



Pharmacists' perspectives on medication reviews for long-term care residents with advanced dementia: a qualitative study

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Abstract

Background Medication reviews by pharmacists have been shown to identify and reduce drug-related problems in long-term care residents. **Objective** To explore pharmacist perspectives of the Australian Government funded pharmacist-conducted residential medication management review and its role improving the quality and safety of prescribing in long-term care, in particular for those living with advanced dementia. **Setting** Australian Long-term care pharmacists. **Method** A qualitative research methodology approach using semi-structured interviews was used, with participants pharmacists with Residential Medication Management Review experience. Interviews were recorded, transcribed and coded utilising a meta-model of Physician-Community Pharmacy Collaboration in medication review. **Main outcome measure** Pharmacists' perspectives on the Residential Medication Management Review and how to improve the quality of reviews for residents with advanced dementia. **Results** Fifteen accredited pharmacists participated. The majority believed that the Residential Medication Management Review had the potential to improve the quality and safety of medicines but highlighted systemic issues that worked against collaborative practice. Participants emphasised the importance of three-way collaboration between general practitioners, pharmacists and nursing staff and highlighted key strategies for its optimisation. **Conclusion** Incorporating avenues for greater communication between team members can improve collaboration between health professionals and ultimately the quality of medication reviews.

Keywords Advanced dementia · Australia · Deprescribing · Interdisciplinary collaboration · Long-term care · Medication review · Palliative care

Impacts on practice

- Greater emphasis on the importance of inter-professional collaboration between health professionals is vital for successful medication review models.
- The Residential Medication Management Review can improve quality and safety of medicines for Australian long-term residents with advanced dementia.
- Avenues for greater communication within the Residential Medication Management Review service model are required to build trusting working relationships between general practitioners, pharmacists and nursing staff in long-term care facilities to help reach better outcomes for residents.

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Introduction

Medication reviews is an approach employed internationally to identify and reduce drug-related problems (DRP) in the elderly [1–3], reduce polypharmacy and the associated unnecessary health care costs [4]. A DRP is defined as “an event or circumstance involving drug therapy that actually or potentially interferes with desired health outcomes” [5], and can occur due to inappropriate drug choice, adverse drug reactions, or drug over or under use [6, 7]. Pharmacist-led medication reviews may have a special role to play in long-term care (LTC) [8, 9], especially for residents with advanced dementia who are especially vulnerable to DRPs and less able to advocate for themselves.

Recent studies have highlighted the success of pharmacist-led medication reviews for reducing the number of medicines prescribed and identifying and addressing DRPs [4, 10–12]. There is growing evidence of the importance of multidisciplinary teamwork and collaboration as the main driver of success of medication review services in LTC facilities, especially for residents with complex needs [6, 13]. However, the effects of medication reviews on patient health outcomes such as quality of life, hospital admissions and mortality is less clear [14].

First initiated in 1997, the Residential Medication Management Review (RMMR) is an Australian Government funded service in which accredited pharmacists are remunerated to formally review permanent residents of government funded LTC facilities [15, 16]. The RMMR programme is a key component of the Australian Medicines Policy to achieve quality use of medicines (QUM) in LTC settings [17] to prevent DRPs, with a focus on general practitioner (GP) and pharmacist collaboration to reach these goals. In Australia, it is rare for aged care providers to employ pharmacists as staff members to coordinate or deliver clinical medications services. Instead, community pharmacists are employed externally and must be accredited to provide the RMMR service with the Society of Hospital Pharmacists of Australia (SHPA) or the Australian Association of Consultant Pharmacists (AACP).

The RMMR is intended to be a full clinical medication review including the following steps; (1) referral of the LTC resident by their GP, based on need or biennially, (2) accredited pharmacist gathers resident information from resident, family and/or carer, LTC staff, and/or case notes, (3) pharmacist provides medication review findings and recommendations in a written report for the GP within a reasonable time-frame of no more than 4 weeks from being initiated, and (4) post-RMMR discussion between pharmacist and GP [18].

Retrospective audits of recommendations made by pharmacists following RMMRs have found that these identify

DRPs [8, 19, 20] and can reduce the median drug burden index by 12% from baseline if implemented by a GP [21]. Their results demonstrate that medication review as a collaborative process—in this case GP cooperation—is essential to reach positive medication management outcomes. Pharmacists play a critical role in RMMRs, however to our knowledge their perspectives of how RMMRs could be optimised to deliver improved medication quality and safety, especially for residents with advanced dementia has not been explored to date.

Aim of the study

The current study aimed to explore pharmacist perspectives on barriers and facilitators to the RMMR’s potential for improving QUM, with particular reference to residents with advanced dementia.

Ethics approval

The study was approved by the Human Research Ethics Committee (HREC) at the University of Technology Sydney. All participants gave written informed consent.

Method

The consolidated criteria for reporting qualitative research (COREQ) was used to report important aspects of the research team, study methods, context of the study, analysis and findings [22].

Participants

Participants were eligible for the study if they were accredited pharmacists who currently or had previously conducted RMMRs. We were interested in perspectives of pharmacists who had moved onto management or policy roles as well as those currently conducting RMMRs.

Recruitment used two methods. First, pharmacists were contacted via the AACP website [23], which provides contact details of accredited pharmacists and indicates those who provide the RMMR service. Pharmacists listed as providing RMMRs were contacted consecutively in alphabetical order. Secondly, recruitment used a snowball method. An email invitation with contact details was circulated to the team’s established networks. Recruitment occurred from November 2015 to July 2017.

Data collection

Semi-structured interviews were undertaken with pharmacists over the telephone or face-to face. Field notes were taken during and immediately after interviews. One female researcher (DD) with a background in medical science and no previous qualitative research experience conducted all interviews. DD had brief training prior to facilitating interviews. There was no prior relationship between the interviewer and participants at the time of the interviews. Participants were told about the interviewer's background and that she was conducting this study as part of her doctoral programme. Twelve out of the fifteen participants knew one researcher (AB) prior to the study through pharmacy associations and established networks.

The interview method was used in preference over focus groups to avoid social desirability bias and encourage frank speech [24, 25]. Participants were reassured that data would be reported in a way that did not identify them. All interviews were audio-recorded and transcribed verbatim.

The interview topic guide (see Box 1) focused on experience of conducting RMMRs and aspects of the process perceived to be working well or needing improvement, using residents with advanced dementia as a case study. Emergent themes were tested in subsequent interviews.

Analysis

QSR NVivo 11 software was used to manage data.

Transcripts underwent qualitative data analysis using an integrative approach [26]. Each interview transcript was inductively coded independently by two authors (DD, TL) to form emerging initial descriptive codes. Descriptive codes were then compared and discussed to reach consensus and grouped into categories [27]. When moving to interpretive themes, codes were initially compared and allocated to sections of a model for interdisciplinary collaboration [28]. This

initial model allowed for a broader understanding of interdisciplinary collaboration within the context of the RMMR process.

A meta-model of physician-community pharmacist collaboration (PCPC) was then adopted to refine themes [29]. The PCPC model proposed by Bardet et al. [29] conceptualises trust and interdependence as core determinants of successful collaboration between physicians and community pharmacists. The forming of these core determinants depends on four processual determinants; perceptions, expectations, skills, and interest for collaborative practice. Finally, role definition and communication were conceptualised as tools to develop PCPC [29]. This model was used to classify main themes within the context of collaboration during medication review of people with advanced dementia in LTC. Sample size was determined by saturation of themes against components of the PCPC model.

Results

A total of 15 pharmacists participated in an in-depth interview, the majority being female ($n = 12$). Participants came from different states across Australia, the most from New South Wales ($n = 5$), followed by Victoria ($n = 4$), Queensland ($n = 2$), South Australia ($n = 2$) and Western Australia ($n = 2$). All participants had over 10 years experience providing the RMMR service; with eight having 10–15 years experience, and seven having 16–21 years experience. Five pharmacists had been involved since the beginning of the RMMR initiative in 1995, with 14 providing RMMRs as their primary work focus at the time of data collection. Our sample also included three pharmacists who were actively involved in the development of RMMR standards and guidelines. All pharmacists were also involved in other QUM services at LTC facilities including nurse education, providing medication audits, and involvement in Medication

Box 1 Interview topic guide questions and prompts

1. Can you please talk about your experience with the Residential Medication Management Review (RMMR) initiative?
 - Have you conducted RMMRs yourself, and if so, roughly how many?
2. Are there ways in which you think the RMMR process could be improved? For example, would you prefer there to be a national standard RMMR template? Why/why not?
 - How is the decision-making in an RMMR shared between the pharmacist and other health professionals?
 - What (if any) challenges do pharmacists face when dealing with other health professionals when preparing for, conducting or reporting an RMMR and knowing whether your recommendations have been acted on?
3. Do you have any ideas on how communication between pharmacists and other health professionals may be improved?
4. What information might be used when making decisions in the RMMR?
 - What (if any) information would be helpful to complete an RMMR but is difficult to source?
5. What (if any) special considerations are there when conducting an RMMR for an individual with advanced dementia requiring a palliative approach?
6. Are there any other Quality Use of Medicines (QUM) activities in long-term care (LTC) facilities apart from RMMRs that you think are important? (E.g. Medication Advisory Committee)
7. Is there anything else you want to mention that hasn't been covered?

Advisory Committees (MAC). A number of participants also provided reviews to patients living in their own home via the Home Medicines Review (HMR) service, and taught RMMR accreditation courses. Interviews lasted between 30 and 60 min.

Pharmacists generally asserted a belief that interdisciplinary medication reviews had excellent potential to improve medication management for LTC residents, including those with advanced dementia. However, rather than perceiving that the RMMR provided structures and support for interdisciplinary collaboration, the over-arching narrative was of pharmacists, GPs and LTC nurses finding ways *around* the constraints of the RMMR programme to improve quality and safety of prescribing.

Key barriers to the achievement of initiating, conducting high quality medication reviews and follow-up discussions were perceived to include inadequate financial and process supports for collaborative practice, as well as a lack of health professional accountability to the process and maintenance of quality—all within the context of limited time available for RMMRs amidst competing workload demands.

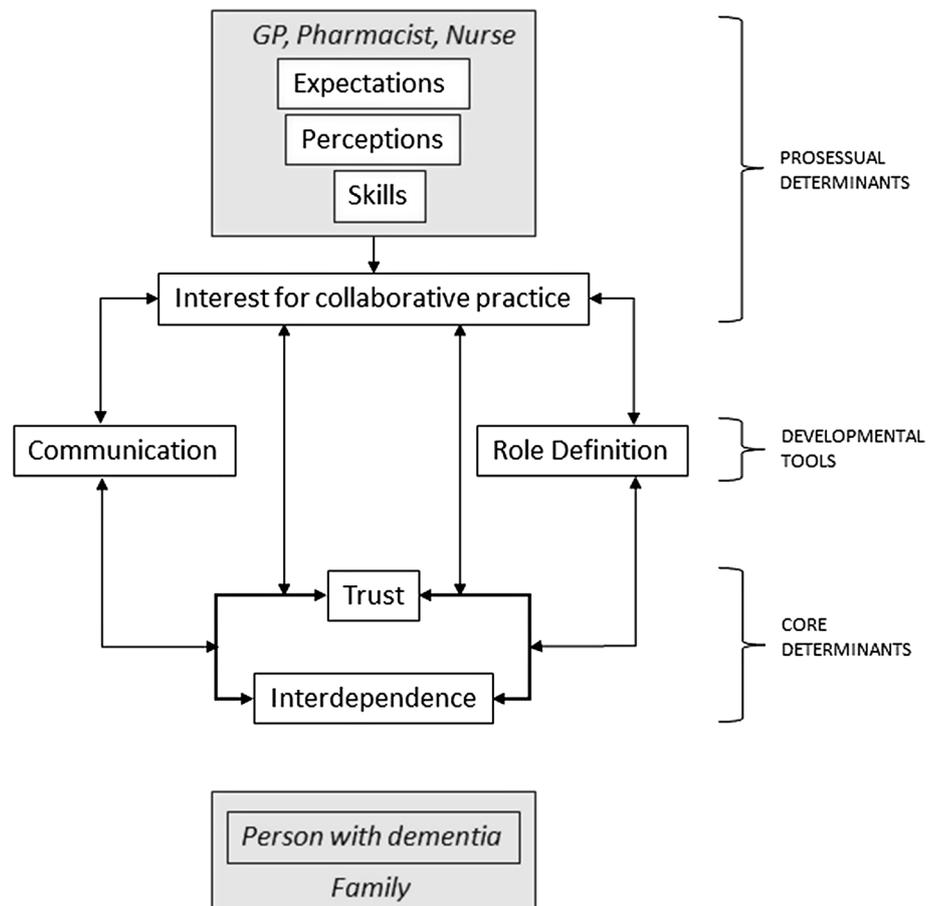
Figure 1 summarises results from the current study mapped to the domains of Bardet et al’s PCPC model [29]. Of the determinants of the PCPC model, interest for

collaborative practice appeared to be foundational. If there was an opportunity to build upon collaborators’ willingness to engage to achieve shared agreement on the value of an RMMR, the process was perceived to have a good chance of succeeding; if not, informants considered the RMMR’s potential effectiveness to be severely limited. Once an interest for collaboration was established, key collaborative elements of trust and interdependence was built over time, enabling the smooth running of the RMMR process.

Not only did developmental tools of communication and established roles in the process further build trust and interdependence but, contrary to the unidirectional influence suggested in the PCPC model, the building of trust and interdependence encouraged health professionals to engage in further opportunities for communication and a stronger understanding of the value of other health professional roles for medication management.

Whilst the PCPC model focused on a dyad of interdisciplinary working between pharmacists and physicians, our results pointed to a triad of collaboration wherein LTC nurses played an important role in driving the review process, especially with regard to referral, information sharing and input of medication changes. Notably, the resident and family were not mentioned as part of the review process,

Fig. 1 Factors influencing interdisciplinary collaboration to improve the quality of medication reviews and improve outcomes for long-term care residents with advanced dementia (adapted from Bardet et al. [29])



and in many instances, family were portrayed as a barrier to appropriate medication management, especially where the goal was to deprescribe.

The RMMR programme does not support for high-quality person-centred, collaborative medication reviews tailored to resident needs

Lack of financial and process support for collaborative RMMRs

While the RMMR programme enables reviews to be conducted on a needs basis, pharmacists reported that the vast majority of referrals reflected a default biennial cycle. Conducting reviews every 2 years was seen as inadequate to monitor the needs of residents with dementia, whose health status might change drastically within this period.

You can have massive deterioration in a patient with dementia over that two year period and you've missed the opportunity to improve their quality of life. (P09)

The average length of stay in an aged care facility is just over 27 months, so the vast majority of these people are not going to be around for the second review. (P07)

Infrequent referral was partly seen to arise from the arduous process involved. However, inadequate remuneration was considered the most important barrier both to more frequent referral and to high quality reviews. Almost all interviewees perceived the RMMR programme to offer inadequate remuneration to enable the collaborative practice required.

I think remuneration being what it is, it's not a good viable model. It's 'one size fits all'...But there's an increasingly complex cohort, if you really want that person-centred care, then there has to be a change in the remuneration structure...We really need to have the capacity to provide a more in-depth service for those who warrant it, and they should be remunerated accordingly... that's why you end up having people [pharmacists] feeling disillusioned because they end up putting more in than the remuneration is providing for. (P12)

A lack of remuneration for case conferencing, especially, was seen as stymieing interdisciplinary communication required for high quality RMMR-related collaborative practice.

If there was some ability where we could be remunerated for case conferences, and pharmacists aren't obviously at this stage. GPs are, but if we could tap into that sort of funding...where we could all sit down together and discuss patients, or residents of aged care

facilities, and determine a management plan that way I think. (P09)

I think if you're looking for better outcomes then case conferencing is the way to go. Because the doctor is there with you, changes can happen there and then, we can have better nurse input and I think we get better health outcomes for the residents that way. (P04)

Given this lack of support, finding time to meet face-to-face within competing schedules was seen as difficult, if not impossible.

Well, I guess it's in time. And GPs are very time poor, pharmacists are time poor, nursing staff are time poor. (P09)

Any sort of situation where you've got yourself, the GP and your members of staff, the nursing staff, are exceptionally rare. (P14)

Lack of health professional accountability in the RMMR programme

A lack of accountability—for both pharmacists and GPs—was perceived to pose a significant barrier to the referral, conduct and implementation of quality person-centred RMMRs. Alongside inadequate remuneration, a lack of accountability for monitoring and referring residents was seen as the main driver for the unsatisfactory situation of RMMRs only being conducted every 2 years.

Yes, it can be done on clinical need, but then you've got two paths. You've got those [pharmacists] that genuinely want to do one [an RMMR] within the two years because there is a clinical need. But then you've got the other path of people that were the very reason why all the funding got cut because they abused the system. (P10)

Pharmacists were also aware that GPs sometimes did not refer residents because they lacked trust and willingness to collaborate with pharmacists due to experiencing poor quality reviews in the past, commonly referred to as a 'cut and paste' service.

Unfortunately there are pharmacists out there who are blatantly doing the wrong thing. We still can't seem to stamp this out. I can see past reports where it's quite obvious that the pharmacist, I doubt they've even been to the facility to review the patient, let alone seen the patient. And there's still a little bit of cut and pasting going on out there, and they're just cutting out of MIMS, it's just embarrassing what I've seen out there. (P05)

I can understand why a GP doesn't take any notice when people [pharmacists] are cutting and pasting slabs out of product information. It's just rubbish. (P09)

Pharmacists perceived there to be a lack of accountability for GPs to follow-up RMMRs with changes in prescribing. One way in which pharmacists tackled the issue of limited GP engagement and accountability in the process, especially post-review of recommendations was to frame medication reviews as the 'medication management plan,' leaving space on the review document for GPs to provide comments once pharmacists had provided recommendations.

We format our reports as basically the medication management plan...the issues are documented down the left-hand side of the table, and then on the right-hand side the doctor will scribble in whatever they want to, whatever changes they want to make, and whether or not they agree...once you've sort of put the hard yards in and worked at it, you get there in the end. (P08)

Interest for collaborative practice

Pharmacists commonly emphasised that team members' commitment to the shared goal of improving resident care and outcomes was a prerequisite for the RMMR to work. However, even where this was established, pharmacists commonly found that interest among GPs and LTC nurses to collaborate on RMMRs was limited to start with, requiring proactive efforts on their part to sell the benefits. Developing an interest for triadic collaborative practice was especially hard when the relationship between GPs and the facility was limited.

If you've got a facility where you've got a GP who looks after most of the residents who's very willing to engage, it's not an issue. But then you've got a few outliers, and they're difficult to get referrals from, they don't really engage, they're not willing to discuss the report afterwards or even during, and so that makes it a little bit more challenging. (P08)

If a doctor's maybe only got one patient or hasn't had a lot of experience in that particular area, I don't think they understand the value of what they can get out of a medication review. So, getting that liaison and getting that doctor to understand that the pharmacist could help in that area is often quite tricky. (P06)

Pharmacists highlighted the potential offered by collaboration for pooling knowledge to gain the best understanding of each resident, in order to provide the most appropriate person-centred care capable of delivering positive outcomes.

I don't think we can work in isolation. We're going into [nursing] homes where we are relying on the written documentation, and we are also talking to the nursing staff. But we're only getting a snapshot of that person who's behind that dementia cloud. We really need to have more information, and I think we can only get that by having a team approach, and everyone sharing their knowledge of that person. (P09)

The aim is to bring everyone together in the team in the one document in relation to the medication. (P14)

Trust

Trust as a vital ingredient of collaboration

Building trust and rapport with GPs was considered crucial to enhance the collaborative process. Pharmacists saw that when a trusting relationship had been built with GPs, this increased referrals, enabled shared decision-making, and improved the chances that GPs would accept the pharmacist's recommendations.

I haven't always entered into a new contract with GPs who have had good experiences. But I can safely say that most of the RMMRs that I do with doctors on an ongoing basis, it's basically because the relationship is good and the trust is there, and they are happy with what I'm delivering. (P12)

Building trusting relationships with LTC staff was also considered important to gain their valuable time to share information.

It's kind of developing relationships with the staff so that you can get their time and attention. (P13)

Trust cannot be assumed between health professionals and is built over time

While trust was seen as essential to collaboration, it could not be taken for granted at the beginning of a professional relationship. In LTC facilities where pharmacists were new and had not yet established trust between themselves and LTC staff, gaining information on residents was difficult, negatively affecting review efficiency and outcomes.

With the nursing homes that I work with on a regular basis, we have a pretty fixed set up...but I notice when I go into other nursing homes where I haven't necessarily been connected, getting information about when they [the residents] were diagnosed with dementia, how long they've been on medication, that sort of history, that's often really quite hard to get. (P06)

Fortunately, building trust with LTC nurses was perceived to be relatively easy, provided the pharmacist engaged proactively by means of a positive, helpful attitude and open, honest communication.

Get yourself known, be willing to engage. The thing at the facilities is that they are so resource poor that anything you can offer them they just love. So if you are seen to be there, available, if you do a good job, if you're personable or at least put up the façade that you're a likeable person, they will engage with you... yeah, that's really a strong driver of success for an RMMR. (P08)

Building trust with GPs was reported to be a slower process to build an effective collaborative relationship.

As time goes on, your regulars [GPs], they respect your advice...so you don't feel like you've got to do that public relations sort of thing to actually get them to accept you. (P10)

Interdependence

Interdependence between health professionals only occurred when trust had been built

Interdependence was achieved when there was an interest for collaborative practice and trust established among all three members of the team. Interdependence was perceived to enable ideas and opinions to be easily shared by different health professionals to enable all information and perspectives to be considered when finding ways to improve the resident's medication regime.

I guess for me the biggest thing is that they [the RMMRs] need to be collaborative...where there is interest and engagement from all players...nurses, carers and doctors...that review ends up being a really useful document that promotes change. I don't bother doing RMMRs where I feel like they're not valuable, because I just don't think they promote change. (P12)

Role definition

Defined and respected roles within the team allowed for flexibility

Pharmacists saw their role and others' as value adding to one another, with pharmacists' knowledge of deprescribing, auditing and monitoring of medications, pain management and weighing risk against benefits of different drugs contributing to the team. In environments where trust was built, the

role of each health professional within the team environment was respected and valued.

I think a significant thing that pharmacists can contribute in RMMRs is recommending deprescribing, giving guidance on how to taper the dose...or shift to intermittent or prn use. (P07)

In the facilities where I work there is a respect for all the voices on the interdisciplinary team, it's not just 'this is your role,' it's much more fluid. The GP respects that the nurses are there more and understand from a carer and nursing perspective, so yeah...I would say respect for everyone's roles in the care of that elderly resident. (P12)

The important role played by nurses in the pharmacist-GP-nurse triad

While the RMMR's formal process allocates referral to the role of the GP, in practice, LTC nurses typically alerted GPs to residents who needed a review where these were not scheduled as routine. Pharmacists relied on the nurses' understanding of the resident and their clinical needs to initiate referrals.

If the nurse feels that they [resident] might warrant a medicines review, if there's a new drug, or it's a falls risk increasing drug, or there's a change in medication that they're concerned might have contributed, they will highlight that for the GP, and the GP will end up referring for a medication review. That's sort of an example of doing a project that brings all the players in medicines together and you get an idea of the team that is available to effect change. (P12)

LTC staff were seen as an important information source who could provide current information on the resident, which also saved time. Pharmacists explained that LTC staff were key personnel in decision making for people with dementia. Often, they explained that they relied on LTC staff for information on the resident, knowing that they were the individuals who interact with residents daily, so would have a better understanding of the health, behaviours and potential changes in symptoms which may warrant a change in medications.

It is often the nursing staff who are the ones who will request medications to settle a resident if they are showing BPSD and it's actually the nursing staff also who will be the main instigators in regular review of trialling cessation of medications. (P11)

The shared decision making between the pharmacist and other health professionals is usually with the care

staff...I like to get to talk with them because they're the ones that spend the most time with the resident. (P03)

Residents and families have a limited role in collaborative practice

Residents and families were conspicuously absent from the triad of collaboration, despite pharmacists' emphasis on the need to ensure care was person-centred. In practice, pharmacists were rarely involved in conversations with family but instead empathised with GPs and the difficulties they had in discussing goals of care. Pharmacists commonly reported that providing appropriate medication care to residents—especially deprescribing—was made more difficult by families' unrealistic expectations for the resident, their wishes being focused on active treatment discordant with the palliative goals associated with advanced dementia.

There's difficulty for the GPs...especially if he's been prescribing for this person for the last 6 or 7 years, and convinced the person and the family that they need to be on this batch of medication to prevent further heart attacks or whatever it happens to be. Then saying, 'well we're going to take this person off,' and then they'll say 'well then you don't value my mother any more do you?' So it requires a lot of skill to go down that path. (P06)

Communication

Adequate and appropriate communication improves RMMR efficiency and quality

Having opportunities to talk to nursing staff was seen as the most efficient and reliable means of collecting current information about a resident. In many cases, pharmacists noted that documentation of the resident was not always up-to-date and was fragmented between hardcopy and online sources.

Yeah, I think a lot of the time with just doing a paper-based review is that quite often, the notes don't actually reflect what's truly going on with the resident ... you get more out of a 30 second conversation than you can after 10 minutes reading through notes. (P08)

Discussion with GPs was considered important because it allowed sharing of information quickly, and determining whether there were any disagreements or clarifications needed on the recommendations provided by the pharmacist. It was seen as a way to fast track medication changes, and ensured that messages between pharmacist and GP were clearly understood.

I got the satisfaction of running my recommendations past the doctor not just sending him the report and getting a thank you back. And you know, I actually learnt a lot from that doctor because he was able to say 'that's not practical' or 'that's a good idea' or yeah. (P13)

Making time for communication opportunities requires creativity

In recognition of the importance of contact and communication with others on the team and in the absence of formal avenues provided by the RMMR process, pharmacists reported often relying on chance encounters.

I suppose with the RMMRs it's very difficult to find a time for a start where you can actually talk to the GPs. They are often there at weird and wonderful times...and if you happen to be there on that day then that's quite good because you can often discuss things as they come up. But that is a rarity in aged care. (P14)

Pharmacists relied on interacting with GPs over the phone and using written communication via fax and email, as face-to-face communication was often seen as impossible. Pharmacists also reported using creative ways to make time to communicate with GPs to talk about residents.

It was a large nursing home, it was well over 100 beds, but it was a really good example of collaboration. So one GP across the road did about 50% of the residents, and I'd go there, we'd have lunch together and talk about it, make the changes. (P07)

I used to go running with one of my regular GPs, it's was great, we used to talk about some residents while we were running. (P04)

Perceptions

Hierarchical relationships hindered collaboration and an effective RMMR process

A hierarchical model adopted by members of some teams—especially with regard to GPs' seniority—hindered the ability to effectively communicate and share goals regarding the management of the residents. Pharmacists perceived that newer GPs trained in the importance of collaboration were more open to pharmacist recommendations.

A lot of more elderly GPs have gone through a system where collaboration wasn't part of their training...a lot of the newer GPs that are coming out who have been trained in the benefits of collaborating with other

health professionals, they are much more receptive and they really will be happy to listen...some GPs, they're still like 'I'm the doctor, we'll do it this way.' So you've got to be very diplomatic and flexible in the way you deal with the differences in others to make sure that the resident is the most important person, and that we do the best for them. (P14)

Pharmacists expressed the difficulties in providing recommendations and sharing the responsibility of medication decision-making with GPs who held strongly to their perception of GPs as the primary decision maker. Regardless of their working relationship, GPs' ultimate authority in deciding to follow and implement pharmacist's recommendations was recognised as an important limit on the pharmacist's role.

You know, you can't just give orders, and I guess, talking about decision making means that you come to a decision and then you implement it. But we can't actually do that because we're not in charge of the implementation. (P02)

While suboptimal, pharmacists strove to pursue the best care possible within a hierarchical structure by framing recommendations in a way that did not imply that they were the ultimate decision-maker.

If you found the digoxin level was too high, that would lead you to your decision that the toxicity levels were probably causing the nausea...but then you have to write that down in such a way that the doctor comes to the same conclusion...you have to write it down in such a way that the doctor thinks it's their idea. (P02)

Trust and interdependence was also hindered by preconceived notions of what pharmacists bring to the table, and negative stereotypical role expectations of pharmacists as merely "shopkeepers."

I think initially we've always been thought of as being shopkeepers rather than clinicians...'just tell me what the life-threatening drug interactions are and stick to the business of dispensing in the shop, and I'll do the rest.' (P06)

Pharmacists needed to provide evidence not only of their willingness to help but also their 'value add' in terms of expertise and practical support. Pharmacist's explained that in order for GPs to take them seriously, they needed to be providing quality reports from the beginning.

There has to be a high quality right from the beginning so that the doctors can sit up and take notice and think, 'yeah, this person does know what they're talking about,' rather than 'they're talking about a drug interaction I can read in my own programme. I don't need a pharmacist to send a report to tell me that sort of thing.' (P04)

Expectations

A shared understanding of the resident's goals of care

Many pharmacists identified a shared understanding of goals of care as pivotal in optimising the usefulness of RMMRs for residents with dementia requiring a palliative approach. Participants stressed that goals of care and associated recommendations needed to be contextualised within the history and needs of each individual resident.

It really has to be patient-centred, it has to be for that resident and their issue. I have no issues if someone is on 20 medications and there is no issue with their medication use because of the complexities of what they are, and everything is appropriate, I have no issues with writing on theirs [report] 'no current concerns or issues.' But someone can be on two medications and you can write a whole heap depending on the resident. (P14)

Pharmacists thought it particularly important that collaborators were advocates for person-centred palliative goals of care for residents with advanced dementia. When pharmacists had this intent they were more likely to provide a quality review even if they knew it would take more time, and advocate for the medication changes required for the resident with advanced dementia.

I think it's quite cruel to continue to ram medications down someone's throat when they've got advanced dementia and yet it happens, which is because no one is accountable, and it's easier to follow the status quo. Whereas if we have pharmacists that have a true knowledge of end of life care and are good communicators and able to get their point across to GPs, then we can minimise the suffering of people with dementia. (P09)

Skills

In addition to their expertise in pharmacological care, many pharmacists demonstrated skills in effectively communicating with GPs and other health professionals to override the RMMR programme's shortfall in providing a platform for communication and ensuring team members were accountable for their role in the medication review process. They showed a steadfastness in building trust and highlighting their value, making sure the review process continued.

I think in lots of ways it comes back to that individual pharmacist being a bit like a dog with a bone. Having to just keep reminding everybody that we're part of that team. (P06)

Heightened medication considerations for residents with advanced dementia

See Table 1 for a summary of considerations specific to advanced dementia raised by participants, together with illustrative quotes. Constraints of the RMMR programme highlighted as challenging in the advanced dementia context fell under developmental tools of communication and role definition in the PCPC model. Having 2 years between reviews and limited remuneration opportunities prevented communication opportunities and valued health professional roles to develop and sustain trusting working relationships. These developmental tools are imperative to

support the total collaborative model to work effectively and reach the demands of complex patients like LTC residents with advanced dementia.

Discussion

This study is the first to explore pharmacist perceptions of interdisciplinary collaboration with GPs and other health care professionals in providing the Australian RMMR service to LTC residents with advanced dementia. The RMMR programme was seen as having potential to improve medication management of LTC residents, including those with

Table 1 Heightened medication considerations for residents with advanced dementia

Dementia care considerations	Illustrative quotes
Difficult to predict the health trajectory of dementia. Deterioration can occur rapidly	<p>None of us can guess how long that person's going to live, they've got severe dementia and they will probably die by Christmas, but then you'll find they'll last for another couple of years, especially if they're eating well. (P06)</p> <p>You need to have them reviewed more regularly, but the whole system is kind of coming round to the point that I'm trying to make, it doesn't support that. And I think it's an absolute travesty in that it has been blown up to 24 months when there was absolutely no reason for it. (P08)</p> <p>We're not doing our resident's any favours by continuing to treat their hypertension and their diabetes and prick their fingers when they've got advanced dementia! It's cruel. We all try to push for guidelines and reference ranges, but they just don't apply at some point in time. (P09)</p>
Medications require monitoring and regular review	<p>When people are started on antipsychotics and they've been on it for a long time and people forget why they're actually on it... (P05)</p> <p>So we've had this resident on medication which isn't working for them and is not appropriate for them, and we've had them on it for two years. It may be that I haven't done the review and he started on it 18 months ago. So, the problem is that we can't target them quickly enough. (P11)</p>
Unable to advocate for themselves	<p>It's very patronising for a profession to think that once you reach that MMSE [Mini Mental State Examination] you should be off that drug, that's what the evidence shows. It's much more complex than that... (P12)</p> <p>I think it's quite cruel to continue to ram medications down someone's throat when they've got advanced dementia and yet it happens, which is because no one is accountable. (P09)</p>
Complex of residents with advanced dementia needs comprehensive assessment with a team approach	<p>I would observe, I would be talking with the DON, observe the patient, you could see if they were agitated, you could see their mobility to some degree, and observation in cognitively impaired people is just so critical. So I think people that don't talk to the resident or don't observe the resident are doing superficial poor quality reviews. (P07)</p> <p>We're going into homes where we are relying on the writ documentation, and we are also talking to the nursing staff. But we're only getting a snapshot of that person who's behind that dementia cloud. We really need to have more information, and I think we can only get that by having a team approach, and everyone sharing their knowledge of that person. (P09)</p>
Heightened sensitivity to medications and adverse effects	<p>The doses that we use for people with dementia need to be a lot lower. Where you might normally start somebody on a 25 mg dose of Sertraline, we often start them on a 12.5 mg dose of Sertraline. Because the brain is dying, it hasn't got as many receptors. (P06)</p>

advanced dementia, but the success of any given review was considered reliant on the depth of interdisciplinary collaboration and person-centredness. Prerequisites for effective RMMRs included: having a pharmacist who believed in the merits of the RMMR and could articulate this ‘value-add’ to other health professionals; accessing best quality information (including reports of people who knew the resident well); and using ingenuity to enable communication and follow-through. Whilst the PCPC model focuses on collaboration between pharmacists and GPs, LTC nurses were also seen as key collaborators in driving the RMMR process, being instrumental in prompting referrals, providing information about residents to enable person-centred recommendations, and enabling communication between all collaborators. Results identified that family members were rarely involved in the RMMR process, and were seen in many cases as a potential barrier to appropriate medication changes.

The need for a trusting relationship between GPs and pharmacists providing medication reviews has been identified in earlier research [6, 30–37]. Like other studies, our results show that building trust is a dynamic process requiring time and effort on the pharmacists’ part [30, 38, 39]. When interactions frequently occurred, there was greater opportunity to learn from each other, improve awareness of each other’s professional skills, and develop a collaborative relationship.

RMMR guidelines for pharmacists and GPs providing the RMMR recommend face-to-face communication to develop a collaborative working relationship, and advocating for allocated time for communication post-review dedicated to the resident’s medication care [40, 41]. Our study supports concerns that the current RMMR model is not conducive to ongoing communication and feedback between team members, and that post-review discussions rarely occur [18].

Our study also supports previous research showing that the success of medication reviews depends on GPs’ willingness to engage [30], and that pharmacists are required to take a leading role as initiators [38]. GP acceptance rate of pharmacist’s recommendations from LTC medication reviews has been found to vary greatly between studies from 38 to 91.6% [4, 11, 12, 19, 42–44], likely as an indication of the level of interdisciplinary collaboration.

Recommendations for system-level improvements arising from our study are as follows. Community-based studies and Australian government funded initiatives have suggested that locating clinical pharmacists within general practices may improve the efficiency and quality of home medication reviews [45–49]; embedding pharmacists within LTC organisations may similarly improve the quality of RMMRs.

The remuneration model which caps the number of review per residents and doesn’t remunerate pharmacist involvement in case conferences limits capacity to tailor reviews to the therapeutic needs of individual residents. Furthermore, a funding model is needed that dis-incentivises ‘cut and

paste’ reviews in favour of individualised assessments and interdisciplinary collaboration. Responsive remuneration that does not limit RMMR frequency for complex cases and enables pharmacist involvement in case-conferencing also offer promise for improving QUM in LTC.

Randomised controlled trials are needed to test the effectiveness of interventions focused on inter-professional collaboration in improving the quality of medication reviews, and the potential for these to improve QUM and outcomes for LTC residents, including those with advanced dementia.

Strengths and limitations

The current research focused exclusively on the views of pharmacists and did not include GP and LTC staff perspectives. Even among pharmacists, our sample was biased towards those holding senior roles and is unlikely to be representative of those providing the RMMR more generally. Participating pharmacists who had been involved in the development of RMMR standards and guidelines may potentially see less flaws in the RMMR process, however this sample provided informed insights into the RMMR programme and its shortcomings, as well as expertise in conducting effective reviews and vision regarding systemic improvements. Future research should aim to gain GP and LTC staff perspectives.

Conclusion

Trust and interdependence were identified as foundational for enabling the depth of collaboration and sharing of knowledge needed to provide quality person-centred medication reviews. This research demonstrates the importance of interdisciplinary collaboration between pharmacists, GPs and other health professionals to improve medication management for LTC residents with advanced dementia.

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