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Exploring consumer and healthcare professional perspectives on discharge medicine communication and solutions for safer transitions of care

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Abstract

Background The period immediately following hospital discharge is a time of heightened vulnerability for patients compounded by poor communication and information transfer between hospital and primary care healthcare professionals. These gaps contribute to medication-related harm, which accounts for a substantial proportion of preventable readmissions and emergency department presentations. This study explored the perspectives of consumers and healthcare professionals on discharge medicine information handover to inform the development of an intervention to improve transitions of care.

Methods Qualitative methodology was used through focus group discussions in Southeast Queensland, Australia, between March–August 2024. Participants included hospital-based doctors, nurses, and pharmacists; primary care healthcare professionals (general practitioners, community pharmacists, and credentialled pharmacists); and consumers and carers with experience of post-discharge medicine management. Data were audio-recorded, transcribed verbatim, and analysed inductively using thematic analysis. Rigour was enhanced through iterative coding cycles, reflexive team discussions, and triangulation across diverse stakeholder groups.

Results Seventy-five participants contributed to 12 focus groups. Three overarching themes with eight subthemes were identified. First, discharge documentation was frequently delayed, incomplete, or poorly structured, with workforce constraints and fragmented digital systems compounding these issues. Second, primary care providers often received no notification of discharge information, with inaccurate contact details and absent verification processes leading to missed or delayed follow-up. Third, patients reported insufficient or unclear medicine information at discharge, limiting their confidence in post-discharge self-management. Proposed solutions included greater pharmacist involvement in discharge planning, decoupling discharge medicine lists from discharge summaries, automated alerts to confirm receipt of information, improved use of digital health systems, and enhanced patient/carer engagement.

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Conclusion This study highlights persistent challenges in the transfer of medicine information at hospital discharge at system, healthcare professional, and patient levels. Participants identified practical strategies to address these gaps, including pharmacist-led interventions, digital solutions, and patient-centred discharge practices. These findings will inform the design of a multifaceted intervention to improve medicine handover and reduce 30-day hospital readmissions due to medication-related harm. Broader system investment in workforce capacity, digital integration, and patient engagement will be essential to promote safer transitions of care.

Trial registration number This trial is registered with the Australian New Zealand Clinical Trials Registry: ACTRN12624000480583p, registered 19 April 2024, https://www.anzctr.org.au/ACTRN12624000480583p.aspx.

Keywords Medicine handover, Transitions of care, Hospital discharge, Medication-related harm, Community pharmacy, Medication safety, Discharge communication, Discharge medicines list

Background

The post-hospital discharge period is a well-recognised time of vulnerability for patients. Poor communication and information transfer between hospital-based and primary care healthcare professionals during this transition of care can increase a patient's risk of medication-related harm (MRH) [1]. MRH includes harm from medicine non-adherence, inappropriate or suboptimal use of medicines, adverse drug reactions, and medication errors resulting directly from poor discharge communication [2]. A systematic review found that MRH accounts for 17–51% of hospital readmissions within 30 days of discharge [2]. In Australia, MRH accounts for an estimated 250,000 hospital admissions and 400,000 emergency department presentations each year [3], representing a significant patient safety and health economic issue. In fact, the World Health Organization (WHO) estimates that medication-related problems, an umbrella term that includes MRH, contribute to over US$42 billion in global healthcare costs annually, with many of these costs arising during transitions of care [4]. To address the significant financial and personal safety impact, the WHO launched the Third Global Patient Safety Challenge—*Medication Without Harm*—in 2017, aiming to reduce severe, avoidable MRH globally by 50% within five years. A key strategy was to improve the handover of medication management at transitions of care [4], which is the focus of this project.

The transition of care after hospital discharge is a particularly high-risk period for MRH for multiple reasons, including the impact of acute illness and hospital stay on the patient [5], potential medicine discrepancies [6], limited personalised patient/carer education on discharge medicines [7, 8], changes to medicines, and lack of communication between hospital and primary care healthcare professionals [9]. Older individuals with multiple comorbidities and complex medication regimens are especially vulnerable to MRH and preventable readmissions [3, 10–14]. With the growth of the aging population, Australia, like other countries [15–17] has recognised the importance of ensuring the safe and effective transfer of medicine information at hospital discharge and, in 2019, declared medication safety a National Health Priority [11]. Despite national recognition of medication safety as a health priority, challenges in discharge communication remain a persistent barrier to safe transitions of care [18, 19].

A study on hospital discharge communication problems in ten high-income countries found poor discharge communication rate was 17.1% [20]. While Australian standards specify that an accurate and up-to-date medicine list should be provided to a patient at discharge [21], research has found delayed or inconsistent transfer of information to primary care healthcare professionals, including general practitioners (GPs) and community pharmacists [22–24]. However, these struggles are shared in many other countries; a Swedish study found that only 41% of discharge summaries were found within primary care medical records [25]. Within Australia, post-discharge MRH is compounded by the lack of interoperable electronic health records between hospitals and general practices, with a national platform termed My Health Record aiming to address this but is plagued by incomplete and poorly structured data. In addition, many patients have opted out of My Health Record due to privacy concerns [26]. This often leaves GPs unaware of their patients' recent hospitalisation, requiring them to rely on patients or carers to convey important hospital medicine changes [27]. These ongoing communication gaps at hospital discharge highlight the importance of medicine information transfer in preventing MRH.

Given the persistent disconnect between hospital and primary care services, and its impact on patient safety and the financial burden to the healthcare system, improving discharge medicine communication remains a key challenge in healthcare delivery. This study is the stakeholder engagement component (phase 1) of the OPTimising MEDicine information handover after Discharge (OPTMED-D) project, a three-phase study designed to improve medicine handover and reduce 30-day hospital readmissions [28]. Phase 1 involves stakeholder engagement; phase 2 focuses on developing

the intervention; and phase 3 is a stepped wedge cluster randomised controlled trial that coordinates medication management review services for moderate- and high-risk patients being discharged from seven participating hospitals in Southeast Queensland (Gold Coast and Brisbane), Australia, with feedback provided to patients' nominated GP.

The aim of this study was to explore the perspectives of consumers and healthcare professionals, including hospital-based doctors, nurses, and pharmacists, as well as GPs and community pharmacists, on the factors that influence the handover of discharge medicine information and interventions that may improve this process. The study was conducted in Australia, but the findings are likely to be at least partly applicable to other jurisdictions facing the same issues.

Methods

Study design and setting

This was a qualitative study comprising focus groups that were conducted in the Gold Coast and Brisbane, Australia. Ethics approval for this study was obtained from Gold Coast Hospital and Health Service Human Research Ethics Committee (REB#101063), in accordance with the Declaration of Helsinki. This study complied with the Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist [29].

In the Australian healthcare system, the hospital discharge process typically involves the medical team preparing a discharge summary: a clinical document outlining diagnoses, treatments, and follow-up plans. This summary is often generated as an electronic discharge summary and is intended for the patient's primary care healthcare professionals. Patients may be provided with a physical copy to share with their primary care healthcare professionals. In some instances, the discharge summary is sent to the primary care healthcare professional via mail, or directly into their GP software inbox. In addition, a discharge medication record (DMR, also called a discharge medicines list) is prepared, mostly by a hospital pharmacist, to provide detailed information about the patient's medicines at the point of discharge, including any changes made during the hospital stay and ongoing management advice (e.g. tapering down or ceasing short course medicines).

Participants and recruitment

Focus groups consisted of either hospital healthcare professionals (doctors, nurses, and pharmacists), primary care healthcare professionals (pharmacists and GPs), or consumers. Hospital and primary care healthcare professionals were eligible to participate if they were involved in the transfer of care process (i.e. writing or actioning discharge summaries) at the time of recruitment. Consumers were eligible if they were a patient experiencing polypharmacy (> 5 regular medicines) or the primary carer of a patient on polypharmacy. All consumers/carers had experienced a recent transition of care (< 12 months). Consumers and primary care health professionals were compensated for their time; hospital healthcare professionals received lunch if they attended an in-person focus group.

Hospital healthcare professionals invited were from the seven hospitals part of Gold Coast and Metro South Hospital and Health Services. Primary care healthcare professionals were from Gold Coast and Brisbane South (including the Logan area). Primary care pharmacists included community, credentialed and GP practice pharmacists. Credentialed pharmacists are pharmacists that have undertaken additional formal postgraduate training to complete Home Medicines Reviews (HMR) and Residential Medication Management Reviews and Quality Use of Medicines Programs [30] as per the Program Rules whereas GP pharmacists are located in GP practices [31].

For the recruitment of hospital healthcare professionals, the study team collaborated with the Directors of Pharmacy and the Clinical Education Units at participating hospitals to email healthcare professionals an information sheet outlining the study. For the recruitment of primary care healthcare professionals, the Brisbane South and Gold Coast Primary Health Networks emailed their memberships the study information sheet. In addition, study team members emailed colleagues to share the information sheet within their networks. Interested hospital and primary care healthcare professionals responded via email to register for a focus group. All interested healthcare professionals were emailed a consent form to review and sign prior to the focus group.

Multiple recruitment methods were used to recruit consumers. Study information was posted on the Health Consumers Queensland, a state-wide organisation that represents the involvement of health consumers/carers in healthcare research, website. The Gold Coast and Metro South Hospital and Health Services emailed study information to their Consumer Advisory Group members. In addition, the University of Queensland sent study information to their database of consumers engaged in health research. All interested consumers/carers contacted the study team via the study email to register for a focus group. All were emailed a consent form to review and sign prior to the focus group.

Data collection

Two focus group question guides (Appendix 1) aligned with the study aims, relevant literature, and input from all investigators were developed: one tailored for consumers and carers, and the other for hospital and primary care healthcare professionals. The consumer/carer

guide comprised eight questions with multiple probes and underwent face validation by the OPTMED-D Consumer Reference Group and Steering Committee. Topics included experiences with medicine changes during hospitalisation, desired information before and after discharge, preferences for information sharing, strategies to enhance consumer involvement, and suggestions to improve both communication between healthcare professionals and the overall discharge process.

The healthcare professional guide included four core questions focused on improving medicine information handover; engaging patients and carers in the discharge process; identifying desired digital interventions that may assist handovers; and exploring how a hypothetical digital solution could integrate with existing systems. This guide underwent face validation by the project's Steering Committee.

Focus groups were conducted online or in-person using interactive and participatory methods to engage participants and stimulate robust discussions. Hospital focus groups were either online and in-person (based on the availability of facilitators and participants), primary care focus groups were conducted online, and consumers were able to choose between attending an in-person or online focus group. There were no hybrid focus groups. All participants were encouraged to provide input. Sessions were facilitated by authors LEO and LH, both with experience in facilitating interviews and focus groups. Two consumer representatives, with experience in health service advisory groups and workshop facilitation, additionally co-facilitated the consumer focus groups. Field notes were taken to capture contextual factors. The focus group audio recordings were transcribed verbatim, de-identified, and verified by LEO prior to analysis.

Data analysis

De-identified transcripts were uploaded to NVivo 13 for thematic analysis. A reflexive thematic analysis process was followed that involved becoming familiar with the dataset followed by inductive line-by-line coding [32]. This approach allowed themes to emerge directly from the data, ensuring that findings were grounded in participants' perspectives. Initial coding was undertaken by LEO. Codes were refined through multiple iterative cycles with LEO, LH, and FY, during which emerging themes and subthemes were identified, grouped, reorganised and reviewed to capture patterns across the dataset. Any differing interpretations were collaboratively discussed by LEO, LH, and FY until consensus was reached. Recruitment and data collection ceased when adequate data were generated, enabling a rich and complex account of diverse patterns and understandings on discharge medicine information handover to inform the development of an intervention to improve transitions of care.

Research rigor and positionality

To enhance rigor, reflexivity was maintained by the researchers through regular team meetings and with discussions on how positionality might impact coding interpretation and theme development. Researcher positionality was addressed with workshop participants being informed that co-facilitator LH is a pharmacist and it was clarified that LH was attending in her capacity as a researcher, not as a clinical representative. Throughout the sessions, participants appeared comfortable sharing both positive and negative viewpoints, suggesting that the presence of a pharmacist facilitator did not influence their responses. Positionality was also addressed through ongoing reflexivity and transparency during the data collection and analysis stages. Researchers involved in data collection and analysis (LEO, LH and FY) practised reflexivity, conscious of their role as healthcare professionals and acknowledged their own potential influence on interpretation of results. The authors' backgrounds are varied (pharmacy, nursing, medical, health economics, digital health) and all were cognisant of their backgrounds in their contribution to interpreting the results.

Results

Participant and workshop characteristics

Twelve focus groups (6 face-to-face and 6 online via MS Teams) were conducted between March and August 2024. Healthcare professional focus groups were one hour in length, and consumer sessions were two hours.

Seventy-five participants were included in this study (Table 1). Participants represented a range of healthcare professionals including hospital-based healthcare professionals (doctors, nurses, pharmacists) and primary care healthcare professionals (GPs and community, credentialled and GP pharmacists) as well as consumers, including patients and carers with experience managing medicines post-discharge. The majority were women ($n = 56$, 74.7%) and employed as pharmacists ($n = 38$, 50.7%).

Themes

There were three major themes and eight sub-themes, which focused on challenges with medicine information handover after hospital discharge and proposed solutions (summarised in Table 2). Below, quotes are referenced by codes including the participant number, their role (D = doctor, P = pharmacist, C = consumer/carer), and session attended (H = hospital, PC = primary care). For example, P45DPC refers to participant 45, a doctor in primary care.

Table 1 Participant demographics

	n	%
Sex		
Female	56	75
Male	19	25
Other	0	0
Focus Group		
Hospital clinicians	40	54
Primary care clinicians	16	21
Consumer and/or carer	19	25
Role		
Hospital doctor	10	13
Hospital nurse	3	4
Hospital pharmacist	27	36
Community pharmacist	5	7
Credentialed pharmacist	3	4
GP pharmacist	3	4
General practitioner	5	7
Consumer/carer	19	25
Location		
Gold Coast	28	37
Brisbane	47	63

Theme 1: Suboptimal transfer of medicine information at discharge

Participants' shared experiences with information transfer when patients were discharged from hospital which were often suboptimal caused by discharge documentation not being sent and received in a timely way and with inaccurate medicine information. Reasons for this included staffing shortages and fragmented digital systems impacting information transfer.

Discharge documentation delays and quality concerns Participants consistently reported that the handover of medicine information, via discharge summaries or discharge medicine lists, from hospital to primary care was often delayed, non-existent, or poorly structured. GPs highlighted frequent delays in receiving discharge summaries, often receiving them after they had already made post-discharge prescribing decisions:

> *Digital discharge letters from the hospital can take up to six weeks to arrive…I have to make decisions on medications often long before the information comes P45DPC.*

Discharge summaries were critiqued for omitting key medication-related information. Consumers and primary care healthcare professionals noted that many discharge summaries did not include a medicine list:

> *The discharge summary did not include any discussions of my medications. - P38C*

> *I'd say half of my discharge summaries don't have medication discharge included in it - P46DPC*

In addition, several hospital participants noted that medicine lists were often copied from inpatient charts without prior verification through admission medicine reconciliation, despite this being well known as best practice:

> *Medication history is actually not done for maybe 3/4 of the patients in the hospital that I work at. And therefore, when we do the discharge summary, it's purely based on what's on the chart - P54PPC*

Hospital pharmacists perceived the documentation format to be restrictive, lacking space for recommended changes in medicines, weaning plans, or deprescribing decisions, and their accompanying clinical rationales:

> *With a DMR [discharge medication record], there's very limited space to make recommendations…or a weaning plan - P66PH*

Table 2 Overview of study results

Major Themes	Sub-themes	Proposed Solutions
Suboptimal transfer of medicine information at discharge	• Discharge documentation delays and quality concerns • Impact of workforce shortages/constraints on discharge quality • Fragmented and incomplete digital systems	• Early pharmacist involvement in discharge planning • Integrating pharmacists into multidisciplinary teams • Decoupling discharge medicine list from discharge summary • Flagging at risk patients for additional interventions • Utilising post-discharge medication management review services • Improving integration and utilisation of My Health Record
Unverified receipt of information in primary care	• Lack of confirmation mechanisms • Incorrect recipient details • Resource limits affecting follow-up	• GP access to iEMR, automated alerts/flags • Verify contact details on admission • Automated patient discharge alerts/flags for GPs and community pharmacists
Poor communication and support for patients at discharge	• Inconsistent information received • Disempowerment	• Carer involvement in discharge planning and counseling • Clear and concise discharge medicine list • Providing consumers desired discharge information (Table 4) • Trial self-administering medicines prior to discharge • Post-discharge SMS or phone calls

Workforce shortages/constraints impacting discharge handover quality Participants identified workforce constraints among both hospital doctors and pharmacists as a key factor limiting the timeliness and quality of discharge documentation. One junior doctor stated:

> *I agree with the importance of timely completion of discharge summaries, but that does depend on inpatient workload. There's been times where there's been significant delays. By that, I mean, I'm talking weeks until a discharge summary is sent out - P63DH*

Staffing shortages meant medicine reconciliation prior to hospital discharge was often delayed or skipped, especially for patients discharged on Fridays or weekends:

> *Healthcare is a 24-hour business, right? …I guess by saying that pharmacies are a 9 – 5 process, we're saying that we're nice to have, not essential P72PH*

This results in reconciliation not being completed in a timely way. Participants noted that staffing limitations reduced opportunities for patient education and interdisciplinary healthcare professional collaboration during the discharge process.

Fragmented and incomplete digital systems The lack of integration between digital platforms across hospitals, general practice, and community pharmacies impeded efficient information transfer. Participants described a patchwork of systems that often failed to communicate with each other:

> *The biggest challenge is digital intervention…we already have so many different computer systems we're operating between the public and private enterprise, in GP land [i.e. the GP setting] and community pharmacy, with so many disparate service providers P72PH*

Participants at every focus group discussed My Health Record, with many participants, especially consumers, supporting use of My Health Record as a unified system. In fact, one pharmacist suggested a focus should be:

> *To educate patients to not opt out - P26PH*

However, some primary care healthcare professionals were not confident using My Health Record and noted that many healthcare professionals do not upload data to it. Some primary care healthcare professionals noted that uploading data is time consuming and does not fit into existing workflows. This made My Health Record an incomplete and unreliable source of patient information.

Proposed solutions Participants recommended a range of strategies to improve the accuracy, timeliness, and clarity of discharge medicine information handover. These included early pharmacist involvement in discharge planning, integration of pharmacists into multidisciplinary teams, and flagging patients at risk of MRH to enable targeted interventions. In addition, some participants recommended decoupling the discharge medicine list from the full discharge summary to ensure timely access for primary care healthcare professionals:

> *Sometimes…you've got 20-plus discharges a day, so the discharge summaries aren't getting done…if we were sending the list directly to the GP and community pharmacy, that's going to be quicker - P62PH*

Some participants proposed using My Health Record as a unifying digital system, whereas others recommended the creation of new digital workflows or systems. Additionally, hospital-initiated MedsCheck (medicine review at a patient's community pharmacy) or HMR (medicine review at a patient's home, completed by a credentialled pharmacist) programs were suggested as mechanisms to support post-discharge medication reconciliation and adherence. Both MedsCheck and HMRs are established Australian medication review services; however, hospital-initiated MedsChecks are not currently available, whereas hospital-initiated HMRs exist but are rarely utilized. Despite these recommendations, several participants raised concerns about the reliability of post-discharge follow-up and whether primary care healthcare professionals consistently accessed or acted on the hospital discharge information provided.

Theme 2: Unverified receipt of information in primary care

Hospital healthcare professionals described uncertainty surrounding whether discharge information sent to GPs and community pharmacists was received, accessed, and acted upon. Incorrect or outdated recipient details in hospital systems were reported as a frequent cause of discharge information being misdirected. While some hospital pharmacists supported follow-up phone calls or emails, this was often seen as unsustainable given resource constraints. Suggested solutions included verifying contact details at hospital admission, introducing automated alerts within digital systems, and expanding GP access to hospital medical records.

Lack of confirmation mechanisms Hospital healthcare professionals highlighted that even when discharge information was sent to GPs or community pharmacists, mechanisms were lacking to verify discharge information was received, accessed, or actioned. Hospital healthcare professionals described an assumption that information

electronically sent to primary care was received, since there was no formal acknowledgment process:

> *We actually are blindly assuming that they're getting them - P40PH*

> *There have been lots of instances where you have sent an email with information and medication summaries to community pharmacy and it hasn't been accompanied with verbal communication, like a phone call. I found either that email hasn't been actioned or it's just been sitting in the inbox, hasn't been read - P09NH*

Hospital healthcare professionals felt communication was largely unidirectional and unconfirmed. This lack of confirmation meant GPs might be unaware that a patient had been hospitalised or discharged, undermining post-discharge care. In fact, one consumer stated:

> *So, I'll make my appointment and when I get down there, my GP doesn't even know I've been in the hospital - P33C*

To facilitate information sharing, hospital healthcare professionals stated they instructed patients to share their discharge medicine list with their GP, but no systematic follow-up ensures that this occurs. From their knowledge, discharge information (namely the discharge summary) was automatically sent to the GP, although some hospital healthcare professionals remained unclear on how this information was transferred.

Incorrect recipient details Several participants cited inaccurate GP or community pharmacy contact details in hospital systems as a frequent cause of misdirected discharge summaries:

> *46% [of the GP details checked at admission] are not the correct GP so that the information that you do is going to the wrong person and the GP never receives it P67PH.*

Inadequate processes for updating or verifying contact information were seen as the root cause of these failures.

Resource limits affecting follow-up While some participants supported follow-up processes by phone or email contact by hospital healthcare professionals to confirm receipt of critical information, others noted that this was unsustainable and added burden in their time-constrained work environment:

> *The manual process of us contacting pharmacies and GPs every discharge we do would not be a good use of our resource - P25PH*

Proposed solutions Participants agreed that verifying GP and pharmacist contact details at the point of hospital admission was an easy step to ensuring communication reaches the correct primary care clinician. Participants recommended:

> *Maybe there needs to be some sort of flag on a discharge or information comes through for the GP - P31C*

> *I think…there's a way in which it could be flagged as an alert or a reminder. So that on whichever end it's received on to say it's there as a reminder for the doctor, GP, pharmacist to go and check that out P57PPC.*

This approach was seen as a scalable alternative to manual follow-up, by introducing automated alerts or "flags" within digital systems to notify GPs and pharmacists when discharge information is available or when their patient has been hospitalised.

Some participants also suggested expanding GP access to hospital electronic medical records, allowing them to retrieve discharge medicine information directly from the hospital's digital system.

Theme 3: Poor communication and support for patients at discharge

In addition to gaps in clinician-to-clinician communication, both healthcare professionals and consumer participants described widespread shortcomings in how medicine information was communicated to patients. Patients often received insufficient, unclear, or inaccessible medicine information at discharge, limiting their ability to manage medicines safely post-hospitalisation. Participants identified the need for more inclusive communication, better carer involvement, and proactive follow-up strategies to improve medicine understanding and promote patient empowerment.

Inconsistent information Many consumers reported feeling overwhelmed by large volumes of complex discharge information and documents from various sources, while others received little to no explanation about their medicine changes (Table 3). Inconsistent use of brand and generic medicine names further confused patients and carers. Several patients described feeling excluded from conversations about their medicines, particularly during shift handovers or ward rounds, where they were physically present but not spoken to:

Table 3 Consumer discrepancies in information received

Information Overload	Insufficient Information
"Pharmacist…gave me a handover essentially of a very long and confusing documents with multiple medications."- P38C	"My husband was in hospital…and he never got a discharge form either, or any directions on any of his other medications."- P35C
"The trouble is that, when you get discharged from the hospital, all those lists are so overwhelming."- P20C	"It was just given to me in a brown paper bag and, you know, go home…and not explain side effects."- P37C
"Sometimes it's overwhelming, the information. Then they think of all their questions later on." -P61PH	"When they handed me the medication in the hospital, they just went through the medication, but they didn't explain to me what it was for." -P36C

Table 4 Desired information at hospital discharge

Consumers' Desired Medication Information at Discharge
Should the medication be taken with food or before/after food?
Do I need to take my medication at the same time as I did in the hospital? Can I change the time to suit my life better?
What are the side effects?
If I get a side effect, what should I do? Do I go back to the hospital or GP?
Is there anything I can do to overcome the common side effects of my medication?
Do I need to avoid any foods?
What are the generic and brand names of my medications?
Will I be on this medication for a long time?
Do you need to do any monitoring of me while I'm on this medication?
How will this medication help me?
Is there a patient information leaflet on this medication?
What do I do if I miss a dose?
Who is responsible for prescribing this new medication to me moving forward?
Can I take this medication at the same time as I take my other medications?

> *When there's handovers of shifts or there are medicos [doctors] with nurses, there is no eye-to-eye contact with the consumer. They really feel that they're not part of what is being discussed P28C*

Many consumers were unsure of what medicines had been prescribed or why and created a list of questions they would like answered at discharge within the focus groups (Table 4).

Disempowerment Patients described losing autonomy over their medicines during hospitalisation and discharge, leading to decreased confidence in managing medicines post-discharge:

> *Sometimes if you go into hospital and you've taken [in] the medication that you take regularly. They take it off you and put it in a locked drawer… I was taking this at home by myself before…So to me, that, they've taken away my power to look after myself - P39C*

Participants across stakeholder groups emphasised the need to support patients' confidence and capability in medication management as a core component of safe discharge. In addition, consumers and carers felt it was important for patients to feel confident enough in clinician-patient relationships to ask questions, particularly in the hospital setting.

In addition, several patients were unaware of medication management review services, such as MedsCheck and HMR and did not know how to access these services:

> *I've been taking more than 10 medicines for almost 20 years and I've had one med review - P33C*

Proposed solutions Participants proposed a range of strategies to improve patient engagement and education. Involving carers during discharge planning was seen as essential, particularly for older adults or those on complex regimens. Providing clear, concise, and jargon-free discharge medicine lists was consistently recommended, as was ensuring patients had an opportunity to ask questions. Specific desired discharge information was suggested by consumers to include in hospital processes (see Table 4).

Some participants suggested allowing patients to trial self-administration of medicines prior to discharge under supervision, to rebuild confidence and autonomy. Others advocated for post-discharge follow-up via phone calls or SMS reminders from hospital healthcare professionals, to reinforce key messages and provide ongoing support once patients had returned home.

Pharmacists were seen as critical enablers of these proposed solutions, both within hospital teams and through community-based services like MedsCheck and HMR. Participants explained that pharmacists can play an important role informing individuals of their eligibility for MedsCheck and HMRs.

Discussion

Healthcare professionals and consumers' perspectives on the transfer of medicine information at hospital discharge were explored in this study. Our findings highlighted persistent challenges in the timeliness, quality, sending and receipt of medicine information from hospital to primary care settings. Across stakeholder groups, participants described deficiencies in discharge documentation, a lack of verification processes for primary care communication, and inadequate support for patients to understand and manage their medicines post-discharge. These insights reinforce the well-documented risks associated

with transitions of care, while also offering practical, stakeholder-informed solutions to mitigate MRH and improve transitions of care. These findings will be used to develop and evaluate a multifaceted intervention to improve medicine handover [28].

Delayed and/or incomplete discharge summaries remain a contributor to MRH in the post-discharge period, with medicines changes often poorly documented, unverifiable, or inaccessible to primary care healthcare professionals when providing follow-up care [22–24, 33]. In line with previous research, our findings indicate that GPs frequently receive discharge medicine lists too late to inform clinical decisions during transition of care [33]. These gaps can be partially attributed to workforce constraints [34], particularly among hospital pharmacists and junior doctors responsible for preparing discharge summaries and medicine lists under pressure.

Participants described a fragmented digital environment, with My Health Record, Australia's national digital health system, seen by some as a solution to centralise records and streamline access to discharge information, while others raised concerns about its reliability due to inconsistent use among healthcare professionals. These concerns are well supported in the literature, which identifies common barriers to effective use of My Health Record, including poor system usability due to increased workload, lack of training, and limited healthcare professional trust in the data it contains [35]. Furthermore, studies have found that patients often do not understand how My Health Record works and opt-out rates remain high due to privacy concerns, despite efforts to promote its use [35, 36]. While My Health Record holds promise as a unifying digital platform, its current limitations suggest that reliance on My Health Record alone is unlikely to address the broader challenges identified in our study. Importantly, these findings have relevance beyond Australia, as the development and implementation of electronic health records varies internationally. A well-functioning electronic health record system has the potential to improve the accuracy and timeliness of medicine-related information transfer at care transitions, and lessons learned from the Australian context may provide insights for other countries seeking to strengthen digital health infrastructure and support safer communication of discharge information.

Some participants recommended using pharmacist-led interventions such as MedsChecks and HMRs, to improve post-discharge medicine safety. Evidence supports the effectiveness of HMRs in reducing hospitalisations among older adults [37, 38], yet many consumers in our study were unaware of their eligibility and had never been offered these services. Although referral pathways for HMRs were broadened to allow hospital clinicians to initiate referrals [39], uptake remains limited, suggesting persistent implementation barriers. For instance, there is no standardized process for coordinating medication reviews across care settings. MedsChecks are performed in community pharmacies whereas HMRs are conducted by a credentialed pharmacist following a GP referral. This division between hospital and primary care creates ambiguity around responsibility, remuneration, and timing [40]. For instance, GPs may not be involved in the review process for hospital initiated HMRs and therefore are ineligible to claim for medication reconciliation, potentially disincentivizing follow up care. However, hospital initiation of HMR is one potential solution for more timely review of high-risk patients [41]. Emerging approaches such as the transitional care pharmacist stewardship model [19] and implementation of the Transitions of Care Tool kit [42] may offer a more coordinated approach [19].

Our findings highlight that hospital healthcare professionals often assume discharge information is received and actioned by primary care healthcare professionals, yet lack mechanisms to verify this, leading to gaps in follow-up care. To address this notification processes are needed, such as the integration of alerts or flags within clinical and dispensing software used by GPs and community pharmacists. Embedding digital communication into routine workflows can improve standardization and prompt timely review and follow-up of discharge information, reducing reliance on patients as messengers [43, 44]. Additionally, pathways for interpersonal communication, such as hospital-based transition of care pharmacists (i.e. Pharmacist Navigators), could serve as dedicated points of contact for primary care healthcare professionals, enabling bi-directional communication and ensuring discharge information is received and acted upon.

In addition to system-level communication failures, our findings highlight gaps in direct communication with patients. Consistent with existing literature [45, 46], patients in this study described receiving medicine information that was either overwhelming or unclear. Such information was often delivered without providing sufficient opportunity for discussion, which is discordant with the tenets of patient-centred care espoused by doctors, nurses and patients alike. Consumers reported being confused by interchangeable use of brand and generic names, excluded from clinical discussions, and left unsure about how to manage new regimens. Some patients also described their autonomy being removed during hospitalisation, eroding their confidence to resume medicine self-management at home. The literature consistently highlights patient engagement as a key factor in reducing MRH [47], yet practical implementation of shared decision-making and self-management support remains limited. This is despite extensive

educational resources created by the Australian Commission on Safety and Quality in Health Care and other bodies to assist in ensuring shared decision-making occurs in healthcare settings [48, 49].

Collectively, these findings suggest that improving discharge medicine communication will require coordinated multiprofessional collaboration and targeted resourcing across multiple levels of the health system. Ensuring that discharge information is confirmed to reach the right healthcare professional who is resourced to action and update treatment plans can assist and empower patients to understand and manage their medicines, rather than confuse them. System and local level changes in these processes must be central priorities in efforts to reduce MRH. While national initiatives such as the recognition of medication safety as an Australian National Health Priority are encouraging, our findings suggest that significant work and resourcing is required to embed these principles into everyday hospital discharge practices.

Strengths and limitations

A key strength of this study is its inclusion of diverse perspectives from both service users and healthcare providers, including consumers, carers, and both hospital and community-based healthcare professionals. This study had representation from all ($n=7$) hospitals engaged in our trial, which is particularly valuable given that hospital administration, digital systems, and service delivery can differ across health services in Australia. Capturing input from every site within two health services provides complete insight into the challenges and opportunities these health services face.

The use of interactive focus groups enabled rich discussion of both problems and proposed solutions. However, these findings may not be transferable beyond the Australian context, particularly in settings with different digital health infrastructures, or those healthcare professionals practising/residing in rural settings or with culturally and linguistically diverse populations. In addition, as recruitment was conducted electronically, there is potential for digital exclusion, which may have limited participation from consumers/carers with lower digital literacy or reduced access to technology, affecting participant diversity. We acknowledge that there was not equal representation of the various stakeholders with many participants being hospital pharmacists ($n=27$, 36%). However, the focus of the larger study is on medicine information handover which is mostly the role of hospital pharmacists. Finally, some participants were recruited through the researchers' professional network, which may have introduced selection bias.

Conclusion

Discharge from hospital remains a high-risk period for medicine-related harm, driven by communication failures across system, healthcare professional, and patient levels. This study represents the stakeholder engagement phase of a larger trial aimed at improving medicine handover and reducing medicine-related hospital readmissions [28]. Our overarching study is focused on working with key stakeholders to design, develop, and implement a multifaceted intervention to decrease 30-day hospital readmissions due to MRH.

This study highlights ongoing barriers to timely and effective transfer of medicine information and identifies practical, stakeholder-informed solutions. Addressing these challenges will require coordinated investment in system design, workforce capacity, and patient-centred discharge practices to promote safer transitions of care.

Abbreviations

DMR	Discharge medication record
GP	General practitioner
HMR	Home Medicines Review
MRH	Medication-related harm
OPTMED-D	OPTimising MEDicine information handover after Discharge
WHO	World Health Organization

Supplementary Information

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Supplementary Material 1

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Author contributions

LH, HF, TFS, MB, EM, FY, MM, IS, GK, CJ, BM and RN were involved in conceptualization of the study. LEO and LH conducted focus group sessions. Data coding was undertaken by LEO with input from LH and FY. LEO drafted the manuscript with input from LH and FY. All authors provided input into the final draft and approved submission.

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Data availability

Qualitative data available form the corresponding author on request.

Declarations

Ethics approval and consent to participate

Ethics approval for this study was obtained from Gold Coast Hospital and Health Service Human Research Ethics Committee (REB#101063), in accordance with the Declaration of Helsinki. Written informed consent was obtained from all participants.

Consent for publication

All authors provided consent for publication.

Competing interests

The authors declare no competing interests.

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