IMAGINE BETTER

Pharmacists in General Practice Program

Evaluation Report

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Assoc Prof. Sam Kosari[1,2]
Ms Louise Deeks[1,2]
Prof. Mark Naunton[1,2]

Discipline of Pharmacy[1]
Health Research Institute[2]
University of Canberra

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- Pharmaceutical Society of Australia
- Pharmacy Guild of Australia
- Health Care Consumers' Association
- Royal Australian College of General Practitioners
- Australian Medical Association
- Australian Association of Practice Managers
- Community Pharmacy.

In addition, we would also like to acknowledge the valuable contribution and dedication of those involved in the program including:

- The general practices
- The pharmacists
- The pharmacy mentors.

Capital Health Network wishes to acknowledge Australia's Aboriginal people as the Custodians of this land. We pay our respect and recognise their unique cultures and customs and honour their Elders past, present and future.

Introduction

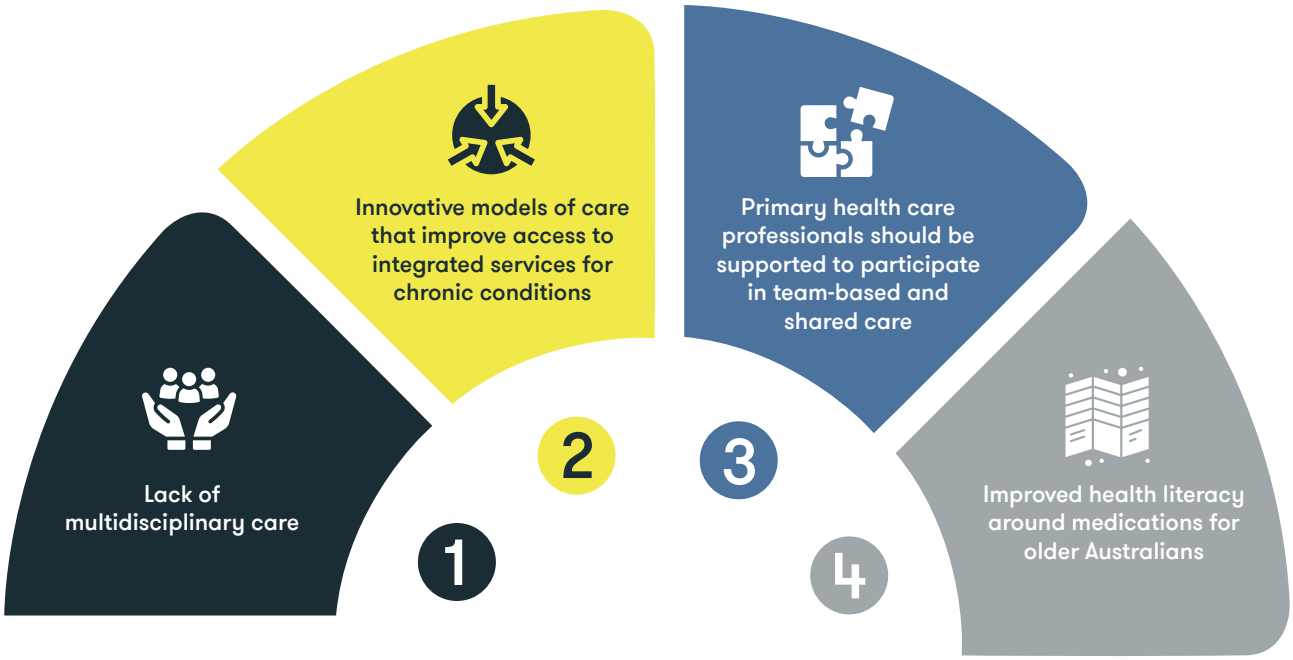
Capital Health Network (CHN), ACT's Primary Health Network (PHN) is one of 31 PHNs established by the Australian Government across Australia. CHN has been established to work in partnership to integrate health care, strengthen heath equity and improve health outcomes within the ACT health care system.

In 2016 CHN funded a two-year pilot program to support the employment of a pharmacist in three general practices. The pilot program was externally evaluated by the University of Canberra and demonstrated successful outcomes in improving medication safety, compliance and health outcomes for patients. The evaluation showcased the pilot had effectively demonstrated to practitioners and practices the benefit of embedding and sustaining the pharmacist role as part of the health care team.

Building on the key findings and the success of the Pharmacist in General Practice Program pilot, CHN extended the pharmacist model to another eight general practices across the course of 2018-2021.

The Pharmacists in General Practice Program built on the momentum of the previous pilot and was commissioned with the aim of building the experience and confidence of GPs to include a non-dispensing pharmacist into the health care team at the practice.

The Program aligned with the PHN objective to increase the efficiency and effectiveness of health services by addressing the following key priority areas from the ACT PHN needs assessment:



Program structure

Through the Australian Government PHN Program, CHN provided funding to eight general practices to each employ a part-time pharmacist (15 hours per week) for up to 18 months to work in a non-dispensing role. The practices were recruited in stages via an expression of interest to all ACT general practices. A condition of funding was that the pharmacists and the general practice would work co-operatively with CHN to monitor progress and to participate in the evaluation.

The practices were distributed across the ACT and none of the practices had previously employed a pharmacist. Six sites were general practices which offer bulk billing and Medicare co-payment appointments whereas one provided bulk billing to members and another provided free services to clients with an alcohol or drug addiction.

Nine pharmacists were recruited by the general practices without any input from CHN or the evaluators. These pharmacists had a range of experience with periods of registration between one and 39 years but none had worked previously in general practice. CHN and the evaluators suggested specific activities for the pharmacists, but the roles were allowed to develop according to their own skillset and the local workplace needs.

Mentorship

CHN provided support to the general practice pharmacists via a mentor who was a local pharmacist with experience working in general practice. Experiences and challenges were discussed by the pharmacists, GPs, CHN and the evaluators during the regular meetings that occurred approximately every two months during the pilot.

Evaluation

The evaluation focused on pharmacist activities, financial sustainability, patient acceptability and the impacts of the pharmacist on both collaborative care and team effectiveness. Information about activities and financial sustainability has been extracted from an online electronic database which the pharmacists completed throughout their employment. Surveys were used to gather data about patient acceptability, collaborative care and team effectiveness related to the general practice pharmacist. Semi-structured interviews for health care professionals and pharmacists have been conducted for consented participants from sites where the pharmacist has been employed for at least ten months.

The evaluation has ethics approval as an amendment to the existing approval, by the University of Canberra Human Ethics Committee (Project number 15-235).

The pharmacist's role in General Practice

Activities

CHN and UC suggested eleven activities for the pharmacists to undertake based on the previous pilot, national and international evidence (see Table 1). Aside from these suggestions the pharmacists' roles were allowed to develop according to general practice priorities, practice population demographics, their own skillset, local workplace needs and patient demand.

Table 1: Suggested activities for the pharmacists in general practice

Activity	Purpose
Antimicrobial stewardship	Prevent overuse of antimicrobial agents and resistance
Chronic kidney disease (CKD)	Identify patients with CKD and optimise treatment
Clinical audits	Improve quality of prescribing at practice level
Medication review	Improve medication safety with a focus on deprescribing
Point of care testing	Identify undiagnosed diseases, monitor existing conditions
Asthma care	Improve asthma management
Smoking cessation	Assist patients to quit smoking
Collaboration with CP*	Coordinated approach to medicine management
Transitions of care	Accurate medicine reconciliation after hospital discharge
Updating medical records	Drug allergy/adverse drug reaction information accurate
MBS# claimable activities	Generate income for the general practice

* CP - community pharmacist; # MBS – Medicare Benefits Schedule

The pharmacists recorded their activities throughout this pilot study. Data for 98 weeks (February 2019 until December 2020) have been analysed by the evaluation team. The activities were broadly classified as clinical and non-clinical. The clinical activities conducted by the pharmacists are shown in Figure 1.

The pharmacists undertook many roles to support the general practice. Medication review was the most common activity conducted by the pharmacists particularly for patients with multiple medications and those with chronic diseases such as diabetes, chronic kidney disease and asthma. Quality of practice activities comprised clinical audit, educating other general practice staff, antimicrobial stewardship and updating medical records with allergy/adverse drug reaction status. The pharmacists collaborated with health professionals external to general practice for patients who had been recently discharged from hospital and in liaising with community pharmacists. Patient contact activities not categorised as medication review consisted of administering the influenza vaccine, point of care testing and conducting smoking cessation sessions.

Administration for pharmacists was non-clinical and was mainly related to service development which is important for establishing the pharmacist role. Almost a quarter (23%) of activities recorded were related to service development. This included education and training for new roles, liaising with other stakeholders, meeting with mentors, booking patient appointments, liaising with CHN and completing evaluation activities. These administrative tasks are essential to developing new roles but decreased as the pharmacists became established in the general practice.

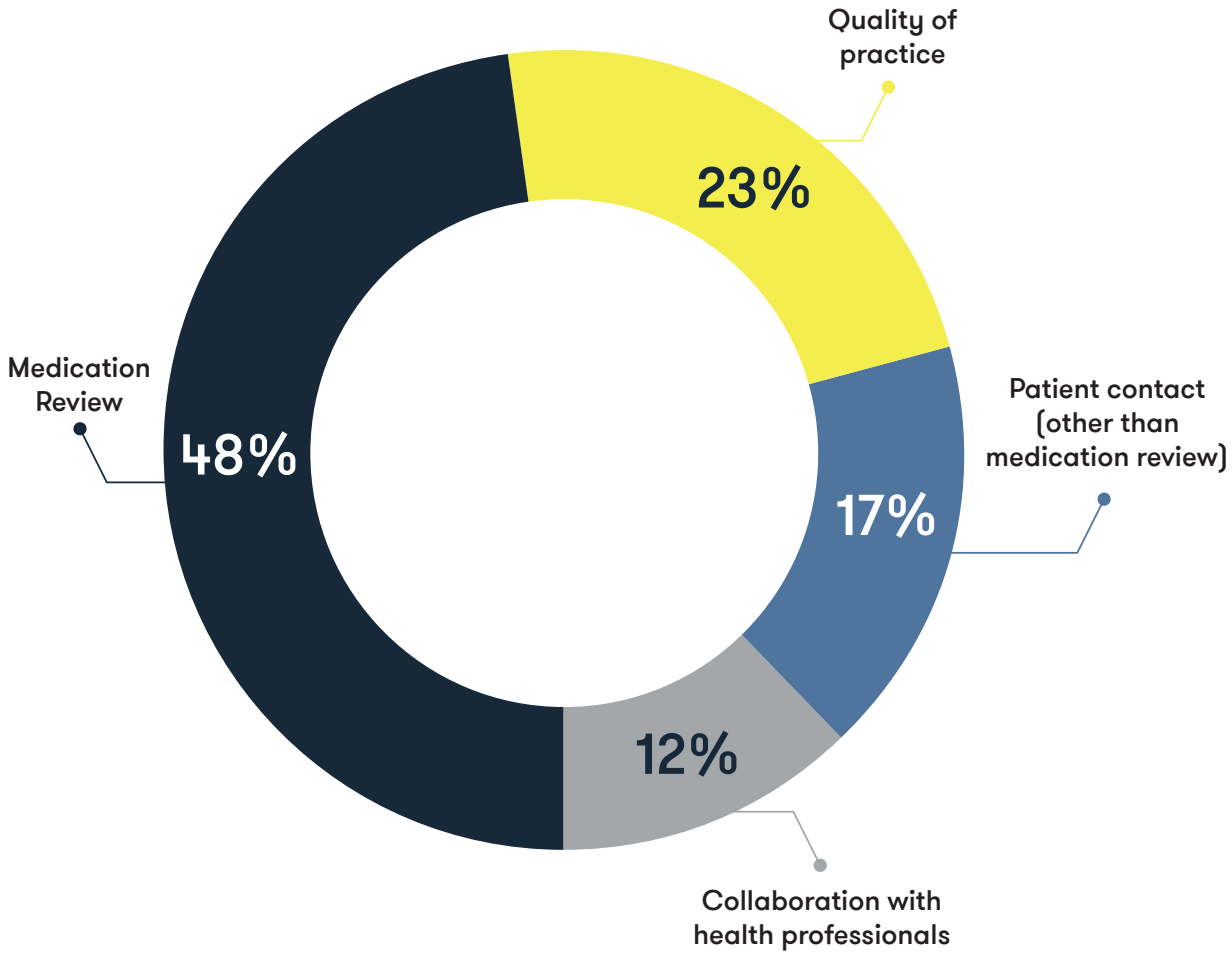


Figure 1. Breakdown of clinical activities conducted by the pharmacists

Impact of COVID-19

The pharmacists were flexible and modified their roles due to COVID-19. More clinical audits were conducted during the times where there were limited opportunities for face-to-face patient interaction, particularly during the early months of the pandemic. Medicines shortages increased during the pandemic and the pharmacists were able to support GPs and patients by locating supplies and suggesting alternative therapies. The pharmacists have been adaptable to use telehealth, face masks and physical distancing.

Case study 1

An 85 year old female had her medication reviewed by the practice pharmacist in early 2020. The following potential issues with medication were identified: risk of falls and confusion due to long term use of temazepam, oxycodone and sodium valproate; the patient had apixaban tablet, but this was not documented in the general practice records; and monitoring for osteoporosis and diabetes required due to long term prednisolone. In addition, the patient had become more confused recently and had difficulty with the timing of medications and had forgotten or taken double doses which was potentially harmful.

A reduction in the risk of falls and confusion for the patient was achieved by implementing slow reduction regimes of the benzodiazepine (temazepam) and opioid (oxycodone). The pharmacist supervised these reductions in dosages during multiple consultations at the practice, providing support for the patient and liaising with the GP and community pharmacist. Melatonin was commenced as a sleeping tablet so that the dose of temazepam could be reduced with an aim to completely stopping temazepam. Regular paracetamol modified release tablets were started to facilitate weaning the dose of oxycodone slowly to the lowest effective dose. Sodium valproate was continued until next neurology review as it had been suggested by a specialist for the prevention of migraines.

The pharmacist clarified with the hospital that the patient was initiated on the direct acting anticoagulant, apixaban, during a recent hospital admission for a pulmonary embolism. The pharmacist clarified that treatment would be ongoing as the patient also has a history of transient ischaemic attacks. The pharmacist then checked that the dose of apixaban was appropriate in view of the patient's age, weight and renal function.

The suggestion to check blood glucose testing to screen for diabetes and a bone mineral density scan to screen for osteoporosis was accepted by the GP and will be conducted at the next convenient opportunity.

A dose administration aid can assist patients to take their medication at appropriate times of the day. In collaboration with the GP, the practice pharmacist adjusted the medication list and liaised with the patient's community pharmacy to initiate a dose administration aid.

The patient's adherence to medications should improve after commencing a dose administration aid and there will be less risk of double dosing. The community pharmacist will check that the patient is finding the dose administration aid beneficial every 4 weeks each time a new prescription is dispensed.

Key points

1. Risk of harm due to falls in older people can be reduced by practice pharmacists when they make recommendations to GPs to stop or decrease medication linked to falls.
2. Unintentional discrepancies with medication that may cause harm to patients can be resolved by practice pharmacists when patients have had a recent hospital admission.
3. Practice pharmacists can promote screening of patients to identify and treat early signs of known side effects of medication.
4. Dose administration aids can be initiated by practice pharmacists in collaboration with the patient, GP and community pharmacist to improve patient's adherence to medication and prevent harm due to missed doses or double dosing.

Evaluation results

Clinical audits

The pharmacists conducted a range of clinical audits to improve medication management.

- Three pharmacists completed a clinical audit to identify patients with a diagnosis of atrial fibrillation who are at increased risk of a stroke because they were not prescribed anticoagulant medications. Strokes are associated with disability, deterioration in quality of life and considerable health care costs. Five patients were subsequently started on anticoagulant therapy and so the risk of a stroke in those patients was reduced.

- Proton pump inhibitors (PPIs) are a commonly used medication to treat or prevent gastrointestinal problems. Some patients are prescribed PPIs beyond their indicated timeframe so there is a scope to stop or reduce (deprescribe) PPI medication in these cases as long term use can be associated with harm. Four pharmacists completed audit cycles related to PPI deprescribing. A total of 568 patients were identified as suitable for a discussion with the GP about the potential for deprescribing their PPI medication. Deprescribing occurred for 140 patients (25%) at follow up at least 5 months after the initial audit.

- Untreated meningococcal infection in children can rapidly lead to death or disability with indigenous children being at high risk. A clinical audit by a practice pharmacist in June 2020 identified Aboriginal and Torres Strait Islander children aged under 2 years old that required the free course of 3 vaccinations to protect them against meningococcal B infection. By January 2021, 71 % of these children had received the full course or have an appointment scheduled for their final vaccination. The parents of the remaining children had left the practice or were unable to be contacted.

- Other clinical audits conducted by the pharmacists included those related to dual antithrombotic beyond indicated timeframe or not indicated, opioid use in noncancer pain, paediatric asthma treatment, osteoporosis prevention, diabetes case finding; indigenous health case finding, patients at risk of NSAID related harm, females on valproate, hepatitis C treatment indicated, monitoring of antipsychotic medications, benzodiazepine prescribing, and vaccination indicated (influenza; pneumococcal; shingles).

Medicare Benefit Schedule Claims

Pharmacists can generate income for general practices by contributing to the government Medicare reimbursed activities.

- In addition to the pharmacist specific Home Medication Review (HMR), pharmacists were able to support GPs and provide contributions to various multidisciplinary Medicare Benefits Schedule (MBS) items including over 75 years Health Assessments, GP management plans, case conferences, team care arrangements and the asthma cycle of care. One of the pharmacists utilised skills as a credentialled diabetes educator to provide MBS reimbursed diabetes education. Sixteen percent of the time worked by the pharmacists was spent supporting MBS activities in the general practice. By comparing the income generated by pharmacists through MBS claimable activities and the cost of employing pharmacists, cost-benefit modelling for general practices was conducted. The return on investment (ROI) ratio represents the income generated for the general practice for every $1 invested in pharmacists' salary.
- The ROI ratio for pharmacists was broad and ranged from 0.09 to 1.26 with a median of 0.18.
- Pharmacists' involvement in contributing to MBS claimable activities were variable and were dependant on their role as instructed by the general practice and according to their skillset.
- The ROI ratio is specific to general practice businesses and has several limitations: it does not include the broader benefits of having pharmacists in general practice such as the time that pharmacists save for GPs and most importantly improving health outcomes for patients that is of a great value to the patients, society and the health care system.

Time saved for general practitioners by pharmacists

The pharmacists indicated where they had spent time on an activity that would have been previously conducted by a GP in the daily electronic activity diaries.

- Nine pharmacists recorded 3,414 hours of activities between February 2019 and December 2020 of which they estimated that 644 hours were saved for GPs. This indicates that for every five hours that a pharmacist is employed, approximately one hour of time is saved for a GP. On average, part-time pharmacists (employed 15 hours per week) may relieve three hours of GPs' time per week so that a GP could undertake other clinical activities.

Two of the six general practices that have completed the program to date have retained their pharmacist after CHN funds have been exhausted. This demonstrates that the pharmacists became a valued and integral member of the team at these general practices.

Medication Review

The most frequent patient contact activity conducted by pharmacists was medication review.

- Pharmacists conducted medication review when requested from GPs or patients and made recommendations to improve the overall medication regimen. A breakdown of different types of pharmacist recommendations are shown in Figure 2.
- 78.3% of pharmacists' recommendations were accepted and implemented by GPs.
- Pharmacists worked collaboratively with other health professionals to conduct medication review - they regularly communicated with community pharmacies and aged care facilities when required and made referrals to GPs, specialists, dieticians, diabetes educators or an external consultant pharmacist when appropriate.
- Due to the COVID-19 pandemic, pharmacists conducted urgent medication reviews via phone and telehealth.

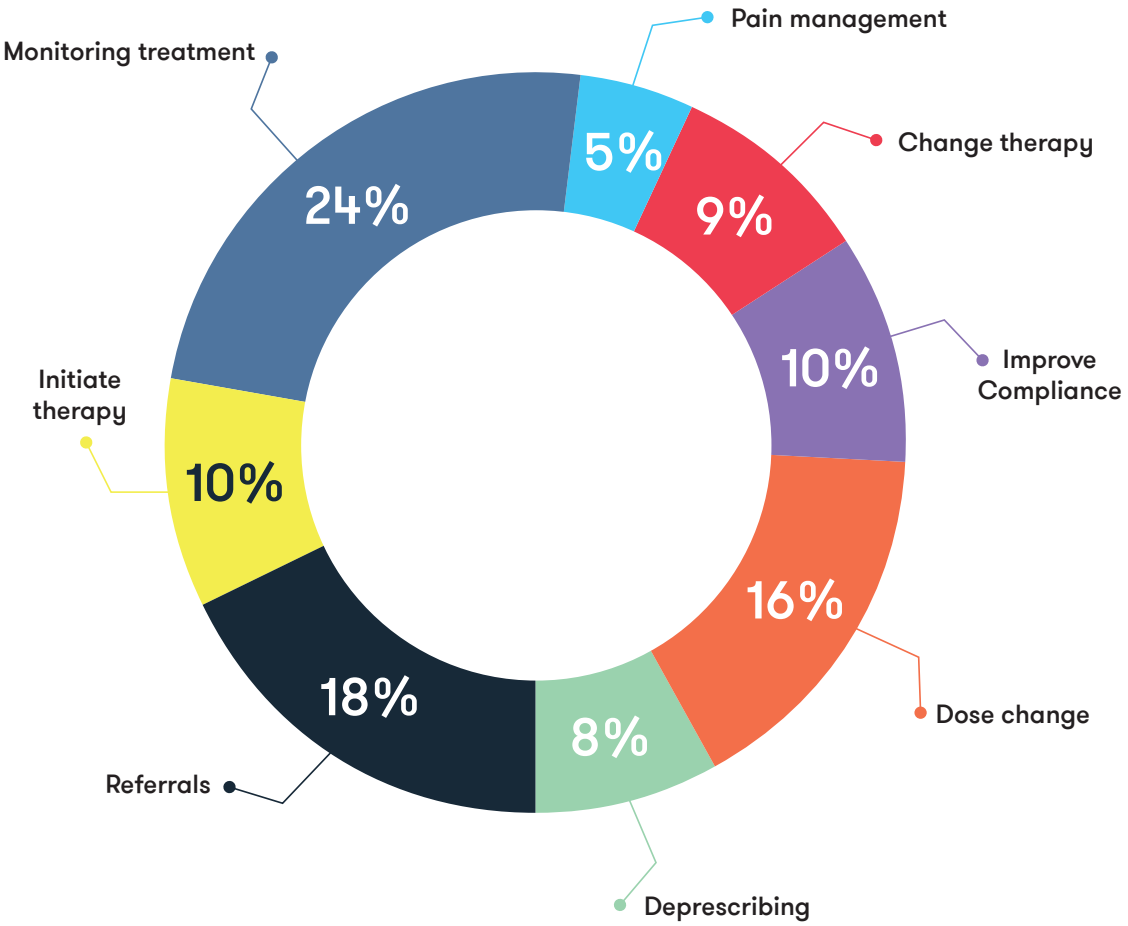


Figure 2. **Breakdown of pharmacist recommendations in medication reviews**

Asthma

General practice pharmacists supported patients with asthma by:

- Providing education and counselling
- Improving inhaler technique
- Developing asthma action plans and providing recommendations to optimise the dosage of maintenance therapy in collaboration with GPs.

Smoking cessation

Pharmacists supported patients with smoking cessation, provided counselling and recommended appropriate pharmaceutical treatments to patients and their GPs.

- Pharmacist activities contributed to 22 patients successfully quitting smoking.

Patient satisfaction

A survey designed to assess patients' perceptions towards practice pharmacists has been completed by 89 patients to date.

- Interim results indicate that the majority of patients were aware that there was a pharmacist available in their general practice - see Figure 3.
- Patients reported primarily they had been referred to the general practice pharmacist by general practitioners, nurses, or receptionists.
- Patients reported a high level of satisfaction in the pharmacists. They trusted and accepted the pharmacist's advice; believed that explanations about treatment were understandable; and thought that the pharmacist respected them. The patients reported that they were not always aware that the pharmacist had checked their medicines.
- Patients indicated that they would recommend visiting the practice pharmacist to other people; would visit the practice pharmacist in the future and felt that the time spent with the pharmacist was productive - see Figure 4.
- Patients reported that they would be willing to pay on average AUD $60.18 for a 40-minute consultation with a general practice pharmacist.

Semi-structured interviews with GPs and practice nurses contained positive feedback about the practice pharmacist from patients which includes the following:

> *Having someone to talk in great detail about their medications and issues has been beneficial to patients.* - GP

> *We had nothing but positive feedback from patients.* - GP

> *Everyone who saw the pharmacist developed a really good rapport with them, were given a new understanding of how pharmacists work and how they could add to the patient's understanding of their medication and just their whole health literacy.* - Practice Nurse

> *The pharmacists discussions with GPs have been very patient-centred and for the benefit of patients. They explained the discussion in ordinary understandable language for patients to understand.*
> - Practice Nurse

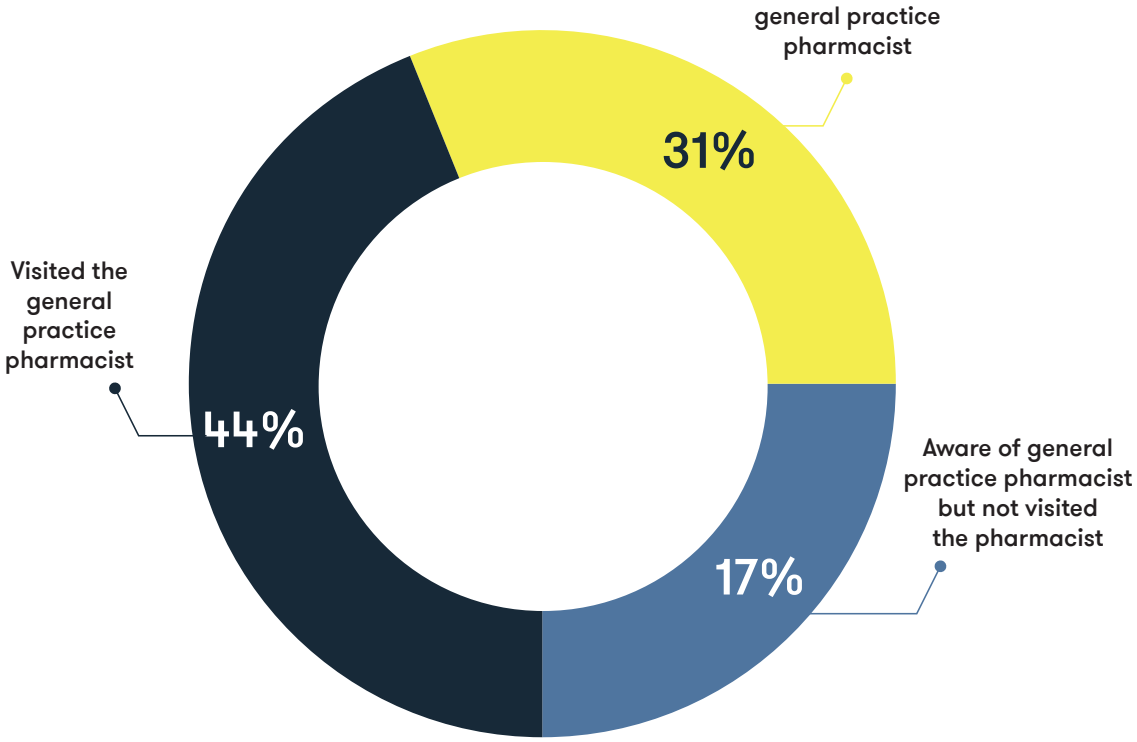


Figure 3. Patient awareness and use of the pharmacist in their general practice

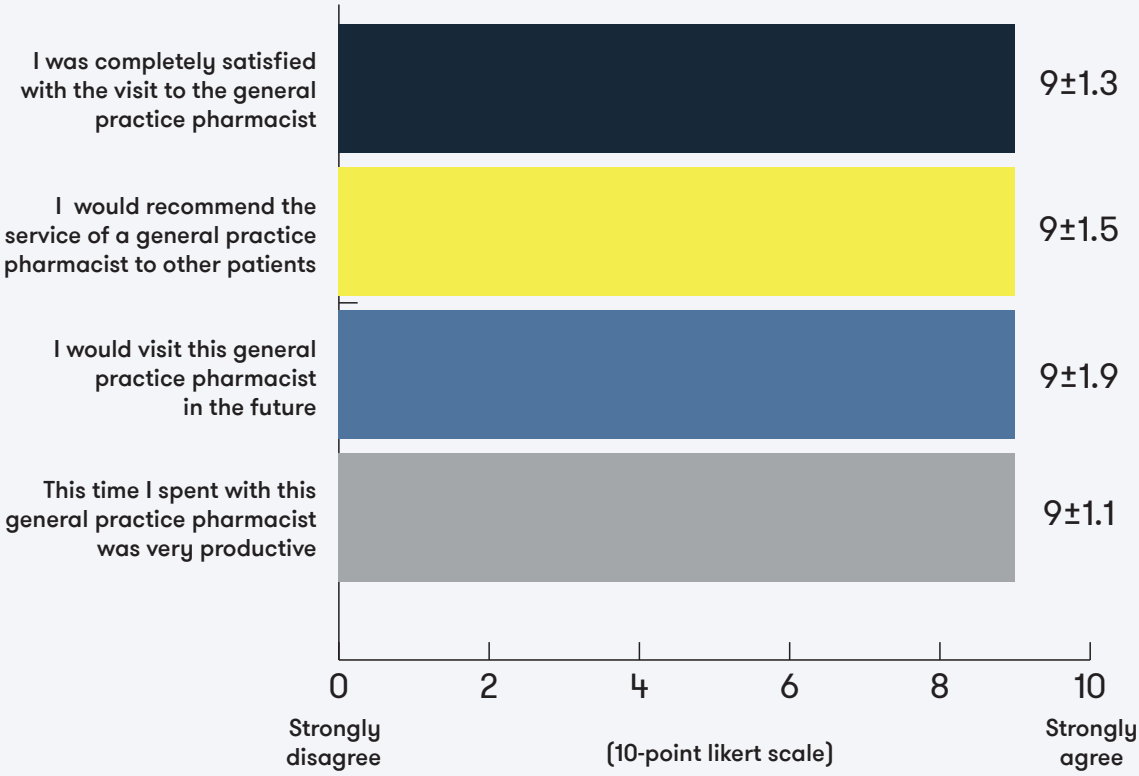


Figure 4. Patient satisfaction with the general practice pharmacist

Interprofessional collaboration with general practice pharmacists

A survey was administered to assess interprofessional collaboration between general practice pharmacists, GPs and other health care professionals in general practices. Professional interactions, relationship initiation, exchange characteristics and commitment to collaboration were scored as percentages. The survey was conducted in two phases, baseline and after 12 months of pharmacist employment in general practice. Interim data indicate that:

- Pharmacists' professional interactions with GPs and other health care professionals increased.
- GPs indicated that their trust of the pharmacist, understanding of the pharmacist role, communication and professional interaction with the general practice pharmacists had increased over time but their commitment to collaboration slightly decreased over time. This may be due to high workload and time pressure that GPs are facing in primary care, which results in having less time for GPs to collaborate and interact with pharmacists.
- Other health professionals' interactions with general practice pharmacists, trust of the pharmacist, role clarity, communication and commitment to collaborative care slightly increased.
- Overall, total scores from collaborative care survey were not significantly different between the baseline and 12 months for pharmacists and GPs (see Figure 5) .

Illustrative quotes from the semi-structured interviews with GPs and practice nurses indicate that the practice pharmacist is an accepted and valuable member of the general practice team:

> *We try to make sure patients are actually under the care of the team, rather than only care of doctors, so everyone's open to all the advice. Sometimes we really rely heavily on the pharmacist to give us the indications, to give us the recommendation in terms of, okay, have we done the right things, putting this patient on certain medications?* - GP

> *Pharmacy I think is a natural part of the team, with the incredible complexity of the medications we're dealing with, everyones living longer and all the diseases we can cure like hepatitis. You can't possibly have that knowledge in your head, and having that person in the role of pharmacist is absolutely critical as part of the team.* - GP

> *The pharmacist added to our staff very nicely in that they were able to assist and provide holistic care for our patients because when they had multiple medications or medication questions, [he/she] was available for us to refer her to. [He/she] just completed the care that we were able to offer our patient* - Practice nurse

> *Being physically co-located makes that interaction easier and more natural and I think that it's probably the way future is good for patients to have a number of the health care providers that they would normally see in the same location. It makes interaction between those health care providers easier and I think the outcome is better patient care.* - GP

Semi-structured interviews with the pharmacist identified that their role as an expert in medication was integral to team effectiveness:

> *You can really tell patients' appreciate seeing the nurse, then the pharmacist, and then the doctor. They really find that it sort of closes that circle because it's looking not just at the mental health, it's looking at the medications, it's looking at their overall health.* - Practice pharmacist

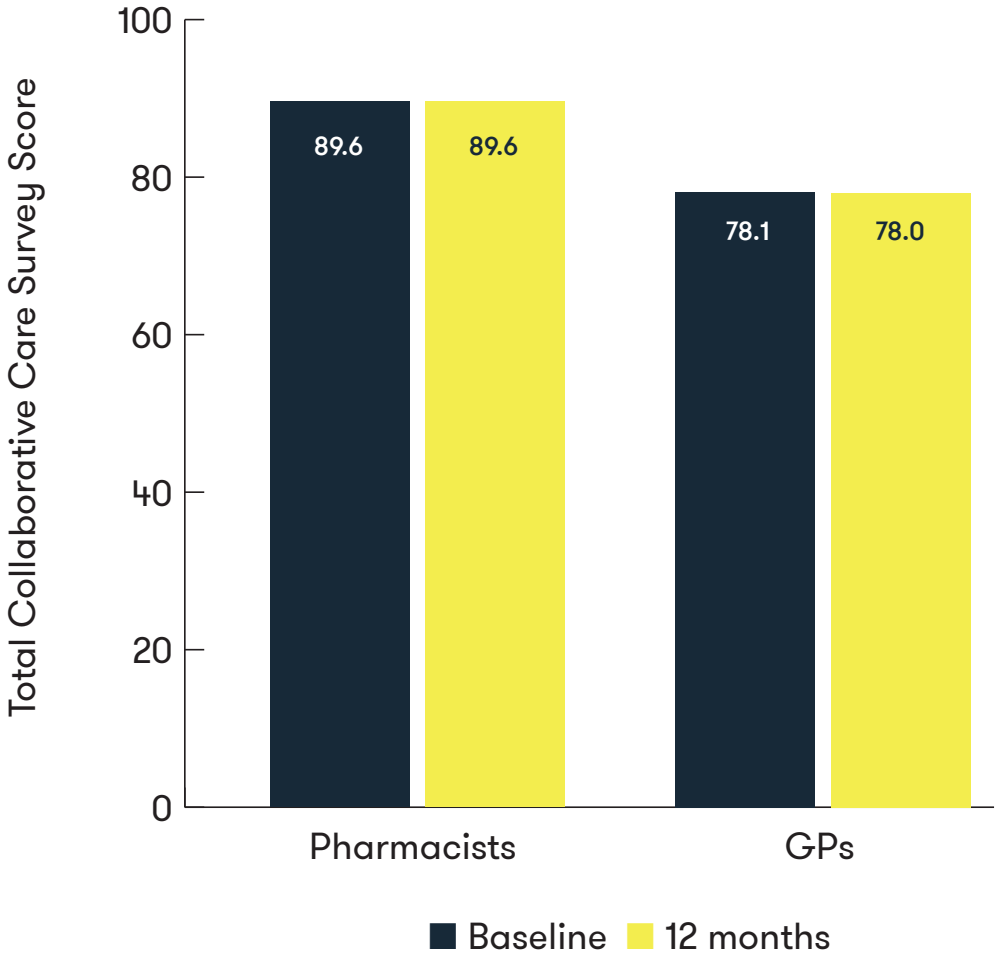


Figure 5. **Total Collaborative Care Score compared at baseline and 12-months**

Perspectives of GPs and practice nurses

Semi-structured interviews with GPs identified that the pharmacist improved medication safety and saved time for the GP.

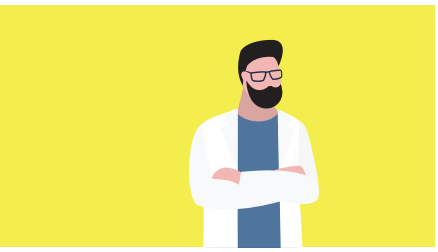
> *The risk profile of the patients has decreased markedly.* - GP

> *It's actually been a critical reduction in some of the workload with complex patients. It's difficult to sort out the complex patients, what medications they're actually taking when they come out of hospital. Generally, the discharge summaries are incorrect. Generally, patients also have a number of medications recorded in the discharge summary, and our lists are invariably out of date when the patient is discharged.*
> - GP

Practice nurses were positive in their comments about practice pharmacists during the semi-structured interviews. They were accepting of the practice pharmacist and felt that extending the part-time hours would be appropriate.

> *The practice pharmacist has been an absolute brilliant idea.*
> - Practice nurse

> *It would be nice if the pharmacist was here Monday to Friday.*
> - Practice nurse



Perspectives of pharmacists

Semi-structured interviews with pharmacists indicated that they needed training and education for their new role and that the GPs were utilising the pharmacists for medication advice. Workforce recruitment and retention challenges presented themselves throughout the program as not all pharmacists are suited to a role in general practice. Throughout the interviews the success of the pharmacists role and retention of the pharmacists were dependant upon strong collaboration with the GPs, a positive team culture, a strong understanding of GPs and practice pharmacists roles respectively, pharmacists personality fitting to the practice, and responsibilities that aligned with the pharmacists own interests.

> *When working in general practice pharmacists must be prepared to learn, because it's a fairly new role. [Pharmacists are generally] well-rounded clinically, prepared to think outside the box, team players. ….They're prepared to work with the practice staff, the practice manager, the receptionists as we all contribute as a team at this practice.*
> - Practice pharmacist 2

> *I've become an immediate point of resource, so I do quite regularly get doctors calling me on the internal phone when they've got a patient in their consult, how I prescribe this, what should I do, this person's pregnant, anything like that.* - Practice pharmacist 3

> *When this project happened, a lot of practices applied [to have a pharmacist in their general practice] but I don't know if there was a meeting and sitting with them to explain what the pharmacist can do and what is needed by the doctors in the surgery so [its required to have] one or more committed doctors to help to make this a success.* - Practice pharmacist 4

Case study 2

A 59-year-old male was referred to the practice pharmacist by the GP for a medication review and diabetes education. The patient was new to this general practice. He was uncertain about his current medications, was worried about a pain in his chest and wanted to quit smoking cigarettes. There was scope to improve his diabetes management.

There was confusion about his current medications as the patient had old tablet boxes, was new to this general practice having moved interstate, has just had a hospital admission and sees multiple prescribers. The pharmacist updated the medication on the general practice records according to a recent letter from the cardiologist. Doses of metoprolol, isosorbide mononitrate and spironolactone were increased. The pharmacist educated the patient about the medication changes.

Pain in the chest (angina) was distressing the patient. His most recent angina episode was over the weekend. The pharmacist established that the patient had not obtained any glyceryl trinitrate sublingual (GTN) spray to treat the angina since relocating to Canberra. He remembered that the cardiologist spoke about using GTN spray but never wrote a prescription. Following discussion with the pharmacist, the GP provided GTN spray prescription after the medication review. The patient was educated on use of GTN spray and this was reinforced with written information.

The patient was attempting to quit smoking cigarettes with the aid of varenicline medication. He reported that he was finding abstinence difficult because he had finished the course yesterday. Upon questioning, the pharmacist discovered that he had only ever been prescribed the initial starter pack. Following discussion with the pharmacist, the GP provided a prescription for the varenicline continuation pack after the medication review. Education on smoking cessation and motivation interviewing was also provided to the patient.

A review of diabetes blood tests by the pharmacists indicated that the patient's diabetes control was poor (HbA1c was 9.0%). In regard to diabetes management the patient was prescribed insulin, empagliflozin, gliclazide and metformin/sitagliptin. The pharmacist recommended that gliclazide be discontinued as there will be no benefit as the patient uses insulin and that increase in dose of metformin/sitagliptin be considered. The pharmacist asked about hypoglycaemia episodes and reinforced the need for blood glucose testing. Healthy eating and exercise were discussed. The patient reported no feet or eye issues. A referral to the local endocrinologist was recommended as his diabetic control was poor.

Key points

1. Unintentional medication discrepancies and potential associated harm can be prevented by practice pharmacists collaborating with other prescribers when new patients register at a general practice and when patients have multiple specialist prescribers.

2. Practice pharmacists can ensure that patients are treated appropriately according to their symptoms and diagnosis. This patient was not prescribed a GTN spray to treat his recurrent anginal chest pains. The practice pharmacist was able to collaborate with the GP and community pharmacist to facilitate supply of the GTN spray. The practice pharmacist educated the patient on the correct use of the GTN spray so that the medication could be used effectively.

3. Practice pharmacists can assist with smoking cessation as they have the skills to be able to assess and monitor the appropriate pharmacotherapy to support a quit attempt. The pharmacist identified that this patient was at risk of relapse because his quit attempt was no longer being supported with medication.

4. Diabetes treatment can be optimised with input from the practice pharmacist. The pharmacist can monitor diabetic control, look for diabetic complications, collaborate with GPs on treatment modification and educate the patients about their medication and a healthy lifestyle.

Discussion/challenges and lessons learnt

- The role of pharmacists in general practice is evolving; this study alongside other Australian studies found that the role of pharmacists in general practice is being accepted and recognised by GPs, health professional and patients.
- In this study pharmacists conducted a range of clinical and administrative activities including patient-facing activities, supporting GPs with prescribing and assisting practices with quality improvement activities.
- Pharmacists' experience, qualifications, skills and characteristics combined with the culture of the general practice team are important elements that may determine the success of this expanded role. Pharmacist recruitment, training and retention should be supported by those with experience of pharmacists in general practice. A job description and selection criteria would assist general practices to recruit appropriate pharmacists to the role. Providing appropriate education packages and mentorship for pharmacists is crucial to support this role.
- Pharmacists contributed to MBS claimable activities to generate income for practices and saved GPs time.
- Preliminary cost-benefit modelling indicates that there may be a business case for pharmacists to have sustainable employment in general practice, however, this is dependent on the professional culture, experience and characteristics of general practices and pharmacists and may not be generalisable. Currently, there is a lack of sustainable funding for pharmacists in general practice.
- Patients reported a high level of satisfaction in the pharmacists and in pharmacists' activities in general practice.

Application for future program

- The activities that pharmacists may conduct in general practice have been established and should be shared with participants prior to embarking on any future program.
- Strategies to recruit, induct, train and retain pharmacists should be embedded in any future program.
- Any evaluation should include robust research to explore the patient and economic outcomes related to clinical activities of pharmacists, to develop an appropriate and sustainable funding model.
- It is recommended that prior to conducting future programs, these points be considered:
  - The future service model should be informed by Australian and international evidence and co-designed by the funder, academic researchers and experts, GPs, pharmacists and consumers.
  - The evaluation framework and program targets should be developed and communicated to stakeholders prior to general practice recruitment.
  - Participants including practice managers, GPs, practice nurses and pharmacists should undergo education to become familiar with the program goals and targets.

Case study 3

The practice pharmacist performed a medication review for a 74 year old male with a focus on reducing the number of medications prescribed. The patient was prescribed eight regular oral medications per day and had a medical history of hypertension, depression, type 2 diabetes mellitus and chronic kidney disease.

The patient had documented chronic kidney disease with impaired kidney function which can make some medication toxic unless an appropriate dose change is made and others ineffective. Creatinine clearance values are used to guide clinicians to the appropriate action required for medication with respect to kidney function. The pharmacist calculated the creatinine clearance using the Cockcroft-Gault equation as 37 ml/min. The pharmacist checked each prescribed medication to determine whether any changes were required. The pharmacist recommended decreasing metformin dose from 1000mg three times a day to 1000mg once daily due to the risk of lactic acidosis as the kidney function was impaired. The pharmacist suggested adding linagliptin 5mg tablets to manage diabetes. Linagliptin is eliminated by the hepatobiliary route and so can be prescribed in the usual dose in this patient. Linagliptin can be given in a combination product with metformin to reduce the number of tablets that the patient is prescribed.

The patient was prescribed aspirin 100mg daily as antiplatelet therapy. Low dose aspirin is no longer recommended for people with diabetes without cardiovascular disease due to the increased risk of major bleeding outweighing any benefits. The pharmacist suggested that the GP considered ceasing aspirin in view of the updated recommendations.

The proton pump inhibitor (PPI) pantoprazole was prescribed with the only possible indication being low dose aspirin therapy. The patient did not report any GORD symptoms and the notes were checked to confirm that there was no relevant gastrointestinal history. PPIs are associated with some drug interactions and a range of adverse effects including increasing some types of infections, kidney problems, bone fractures and vitamin/mineral deficiencies. The pharmacist suggested that the GP review the need for pantoprazole and consider ceasing, particularly if the GP agreed to stop aspirin.

The GP and the practice pharmacist discussed the findings of the medication review. The GP agreed to the recommendations. The prescriptions for aspirin and pantoprazole were ceased and metformin 1g tablets with linagliptin/metformin 2.5,500mg tablets twice daily. The pharmacist made sure that the patient had a prescription for the new linagliptin/metformin 2.5,500mg tablets. The pharmacist suggested that the patient took the discontinued medication (aspirin, pantoprazole and metformin) to his community pharmacy for disposal. The pharmacist discussed the medication changes with the patient and provided information on the new medication.

Key points

1. This older Australian was prescribed eight regular oral medications to take each day. The practice pharmacist medication review identified that three of these medications were no longer clinically indicated and so these were stopped following discussion with the GP. A reduction in medication burden can prevent adverse effects, decrease the chance of drug interactions, make adherence to a simplified regimen easier and will reduce the cost of medication.

2. Medication may need to be adjusted for deteriorating kidney function as seen in this case. Some medication can be toxic unless an appropriate dose change is made and others can be ineffective in patients with impaired kidney function The practice pharmacist was able to check the suitability of all medication in relation to kidney function and suggest changes in medication where necessary to the GP.

Conclusion

Following on from the initial trial the Pharmacists in General Practice program has continued to show sustainable benefits to both practices and patient outcomes. The evaluation has demonstrated successful outcomes for practices including improving medication safety, compliance and health outcomes for patients.

From the qualitative review the key findings demonstrated the general practice team valued the role of the pharmacist and their expertise within the patients care journey. The pharmacists also provided a significant time saving opportunity for the General Practitioners and were welcomed by patients in the practice as a crucial role within the primary care team.

The Pharmacist activities throughout the extension of the program addressed the population needs identified within the ACT PHN needs assessment in the following capacities:

- Lack of multidisciplinary care by:
  - Providing pharmacists to work within the general practice team.
  - Pharmacists collaborating with existing health systems including community pharmacies.
- Improving access to integrate services for chronic conditions by:
  - Reducing drug burden and chance of drug interactions for patients by deprescribing unnecessary medications and adjusting dose allocations.
  - Contributing and performing asthma cycles of care.
  - Assisting patients to quit smoking.
  - Identifying patients with Chronic Kidney Disease and optimising treatment.
  - Preventing overuse of antimicrobial agents and resistance.

- Primary health care professionals are supported to participate in team-based and shared care by:
    - Sharing the knowledge and expertise of the pharmacist to empower the general practice team to improve the quality of their prescribing.
    - Providing a coordinated approach to medication management.
    - Contributing to practice MBS items including 75+ Health Assessments, General Practitioner Management Plans, Team Care Arrangements and Case Conferences.
- Improving health literacy around medications for older Australians by:
    - Reductions in medication burden thus reducing cost of medication for patients.
    - Advising on medication interactions.
    - Provision of dosing aids to assist patients in accurate dosing of medication.
- Follow up post hospital admissions on medication management:
    - Ensuring drug allergy and adverse drug reactions are accurate on medical records.

Overall, pharmacists have been shown to have a key role within the general practice team specifically with assisting ensuring medication safety, management of chronic conditions, collaborating on care and improving quality of practice. Although, key challenges should be considered for future programs and the application of embedding a new role into general practice should entail a robust codesign process.


CHN