

## ABSTRACT

**Objective** – To identify the key issues reported by rural healthcare providers in their provision of medication supply and related cognitive services, in order to advise health workforce and role development and thus improve the quality use of medicines in rural communities.

**Design** – Exploratory semi-structured interview research.

**Setting** – A rural community comprising four towns in a rural health service district in Queensland, Australia.

**Participants** – 49 healthcare providers (medical practitioners, pharmacists, nurses, etc.) with medication-related roles who serviced the study community, identified through databases and local contacts.

**Main outcome measures** – Medication-related roles undertaken by the healthcare providers, focusing on medication supply and cognitive services; challenges in undertaking these roles.

**Results** – Medical and nursing providers reported challenges in ensuring continuity in supply of medications due to their existing medical workload demands. Local pharmacists were largely involved in medication supply, with limited capacity for extended cognitive roles. Participants identified a lack of support for their medication roles and the potential value of clinically-focused pharmacists in medication management services.

**Conclusions** – Medication supply may become more efficient with extended roles for certain healthcare providers. The need for cognitive medication management services suggests potential for clinical pharmacists' role development in rural areas.

### 1: What is already known on this subject?

- The limited rural healthcare workforce is well established in the literature. The consequences of suboptimal medication management have also been documented, along with evidence for clinical services in averting medication misadventure. Further, there is a growing body of literature into 'role extension' for healthcare providers.
- Given these factors, role extension for healthcare providers may be particularly relevant to improving medication services rural communities. However, little is known about challenges faced by healthcare providers who perform medication supply and management roles in these communities.

### 2: What does this study add?

This study highlighted challenges in ensuring continuity in the supply of medications and lack of support mechanisms to provide optimal medication management services in the study community. The paper provided data to support further research into extended roles in prescribing and medication supply to improve access to medications as well as alternative service delivery models to enhance provision of pharmacy consultation services to rural areas.

## **INTRODUCTION**

Health workforce studies in Australia have identified a shortage of practitioners, particularly in rural areas, as the demand for healthcare services increases.<sup>1-3</sup> The limited rural health workforce presents a challenge to provide optimal healthcare, including medication services, in a timely and quality manner. This necessitated the development of extended prescribing, medication initiation or medication supply roles for rural health practitioners, such as nurses, midwives, paramedics and Indigenous health workers.<sup>1,3,4</sup> However, the majority of these developments have focused on improving *access* to medications in rural areas. The consequences of “medication misadventure” have received considerable press, prompting development of cognitive services to enhance the *management* of medications use.<sup>5</sup> There is a lack of studies to explore how rural healthcare providers are coping with the medication needs of rural communities. There is also a dearth of information on whether extended roles afforded to certain healthcare providers have addressed the medication management needs of rural areas.

This paper aims to highlight the key issues reported by rural healthcare providers in the provision of medication supply and management services, focusing on the rural workforce and medication roles within the provisions of the Drugs and Poisons legislation in Queensland, Australia.

## **METHOD**

Ethical approval to conduct the research was granted by The University of Queensland Behavioural & Social Sciences Ethical Review Committee and the Human Research Ethics Committees of Griffith University, the University of Southern Queensland and the health service district where the study was conducted.

The study community, identified through a geographical mapping exercise,<sup>6</sup> comprised four towns in a rural health service district in Queensland. The approximate mean population of the four towns was

1500, with a pharmacy remoteness index of PhARIA<sup>7</sup> categories 4-6, a measurement which incorporates the general remoteness represented by ARIA and the physical and professional remoteness of pharmacies. Each of the towns was serviced by one public hospital and one medical practice. One of the towns was serviced by two single-pharmacist community pharmacies, whereas three of the towns were serviced by one single-pharmacist community pharmacy each. The community had limited access to allied health and specialist services, supported by part-time or outreach healthcare providers. The name of the towns and exact demographics are not included here to preserve participants' anonymity.

Identified healthcare providers within the study community were contacted and screened for their involvement in medication supply and/or medication management (Table 1), and were then invited to participate in face-to-face on-site interviews. Three medical practitioners declined the invitation due to work responsibilities, while all other healthcare providers contacted accepted the interview invitation. A degree of consistency was maintained with sampling across the four towns to reduce potential for bias, for example, a community pharmacist from each town was recruited, unless the healthcare provider or the position was not available in the town, or theme saturation has been reached.

Semi-structured interviews were completed by a project officer and PhD candidate during a four-week period (September-October 2010). Interview topics were informed by the literature and prior research with key informants external to the study community.<sup>8</sup> The interviews explored workforce issues, extended medication roles, inter-professional relationships and support mechanisms that may impact on provision of medication services in the community. A degree of flexibility was allowed for participants to expand on topics based on their profession or work experiences.<sup>9</sup> The interviews were transcribed verbatim and analysed qualitatively for themes, differences and unique individual responses.

## **RESULTS**

Forty-nine healthcare providers (13 males, 36 females) were interviewed. All of the participants provided services in residential aged care, hospital, community and mental health settings and had medication-related role(s) in full-time, part-time or casual capacities. Their roles, age and duration of employment in the specified role are illustrated in Table 2 and Figures 1 and 2. Medical practitioners in the study community serviced the hospital, community (through general practice) and residential aged care. Nursing staff formed a large proportion of the study community's health workforce. There were no nurse practitioners or hospital pharmacists.

While some of the interviewees acknowledged that identified issues may not be rural-specific, they reported that the metropolitan setting has the advantage of increased health workforce capacity and support from the healthcare team to assist in resolving the issues.

### **Medication Supply Issues**

Most healthcare providers were of the opinion that medical practitioners experienced difficulties coping with prescription demands for patients in the community and aged care facilities. Further, most indicated that there was increased pressure to provide primary healthcare services at the secondary-care level (hospital):

*“When there’s been a lot of [workload] pressure [at the medical centre], [patients] tend to go over to the hospital and try to be seen there. The duty nurse would call the on-call doctor, and if need be, a telephone order would be given ... the nurses can’t give out prescriptions.”* (medical practitioner, HP30)

*“... people will then use the hospital as their pharmacy, which is a huge workload on the nurses.”* (managerial hospital registered nurse (RN), HP14)

The prescribing optometrist (HP22), dentist (HP38) and mental health RNs (HP1 and HP37) commented that expanding prescribing rights to non-medical healthcare providers increases access to continuing therapy and reduces workload burden of the rural medical practitioners. They believed that there is room to improve public awareness of the roles and benefits of non-medical prescribers.

As there were no hospital pharmacists, registered nurses assumed the role of managing the hospitals’ pharmaceutical supplies and issuing discharge or emergency medications when the local community pharmacy was closed. They commented on the up-skilling and training required to equip themselves with knowledge about medications prior to undertaking the role. Some of the issues faced were workload, time demands and potential medication errors:

*“... that takes time, because you’re not familiar with it. We have to do the charging, make sure that box is written out correctly, get them checked by another RN ... discharge summary ... educate the patient ... make sure they’ve got the right medications. I think that’s just loading the nurses with another job in rural and remote areas.”* (managerial hospital clinical nurse (CN), HP33)

Most hospital RNs felt obligated to provide basic patient counselling, although they are not legally required to comply with dispensing standards when supplying medications:

*“Where do you draw the line between ‘supply’ and ‘dispense’? The minute you write your name, you’re the person choosing the drug, you’re explaining it to the [patient], you’re writing the directions on it ... I have very strong feelings about that, that’s definitely not a nurse’s role.”* (managerial hospital RN, HP25)

### **Medication Management Issues**

The majority of participants, including medical practitioners, commented on barriers hindering comprehensive medication management review. These included:

- Patients visiting more than one practice in a number of towns or not being regular patients of the local medical practice,
- Increased variety of services required of medical practitioners, and/or
- High turnover of healthcare providers.

Concerns included inadequate knowledge of patients’ medical history and follow-up of patients’ conditions, frequent medication changes and the potential of *“things getting overlooked”* (managerial aged care RN, HP11).

A number of participants also raised concerns about poor continuity of care and medication information transfer for discharged patients from metropolitan facilities. The majority of the participants discussed the difficulties experienced by medical practitioners to prescribe or review medications that were initiated in metropolitan facilities, as they were unclear about the indications and/or discharge plans.

In the hospital setting, a managerial hospital RN (HP14) stated that there was a lack of resources to manage and provide clinical pharmacy services, as most rural hospitals only deal with acute clinical presentations:

*“Without a pharmacist here, [the trouble] is working out new regimens, new protocols for drugs, new directions for use...”* (hospital RN, HP32)

*“... that’s a downfall that we don’t know the [drug] interactions. If someone comes in and they want an antibiotic, as long as they’re not allergic to it and we can get an order for it, then we can send them*

*home. We won't even know necessarily what other medications they're on.*" (managerial hospital CN, HP20.1)

A visiting pharmacist (HP45) providing medication education and support to pharmacists and medical practitioners in the community, as well as healthcare staff at the local hospital, pointed out the lack of clinical pharmacy services relating to management of inpatient therapy, including therapeutic drug monitoring and dose recommendations.

Most of the local community pharmacists were actively involved in providing drug information to healthcare providers and patients as well as supplying medications to the hospital when there were stock shortages. In addition, they offered enhanced pharmacy services such as weight loss advice, the National Diabetes Services Scheme, dosage administration aids and blood pressure monitoring. A community pharmacist (HP26) commented that time pressures and workload resulted in dispensing being prioritised as the prime focus of pharmacy services in rural areas, which limited pharmacists' capacity to provide enhanced pharmacy services or undertake extended medication roles outside the pharmacy:

*"There's only so far a single pharmacist can stretch yourself... By the time you check off your dispensing techs and do what you've got to do, there's simply not enough time to go into everything."* (community pharmacist, HP26)

At the time of study, a visiting clinical pharmacist (accredited) provided medication education to healthcare staff in addition to providing medication review services for patients in residential aged care facilities. Most of the participants were appreciative of the services, although they would have preferred increased frequency. Geographical distance and lack of remuneration pathways were perceived as barriers to support visiting pharmacists. Insufficient caseload within the local community also did not warrant increased frequency of services by the visiting accredited pharmacist.

## **DISCUSSION**

This study highlighted the need to support existing rural healthcare providers in providing medication supply and management services. While some of the identified issues may not be rural-specific, the study was designed to identify existing issues in medication supply and management services in the particular study community. The interviews involved a range of healthcare providers, and provided breadth and depth of information needed for this exploratory research.

The participants reported difficulties for medical practitioners to cope with prescription demands for continuing therapy. This highlights the potential to extend prescribing and medication supply roles, as discussed in the recent Health Workforce Australia's *Rural and Remote Health Workforce Innovation and Reform Strategy* discussion paper.<sup>3</sup> Sessional employment of medical practitioners across numerous healthcare services helped provide continuity of care for patients in rural areas. However, the resulting increases in workload challenges these healthcare providers to deliver healthcare in a timely or quality manner. Participants have commented on the benefits of non-medical prescribing in supporting rural medical practitioners and the sampling showed potential to increase non-medical prescribers in the community. This warrants further research to integrate non-medical prescribing services into rural settings given the range of challenges reported by the literature including the lack of employment opportunities, legislative shortcomings and restrictive supervision requirements.<sup>1,3,10,11</sup> The medication supply role for hospital RNs enabled improved access to medications in rural areas lacking pharmacy services. However, participants have commented on the increased workload, unfamiliarity with the pharmacy task and the need for medication support, ideally provided by pharmacists. A potential novel strategy is the "medication continuance protocol" as recommended by the Fifth Community Pharmacy Agreement<sup>10</sup> negotiations, which would enable pharmacists to supply a one-month or single-pack of medication in the absence of a prescription. Although this role is currently under development and is limited to certain long-term therapies, this protocol could be a feasible option to improve access to medications when medical practitioners are unavailable.<sup>10-12</sup>

In addition to ensuring continuing medication supply, the participants also reported challenges in managing medications use in the community. Participants value the role of pharmacists and studies have demonstrated roles for pharmacists in provision of medication information and therapeutic recommendations to healthcare providers and healthcare consultation for consumers.<sup>5,11,13-15</sup> There has also been ongoing initiatives to establish a medication information liaison model to enhance transfer of medication information for patients in transition between healthcare services and to improve medication management via pharmacist-mediated medication review services.<sup>5,16,17</sup> However, as with other professions, the limited pharmacy workforce in rural areas is also well-established.<sup>1,11</sup> As such, some studies have identified alternative service delivery models for pharmacists to deliver medication services and support rural healthcare providers involved in medication services. Tele-pharmacy is one potential solution, supporting pharmacy services to rural areas in the United States<sup>11,18</sup> and is under development in Australia.<sup>18,19</sup> Studies have demonstrated value in the involvement of pharmacists from larger hospitals to provide remote dispensing and medication consultation services to rural areas lacking pharmacist

services.<sup>18,20</sup> Other potential solutions to improve provision of clinical pharmacy services are the expansion of outreach services and sessional employment, which are established models in the rural medical and allied health field.<sup>1,3,11</sup> Pharmacists' visiting services to rural healthcare providers and sessional pharmacists employed within medical or aged care facilities have been studied in Australia,<sup>13,14,21,22</sup> albeit without an established remuneration pathway to enable wider establishment.

This study was conducted within a defined rural community. Several participants appeared reluctant to reveal issues that may relate to other healthcare providers and feared judgment of their practice or service. However, with the assurance of anonymity and understanding of the potential benefits of this research, participants appeared to provide honest responses and authentic examples.

## **CONCLUSION**

This study highlighted challenges in ensuring continuity of medication supply, as well as lack of support mechanisms to provide optimal medication management services in the study community. There is potential for further research into extended roles in prescribing and medication supply to improve access to medications as well as alternative service delivery models to enhance provision of pharmacy consultation services to rural areas.

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