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Challenges in Deprescribing Among Older Adults in Post-Acute Care Transitions to Home

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The specific contribution of each author to this manuscript is listed below:

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- Jenny Shen participated in study design, data analysis and interpretation, and preparation of the manuscript, including review and approval of the final submission.
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Abstract

Objectives: Medications with a higher risk of harm or that are unlikely to be beneficial are used by nearly all older patients in home health care (HHC). The objective of this study was to understand stakeholders' perspectives on challenges in deprescribing these medications for post-acute HHC patients.

Design: Qualitative individual interviews were conducted with stakeholders involved with post-acute deprescribing.

Setting and Participant: Older HHC patients, HHC nurses, pharmacists, and primary/acute care/post-acute prescribers from nine U.S. states participated in individual qualitative interviews.

Measures: Interview questions were focused on the experience, processes, roles, training, workflow and challenges of deprescribing in hospital-to-home transitions. We used the constant comparison approach to identify and compare findings among patient, prescribe and pharmacist and HHC nurse stakeholders.

Results: We interviewed nine older patients, 11 HHC nurses, five primary care physicians (PCP), three pharmacists, one hospitalist, and one post-acute nurse practitioner. Four challenges were described in post-acute deprescribing for HHC patients. First, PCPs' time constraints, the timing of patient encounters after hospital discharge, and the lack of prioritization of deprescribing make

it difficult for PCPs to initiate post-acute deprescribing. Second, patients are often confused about their medications, despite the care team's efforts in educating the patients. Third, communication is challenging between HHC nurses, PCPs, specialists, and hospitalists. Fourth, the roles of HHC nurses and pharmacists are limited in care team collaboration and discussion about post-acute deprescribing.

Conclusions & Implications: Post-acute deprescribing relies on multiple parties in the care team yet it has challenges. Interventions to align the timing of deprescribing and that of post-acute care visits, prioritize deprescribing and allow clinicians more time to complete related tasks, improve medication education for patients, and assure effective communication in the care team with synchronized electronic health record systems are needed to advance deprescribing during the transition from hospital to home.

Brief Summary

Deprescribing in the hospital-to-home transition requires clinicians to be allowed adequate time, home health care nurses and pharmacists be encouraged to contribute, patients be educated effectively, and communication be facilitated.

Keywords

Home Health Care; Polypharmacy; Deprescribing; Transitions of Care

Introduction

Potentially inappropriate medications (PIMs) are medications with a high risk of harm or medication that may be unnecessary due to changes in the patient's health status and/or goals of care.¹ From 20% to nearly 100% of older patients in home health care (HHC) use PIMs, increasing their risk of adverse drug events, geriatric syndromes, e.g., delirium and falls, hospitalizations, and mortality.²⁻⁴

Deprescribing - discontinuing or reducing the dosage of medications – can decrease PIM use, reduce medication burden and cost, and increase adherence.^{5,6} Deprescribing can also improve patients' cognitive and physical function, quality of life, and reduce the risk of falls, hospitalization, and mortality.⁶⁻⁹ Multiple medication changes are made during hospitalization and following discharge, contributing to medication discrepancies, drug-drug and drug-disease interactions once patients return home.^{10,11} After acute care, over half of community-dwelling older adults return home with HHC, indicating that the hospital-to-home transition in HHC represents an important opportunity for deprescribing.^{12,13}

Multiple stakeholders are involved in post-acute deprescribing; they include primary care providers, hospitalists, pharmacists, patients, caregivers, and post-acute care providers such as skilled nursing prescribers and HHC clinicians.

HHC clinicians, especially nurses, may be uniquely positioned to support patients and prescribers with deprescribing. HHC nurses routinely review/reconcile all the medications in the patient's home, including medications that may be unknown to prescribers, such as expired medications, duplicates for prescriptions with modified dosage levels, and over-the-

counter medications that may cause harm (e.g., herbs, pain and sleep aides).^{14,15} HHC nurses also provide medication education and monitor symptom and function,^{16,17} which can facilitate deprescribing decision-making of prescribers.¹⁴ HHC nurses can also verify orders for medication discontinuation and dose adjustment, ensure the patient has necessary medication refills and help discard or separate inappropriate and/or expired medications.

Existing evidence on deprescribing supports the high prevalence of PIM use in older adults, introduces tools to identify PIMs, and develops interventions to improve deprescribing.¹⁸ Most of the deprescribing evidence was generated in nursing homes and hospitals, with fewer studies examining the deprescribing process in the community.¹⁹ Despite the need for and the unique advantages of deprescribing in HHC, no studies have been conducted to examine the deprescribing process for post-acute HHC patients. The objective of this qualitative study was to obtain insights from key stakeholders about the deprescribing process, clinicians' roles and challenges in this process for older adults after hospital discharge to HHC.

Methods

Study Design

This study used qualitative interviews to collect key stakeholders' perceptions of the deprescribing process for older patients during the transition from hospital to home. The University of Rochester Institutional Review Board approved this study.

Sample & Recruitment

Sample: We used purposeful sampling to recruit stakeholders from three groups critical to the deprescribing process in the hospital-to-home transition: 1) older HHC patients; 2) pharmacists and prescribers (i.e., primary care physicians [PCP], hospitalists, and nurse practitioners); and 3) HHC registered nurses.

Eligibility criteria for all groups included: ability to self-consent; English-speaking; without uncorrected difficulties in hearing, vision, and verbal expression that limit their ability to communicate during interviews. Additional eligibility criteria for patients included: a) ≥ 65 years old; b) hospitalized and discharged home with HHC in the previous 24 months; c) taking ≥ 5 prescription medications regularly; and d) not receiving hospice care. Additional eligibility criteria for clinicians included: clinical practice in hospital medicine, primary care, post-acute care, pharmacy, or HHC for >12 months.

Recruitment: Patients and providers were recruited locally in New York state. HHC nurses were recruited nationally.

Patients: Using the approved list of HHC patients who previously consented to be contacted about research studies, we conducted ongoing sorts of patient information by variables, if provided, e.g., race, ethnicity and zip codes that we researched to be of low socioeconomic status in the upstate New York region. We made attempts to recruit patients from under-represented racial/ethnic backgrounds (e.g., Hispanics/ Blacks) and lower socioeconomic status (e.g., low income / having no Internet).

Providers: Physicians, pharmacists and nurse practitioners involved in post-acute care deprescribing were recruited locally by distributing the study flyer through established collaborations of the research team at multiple health care organizations in New York State.

HHC Nurses: Due to the large geographic variability in HHC delivery,²⁰ we recruited HHC nurses nationally by posting a study flyer through the mail list of the National Association for Home Care & Hospice (NAHC). HHC nurses from nine U.S. states (NY, CO, IL, KS, MA, MN, MS, NE, and OH) contacted the study team and participated.

Data Collection

We developed semi-structured interview guides to facilitate the qualitative interviews with variations in the questions for each group (Appendices 1-3). These guides were grounded in the conceptual models of multi-disciplinary deprescribing process with flexibility to explore novel ideas.^{21,22} The questions focused on stakeholders' perspectives about experience, processes, roles, training, workflow and challenges of deprescribing in hospital-to-home transitions. The interview guides were pilot tested in initial interviews and revised as new insights were obtained as the interviews continued. Experienced research staff (JB, MM) conducted telephone or video-conference interviews that lasted 60–90 minutes, audiotaped with field notes developed. Data collection continued until no new findings emerged from the interviews within each group. The iteratively evolving interview guides allowed us to focus on areas where we needed more data, thus facilitating the conduct of focused and in-depth interviews to reach data saturation.

Codebook Development and Data Analyses

Qualitative data from audiotaped interviews were transcribed verbatim, reviewed and verified for accuracy, and entered into Atlas.ti for data management. We used a phased, iterative data analysis approach.²³ *Phase 1:* We used open coding to identify and label novel ideas in the text, often using the participants' own language. We then coded for pre-specified key concepts essential to deprescribing. Subsequently, we developed a coding scheme reflecting both novel findings and findings related to pre-specified questions. *Phase 2:* We coded all transcripts with our coding scheme. *Phase 3:* We compared data across the three stakeholder groups to examine pattern variation, barriers and enablers in deprescribing among older adults during the transition from hospital to home with HHC.^{24–26}

To strengthen the credibility and trustworthiness of qualitative findings,²⁷ research team meetings were held throughout the study to address subjective bias and assess the adequacy and comprehensiveness of analytical results. Three researchers (JW, JB, MM) independently coded the transcripts and reached consensus on the codes.

Results

As shown in Table 1, the sample included nine patients (average age 71 ± 6.11), 10 prescribers and pharmacists (36 ± 4.85), and 11 HHC nurses (47 ± 12.2). Most participants were non-Hispanic White and female. Prescribers/pharmacists had an average of 6.2 years of experience, and HHC nurses had an average of 8.2 years of experience in their current job

roles. Among the patients, three were from under-represented racial/ethnic background (i.e., Blacks) and did not have Internet.

Stakeholder insights revealed challenges in post-acute deprescribing regarding 1) timing, 2) prioritization and continuity of care, 3) education, 4) communication, and 5) collaboration. Figure 1 depicts the post-acute deprescribing process in HHC. Table 2 summarizes these challenges and related quotes.

1. Timing

Timing, including the time of visits and time allowed for each visit, represents a significant challenge in post-acute care deprescribing.

Constraints of PCPs—Time constraints represent a major barrier to PCPs realizing their role in deprescribing. One PCP shared: *“As the primary care doctor, I do not have enough time to spend on a patient like this because of how our system is built. I get 20 minutes for a complex hospital discharge. That is a completely insufficient amount of time.”* Moreover, patients reported difficulty in reaching out to their PCPs, as *“Most of the time if I call my doctor, I’m going through the automatic voice and don’t get in actual contact with my doctor’s office. And that is annoying.”*

PCP post-discharge visits—PCPs shared that, although the ideal timing for the first post-acute PCP visit is within one week after hospital discharge, because *“patients will reschedule or something will come up”*, the first PCP visit after hospitalization often occurs much later, which delays medication reconciliation, optimization including deprescribing, and causes a gap in the patient’s medication supply. One PCP shared, *“I’ve seen where they only had that one med[ication] for a month and then they don’t have it anymore.”*

Time constraints of HHC visits.—HHC nurses reported having a limited amount of time for continuous medication review and education, which is primarily due to the length and maximum number of visits allowed by federal insurance regulations (e.g., Centers for Medicare and Medicaid Services [CMS]). One HHC nurse shared, *“We’re limited with the time we’re allowed to keep a patient”* and *“they [CMS] want you to teach it once or twice, and then get out and move on.”*

2. Prioritization and Continuity of Care

Lack of prioritization and continuity of care for deprescribing-related tasks represent another category of challenges.

Prioritization of deprescribing—PCPs reported that deprescribing may not always be their priority. One PCP shared, *“when I see 30 patients a day, it [deprescribing] is the last thing on my mind.”* HHC nurses shared that HHC has traditionally focused on *“restoring functionality”* instead of *“symptom management”*, which may have limited the contribution of HHC nurses to deprescribing because deprescribing decisions require consideration of the patient’s symptoms. In addition, all but two patients shared not having had medications

deprescribed; the two patients had knowledge about medications (i.e., one was an EMS respondent and the other had a friend who was a pharmacist) and did so by self-advocating.

Different from PCPs and HHC nurses, pharmacists shared that they prioritize medication reconciliation for patients who are “*transferred from the hospital*”, such as by “*calling the pharmacies to get a good refill record*” and “*asking the patient to bring over all the pill bottles*”.

Discontinuity in care—Because the majority of HHC patients have multiple chronic conditions and are under the care of multiple prescribers, it is often difficult to involve all relevant parties in deprescribing decisions. When asked “How do providers work with medications prescribed by another provider, such as a specialist?” one HHC nurse responded, “*They will not touch it. I will always get, ‘you have to call that office’.*” A PCP explained that prescribers’ sense of “*ownership*” towards medications may impede deprescribing: “*When you’re prescribing something you think is needed, you’re taking responsibility for that medicine, and any reactions they have. Ownership is important, but it gets complicated when you’ve got multiple prescribers.*”

According to some HHC nurses, home medication review is an ongoing process conducted at all HHC visits. Yet, patients and other HHC nurses shared that the home medication review was only done on the first HHC visit. PCPs noted that much of the challenge with deprescribing is “*not knowing the patient*”. Yet, HHC nurses shared that, due to staffing shortages, a patient often is seen by different HHC nurses during different visits limiting the ability of HHC nurses to identify problems that may warrant a PCP notification and deprescribing decision.

3. Education

Multiple members in the care team reported spending a considerable amount of time educating patients on medications, yet patients may still be unclear about the medications they should take.

Pharmacists reported educating the patients on medications, such as glucose testing, injections, and side effect monitoring. In practices without pharmacists, PCPs shared that medication education is often “*PCP-driven*.” Stakeholders considered HHC nurses instrumental in educating patients to ensure the correct medication intake, and monitoring symptoms and side effects that may suggest a need for dose adjustment or discontinuation. PCPs noted that because thorough medication education is often not provided at hospital discharge, medication teaching by HHC nurses is important. One HHC nurse noted that she often starts by assessing “*what they know about what they’re taking, how often they take it to grasp where they are [in their current understanding].*” HHC nurses also “*determine how the patient learns best*” when educating the patient, such as by “*setting up medication organizers for, or in conjunction with, the patient and providing education throughout*” to ensure that the patient understands.

Another HHC nurse shared that HHC nurses can “*not only reassure and educate the patient*”, but also “*support a physician or nurse practitioner to try something different with*

a patient's medications." This nurse explained that *"Sometimes patients don't want to stop taking medications because they've taken them for 20 years, even if it [medication] is doing nothing for them anymore or causing other symptoms...once you figure out that the medications are the issue, working with that doctor to remind them, 'Hey, we're here. We can educate this patient. We can help monitor as you take a patient off or as you decrease [the dose]. We can go see them more frequently, if you need us to. We can be there to check all those things that, normally, you'd wait a couple weeks to see them in your office, and we can get back to you."*

Stakeholders emphasized that medication education is particularly needed when changing medications for patients with cognitive impairment, lower health literacy, or without caregivers at home. One HHC nurse shared that she tailored education to meet the patient's needs, such as by *"taping the pill to their pill sheet"* for patients who *"can't read the words [on the pill bottle]."* Furthermore, HHC nurses shared that pain medications, diuretics, and as-needed medications need the most patient education.

Despite multiple care team members' efforts to educate patients on medications, many patients still do not know what medications they are taking and why. HHC nurses shared that many patients have *"a lot more medications in their home that are not on their list,"* including expired and discontinued medications. The nurses added that many patients store medications *"all over the place [within their home],"* and they *"don't really know exactly what they're taking";* this lack of understanding increases their chances of errors in medication self-report and adherence, making it difficult for prescribers to identify deprescribing recommendations.

4. Communication

Multiple challenges make it difficult for care team members to communicate effectively about post-acute deprescribing, including between HHC nurses and the PCP and between the PCP and the patient's other prescribers.

Inefficient triage and phone tags.—Communication between HHC nurses and PCPs is often triaged by office staff and rarely directly between HHC nurses and PCPs. PCPs felt that having the message triaged is necessary due to their time constraints. However, HHC nurses considered the long waiting period for responses from PCPs a barrier to medication reconciliation. *"It usually takes two phone calls to get anything accomplished"* or *"at least a few days for someone to get back to me."* Often, by the time a HHC nurse gets a response from the PCP, the nurse has already left the patient's home. HHC nurses also shared that the inefficient triage of messages caused *"phone tag"* where *"a lot of it gets lost in the mix,"* leading to errors in medication reconciliation. In response, HHC nurses reported contacting the patient's community pharmacy prior to contacting the PCP, because the community pharmacists are often easier to reach.

Being reactive rather than proactive—HHC nurses noted that the communication between PCP and HHC is more reactive to problems, such as medication discrepancies and errors, rather than proactive to prevent problems, such as optimizing medication regimens and deprescribing to prevent these discrepancies from occurring. One HHC nurse explained:

“We just point out any side effects that people may be having. Bring it to their [PCPs’] attention that the patient is not taking these medications, or, make sure that the medications you [PCP] want them to take are being taken. But in terms of they’re on 20 [medications], do they need all? Can we get rid of these 10? We don’t do that at all.”

Information systems limitations—Stakeholders consistently reported that having access to the same electronic health records (EHR) system (i.e., interoperability) promotes communication and shared decision-making within the care team. One PCP shared: *“We have the benefit of being on the same records. And we promote our patients to go there [hospital] because of that continuity and that ability to communicate and see all those things. I’ve gotten several messages on e-record, saying, ‘We’ve got your patient in the hospital. They’re on this dose of this blood thinner, which we weren’t expecting. Is there a reason?’ They [hospitalists] ask the question, which I totally appreciate.”*

Lack of EHR interoperability makes it difficult for prescribers to gain a full understanding of the patient’s medication regimen and to communicate with each other about problems related to medication use and plans to manage them. Stakeholders shared that gaps in information exchange can exist between different disciplines, across different departments, and among different health care systems. A PCP shared that because it is difficult to communicate with specialists in other healthcare systems, *“it’s easier to just make the change [without communicating].”* HHC nurses and pharmacists have *“a more limited view of the EHR”*, because they cannot see other clinicians’ notes and cannot document in the patient’s EHR.

HHC Documentation—PCPs expressed frustration with the amount of HHC documentation associated with medication changes that are required for review. One PCP shared, *“If I need to decrease a medicine, I write a new prescription, so patients know that they’re on the new dosage. The next time the home [care] nurse sees them, they note that change, they send me a new order to sign on the same medication change that I made. It duplicates work.”*

HHC nurses shared that the medication list they generate during home medication review is included in the HHC plan of care that is sent to PCPs to sign. Yet, PCPs reporting having rarely noticed this medication list while signing the HHC plan of care, because the HHC plan of care has an overload of information where medication use is not clearly presented or structured.

V. Interdisciplinary Collaboration

Multiple disciplines are involved in post-acute deprescribing, yet the roles of team members are often unclear, unrecognized, uncoordinated, and limited, presenting challenges to the interdisciplinary practice that is essential for post-acute deprescribing.

HHC nurse role recognition—Stakeholders noted that the lack of awareness among prescribers regarding the competencies of HHC nurses and HHC nurses not being included in care team discussions hinder HHC nurses’ role in helping the patients and prescribers with deprescribing. One PCP noted, *“I’m not sure how many people in my role always know*

the viewpoint from home health care, because we don't meet them [HHC nurses] in the hospital, they're not on our care coordinator rounds with us, and we don't often see them in the office."

Pharmacist engagement and role definition—PCPs and HHC nurses consider community pharmacists to have a critical role in deprescribing, particularly in *"taking a fresh look at the medication list"* as *"someone who is not responsible for building that list."* Yet, stakeholders also shared that there is limited access to pharmacists outside of hospitals and nursing homes. Further, there is a lack of clarity of the pharmacist's role and their engagement in post-acute deprescribing is often limited. HHC nurses shared that most HHC agencies do not have staff pharmacists, nor do they have consistent access to pharmacists *"unless we call the patient's pharmacy."*

Patients' feedback also revealed limited experience in interacting with pharmacists. One patient shared that he thinks it would be beneficial to include pharmacists in the care team discussion about medication use, because *"the pharmacist very likely has a list of everything that I'm taking."* Nevertheless, many patients noted that they are unsure if and how pharmacists should be included in their discussion about medication use with the prescribers. One patient commented: *"It seems like the pharmacists around here are so busy, they don't have time to talk to you."*

Discussion

In this qualitative study, we collected perspectives from older HHC patients, HHC nurses, prescribers and pharmacists involved in post-acute deprescribing. The primary findings related to challenges in post-acute deprescribing included: timing, prioritization and continuity of care, education, communication, and collaboration.

This study was among the first to examine the process of deprescribing in the post-acute HHC context, with a focus on challenges that stakeholders experience in this process. Consistent with previously reported barriers in deprescribing, some of the most significant challenges in post-acute deprescribing in HHC are time constraints of prescribers and lack of prioritization in the workflow,^{28–31} which limits the implementation of deprescribing.¹⁹ Potential strategies to address this include sending reminders to PCPs, and developing specific payment codes to allow PCPs to implement deprescribing during patient encounters.³²

Other challenges specific to the HHC context include the limited number of HHC visits and lack of continuity of care, which may be attributable to the reduced HHC reimbursement that might have negatively affected HHC adequacy of care^{33,34} and hindered the contribution of HHC to post-acute deprescribing

Effective communication and collaboration of the care team is key to deprescribing,^{35,36} yet it is often challenging to effectively communicate with everyone in the care team during post-acute care transitions, making it difficult to reach consensus on deprescribing.^{28,37} Lack of interoperability of EHRs contributes to this challenge.³⁸

The role of HHC nurses in post-acute deprescribing needs recognition.³⁹ HHC nurses are trained to review and reconcile patients' home medications and to notify prescribers of problems with medication use. Thus, HHC nurses should be encouraged to play a more proactive role in facilitating deprescribing decisions, such as by flagging patients who are taking PIMs and initiating discussion with pharmacists and PCPs about them. HHC nurses can also support deprescribing by monitoring symptoms and medication adherence and assessing the patient's home environment to reveal barriers to medication use (e.g., affordability, and caregiver support). For HHC nurses' insights to inform PCPs about deprescribing, there needs to be timely and effective communication between HHC nurses and the PCP.

The role of community pharmacists in post-acute deprescribing needs support. Similar to prior studies, prescribers, pharmacists and HHC clinicians in this study emphasized that pharmacists are essential to developing deprescribing recommendations.⁴⁰ Challenges to engaging pharmacists in post-acute deprescribing include their lack of access to the patient's EHR, which complicates their ability to deliver up-to-date, accurate deprescribing recommendations, and the lack of a sustainable reimbursement model for their services. Medication Therapy Management is a federal program aimed at increasing older Americans' access to pharmacists, yet it was only received by 2–10% of Medicare beneficiaries.^{41–43}

Interdisciplinary practice is key to post-acute deprescribing and should be improved. To prioritize deprescribing given the timing and time constraints of care team members, deprescribing reminders can be embedded within the EHR, especially with home-based medication reconciliation conducted by HHC nurses. Interoperability of EHR is needed to facilitate effective, timely communication and information sharing among members of the care team about deprescribing with a shared accurate medication list structured to align with patients' care needs.^{19,44} To improve patient education on medication use, the teach back approach should be used and HHC nurses be allowed to spend more time across multiple visits educating patients about their medications. Payment structures should be developed to encourage community pharmacists, PCPs and HHC nurses to prioritize medication optimization.

This qualitative study has limitations. First, prescribers, pharmacists and patients were recruited locally in upstate NY. Perspectives of prescribers, pharmacists and patients from different geographic regions may help validate findings given potential variance in post-acute deprescribing practice and experience. Second, we did not interview retail pharmacists, and their role in post-acute deprescribing may not have been adequately represented. Third, though we recruited patients from different racial/ethnic and socioeconomic backgrounds, the clinicians were primarily non-Hispanic White, thus their perspectives may not represent those from other racial/ethnic groups.

Conclusions and Implications

Medication optimization, including deprescribing, during the transition from hospital to home, involves multiple care processes and complex communication and collaboration across multiple parties that would benefit from including the patient, HHC nurses, PCPs,

and pharmacists. Allowing prescribers enough time to systematically review and optimize medication prescribing, recognizing and specifying the roles of HHC clinicians and pharmacists, and providing shared access to patient's EHR to all members in the care team are particularly needed to facilitate post-acute deprescribing during the transition from hospital to home.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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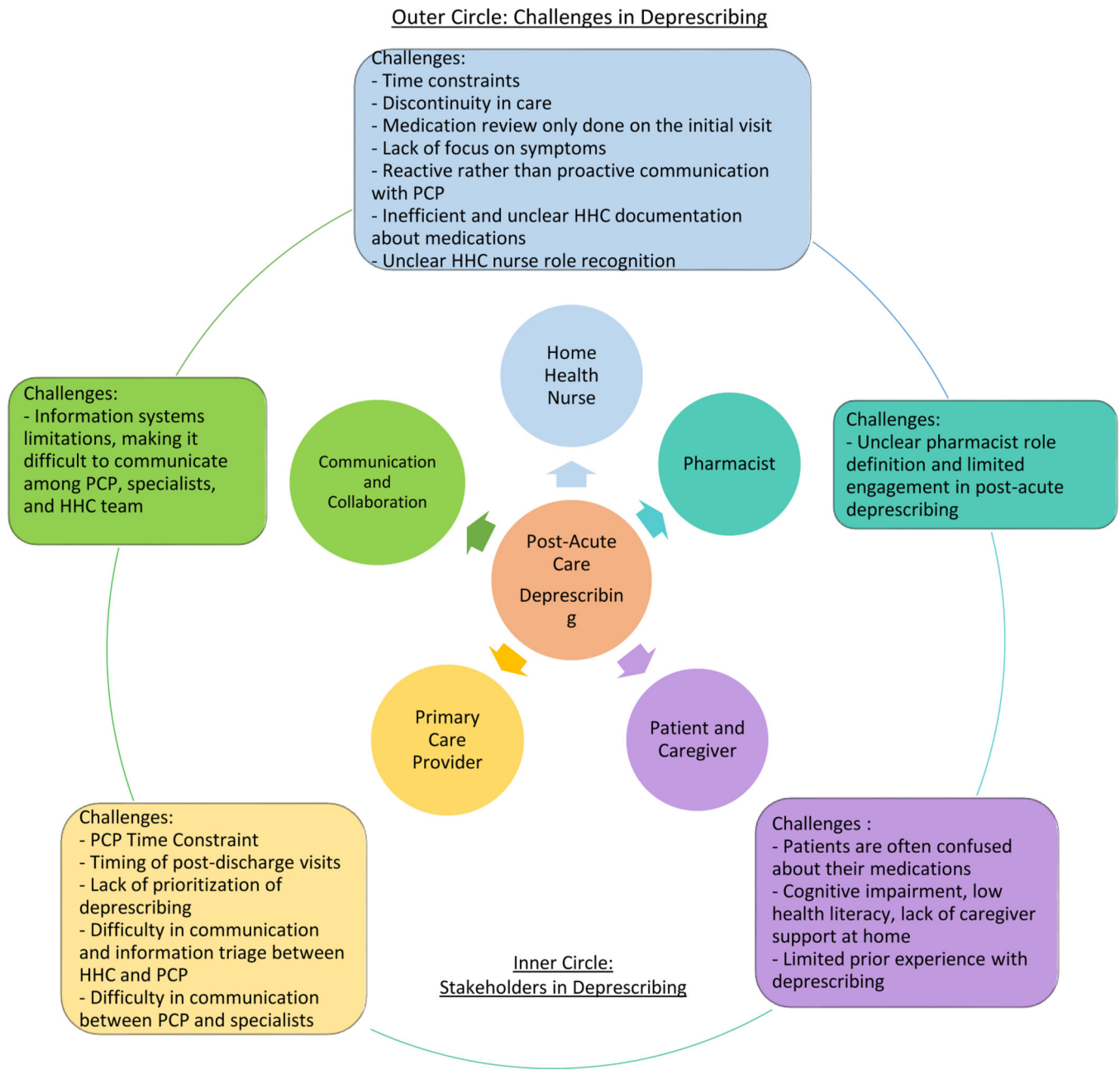


Figure 1.
Process of Post-Acute Deprescribing in Home Health Care

Table 1.

Demographic Characteristics by Stakeholder Group

	Patients (n = 9)	Providers (n=10)	Home health care nurses (n=11)
Average age, mean (S.D.)	70.9 (6.11)	36.3 (4.85)	46.6 (12.20)
Female, % (N)	55.6% (5)	80.0% (8)	90.9% (9)
Race, % (N)			
- White	23.3% (7)	80% (8)	100% (11)
- Black or African Americans	6.7% (2)	0	0
- Asian	0	10% (1)	0
- American Indian/Alaska Native	0	0	0
- Native Hawaiian or other Pacific Islander	0	0	0
- More than one race	0	0	0
- Other, % (N)	0	10% (1)	0
Ethnicity:			
- Hispanics, % (N)	0% (0)	10% (1)	0
- Not Hispanics, % (N)	100% (9)	90% (9)	100%
Education, % (N)			
- High school graduate	33.3% (3)	0	0
- College	22.2% (2)	0	45.5% (5)
- Graduate/Professional school	44.4% (4)	10% (1)	45.5% (5)
- Doctorate degree	0	90% (9)	9.1% (1)
Married, % (N)	55.6% (5)	N/A	N/A
Living arrangement			
- living alone, % (N)	33.3% (3)	N/A	N/A
- living with others, % (N)	66.7 % (6)		
- in congregate facilities, % (N)	0		
Years of Experience in Current Role, mean (S.D.)	N/A	6.1 (3.41)	10.8 (12.25)

Table 2:

Categories, Themes and Quotes of Challenges in Post-Acute Deprescribing in Home Health Care

Category	Sub-Category	Stakeholder: Quotes
Timing: PCPs' time constraints, the timing of patient encounters after hospital discharge create barriers to deprescribing during post-acute care transitions in HHC.	Time constraints of PCPs	PCP: <i>As the primary care doctor, I do not have enough time to spend on a patient like this because of how our system is built. I get 20 minutes for a complex hospital discharge. That is a completely insufficient amount of time.</i>
	Non-ideal timing of PCP post-discharge visits	HHC Nurse: <i>Most of the time if I call my doctor, I'm going through the automatic voice and don't get in actual contact with my doctor's office. And that is annoying.</i> PCP: <i>Patients will reschedule or something will come up</i>
	Time constraints of HHC visits.	PCP: <i>I've seen where they only had that one medication for a month and then they don't have it anymore.</i> HHC Nurse: <i>We're limited with the time we're allowed to keep a patient" and "they [CMS] want you to reach it once or twice, and then get out and move on</i>
	Prioritization of deprescribing	PCP: <i>When I see 30 patients a day, it [deprescribing] is the last thing on my mind</i>
Lack of prioritization of deprescribing make it difficult for PCPs to initiate post-acute deprescribing	Discontinuity in care	HHC Nurse: <i>They (PCPs) will not touch it. I will always get, you have to call that (specialist) office'</i> PCP: <i>When you're prescribing something you think is needed, you're taking responsibility for that medicine, and any reactions they have. Ownership is important, but it gets complicated when you've got multiple prescribers</i>
	Education efforts by clinicians	HHC Nurse: <i>What they know about what they're taking, how often they take it to grasp where they are [in their current understanding]</i> HHC nurse: <i>Setting up medication organizers for or in conjunction with, the patient and providing education throughout", determine how the patient learns best</i> HHC nurse: <i>"not only reassure and educate the patient", but also "support a physician or nurse practitioner to try something different with a patient's medications."</i> HHC nurse: <i>Sometimes patients don't want to stop taking medications because they've taken them for 20 years, even if it [medication] is doing nothing for them anymore or causing other symptoms...once you figure out that the medications are the issue, working with that doctor to remind them. 'Hey, we're here. We can educate this patient. We can help monitor as you take a patient off or as you decrease [the dose].</i> <i>We can go see them more frequently, if you need us to. We can be there to check all those things that, normally, you'd wait a couple weeks to see them in your office, and we can get back to you."</i> Hospitalist: <i>"If someone else besides me checking in, giving them [patients] education, telling them, "Hey. You're not gonna need to take aspirin everyone—81 every day 'cause it's not benefiting you. And that's what your doctor said." Reminding them and reinforcing that, which I think will really make a difference to patients' lives at this point in time and having the community benefit of having them there in the home is, I think, solidified."</i> PCP: <i>I think education on why it's important, so that's patient education on the hospital side saying, 'This is what your discharge list is'. I mean, they're supposed to be doing this anyway, and I know they do, but sometimes it just gets lost in translation, or they're talking to the wrong person.</i> PCP: <i>I think in my practice, [patient education] is mostly provider-driven.</i>

Category	Sub-Category	Stakeholder: Quotes
Communication is challenging between HHC nurses, PCPs, specialists, and hospitalists.	Patient confusion	HHC nurse: (Patients) have “a lot more medications in their home that are not on their list; patients store medications “all over the place [within their home],” and they “don’t really know exactly what they’re taking”
	Inefficient triage and phone tags	HHC nurse: It usually takes two phone calls to get anything accomplished, at least a few days for someone to get back to me,..., a lot of it gets lost in the mix
	Being reactive rather than proactive	HHC nurse: We just point out any side effects that people may be having. Bring it to their [PCPs’] attention that the patient is not taking these medications, or, make sure that the medications you [PCP] want them to take are being taken. But in terms of they’re on 20 [medications], do they need all? Can we get rid of these 10? We don’t do that at all.
	Information systems limitations	PCP: We have the benefit of being on the same records. And we promote our patients to go there [hospital] because of that continuity and that ability to communicate and see all those things. I’ve gotten several messages on e-record, saying, ‘We’ve got your patient in the hospital. They’re on this dose of this blood thinner, which we weren’t expecting. Is there a reason?’ They [hospitalists] ask the question, which I totally appreciate.” PCP: It’s harder out of the system, specialists who are not, whether at <Hospital> or <Hospital>, at least I can see the notes now. But it’s not like I can just send a message or send an email or something and get ahold of people. So I know I communicate less with those specialists because it’s hard. You know? Till you sit on the phone and, um, the effects are went over. It’s just with those roadblocks to communication, it’s easier to just make the change [without communicating]
		PCP: I will say that the visiting nurse, um, it’s a bit of a handicap, that it’s not in our electronic medical record system.. <electronic health record system> just has too many rabbit holes to get lost in. My ideal system would be something that isn’t so disparate, you know, where, you know, we-at <hospital> has <electronic health record system>, but we can’t access that easily, that’s a real problem. And the pharmacy uses a different system. The fact that we have so many different health electronic medical record systems in this country is a travesty, and it’s really a problem.
Interdisciplinary Collaboration: The roles of HHC nurses and pharmacists are limited in care team collaboration and discussion about post-acute deprescribing		HHC Nurse: The challenge we have right now is that the health system and the rest of our providers are on <electronic health record system>, and home care is on its own separate different platform... We don’t always get a current list at discharge. There is still, to this day, poor coordination between facilities and post-acute care agencies, like home health. ...the records between the [hospital] discharge planner and the home health agency are not always provided, not provided timely, and not provided updated.
	Inefficient HHC documentation	PCP: If I need to decrease a medicine, I write a new prescription, so patients know that they’re on the new dosage. The next time the home [care] nurse sees them, they note that change, they send me a new order to sign on the same medication change that I made. It duplicates work
	HHC nurse role recognition	PCP: I’m not sure how many people in my role always know the viewpoint from home health care, because we don’t meet them [HHC nurses] in the hospital, they’re not on our care coordinator rounds with us, and we don’t often see them in the office
	Pharmacist engagement and role definition	PCP: (pharmacists) taking a fresh look at the medication list” as “someone who is not responsible for building that list.” HHC Nurse: Traditionally there is not a pharmacist on the [home health care] team, and that is something that has been looked at for years. How do we make that happen? And, like I said, it’s been asked for years. There has been moderate success in working with some payer providers who may have pharmacists on their team that can easily be accessed. But for the most part, you’re relying on calling CVS, calling Walgreens, calling the local pharmacy that they might use, and actually speaking to the pharmacist.
		Patient: “The pharmacist very likely has a list of everything that I’m taking.” Patient: It seems like the pharmacists around here are so busy, they don’t have time to talk to you.”

Note: PCP = Primary Care Provider; HHC = Home Health Care

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