What can pharmacists do in general practice?

A pilot trial

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Background and objectives
Non-dispensing pharmacists are being suggested as a useful addition to the workforce in general practice. The aim of this study was to describe the activities of three general practice pharmacists over six months in a pilot trial.

Method
Three general practices integrated a part-time (15.2–16 hours per week) non-dispensing pharmacist to be employed according to their individual skillset and local workplace needs. Each general practice pharmacist maintained a daily activity diary, which was subsequently analysed.

Results
The general practice pharmacists' activities were categorised as quality of practice (37%), administration (34%), medication review (19%) and patient education (11%). Within the quality of practice category, most time was spent conducting clinical audits (47%). Over the course of the six months, time spent on administration decreased, while time communicating with general practitioners (GPs) on clinical issues increased.

Discussion
The general practice pharmacists conducted a range of predominantly clinically related activities involving their expertise in the quality use of medications. Involvement in clinical activities to support GPs increased with time working in the practice. Randomised controlled trials are required to collect clinical outcomes and determine which activities conducted by pharmacists are most beneficial to Australian patients and GPs.

INTERNATIONALLY, pharmacists have become increasingly integrated into general practice clinics.[1,2] It has been reported that general practice pharmacists perform a range of clinical and administrative duties related to their expertise in medication use and safety; the clinical activities typically include providing drug information to practice staff, educating patients, reviewing medication, undertaking health promotion, and conducting disease management clinics.[1–4] The primary purpose of a general practice pharmacist is to support general practitioners (GPs) to minimise the risks associated with medicines and optimise patient outcomes through the quality use of medicines.[2]

The co-location of pharmacists with GPs can enhance interprofessional communication and the development of collaborative working relationships. It can also reduce fragmentation of care and facilitate the delivery of patient-centred interdisciplinary chronic disease and medication management services. A general practice pharmacist can also improve communication between GPs and pharmacists working in community pharmacies and provide a link to existing community pharmacy services.[2]

Evidence suggests that general practice–based medication reviews by a pharmacist can be more facilitating than a community pharmacy-based service,[5] with key facilitators being:

- an established pharmacist–GP relationship
- pharmacists having access to medical records to improve the quality and appropriateness of their recommendations
- a face-to-face meeting (case conference) between pharmacist and GP to discuss the pharmacist's recommendations.

A systematic review by Tan et al found that pharmacists co-located in general practice clinics delivered a range of activities with favourable results in chronic disease management and the quality use of medicines, yet none of the included studies were from Australia.[1]

Drawing on the skills of other health professionals is also one approach to tackling the workload pressures in general practice, although previous studies suggest that the main impact of practice-based pharmacists is on quality and safety rather than on GPs' workload.[6] While there has been a strong move to incorporate allied health professionals and nurses within GP-led multidisciplinary teams in Australia, this, to a large extent, has not included pharmacists.[7] Instead, the integration of pharmacists into general practice in Australia has been developing slowly,[2,3] particularly in comparison to the UK, where NHS England has committed to fund an extra 1500 pharmacists to work in general practice by 2020–21 (bringing the coverage to >40% of all practices).[8] In 2015, the Australian Medical Association (AMA) proposed a model whereby general practice

pharmacists would assist GPs with medication management activities to deliver broader health system savings.[7,9,10] The AMA suggested that the most feasible approach to funding pharmacists in general practice would be to adapt existing models that have been accepted and shown to work in general practice. They therefore proposed the introduction of a Pharmacist in General Practice Incentive Program, which is structured in the same way as the existing incentive payments provided for nurses working in Australian general practice (Practice Nurse Incentive Program).[7]

The AMA's model has not progressed.[10] In part, this can be attributed to the lack of support for an integrated model from the Pharmacy Guild of Australia, who support pharmacists in general practice but prefer their community pharmacy owner members employing sessional 'outreach community pharmacists' who could provide support to local general practices on an as-needed contract basis.[11]

Understanding the ways that general practice pharmacists can be best employed will be an important step to develop and consolidate their role in Australia. The activities of one Australian general practice pharmacist over a period of three months were reported by Freeman et al, who ascertained that the most common roles conducted were medication review, advice on the therapeutic management of individual patients, student supervision, drug information and administrative tasks.[4]

To contribute to the limited Australian research on this topic, three general practices in the Australian Capital Territory (ACT) each employed a part-time, non-dispensing pharmacist in a pilot trial. This was an initiative of the Capital Health Network, ACT's Primary Health Network, who funded the payment of each pharmacist. The aim of this study was to describe the activities, and activity variation, of the general practice pharmacists over a period of six months.

Method

Each general practice had 14,500–22,200 active patients. The three practices recruited their own pharmacists without any involvement of the research team. They had not previously had a pharmacist within the practice, and there had been no prior working relationship with these pharmacists. The pharmacists, who worked in the role for 15.2–16 hours per week, were subsequently employed according to their own individual skillset and local workplace needs, which were independently determined by each practice. The pharmacists, who had not worked previously in general practice, had a range of experience, with periods of registration between three and 31 years. The three pharmacists are henceforth referred to as pharmacist A, B and C. All pharmacists commenced employment prior to the research team collecting data.

Each pharmacist was provided with an activity diary using a Microsoft Excel workbook. Pharmacists recorded data for each activity that they performed while working at the general practice, including a description, time taken and relevant additional comments. The diaries were submitted for analysis monthly. Two researchers (GHT, SK) conducted the initial analysis of activities by annotating the entries using an evolving coding system. A third researcher (LSD, with UK general practice pharmacist experience) reviewed the coded data to check the consistency and suitability of the assigned codes. The researchers resolved any discrepancies by discussion. The study was approved by the University of Canberra Human Research Ethics Committee (project number 15-235).

Results

Over six months, the three pharmacists recorded a total of 944 hours of work activity. The pharmacists conducted a range of predominantly clinically related activities, which included medication reviews, patient and staff education, asthma care, smoking cessation, clinical audits, targeted deprescribing and post-hospitalisation medication reconciliation (performed on 33 occasions, generally as part of a medication review conducted following hospital discharge). Overall, the activities of the pharmacists could be categorised into four major groups: quality of practice, administration, medication review and patient education activities (Table 1).

The pharmacists spent most time undertaking quality of practice (37% of work time) and administration (34%) activities. Within the quality-of-practice category, the largest proportion of time was spent conducting clinical audits (47%), included defining audit criteria, setting the standards, conducting the search, reviewing case notes to identify opportunities for improvement and discussing recommendations with the GPs. Continuing professional development (38%) was the next most common quality-of-practice activity, principally because the pharmacists needed to learn new skills for their developing roles. This included further training in smoking cessation, motivational interviewing, asthma management and opioid use in chronic non-cancer pain. The remainder of quality-of-practice time (15%) was spent providing medication information to practice staff (answering medication queries from GPs and nurses, conducting education sessions on medication, discussing prescribing guidelines with GPs and coordinating antibiotic awareness week). The time that the pharmacists spent on activities that included communication with GPs increased over the course of the pilot study, from a total of 14 hours in May to 40 hours in November. The communication was not social in nature and was always linked to a professional activity (eg medication reviews, audit discussions, post-discharge medication reconciliation, prescribing guidelines).

Contact with patients comprised medication review (19%) and patient education (11%). Asthma, aged care, post-hospital discharge and polypharmacy (with the aim to deprescribe) were the main reasons for medication review referral. Patient education was 51% medication related and 49% lifestyle related; the latter included smoking cessation when not directly related to medications used in cessation. Lifestyle education was complementary to any advice provided by the GPs and other practice staff.

Administration included email, arranging appointments, documentation,

travel between sites and evaluation-related activities; 29% of administration time was spent directly on research-related work. Over the course of the trial, administration time decreased as the role of the general practice pharmacist became established and they took on more quality-of-practice and patient education duties. Smoking cessation and asthma-related activities (eg as part of completing the Asthma Cycle of Care under the Medicare Benefits Schedule) contributed to the increasing patient education time.

The proportion of time spent on different activities by the three pharmacists is shown in Table 1. The largest difference was in patient education. Pharmacist A had a patient education focus (including smoking cessation), whereas Pharmacist B spent more time conducting medication reviews. Administration occupied a larger proportion of Pharmacist B's time because of contacting patients to schedule appointments. Pharmacist C spent less time on patient contact tasks (medication review plus patient education), and this may have been because of their relative inexperience (registered for three years) or the practice priorities.

Table 1. Comparison of the proportion of time spent on the different activities by the three pharmacists over the six months

	Pharmacist A	Pharmacist B	Pharmacist C	Total
Medication review	13%	24%	17%	19%
Patient education	22%*	4%*	7%	11%*
Medication counselling	9%	3%	5%	5%
Lifestyle counselling	14%	0%	2%	5%
Quality of practice	37%	32%	45%	37%
Information provision	5%	4%	9%	6%
Audits	17%	24%	6%	17%
Continuing professional development	15%	4%	30%	14%
Administration	28%	40%	31%*	34%
Emails, arranging appointments, documentation, travel	16%	31%	22%	24%
Evaluation-related	12%	9%	8%	10%

**Percentages that do not add up because of rounding*

Discussion

Research into the day-to-day role and function of general practice pharmacists is in its infancy, particularly in Australia.[3,4] In this pilot study, it was found that general practice pharmacists conducted activities that were, in order of decreasing time commitment, related to quality of practice, administration, medication review and patient education. Overall, two-thirds of their time was spent in clinically related duties. The pharmacists' communication with GPs increased gradually over the trial period, reflecting more collaboration between pharmacists and GPs as the pharmacists became more integrated in the general practice team, with the development of trust and clear role specification.[12]

It should be noted that the time spent on administration activities decreased once the pharmacists became more established in the practice; time spent on administration was 46% in the first month and decreased to 29% in the final month. Furthermore, the administration activities included those related to the research components of the trial, which normally would not be present. In a study by Freeman et al, the pharmacist, who had already worked in general practice for two years, spent approximately 12% of their time on administrative tasks.[4]

Clinical audits were a major component of quality improvement. One of the pharmacists identified patients with chronic atrial fibrillation not receiving guideline-recommended anticoagulant therapy and made recommendations to GPs to initiate anticoagulant therapy, potentially reducing the risk of ischaemic strokes. Other clinical audits addressed topics including:

- the use of dual antiplatelet therapy for longer than indicated following coronary angioplasty
- ongoing oral corticosteroid therapy and the risk of osteoporosis
- no record of glycated haemoglobin (HbA1c) results for some patients with type 2 diabetes (and potentially needing to review and modify their drug therapy)
- patients with heart failure for whom angiotensin converting enzyme inhibitors or angiotensin receptor blockers had not been prescribed.

Improved outcomes have been demonstrated elsewhere when general practice pharmacists proactively identify patients from disease and drug databases and implement appropriate interventions.[13,14]

Medication reviews, conducted to identify and resolve medication-related problems at an individual patient level, can improve the use of medicines and health outcomes.[5,15] The benefits of a medication review conducted by a pharmacist co-located within a general practice include improved timeliness and access to information in the patient's primary care medical file and to the prescribing doctor.[2,4,5] In a study by Freeman et al, the pharmacist spent more than twice the time (40% versus 19%) conducting medication reviews than our pharmacists.[4] This difference may have been be attributable to funding sources:

the study by Freeman et al was funded by income generated from government-funded medication reviews, whereas the funding for our study was provided by the local primary health network.

The variation in activities performed by the general practice pharmacists in this study and in comparison to the findings of Freeman et al[4] is not surprising and is to be welcomed. It aligns with the reality that 'no two general practices are alike. The role of the pharmacist should therefore be flexible to meet the needs of the community based on the individual skills or interests of GPs and pharmacists.'[2]

It should be acknowledged that practice nurses can also have roles in chronic disease management, such as asthma care. However, because of their expertise, we believe that pharmacists are the most appropriate healthcare professional to participate in chronic disease management where medication is a principal treatment modality. Similarly, nurses can also conduct smoking cessation consultations, but pharmacists are suitable healthcare professionals for this role as pharmacotherapy choice can be central to the success of the quit attempt.

This pilot study had strengths and limitations. It was naturalistic, with the researchers not being involved in recruitment or task allocation to the pharmacists. This action research methodology can be perceived positively, because the pharmacists in general practice were being employed according to local 'real world' workplace needs. A major strength was that data were collected for six months and there were three pharmacists with varied skill sets in three different general practices. However, we were reliant on the pharmacists accurately self-reporting their activities. The general practices offered to participate in the trial and were from one Australian city; they may not be representative of all general practices. The perceptions of stakeholders regarding the benefits, barriers and enablers for integrating pharmacists into general practice are reported separately.[16]

Further evaluation through large randomised controlled trials in Australia is required to collect clinical outcomes and determine which activities conducted by pharmacists are most beneficial, cost-effective and welcomed by GPs and patients. This could then be used to develop a robust business case for ongoing funding to facilitate the wider integration of pharmacists in Australian general practice. It could also validate the conclusions of an independent report commissioned by the AMA, estimating that for every $1 invested, $1.56 in benefits could be generated.[7,9,10] Perhaps then, as has been expressed in the UK, having a clinical pharmacist in the primary healthcare team will be considered a 'no brainer', and pharmacists in general practice will be here to stay and regarded as a necessity, not a luxury.[6,17]

Implications for general practice

Pharmacists can be employed for a range of activities in general practice. These activities were predominantly clinically related in this pilot, including medication reviews, patient and staff education, asthma care, smoking cessation, clinical audits, targeted deprescribing and post-hospitalisation medication reconciliation. During the six months, time spent communicating on clinical issues with GPs increased, suggesting that the pharmacists became collaborative team members within the general practice.

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Competing interests: MN's relative was a study pharmacist in the trial; however, the research team undertook significant steps to mitigate against this conflict, which included MN stepping down as project lead when conflict surfaced (SK was the project lead). MN did not have access to the raw data at any stage. GC reports having been a director of the board of the funding body (Capital Health Network) since 2011 and became Chair of the Capital Health Network in November 2016. GC did not have access to any identifiable data during the study.

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