

**ACT PHN PHARMACIST  
IN GENERAL PRACTICE PILOT  
2016-2018**

**CHN**



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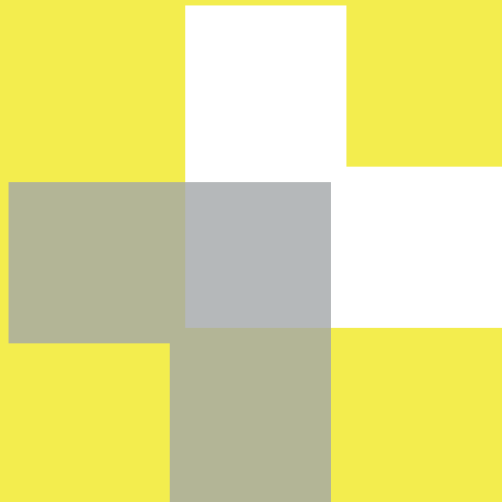
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An Australian Government Initiative

**Capital  
Health  
Network**  
Partnering for better health



**UNIVERSITY OF  
CANBERRA**



Capital Health Network acknowledges the Ngunnawal/Ngambri people and pays our respects to their Elders, both past and present.

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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 like to acknowledge the valuable contribution and dedication of:

- + The general practices involved in the Program
- + The pharmacists involved in the Program.

## INTRODUCTION

As the ACT's Primary Health Network (PHN), Capital Health Network's (CHN) role is to advance the way health care is delivered in Canberra. CHN addresses community needs by collaborating with consumers, GPs, clinicians and sector stakeholders to improve health outcomes. CHN is unique in their ability to support general practice and design services that fill gaps and deliver lasting improvements.

Through the PHN Programme, CHN funded a pilot to examine the feasibility and viability of establishing a model or models to utilise three part-time non-dispensing pharmacists within selected general practices in the ACT. Commencing in March 2016, this pilot was informed by a literature review and a feasibility project undertaken by its predecessor the ACT Medicare Local in 2014.

The program was used to explore and demonstrate the benefit of incorporating pharmacists into the general practice team to:

- + Optimise appropriate prescribing in general practice
- + Ensure cost-effective use of medicines and review for specified groups of patients
- + Facilitate and coordinate quality use of medicines
- + Reduce downstream costs associated with medication related adverse events and polypharmacy
- + Provide ongoing medicines information and general practice clinical staff support
- + Improve consumer health medication literacy, including understanding of their medications and concordance
- + Provide support for patients
- + Decrease the burden associated with medication related administration in transitions of care
- + Determine the business case of the pharmacist role in general practice.

Through a tender process, CHN engaged the University of Canberra, Health Research Institute, Discipline of Pharmacy to conduct an evaluation of the pilot program. The evaluation team worked closely with CHN and the GPs and pharmacists involved across the course of the two year program.

This report provides a description of the key features of the pilot program and an overview of the evaluation findings.

## KEY FINDINGS

**Key Findings patients (100%) and primary health care workers (90%) surveyed wanted pharmacist employment in general practice to continue. GPs (100%) interviewed reported they were highly satisfied with medication management support provided by the pharmacists.**

- + Health care workers and patients had a stronger agreement on a five-point Likert scale that general practices should continue to employ a pharmacist in the second year of the pilot compared to the first year.
- + GPs reported that their relationship with community pharmacy had improved as a consequence of having a pharmacist embedded in the practice.
- + There was increased collaboration with GPs. A comparison of the data over two years showed that more pharmacist hours are spent undertaking tasks requested by GPs in 2017 compared to 2016 (42% v 16.2%). The median time spent by all the pharmacists conducting activities that required communication with GPs was 24 hours per month (range 9 - 30 hours) which is 16% of pharmacist time.
- + Patients with Asthma Control Tests (ACTs) in the category of good asthma control (ACT>19) improved from 8% (1/13) to 54% (7/13) following interventions by one of the pharmacists, suggesting better asthma control.
- + Patients who had smoking cessation consultations with one of the pharmacists had a point prevalence abstinence rate of 30% after at least six months. Additionally, 40% of patients reduced the amount they smoked.
- + A larger proportion of pharmacist time was spent conducting medication reviews in Year Two compared with Year One (23% v 19%). Analysis of four weeks of data showed that the most common recommendations provided by the pharmacist were to stop a medication or to reduce a specific dose of a medication (i.e. deprescribing). The acceptance rate of these recommendations was 74%.
- + On average, part-time pharmacists (employed approx. 16 hours per week) may relieve 4 hours of GPs' time per week so that GP could undertake other clinical activities.
- + Pharmacists conducted a range of clinical audits resulting in improved medication management (e.g. improvement in anticoagulant use to prevent stroke).
- + A clinical audit by one of the pharmacists resulted in an estimated health care system cost saving of approximately \$125,700 over 3 years and \$183,000 over five years.
- + Pharmacists contributed to Medicare Benefits Schedule (MBS) claimable activities and saved GP's time. Cost value models were developed and showed that in some models the employment of a pharmacist within the general practice may attain a cost-neutral or even a cost-beneficial level. Two of the three sites indicated that they were willing to use income generated by MBS activities conducted with pharmacist input to fund the pharmacists following the end of the pilot study.

It is particularly pleasing to note that at the conclusion of the pilot two of the three practices involved have retained the pharmacist at the practice without the financial support of CHN. This is a very positive acknowledgement of the value placed on the pharmacist role within the practice that the pilot has been able to demonstrate.

Building on the success of the pilot, CHN intends to extend the Pharmacist in General Practice Program offering PHN funding to a further eight general practices across the next three years, for each practice to employ a part time non-dispensing pharmacist for an eighteen month period.

## BACKGROUND

Australia is experiencing a rapid incidence in chronic diseases in our population.

The most recent report on *Australia's Health 2018*, estimates that one in two (50%) people have at least one of eight selected common chronic conditions: arthritis, asthma, back pain and problems, cancer, cardiovascular disease, chronic obstructive pulmonary disease, diabetes, and mental health conditions.

With multiple conditions patients may have upward of four specialist physicians caring for them at any one time resulting in increasingly complex medical regimens and a long list of medications. As this trend is likely to continue the risk of medication related issues in primary care is also likely to increase. Medicines are the most common form of treatment used in health care and can contribute significant improvements in health with appropriate use.

A team care approach and better communication between health providers is now more crucial than ever to meet the health care needs of people with chronic conditions. A systematic review undertaken in 2014 by the Centre for Medicine Use and Safety at Monash University showed that having pharmacists integrated into general practice clinics can deliver a range of interventions, with favourable results in chronic disease management and quality use of medicines.

The integration of pharmacists with the primary care team is being investigated both internationally and nationally and the initial results are encouraging. There is amounting literature detailing the role of the practice pharmacist and the broad range of activities they can undertake ranging from medicines information, medication reviews and audits and the provision of more administrative functions.

Through the PHN Programme, CHN supported a pilot program to examine the feasibility and viability of establishing a model or models to utilise non-dispensing pharmacists within general practice between March 2016 and June 2018. The pilot aim was to build on the evidence both internationally and nationally that having a pharmacist employed within general practice can improve patient compliance and improved adherence to quality use of medicine principles.

The pilot program aimed to offer both individual learning and development opportunities to pharmacists, as well as the wider primary health care system benefits providing support to GPs to improve patient outcomes.

The program explored and demonstrated the benefit of incorporating pharmacists into the general practice team to:

- + Optimise prescribing in general practice
- + Ensure cost-effective use of medicines and review for specified groups of patients
- + Facilitate and coordinate quality of medications activities,
- + Reduce downstream costs associated with medication related events and polypharmacy
- + Provide ongoing medicines information and staff support
- + Improve patient medication literacy, understanding of their medicines and concordance
- + Provide support for patients who need it
- + Decrease the burden associated with medication related administration in transitional care.



CHN Executive Manager - Innovation and Improvement Julie Porritt speaking to media at the launch of the ACT PHN Pharmacist in General Practice Pilot in 2016.

1 Australian Institute of Health and Welfare 2018. *Australia's health 2018*. Australia's health series no. 16. AUS 221. Canberra: AIHW.  
2 Pharmaceutical Society of Australia Ltd., 2016. *The role of pharmacists in Australian health reform – Improving health outcomes through cost effective primary care*. Federal Budget Submission 2016.2017. PSA, Canberra.  
3 Tan EC et.al. *Pharmacist services provided in general practice clinics: A systematic review and meta-analysis*. *Research in social and administrative pharmacy*. Published Online First: 22 Oct 2013.

## PILOT STRUCTURE

The program took a naturalistic approach allowing the GPs and pharmacists the freedom to build on their strengths to establish the success of the role within the practice. It was acknowledged that each general practice has different ways of operating thus the naturalistic approach gave practices the freedom to establish a working relationship and to define the role for the pharmacist to best meet the needs of the general practice patient population.

Through the PHN Programme, CHN provided funding to three general practices to each employ a part-time pharmacist to work within the practice for 16 hours per week. This was initially offered as a twelve month contract and was subsequently extended for a further twelve months. A condition of funding was that the pharmacists and the lead GP from each practice would work cooperatively with CHN to monitor progress and participate in the external evaluation of the pilot.

The practices were selected via an expression of interest to all ACT general practices. Two of the practices selected were private billing and the third was a Co-operative model with patients required to pay an annual fee to join the Co-operative and have

all consultations bulk billed. One practice was a single site and the other two had more than one practice site.

The pharmacists were recruited directly by each practice. They were all experienced pharmacists with a minimum of five years post graduate experience.

To facilitate knowledge and to share experience between the pharmacists and GPs from the three practices, regular meetings were hosted by CHN with the group approximately every two months for the term of the pilot.



*l-r: Dr Joe Oguns (National Health Co-op (NHC)), Brendon Wheatley (Pharmacist, Isabella Plains Medical Centre), Dr Mel Deery (YourGP@Crace), Dr Divya Sharma (Isabella Plains Medical Centre), Katja Naunton-Boom (Pharmacist, Your GP@Crace), Anne Devlin (Pharmacist, NHC), Louise Deeks and Dr Sam Kosari (University of Canberra) and Julie Porritt (Capital Health Network).*



## THE PHARMACIST'S ROLE

### ACTIVITIES

CHN did not direct what activities the pharmacists would perform, but did provide advice on the types of activities that could be undertaken based on the national and international examples. The activities that were undertaken by each pharmacist were determined according to general practice priorities, practice population demographics, individual pharmacist skill-sets and patient demand.

During the second year of the pilot the pharmacists were asked to record all their activities for a 31 week period with the data fed into the program evaluation.

The results as analysed by the evaluation team and shown in Figure 1, were categorised into four key domains: quality of practice, administration, medication review and patient education. The activities the pharmacists conducted included medication reviews and patient education, asthma education and monitoring, smoking cessation consultations, clinical audits, participation in health assessments and provision of advice and education to other clinicians at the practice including medical students, GP registrars, GPs and practice nurses.

**FIGURE 1.**  
PROPORTION OF TIME PHARMACISTS SPENT ON EACH ACTIVITY



Case studies collected from the pharmacists during the study illustrated some of the interventions that they conducted during the second year of the pilot:

The interventions in these case studies include:

- + Medication reconciliation for newly registered patient
- + Identification of medication discrepancies by liaison with community pharmacist
- + Recommendation to commence of dose administration aid
- + Smoking cessation for special groups where advice needs to be tailored
- + Identification of suboptimal treatment of chronic disease by review of clinical data with referrals and medication recommendations made accordingly
- + Deprescribing to reduce risk of harm such as falls.



## CASE STUDY ONE

A 68-year-old indigenous male had his medication reviewed by the practice pharmacist in November 2016. The following potential issues with medication were identified: review ongoing need for iron tablets; potential vitamin D deficiency; spironolactone and frusemide doses. The patient was advised to have a blood test to check for renal function, HbA1c, iron, Urea and Electrolytes and vitamin D. Diet and diabetes was discussed with the patient intending to try to reduce fruit and fruit juice (high sugar content) in his diet. Inhaler device counselling was provided; his inhaler technique was assessed as good.

Within a week, the blood test results were available to the pharmacist. The pharmacist calculated creatinine clearance, a marker of renal function, as 48mL/minute. The patient had been prescribed metformin 2g daily but the recommended dose for metformin at creatinine clearance of 30-60 mL/minute is 1g daily due to risk of lactic acidosis. The pharmacist recommended that the dose of metformin be reduced with regular monitoring of renal function and for

clinical signs of lactic acidosis (nausea, vomiting). The GP reduced the metformin to 1g daily based on the pharmacist's advice. Iron was also ceased. Renal function has subsequently improved so metformin dose is now 2g daily. Iron has also been restarted.

## CHALLENGES

Although the organic approach to the pilot provided the flexibility for the practices and pharmacists to determine the role, this did result in it taking six to nine months for the GPs and the pharmacists to really clarify the roles and the key activities to be undertaken.

The pilot also identified the difficulty faced in engaging all the GPs in the practice to:

- + understand the role of pharmacist and how they could support the GPs in providing patient care, and
- + remember that there was a pharmacist at the practice to use their knowledge and expertise.

This was a constant challenge faced by the lead GPs in reinforcing this with their GP colleagues. Some of the strategies identified to overcome this included:

- + inviting the pharmacist to attend the practice meetings with the GPs
- + initiatives directed by the pharmacists such as flagging medication advice or suggestions in the patient notes to assist the GPs; making sure they were visible to GPs taking the opportunity to engage in the tea room or at other ad hoc occasions to build relationships
- + providing opportunities for the pharmacists to provide information updates or education sessions to the practice GPs
- + having the lead GP reinforcing with other GPs how they might use the pharmacist, for example in assisting with health assessments, care planning or medication reviews.

Similarly it also took some time for patients to become familiar with and confident in the pharmacist role and how the pharmacist could assist with their care. This relied heavily in the first instance on the GP introducing the role to the patient and 'referring' the patient through to the pharmacist. It was also helpful to provide information in patient newsletters and other communication about the services the pharmacist could provide. As their roles evolved the pharmacists also became more proactive in engaging with patients: booking in appointment times with some patients before their GP appointment to review medications; contacting patients such as asthmatics to offer to review their inhaler techniques and action plans.

- + The need to establish a relationship with the GPs in order for the GPs to be aware of the pharmacist's presence within the practice and how they can help. *You need to remind them [GPs] that you're there and what you can do for them. You have to gain their trust as well.*
- + Other health care professionals may feel threatened by the integration of pharmacists into general practice. *The difficulty is getting that shift in perception of it's not us trying to steal spots, it's us trying to be a part of a team.*
- + Patients may not understand the role of the pharmacist in general practice and may feel loyal to their GP. *I just say I want to go through your medicines. They say I do that with the doctor and I say yes but I'm going to spend 15 minutes just doing that, not five minutes.*

## CASE STUDY TWO

An 84-year-old female presented prescriptions to her usual community pharmacy who noticed multiple discrepancies in these prescriptions compared to what she had been on historically. The patient had just moved to a different general practice, one where a practice pharmacist is employed. The patient was unaware and unsure of any changes to medication. She had an existing supply of most medications so no changes were made. The community pharmacist raised concerns with the practice pharmacist after discussing medication with patient.

The practice pharmacist discussed with the treating GP the possibility of a Home Medicines Review (HMR) to confirm what the patient had been taking. The practice pharmacist was able to perform the HMR on the same day.

The patient has a medical history of hypertension, atrial fibrillation, depression, Factor V Leiden carrier Heterozygote, gastro-oesophageal reflux disease (GORD), hyperlipidemia and osteoarthritis. There was minimal information about disease control and there was no pathology available to the practice pharmacist at the time of the HMR as the patient was new to the general practice.

As part of the HMR process, the practice pharmacist determined that the medications list had been transcribed by the previous GP incorrectly from old file with a number of discrepancies.

The patient had an appointment with the GP the day after the HMR to review the results. In addition to the noted discrepancies, the practice pharmacist was able to make a number of recommendations to reduce the dose of some medications and to cease others.

In collaboration with the GP, the practice pharmacist adjusted medication list. The practice pharmacist notified the community pharmacist of the new medication regimen and a dose administration aid was initiated.

### KEY POINTS

This case illustrates that pharmacists can prevent unintentional medication discrepancies and potential associated harm when new patients register at a general practice. A model where the practice pharmacist reviews all newly registered patients may be beneficial. The importance of practice pharmacist and community pharmacist liaison is demonstrated in this case as are the benefits of patients using the same community pharmacist all the time. The ability of the practice pharmacist to conduct a prompt HMR facilitated the identification and resolution of issues with pharmaceutical care. Harm that may have occurred without pharmacist intervention as avoided. The patient's adherence with therapy may improve after the HMR due to commencement of a dose administration aid.



## EVALUATION

The pilot program was evaluated by the Discipline of Pharmacy, Health Research Institute, University of Canberra. Two evaluations were completed, one for each year of the program.

The evaluation comprised of multiple factors including cost-benefit analysis, clinical outcomes, developing and distributing a survey to the participants then analysing quantitative and qualitative data obtained.

### KEY FINDINGS

- + Patients (100%) and primary health care workers (90%) surveyed wanted pharmacist employment in general practice to continue. GPs (100%) interviewed reported they were highly satisfied with medication management support provided by the pharmacists.
- + Health care workers and patients had a stronger agreement on a five-point Likert scale that general practices should continue to employ a pharmacist in the second year of the pilot compared to the first year.
- + GPs reported that their relationship with the community pharmacy had improved as a consequence of having a pharmacist embedded in the practice.
- + There was increased collaboration with GPs. A comparison of the data over two years showed that more pharmacist hours are spent undertaking tasks requested by GPs in 2017 compared to 2016 (42% v 16.2%). The median time spent by all the pharmacists conducting activities that required communication with GPs was 24 hours per month (range 9 - 30 hours) which is 16% of pharmacist time.
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- + Patients who had smoking cessation consultations with one of the pharmacists had a point prevalence abstinence rate of 30% after at least six months. Additionally, 40% of patients reduced the amount they smoked.
- + A larger proportion of pharmacist time was spent conducting medication reviews in Year Two compared with Year One (23% v 19%). Analysis of four weeks of data showed that the most common recommendations provided by the pharmacist were to stop a medication or to reduce a specific dose of a medication (i.e. deprescribing). The acceptance rate of these recommendations was 74%.
- + On average, part-time pharmacists (employed approx 16 hours per week) may relieve four hours of GPs' time per week so that GP could undertake other clinical activities.
- + Pharmacists conducted a range of clinical audits resulting in improved medication management (e.g. improvement in anticoagulant use to prevent stroke).
- + A clinical audit by one of the pharmacists resulted in an estimated health care system cost saving of approximately \$125,700 over three years and \$183,000 over five years.
- + Pharmacists contributed to MBS claimable activities and saved GP's time. Cost value models were developed and showed that in some models, the employment of a pharmacist within the general practice may attain a cost-neutral or even a cost-beneficial level. Two of the three sites indicated that they were willing to use income generated by MBS activities conducted with pharmacist input to fund the pharmacists following the end of the pilot study.



### CASE STUDY THREE

The practice pharmacist performed a medication review for an 87-year-old woman with a history of left breast cancer mastectomy, type 2 diabetes mellitus, hypertension, hyperlipidaemia, asthma, hypothyroidism, gastro-oesophageal reflux disease, osteoporosis, and squamous cell carcinoma.

Recent clinical and laboratory findings included blood pressure of 113/55 mm Hg, heart rate 60 beats/min, total cholesterol 3.5 mmol/L (3.5-5.5 mmol/L), LDL-cholesterol mmol/L (<3.0 mmol/L) and TG 0.76 mmol/L (<2.0 mmol/L). It was noted that she had some ankle swelling.

After discussing with the patient, the pharmacist recommended that all of the following medications be ceased, with ongoing monitoring of blood pressure, serum lipid levels and symptoms of gastro-oesophageal reflux disease: amlodipine, indapamide, omeprazole, ezetimibe/simvastatin, and atenolol. The pharmacist suggested that hydrochlorothiazide be added to the valsartan (e.g. valsartan 80mg/hydrochlorothiazide 12.5mg daily). Thyroid function testing was also recommended. The GP stopped ezetimide (cholesterol has remained in normal range since medication

change) and is continuing to monitor blood pressure with the plan to stop amlodipine if readings remain low. Although the GP agreed with all the recommendations of the pharmacist, it was decided to act on one recommendation first and consider others according to patient progress and preference.

#### KEY POINTS

Blood pressure, heart rate, the physical symptom of ankle swelling and laboratory lipid profile blood results were reviewed by the pharmacist in this case and used to inform the recommendations made to the GP. This demonstrates that a pharmacist can review clinical data and relate these to pharmacotherapy.

## CONCLUSION

This pilot study suggests integrating pharmacists into general practice in the ACT is feasible and acceptable. Patients and other health care employees were supportive of pharmacists in general practice. Pharmacists in the pilot conducted a range of activities that included medication reviews, patient and staff education, asthma care, smoking cessation, clinical audits, de-prescribing and contributed to several MBS activities. Findings indicate the potential for an advanced role for pharmacists in asthma management, smoking cessation and chronic disease management within general practice settings.

At the conclusion of the pilot two of the three practices involved have retained the pharmacist at the practice without the financial support of CHN. This is a very positive acknowledgement of the value placed on the pharmacist role within the practice that the pilot has been able to demonstrate.





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