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RESEARCH ARTICLE

General practitioners' perceptions of pharmacists' new services in New Zealand

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Abstract *Background* In recent years, the pharmacy profession has moved towards more patient-oriented services. Some examples are medication review, screening and monitoring for disease, and prescribing. The new services are intended to be in close collaboration with general practitioners (GPs) yet little is known of how GPs in New Zealand perceive these new services. *Objective* To examine GPs' perceptions of pharmacists' new services. *Setting* Study was undertaken at GPs' practices in two localities in New Zealand. *Methods* Qualitative, face to face, semi-structured interviews were undertaken of 18 GPs. The cohort included GPs with less/more than 20 years of practice, and GPs who had experience of working in localities where some patients had undergone a medication review (Medicines Use Review, MUR) by community pharmacists. GPs were asked to share their perceptions about pharmacists providing some new services. Data were thematically analysed with constant comparison using NVivo 8 software. Using a business strategic planning approach, themes were further analysed and interpreted as the services' potential Strengths, Weaknesses, Opportunities and Threats (SWOTs). Main outcomes measure GPs' perceptions of pharmacists' new services. *Results* GPs were more supportive of pharmacists' playing active roles in medication review and less supportive of pharmacists practising screening-monitoring and prescribing. *Discussions* Pharmacists' knowledge and skills in medication use and the perceived benefits of the services to patients were considered the potential strengths of the services. Weaknesses centred around potential patient confusion and harm, conflict and irritation to GPs' practice, and the potential to fragment patient-care. Opportunities were the possibilities of improving communication, and having a close collaboration and integration with GPs' practice. Apparent threats were the GPs' perceptions of a related, and not renumerated, increase in their workloads, and the perception of limited benefit to patients. *Conclusion* Pharmacists should exploit their own strengths and the potential opportunities for these services, and reduce any weaknesses and threats. A possible strategic plan should include increased effective communication, piloting services, and the integration of some services into medical practices.

Keywords Community pharmacy services · General practitioners · Perceptions · Pharmacists · New Zealand

Impacts on practice

- GPs' acceptance of new pharmacist-led services may depend on the development of good working relationships between the two professions.
- Changing the nature of pharmacist-GP communication to focus on patient benefits rather than on prescription issues could enhance working relationships.
- Pharmacists need to be more confident when discussing patient-related issues with GPs and should pilot new services in collaboration with GPs wherever possible.

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Introduction

In the past, community pharmacists' roles were mainly confined to preparing and dispensing prescriptions and giving advice on the treatment of minor ailments [1]. However, in the light of increasing drug-related hospitalizations and morbidities, some countries plan to make better use of pharmacists' skills and knowledge in the use of medicines [2, 3]. The principle focus is a change of community pharmacists' roles from product-oriented to patient-oriented.

Some examples of the newer roles for pharmacists are medication reviews, also known as medicines management in some countries, health screening and monitoring and pharmacist prescribing. These aim to improve patient safety, ensure effective drug use, promote disease prevention, and encourage patients to play an active role in managing their health. Medication review is a structured, critical examination of patients' medicines in conjunction with the patients historical and current clinical picture and the defined goals of treatment with the objective of reaching agreement with the patient about treatment, optimise the benefit of medicines and minimising the number of medication related problems and reducing waste [4]. Medication review comprises different types of services with different aims and purposes. An example of a medication review service is Medicines Use Review (MUR), which aims to address issues relating to patients' medicine taking behaviour such as adherence to medicines [5]. A more detailed review is the Clinical Medication Review which aims to address issues relating to patients' use of medicines in the context of their clinical condition e.g. choice of medicines [5]. This type of review is similar to Medicines Therapy Assessment (MTA) in New Zealand, Home Medicines Review (HMR) in Australia and Medication Therapy Management (MTM) in the United States of America. For the purposes of this work brief descriptions of pharmacists' practice in Medicines Use Review and Clinical Medication Review are provided in Table 1. These descriptions are the working descriptions used when describing these services to general practitioners. A number of studies have reported on the benefits of such services on patient's outcomes [6–9].

Pharmacist prescribing in New Zealand is being proposed as a service that includes the selection and follow-up of the prescription medicines. It does not include diagnosis, choice of treatment modality and prognosis. The pharmacist prescribing service is intended to be run in close collaboration with medical practitioners [10]. This service generally aims to improve access to certain medicines, optimize a patient's medicines outcomes, and promote quality use of medicines [11]. To facilitate continuity of care, the new service requires pharmacists to work in close collaboration with other health professionals [12].

In 2006, the Pharmacy Council of New Zealand outlined a medicines management framework for the pharmacy profession. This includes services such as Medication Use Review (MUR), Medicines Therapy Assessment (MTA) and Comprehensive Medicine Management (CMM) [13]. In this work MTA and CMM will be considered under the broad category of Clinical Medication Review. MUR was implemented in 2007 under local contracts with individual District Health Boards (DHBs) [14]. Community pharmacists need to be accredited and they are reimbursed for providing the services [14]. These contracts do not include reimbursement for GPs. Currently development of MTA, a comprehensive clinical review of an individual patient's medication and CMM, case based active management of changes and (future) pharmacist prescribing activities, as part of a multidisciplinary team is still ongoing [15].

To provide these services effectively, it is essential for pharmacists to have support from their professional peers as has been demonstrated elsewhere [16, 17]. A UK study reported GPs support of pharmacists' extended roles such as helping patients to manage their medicines and providing repeat dispensing [18]. A study conducted in Australia also reported GPs acceptance of pharmacists providing HMR and medicines information. In both studies, GPs had reservations about pharmacists providing clinically orientated roles such as screening for cholesterol and blood pressure levels [18, 19] and prescribing [18]. The study also reported that GPs would be supportive if they were funded for any impact on their own workload [18]. In another study conducted in the UK, prescribing by pharmacists was envisaged as having both opportunities and threats for the medical profession [20]. It is therefore important to identify GPs' perceptions of the current and proposed community pharmacists' services in New Zealand.

Aim of the study

This study aims to examine GPs' perceptions of pharmacists' new services. Specific objectives of this study are to compare the perceptions of GPs with different backgrounds and to identify any perceived barriers to the new services provided or proposed by community pharmacists.

In the present study we used qualitative interview methods to explore local GPs' perceptions of pharmacists' new services. The information gained will help to inform us of the possible strengths, weakness, opportunities and threats (SWOTs) of these new services.

Methods

Data were collected through qualitative face-to-face, semi-structured interviews with selected GPs from two localities.

Prior to commencing the study, ethics approval was obtained from the Human Ethics Committee, University of Otago, reference code F10/603 008.

Participants were selected from three different groups in two localities. Groups one and two were GPs whose patients had not participated in MUR carried out by a community pharmacist. GPs were recruited from location one (L1) that has no MUR contract between pharmacists and the DHB. Group one were GPs with less than 20 years' experience of being a medical practitioner, and group two were GPs with 20 years or more experience. The group was divided as such to study whether there were any differences in perceptions between older and younger GPs based on differing years of practice. This has previously reported to have significant influence on GPs' perceptions and attitudes toward pharmacists' services [21, 22]. Participants in group three were GPs whose patients had been involved in an MUR service led by local community pharmacists and were recruited from location two (L2). Since there were fewer GPs with MUR experience, further division of the group according to years of experience was not able to be conducted.

GPs from group one and two were identified from a local phone book and years in practice were identified from the New Zealand Medical Council website. All GPs at all practices listed in the phone book were invited to participate in the study. GPs from group three were contacted through a list provided by the community pharmacies who were known to provide MUR services. Pharmacists providing MUR were identified from another study conducted by investigators at the School of Pharmacy, University of Otago [14]. Invitation letters were sent to the GPs identified as described above and a follow-up phone call was made to each GP 1 week later. GPs who agreed to participate were contacted and an interview was arranged. The interviews took place at the GPs' clinic and lasted for about 20–30 min. No incentives were offered to the participants.

An interview schedule was developed from a literature study of published qualitative studies of doctors' perceptions of pharmacists' services reported overseas [18, 19, 23–25] and an investigator-team discussion between the first author and three senior researchers from the School of Pharmacy, University of Otago. The input from a GP who was invited in a pilot interview was also used to refine the interview schedule. The interview topics covered the following: information about the GP practice, the current or past interactions with community pharmacists, GPs' experience of some new pharmacist-led services and/or the GPs' perceptions of these new services. GPs were specifically asked about how they perceived some new services provided by community pharmacists. The services were MUR, Clinical Medication Review, screening and monitoring and pharmacist prescribing. Prior to these question, EH briefly described each service to each GP. A brief description about each service is provided in Table 1. GPs were also encouraged to ask questions during the interview.

The interviews were taped and transcribed verbatim. Transcription validity was checked by an independent third party. Coding and thematic analysis was undertaken using constant comparison and NVivo 8. Participants continued to be recruited until saturation was reached. Saturation was achieved when there were no new themes found by a second investigator who read and coded the third and the last transcriptions from each group (1–3) independently. Data collections ceased when no new themes were found in at least two consecutive interviews. Saturation was initially

Table 1 Brief service descriptions

Service	Description
Medicine use review (MUR)	This is a patient-centred service. A pharmacist reviews the patients' medicines, both prescribed and self-medicated, and identifies any problems related to medicine use such as administration techniques (e.g. inhaler use) or non-adherence. While providing this service, a pharmacist will educate patients about their medicines and help to improve patient adherence to medicines. A pharmacist may produce a complete medication list for reference
Clinical medication review	These services involve a patient-centred medication review service aimed at optimising the choice and use of medicines. To provide this service, pharmacists need to have access to patients' clinical notes. This service is provided as a fully integrated process with the prescriber (e.g. located in a GP's practice). This service includes MUR
Screening and monitoring	A pharmacist provides screening and monitoring for some clinical conditions such as blood pressure and random blood glucose
Pharmacist prescribing	Please note that in order to get GPs personal impression about pharmacist prescribing in general (e.g. for over-the-counter medicines, prescribing for repeat prescriptions and prescribing collaboratively with GPs e.g. for warfarin patients) we did not provide a detailed explanation about pharmacist prescribing to GPs

estimated to be achieved after 5–10 interviews for each group. Using a strategic planning approach, themes were further analysed and discussed based on GPs' perspectives and these were interpreted in terms of the services potential Strengths, Weaknesses, Opportunities and Threats (SWOTs) from pharmacists' viewpoint.

SWOT analysis is a tool used in the planning stage for a business or organization to identify the internal and external factors that could contribute to its success or failure [26]. It is usually followed with strategic planning which exploits the strengths and opportunities of the organization, and eliminates or reduces the impact of the organization's weaknesses and threats [26]. SWOT analysis of GP's perspectives of pharmacist services will help providers and managers to focus on keys issues when implementing services.

Results

In total 73 invitation letters were sent to the GPs identified as potential participants. Of the 73 contacted, 18 GPs (24.6%) consented for an interview and saturation was achieved within this number. Table 2 shows the demographic data of the participants.

Common themes that emerged during the interviews are presented in Table 3. Themes were classified according to the different types of pharmacists-led services and SWOT classification. From thematic analysis, there was no difference in the perceptions found from GPs with different years of experience, and with or without patients undergoing MUR services.

Potential strengths of pharmacists' services

The investigators considered any potential benefits of pharmacists' new services that were highlighted by GPs as *potential strengths* of those services. The majority of GPs in this study perceived MUR could be beneficial. It was thought to potentially increase patients' understanding about their medications, increase patients' adherence to medications, and might help to simplify a patient's drug treatment regimen. Clinical Medication Review services were thought to help reduce potential harm to patients from drug-related problems, and improve patient safety. GPs thought these reviews might benefit their practice by preventing prescribing errors, providing useful drug information, such as on drug interactions and/or herbal preparations (Quotation 1 (Q1), Table 4).

The provision of screening and monitoring services by community pharmacists were thought to improve access to health assessments and increase opportunistic screening for healthy people. Monitoring of some clinical parameters such as blood pressure and blood glucose were thought to potentially add value to the GPs' practice by providing additional information on patients' clinical conditions (Q2, Table 4).

Even though a small number of GPs considered pharmacist prescribing as being of low benefit, a few GPs thought that this service might improve access to simple and relatively safe medications. Several GPs suggested extending the list of drugs that can only be sold by a pharmacist (pharmacist only medicines) and one GP suggested that pharmacists might be allowed to prescribe a range of over-the-counter medications that could be government-funded (Q3, Table 4).

Collaborative prescribing of warfarin by pharmacists working within a GPs' practice was considered acceptable by more than half the GPs in this study. This was regarded as potentially helpful to reduce GP and nurse workloads (Q4, Table 4).

GPs views of pharmacists' knowledge of medicines and skills with medication interventions were also considered as *strengths* of the pharmacists' new services. GPs acknowledged the benefit of having pharmacists to provide some of their services (Q5 and Q6, Table 4).

GPs also perceived some benefits from services being carried out in a pharmacy setting. Firstly they thought

Table 2 Demographic data of the respondents

Groups	No MUR patients (location 1)		GPs with MUR patients (location 2) (Group three)
	With < 20 years of experience (Group one)	With ≥ 20 years of experience (Group two)	
Number (n)	7	6	5
Gender			
Male	2	3	3
Female	5	3	2
Mean years of experience (range)	13.5 (6–19)	28.5 (22–34)	27.8 (15–37)
Average # of patients seen in a week (range)	80 (60–105)	98 (50–160)	124 (20–250)

Table 3 "Strengths, weaknesses, opportunities and threats" (SWOTs) classification of common interviews themes

Service	Potential strengths	Potential weaknesses	Potential opportunities	Potential threats
MUR	Benefits to patients Benefits to GPs Pharmacists' drug knowledge Pharmacists access to patients' medications and dispensing records	Patient confusion Conflict and irritation to GPs Duplication of work Interference with GP-patient relationship	GPs open to collaboration with pharmacists	Operational challenges (e.g. workload, time, funding) Poor previous experience with pharmacists Patient resistance Remuneration
Clinical Medication Review	Benefits to GPs Pharmacists' drug knowledge Benefits to patients	Privacy issues Conflict and irritation to GPs Pharmacist skill limitations Undermine GP's practice Duplication of work	GPs open to collaboration with pharmacists Acceptable under certain conditions	Operational challenges Remuneration GPs' perceptions of roles Poor previous experience with pharmacists GPs' poor awareness of pharmacists' skills
Screening and monitoring	Benefits to patients Benefits to GPs Convenient access	Test appropriateness and reliability Duplication of work Conflict and irritation to GPs Discontinuity of care Fragmented patient-care	Acceptable under certain conditions	GPs' perceptions of roles Operational challenges Conflict with pharmacists' business interest Patient resistance Poor previous experience with pharmacists GPs' poor awareness of pharmacists' skills
Prescribing, repeat & collaborative prescribing	Limited benefit Pharmacists' drug knowledge	Discontinuity of care Interference with GP-patient relationship Pharmacist skill limitation Patient harm Duplication of work Fragmented patient-care	Acceptable under certain conditions GPs open to collaboration with pharmacists	GPs' perceptions of roles Competition with GPs' and nurses' practice Poor previous experience with pharmacists Operational challenges Conflict with pharmacists' business interest Patient resistance GPs' poor awareness of pharmacists' skills

pharmacists had easy access to dispensing and patient-medication records. Thus pharmacists had the potential to identify poor compliance from dispensing records and perhaps assess drug knowledge when discussing medicines with patients. Secondly they thought reinforcement of patient education on medicines might be better performed in a pharmacy setting, due to the time constraints of a GP consultation. Thirdly the education about patients' medication was thought to be more appropriately provided in a pharmacy in the presence of the patients' medication.

Potential weaknesses of pharmacists' services

The investigators considered GPs' perceptions of the potential disadvantages of the new services as *potential weaknesses*. Many GPs were concerned about potentially confusing patients when MUR and/or Clinical Medication Review were provided by community pharmacists (Q7, Table 4).

GPs also perceived that some of the pharmacy services might cause conflict and irritation by overloading GPs with insignificant information e.g. clinically irrelevant drug interactions. Recommendations by pharmacists might sometimes conflict with prescribing carried out by hospital specialists. GPs also felt irritated when they considered that a pharmacist gave incorrect information about a drug's indication and/or caused a patient to worry following a screening test (Q8, Table 4). It should be noted that diagnoses and indications are not included on prescriptions in NZ.

Another common service disadvantage raised by many GPs in the study was the potential for duplication of work.

Table 4 Examples of general practitioners' quotations

SWOTs* classifications	Quotation references	Quotations
Potential strengths of pharmacists' services	Q1	"There are certain situations where you kind of almost want that kind of another level of checking because yes our interactions database will warn us but it's very easy to ignore that" (GP13L1)
	Q2	"The screening, it's more accessible way to get a test done I think than making a call to come and see the doctor, so that's good for people." (GP3L1)
	Q3	"I guess for me well I can say some simple medications are really hard to get hold of without having to go and see a doctor or even things that you can get on prescription but if you buy it over the counter at a pharmacy it costs so much more because you don't get the subsidy and things like that can be improved" (GP9L1)
	Q4	"I think that in general, general practitioners generally feel that there's more work than they can do and that they often try and cram work in and often aren't allowing things the time that they should and for us being able to spread things out to nurse prescribing here was like a burden was lifted from us. So that was fantastic." (GP10L1)
	Q5	"I mean well pharmacists' have a good knowledge of pharmacology and pharmaceuticals, probably a bit better than mine in many cases and they may have more of an awareness of interactions. I imagine that they've got more of an emphasis on safety and risk perhaps and where my focus is therapeutics and to try to make the patient better so that the maximum benefit probably lies with a collaborative approach between the two" (GP5L1)
	Q6	"I guess the advantage of a pharmacist is if they've got other medications that are interfering with the warfarin, they probably know how to deal with that a bit better than the nurse (laugh) possibly with the GP but yes I guess there is pro and cons" (GP9L1)(Collaborative prescribing for warfarin)
Potential weaknesses of pharmacists' services	Q7	"I think that (MUR) potentially has benefit for patient care. I assume there is a danger depending on how they approach it. The patient might get the idea that we'd prescribed all this dreadful stuff to them and they shouldn't be on it so they might be encouraged not to take their medication but if it's handled properly and in a sensitive way, I think it's going to be beneficial" (GP1L1)
	Q8	"We kind of don't want that level of questioning (in Clinical Medication Review) what we're prescribing coming back all the time otherwise we'd just be completely swamped by basically what are not clinically significant interactions. So I suppose what I'm saying is that whoever is doing that feedback, they need to have a sense for how significant an interaction really is in clinical practice and a lot of the interaction databases don't really give you that kind of level of concern" (GP11L1)
	Q9	"I think that's a larger ethical question that I would comment on. I think people do place a lot of trust in that information being available to as few people as possible and I guess any dissemination outside of the practice in which the notes are lodged allows for further breach of confidentiality" (GP10L1)
	Q10	"I mean prescribing doesn't occur in a vacuum. It has to be as a result of making a diagnosis which has to be based on various findings you know history, examination, investigations, tests and what have you and if you don't have all those things available then it's a little bit difficult to prescribe [], you are making an assumption if you don't have all that information []and that's not always a safe assumption to make. So I have some reservations about that" (GP5L1)
Potential opportunities for pharmacists' services	Q11	"I think improving communication between us is really helpful. I hope pharmacists feel confident to ring us. [] I mean joint case studies and education would be great. I've never experienced that. I think that would be really interesting" (GP11L1)
	Q12	"I do think they [] can be part of team work so they alert us if they notice things that we might not have [] I would like to see them more involved and I'm not adverse to them monitoring INR and all of that, but it would all depend on systems and processes if we could have a good communication as teamwork" (GP8L1)
	Q13	"I have concerns about the INR thing if it is not done in very close conjunction. If the pharmacist is brought in as part of the GP team then I think that's fine but if it's a stand alone clinic pharmacy separate from the clinic there isn't much communication then, yes, they'd be able to do it technically but the kind of information that might be lost" (GP13L1)(Collaborative prescribing for warfarin)
	Q14	"I think that if they would prescribe []it would have to be certain conditions and much like nurse prescribing where it's done to very strict clinical guidelines [] but I think a lot of the stuff that they were already do is, you know pharmacy only medicine is essentially prescribing according to guidelines. I think they do it very well and very carefully so I'm all in favour of that" (GP10L1)
	Q15	"I'm automatically a bit more hesitant about that (Clinical Medication Review), because usually I've done a lot of thinking myself before I prescribe a certain medication. Obviously sometimes we don't make, don't get a careful decision as we make it, so I think that's a more difficult area, because I think that's almost where you actually need a pharmacy facilitator on site, or at least in close relationship. []. I'd probably accept it from her (local pharmacist) because I speak to her frequently and know her but if that came from a pharmacist I didn't know, especially a part time pharmacist who, I haven't spoken to before about that patient, I could be annoyed, or I could, I'd be suspicious of, I'd say well I'm not sure if that's correct, and I would probably ignore the advice. I think it's to do with the relationship" (GP1L2)

Table 4 continued

SWOTs* classifications	Quotation references	Quotations
Potential threats for pharmacists' services	Q16	"I'm sure it (Clinical Medication Review) would be a benefit. I'm thinking also that [] this is a process that could be quite time consuming, and [] that would be a problem for me. [] if it was for the occasional patient, then that would be Ok, but if it was something that was taking up, half an hour or an hour a week of my time, then that, that would become difficult unless there was some scheme from the DHB, or the Ministry of Health to reimburse GP's for their time, then that would definitely be an encouragement to me" (GP3L2)
	Q17	"I think it (Clinical Medication Review) will be useful, just [] for the logistics of it, and having access to the patients' notes. [] we don't have any space for another person to come in, we don't have enough room as it is, so the logistics of it, like you need to have another computer and stuff like that" (GP4L1)
	Q18	"…as I said there were already occasions when pharmacists who I think [] their input has been counter productive because they've suggested things to a patient [] left a patient with an impression that they're not taking an appropriate medication and now I could see situations where that would happen more easily which would make life more difficult really" (GP5L1)
	Q19	"Well yeah, but they don't really need to since we've got the blood off here, do the INR's then the result comes back, we contact the patients or they contact us, and my nurse tells them what to do, so. It's just, just redundancy. [].We're handling that alright ourselves" (GP2L2)
	Q20	"I have no objection to that (extension of prescribing for OTCs) on expertise or clinical grounds. My objection to that would be purely financial, that that is another group of professionals doing the same sort of work we do, so it's competition" (GP3L2)

**SWOTs* strenghts, weaknesses, opportunities, and threats

All services examined in the study, were thought to duplicate, to some extent, the current practices of GPs and nurses. Duplication would increase workload unnecessarily and waste time and money. Privacy issues with patients' clinical notes, and the limitation of the pharmacists' skills in clinical review and prescribing, were also thought to be disadvantages of the new services. GPs perceived that the lack of access to patients' clinical information, might lead to inappropriate and/or unsafe drug therapy recommendations. However several GPs thought that pharmacists having access to clinical notes might be unethical and may raise issues of patient confidentiality. The majority agreed with pharmacists having access to a patient's notes with the patient's consent (Q9, Table 4).

GPs perceived that pharmacists are not trained in diagnosis and do not know the patient well enough to prescribe appropriately. This might result in inappropriate prescribing and/or cause a delay in appropriate medical advice or treatment, which may cause harm to the patient (Q10, Table 4).

Screening-monitoring and pharmacist prescribing, particularly for repeat prescriptions and collaborative prescribing for warfarin, were thought to cause discontinuity and/or fragmented patient-care. These services might reduce the frequency of GPs seeing their patients, and perhaps impair the GP-patient relationship. GPs also thought these new services might reduce GPs' opportunities to talk with their patients about other health concerns and also decreased their overall picture of a patient's health condition.

Potential opportunities of pharmacists' services

GPs willingness to work more collaboratively with pharmacists was regarded as a service *opportunity*. Most GPs thought that pharmacists and GPs should be able to work collaboratively as a team, rather than compete with each other. Increased collaboration was described as increased communication and/or discussion; and improved information sharing (including information technology systems). This was thought to potentially benefit both medical practice and patients (Q11 and Q12, Table 4).

GPs also believed that working in the same practice would help to improve collaboration and communication between pharmacists and GPs, and thus, avoid losing important information. Some GPs preferred the idea of having pharmacists integrated into the GPs' practice (Q13, Table 4).

GPs also thought that the pharmacists' new services would be acceptable under certain conditions, such as prescribing under agreed protocols or guidelines, with proper training, for limited diseases or conditions. This should be followed by the doctor reviewing the patient after a pre-specified time interval (Q14, Table 4).

GPs were also more accepting of the new services if they knew the pharmacists well or they had a good working relationship with the local community pharmacists. They felt that they needed to have trust in a pharmacist to be in favour of them providing one of these new services. Pharmacists' personalities also played an important role in GPs accepting the new services (Q15, Table 4).

Potential threats of pharmacists' services

We classified some of the GPs' views as a *threat* to the implementation of the pharmacists' new services. Operational challenges were a common theme raised by the GPs, with issues such as the time and the extra work required for GPs, if pharmacists were to provide these new services. GPs' time constraints and high workloads, made them less interested in the new services. From the GPs' point of view, these new services, such as MUR and Clinical Medication Review would require their time and effort in the referral process, e.g. preparing summaries of patients' clinical conditions, checking facts, discussing, and explaining things to pharmacists. GPs also felt that they should be remunerated for the time and effort spent on implementing pharmacist's recommendations (Q16, Table 4).

Other operational challenges that were raised by GPs were logistical issues. Many agreed that, it would be ideal for pharmacists to provide Clinical Medication Review at the GPs' practice; but some were concerned about who was going to pay for this service. GPs were also concerned that they did not have enough space and computers available for pharmacists to provide their services. A few worried about pharmacists providing screening, monitoring, and prescribing since a pharmacy may not have a private consulting room, so may not be an appropriate place for conducting physical examinations and/or to collect sensitive medical histories (Q17, Table 4).

Unfavourable past experiences with community pharmacists were also believed to influence GPs' perceptions of the new pharmacist-led services. GPs who had poor experiences with pharmacists (e.g. when patients reported being given incorrect advice) tended to have doubts about pharmacists providing these services. Moreover GPs were unaware of pharmacists' training and skills, which contributed to doubt about pharmacists' abilities. Another potential threat to the new services was GPs reluctance to change, because they felt comfortable with current systems and nursing practices. A small number of GPs felt that the new services would compete with the doctors and nurses' current practices. GPs also felt that patients may not wish to receive services from pharmacists (Q18, Q19 and Q20, Table 4).

GPs were also worried about the potential conflicts of pharmacists' business interests with these new services, for example some GPs were concerned about the difficulties pharmacists might have with screening, monitoring, or prescribing for patients in an objective manner, in the absence of selling related products.

Discussion

The study found a variety of GP perceptions on pharmacists' new services and these differed between services. In general, GPs were more supportive of pharmacists' playing active roles in medication review and less supportive of pharmacists practising screening-monitoring and prescribing. The latter services were thought to be a duplication of work and would overlap with nurses' and GPs' routine practice. With regard to the potential success of pharmacists' new services, the authors categorized GPs' perceptions as representing "strengths, weaknesses, opportunities, and threats".

Strengths reflected the potential for benefits from the new services and GPs' acknowledged pharmacists' skill and knowledge with regard to medicines which was similar to the findings of Edmund and Calnan [18]. Weaknesses centred around the perceived risk of confusion and harm to the patient and conflict between the professions. The services were perceived to possibly cause irritation to GPs and had potential for fragmenting patient-care. This latter finding has also been reported by others [21]. Opportunities related to new services where there is an increased opportunity for communication and collaboration between the professions. Apparent threats related to a risk of increased workload for GPs offset by a perceived limited benefit for patients. Furthermore, some GPs were concerned that the new services may not bring appropriate remuneration to cover their involvement since the introduction of new services will almost certainly result in an increased workload.

Overall, the findings of this study suggest GPs' acceptance of new services by pharmacists is dependent on their understanding of the services and how GPs perceive the value of the services to their patients and medical practices. Potential weaknesses and threats to new pharmacist-led services could arise from GPs not having a clear understanding of the services, having a poor awareness of pharmacists' training, or having previous experience of poor practice from pharmacists. In addition, concern was evident from the location that these services were to be coordinated where the community pharmacy was not always considered the most appropriate location because of privacy issues and/or a conflict of interest around the funding model for community pharmacies, a model that requires the generation of retail sales to cross-subsidise the provision of healthcare services.

Consistent with earlier studies, it is crucial, when implementing new pharmacist-led services, to develop a close working collaboration with GPs [19]. GPs' perceptions of pharmacists' medication-related knowledge and skills (strengths) and GPs' willingness to work with pharmacists (opportunities) could facilitate collaborative services, and potentially overcome any impending weaknesses or threats arising from GPs perceptions or misunderstandings. We suggest that developing services in consultation with GPs could be a strategic plan for facilitating the

success of pharmacist-led services. Close working collaborations with GPs could be developed with improved and effective communication. Effective communication might provide closer collaboration, enhance recognition of expertise, improve the sharing of responsibilities in patient care [27] and consequently enable trust to grow [19]. Trust is essential to not only enhance GP-pharmacist collaboration but also for GPs' acceptance of new services [23, 28].

In agreement with findings from other studies, GPs were more likely to accept recommendations and were more positive of pharmacists expanding their roles if they knew the pharmacist well and had a close working relationship with them [29]. To gain trust, one must know each other personally and professionally [28], and demonstrate reliability, openness and competence. In contrast, trivial communications and pharmacists lacking confidence in communicating could negatively influence GPs' acceptance of new pharmacist-led services [22]. A GP in our study highlighted the need for pharmacists to be more confident when discussing issues with GPs. The nature of GP-pharmacist communication, should be on patient-centred issues to improve the quality of care and service rather than on prescription errors or administrative matters [30].

Our study suggested that GPs' acceptance of new services by pharmacists is dependent on how the GPs perceived the new services might affect their patients or medical practices. Consistent with other studies, GPs were more receptive of the services if pharmacists were able to demonstrate their benefits [19]. It is crucial, therefore, that pharmacists demonstrate their competence and provide evidence of their service's benefits to GPs [28]. Increased acceptance and reduced concerns were reported when GPs were involved in the new services themselves [31]. GPs' exposure to pharmacists' services could improve their acceptance of new services [19]. In consideration of that, it would be strategic for pharmacists to pilot the service to GPs. A pilot service would allow GPs to experience and evaluate the service themselves. Before conducting the pilot, however, pharmacists must undergo training and have appropriate skills and knowledge in medicines management. It is important, as highlighted by GPs in this study, that pharmacists should be able to identify the clinical significance of a drug related problems. On top of that, a pilot of new services should be conducted over sufficient time for trust and collaboration to develop. Other studies have reported that it took a year or longer for a service to demonstrate its true effects, because role-negotiation and shifting has to take place [31].

Integration of new services such as Clinical Medication Review or collaborative prescribing by pharmacists based in GP practices, was also seen as a possible way to improve GP-pharmacist collaboration. GPs were more receptive of services being provided by pharmacists within their GP practices [32]. This would facilitate more consistent interactions between GPs and pharmacists, and allow face-to-face discussions to occur [31]. This too could facilitate establishing trust which could improve GPs' acceptance of recommendations by pharmacists [33]. Integration into a GP's practice would allow secure transfer of patient information, only within the GP practice [34] and could resolve issues relating to patient confidentiality and perceived potential commercial conflict of interest [32]. Besides, easier access to patient's notes and treatment plans would avoid a pharmacist giving conflicting advice or information to a patient and would enhance the implementation of the GPs' drug treatment plan [31]. It would also be an advantage for pharmacists to get to know local GPs and understand their prescribing habits and typical case-mix. This would enable a closer link between GPs and patients and enhance the provision of the new pharmacist-led services. This would reduce the risk of conflicting advice and adverse effects on the GPs' practice [35]. Integration would allow pharmacists to get to know their patients better and have more time to deliver patient-focussed care.

A limitation of this study is that participants in this study may already have a close working relationship with a local community pharmacist that could influence their perceptions and attitudes towards new services carried out by pharmacists. In addition, GPs with exposure to MUR only had a few patients (between 3 and 6 patients) that participated in MUR, therefore their perceptions may not represent those of other GPs with a longer-term exposure to MUR. This may be reflected in our inability to observe a difference in the perceptions of GPs who have experienced the MUR service and those who have not. Another limitation is the possibility of recall bias for GPs as their patients experienced an MUR as much as 5 years previously.

Conclusion

The GPs in this study acknowledged pharmacists' knowledge and skills in contributing to the effective use of medicines and were willing to work collaboratively with pharmacists in new services that would benefit patients. We suggest the development of a strategic working collaboration with GPs would overcome GPs' concerns about potential new pharmacist-led services and increase GP's acceptance of such services by pharmacists. The strategic plans should include increased effective communication, trial collaboration, and integration of some services into medical practices.

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Conflicts of interest None to declare.

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