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## Engineering care transitions: Clinician perceptions of barriers to safe medication management during transitions of patient care

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### Abstract

Medication safety during care transitions is a significant challenge, especially for older adults prescribed multiple medications. Using a systems approach to understand barriers and facilitators is one important step in designing interventions that achieve safe medication management throughout high-risk periods of hospital-to-home transition. Framing the care transition as a collaboration between healthcare and patient “work systems,” we conducted semi-structured interviews with 37 clinical team members, representing 10 different professional roles involved in providing transitional care for patients. Thematic analyses identified key strategies used by clinical team members in preparing patients to self-manage medications safely in the home environment: (1) streamlining and coordinating clinical management of medication reconciliation across care settings; (2) building patient capacity and engagement in self-management of medications; and (3) redesigning the transitional process. Our research highlights the value in aligning professionals’ care transition goals with patients and caregiver(s) to better prepare them to self-manage medications upon discharge.

### Keywords

Care transitions; Healthcare systems engineering; Medication safety

### Background.

Adverse drug events (ADEs) are medication-related injuries or events that can interfere negatively with intended health outcomes (Forster et al., 2003). ADEs that occur after patients are discharged from in-patient, hospital settings vary in prevalence, ranging from 14 to 49% and may account for up to 20% of hospital readmissions (Garcia-Caballo, et

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al., 2010) and that might have been preventable, as in the case of ADEs (El Morabet et al., 2018). ADEs are often the result of medication errors, adverse drug reactions, allergic reactions, and overdoses (Kohn, Corrigan, & Donaldson, 2000). Transitions of care, such as when patients are discharged from the hospital to home, are particularly vulnerable times when such errors might occur. While a number of strategies to improve medication safety throughout such transitions have been reported, medication reconciliation (a process of obtaining the most accurate and up-to-date list of all medications a patient is taking is compiled (IHI, 2007)) appears to be the most widely used strategy (Kwan, Lo, Sampson, & Shojania, 2013). Other strategies include: patient engagement and education before discharge, as well as outreach to patients post-discharge as facilitated by pharmacist visits to the patient's home along with follow-up phone calls (Eassey et al., 2016). These strategies have had variable results and are impacted by patient self-management following hospital discharge, which is often underestimated and not well-understood.

Multiple system-related factors may contribute to the risk of ADEs during the hospital-to-home transition period. Daliri et al. (2019) summarized four key factors that may contribute to such adverse outcomes: (1) during a hospital stay, staff are responsible for managing patients' medication regimens, which shifts to the patient upon discharge; (2) medication education typically occurs at discharge, a time of heightened stress, information overload, and an eagerness for the patient to return home, potentially resulting in patients being less engaged; (3) instructions are often not adjusted to the literacy levels or informational needs of the patient, leading to difficulty implementing regimen changes; and (4) communication between inpatient teams with primary care physicians (PCPs) is inadequate, and PCPs have difficulty monitoring patients' regimens post-discharge. Various, interacting professionals are involved in facilitating hospital to home care transitions and efforts to improve such transitions, and prevent ADEs, are underscored by the need to redesign professional work systems to better integrate various roles.

Strategies to prevent ADEs, particularly in transitional care settings, however, are often implemented in isolation and without coordination of efforts across the continuum of care (Kripalani, et al., 2007; Van Eijken et al., 2003). For example, one observational cohort study of 95 patients aged 65 years or older reported numerous medication changes throughout and after discharge, concluding that insufficient coordination of efforts and patient education about changes could result in significant medication errors and adverse outcomes (Harris et al., 2013). Another study presented a process-level view on how to enhance healthcare delivery across system boundaries using the Systems Engineering Initiative for Patient Safety (SEIPS 2.0) Model (Werner, Malkana, Gurses, Leff, and Arbaje, 2017). In particular, such a systems view of safety explicitly recognizes that outcomes of any system depend not only on *healthcare professional work*, but also on the *work of patients/families*, and *interactions between the two* (Holden et al., 2013). In the context of transitions of care from hospital to home settings, we view medication safety as a product of various work systems and processes, that are comprised of persons (e.g., patient, family, professional care providers), performing various tasks (e.g., taking medications), within an environment (e.g., hospital, home), while also using tools and technologies (e.g., pill boxes, medication list) within a specific organizational context (e.g., discharge policies, transitional

care services). Hence, SEIPS 2.0 underlines the importance of patient-centric care delivery, a key recommendation of the Institute of Medicine (Kohn, Corrigan, & Donaldson, 2000).

Herein, we report part of a project on barriers and facilitators to safe medication management for older adults during the hospital-to-home transition period. Guided by the SEIPS 2.0 model, we conducted interviews with healthcare professionals of diverse work roles to examine the socio-technical systems of hospital care that prepare patients to self-manage their health and medications at home, including communications, processes, and tools to negotiate and mediate such transitions. Our primary objectives were to understand clinical team members' perceived barriers to medication safety in preparing older patients to return home and to identify potential redesign strategies that reduce ADEs throughout the transition.

## Methods.

### Overall research approach.

Using the SEIPS 2.0 framework (Holden et al., 2013) as a guide, we developed interview questions and analytic approaches to explore work systems used by various in-patient clinical team members to understand perceived barriers to patient/caregiver safe medication management at home. We conducted semi-structured interviews (Mishler, 1986) with clinical team members at two large hospital systems in urban settings, one in the Mid-Atlantic and the other in the Southwest region of the United States. Recruitment and interview procedures were reviewed and approved by each site's Institutional Review Board.

### Recruitment.

We sought a range of respondents to understand specific clinical team member roles, as responses would likely be grounded in personal experiences and disciplinary orientations, which we believed would better capture processes they each followed, and highlighting the interaction between systems. Recruitment of study participants used a combination of purposive and snowball sampling (Miles, Huberman, Saldaña, 2013). In particular, we began by interviewing representatives from several key roles (e.g., hospitalist, case manager, etc.), then approached individuals of work roles identified through previous participant recommendations or by clinical stakeholders serving in higher-level roles (i.e., nurse managers, department directors, and medical group leadership). Clinical team member participants did not receive remuneration for their participation.

### Interview procedures.

We constructed a semi-structured, open-ended interview guide to explore healthcare professional work systems and processes for preparing patients to transition to the home environment and self-manage their medications to understand: (1) tasks & steps (e.g., *"Can you walk me through your role in the discharge process?"*); (2) hazards in professional and patient work systems (e.g., *"What contributes to medication related problems when elderly patients are discharged from the hospital?"*); and (3) discharge medication procedures and education (e.g., *"What types of problems do you see in discharge medication lists?"*). In answering these questions, clinical team members were asked to share relevant knowledge

(e.g., role in discharge or transitional care process, tools and processes used in care transitions, etc.) about commonly experienced problems or barriers related to medication management throughout the discharge process and were encouraged to share ideas and opinions about how to best overcome challenges embedded in these processes. Interviews were conducted in a face-to-face format, lasted between 20 and 60 minutes, and often occurred during a clinical team member's shift in an available office, conference room, or private lounge area. With permission, all interviews were audio-recorded for later transcription.

### Data management and analyses.

At the end of each interview, audio files of recorded interviews were sent to a licensed transcriptionist. Transcripts were deidentified and analyzed with the assistance of NVIVO, a software program for qualitative data management and analyses (NVIVO, 2018). Following intensive discussion of the first three (3) completed transcripts by the coding team, an initial codebook was developed and periodically updated as the interviews continued. Analyses took the forms of open coding (line-by-line examination of the data to generate concepts), memo writing (to track analysis and minimize introduction of preconceived notions), axial coding (determining applicable dimensions for concepts), and constant comparison to establish saturation and integration of emerging concepts (Saldaña, 2016). Disagreements in coding were discussed by the coding team throughout the codebook development phase and rectified to team agreement. Elements of text on which consensus agreement was not reached were turned over to the entire team for discussion in biweekly meetings and to generate further insight into the meaning and nature of the interview materials.

### Findings.

We conducted a total of 37 semi-structured interviews (n=20 in Hospital System 1 and n=17 in the Hospital System 2) with clinical team members who served in either the inpatient or transitional care settings (Table 1). These team members represented a variety of patient care individuals who interact directly with patients and families throughout the discharge process, including medication management, and included: *hospitalists* (oversee the overall medical management of patients during inpatient care); *inpatient nurses and/or discharge nurses* (prepare and educate patients during the discharge period; e.g. reviewing discharge medication list and summary); *case managers* (coordinate with other clinicians to identify resource needs of patients and connect them with these resources (e.g., arranging home care, transportation vouchers, etc.)); *RN care managers* (provide telephonic outreach to patients who have multiple co-morbidities and are at high-risk for hospital utilization); *transitional care providers (APRN, NP)* (enroll eligible patients for weekly, or as needed, in-home care visits to help patient avoid a 30-day readmission); *home care nurses* (coordinate with patients to conduct nursing care home visits, including initial assessment and subsequent care visits for approximately 30 days); and *pharmacists* (review medication orders and counsel patients on medications, ideally prior to patient discharge).

Clinical team members identified strategies and barriers that they felt impeded or aided processes for preparing patients to self-manage their medications safely in the home

environment. Using the SEIPS 2.0 framework, these strategies and barriers are viewed as embedded within two misaligned work systems: the patient work system and the clinical work system. We identified three broad strategies identified by clinicians that would better align these two systems in preparing patients/caregivers to transition to the home environment and safely manage their medications: (1) streamlining and coordinating clinical management of medication reconciliation across care settings to better prepare patients for the transition to home; (2) building patient capacity and engagement in self-management of medications at home; and (3) redesigning the transitional process to be more patient-centered. Herein, we present these three overarching strategies along with emergent sub-themes that detail specific barriers and suggested strategies to implementation. We summarize these key points in Tables 2-4, where we have also included example quotes.

### **(1) Streamlining and coordinating clinical management of medication regimens across care settings to better prepare patients for the transition to home.**

In preparing patients' medication lists for discharge, clinical team members described a work system embedded with barriers related to medication reconciliation: (a) complex medication management tasks during transitions of care; (b) discrepancies in medication lists at admission and discharge; and (c) challenges in coordination of medication regimen changes (e.g., those with multiple chronic conditions).

#### **a. Complex medication management tasks during transitions of care.—**

Clinical team members noted a primary challenge to safe medication management as impacted by the complex medication management tasks that happen throughout transitions of care. Task complexity is reflected by role and task ambiguity among professionals, and by multiple hospitals and providers changing medications for the patient. Our study participants expressed a lack of clarity and clinical competency to conduct medication reconciliation upon discharge to home. To better prepare patients, study participants suggested increased coordination between physicians, including scheduling follow-up appointments with primary care and other clinical team members as a way to support the patient as they maneuvered re-structuring medication management activities at home.

#### **b. Discrepancies in medication lists at admission and discharge.—**

A common theme among study participants regarding system-specific barriers was in obtaining accurate information on home medications upon admission. Noted as a significant risk factor by study participants, one source of errors mentioned was the use of "copy-forward," a tactic of copying the medications from a previous hospitalization as the current home medications, even if patient medications were changed in the interim. Another stated risk factor for errors was the use of the home medication information collected in the stressful atmosphere of the emergency department when errors were likely, but with no process in place to update the medication information throughout a patient's hospital stay. These errors were felt to remain through discharge, potentially resulting in discrepancies between the discharge medication list and what the patient should actually be taking at home after discharge. Clinical team members described four primary strategies in dealing with this: (1) utilizing patients' medication lists, (2) pharmacy technicians aiding in reconciling medication lists, (3) comparing data with the online chart in the electronic health record (EHR), and (4)

coordinating tasks between the work systems of both clinical team members and patient/caregivers.

**c. Challenges in coordination of medication regimen changes.**—Clinical team members described multiple chronic conditions as a risk factor for ADEs (Table 2). Embedded in their statements was that older patients, in particular, are often on complex, high-risk medication regimens. Clinical team members felt that this was a critical issue for the hospital work system in having clinical team members who are invested in understanding and making safe changes to regimens. Better coordination of care, they suggested, should include a variety of strategies that would enhance the clinical work system, thereby better preparing patients and caregivers to transition home: defining roles within teams as it relates to medication management in care transitions; and improving the medication reconciliation process across clinical groups and patients, something that they believe could be enhanced by incorporating pharmacists into the care team.

## **(2) Building patient capacity and engagement in self-managing medications at home.**

A second critical step in the process of preparing patients' medication lists before being discharged to home is assessing each patient's ability and capacity to manage their medications in the home environment. In so doing, clinical team members described three primary barriers: (a) patient self-efficacy and activation in medication management, (b) individual factors impeding medication self-management, and (c) system factors affecting medication management capacity.

**a. Patient self-efficacy and activation in medication self-management.**—Clinical team members described patients as oftentimes not being empowered to know about and be invested in their own medications; this can result in an incomplete and inaccurate understanding of their health information. These challenges often arose during discussions of how to get patients and their caregivers to be active participants in managing their medications. Empowering both patients and their caregivers to take an active role in the management of their health was seen as a key strategy to achieving patient engagement in medication self-management activities. However, clinical team members felt that doing so was often met with resistance by patients and their caregivers via a low level of understanding of and interest in the medication regimen that resulted in disengagement with medication management. Research participants in our study felt that this could be overcome by increased education and the use of techniques such as teach-back for both patients and caregivers throughout the inpatient stay.

**b. Individual factors impeding medication self-management.**—Clinical team members consistently noted several barriers that impede individual patient self-efficacy in medication management, which included both physical and cognitive limitations (e.g., literacy, memory, vision, and dexterity). Specifically, providing critical medication-related information only in a discharge summary may mean that patients never receive important information, such as the timing of their next dose, medications to continue or stop, etc. Although such issues can be challenging, a primary strategy was to engage patients and their caregivers in the process, using teach-back methods that target both groups. Additionally,

research participants described a great deal of ambiguity embedded throughout the discharge process; it was unclear whose responsibility it was to provide such education, but this could be resolved by clearly linking specific tasks to individual clinical team members during patient discharge.

**c. System factors affecting medication management capacity.**—The individual factors detailed previously were further amplified by incomplete or inconsistent systems. Clinical team members described these as systematic barriers to patients being able to receive streamlined care, and included financial/insurance barriers, multiple medication use (e.g., coordination of filling multiple medications or process of filling and managing multiple medications, etc.), and the lack of support structures to adequately aid patients in navigating socioeconomic challenges that hinder successful medication management post-discharge (Table 3). They further described various ways in which these system factors might be mediated, suggesting strategies such as increased social support, ensuring transportation, increased patient and caregiver education, and increased coordination of care.

### (3) Redesigning the transitional process to be more patient-centered.

Clinical team members identified the need to redesign the process of transitioning patients from the inpatient, hospital setting to the independent, home environment (Table 4). In particular, research participants highlighted specific barriers embedded within the transitional process itself, which included: (a) complicated transitional processes, (b) inadequate home support, and (c) gaps in logistics.

**a. Complicated transitional processes.**—Transitioning patients to home was met by several barriers, which notably included the burden of information load to patients and their caregivers. Clinical team members felt that this was further burdened by having multiple clinical team members assigned to each patient created even greater complexity and potentially resulting in a convoluted process and confusion on the part of patients and their caregivers. Clinical team members felt that this barrier could be overcome by clarifying clinical roles and tasks and coordinating patient care across and between medical teams. They further identified integrating these multiple tasks into the standard discharge process as a strategy to decrease role and task ambiguity, and that this could be enhanced by having a clinical transitional guide present during discharge processes to oversee and coordinate activities between the various team member roles.

**b. Inadequate home support.**—Ensuring that patients have adequate support in the home environment is often not considered by clinical staff as they prepare a patient for discharge. Such support may be provided by family or other caregivers, but also includes professional support (e.g., home health, transitional care services, etc.). Oftentimes, the challenge is that patients (older ones, especially), have a lack of trust of outsiders and greatly desire to maintain independence. This may be exacerbated by scattered information and medications, not having clear instructions about how to adjust their care routine when they get home, and issues related to the use of multiple medications such as reconciling discharge and home medication lists. Face-to-face assessment and instruction by clinical staff upon patient's return home is one suggested strategy to overcome this barrier. In all, clinical

team members again highlighted a necessary integration of multiple levels of care into the standard of care and for the clarification of clinical roles.

**c. Gaps in logistics.**—The logistics of discharging patients to home was challenged by too many people (of differing roles) making un-coordinated decisions, clinical team member time, and inter-team communication. The clinical team members in our study felt that streamlining the discharge process, and especially coordinating tasks, would improve the flow of patients through the discharge process. First, clinical team members felt that, before all else, an accurate admission review and reconciliation must be completed. This is critical for all other steps that would take place after this; having inaccurate information from the start will only result in inaccurate information throughout the entire process. This would greatly enhance discharge planning, which our clinical participants discussed as a much-needed area of improvement. In particular, it was stated that discharge planning should be primarily focused on medication needs. Following the completion of these steps, a discharge medication review and reconciliation would be completed, followed by a shift of perspective to the patient. Clinical staff would have the duty to review discharge medications with the patient and the family, with a focus on providing education about the medications, and being cognizant of the home environment and work system.

## Discussion.

Coordinated evidence-based tools and strategies are needed to engage and support patients and families throughout healthcare transitions and to reduce medication-related ADEs. In working toward such a patient-centered approach to solve fundamental challenges to safe care transitions (Lee et al., 2018), our research highlights collaborations between different work systems that align goals of professionals' activities during hospital stays to adequately prepare patients and their caregivers to self-manage medications at home. Our work follows on previous research by Daliri and colleagues (2019) to describe and discuss strategies for preventing adverse outcomes and enhancing medication safety after discharge. In this regard, clinical team members in our research described three primary strategies for preparing patients and their caregivers: (1) streamlining and coordinating clinical management of medication reconciliation across care settings to better prepare patients for the transition to home; (2) building patient capacity and engagement in self-management of medications at home; and (3) redesigning the transitional process to be more patient-centered.

Strategies to prevent ADEs, particularly in transitional care settings, are often implemented in isolation, however, and without coordination across the continuum of care (Kripalani, et al., 2007; Van Eijken et al., 2003). The current research provides a foundation for collaboration with patients and families that should include the joint assessment of post-discharge medication needs throughout discharge planning. Utilizing in-depth discussions with clinical participants to understand medication safety throughout such transitions, our research queried the professional work system and how it might be informed by a patient-facing and patient-centered perspective. Notably, insufficient accuracy of medication reconciliations *upon hospital admission* was repeatedly identified as a critical barrier for such collaboration between patients and healthcare workers; without an accurate picture of patients' home medications, clinical team members find it difficult to adequately prepare



patients to manage medications at home, post-discharge. Relatedly, at the point of discharge the responsibility of medication management shifts to the patient, thus clinical staff have a duty to: a) review discharge medications with the patient and the family, with a focus on providing education about the medications; and b) use teach-back and other patient engagement strategies to enhance patient-caregiver medication management capabilities. Some clinical team members expressed frustration that hospitals did not fully appreciate or support this process.

The distributed nature of collaborative work across settings and authorities during care transitions calls for new approaches to design for safety. As evidenced by our discussions with the various clinical team members in this study, it was clear that multiple and complex components of transitions are not designed from a patient-centered approach to support and enable the patient work system to function optimally. For example, there is a high level of ambiguity in the roles of individual clinical team members in maintaining an accurate patient medication list. Given the importance of enhancing medication safety (Kreckman et al., 2018), the ownership for this list needs to be clarified from the start of the admission process; who is ultimately responsible for a patient's medication list and thus for transitioning it along with the patient and between various providers? Risk factors for medication-related issues after hospital discharge highlight multiple opportunities for improvement during the care transition period, such as patient engagement in discharge medication prescription decision-making to address formulary issues, cost, access, and patient preferences. It may be highly valuable to identify strategies, tools, and work redesign solutions that strengthen partnerships between the patient/family, inpatient teams, and community resources.

While this manuscript is limited in that it does not include our research from the patient perspective, it provides an important investigation of the challenges faced by clinical team members in supporting patients during the hospital-to-home transition period. The quality of our research is supported by its adherence to key domains of rigor established for similar qualitative research that include: fitness of the methodology to the research purpose, utilizing an established theoretical framework, regard for methodological rigor, adherence to ethical concerns, analytic comprehensives, and the application of findings (Hannum, Dy, Smith, & Kamal, 2019). In particular, the use of macroergonomic concepts such as work systems, and frameworks such as SEIPS (Carayon, Wooldridge, Hoonakker, Hundt, & Kelly, 2020), is useful for understanding and enhancing the collaboration of patients and healthcare professionals throughout transitions of care and is a major strength of the current research. A primary advantage of using SEIPS 2.0 to understand medication safety throughout such transitions is that we can look beyond optimizing only the healthcare professional work system, to instead optimize the entire system in which care is being delivered and with patient work systems at the core of these complex and related work systems. Tools can support organizations to redesign various work systems (inpatient, home care, patient home, outpatient care work system) to effectively partner with the patient and family.

An important implication of our research is to align goals of professionals during care transitions with supporting and enhancing patient work systems, so that patients and their caregivers can safely manage medications at home. Rather than looking only at individual

work systems (i.e., hospital or home), a patient-centered approach should optimize care and outcomes by realigning goals through the identification of strategies and redesigning interactions between work systems (e.g., using in-hospital care as an opportunity to identify problems in medication safety and identify strategies for implementing in the patient work system downstream) (Xiao, Abebe, & Gurses, 2019). While this approach should be patient-centered, it is critical to understand points of execution within the hospital environment in preparation for returning home. Ultimately, the goal of streamlining and coordinating processes should be the reduction of ADEs and hospital readmissions. While our research is a critical first step to describing barriers and strategies that ensure safe transitions of care, intervention and implementation research is needed to test better engineered and patient-centered initiatives.

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**Table 1.**

Qualitative interview groupings.

Hospital System 1		Hospital System 2		TOTAL
<b>Transitional Care Clinical Team Members*</b>				
Transitional Care Providers	3	Discharge Nurses	2	5
Registered Nurse (RN) Care Managers	5	Case Manager	1	6
Case Managers (Social Workers)	5	Social Workers	2	7
		Transition Guide Nurses	3	3
		Transitional Care Nurse Manager	1	1
		Home Care Management Coordinator	1	1
<b>Inpatient Care Clinical Team Members*</b>				
Hospitalists	3	Hospitalist	1	4
Inpatient Pharmacists	2	Inpatient Pharmacists	4	6
Inpatient Nurses	2	Inpatient Pharmacy Technicians	2	5
<i>Total</i>	<i>20</i>	<i>Total</i>	<i>17</i>	<i>37</i>

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**Table 2.**

Streamlining and coordinating clinical management of medication regimens across care settings.

Sub-theme	Barriers	Strategies	Example Clinical Team Member Quotes
<b>Complex medication management tasks during transitions</b>	<ul style="list-style-type: none"> <li>- Task ambiguity</li> <li>- Patient understanding of conflicting information</li> <li>- Multiple hospitals/providers</li> <li>- Frequent medication changes</li> </ul>	<ul style="list-style-type: none"> <li>- Follow-up with PCP</li> <li>- Coordination between doctors/ use of EHR</li> <li>- Scheduling follow-up appointments for patient</li> </ul>	<p>“I have to explain in detail. And I tell them, ‘The paper that you have from our hospital, that’s the one I’m going to be teaching you on.’ And then sometimes we get into this struggle with patients because they’ll say, ‘Well, I just saw my doctor yesterday or two weeks ago and he put me on medication [for fluid retention],’ which is a fluid pill. ‘He put me on that and now you guys tell me to stop it, so what do I do?’ I’m like, ‘Well, go by the most recent summary, which is what we – what I’m going over is they want you to stop it. But now, however, you need to see your primary care right away.’” (<i>Transitional Nurse</i>)</p>
<b>Discrepancies in medication lists at admission and discharge</b>	<ul style="list-style-type: none"> <li>- Not updating admission med reconciliation with accurate medication</li> <li>- Copy/pasting medication lists (on admission and at discharge)</li> </ul>	<ul style="list-style-type: none"> <li>- Utilizing patients’ medication list(s)</li> <li>- Comparing to online data/ EHR</li> <li>- Pharm techs to aid in reconciling medication lists</li> <li>- Coordination of tasks</li> </ul>	<p>“So our pharmacy technicians right now are assisting with getting appropriate medication lists. So sometimes at the discharge point, the provider realizes that the medication list is wrong, and they’re trying to send out the right medication list, and so they want to make sure they have the old and the new to compare and write a good instruction sheet for the patient ... Because if you don’t tell them what to stop and you just tell them to start, they have some conflicting information. So our technicians help with that and ... they’ll [also] help to get those medications filled at our outpatient pharmacy for them, and then bring them to the bedside. So they leave with the meds in hand.” (<i>Pharmacist</i>)</p>
<b>Integrating high-risk and complicated medication regimens</b>	<ul style="list-style-type: none"> <li>- Multiple chronic conditions</li> </ul>	<ul style="list-style-type: none"> <li>- Coordination of clinical care</li> <li>- Coordination of medication</li> <li>- Inclusion of pharmacy in process</li> </ul>	<p>“So there are high-risk medications that we as case managers go ‘Wait a minute. We need to make sure everything’s onboard with this, that they’re getting what they need to be done,’ like the levels done. Are they doing what they’re supposed to be doing to make sure that the medication’s effective for them? ... make sure that they’re going to a clinic to get their blood tested.” (<i>Case Manager</i>)</p>

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**Table 3.**

Building patient capacity and engagement in self-managing medications at home.

Sub-theme	Barriers	Strategies	Example Clinical Team Member Quotes
<i>Patient self-efficacy and activation in medication self-management</i>	<ul style="list-style-type: none"> <li>- Patients not feeling empowered</li> <li>- Lack of patient investment</li> <li>- Patient/ caregiver understanding of medication regimen</li> </ul>	<ul style="list-style-type: none"> <li>- Education/ teach-back of patient/ caregiver</li> </ul>	<p>“I just think that patients don't come to the hospital empowered to give us the right information. ...So I think that a lot of patients come in and they just assume that because we're a hospital, we have all their records and that everything we have is up to date. But that's relying on so many people in the process to make sure that things are the right way.” <i>(Pharmacist)</i></p>
<i>Individual factors impeding medication self-management</i>	<ul style="list-style-type: none"> <li>- Cognitive or physical limitations</li> <li>- Costs</li> <li>- Incomplete information</li> <li>- Clinical role ambiguity/ role ownership</li> </ul>	<ul style="list-style-type: none"> <li>- Having meds “in hand” at discharge</li> <li>- Teach-back with patients/ caregivers</li> <li>- Clarity of clinical roles</li> <li>- Increased education</li> </ul>	<p>“I think the other thing is working with the caregivers ... the nurse might come in or the discharging physician and go through the med list. Well, that's not the person doing the meds. The patient may not – It might be the caregiver who's assembling all the meds, so the patient may be a little confused or whatever or tired, sleep deprived, not getting any of this in... and then the wrong person's being taught.” <i>(HM)</i></p> <p>“We're navigators in trying to help them to keep their things in order, but we don't want to do it for them. We want to make them as independent as possible. So I'll sit there and say, ‘Okay, now, take the paper he gave you and okay, he made that change. Now take that pill and put it in a box and let me see you. Because we want them to do it and not us do it for them.’” <i>(Transition Nurse)</i></p> <p>“So I think that's one of the biggest things I find frustrating is that we have so much poly-pharmacy... I mean, sometimes they need all those medications, but they're understanding of what their medicines are and they're understanding of how to take them, why they take them, and what they're for, is really lost. They don't have good insight into what they're taking, and also cost. Cost is a huge issue, that patients can't afford their medicines. You know, their insurance ran out so they stopped taking it. So cost is a big problem, too.” <i>(Pharmacist)</i></p>
<i>System factors impeding medication self-management</i>	<ul style="list-style-type: none"> <li>- Financial/ Insurance barriers</li> <li>- Poly-pharmacy</li> <li>- Cost</li> </ul>	<ul style="list-style-type: none"> <li>- Social support</li> <li>- Transportation</li> <li>- Education</li> <li>- Coordination of care</li> </ul>	<p>“I would say with the elderly population they're on very limited incomes, so we have to be really mindful of that, and many times they'll come in here and we'll tweak their medications is what they like to call it, change it just a bit. Very confusing to an elderly person. ...” <i>(Case Manager)</i></p> <p>“I think it would help to have, obviously more social support for these patients through case management and social work. ...You know, when it comes to the complex care of these patients, the complex comorbid conditions ... I think we need more education and more patient education, more patient outreach. You know, handing them a list on discharge and hoping that the nurse, while she's taking care of five patients, has the time to review all the medications and that she actually knows all the medications. I think that's a huge what if. I don't know if that's the safest process. ... I'd love to see pharmacists counsel everyone on discharge, just to be able to be that person to answer all those questions and just know the answers to those questions, or at least, know how to figure them out quickly.” <i>(Pharmacist)</i></p>

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**Table 4.**

Redesigning the transitional process.

Sub-theme	Barriers	Strategies	Example Clinical Team Member Quotes
<i>Complicated transitional processes</i>	<ul style="list-style-type: none"> <li>- Information load to patient</li> <li>- Multiple clinical team members</li> <li>- Role ambiguity</li> </ul>	<ul style="list-style-type: none"> <li>- Coordinating clinical efforts</li> <li>- Integrating multiple levels of care into the standard of care</li> <li>- Clarity of clinical roles</li> <li>- Having a transitional guide present</li> </ul>	<p>“We go over their discharge summary... When they get home, we call them. We go over their medication. We help them with resources and appointments. And most of the times we try to meet the patient while they’re in the hospital ... Because sometimes patients don’t want us calling them right away, 24 hours after their discharge, because they don’t know how they feel. They just got home and they’re like, “Give me time to get settled and get back home and get myself organized.” (<i>Transition Nurse</i>)</p>
<i>Inadequate home team, including professional support</i>	<ul style="list-style-type: none"> <li>- Patient not wanting others in home</li> <li>- Scattered information and medications</li> <li>- Misinformation</li> <li>- Poly-pharmacy</li> </ul>	<ul style="list-style-type: none"> <li>- Clinical staff in home to assess situation and provide face-to-face instruction</li> <li>- Integrating multiple levels of care into SOC</li> <li>- Clarity of clinical roles</li> </ul>	<p>“Because some patients won’t – refuse. They refused skilled nursing and they don’t want anyone in their home. So I have to do everything by phone. I’ve been on the phone with a patient for two and a half hours. They were on 25 medications. It was very difficult and I was just kind of pleading with them, “It would be easier and would limit mistakes, if I could just be there to help you.” ... And I had to walk through and they had medications that wasn’t on our discharge summary, so I had to write all those down ...” (<i>Transition Nurse</i>)</p>
<i>Gaps in logistics</i>	<ul style="list-style-type: none"> <li>- Too many people, of differing roles, making un-coordinated decisions</li> <li>- Time</li> <li>- Inter-team communication</li> </ul>	<ul style="list-style-type: none"> <li>- Streamlining the process</li> <li>- Coordination of tasks</li> </ul>	<p>“The time of the doctors, like especially – for example, patient has 10, 20 medications. The nurses, they don’t have really time. You will see if you will audit not all patient is done the [medication reconciliation], or sometimes the patient doesn’t know and the family doesn’t know or they’re not a [hospital] patient, so they won’t know.” (<i>Discharge Nurse</i>)</p> <p>“Communication, time needed to do correct communication. Time is a big problem.” (<i>Case Manager</i>)</p>

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