net

cialists, home health agency, and case manager.

Limitations

Participants were selected from a general Medicare fee-for-service population and referred by the HCO. Patients discharged to long-term care or group homes were not included. Pre-intervention data for this population were not made available to Evolution Health, thus direct comparisons between matched cohorts were not possible. Conclusions were drawn by comparing the participant group with the general population of Medicare patients discharged from HCO facilities with one of the HRRP 5 diagnoses (i.e., the comparison group for a given time frame would include the subset of higher-risk patients who were excluded from participation in the program). Evolution Health is working with the HCO and other providers to obtain comparison data from matched cohorts for future analyses.

CONCLUSION

Early outcomes indicate that the Evolution Health TOC program may be effective in closing the post-acute transitional care gap, thereby reducing preventable readmissions and improving quality outcomes for a participant group of Medicare beneficiaries. Additional research is needed to determine the proportional contributions of each component of this TOC model and to better understand the relationship between reductions in readmission and actual cost savings. MC

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