International Journal of Clinical Pharmacy (2019) 41:504–515
https://doi.org/10.1007/s11096-019-00807-5

RESEARCH ARTICLE

An evaluation of the role of practice pharmacists in Australia: a mixed methods study

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Received: 25 June 2018 / Accepted: 1 March 2019 / Published online: 16 March 2019

Abstract

Background The need for greater collaboration between pharmacists and general practitioners in Australia facilitated the development of the practice pharmacist role. Practice pharmacists work from within general practices to provide services to patients and health professionals to improve the quality use of medications. *Objective* To explore the perceptions of Australian accredited pharmacists and pharmacists already working in general practices about current roles, facilitators and barriers, and remuneration expectations of practice pharmacists. *Setting* This study was conducted Australia wide. *Method* This was a two-stage study. The first stage involved a quantitative online questionnaire of accredited pharmacists whilst the second stage involved semistructured interviews with pharmacists working in general practice. *Main outcome measure* Pharmacists' opinions on expected and current roles, barriers and facilitators, remuneration expectations and training requirements for practice pharmacist. *Results* A total of 65 accredited pharmacists completed the online survey and 20 practice pharmacists participated in interviews. The primary practice pharmacist roles identified included medication reviews, verifying the appropriateness of prescriptions, counselling and promoting adherence and providing education to other allied health professionals in the practice. The major facilitator identified was enhanced communication. Remuneration expectations and current working relationships were identified as main barriers. *Conclusion* The implementation of an appropriate funding model and a defined scope of role are critical to the successful implementation of the role of practice pharmacists.

Keywords Australia · Collaborative care · General practice · Medication reviews · Practice pharmacist

Impacts on Practice

- Practice pharmacists have the potential to improve the quality use of medicines and this results in better patient outcomes.
- Practice pharmacists, currently in this role, report professional satisfaction as a key facilitator to the uptake of the role.
- There is need for an established funding model for practice pharmacists to be sustainable.

Introduction

The roles of pharmacists in Australia are evolving due to the increased burden of chronic diseases and medication misadventure [1, 2]. A significant contributing factor toward medication misadventure is poor communication and collaboration between general practitioners (GPs) and other primary health professionals [1, 3]. Several studies have shown that interprofessional communication and collaboration leads to more effective management of chronic diseases and better patient outcomes [4–6]. Pharmacists and GPs are at the forefront of healthcare provision. Communication and

Electronic supplementary material The online version of this article (https://doi.org/10.1007/s11096-019-00807-5) contains supplementary material, which is available to authorized users.

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collaboration between GPs and pharmacists can be improved through the co-location of both, for example at the GP practice [2].

The need for greater collaboration between pharmacists and GPs in Australia has led to the development of the practice pharmacist role. Practice pharmacists are co-located in general practices and work with GPs and other health professionals to improve patient care [7]. Specifically, the practice pharmacist delivers services within a GP medical centre to improve the quality use of medication through a collaborative approach [7]. Pharmacists in other countries such as Canada, United Kingdom (UK) and United States of America (USA), are increasingly being integrated into general practices with improved medication and health outcomes [4, 8–11]. Benefits of co-location in general practices have also been identified in Australia, such as improving the quality use of medications and enhancing the communication between members of the healthcare team [2, 6, 12].

Aim of the study

This study aimed to explore the current roles, potential barriers and facilitators, training requirements and the expected remuneration level of Australian practice pharmacists.

Ethics approval

Ethical clearance was obtained from the Curtin University Human Research Ethics Committee (Approval Number 2016-0511). Participation in the online questionnaire was considered as implied consent, and telephone interview participants provided written informed consent.

Method

This study employed a mixed methodology approach and consisted of two parts. The first part involved the collection of quantitative data through an online questionnaire to accredited pharmacists. The second part involved semi-structured telephone interviews with pharmacists working in general practices. The various data sources enabled contextualising and triangulation of information and hence enriched the exploration of the research topic [13].

Both the questionnaire and interview questions were validated by three academic pharmacists from the School of Pharmacy, Curtin University, for face validity. They were then revised based on feedback.

Questionnaire and telephone interview tool development and administration

Questionnaire design

A questionnaire was developed considering the literature and the Australian practice pharmacist role [6, 7]. The questionnaire was prefaced with an introduction and explanation of the research aim and objectives. It comprised seven sections: demographic information, current working relationships with GPs, communication, future training requirements, remuneration, patient privacy and practice pharmacist roles. It consisted of 16 multiple choice and 5 Likert-scale questions.

Recruitment of questionnaire participants

Accredited pharmacists were invited to complete the questionnaire through the Australian Association of Consultant Pharmacy (AACP). AACP is the major credentialing body for pharmacists that conduct Home Medicines Reviews (HMRs) in Australia. Accredited pharmacists were chosen as they have additional clinical training, have previously established relationships with GPs, and have access to funding through HMRs. Pharmacists who already worked as practice pharmacists (known to the researchers) also indicated that many pharmacists working in general practices were accredited pharmacists.

Questionnaire administration

Qualtrics (Qualtrics, Utah, USA, 2017) was used to deliver the questionnaire as it allowed for online administration and collation of responses. An online questionnaire format was chosen rather than paper based due to the ability to reach accredited pharmacists through AACP at minimal cost.

A link to the online questionnaire was sent out in February 2017 in the monthly AACP newsletter to 2274 accredited pharmacists. A reminder was sent out during March, 4 weeks after the initial newsletter. Completion of the questionnaire was considered as consent to participate.

Design of phone interview tool

The interviews aimed to explore the opinions of pharmacists who were already working in general practices on the possible barriers, facilitators, training requirements and remuneration expectations for this relatively new role. Semi-structured interviews were used to gather qualitative data so that greater understanding of the participants' experiences

could be obtained. The interview tool consisted of 18 open-ended questions with some prompts developed from the questionnaire and previous studies.

Recruitment of interview participants

Pharmacists working in general practices, from all over Australia, were purposively selected and invited between May and July 2017 to participate in the telephone interview, initially through approaching those who were already known to the research team. Further participants for the interviews were then recruited through the snowballing effect. The participants were emailed to seek permission to contact them regarding the interview, with the study information sheet and consent form attached. Participants who returned a signed informed consent form were contacted to arrange a suitable time to conduct the interview.

Statistical analysis

The online questionnaire data was analysed using SPSS v23 (IBM, New York, USA, 2015). Responses from participants were divided into three groups: (1) working in general practice, (2) working in conjunction with a GP, and (3) not working in/in conjunction with a GP, to allow for analysis of the different views between groups.

The interviews were recorded and transcribed verbatim. Interviews were continued until data saturation was reached. NVivo v11 (QSR International, Melbourne, Australia, 2017) software was used to organise and analyse the transcripts. Thematic analysis of the data was conducted by two team members (SB and LH) and was informed by the general inductive approach [14]. The transcripts were read repeatedly to gain an in-depth understanding of the topics that had emerged from the interviews. The transcripts were initially coded per question, then reorganised into main topics, and subsequently, two main themes were identified and grouped.

Results

The results include both data analysed from the questionnaires and interviews and are discussed separately in the following sections.

Questionnaire

Accredited pharmacist attributes

Sixty-five out of 2274 (2.86%) accredited pharmacists completed the online questionnaire from 66 respondents who attempted it. From the completed questionnaires, 47 (72.3%) of the respondents were females. Table 1 provides a summary of respondents' attributes.

Table 1 Questionnaire participant demographics

Variable	N = x (%)
Gender	
Female	47 (72.3%)
Male	17 (26.2%)
Undisclosed	1 (1.5%)
Age	
≤ 30	8 (12.3%)
31–40	25 (38.5%)
41–50	10 (15.4%)
51–60	17 (26.2%)
≥ 61	5 (7.7%)
Qualification	
Undergraduate degree	25 (38.5%)
Postgraduate degree	40 (61.5%)
Years of experience	
1–5	7 (10.8%)
6–10	17 (26.2%)
11–15	12 (18.5%)
16–20	4 (6.2%)
21 or more	25 (38.5%)
State of practice	
Australian Capital Territory	2 (3.1%)
New South Wales	16 (24.6%)
Northern Territory	1 (1.5%)
Queensland	13 (20%)
South Australia	6 (9.2%)
Tasmania	3 (4.6%)
Victoria	13 (20%)
Western Australia	11 (16.9%)

Twenty-three (35%) respondents had been accredited for 1–5 years, 15 (23.1%) had been accredited for 6–10 years, 15 (23.1%) had been for 11–15 years, and 12 (18.5%) had been accredited for 16 years or more.

Current relationship and role

Fifteen (23.1%) respondents were already working in a GP clinic, and 38 (58.5%) were working in conjunction with at least one GP. Of these 53 respondents who worked in a GP clinic or in conjunction with GPs, two did not answer the questions relating to current relationship and role in the survey. The services provided by pharmacists working in a general practice or in conjunction with a general practice can be seen in Table 2. HMRs and patient medication advice were the main services provided.

The major difference between groups was that pharmacists working in general practices provided more continued

Table 2 Services provided by accredited pharmacists working in a GP clinic(s) and in conjunction with a GP clinic(s)

Services provided in/to GP clinic(s)			
	Work in a GP clinic (n = 13)	Work in conjunction with a GP clinic (n = 38)	Total (n = 51[a])
Continuing professional development	7 (53.8%)	3 (7.8%)	10
Home medicine reviews	12 (92.3%)	38 (100%)	50
Patient medication advice	7 (53.8%)	15 (39.5%)	22
Liaising with hospitals	5 (38.5%)	9 (23.7%)	14
Liaising with outreach programs	4 (30.8%)	2 (5.3%)	6
Participate in GP management plan	5 (38.5%)	8 (21.1%)	13
Residential medication management reviews	5 (38.5%)	12 (31.6%)	17
Referral of patients to Government subsidised professional services such as MedsCheck etc.	2 (15.4%)	11 (28.9%)	13

[a]Number is not equal to 53 as two pharmacists working in GP clinic(s) did not answer this question

professional development and liaised more with outreach programs than pharmacists working in conjunction with GPs.

All 51 respondents *agreed* or *strongly agreed* that working together with GP improved patient outcomes. Fifty (98%) of the 51 respondents who worked in a GP clinic or in conjunction with a GP *agreed* or *strongly agreed* that professional communication between themselves and the GP(s) was open and honest. Forty-four (86%) out of the 51 *agreed* or *strongly agreed* there was mutual respect given to each other's role.

Future training requirements

All respondents (n = 65) were asked about future training requirements for this new role. Twenty-nine (44.6%) *agreed* or *strongly agreed* that they would need further professional pharmacy training for this role, while 26 (40%) *disagreed* or *strongly disagreed*. Over half of the respondents, 53.9% (35/65), did not think they would require upskilling in communication to work in a GP clinic.

Respondents were also asked about whether pharmacists should be involved in prescribing in the future. Forty-nine respondents (75.4%) *agreed* or *strongly agreed* that this should be a role, while 10 (15.3%) *disagreed* or *strongly disagreed*.

Remuneration

Fifty-six respondents (86.2%) *agreed* or *strongly agreed* that an established remuneration scheme would enhance their interest in the role and 31 (47.7%) of the respondents expected the level of remuneration to be greater than AU $50/hour. Other respondents expected remuneration ranging from $25/hour to $50/hour.

Of those respondents working in a GP clinic, 10 (66.6%) were paid for their services. Only four (10.5%) of those working in conjunction with a GP were paid for their services. The main source of remuneration from both groups working in/in conjunction with a GP clinic (n = 53) was HMRs, with 45 (84.9%) respondents receiving remuneration through the 6th Community Pharmacy Agreement Portal. The 6 CPA is an agreement between the Australian Government and the national body representing community pharmacies to provide remuneration for a range of service available through community pharmacies including HMRs [15]. Only three of the 15 accredited pharmacists working in a GP clinic received remuneration from a Primary Healthcare Network (PHN) in their area. The PHN is an Australian government initiative that involves health professional from the local area to improve health outcomes for patients [16]. There are currently thirty-one PHNs across Australia.

Communication

The main form of communication between all respondents and the GP(s) was by telephone (n = 39; 60%), followed by facsimile (n = 38; 58.5%), and face-to-face (n = 36; 55.4%). The GPs communicated with the pharmacists mainly by facsimile (n = 37; 56.9%), face-to-face (n = 34; 52.3%), and by telephone (n = 31; 47.7%). Thirty-one respondents (47.7%) had access to patient files.

Roles of a practice pharmacist

All 65 respondents were asked about the roles in which they thought a practice pharmacist should be involved in. Thirty-seven respondents (56.9%) *disagreed* or *strongly disagreed* that the role should involve dispensing compared to 21 (32.3%) who *agreed* or *strongly agreed*.

Fifty-two respondents (80%) *strongly agreed or agreed* that verifying the appropriateness of prescriptions/supporting GP prescribing (achieved through identifying drug interactions and educating GPs about new medications) should be part of the role of practice pharmacists. It was also *strongly agreed or agreed* that medication reviews, including HMRs and Residential Medication Management Reviews (RMMRs), (n = 48; 73.8%) was an appropriate role.

Forty-six respondents (70.7%) *agreed* or *strongly agreed* that the role could include issuing of repeat prescriptions to patients (with the condition of legislative changes allowing pharmacist prescribing). Table 3 represents the perceived roles of a practice pharmacist between the three groups of respondents, showing similarity in the pattern of responses from all three groups.

Phone interviews

A total of 20 pharmacists participated in the phone interviews. Saturation of the data occurred after approximately 12 interviews however the process was continued to ensure representation from a range of demographic areas was acquired. The phone interviews were on average 20 min (min 17.24, max 43.88 min) and was conducted by the primary researcher (SB) between May and July 2017.

Demographic data of the participants can be found in Table 4.

The interview participants had been working closely with general practices, in their roles, ranging from a "couple of months" up to 20 years (including working as a practice pharmacist internationally). The majority (n = 16, 80%) had been in their role for 0–5 years. The frequency working in general practices ranged from one day a week to five days a

Table 3 Perceived roles of practice pharmacists

	Work in conjunction with a GP N = 38			Work in GP clinic N = 15			Do not work with GP N = 12		
	SA/A n (%)	NA/D n (%)	SD/D n (%)	SA/A n (%)	NA/D n (%)	SD/D n (%)	SA/A n (%)	NA/D n (%)	SD/D n (%)
Dispensing of prescribed medicines	13 (34.2)	5 (13.2)	20 (52.6)	4 (26.7)	1 (6.6)	10 (66.7)	4 (33.3)	1 (8.3)	7 (58.4)
Issuing repeat prescription	27 (71)	5 (13.2)	6 (15.8)	10 (66.7)	3 (20)	2 (13.3)	9 (75)	1 (8.3)	2 (16.7)
Identifying drug interaction and educating GP on new medications	34 (89.5)	1 (2.6)	3 (7.9)	15 (100)	0 (0)	0 (0)	11 (91.7)	1 (8.3)	0 (0)
Medication review (home or a residential aged care facility)	36 (94.7)	0 (0)	2 (5.3)	14 (93.3)	1 (6.7)	0 (0)	10 (83.4)	1 (8.3)	1 (8.3)
Identifying drug interaction and counselling to promote medication adherence	35 (92.1)	1 (2.6)	2 (5.3)	15 (100)	0 (0)	0 (0)	12 (100)	0 (0)	0 (0)
Liaising with outreach services and hospitals	36 (94.7)	1 (2.6)	1 (2.6)	15 (100)	0 (0)	0 (0)	12 (100)	0 (0)	0 (0)
Medication safety audits	35 (92.1)	0 (0)	3 (7.9)	14 (93.3)	1 (6.7)	0 (0)	12 (100)	0 (0)	0 (0)
Development of prescribing protocols	31 (81.6)	3 (7.9)	4 (10.5)	14 (93.3)	1 (6.7)	0 (0)	12 (100)	0 (0)	0 (0)
Updating GPs on new medicines	33 (86.8)	3 (7.9)	2 (5.3)	13 (86.7)	1 (6.7)	1 (6.7)	11 (91.7)	1 (8.3)	0 (0)
Diabetes education programme	30 (78.9)	6 (15.8)	2 (5.3)	13 (86.7)	1 (6.7)	1 (6.7)	9 (75)	3 (25)	0 (0)
Asthma education programme	31 (81.6)	5 (13.1)	2 (5.3)	13 (86.7)	1 (6.7)	1 (6.7)	11 (91.7)	1 (8.3)	0 (0)
Medication reconciliation	33 (86.8)	4 (10.5)	1 (2.6)	15 (100)	0 (0)	0 (0)	12 (100)	0 (0)	0 (0)
Deprescribing	35 (92.1)	2 (5.3)	1 (2.6)	15 (100)	0 (0)	0 (0)	11 (91.7)	0 (0)	1 (8.3)

SA/A strongly agree or agree, *NA/D* neither agree nor disagree, *SD/D* strongly disagree or disagree

Table 4 Interview participants demographics

Variable	N = x (%)
Gender	
Female	14 (70.0%)
Male	6 (30.0%)
State of practice	
Australian Capital Territory	3 (15.0%)
New South Wales	5 (25.0%)
Northern Territory	1 (5.0%)
Queensland	6 (30.0%)
South Australia	3 (15.0%)
Tasmania	1 (5.0%)
Victoria	1 (5.0%)
Western Australia	0 (0.0%)
Primary healthcare	
Involved	7 (35.0%)
Network involvement	
Not involved	13 (65.0%)
Working in aboriginal	
Yes	3 (15.0%)
Healthcare centre	
No	17 (85.0%)

week. Most also worked elsewhere which included undertaking RMMR/HMRs separate to the practice, academia, consultancy roles, working in community pharmacy, and various committee roles at the Pharmaceutical Society of Australia (PSA), AACP or other board work.

The interview results below focus on findings about processes, training and qualifications, practice pharmacist roles, facilitators and barriers, communication, and remuneration. This is followed by a discussion of themes that emerged from the data but were not specifically covered through interview questions. Participant quotations are included to contextualise the findings.

Processes

Participants provided comments on processes that had to take place in the general practice to facilitate integration of the new role into the team. This included the proposal of the role, inductions with staff, physical changes to the practice (e.g. dedicated workspace and IT access) and informing patients of the services provided by this new role (Fig. 1).

Training and qualifications

Participants identified skills and experience relevant to the role and additional training that assisted them with integration into this new role (see Fig. 2). Training and qualifications that were desirable for a pharmacist to undertake this role are also presented in Fig. 2.

Roles

Current roles The participants were involved in many different clinical and non-clinical roles in their positions. The clinical roles consisted mostly of medication reviews and medication reconciliation (including HMRs), providing medicine information, patient counselling, monitoring compliance, and complementary and alternative medicine advice. Other clinical roles were diabetes and asthma education, smoking cessation, assisting with the transition of patients from hospital back into the community, and supply of medication in remote areas at Aboriginal Health Services.

Non-clinical roles included providing education sessions to GPs, practice staff and health workers, conducting medical clinic audits for accreditation purposes, interacting with the representatives from pharmaceutical companies, screening and identifying patients who would benefit from a HMR, liaising with community and hospital pharmacists and conducting medication use evaluations, which is an internal audit to determine the pattern of prescribing of a specific medication.

Prescribing There were mixed opinions as to whether the future role of practice pharmacists should include the prescribing medications. Almost half the participants interviewed did not support prescribing and thought that there were already multiple roles they could focus on instead of prescribing, as well as there not being a need for pharmacists to prescribe in Australia.

The other participants that were interested in prescribing identified that the model would work best if practice pharmacists were involved in repeat prescribing of medications that patients had already been stablilised on, such as blood pressure or cholesterol-lowering medications and the oral contraceptive pill. They indicated that pharmacist involvement in issuing repeat prescriptions could free up GP time but that the prescribing would still need to be carried out in consultation with the patient's usual GP to ensure a team approach is followed.

Deprescribing All participants thought that deprescribing or medication optimisation was integral to the role of the practice pharmacist with recommendations to GPs when appropriate. Most of the participants were actively engaged in this role. Several participants identified that practice pharmacists are in a good position to help educate patients about the benefits of deprescribing.

Diabetes and Asthma/Chronic Obstructive Pulmonary Disease (COPD) Education Participants were of the opinion that

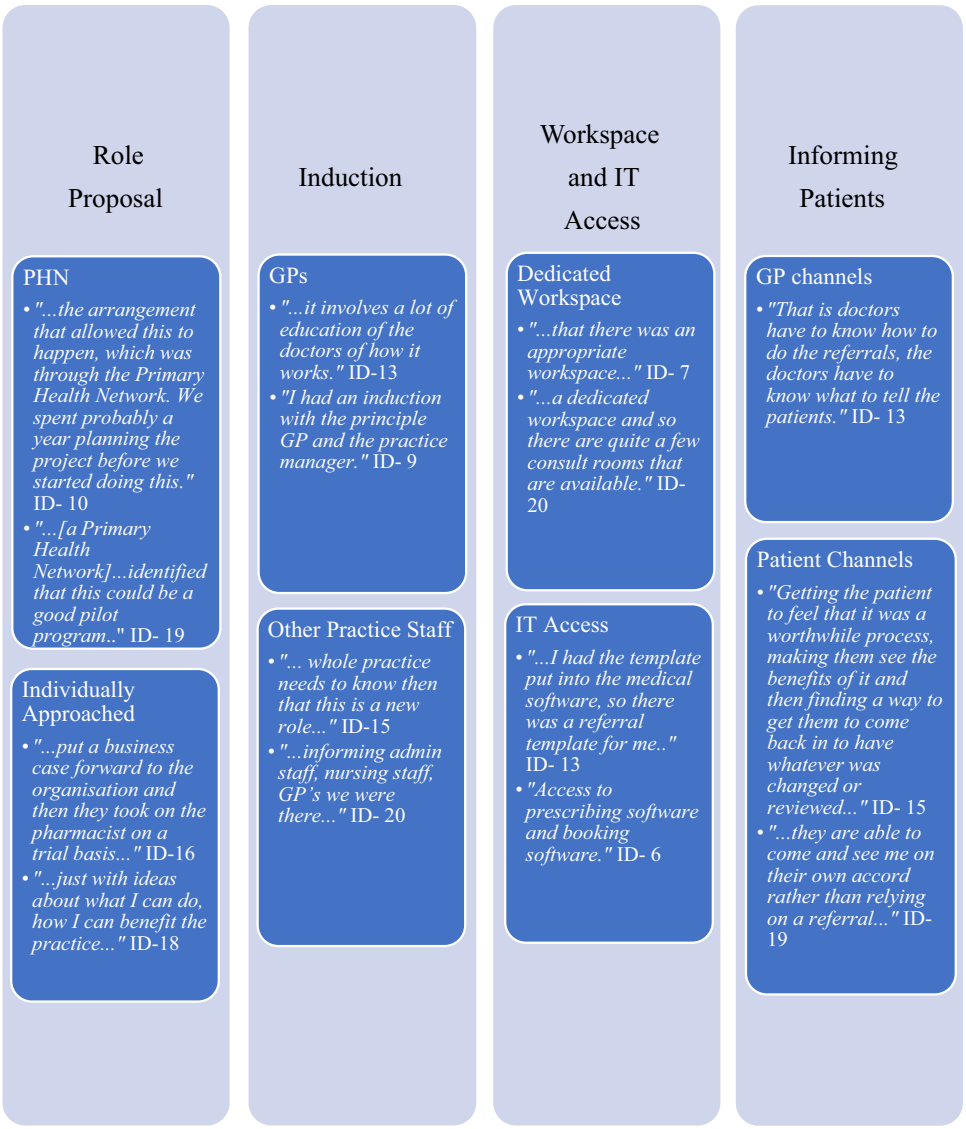

Fig. 1 Process for implementation of the role of practice pharmacists

both diabetes and respiratory education roles were a good fit for practice pharmacists as GPs often did not have the time to do this themselves. Many practice pharmacists already provided education to patients and GPs on medications and device techniques. Two participants were credentialed diabetes educators, and another was completing the credentialing course. One participant was a certified asthma educator. Many participants believed that becoming credentialed in these areas would enhance the practice pharmacist role and facilitate practice integration.

Facilitators and barriers

The major factor facilitating the practice pharmacist role was enhanced collaboration between pharmacists and GPs. Other perceived benefits of the role include better patient outcome and better understanding of the role of pharmacists as part of the healthcare team. Remuneration, underutilisation, and limited time in the practice were identified as major barriers. Other perceived obstacles include the lack of practice standard to define the scope of the role and the lack of awareness in GP of the potential service that a practice pharmacist could offer. Refer to Table 5 for supporting quotations.

Communication

The main form of communication between participants, GPs and practice staff was face-to-face. This included case conferences, team meetings, and communicating with the patient and doctor during an appointment. Other forms of communication with the GPs included emails, telephone calls and communicating through practice software internal messaging systems. Most participants were able to add notes

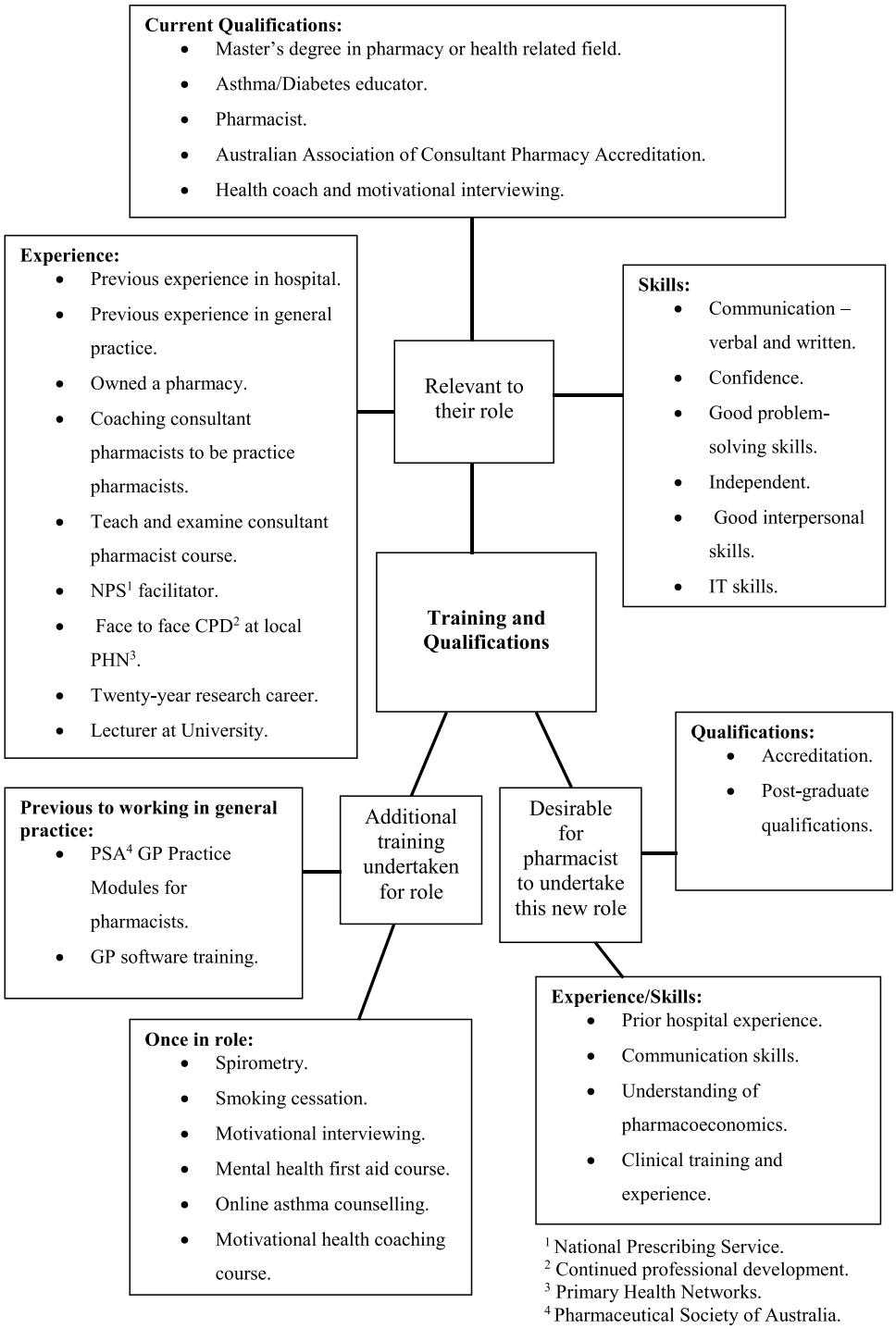

Fig. 2 Training and qualifications of practice pharmacists in this study and their opinion of the desirable training and qualification for a pharmacist to undertake this new role

and reports to patient files which provided another communication avenue.

Remuneration

The participants received funding from several sources. Most were remunerated through undertaking HMRs. Others received funding through their PHNs. The three pharmacists working in Aboriginal Health Services received funding from a variety of sources including the Commonwealth Government Health Funds, Medicare, Quality Use of Medicines in Aboriginal and Torres Strait Islander people program, and the Rural Doctors Network. A small number (4/20) of participants received funding from the general practice itself.

Almost half of the participants were of the opinion that an appropriate level of remuneration for a practice pharmacist

Table 5 Facilitators and challenges during the participants' role as practice pharmacist

Facilitators	Supporting quotations
Patient benefit	'…I think the patients get a better level of care, particularly around their medication therapies.' ID-9
Better understanding of pharmacist's role	'…there is better understanding of what the pharmacist can do and doctors are starting to get an understanding and better utilise the services…' ID-19
Collaboration	'I think that just being able to have the three professions [doctor, pharmacist, nurse] just bounce off each other and work as a team is the value of the model…' ID-8
	'…provides a bridge for the patient between their general practice and their community pharmacy… it's a conduit between both the general practice and the community pharmacy setting.' ID-9
Barriers	**Supporting quotations**
Remuneration	'…the main one is remuneration. We don't really have a good place for that to come from at the moment, well not an established place…' ID-15
Getting established/doctors to understand what can offer	'I think particularly early days is just getting people to understand what I can potentially do, because it is such a new role.' ID-17
Under utilisation	'…the awareness of the doctors and for them to remember to refer patients to me, to remember to ask questions of me because they are not used to having a pharmacist around.' ID-19
Job description/role definition	'…clarity around the role, what doctors can expect from the role, what pharmacists can actually do in the role…' ID-10
Limited time in the practice	'Two days a week does make it hard, so being part-time that's been hard. It would be really good if it was full-time, I'd just be able to do a lot more.' ID-19

working full-time would need to be equivalent to a mid to high level hospital pharmacist wage. Some thought the level of payment should reflect the practice pharmacist's role in the practice and level of responsibility. Others indicated that for a full-time position, defined as 38 h in a week, they would be expecting a salary greater than AUD$90,000 a year.

Emerging themes

Two main themes emerged during analysis of the data. These topics were not specifically covered during interview questions but were rather spontaneously discussed by interview participants. These were turf wars and increased rapport.

Turf wars

Half of the participants (n = 10, 50%) felt that other pharmacists, GPs, and professional organisations did not fully support the practice pharmacist role.

Most who identified turf wars as an issue thought the biggest contributor to this was from community pharmacy itself. They reported that community pharmacists felt threatened by this new position and some reported that in some instance's community pharmacists didn't want to collaborate and work with them due to the fear of losing business. Contrary to this, participants were of the opinion that practice pharmacists actually facilitated improved communication between the community pharmacy and general practice as well as increase uptake of services offered by the community pharmacy:

> '…it should actually help the communication between community pharmacy and the GP practice, and we actually recommend patients to go to the community pharmacy for MedsCheck [in-pharmacy medication review] or to buy things.' ID-4

Several participants also reported that turf wars initially existed between themselves and some GPs, in that GPs thought they were trying to overtake their role. This was usually resolved through communication about what the practice pharmacist role could offer.

Five participants also felt that professional organisations were not fully supportive of the role. Two participants felt the Pharmacy Guild of Australia, a national employers organisation, did not support the role and was not doing enough to get behind it for the fear it would detract from community pharmacy:

> '…I think parts of the system, particularly community pharmacy and the Guild [pharmacy owner organisation] feel challenged or threatened by practice pharmacists.' ID-19

Increased rapport

The increased rapport (relationships) between participants and GPs was commonly identified as a benefit of being integrated into the general practice. Participants identified that gaining the trust of the GPs was necessary and beneficial for them to collaborate and provide better care for their patients and also helped GPs recognise and accept the pharmacist's level of knowledge and skills:

'…there is improved clinical trust and rapport between the two professions…they can then have an appreciation for the clinical aptitude for that pharmacist and pharmacy in general…' ID-9

Discussion

This study explored the current roles, potential barriers and facilitators to the role, the training requirements and the expected remuneration level for the practice pharmacist role in Australia. Participants in the questionnaire identified verifying the appropriateness of prescriptions, counselling to promote adherence and liaising with outreach services and hospitals as roles for the practice pharmacist. The interview participants also identified these as roles with additional roles such as education sessions for staff and patients. All interview participants reported medication reviews as a role of practice pharmacists. This was also supported by questionnaire results in which most accredited pharmacists agreed that medication reviews (HMRs and RMMRs) should be a role of the practice pharmacist. Enhanced communication was identified as a key facilitator to the role and the lack of remuneration was identified as a barrier by both questionnaire and interview participants.

Medication reviews conducted by pharmacists working in general practice are highly valued and lead to better patient outcomes with nonadherence and inappropriate prescribing being addressed. This has been supported by international literature from Canada [8, 17], USA [18, 19], UK [20, 21] and New Zealand (NZ) [22], as well as other Australian studies [6, 7, 12, 23]. Medication reviews are one of the funding sources used to sponsor payment of practice pharmacists in Australia as there is currently no official funding source.

Opinions about pharmacist prescribing was explored during this study. Survey particpiants were more accepting of this role whilst the interview participants were mostly undecided with mixed views. Pharmacist prescribing had been implemented in other countries such as the UK to improve patient access to medicines and assist with GP shortages [24], as well as in NZ [22]. In this study, some participants identified that there was not a real need for pharmacist prescribing in Australia, while others identified that prescribing repeat supplies of certain medications in conjunction with the GPs would be helpful in some cases to ease GP workload and foster interprofessional collaboration.

Enhanced collaboration, access to medical records and a better understanding of the pharmacist's role by GPs and other healthcare professionals were reported by the interview participants as facilitators of practice pharmacists. The most common facilitator identified was the increased rapport between GPs and pharmacists, facilitating the integration of this new role in the primary care setting. This is supported by previous research which suggested that integrated practice led to better collaboration, an increased understanding of the pharmacist's role by staff, and improved communication between health professionals [6, 25].

Similar to another Australian study, there were mixed views by questionnaire participants (accredited pharmacists) on whether they needed additional training to undertake this role [2]. Many interview participants were accredited and indicated that additional training enhanced fitting into the role. Other studies reported that additional training of pharmacists before undertaking the role would facilitate integration [6, 26].

One of the factors facilitating the practice pharmacist role was the established trust and rapport with GPs. This finding is consistent with another study conducted in the United States where professional interaction, trust and rapport were identified as significant factors affecting collaborative care between medical practitioners and pharmacist. The greatest barrier that participants reported was the lack of remuneration for the role. There is currently no structured funding model to support the practice pharmacist role and the lack of an appropriate funding model had also been reported in other studies as being the major barrier to implementation and uptake of the role [2, 6, 27]. The questionnaire results also indicate that an established remuneration scheme would enhance the interest in the role. Most interview participants indicated that HMR funding was the main source of income for their role.

Another barrier identified was underutilisation of the practice pharmacist by the GPs. Most participants relied on referrals from the GP to provide their clinical services to patients and were not readily accessible to patients. Another Australian study which explored stakeholders' views also identified this as a potential barrier to practice integration [25]. One Australian study identified initial slow uptake of the role by GPs and practice staff but this was perceived to be due to cultural and professional barriers [2].

Turf wars were identified as the main theme in this study with interview participants identifying conflict of interest between practice and community pharmacists, pharmacists and GPs, and from professional organisations. This was also reported in another study where pharmacists, practice managers and health care consumers identified turf wars between pharmacists and GPs as a potential barrier. However, the GPs in that study did not perceive this as a problem [6]. As this study did not incorporate GPs views it is not known whether these turf wars were only perceived by the pharmacists.

One limitation of this study is that there was a low response rate to the questionnaire. The questionnaire was conducted online so that a greater number of accredited pharmacists could be reached. Despite sending out a reminder 4 weeks after the initial questionnaire was released, there were only

65 respondents. The low number of respondents could be due to the lack of awareness of this potential new role. It is likely that those who responded were more motivated and were more willing to consider the idea of working in collaborative care settings. The interview pharmacists involved purposive sampling of pharmacists who indicated their willingness to be interviewed and potentially were biased in their responses. Although there is a likelihood of bias, it was considered important to interview participants who had experience in the practice pharmacist role. We also acknowledge the potential of the researchers' bias in the interpretation of the qualitative data.

The strength of this study lies in the mixed method approach: the questionnaire targeted individual pharmacists that is likely to partake in the new role and the interview was aimed at individual pharmacists who was already in the role to gain a detailed understanding of the role. This study is able to draw on the diverse background of practice pharmacists interviewed. The pharmacists interviewed had multiple other roles prior to working in general practice, including hospital and community experience, to be able to provide different perspectives on the various aspects of this new role.

The findings from this study should be taken into consideration in the development of collaborative care frameworks for GPs and practice pharmacists. Such frameworks could be useful for the implementation of the practice pharmacist role in Australia as well as for countries with developing clinical roles for pharmacists with a future aim of implementing collaborative care in primary care settings.

Conclusion

This study provided insight into the current and future roles of practice pharmacists working collaboratively with GPs and other healthcare professionals in general practices. Training requirements, remuneration expectations, and current working relationships were some of the main barriers identified. For the role of practice pharmacists to be expanded, a defined scope of role will be required with the implementation of an appropriate funding model.

Acknowledgements The authors would like to thank the pharmacists who agreed to be interviewed.

Funding This study was not funded.

Conflicts of interest There are no conflicts of interest for this study.

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