McMaster University | HEALTH FORUM

Rapid Synthesis

Innovative Models for the Delivery of Pharmacy Services in Rural and Remote Areas

10 October 2023

[MHF product code: RS 111]

Context

- Pharmacy services are a critical part of the health system for dispensing medications, educating patients on their use and ensuring patient safety.
- However, just as for many other types of services, providing pharmacy services can be more challenging in rural and remote areas due to limited health human resources, as well as geographic and infrastructure challenges.
- This rapid synthesis examines the types of innovative models that have been used in rural and remote areas to overcome some of these challenges and their effects on the quintuple-aim outcomes.

Question

- What models of community-based pharmacy services have been used in rural and remote areas and what are their effects on the quintuple-aim outcomes?

High-level summary of key findings

Research evidence

- We identified 14 evidence syntheses, 12 of which were identified as being highly relevant to the question.
- The 12 highly relevant evidence syntheses focused on the effects of four models for community-based pharmacy services in rural and remote areas – telepharmacy or virtual pharmacy services, pharmacy 'drive-thru' services, culturally appropriate care, and role expansion or extension.
- Telepharmacy and virtual pharmacy services were found to improve health outcomes by improving the safety of medication use (e.g., through routine medication reviews) and care experiences by increasing access to care; however, it was noted that the effectiveness of these models is highly dependent on the pharmacists' experience and training.
- Pharmacy 'drive-thrus' were identified as a model that could increase the pace of receiving medication or support extended hour 'pick-ups,' but findings suggest that this is dependent on having staff available, which is frequently a challenge in rural and remote communities.
- Expanded or extended scope of practice for pharmacists (including comprehensive medication review and management, treatment and prescription for minor ailments and conditions, chronic disease management and health promotion interventions) had generally positive outcomes including improving select health outcomes, such as reduced ear infections, and improving patient experience by improving access to care.
  - It was noted that not all community pharmacies have been built with these services in mind and that consideration should be given to maintaining patient privacy while consulting with patients.
- While expanded pharmacy services have been found to be beneficial for most populations, one evidence synthesis pointed to the need for additional culturally tailored interventions for Indigenous populations.

Jurisdictional scan

- For the jurisdictional scan, we looked for experiences in three countries – Australia, New Zealand and the United States for the states of Vermont, Maine, West Virginia – as well as in all Canadian provinces and territories.

- Much of what was identified resonates with what we found from the evidence, with identified models including telepharmacy, expanded scope of practice, participation in community team-based models, remote drug dispensing, and the provision of financial incentives for operating community-based pharmacies in rural and remote areas.

Framework to organize what we looked for

We organized our findings using a framework that we provide in Appendix 2 and includes categories related to:

- How pharmacy services are designed to meet consumers needs
  - Availability of pharmacy services
  - Timely access to pharmacy services
    - Telepharmacy and virtual pharmacy services
    - Extended pharmacy hours
    - Online mail order pharmacies
  - Culturally appropriate care
- By whom pharmacy services are provided
  - Role expansion or extension
  - Task shifting/substitution
  - Participation in multidisciplinary teams
  - Communication and case discussions between distant health professionals
  - Continuity of care
- Where pharmacy services are provided
  - Innovative service sites (e.g., pop-ups, community settings, mobile pharmacies)
  - Integration with other services
  - Outreach
- With what supports care is provided
  - Electronic medical records/electronic health records
  - Other information communication technology that supports individuals who provide care
  - ICT that supports individuals who receive care
- How these models are paid for
  - Publicly financed
  - Privately financed
- How providers are remunerated within these models
  - Fee-for-service
  - Capitation
  - Salary
  - Episode-based payment
  - Targeted payments/penalties
- Priority populations
  - People living in rural and remote areas
  - Indigenous populations
- Quintuple-aim outcomes
  - Improved health outcomes
  - Improved care experiences
  - Improved provider experiences
  - Advanced health equity
  - Keeping per-capita costs manageable

What we found

We identified 14 evidence syntheses relevant to the question, of which we deemed 12 to be highly relevant, with the remaining two being assessed as low relevance to the question.

We outline in narrative form below our key findings related to the question from highly relevant evidence documents and based on experiences from the jurisdictional scan of three countries and all Canadian provinces and territories (see Box 1 for more details).

A summary of the experiences from Canadian provinces and territories and from other countries is provided in Appendix 3 and Appendix 4. Detailed data extractions from each of the included evidence documents is provided in Appendix 5, and hyperlinks for documents excluded at the final stage of reviewing in Appendix 6.

Key findings from highly relevant evidence sources

The 12 highly relevant evidence syntheses provide insights into approaches that cut across the organizing framework. The majority of the syntheses (n=7) focused on the use of telepharmacy and virtual pharmacy services to enhance timely access to pharmacy services.(1) The remaining syntheses focused on extending pharmacy hours through pharmacy drive-thrus (n=1), role expansion or extension of pharmacists (n=3), providing culturally appropriate pharmacy care for Indigenous communities (n=1), and remuneration challenges for community pharmacists working in rural areas (n=1). In addition to this literature, a second rapid synthesis that we are producing provides in-depth insights from evidence specifically related to pharmacist-led chronic-disease management, which may have important implications for individual's access, health outcomes and care experiences within rural and remote communities.

Box 1: Approach and supporting materials

We identified evidence addressing the question by searching Health Systems Evidence and PubMed to identify evidence syntheses and protocols for evidence syntheses. All searches were conducted on 17 September 2023. The search strategies used are included in Appendix 1. We identified jurisdictional experiences by hand searching government and stakeholder websites for information relevant to the question from three countries – Australia, New Zealand and systems within the U.S. for the states of Vermont, Maine and West Virginia – and all Canadian provinces and territories.

In contrast to our rapid evidence profiles, which provide an overview and insights from relevant documents, this rapid synthesis provides an in-depth understanding of the evidence.

We appraised the methodological quality of evidence syntheses that were deemed to be highly relevant using AMSTAR. Note that quality appraisal scores for evidence syntheses such as rapid syntheses/reviews are often lower because of the methodological shortcuts that need to be taken to accommodate compressed timeframes. AMSTAR rates overall quality on a scale of 0 to 11, where 11/11 represents an evidence synthesis of the highest quality. It is important to note that the AMSTAR tool was developed to assess evidence syntheses focused on clinical interventions, so not all criteria apply to evidence syntheses pertaining to delivery, financial or governance arrangements within health systems or to broader social systems.

This rapid synthesis was prepared in a 30-business day timeline.

A separate appendix document includes:

1) methodological details (Appendix 1)
2) a framework to organize what we looked for (Appendix 2)
3) a summary table of experiences from Canadian provinces and territories (Appendix 3)
4) a summary table of experiences from other countries (Appendix 4)
5) findings from each evidence document, organized by document type, and sorted by relevance to the question (Appendix 5)
6) documents excluded at the final stages of reviewing (Appendix 6)

Telepharmacy and virtual pharmacy services

Telepharmacy and virtual pharmacy services, which typically include a video or telephone discussion with a pharmacist and the use of either remote dispensing sites or mailed medications, were found to improve access to community pharmacist services (including medication processing, dispensing, management and review) in rural and remote communities.(1-5) In addition, they were found to improve medication safety through more frequent reviews, as well as care experiences of patients by addressing pharmacist shortages.(1; 3; 4; 6) One recent low-quality evidence synthesis noted that while there are many benefits to telepharmacy services, the effectiveness of these services depend in part on the knowledge and experience of the telepharmacists and emphasize the importance of their training, particularly when telepharmacy is being used to expand or extend their offerings (e.g., into medication review or prescribing for minor ailments and conditions).(1)

Three of the evidence syntheses address extended use of telepharmacy (including either telephone or video discussion) for chronic-disease management and/or health promotion initiatives (e.g., for smoking cessation) in rural and remote communities.(4; 6; 7) The syntheses found improved health outcomes, including improved medication adherence among those with chronic diseases and improved adherence to smoking cessation programs.(6; 7) One recent medium-quality evidence synthesis examined the modality of telepharmacy for chronic-disease management, comparing video-based consultations to telephone consultations.(7) The evidence synthesis found no difference in the effects of video-based teleconferences compared to telephone consultations on health outcomes, but video consultations resulted in higher rates of medication adherence among those with chronic diseases, which was partly attributed to a longer duration for the video consultation as compared to the telephone.(7)

Pharmacy 'drive-thru' services

One medium-quality evidence synthesis examined the use of a pharmacy 'drive-thru' as a model to increase the pace of receiving medication and/or for supporting extended hour 'pick ups' for medication dispensing. The evidence synthesis noted that an advantage of the drive-thru model was its use when individuals are sick as it reduces in-person contact. However, poor communication between the pharmacist and the patient and the continued challenge of a lack of staff to work extended hours were noted as drawbacks to this approach.(8) It was suggested that the communication challenges be overcome by combining this model with telepharmacy consultation.(8)

Expanded or extended scope of practice

Three evidence syntheses address expanded or extended scope of practice for pharmacists providing in-person care (i.e., not by telephone or virtual consultation) as a means to enhance access to care.(8-10) One recent medium-quality evidence synthesis described how rural users of community pharmacies tended to be more willing to seek advice and spoke longer to pharmacists then their urban counterparts.(9) The same evidence synthesis found that rural community pharmacists reportedly offer additional professionals services and have improved relationships with their customers compared to urban pharmacists.(9) A second recent medium-quality evidence synthesis found that extended pharmacy services such as comprehensive medication review, medication monitoring and coordination with individual's primary care providers were generally supported by pharmacists and the general public and supported improved access to these services.(8) However, included studies noted some concern about the lack of privacy for these types of consultations in community pharmacies, which typically have few spaces for private consultations to take place.(8) Finally, the third recent medium-quality evidence synthesis, though specific to ear health, found that improved health outcomes and care experiences were achieved by expanding the scope of pharmacists roles in rural and remote areas to include antibiotic prescribing and case discussion with distant health professionals.(10) In particular, this model resulted in reduced ear infections as well as reduced financial barriers (due to travel) and improved access (reduced wait times) to services. The evidence synthesis noted that many of the

included studies were pilot sites for expanded practice and therefore information on per-capita costs and effective delivery of culturally appropriate care was not available.(10)

Culturally appropriate care

One recent high-quality evidence synthesis examined whether expanded roles for pharmacists could help improve equity in access among Māori populations in New Zealand.(11) The evidence synthesis noted comprehensive medicine reviews completed by pharmacists were less likely to benefit Māori than non-Māori people, indicating the need for additional culturally tailored approaches.(11)

Remunerating community pharmacists working in rural and remote areas

One medium-quality recent evidence synthesis found that irregularities in the use of community pharmacies and high operating costs may be barriers to pharmacists practicing in rural and remote areas.(12) Remuneration for non-dispensing services such as for medication review, prescription adaptations and injection administration may support continued access to services in these communities, but there were high variations in what fees were paid to pharmacists, scope of practice and patient eligibility.(12)

Key findings related to equity dimensions

All the included evidence syntheses focused on rural and remote communities, but few included other equity-related considerations. One of the evidence syntheses addressed the dimension of race/ethnicity/culture/language by focusing on the need for additional culturally tailored elements to be included in pharmacy models serving Māori people.(11) Another evidence syntheses addressed socio-economic status, noting that making access to services in rural and remote communities more accessible reduced the financial burden from travel on those of lower socioeconomic status.(5)

Key findings from jurisdictional scans

Our jurisdictional scan of experiences included those from Australia, New Zealand and select states from the United States (Maine, Vermont and West Virginia) as well as from all Canadian provinces and territories.

The jurisdictions assessed have used a range of approaches to improve access to pharmacy services in rural and remote areas, as well as using pharmacists to support the delivery of services that may otherwise be unavailable or difficult to access in rural and remote areas (e.g., using pharmacists to support chronic disease management or to provide care for minor ailments and conditions). In general, the approaches identified can be grouped into five categories:

- telepharmacy
- remote drug dispensing
- expanded scope of practice
- participation in community team-based models
- financial incentives for operating community-based pharmacies in rural and remote areas.

Internationally, we identified:

- the use of telepharmacy and ePrescribing services in Australia, New Zealand and the United States
- the use of nurse prescribers in New Zealand, who can initiate the start of some special authority medicines when access to physician and pharmacist is not possible

- the participation of pharmacists in team-based models of care in West Virginia to support chronic-disease management in rural communities (particularly cardiovascular disease and diabetes)
- the use of financial incentives to support rural pharmacy owners in rural and remote areas in Australia and in the United States, including supporting pharmacies to purchase prescription and non-prescription medications at reduced costs.

In addition, we found that an emergency locum service has been created in Australia to provide direct access to pharmacists who can substitute for up to seven days in emergency circumstances to keep community-based rural and remote pharmacies open.

Within Canada, two provinces, Alberta and Newfoundland and Labrador, explicitly mention expanding their telepharmacy program for rural and remote communities without access to nearby pharmacists. These telepharmacy services may be offered to individuals in their home or may be hosted within other healthcare facilities, such as within rural long-term care homes in the case of Alberta.

Linked to the use of telepharmacy is the remote drug dispensing model from Ontario where, after a telepharmacy consultation is completed, individuals may be able to access select prescription drugs via a dispensing machine without a provider being physically present. The remote dispensing locations are operated by another pharmacy from afar, where the host pharmacy is responsible for ensuring the dispensing location meets standards and is only open to the public during hours that a pharmacist is physically present in the operating pharmacy.

We found that almost all provinces and territories (BC, AB, SK, MB, ON, NB, PEI, NFL, YT) had extended the scope of practice of pharmacists to assess and prescribe medicines for minor ailments and conditions, which is summarized in table that has been produced by the Canadian Pharmacists Association. Beyond minor ailments, there is some variation in the extended scope of practice, with many provinces and territories permitting authority to:

- prescribe in collaborative practice (AB, SK, MB, QC, NB, NS)
- prescribe in emergency circumstances (BC, AB, SK, MB, ON, QC, NB, NS, PEI, NL, YT)
- make therapeutic substitutions (BC, AB, SK, QC, NB, NS, PEI, NL, YT)
- change drug dosage or formulation (BC, AB, SK, MB, QC, ON, NB, NS, PEI, NL, YT)
- renew or extend prescriptions (with limits varying by province and territory) (BC, AB, SK, MB, QC, ON, NB, NS, PEI, NL, YT, NWT)
- inject select drugs (BC, AB, SK, MB, QC, NB, NS, PEI, NL, YT)
- inject select vaccines, including influenza (BC, AB, SK, MB, QC, ON, NB, NS, PEI, NL, YT)
- order and interpret lab tests (AB, SK, MB, QC, NB, NS, PEI).

Only Saskatchewan and Alberta permit pharmacists to independently prescribe schedule 1 drugs. In Saskatchewan, a collaborative practice agreement (a written agreement between a pharmacist and practitioner that outlines prescribing practice) must be in place for this to happen. In Alberta, independent prescribing requires that pharmacists must be practicing for one year and submit a formal application to the college to demonstrate competence. These expanded scopes of practice are not limited to rural and remote areas but are particularly helpful to compensate for shortages of other health professionals.

Two provinces, Quebec (on a pilot basis) and Nova Scotia, are placing pharmacists in primary care settings to work with physicians and nurse practitioners in rural areas to increase continuity of care and to support workload division among available providers.

Lastly, British Columbia, Ontario and New Brunswick have all included incentives for community-based pharmacists to operate in rural and remote areas. In each province a subsidy is paid for each prescription filled in

pharmacies that are 25 km or more away from the next community pharmacy. In both British Columbia and New Brunswick, these subsidies are capped either monthly (British Columbia) or annually (New Brunswick).

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The rapid-response program through which this synthesis was prepared is funded by the Ministry of Health of British Columbia. The McMaster Health Forum receives both financial and in-kind support from McMaster University. The views expressed in the rapid synthesis are the views of the authors and should not be taken to represent the views of the Ministry of Health of British Columbia or McMaster University.

ISSN 2292-7999 (online)