



Benefits and challenges of electronic prescribing for general practitioners and pharmacists in regional Australia

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Abstract

Objective: To explore the benefits and challenges of electronic prescribing (e-prescribing) for general practitioners (GPs) and pharmacists in regional New South Wales (NSW).

Methods: This qualitative study utilised semistructured interviews conducted virtually or in-person between July and September 2021.

Setting and Participants: General practitioners and pharmacists practising in Bathurst NSW.

Main Outcomes: Self-reported perceived and experienced benefits and challenges of e-prescribing.

Results: Two GPs and four pharmacists participated in the study. Reported benefits of e-prescribing included improvement in the prescribing and dispensing process, patient adherence, and prescription safety and security. The increased convenience for the patients was appreciated particularly during the COVID-19 pandemic. Challenges discussed were how the system was perceived to be unsafe and insecure, costs of messaging and updating general practice software, utilisation of new systems and patient awareness. Pharmacists reported the need for education to patients and staff to minimise the impact of inexperience with the novel technology on workflow efficacy.

Conclusion: This study provided first insight and information on the perspectives of GPs and pharmacists 12 months after the implementation of e-prescribing. Further nationwide studies are required to consolidate these findings; provide comparisons with the system's progress since conception; determine whether metropolitan and rural health care professionals share similar perspectives; and shed light on where additional government support may be required.

KEYWORDS

COVID-19, digital health, e-prescribing, pharmacy, rural

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1 | INTRODUCTION

Electronic prescribing (e-prescribing) was implemented in Australia in May 2020, expedited due to the COVID-19 pandemic, enabling prescribers to generate digital device-based electronic prescriptions for patients.¹ The Australian Government proposed that e-prescribing improves prescribing and dispensing efficiency, reduces prescribing errors, minimises exposure to infectious diseases (e.g. COVID-19) and maintains patient privacy.² Currently, scripts are sent as unique tokens by the prescriber, either through text message or through email, to be presented by the patient at a pharmacy for dispensing.² These tokens are managed through a patient's Active Script List, which collates all active prescriptions for prescribers and pharmacists to view and manage.²

Regional and rural Australians experience poorer access to health services than their metropolitan counterparts.³ Often, residents of surrounding smaller towns and rural areas are required to travel to larger regional centres to access health facilities. Bathurst is a regional town providing health services to the surrounding regions of Blayney, Oberon, Perthville, Hill End, Sofala and Rylstone.⁴ Understanding the benefits and challenges of e-prescribing are important to shape its future usability within the wider community.

In recent years, various regions in North America, Europe and the Middle East have adopted e-prescribing.⁵⁻⁸ Past studies have reported benefits such as increased work efficiency, improved medication access and patient safety.⁵⁻⁸ However, pitfalls include software issues, lack of patient education and the program's ongoing costs.⁵⁻⁸ One study in an Australian metropolitan hospital explored patient and clinician perspectives on the inpatient electronic prescribing system.⁹ They reported that the majority preferred electronic over handwritten prescriptions, and showed how it improved workflow and medication access.⁹ To the authors' knowledge, no study has explored the experiences of general practitioners (GPs) and/or pharmacists with e-prescribing in Australia. The views of these professionals are important as they are the forefront providers of prescribing and dispensing within communities.

This study aimed to explore the benefits and challenges of e-prescribing from the perspective of GPs and pharmacists practising in regional NSW during the initial 12 months of its implementation.

2 | METHODS

Ethics approval was obtained from the Human Research Ethics Committee of Western Sydney University (H14330,

What this paper adds

- This study found limited barriers to implementing e-prescribing in an Australian regional setting.
- Despite the convenience of e-prescribing, future challenges such as digital prescription errors and the cost of the system were identified and should be mitigated for its improvement and wider use in regional and rural areas.
- This qualitative study provided valuable information on e-prescribing experiences of regional GPs and pharmacists during the initial 12 months of its implementation in Australia.

What is already known on this subject

- Internationally, e-prescribing has been utilised for a few years and various studies have identified benefits such as increased work efficiency, improved medication access and patient safety; and challenges including software issues, lack of patient education and the ongoing costs of the digital program.
- However, there is no identified research investigating the beneficial claims of e-prescribing and its executional challenges within regional and rural Australian communities.

sub-project H11327). Written informed consent was obtained from all participants.

This qualitative study used semistructured interviews to explore participants' perspectives on e-prescribing. Questions were informed by the literature and piloted by three metropolitan GPs, with their feedback incorporated into the final questions. Two sets of questions were developed to encompass participants with and without e-prescribing experience (File S1).

Eligible participants were practising GPs and pharmacists working in Bathurst or within a five-kilometre radius at the time of the study. A total of 11 GP practices and nine pharmacies were identified through an online search and invited to participate via email or face-to-face from July to September 2021. Interviews were conducted by researchers (Authors 1 and 2) virtually or in-person and audio-recorded, then transcribed manually. Thematic analysis was completed by researchers (Authors 3 and 4) using an inductive approach.¹⁰

3 | RESULTS

A total of six interviews were completed: two GPs and four pharmacists. All participants had e-prescribing experience except one GP, whose practice encountered implementation issues during the COVID-19 lockdowns. Themes identified were placed under two main categories which aligned with the objective of this study—'benefits of e-prescribing' and 'challenges of e-prescribing' (Table 1).

3.1 | Benefits of e-prescribing

3.1.1 | Efficient prescribing and dispensing

E-prescribing was perceived to improve the overall prescribing and dispensing process, reducing issues with interpreting handwriting and loss of paper scripts. The simplification of dispensing with electronic scripts was also suggested to provide additional patient convenience.

It's way more streamlined compared to having a physical script and having to scan it, dispense it, put all your stickers on it. The e-script is so much quicker.

Pharmacist C

The GP without e-prescribing experience proposed that the specific benefit for this regional community would be the portability of prescriptions and agreed with the reduction in risk of losing scripts.

You don't need to keep your prescriptions at a particular pharmacy anymore um and less likelihood that they're going to be lost.

GP B

3.1.2 | Improved patient adherence

Improvements in medication adherence were perceived as a benefit to the wider community in terms of improved

script access and alerts being sent when patients are due for a script.

We're improving compliance because they're getting reminders electronically for their medications.

Pharmacist B

3.1.3 | Safety and security

E-prescribing was highlighted to potentially reduce the risk of prescription misuse. It was reported that electronic scripts limit the possibility of S8 scripts being stolen since pharmacists can track these prescriptions.

Electronic means it can't really be lost because there are ways of finding it. It can't be stolen. So technically, electronic scripts should make it much harder for medication theft.

Pharmacist B

3.1.4 | Beneficial to use with telehealth during COVID-19

The perception of improved prescription access for those living in a regional or rural location with the utilisation of telehealth was emphasised as a positive attribute.

...with the last 12 to 18 months with COVID especially, we've had such a push to converting general practice to being more easily accessible via telehealth, and e-prescribing really comes into that because it enables us to manage patients via telehealth much better...

Instead of them having to drive in 2 h for an appointment, they can have their script and they can arrange to have that script filled whenever they're next coming into town.

GP A

Benefits of e-prescribing	Challenges of e-prescribing
Efficient process	Unsafe & insecure
Improved patient adherence	Ongoing cost
Safety and security	Increased workload
Beneficial to use with telehealth during COVID-19	User issues with change

TABLE 1 Themes identified from semistructured interviews.

4 | CHALLENGES OF E-PRESCRIBING

4.1 | Unsafe and insecure

There was shared uncertainty around patient safety and e-prescribing security. This was linked to potential issues with technology breakdowns promoting increased risk of prescribing and dispensing errors.

The system has some hiccups – sometimes there is no internet. Sometimes the issue of the script from the doctor to the patient, that's where the problem is – because it gives us error. Sometimes it doesn't get it back to the patient which is the server. So we have server error.

Pharmacist D

The GP without direct experience expressed concern around S8 scripts being presented digitally, due to their potential modification by patients with a history of drug-seeking behaviour. This view aligned with those voiced by the other GP.

The only other issue I can really foresee is around S8 prescriptions and whether the e-scripts system could potentially be tampered with in any way.

GP B

4.2 | Ongoing costs

Implementation costs for small businesses was recognised as a potential barrier, with concern expressed around who should bear the burden of long-term additional costs.

...at 15 cents a text, and there's 300 million scripts written a year in Australia, it's a hell of a lot of money that someone has to suck up either in general practice or pharmacies to cover that cost.

Pharmacist A

Furthermore, requiring up to date technology was highlighted to be of importance in allowing access to telehealth and e-prescribing services. However, should an individual reside or work in a rural or regional location without adequate phone network coverage, or their digital device does not have the capacity to engage in these services, then they would have to still travel into town for a face-to-face consult and obtain a hard copy prescription.

There is the possibility if you can't get through to them or if you try and send it and their phone's down if they're travelling, that could have an impact.

GP A

4.3 | Increased workload

A limiting factor described was the increased administrative work. Pharmacists found that they were required to educate patients and staff on how to access and use electronic scripts, which was reported as time consuming.

...you have to actually train everyone actually how to use that software on a regular basis, every time there is a change, to update it and make sure that it actually goes through.

Pharmacist A

4.4 | User issues with change

Participants described how 'change' can sometimes be difficult for consumers, particularly the elderly people, and that this was a challenge reportedly faced during the program's implementation.

...the change is something that they don't like a lot of the time. Especially maybe older patients that aren't as tech savvy...people get quite overwhelmed and upset about it.

Pharmacist C

For the pharmacists who dispense medication, they stated that e-prescribing removes hard copy paper scripts which has been the mainstay of pharmacy records and now requires pharmacies to rethink and remodel their storage processes.

You know, for example, now, when you dispense scripts, you don't have any record of it, except in the computer. Here, we're relying all on hardware. The technicality of it, it's harder than the paper scripts.

Pharmacist D

5 | DISCUSSION

This qualitative study was conducted among GPs and pharmacists to assess the benefits and challenges of the newly implemented e-prescribing system in a regional

Australian community. GPs and pharmacists thought that e-prescribing improved patient adherence, reduced the misuse of prescription drugs and helped in eradicating the issue with losing scripts or the need to store paper scripts. However, experiences regarding its efficiency differed. The GP with experience found their workflow more streamlined, and the convenience for patients was appreciated. In the context of telehealth consults, the flexibility provided by e-prescribing also increased patient autonomy as they can dictate which pharmacy dispenses their medication, rather than it being faxed to a particular location at the discretion of the GP. In contrast, pharmacists encountered a higher workload by needing to provide patients with additional education, indicating the lack of the program's understanding within the community. This has the potential to be improved over time with system improvements given the novel nature of the system. However, it is noted that participants believed that the perceived benefits and challenges could apply to both regional and metropolitan Australia. However, the premise of increased susceptibility to power outages and longer downtime in between restoring energy to regional locations is a concern. Having patients based in regional and rural areas would mean they may not receive appropriate reminders for their prescription repeats to be filled in a timely manner, negating the perceived benefit of 'improved patient adherence'. Therefore, issues pertaining to the ongoing costs with the required technology and its troubleshooting was acknowledged in this study to potentially be more challenging in regional settings.

The present study also highlighted the need for adequate staff training to minimise user error. Both participant groups expressed concerns that future system updates may require important yet time-consuming upskilling sessions. Among pharmacists in the USA, lack of communication around changes was identified as a contributing factor to e-prescribing errors, raising concerns for the software's safety issues.¹¹ Another qualitative study in Norway found an increase in prescription errors with e-prescribing, attributed to inadequate prior GP training.¹² Software and organisational advancements were also suggested as ways of reducing user errors in a review study.¹³ Following the analyses of different e-prescribing systems, 76% of the reviewed studies included had concerns about the failure to properly implement e-prescribing and the risks posed to patient adherence.¹³ Consequently, the expedited roll-out of e-prescribing in Australia may have impacted communication shared around the program's implementation.

Another danger to its utilisation in regional and rural communities are the ongoing costs for general practices and pharmacies. The system is currently funded by the

Australian Government, but participants expressed concerns regarding the fees for sending prescriptions via text messages. This poses a danger within regional and rural communities due to the potential of general practices and pharmacies passing on these costs to patients to cover their business expenses. Patients may perceive this to be an obstacle in accessing health care, potentially deterring them from seeking medical assistance. This would be detrimental as they already experience reduced health resources due to the geographical location, often requiring travel to metropolitan areas for medical specialist appointments. We have already seen a rise in patient out-of-pocket costs for GP services with the cessation of bulk-billing due to the low Medicare rebates for GPs.¹⁴ In comparison, script paper is currently provided free of cost to medical centres by the PBS, which may therefore disincentivise e-prescribing if government funding is ceased.¹⁵ Both GPs interviewed have emphasised a need for traditional paper scripts, highlighting that the elderly population in the area are not as technologically inclined, and prefer to come into the practice for a face-to-face consult and obtain a hard copy script. Thus, demonstrating the importance of accurately communicating a definitive transition to e-prescribing to those in nonmetropolitan communities, or continuing to provide the option of paper scripts to accommodate those resistant to change.

In conclusion, this study provided insight into the benefits and challenges experienced by GPs and pharmacists working in regional NSW. The limited participant number may affect the representativeness of the findings, however, this study provided the first insight and timely information on the perspectives of GPs and pharmacists 12 months after the implementation of e-prescribing. As the system is further established, nationwide studies are needed to consolidate these findings; provide comparisons with the system's progress since conception; determine whether metropolitan and rural health care professionals share similar perspectives; and shed light on where additional government support is required.

AUTHOR CONTRIBUTIONS

Tiffany Tan: Conceptualization; investigation; methodology; writing – review and editing; project administration; formal analysis; validation; writing – original draft. **Sonia Chan:** Conceptualization; validation; formal analysis; writing – review and editing. **Melissa Ind:** Conceptualization; formal analysis; writing – review and editing. **Georgia Pace:** Conceptualization; methodology; investigation; writing – review and editing. **Jannine Bailey:** Conceptualization; methodology; supervision; writing – review and editing; visualization. **Krista Reed:** Conceptualization; writing – review and editing; supervision. **Teagan Dutton:** Supervision;

project administration; writing – review and editing. **Uchechukwu Levi Osuagwu:** Writing – review and editing; project administration; validation. **Kam Cheong Wong:** Conceptualization; methodology; validation; supervision; writing – review and editing; project administration.

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CONFLICT OF INTEREST STATEMENT

None to declare.

ETHICAL APPROVAL

Ethics approval was obtained from the Human Research Ethics Committee of Western Sydney University (H14330, subproject H11327). Written informed consent was obtained from all participants.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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