Meeting the Needs of the Complex Older Adult Patient with Urinary Retention: A Case Study

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This article presents a case study of how a homebound older adult patient with urinary retention is managed by a patient-centered medical home/transitional care model. A description of how a root cause analysis can effectively improve outcomes is also provided.

Key Words: **Transitional care model, patient-centered medical home, urinary retention, re-hospitalization, complex care management, root cause analysis.**

Over one-third of Medicare beneficiaries have five or more chronic conditions (Centers for Medicare & Medicaid Services [CMS], 2012). This growing population of individuals in the United States (U.S.) age 65 years and older with multiple chronic conditions, such as hypertension, ischemic heart disease, arthritis, diabetes mellitus, heart failure, chronic kidney disease, depression, and COPD, require the continuous management and monitoring of symptoms, which often complicate their care. These patients are often high users of health services, including hospitalizations, home care, medical visits, and emergency department visits. In 2010, Medicare beneficiaries experienced an average re-hospitalization rate of 19% at 30 days post-hospital discharge. Nearly 70% of hospital readmissions were for patients with multiple chronic conditions (CMS, 2012).

In a recent Medicare Payment Advisory Commission (MedPAC) (2015) report to Congress, 30-day re-hospitalization rates for Medicare beneficiaries decreased to below 18% at the start of 2013. This was due in part to major changes in incentives. However, for Medicare beneficiaries with four or more chronic conditions 30-day re-hospitalization rates are twice as high (36% at 30 days post-hospital discharge) (Lochner, Goodman, Posner, & Parekh, 2013).

Finding new and innovative ways to provide care for older adults with multiple chronic conditions through both acute and more stable episodes of illness is essential to avoid poor management, which often has negative human and economic consequences (Institute for Healthcare Improvement [IHI], 2012; Lochner et al., 2013; MedPAC, 2015). Achieving the "Triple Aim" – improved patient experience, enhanced population health, and reduced healthcare costs – is necessary to meet the needs of older adults with multiple chronic conditions and their family caregivers (Berwick, Nolan, & Whittington, 2008; IHI, 2012). The patient-centered medical home (PCMH) and the transitional care model (TCM), two ap-

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proaches to improving care for older adults both over time (PCMH) and during acute episodes of illness (TCM), have shown promising results (Jackson et al., 2013; Naylor et al., 1994, 1999, 2004, 2014; Peikes, Zutshi, Genevro, Parchman, & Meyers, 2012).

This article provides a case study that demonstrates how an elderly urology patient with multiple chronic co-morbidities can be managed through an innovative care model that combines TCM and PCMH. This same case study also describe how a root cause analysis (RCA) can be an effective strategy to improve outcomes in a homebound older adult male with urinary retention.

Pertinent Clinical History And Symptoms

Personal Profile

Mr. Green (name changed) is an 85-year old white male. He is married and lives in a single-story home in a rural community. He is 5 foot 4 inches tall and weighs 125 pounds. His nutritional status is fair. He has two adult children who are married and live in the area. He considers himself in good physical and emotional condition.

Mr. Green has had several hospitalizations and rehabilitation facility stays over the last 12 months due to repeated falls. With each hospitalization, his physical and cognitive function declined, and depressive symptoms increased. At age 85, Mr. Green has eight chronic conditions that contribute to the falls. His most recent fall resulted in a fracture requiring hip replacement surgery.

Following hospitalization for surgery, Mr. Green chose to return to his home with his 70-year old wife and refused follow-up services. Thus, he did not benefit from a short rehabilitation facility stay or nursing and therapy services at home. Shortly after returning home, Mr. Green fell again, causing his wound to dehisce. He was re-hospitalized and required surgery to re-close the wound. Again, he declined all follow-up services and went home with his wife. Mrs. Green is Mr. Green's second wife, in reported "good health," but has a somewhat difficult relationship with Mr. Green's children by his first wife. Mrs. Green is Mr. Green's primary caregiver. He is very dependent on her for meals, shopping, driving, and other household chores.

The year prior to his hospitalizations, Mr. Green was completely independent in all activities of daily living. He maintained part-time employment as an antiques dealer that kept his mind sharp and his mood elevated. The decline in his physical, cognitive, and psychosocial function during the last year is of great concern to his primary care team (physician and clinical nurse specialist), with whom he has had a relationship for the last three decades. Without a clear understanding for his decline or the many other alternatives, his primary care team referred Mr. Green to a new collaborative intervention that combined the primary care team with a transitional care nurse (TCN).

Clinical Interactions

The goal of the primary care team referral was to help Mr. and Mrs. Green through the challenging process of transitioning from the hospital to home. The primary care team approached Mr. and Mrs. Green for participation in the program. They were hopeful that this new effort, which combined a PCMH and a TCM, would stem the downward trajectory that Mr. Green was experiencing in his health.

Patient-Centered Medical Home

In the U.S., the PCMH is a team-based model of care that focuses on improving the health status and experience of a patient through enhancing access to care and coordination of services (Jackson et al., 2013; Stange et al., 2010). This model uses an evidence-based disease management approach to follow patients longitudinally, focusing on risk factor modification interventions and education to improve outcomes in the primary care setting. Standards for the PCMH have been developed by the National Committee for Quality Assurance (NCQA) (www.ncqa.org), and accreditation of a PCMH is through the NCQA and the Accreditation Association for Ambulatory Health Care (AAAHC) (www.aaahc.org). Available data, primarily from quasi-experimental study designs, suggest that this practice model may improve selected practice and outcomes (Grumbach, Bodenheimer, & Grundy, 2009; Grumbach & Grundy, 2010; Jackson et al., 2013; Nielsen, Olayiwola, Grunday, & Grumbach, 2014; Reid et al., 2009).

The Transitional Care Model

The TCM is an evidence-based advanced practice nurse-led model of care that has been rigorously tested over the past 20 years by a team of researchers at the University of Pennsylvania School of Nursing (Naylor et al., 1994, 1999, 2014). The TCM incorporates nine core components (Hirschman, Shaid, McCauley, Pauly, & Naylor, 2015), including a TCN-led team approach, screening for high-risk candidates, patient and family caregiver engagement, symptom management, self-care management, collaboration with the whole team across settings, continuity of care, coordination of all care services, and promoting trusting relationships. The TCN works with the patient and their family caregiver to set achievable health goals, design and implement a streamlined plan of care, and provide a single point of contact to insure continuity of care across settings and between providers throughout episodes of acute illness (e.g., hospital to home).

Combining the PCMH And the TCM

With funding from the Gordon and Betty Moore Foundation, the Rita and Alex Hillman Foundation, and the Jonas Center for Nursing Excellence, a combined

PCMH+TCM intervention was developed (Hirschman, Shaid, Bixby et al., 2015). To develop this combined collaborative intervention, the TCM needed to be adapted to the PCMH environment. This adaptation of the TCM to a community-based setting resulted in extension of the PCMH beyond the office setting but retained key features of the TCM, such as home visits, enhanced telephonic follow up, and visits to other healthcare settings (e.g., hospitals, inpatient rehabilitation facilities, skilled nursing facilities). At the heart of this combined intervention is the comanagement of each patient by the TCN and the primary care team. Details on the lessons learned from the development of the PCMH+TCM model have been reported elsewhere (Hirschman, Shaid, Bixby et al., 2015). The case described in this article is an example of the implementation of this collaborative partnership between primary and transitional care clinicians using the PCMH+TCM. The TCN featured in this article has a strong background as a urology advanced practice nurse.

PCMH+TCM Interactions

After Mr. Green agreed to participate in the program, the TCN met with the primary care team at their office to review Mr. Green's health history and understand his concerns and immediate needs. The high-risk criteria that supported Mr. Green's referral to receive this collaborative, comanaged intervention included his being over 85 years of age, presence of depressive symptoms, impaired cognition, having eight chronic conditions (hypertension, mild cognitive disorder, depressive disorder, urinary retention, seborrheic dermatitis, unsteady gait, history of falls, constipation), functional deficits as previously identified, and two hospitalizations and five emergency department visits in the past 10 months that were all related to falls.

The TCN met with Mr. and Mrs. Green in their home to conduct a standardized comprehensive assessment and begin the goal-setting and care-planning process. At this initial visit, Mr. Green exhibited no sign of cognitive impairment using the Six-Item Screener (score: 6 out of 6) (Callahan, Unverzagt, Hui, Perkins, & Hendrie, 2002) and the Clock Drawing Executive Test (CLOX) assessment (an executive function clock drawing task) (Shulman, Gold, Cohen, & Zucchero, 1993). He was independent in basic activities of daily living (Katz score: 6 out of 6) (Katz, 1983; Katz, Down, Cash, & Grotz, 1970), including performing clean intermittent catheterization twice daily for urinary retention resulting from an atonic bladder diagnosed 12 years prior. Mr. Green was almost completely dependent on his wife for his instrumental activities of daily living (Lawton score: 1 out of 8) (Lawton & Brody, 1969). His mood was good, and he rated his health and quality of life as "excellent."

Patient Strategies and Goals

Mr. Green and his wife agreed that his primary goal was to return to working part-time, which he has been unable to do for approximately 12 months. In order to return to work, it was important for him and his wife to understand the necessary steps identified by the primary care team and TCN to help achieve the patient-centered goal. These steps included improving nutritional intake, performance in instrumental activities of daily living, reducing risk for falls, maintaining appropriate bladder and bowel function, understanding the medication regimen, and incorporating assistance to avoid caregiver fatigue. The entire team, including the patient, his wife, the TCN, and the primary care team, collaboratively agreed on the plan. A total of 12 in-person visits and five telephone calls occurred over eight weeks, with most visits occurring at the patient's home with the TCN, Mr. Green, and his wife. The TCN accompanied Mr. Green and his wife to a visit with the primary care team. In addition, the TCN maintained regular contact with the primary care team to discuss Mr. Green's progress and care plan.

Mr. Green was fully engaged in implementing the plan of care essential to achieve his goal. His strong motivation to return to work and his positive health status prior to the recent falls were supportive facilitators towards goal achievement. There were also barriers to goal achievement.

The first barrier was Mr. Green's reluctance to use his walker and other aids; he reported, "They make me feel frail." Another barrier was his dependence on his wife that hindered his recovery and increased the burden experienced by his primary caregiver. An example is one specific goal related to improving functional status. To achieve this goal, Mr. Green was encouraged to do as much for himself as possible and to use his walker as suggested.

The nature of their marital relationship was such that Mrs. Green was accustomed to taking care of any of Mr. Green's needs. It was easier for Mrs. Green to get her husband a tissue then for Mr. Green to get it himself. The TCN and primary care team adapted the goal facilitators and barriers to identify and deliver the best possible interventions to help Mr. and Mrs. Green meet their specified aims. In this example, it was explained that to help Mr. Green progress toward his goal of increased function, he needed to take advantage of opportunities to have increased physical activity. The energy he used to get a tissue could help him to achieve this goal. Details of the goals and the strategies identified to meet these goals and outcomes experienced by Mr. Green are provided in Table 1.

Post-PCMH+TCM Patient Outcomes

Six weeks following the start of the PCMH+TCM intervention, Mrs. Green called the TCN to report that Mr. Green experienced syncope. The TCN visited the home the same day and assessed

Table 1.
Mr. Green's Plan of Care: Goals, Strategies, and Outcomes

Goals	Strategies	Outcomes
Improve nutritional status	Regular meals, snacks, and regular weight monitoring.	Achieved goal weight. Weight sustained through diet.
Improve functional status	Outpatient physical therapy.	Refused physical therapy.
	Home exercise program, including regular walks.	Participated in home exercise program and took on more independence.
	Continued use of walker.	Occasionally used walker but was resistant.
	Encouraged increased independence.	Returned to work part-time.
Reduce risk for falls	Environmental assessment with modifications to increase safety.	Environment cleared of fall hazards.
	Education on positional changes to reduce fall risk.	Good understanding by patient and caregiver of fall risk reduction activities assessed through teach back (White, Garbez, Carroll, Brinker, & Howie-Esquivel, 2013).
Maintain appropriate bowel and bladder function	Dietary aids for bowel regularity. Behavioral approaches to avoid constipation reviewed including diet and activity.	Bowel regularity was achieved through diet, activity and use of over-the-counter stool softener.
	Clean technique for clean intermittent self-catheterization (CIC) reviewed.	Good CIC technique assessed through teach-back.
	Education regarding early signs of urinary tract infection (UTI).	Further info on UTI can be found in root-cause analysis section.
Develop a living will	Provide and review "Five Wishes" document.	Patient and family caregiver declined completing at time of intervention.
	Encourage completion.	
Understand medication regimen	Medication reconciliation and review. Personal medication listing provided and reviewed.	Teach-back showed good understanding by patient and family caregiver.
Incorporate appropriate assistance to support caregiver	Identification of available professional and lay community assistance.	Caregiver hired a nurse assistant to assist patient twice weekly. Other identified assistance was declined by patient and caregiver.

Mr. Green. At the time of the visit, his symptoms had dissipated, and no other findings were identified. A urine specimen was collected and taken to the primary care team's office where it dipped positive for leukocytes, nitrites, and blood. The urine was sent for culture. The prescription for an antibiotic was held until the culture results were returned. Three days later, Mr. Green was prescribed an antibiotic based on the culture, which caused an allergic reaction requiring hospital admission. He was discharged after three days to his home. This abbreviated hospital stay was in stark contrast to his extended hospital stays in the prior 10 months of eight days, eight days, and six days.

Three months after this incident, Mr. Green experienced a syncopal episode while getting out of the bathtub. He was taken to the emergency department, but he was sent home following this visit with no additional findings and no change in his medications. His white blood cells were elevated, but no urinalysis was performed. The TCN and primary care team suspected a urinary tract infection (UTI) based on the similarities between his current symptoms and those from the prior infection, and started Mr. Green on an antibiotic that he tolerated well with no further incidents.

Implementation of Root Cause Analyses

During a clinician PCMH+ TCM meeting, the TCN and the primary care team reviewed the incidents surrounding the repeat hospitalizations for Mr. Green and identified the presence of UTIs with syncope as the only presenting symptom. The team used an RCA to identify the underlying reason for the UTIs. An RCA is a method used to evaluate both positive and unanticipated events experienced with the deployment of the TCM. An RCA is a quality improvement tool used by many different industries to effectively evaluate and address a standard scope of variables that may contribute to an unanticipated event to generate potential opportunities for improvement (Agency for Healthcare Research and Quality [AHRQ], 2014; Bagian et al., 2002; Percarpio & Watts, 2013; Woloshynowych, Rogers, Taylor-Adams, & Vincent, 2005; Wu, Lipshutz, & Pronovost, 2008). The RCA technique is designed to determine the origin of a specific problem by thoroughly evaluating the outcome. An RCA occurs in a group environment and provides a structured framework for determining underlying problems that require correction.

Typically, an RCA occurs as a team meeting where shared responsibility and respect for each individual role is emphasized. RCA is not meant to be punitive, but rather, to generate constructive ideas and corrective actions to prevent recurrence of the underlying problem. An RCA was used throughout the testing of the PCMH+TCM collaborative intervention on specific cases across the collaborative clinical teams.

Root Cause Analysis Results and Clinical Recommendations

Following a review of potential contributing factors, the TCN and primary care team thought it likely that the patient was suffering recurrent infections that resulted in falls due to syncope. The type of supplies used, catheterization procedure, medications, and environment were all found to be unchanged throughout the time period evaluated. It was necessary for Mr. Green to continue clean intermittent catheterization due to his inability to effectively empty his bladder with normal voiding. Therefore, the following plan was developed by the collaborative team to provide early detection and intervention for these recurrent infections:

- Clean intermittent catheterization technique was reinforced with the patient and his caregiver. Techniques to maintain a healthy fluid intake and regular bowel function were emphasized.
- The patient and caregiver were instructed to report symptoms of UTIs and the different way this presented with Mr. Green.
- Sterile specimen containers were provided to Mr. and Mrs. Green to keep at home. They were instructed to collect a specimen whenever Mr. Green was not feeling right and take the specimen to the primary care office immediately.
- The specimen was dipped immediately upon receipt at the office, and if signs of a UTI were present, the patient was instructed to begin antibiotics while waiting for the results of his urine culture. This was a change to the regular office practice that would typically wait until receipt of the culture results before prescribing an antibiotic.
- Changes in the antibiotic prescription would occur as necessary, depending on the result of the urine culture.

Results of Clinical Interaction

At the 12-month assessment following enrollment into the PCMH+TCM program, the patient had no further hospitalizations or emergency department visits, and he had returned to his part-time work. The RCA was beneficial in identifying specific factors (urinary retention and recurrent infections) for Mr. Green's syncope and resultant falls. By implementing a urologic program to prevent Mr. Green from suffering from recurrent UTIs and to identify an infection promptly, he improved his quality of life.

Clinical Implications

This case illustrates the delivery of the TCM in collaboration with the PCMH and the use of an RCA to identify and modify risks for this complex population. Older adults with multiple chronic conditions who live in the community face daily challenges in managing their care at home. Even with the support of a family caregiver, seemingly minor changes in health, such as the emergence of a UTI, can have deleterious effects, as shown with Mr. Green's repeated hospitalizations, surgeries, reduced function, and loss of independence.

When the underlying cause of the poor outcome remains undetected, Mr. Green may continue a downward trajectory. In addition, the lack of continuity in care for this patient across multiple settings (hospital, rehabilitation facility, home with and without home care services) and by multiple providers in each of these settings resulted in fractured care and a poor patient experience, as shown by his refusal of continued services with his last hospital admission prior to the PCMH+TCM service.

The ability of the TCN working collaboratively with the patient, family caregiver, and primary care team in the home, office, post-acute and hospital settings resulted in continuity of care, appropriate coordination of services, and improved patient and family caregiver satisfaction with their care experience. The in-home nature of the TCM intervention and collaborative relationship of the TCN with the PCMH provided an opportunity for a thorough root-cause review, resulting in improved outcomes for the patient and more effective,

patient-centered care processes for the PCMH.

Additional research into this type of collaborative practice is necessary to further our understanding of the PCMH+TCM intervention impact and expand availability of this co-management practice, particularly as medical specialty practices seek accreditation as a PCMH. This research should include understanding the training and preparation necessary to develop a workforce that can deliver quality, high-level, team-based primary and transitional care across multiple settings. In addition, research should involve determining a payment model that encourages a PCMH to engage in a collaborative relationship with a TCN.

Recognition of transitional care as providing a necessary link in the healthcare chain of services is vital for patients with multiple complex chronic needs, and a TCN can provide the connection often missing for many older adults in the community as they move between changing levels of care, varying providers, and different settings and services. This innovative model of care provides another setting for advanced practice nurses to engage their skills.

Conclusion

The adaptation of both the PCMH and the TCM to test this combined evidence-based approach to co-managing older adults at high risk for poor outcomes living in the community allows for the expansion of both the PCMH and TCM into the community. When this intervention is delivered appropriately, patients and their family caregivers are provided the education, continued surveillance, and support needed to manage needs at home and achieve their health goals, while increasing the value of and decreasing the costs of healthcare services. In addition, use of a TCN to provide ongoing support throughout the entire episode of acute illness is an effective means to improve communication and prevent breakdowns in care that frequently occurs across settings. This collaborative model of care provides a level of access to information that can result in more effective and efficient care for this vulnerable, community-based population.

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