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Improving Patient Activation among Older Veterans: Results from a Social Worker-Led Care Transitions Intervention

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ABSTRACT

Older veterans enrolled in the Veterans Health Administration (VHA) often use both VHA and non-VHA providers for their care. This dual use, especially around an inpatient visit, can lead to fragmented care during the time of transition post-discharge. Interventions that target patient activation may be valuable ways to help veterans manage complex medication regimens and care plans from multiple providers. The Care Transitions Intervention (CTI) is an evidence-based model that helps older adults gain confidence and skills to achieve their health goals post-discharge. Our study examined the impact of CTI upon patient activation for veterans discharged from non-VHA hospitals. In total, 158 interventions were conducted for 87 veterans. From baseline to follow-up there was a significant 1.7-point increase in patient activation scores, from 5.4 to 7.1. This association was only found among those who completed the intervention. The most common barriers to completion were difficulty reaching the veteran by phone, patient declining the intervention, and rehospitalization during the 30 days post-discharge. Care transitions guided by social workers may be a promising way to improve patient activation. However, future research and practice should address barriers to completion and examine the impact of increased patient activation on health outcomes.

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Intervention research; care coordination; military veterans; person-centered care

Older veterans enrolled in primary care at the Veterans Health Administration (VHA) increasingly use non-VHA hospitals for acute care. Dual system usage with age is attributed to a veteran population that has more access to Medicare (Augustine et al., 2021; Hebert et al., 2018; Humensky et al., 2012; Nayar et al., 2013; Petersen et al., 2010; West et al., 2015; Wolinsky et al., 2007). Older

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veterans enrolled in Medicare often visit providers outside of the VHA network if they are taken to the nearest private hospital in an emergency, referred for sub-acute care in the community, or need services not provided by the VA (Augustine et al., 2021).

Furthermore, expanding access to care for veterans is a top priority for VHA, and the 2018 VA MISSION Act has provided veterans with unprecedented ability to utilize their VA benefit to receive care from non-VHA providers (VA MISSION Act of 2018, H.R. 5674 115th Cong, 2018). Increased access to providers has advantages, including less travel burden to and from appointments, decreased wait time, and improved access to specialty care (Liu et al., 2009; Petersen et al., 2010).

Although there are positive aspects to increased access, when veterans use both VHA and non-VHA providers for their care, there is potential for a gap in care coordination due to the lack of communication between healthcare systems (Axon et al., 2016; Hebert et al., 2018; L.B. Miller et al., 2019; Liu et al., 2009; Parry & Coleman, 2010; Rinne et al., 2017; West et al., 2015; Wolinsky et al., 2006). This is particularly true after acute care hospitalizations where lack of care coordination post-discharge is associated with fragmented care, poor health outcomes, increased rates of rehospitalization, and patient dissatisfaction (Axon et al., 2016; Brock et al., 2013; Burke et al., 2018; Coleman, 2003; Coleman et al., 2006, 2004; Manderson et al., 2012; Parry et al., 2009; West et al., 2015).

Patient activation and self-management during care transitions

As older veterans are vulnerable to negative outcomes associated with fragmented care, there is a need to empower them with skills to help improve their self-management of care post-discharge. Self-management of care encompasses actions taken by the individual to manage their own care. Research indicates this approach can be effective in helping patients living with chronic illness improve their quality of life and health (Grady & Gough, 2014; Miller et al., 2020; Schulman-Green et al., 2012; Shively et al., 2013).

When veterans use both VHA and non-VHA systems for their care, providers often rely on the veteran to engage in self-management post-discharge and actively share their updated medical information during follow up visits (Dixon et al., 2015; Nayar et al., 2013; Parry et al., 2006). Veterans with patient activation have the knowledge, skills and confidence to provide relevant medical information, and be actively involved in their care (Hibbard & Greene, 2013). Evidence supports the idea that higher levels of patient activation may improve care outcomes (Greene & Hibbard, 2012; Greene et al., 2015; Hibbard et al., 2007; McCabe et al., 2018; Shively et al., 2013).

One intervention that aims to improve patient activation among older adults is the Care Transitions Intervention (CTI), which emphasizes setting

health goals and self-management of care (Coleman et al., 2004). CTI includes many of the components found in self-management models, including goal setting, coaching, education, and patient self-monitoring (Coleman, 2003; J.J. Miller et al., 2020). Studies indicate those who receive CTI may benefit from reduced rates of readmission to the hospital (Coleman et al., 2006; Parry et al., 2009; Voss et al., 2011; Wee et al., 2014). While CTI has proven effective in helping patients in private or VHA hospitals improve their self-management of care post-discharge, less is known about how the intervention may impact older veterans who use both VHA and non-VHA providers for their care.

VHA social workers and patient activation

The VHA is the largest integrated healthcare system in the United States and is also one of the largest employers of social workers. Social workers are strategically placed in VHA primary care teams across the nation to help older veterans. Older adults living with chronic illness face many stressors and challenges. Building a support network, accessing community resources, and developing strong coping skills are all factors that help foster self-management of care (Grady & Gough, 2014; Schulman-Green et al., 2012). Social workers have specialized training and skills in assessing family and social supports while connecting clients to resources (Hepworth et al., 2006). Therefore, social workers may be uniquely qualified to provide interventions aimed at improving self-management.

Older adults who lack patient activation or who struggle with self-management are often negatively labeled as "non-compliant" when in fact, they may suffer from underlying emotions such as frustration with the medical system, doubts regarding their ability to change, distrust of providers or disappointment with their health status. Thus, negative emotions often lie beneath the surface behaviors, and it is important to help older adults explore the feelings that hinder self-management of care (Schulman-Green et al., 2012). Helping older adults explore their feelings with empathic responding is a foremost skill practiced by social workers (Hepworth et al., 2006). As such, our study utilized social workers to lead the CTI implementation because of their skill set and because of their prominent role within the VHA (Beder & Postiglione, 2013).

Current study

Our study examined whether social worker-led CTI could be effective in helping to empower veterans by improving their levels of patient activation as they navigate dual healthcare systems. Specifically, we hypothesized that

patients would become more active and engaged in their care after social workers provided the CTI.

Materials and methods

Setting

The James J. Peters VA Medical Center, located in the Bronx, NY, is an urban, academic 311-bed tertiary care teaching hospital. The Richard L. Roudebush VA, located in Indianapolis, IN, is an urban, academic 135-bed tertiary care facility that serves as a home base for a system of inpatient and outpatient care across central Indiana. Both sites received approval from their local IRBs as a clinical trial (Trial Registration No. NCT 02689076). The complete study protocol is available (Dixon et al., 2019).

Participants

Eligible participants were veterans ages 65 and older enrolled in primary care at the Bronx or Indianapolis VA who also had received healthcare services at a non-VHA facility within the past two years. The research study took place from March 2016 – January 2020 as this was the timeframe of enrollment and follow up for participants in the parent clinical trial. Enrolled veterans were eligible to receive the intervention more than once during the four-year period. Veterans receiving hospice care, residing in a long-term care facility, or receiving care-coordination services that overlapped substantially with the CTI (e.g., home based primary care) were excluded from the study.

Study design

Health Information Exchange (HIE)

HIE networks were designed to help reduce fragmentation of care and improve care coordination by enabling providers from different healthcare systems to view data from other organizations in a single electronic health record. This unified patient record is accomplished using technical standards and may include important information such as recent encounters, medications, lab results, and imaging (Dixon, 2016; Dixon et al., 2019).

Many communities are increasingly using HIE networks to manage and share information about patients across healthcare systems, integrating data between electronic health record systems (Furukawa et al., 2013; Rahurkar et al., 2021). Our study utilized one feature of HIE called event notification, which notifies providers when patients have acute care events (Dixon et al., 2019). Upon enrollment in the research study, a study social worker at each

site registered with the local HIE network (Dixon, 2016) to receive alerts whenever a participating veteran had an acute care encounter (hospital admission or emergency department visit) at a non-VHA facility. After receiving the alert through the HIE network, the social workers initiated the CTI with the veteran.

Care Transitions Intervention (CTI)

We selected this evidence-based model because its focus is on patient activation and it can be provided by social workers. CTI was created by Dr. Eric Coleman, who saw the negative impact of fragmented care on older adults and sought a way to help empower patients during care transitions. CTI builds patient skills within "Four Pillars" needed for effective care transitions: medication management, maintenance of a personal health record, knowledge of red flags, and medical follow up (Coleman et al., 2004). The intervention is delivered by a certified "Transitions Coach" who generally provides a pre-discharge hospital visit, a post-discharge home visit, and three follow up phone calls within 30 days post-discharge. The coach emphasizes patient empowerment and teaches self-management skills.

The initial home visit, ideally completed 2–3 days post-discharge, is a foundation of CTI. If a home visit cannot be completed, then the initial visit may be done by phone or at a neutral location such as a coach's office. During the visit the patient builds skills in medication management by creating an accurate medication list to share with providers. The CTI coach also may review the discharge summary with the patient, identify important red flags and discuss how the patient responds to such warning signs. To support medical follow up, a coach may ask the patient to write down their important providers and upcoming appointments, identify questions for their providers, or encourage the patient to schedule needed appointments.

After the home visit the coach will generally make three follow up phone calls within 30 days, often timed around important events such as follow up visits. The purpose of the follow up is to provide positive reinforcement and continue to build patient skills and patient activation in areas that emerged as important during the home visit.

CTI coach training

The CTI coach at each site was a Licensed Clinical Social Worker (LCSW) experienced in geriatrics care. Both LCSWs attended a one-day training led by the CTI training team, where they learned the fundamental principles of CTI and were certified to provide the intervention. The one-day intensive training included education on the model and how to shift the focus away from doing tasks for patients and onto empowering patients to

Table 1. Patient activation scoring criteria.

Medication Management	Personal Health Record	Red Flags	Medical Follow Up	Final Score
(If yes, circle 1; if no circle 0) -The patient has a medication management system: 0/1 -The patient understands what conditions the medications are prescribed to treat: 0/1 -The patient maintains an accurate medication list: 0/1 -The patient shares their medication list with providers during follow up visits: 0/1	(if yes, circle 1; if no circle 0) -The patient maintains a personal health record of important medical information: 0/1 -The patient shares their personal health record with providers during follow up visits: 0/1	(If yes, circle 1; if no circle 0) -The patient monitors for signs of worsening condition: 0/1 -The patient responds appropriately to signs of worsening condition by alerting providers: 0/1	(If yes, circle 1; if no circle 0) -The patient schedules follow up visits with their provider post discharge: 0/1 -The patient attends follow up visits as scheduled: 0/1	
Activation Score: /4	Activation Score: /2	Activation Score: /2	Activation Score: /2	Total Activation Score: /10

Notes: Based upon the CTI Patient Activation Assessment tool, which is the intellectual property of Care Coordination Systems LLC.

take charge of their own care. It included didactic, case discussions, and role plays. Social workers were trained to assess for patient activation through case examples and practice assessments using the standard CTI Patient Activation Assessment tool.

Measures

Our primary outcome measure was patient activation. Patient activation was measured on a scale from 0 (low patient activation) to 10 (high patient activation) before and after the intervention using CTI's Patient Activation Assessment tool. Table 1 shows the questions social workers asked when assessing indicators of patient activation. The indicators of increased patient activation social workers looked for were tangible self-management behaviors in the areas of medication management, personal health records, red flags, and medical follow up. Social workers performed assessments during their initial visit before providing any CTI coaching, and then conducted the assessment again after their final call with the veteran.

In addition to measuring patient activation, social workers used a structured form created by the research study team to rate completeness of the intervention based on whether the home visit and follow up phone calls were completed. Social workers also identified perceived barriers to completion and hindrances to the intervention's impact and recorded these on assessment

forms. Throughout the study, the social workers met bi-weekly by phone to present cases and receive peer supervision. Social workers also participated in the CTI monthly group calls for certified coaches to maintain consistency across both sites and fidelity to the model.

Data analysis

For descriptive analyses, patient and intervention characteristics were calculated using frequencies for categorical variables. Means and standard deviations were used for continuous variables. Change in patient activation score was computed and t-tests (or Wilcoxon tests if skewed) were conducted to determine if changes were statistically significant. Change in patient activation was compared across level of completeness of the intervention (complete vs. not complete, and by site (Bronx vs. Indianapolis) using ANOVA. We collapsed completeness of the intervention to create a binary indicator, with a value of 1 if the intervention was rated complete and a value of 2 if the intervention was rated partially complete or incomplete. The intervention was considered complete if the initial visit and at least two of the three follow-up visits were conducted. Statistical significance was defined as p-value of less than 0.05. SAS version 9.4 (SAS Institute) was used for all statistical analyses.

Results

In total, 158 interventions were attempted for 87 unique Veterans: 40 in the Bronx and 47 in Indianapolis Table 2. Most (73.6%) participants identified as

Table 2. Baseline characteristics of intervention cohort (n = 87).

Characteristic	No. (%) or Mean ±SD
Male gender	86 (98.9)
Age, year	77.8 ± 8.4
Race/ethnicity*	
White/Caucasian	64 (73.6)
Black/African American	10 (11.5)
Hispanic	10 (11.5)
Asian	1 (1.2)
Multiracial	2 (2.3)
Insurance type	
Medicare	73 (84.0)
Medicaid	9 (10.5)
Private	56 (65.1)
Any service connectedness (medical condition disability related to military service), (yes)	47 (54.0)
Enrollment site	
Bronx	40 (46.0)
Indianapolis	47 (54.0)

Notes: White/Caucasian, Black/African American, and Asian racial categories are non-Hispanic.

Table 3. Patient activation scores stratified by completeness of the intervention and enrollment site.

	Patient activation summary score measures			
	At baseline	At follow-up	Difference between follow-up and baseline	
	Mean ±SD	Mean ±SD	Mean ±SD	p-value±
Total	5.4 ± 2.2	7.1 ± 2.4	1.7 ± 2.1	<.001
By completeness of intervention				
Complete	5.6 ± 2.0	7.7 ± 1.8	2.0 ± 1.8	<.001
Not complete	4.7 ± 2.5	4.8 ± 3.2	0.2 ± 2.4	.657
By enrollment site				
Bronx	5.9 ± 2.1	8.3 ± 1.4	2.3 ± 1.8	<.001
Indianapolis	4.7 ± 2.2	5.6 ± 2.5	0.8 ± 2.1	.007

Note: At baseline n = 126; At follow-up n = 117; Difference between follow-up and baseline n = 117. ± *P*-value for difference-in-differences in patient activation summary change score: Complete vs. Not complete = < .001; Bronx vs. Indianapolis = < .001.

Caucasian, with 11.5% identifying as African American and 11.5% as Hispanic. Two-fifths (36.8%) reported an annual income of less than 25,000 USD per year. The majority (84%) of veterans had Medicare coverage. Just over half (54%) of veterans were recipients of VA service-connection disability compensation, which means they had disabilities from illness or injury that was incurred or aggravated during active military service.

From baseline to follow-up there was a statistically significant 1.7-point increase in patient activation scores (5.4 to 7.1; $p < .001$) Table 3. Intervention completeness was associated with improvement in patient activation. Of note, only veterans whose interventions were rated as complete demonstrated significant improvement. Although veterans at both sites improved in patient activation, those at the Bronx had a greater change. Patients discharged from an emergency department (ED) had a smaller change in pre/post activation scores as compared with those discharged from a hospital. However, the difference between discharge location and activation score was not statistically significant ($p = .056$).

Barriers to completion and impact

The average duration of the CTI was 18.4 days and 60% of interventions were rated as complete, while another 15.2% were rated as partially complete Table 4. Thirty-eight patients received some part of the intervention two or more times during the four-year study. Half (49.4%) of veterans received the intervention after an ED visit. This was more prevalent in Indianapolis with 57.8% of veterans being discharged from a non-VA ED without admission to the hospital. Slightly more than half (56.4%) of veterans received a home visit. There was not a statistically significant association between discharge location (ED or inpatient unit) and intervention completeness ($p = .155$). As reported by the social workers, the top barriers to completion were difficulty reaching

Table 4. Characteristics of Care Transitions Interventions Stratified by Enrollment Site.

Characteristic	Bronx (n = 75) No. (%) or Mean ±SD	Indianapolis (n = 83) No. (%) or Mean ±SD	Total (n = 158) No. (%) or Mean ±SD
Location prior to intervention			
Emergency department	30 (40.0)	48 (57.8)	78 (49.4)
Hospital admission	36 (48.0)	26 (31.3)	62 (39.2)
Rehabilitation care facility	9 (12.0)	9 (10.8)	18 (11.4)
Contacts			
Number of home visits			
0	16 (21.3)	53 (63.9)	69 (43.8)
1	54 (72.0)	30 (36.1)	84 (53.2)
2	5 (6.7)	–	5 (3.2)
Telephone visits	2.9 ± 1.6	2.2 ± 1.5	2.5 ± 1.6
Completeness of intervention			
Complete, < 25% missing	55 (73.3)	40 (48.2)	95 (60.1)
Partial, 25–50% missing	14 (18.7)	10 (12.1)	24 (15.2)
Incomplete, 50–100% missing	6 (8.0)	33 (39.8)	39 (24.7)
Intervention not delivered	2 (2.7)	22 (26.5)	24 (15.2)
Barriers to completing intervention[±]			
Difficulty reaching	12 (16.0)	35 (42.2)	47 (29.8)
Patient refused	7 (9.3)	13 (15.7)	20 (12.7)
Hospital readmission [‡]	6 (8.0)	9 (10.8)	15 (9.5)
Patient moved	3 (4.0)	2 (2.4)	5 (3.2)
No show	1 (1.3)	3 (3.6)	4 (2.5)
Scheduling conflict	–	1 (1.2)	1 (0.6)
Other	6 (8.0)	14 (16.9)	20 (12.7)
Barriers to intervention impact[±]			
Patient/caregiver already highly activated	34 (45.3)	21 (25.3)	55 (34.8)
Physical impairment	23 (30.7)	–	23 (14.6)
Cognitive impairment	21 (28.0)	6 (7.2)	27 (17.1)
Hearing/vision impairment	13 (17.3)	6 (7.2)	19 (12.0)
Presence of caregiver	2 (2.7)	5 (6.0)	7 (4.4)
Emotional or mental health problem	3 (4.0)	3 (3.6)	6 (3.8)
Language/communication	5 (6.7)	–	5 (3.2)
Absence of caregiver	3 (4.0)	1 (1.2)	4 (2.5)

Note: [±]Percentages may add up to more than 100 because there could have been more than 1 intervention barrier for a single episode. [‡]Of these 15 hospital readmissions, 6 (40%) were very early which means the hospitalization occurred within 7 days of arrival home.

the veteran (29.8%), patient refusal (12.7%), and patients' readmission to the hospital (9.5%). The top hindrances to CTI impact were that veterans were already highly activated (34.8%), or had physical impairments (14.6%), cognitive impairments (17.1%), or hearing/vision impairments (12.0%).

Discussion

Our study found that among veterans discharged from a non-VHA hospital or ED, social worker-led CTI resulted in a significant increase in patient activation scores over the course of the 30-day intervention. Veterans in the Bronx had a higher difference in patient activation scores post intervention, yet it is unclear why that occurred. The difference between the two sites may have resulted from inter-rater variability or the increased frequency of patients

coming from the ED in Indianapolis as opposed to inpatient hospitalization in the Bronx.

Completion of the full intervention was a key to increased activation. The average duration of intervention, completion rate and home visits were lower in Indianapolis. We believe this may have occurred because more veterans were coming from the ED and were more likely to decline the 30-day intervention. Although interventions were rated as incomplete more frequently among patients discharged from the ED for both sites, the difference was not significant. This finding suggests a need to address barriers to completing the full intervention, namely connecting with hard to reach veterans, and improving veterans' willingness to engage in the intervention. This is important for future studies, as care should be taken to consider potential barriers that may preclude older adults from completing such interventions (Naylor et al., 2013).

Social workers also found that health conditions prominent in older veterans, such as hearing/vision loss and cognitive impairments, hindered effectiveness of the intervention (Greysen et al., 2014). This suggests that care transition interventions for older adults must accommodate physical limitations as well as hearing/vision impairments in order to maximize impact (Dossa et al., 2012). As older adults with physical or cognitive impairments often rely on paid and unpaid caregivers involved in their care (Reinhard, 2019), future research may also explore the role of caregivers, both paid and unpaid, in supporting patient activation and self-management, and how this impacts outcomes for older veterans.

Importantly, social workers also found that many veterans already had high levels of patient activation prior to the CTI. This may reflect an improvement in care transitions as many hospitals, including the VHA, have implemented programs to educate patients on medications, red flags and follow up care prior to discharge (Parrish et al., 2009; Wee et al., 2014). This finding may also indicate possible sampling bias because participants were recruited during their primary care appointment visits. Thus, they may have had patient activation prior to the CTI because they already demonstrated activation in attending primary care appointments and they potentially received education in areas such as medication management and red flags from their primary care team during those visits.

Veterans' levels of patient activation, and the impact of this activation on health outcomes, may be important aspects to explore in future research. Comparing veterans' levels of patient activation to other geriatric populations may also be of value (Overbeek et al., 2018). Future research, including the full results of our clinical trial, should examine the connection between patient activation and key patient outcomes such as reduced readmission rates, increased follow up with primary care providers post-discharge, and improved patient satisfaction.

Although social workers within the VHA often provide practical assistance to older veterans as part of the helping relationship (Cornell et al., 2020), patient empowerment is also an important aspect of social work practice. The

positive results in our study confirm the value of having social workers lead interventions that empower patients to improve their self-management of care. As the VHA and other health systems continue to place social workers in primary care teams, future research may examine the unique contributions of social workers in improving self-management and patient activation for older adults.

Study limitations

There were limitations in our study. First, care transitions interventions are shown to have a maximum benefit when there is both a pre-discharge and post-discharge component (Leppin et al., 2014; Manderson et al., 2012). Our study focused on delivering the post-discharge components in which social workers conducted their initial outreach after patients had been discharged from the hospital. Second, our sample size is small and although two VHA sites were involved, our results may not carry across the diverse sites within the VHA system.

Finally, our patient activation scores were determined individually by each social worker which may have introduced potential bias in the scoring. Care was taken to maintain inter-rater reliability through frequent discussions between the study social workers to ensure they were using standard criteria. In addition, study social workers did not view initial patient activation scores when they conducted their follow up score.

Conclusions

We found that social worker-led care transitions for veterans discharged from non-VHA facilities resulted in significant increases in patient activation levels. However, we encountered multiple barriers to completing the intervention with some veterans. Therefore, while care transitions interventions may increase activation levels, further research is necessary to address the barriers and demonstrate impact on health outcomes. Research should include independent, objective scoring of patient activation levels before and after the intervention to assess whether activation levels can be improved among veterans, many of whom use both VHA and non-VHA for their care. Future research should also address whether improved patient activation among older veterans leads to better outcomes, including reduction in readmissions as well as increased independence at home.

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