Improving pharmacist involvement in pandemic influenza planning and response in Australia

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Key messages

- State and Territory Health Departments should update pandemic plans to incorporate pharmacists and define the roles they are expected to fill during pandemic influenza.

- State and Territory Health Departments should incorporate pharmacy organisation representatives as stakeholders to ensure pandemic plans include current pharmacy practice.

- State and Territory Health Departments should liaise with and encourage liaison between frontline pharmacists, professional pharmacy organisations, Primary Health Networks and Local Hospital Networks to ensure effective communication during pandemic response.

- State and Territory pandemic planners should engage with university partners, schools of pharmacy and student organisations to prepare the student workforce for pandemic response.
Executive summary

This Issues Brief makes recommendations about how pharmacists in Australia can be better utilised for pandemic influenza preparedness and response. These recommendations are directed at State and Territory health departments but will require engagement and action from stakeholders such as frontline pharmacists, professional pharmacy organisations, Primary Health Networks and Local Hospital Networks. Appropriate engagement and communication among these key stakeholders will assist with pharmacists’ response to the next pandemic in Australia.

There are several steps to improving pharmacist utilisation during a pandemic. These include clarification of pharmacist roles, communication and engagement with pharmacists, and ensuring workforce capacity. This Issues Brief will firstly discuss how pharmacists are currently incorporated into Australian pandemic plans and what roles are currently within scope for pharmacists to perform during a pandemic. Pandemic plans from the United Kingdom, Canada and New Zealand will be used as examples for how current legislation could be adjusted to improve pharmacist practice during pandemic response. Secondly, communication mechanisms between departments of health and frontline pharmacists in current Australian pandemic plans will be reviewed. The importance of early engagement with key stakeholders, pre-defined communication strategies and workforce engagement with pharmacy organisations and pharmacists will be discussed. Finally, health workforce issues such as high levels of staff absence during a pandemic will be highlighted, with potential solutions from international pandemic plans and academic literature examined in an Australian context.

Pharmacists are an essential part of everyday healthcare in Australia and have the potential to fulfil a variety of roles which may have broad impacts on the Australian healthcare system during a pandemic influenza outbreak. Despite being the third most common health professional in Australia, pharmacists’ skill sets are currently not well utilised or incorporated into pandemic planning. Full utilisation of pharmacists’ skill sets would improve Australia’s health response to a pandemic influenza outbreak, reducing associated burdens to health and the economy.
Background
Influenza or ‘the flu’ is an acute viral illness that affects the respiratory system \(^1\). Pandemic influenza (flu) occurs when a new flu virus emerges for which humans have little or no immunity allowing the virus to spread easily from person to person \(^1,2\). Australia is not immune to pandemic influenza with four pandemics being declared in the last 100 years \(^3\). These include the ‘Spanish flu’ in 1918, which is thought to have killed 50 million people worldwide and more recently ‘Swine flu’ or H1N1 in 2009 \(^3,4\). In Australia there were more than 37,000 reported cases of H1N1 influenza, including almost 200 deaths \(^3\). This pandemic affected a younger age group than seasonal influenza; the median age of those who died as a result of H1N1 was 53 years old, compared with 83 years for seasonal influenza \(^3,5\).

Being prepared, planning and ensuring plans are in line with the latest health workforce activities and recommendations are essential to reduce the impacts associated with an outbreak at a local, State/Territory and national level. The Australian Health Management Plan for Pandemic Influenza (AHMPPI) outlines strategies to manage an influenza pandemic and minimise its impacts on Australian health and Australian health systems \(^6\). The AHMPPI outlines agreed arrangements between the Australian Government and State and Territory governments for managing pandemic influenza and is used to inform operational planning in these jurisdictions. While the AHMPPI helps to inform and guide response and planning, it is the responsibility of each State and Territory government to formulate their own pandemic plans. The primary responsibility for managing a pandemic influenza outbreak lies with State and Territory governments, with each deciding the most appropriate way to plan and respond \(^6\). Departments of Health within State and Territory governments are responsible for health related planning and response \(^6\). It is the responsibility of these departments to liaise with key stakeholders, formulate plans and update them according to best evidence and practice.

Community pharmacists are highly accessible and provide essential health services to the general public. They are therefore uniquely placed to provide frontline healthcare to a large portion of the population \(^7\). Pharmacists’ potential to contribute to pandemic influenza response has been greatly improved by recent practice change enabling pharmacists to vaccinate. Their unique skill sets and position within the community make pharmacist inclusion in pandemic planning and response crucial.

The importance of pharmacist contribution in pandemic planning and response has been highlighted by several reports in Australia. In 2006, a report from the Australian Government Department of Health’s pandemic influenza exercise, Exercise Cumpston, recommended that community pharmacies be better integrated into pandemic plans at the national and State/Territory level \(^8\). These recommendations along with experience gained from the H1N1 pandemic in Australia were incorporated into the most recent revision of the AHMPPI (2014) which reiterates that pharmacists may fill a variety of roles during pandemics to better support health system response \(^5,6\). While not a pandemic event, the ‘Asthma Thunderstorm’ in Victoria in November 2016 placed emergency like conditions on health services in a short period of time. A report from 2017 on the ‘Asthma Thunderstorm’
response included several recommendations that encouraged utilisation of pharmacists in planning, communications and response to emergencies and disasters more broadly.

Pharmacist roles remain unclear in state and territory pandemic plans despite national encouragement to include pharmacists in pandemic planning and response. Additionally, strategies to communicate with and activate the response of pharmacists by Departments of Health are vague in pandemic plans. Pharmacists have significant potential as highly accessible primary healthcare providers to deliver essential health services during pandemics and reduce pressures on general practitioners and hospital systems. A lack of coordination, pre-established communication plans and mutually understood expectations between health systems and pharmacists will result in under-utilisation of this section of the healthcare workforce and negatively impact pandemic health response for Australia.

State and Territory pandemic plans and pharmacist roles
After prevention, effective pandemic influenza planning is the key to reducing health impacts to individuals, communities and broader health systems. Planning for an influenza pandemic is an integral part of being prepared and is essential to ensure an effective response and optimal recovery after the event. In Australia each State and Territory is responsible for preparing and responding to an influenza pandemic. However, no one sector can take complete responsibility for preparedness and planning. Effective pandemic planning and response relies on robust connectivity and alignment of goals between various levels of government, health and non-health sectors, institutions, communities and individuals. Undertaking multi-sector planning involving multiple stakeholders is complex, but is essential for effective pandemic response.

Research is difficult during disasters and emergencies, including pandemics, due to their unexpected nature and the lack of resources and personnel during and after an event. Consequently, evidence-based activities to produce positive system-wide outcomes to pandemic influenza are lacking. Although it lacks evidence in a pandemic context, optimising pre-existing health system capacity and ensuring the health workforce is being utilised to its full potential would assist with response and potentially improve outcomes.

Overview of pharmacists’ current roles in pandemic plans
The presence of pharmacists’ and pharmacy organisation roles across Australian State and Territory plans is summarised (Table 1). With the exception of the Australian Capital Territory (ACT), state and territory pandemic health plans are publicly available on relevant health department websites. There are many roles for pharmacists during a pandemic, this Issues Brief focuses on those which may have the greatest benefit on the broader health system. These include antiviral distribution, vaccination, surveillance activities, absence from work certificates and emergency medication supply.

State and territory pandemic plans contain critical gaps in terms of pharmacists’ representation and roles. Without clear planning and involvement, the pharmacy workforces’ response to Australia’s next pandemic will be ad hoc. Impromptu involvement
of pharmacists will result in compromised response efficacy and underutilisation of an essential health service at a time when an efficient and widespread health response is essential.

Table 1. Identification of key roles of pharmacists and pharmacy organisations in various pandemic plans.

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Antiviral distribution in Australia

During pandemic influenza events there are increased demands for antivirals, vaccines, antibiotics and personal protective equipment (PPE). Antiviral medications, such as oseltamivir, are used to treat and prevent influenza and may play a role in minimising disease spread \(^{21,22}\). In 2002, the Australian Government established the National Medical Stockpile (NMS), a strategic reserve of these essential medications and PPE \(^5\). Each state and territory have their own medical stockpile and the NMS is designed to supplement these existing medical stocks. Once stock is deployed from the NMS it is the responsibility of states and territories to receive, store and employ appropriate measures for distribution to the community \(^6\).

At the time of the H1N1 pandemic, distribution arrangements varied between states and territories some opened ‘flu clinics’ or relied on public health units to distribute items, while
others utilised community pharmacies. The use of community pharmacies for antiviral distribution was not well established for some states and territories, resulting in the ad hoc involvement of pharmacists and development of new systems to support distribution. Utilising pre-existing infrastructure and pre-trained personnel in pharmacies for antiviral distribution is an efficient use of resources and is cost-effective. Distribution of medications and an understanding of supply chains and logistics is part of a community pharmacist’s core business. As an extension of this, antiviral distribution is within scope of practice for pharmacists and is supported by existing infrastructure in community pharmacies.

Antiviral distribution by community pharmacies is now a role supported by most states and the AHMPPI (Table 1). The pandemic plans in five states recommend or consider pharmacists being used to distribute stockpile items. Distribution modelling of antiviral medications in a pandemic event shows that early and widespread distribution to the community can yield reductions in hospitalisations, critical care requirements and reduced mortality.

Pharmacists can contribute to widespread distribution of antiviral medications due to their high level of accessibility to the community and pre-existing skill sets. However, in order to also achieve early distribution of antivirals it is essential that pharmacists are involved in planning of antiviral distribution before a pandemic event so plans that involve pharmacists can be quickly and efficiently enacted. Inclusion of pharmacists in antiviral distribution planning and response will result in rapid and extensive availability of antiviral medications to the public which would provide benefits to the broader health system in the event of a pandemic influenza outbreak.

Antiviral distribution internationally
Internationally, several countries have made moves to improve accessibility of antiviral stock by having pharmacists as distribution points and legislation to support access to the public.

In 2007, New Zealand was the first country to make the antiviral medication oseltamivir non-prescription, with pharmacists able to supply the medication ‘over-the-counter’. Strict protocols and policies were developed and supported pharmacists by assisting them with supply decision making. There were concerns from the medical community that pharmacist supply of antiviral medication would cause issues such as increased antiviral resistance, medication stockpiling and decreased immunisation rates. A five year review of New Zealand’s policy found that pharmacist supply of oseltamivir was not associated with any of these issues. This review also found that most oseltamivir was still dispensed against a prescription (89%) rather than supplied by a pharmacist (11%) during the 2009 pandemic, but noted this could be due to access barriers such as financial cost. For a pharmacist to supply oseltamivir without prescription cost patients at the time between NZ$75-80 for a ten-capsule course, whereas the cost of oseltamivir on prescription was NZ$3. In Australia oseltamivir is not listed on the Pharmaceutical Benefits Scheme (PBS) and a treatment course on prescription costs approximately $40-50. Provision of regular
oseltamivir without a prescription by pharmacists in Australia would be likely to cost this or more, unless mechanisms for funding oseltamivir supply were in place. If stockpiled antiviral medication oseltamivir was distributed to community pharmacies it would be provided free of charge, but pharmacies may still charge dispensing fees for the dispensing of these products.

In Norway during the 2009 H1N1 pandemic, pharmacist supply of funded antivirals resulted in widespread antiviral distribution and is thought to have contributed to the slowing of virus transmission in the weeks around the pandemic peak 27. These actions were a result of policy and legislative changes aimed at encouraging the widespread access to antivirals and easing pressure on other health care services 27,28. At their peak, 80% of all oseltamivir supplies in Norway were provided by pharmacists without a prescription 28. The sale of antivirals by Norwegian pharmacists was reported back to the Norwegian Ministry of Health and this data contributed to influenza surveillance 28. Compared with the 11% of pharmacist supplied oseltamivir in New Zealand, Norway’s distribution of antivirals demonstrates that providing oseltamivir through funded pharmacist supply would be a sensible approach to ensure early and widespread accessibility to the public 21,28. The provision of free antivirals and waiving of dispensing charges for patients is also present in pandemic plans for the United Kingdom and the Canadian provinces of Saskatchewan, Alberta and Ontario 29-31. While the provision of free or heavily subsidised antivirals available from pharmacist without prescription may be costly to the health system in Australia, this must be weighed against the potential multi-million or billion dollar economic effects of a poorly controlled pandemic across multiple sectors 6,32.

The presented international experience and literature demonstrates that effective distribution of antivirals through pharmacists requires legislation, procedures and policies to be in place before a pandemic event. State and territory plans should consider how they may utilise pharmacists to assist with antiviral distribution and enact this in planning. Commonwealth, State and Territory governments should consider putting additional legislation in place before a pandemic to improve the public’s access to essential medications through pharmacists, such as allowing provision of funded antivirals through pharmacists without a prescription. Pharmacists presence in and awareness of pre-existing plans will better prepare them for supplying antiviral medication in the event of a pandemic. Lacking pre-planned legislative changes may compromise access to antivirals and result in pharmacists being unprepared to respond in roles such as supply medications without a prescription. By optimising the health systems capacity to distribute antivirals early in a pandemic, benefits such as reduced hospital admission, decreased critical care requirements and deaths may be seen 23,24.

Pharmacist-administered vaccinations
Pharmacist-led vaccinations without a prescription are a recent addition to pharmacists’ scope of practice in Australia. Between 2014 and 2016 each state and territory in Australia passed legislation allowing pharmacists to vaccinate provided they had undergone appropriate training. While legislation, required training and practice varies between state
and territory jurisdictions, trained pharmacists are able to administer influenza vaccines to people over the age of 18 in all areas. Variability in pharmacist training and practice between states and territories means that some pharmacists in certain areas may be more prepared to respond to a pandemic and adapt to changes in practice, such as vaccinating younger patient cohorts. Pharmacist-led vaccination has been well received by the public due to convenience and ease of accessibility, providing the opportunity for more people to be vaccinated. Reducing the potential impacts of pandemic influenza to health and the economy requires the timely and efficient distribution of the pandemic influenza vaccine as soon as it is available. Reaching population vaccination targets earlier in a pandemic has positive implications for pandemic management including reduction in virus spread and severity of illness, protection to those who cannot receive influenza vaccines (herd immunity), and subsequent reduced pressures on other areas of the health system such as emergency departments or intensive care units. In America, one model of vaccination coverage compared time for vaccination targets to be reached when using traditional vaccinators only (for example general practitioners or nurses) against mixed traditional vaccinators and pharmacist vaccinators. Utilising pharmacists as vaccinators in addition to traditional vaccinators allowed vaccination targets for the population to be reached 7 weeks faster when compared with traditional vaccinators only. Utilising the pharmacy workforce during a pandemic to provide vaccines will improve community access to vaccinations and increase vaccination coverage in Australia.

With the exception of New South Wales, South Australia and Tasmania, state and territory pandemic plans have yet to adopt the use of pharmacists as vaccinators. This is not surprising considering how recently legislation has changed across the states. It should be noted that even within these states, it remains unclear whether current legislation in place to allow pharmacists to administer seasonal influenza vaccines would extend to allowing pharmacists to administer pandemic influenza vaccines. The AHMPPi states that pharmacies could be used as a site for pandemic vaccinations but does not clarify if pharmacists would administer the vaccines. At the time the AHMPPi was published, pharmacists were not able to administer vaccines but had started to set up nurse-led vaccination services in their pharmacies. While it is up to each state and territory to formulate plans, the AHMPPi does play a key role in guiding and informing pandemic plans. Without endorsement of pharmacists’ role as vaccinators at a national level, uptake of this role among state and territory plans has potential to be delayed. In order to demonstrate approval of the role of pharmacists as vaccinators during pandemic influenza, and encourage states and territories to do the same, the AHMPPi must be updated to reflect its support of pharmacists as vaccinators. It is important that all states and territories consider the role of pharmacists as vaccinators in pandemic planning and clarify legislation around their ability to administer pandemic influenza vaccines. These actions will ensure pandemic influenza vaccines are widely available and highly accessible to the public.
With the exception of Victoria, there is no state or territory government funding available for individuals who receive pharmacist-administered influenza vaccinations. In Australia, high risk groups qualify for free influenza vaccinations under the National Immunisation Program (NIP). These high-risk groups include those aged 65 years or over, Aboriginal and Torres Strait Islander individuals aged between 6 months and 5 years or aged 15 years or over, pregnant women and individuals aged 6 months and over with a chronic medical condition. The Victorian Government provides free influenza vaccines to be administered by approved pharmacists in Victoria for those eligible under the NIP. However, Victorian pharmacies may still charge a ‘service fee’ to these individuals. The cost of receiving an influenza vaccine by pharmacists must be paid out-of-pocket by the patient but may be reimbursable by private health insurance. Even high-risk individuals who would qualify for free influenza vaccination with their general practitioner must pay the out-of-pocket cost of pharmacist-administered influenza vaccinations. It has been suggested that despite cost, convenience and accessibility of the pharmacist-administered vaccination is a key factor for people choosing to receive vaccinations at their pharmacy including those who are eligible for free vaccinations with their general practitioners. An evaluation in Western Australia found that between 12-17% of consumers vaccinated in pharmacies were eligible for free influenza vaccinations under the NIP. It is anticipated that the pandemic influenza vaccine will be provided free of charge when available, however it is important that the ‘service fees’ by pharmacists are pre-considered to ensure that vaccines remain highly accessible to the public.

Current legislation restricts pharmacists to administering vaccines within their pharmacy only. Pandemic plans of Queensland, South Australia, Tasmania, Victoria and Western Australia discuss the potential for ‘mass vaccination’ clinics in response to a pandemic influenza outbreak. These clinics aim to deliver vaccines on a large scale to the community in locations such as school gyms or auditoriums and are traditionally staffed by public health workers, nurses and medical practitioners. Pandemic plans for states and territories do not clarify if there is a role for pharmacists as vaccinators in these clinics. While it is within pharmacists’ current scope of practice to provide influenza vaccines, current legislation restricts pharmacists from contributing and participating in mass vaccination clinics during a pandemic outbreak. A review of this legislation should be considered for pharmacists to be involved in mass vaccination clinics.

Pandemics can prompt rapid change in legislation to enable the health workforce to better respond. This is highlighted by the outbreak of H1N1 in the United States which prompted some states to implement emergency laws allowing pharmacists to vaccinate in areas where pharmacist-led vaccination had not previously been legal. In this situation, rapidly changing legislation posed challenges as the pharmacy workforce required rapid training to be prepared to administer H1N1 vaccinations when they became available. Similarly, during a severe seasonal influenza year in New York (2012-2013), emergency legislation aimed at reducing influenza transmission changed the patient age threshold at which pharmacists were able to administer vaccines to patients from 18 years to 6 years. While it was noted that these efforts were effective, due to the emergency nature of these
legislative changes pharmacists reported difficulty in rapidly implementing this new service in their pharmacies. Protocols for vaccine administration to children had to be created, additional stock of vaccines and related items had to be ordered and staffing reviewed to ensure the service could be provided safely. These activities took time and delayed efficient pharmacist-administered vaccinations at a time when rapid response was critical.

While pandemics are unpredictable, consideration of potential legislative changes should be made before-hand so that the workforce and health infrastructure can be adequately prepared.

To fully utilise pharmacist vaccinators during pandemic response in Australia, increased collaboration and planning between pharmacists, public health programs and departments of health is essential before the next pandemic. Not including pharmacists in vaccination planning or utilising them ad hoc in the event of a pandemic compromises how effectively this sector of the health workforce can be deployed, potentially jeopardising an efficient pandemic response. Forward planning and collaboration would allow for expectations and issues with pharmacists as vaccinators to be discussed and addressed, allowing rapid response at the time of the pandemic. Some issues that have been raised by pharmacists with supplying seasonal influenza vaccines include factors such as staffing, pricing for services, stock availability and time constraints. Additionally, differences in practice and training of pharmacist vaccinators between states and territories may mean that some pharmacists are more prepared to respond to a pandemic. Consideration should also be given to the legislation and support that may improve pharmacists’ ability to practise as vaccinators and contribute during a pandemic. Factors that may improve pharmacists’ ability to contribute to vaccination services include allocation of stockpile vaccines to pharmacies, legislation allowing pharmacists to administer pandemic influenza vaccines, clarification on liaison with public health sectors, legislative changes allowing pharmacists to vaccinate at mass vaccination clinics and clarification on reporting of pandemic vaccines administered by pharmacists. It is essential that planning and communication networks are established before the event to ensure responses are rapid, allowing for effective and widespread vaccination of the public and ultimately helping to reduce influenza transmission, severity and impacts to the health system.

‘Absence from work’ certificates
As with seasonal influenza, during a pandemic it is currently recommended that even persons with mild influenza avoid attending work to reduce transmission of the virus. During a pandemic, workforce absenteeism across all sectors is estimated to be as high as 30 – 50% due to personal illness or illness of a dependent. On average the flu can last between 3-7 days and exclusion from work is recommended for this period. Registered pharmacists in Australia can supply absence from work certificates for a maximum of two days provided the condition is deemed to be within their scope of practice. Given that employers can request evidence such as medical or absence from work certificates for any specified period of time, a two day absence from work certificate is inadequate to allow for an individual to recover from influenza.
At present, there is no data available on the number of individuals with mild or moderate influenza who report to emergency departments or general practitioners for the sole purpose of receiving a medical certificate for work. In the 2009 H1N1 pandemic, data demonstrated that in emergency departments presentations of patients with ‘influenza-like-illness’ was up to three times that of previous years. This increase had significant impacts on emergency department workloads, despite most not requiring hospital admission. During this period general practitioners throughout Australia also reported high patient numbers and increased workload pressures. It is probable that a large portion of people visiting emergency departments and general practitioners during H1N1 required medical certificates to provide to their employers confirming their illness.

As a result of overcrowding in emergency departments and the scarcity of appointments with general practitioners, during the H1N1 outbreak in 2009, pharmacists supplied absence from work certificates. While this may have contributed to keeping some individuals away from overcrowded medical centres and emergency departments, pharmacists were limited in their contribution. This was due in part due to the maximum two-day limit for an absence from work certificate supplied by a pharmacist. This was potentially compounded by the fact that the Pharmaceutical Society of Australia and The Pharmacy Guild of Australia discourage promotion of pharmacy supplied ‘absence from work’ certificates due to concerns over misuse of the service. Therefore, a large portion of the Australian population may not have been aware of this service during the H1N1 pandemic and may still be unaware of its availability at local pharmacies.

Tasmania is the only jurisdiction which includes the provision of absence from work certificates by pharmacists as a role in its pandemic plan. States and territories should consider the benefit of this service provision by pharmacists and how it may be adjusted in times of pandemic influenza to be more robust and ease the burden on other health services. Adjustments such as approval to supply absence of work certificates for increased time periods and promotion of this service by pharmacies during a pandemic outbreak should also be considered. This may help to reduce burden on general practitioners and emergency departments, allowing more time and resources to be dedicated to handling more moderately to severely ill patients rather than those with mild influenza or even simple colds.

**Surveillance**

Pharmacists are not currently utilised to contribute to influenza surveillance data, despite their daily documentation and services which produce large volumes of data in their everyday practice. Information such as immunisation records, number of absence from work certificates provided for ‘influenza-like-illness’, antivirals dispensed or even number of influenza related items sold (such as cold and flu tablets or analgesics) could be provided by pharmacies to contribute to influenza surveillance. Influenza surveillance is complex and relies on various data sources to provide accurate and relevant information on spread, virology and prevalence of influenza activity, as well as data on hospitalisations and
mortality \(^5\). This information is then used to guide decision making and response activities by government agencies \(^3\).

A 2011 report by the Department of Health and Ageing for Australia of lessons identified from Australia’s response to H1N1 suggests the use of pharmacist dispensing records of antivirals for surveillance in future pandemics \(^5\). Despite this, only Tasmania mentions the use of pharmacist, under the remit of ‘primary health providers’ for surveillance activities. The Tasmanian pandemic plan does not expand on how this may relate specifically to pharmacists.

During the H1N1 pandemic in 2009 an existing program available in Queensland pharmacies, Project Stop™, normally used for real time tracking of pseudoephedrine sales, was utilised to enabled real time monitoring of oseltamivir distribution and identification of related disease hot spots by Queensland Health (I. Todd, former SA Pharmacy Guild President and National Councillor, 2018, pers. comm. 7 Feb). During the outbreak Queensland Health stockpile distribution of oseltamivir through community pharmacies was organised by the Queensland Branch of the Pharmacy Guild (I. Todd 2018, pers. comm. 7 Feb). This novel use of existing technology, processes and systems highlights the potential of using pharmacists and pharmacy software in pandemic response to assist with tracking of antiviral dispensing and subsequent influenza outbreak hot spots. Implementation of surveillance activities utilising a program similar to Project Stop™ would allow departments of health and other relevant bodies to better target outbreaks and assist in minimising disease spread and severity. For example, in Canada provision of antiviral dispensing records allowed for prescription tracking and identified large volumes of inappropriate prescribing \(^57\). This enabled targeted education for physicians and pharmacists around appropriate antiviral prescribing and subsequently reduced the number of inappropriate antivirals being given to the public \(^57\).

Pharmacists accumulate a wealth of health-related data which could be utilised during a pandemic to guide decision making and identify issues, however they require guidance and support. State and territory governments need to provide clear direction as to what data would be useful and how it should be collected, stored and transmitted to relevant health departments to guide decision making around pandemic response. Guidance on how the My Health Record could be utilised and contribute to pandemic planning and response should also be formulated \(^58\).

**Emergency medication supply**

Predicting the duration of pandemic influenza is difficult. Typically pandemic influenza infection occurs in two or more waves, with each wave being several months apart and lasting between 6 – 8 weeks \(^59\). Due to the prolonged nature of a pandemic influenza outbreak, in addition to considering acute influenza, chronic conditions must be considered in pandemic planning \(^60\). In the wake of disasters and emergencies, a lack of access to routine healthcare such as medications has been identified as one of the leading cause of mortality \(^61\). While preventing mortality from influenza is essential, people with chronic
conditions such as diabetes, asthma, cardiovascular disease and renal disease require ongoing high-level care to ensure their health does not suffer during pandemic response.

Without medications people with chronic diseases may experience complications or worsening of their conditions resulting in visits to general practitioners or hospital admissions that could have been prevented. Supply of chronic disease medications and ensuring appropriate use of medications is an integral part of pharmacists’ everyday role in the community. Due to the prolonged nature of a pandemic, it is likely that a significant number of people with chronic diseases may run out of prescriptions for their regular medications. Without prescriptions, patients will need to visit their general practitioner or a hospital for a new prescription at a time when health services are overcrowded with acutely ill patients where they may risk exposure to the pandemic influenza virus. Alternatively, if patients are unable to access a new prescription they may miss doses of essential medications putting them at risk of disease complications and hospitalisation. This places unnecessary and preventable strain on the health care system at a time when resources and personnel are already strained.

Current legislation allows pharmacists to supply 3 days ‘emergency supply’ of regular medications without a prescription, with the exception of the Northern Territory which permits 7 days. In Australia ‘emergency supply’ legislation allows pharmacists to assist patients with continuing their chronic disease medications and give them time to obtain another prescription from their regular general practitioner. Emergency supply of medication from a pharmacist is not funded and the cost to the patient is determined by the individual pharmacy. No state or territory pandemic plans include pharmacists’ role in ensuring ongoing supply of chronic disease medications through emergency supply. Emergency supply of medications may be absent from pandemic plans due to the 3 day nature of the supply, reducing the likelihood of this role as it currently stands being sufficient during a pandemic which may last several months.

Legislation allowing pharmacists to provide ‘emergency supply’ of regular medications for as long as 30 days has been seen in the aftermath of several disasters and emergencies internationally. This legislation aims to do two things, 1) ensure access to regular medications for patients with chronic diseases and 2) reduce the number of people visiting medical centres and hospitals which are already overcrowded in the aftermath of a disaster or emergency. Within the United Kingdom’s pandemic plan, it is noted that there is legislation in place to allow pharmacists to dispense without prescription 30 days of a person’s regular prescription medications and 5 days of controlled drugs such as strong painkillers. During a pandemic, preventing otherwise healthy people with chronic diseases from visiting general practitioners and hospitals has the added benefit of preventing exposure and spread of the influenza virus.

Current legislation around pharmacist provision of emergency medication supplies in Australia is unlikely to allow pharmacists to contribute to continuity of regular medications for significant periods of time. Both the length of time for which pharmacist can provide an
emergency supply of chronic disease medications and the cost to the patient are barriers to this service being better utilised and accepted. Changes to legislation around length of time and cost of medications during a declared pandemic would allow people with chronic diseases to continue with their current medications without having to wait in crowded waiting rooms or emergency departments where they risk exposure to influenza. Exposure to influenza would place people with chronic diseases at significant risk of catching the virus due to their increased susceptibility and their increased likelihood of developing complications from an infection 35,36.

Communication and workforce engagement
A lack of pre-established communication plans and mutually-understood expectations between health systems and pharmacists would negatively impact pandemic response for Australia. During the 2009 H1N1 outbreak, the Australian Government facilitated communications with general practitioners and primary care providers with forums, roundtables and a webpage dedicated to information for health professionals 5. Despite the numerous forms of communication, information flow was still described as ‘chaotic’ by frontline health professionals 50,65,66. This indicates existing gaps in information dissemination between departments of health and frontline health professionals and the need for improved communication strategies with these groups 50,65,66. Clear and rapid communications and effective response to pandemic influenza requires engagement between multiple stakeholders and pre-established relationships 67. Relationships between relevant stakeholders, such as Departments of Health, Primary Health Networks, professional pharmacy organisations and Local Hospital Districts, must be well established before a pandemic to ensure information flow and workforce engagement are maximised during this time.

There is currently no research on efficacy of communication between Australian pharmacists and Departments of Health during the H1N1 pandemic, however deficiencies in outreach and effectiveness of information dissemination have been demonstrated in Canada and the United States. Following the 2009 H1N1 pandemic in the United States approximately 80% of local health departments (LHDs) indicated they distributed information to general practitioners and pharmacies during the outbreak 68. However only 50% of general practitioners and 16% of pharmacies reported receiving this information 68. Similarly following the 2003 SARS outbreak in Canada, it was found that poor and disorganised communication between LHDs and community pharmacies led to confusion about what action to take and a lack of understanding about the illness 69. The failure of clinically relevant information to reach frontline pharmacists has the potential to negatively impact clinical practice and pandemic response 68.

A failure to include frontline pharmacists in communication plans during pandemic planning in Australia may lead to inconsistent messages and responses across the health sector and negatively impact clinical practice and patient care 48,68. Tasmania, South Australia, Victoria and New South Wales note that communication pathways linking the State / Territory
Department of Health with frontline pharmacists will be facilitated by relevant state branches of pharmacy organisation such as the Pharmaceutical Society of Australia or the Pharmacy Guild of Australia \(^{12,13,15,20}\). Of these only Tasmania and New South Wales pandemic plans contain specific information include how communication with pharmacists will occur and who pharmacists can expect to receive communications from such as Departments of Health, Primary Health Networks, and professional organisations \(^{12,20}\). Formal communication pathways between state and territory Departments of Health and frontline pharmacists remain unclear in three state and territory pandemic plans \(^{14,18,19}\).

**Role of professional organisations**

Despite four state plans encouraging the use of professional organisations in pandemic response, only two pandemic plans mark the role of professional pharmacy organisations as key stakeholders during development and consultation of their pandemic plan \(^{12}\). Whether the remaining states and territories formally engage professional pharmacy organisations in these processes remains unclear. Lacking pre-established stakeholder relationships between Departments of Health and professional pharmacy organisations could result in disjointed information reaching frontline pharmacists, confusion over roles and potential unwillingness to work \(^{68,70}\). If professional pharmacy organisations are to be involved and relied upon in pandemic response, it is important that they are involved in reviewing and contributing to pandemic planning in states and territories. Pre-established relationships and awareness of pandemic plans and expectations by pharmacist organisations would assist effective response and communications with frontline pharmacists during a pandemic \(^{68}\).

While it is essential that pharmacist organisations are used in communications during a pandemic, if pharmacists are unaware of who to expect information from, they may not seek information from these sources. Professional pharmacy organisations have the ability to provide leadership in communication, representation to Departments of Health and assist with developing information specific to pharmacists under pandemic conditions. At present, membership to professional pharmacy organisations is not compulsory and information can be restricted to ‘members only’. During a pandemic professional organisation should actively engage with, and supply information to all pharmacists regardless of their membership with their organisation. While online information would improve accessibility, more targeted communications may prove difficult as professional organisations may not have contact details for all pharmacists.

To ensure expectations and roles are well understood it is essential that collaboration and engagement between stakeholders is considered and enacted before a pandemic. Once information has been formulated by Departments of Health with assistance from professional pharmacy organisations, other avenues for communication of this information could be utilised. These could include, the Pharmacy Board of Australia, to which all pharmacists’ must be registered, Primary Health Networks and/or Local Hospital Networks. Frontline pharmacists should be informed of planned communications in state and territory...
pandemic plans and of who they should contact to receive professionally relevant information and advice during a pandemic.

**Workforce capacity in the pharmacy sector**

During a pandemic the health workforce may become depleted with health professionals being unable to work due to illness and family responsibilities, or unwilling to work due to safety concerns. As demands for services increase with larger numbers of patients presenting to health services for treatment, the number of health professionals and essential resources available may decrease. This demand has potential to overwhelm health systems, compromising healthcare delivery and patient safety. In areas with already reduced staffing, such as regional and rural communities, health services are at greater risk of being overwhelmed in the event of a pandemic. Alternative workforce capacity and means to provide care must be included in pandemic plans to ensure acute and chronic health conditions are not compromised in the event of a pandemic influenza outbreak.

Parallels between the ‘Asthma Thunderstorm’ and an influenza pandemic can be drawn as they are both examples of emergencies with outcomes that put sudden strain on the healthcare system. In the final report from the Asthma Thunderstorm inquiry, the importance of after-hours services that are accessible to the public was highlighted. The ‘Asthma Thunderstorm’ took place ‘after hours’ between 6pm and 6am, during this time the efforts of several community pharmacies that remained open after hours and 24-hour ‘super care’ pharmacies was praised by the Inspector General of Emergency Management. These pharmacies assisted with distributing emergency asthma medication to hundreds of people and prevented them from having to attend overcrowded emergency departments. While changes in opening hours are an appropriate response to an acute incident, staffing may not be sustainable for a long term response such as a pandemic.

Given the prolonged nature of a pandemic, reduction in staffing may reduce the ability of pharmacists to provide outside hours care or to fulfil additional roles required. Pandemic plans from New Zealand discuss the use of part-time health workers, locums, or retired health professionals to bolster staffing during a pandemic. New Zealand pandemic plans also suggest that private pharmacy businesses consider other strategies for ensuring pharmacy workforce capacity including closing down several pharmacies in the same area in order to consolidate workforce and stock into one practice and redistributing staff to rural or regional areas. While these strategies are suggested by pandemic plans, it is the responsibility of pharmacy business owners and managers to consider and enact these recommendations as appropriate. The appropriate way to engage with, recruit and assign roles to part time pharmacists, locums, or retired pharmacists should be considered by key stakeholders such as pharmacy business owners, professional pharmacy organisations, and pandemic planners to ensure local workforce capacity at times of pandemic outbreak.
In Australia, pre-existing relationships between universities and sites where students undertake their university placements could be leveraged to distribute students to various areas and organisations and bolster workforce capacity. Engaging with Australian universities, schools of pharmacy and other relevant stakeholders such as student organisations would be essential to utilise the pharmacy student workforce during pandemic response. Across Australia, there are over 3500 pharmacy students. In the United States, healthcare students have been identified as a potential source of workforce capacity during disasters and emergencies. Pharmacy students across the United States have assisted in response to several disasters and emergencies including the H1N1 pandemic in 2009. While students are not able to work in a full clinical role, there are tasks with which they could assist. For example, pharmacy students in the United States have been engaged with pandemic responses to assist government with determining stock levels of antivirals and personal protective equipment by phone inquiries to pharmacies. They have also been used to provide education, assist people with filling out forms and help with work flow in mass vaccination or antiviral distribution clinics. Factors such as reduced number of commitments compared to full time workers, their strong sense of social responsibility and their enthusiasm for new experiences make students potentially appropriate to assist during a pandemic. Healthcare students may also have reduced study commitments during a pandemic due to university closures designed to stop the spread of the pandemic, increasing their available time to contribute to pandemic response. With appropriate liaison between relevant university partners and Departments of Health, this large number of health professionals in training could be effectively utilised to assist with tasks and relieve pressure on other health professionals in pandemic response.
Recommendations

The following recommendations are directed at pandemic health planners in states and territories.

**Recommendation 1. Defining roles of pharmacists’ in pandemic influenza**

Examination of pharmacists’ roles in current pandemic plans in Australian states and territories shows critical gaps in utilisation of this sector of the healthcare workforce. Pharmacists may fill multiple roles during pandemics, but this Issues Brief focused on five which may have the broadest impacts to the healthcare system including: antiviral distribution, vaccination, surveillance, absence from work certificates and emergency medication supply. Antiviral distribution was the role most assigned to pharmacists in pandemic plans (included in 5 out of 7 plans), followed by vaccination (included in 3 out of 7 plans), then surveillance activities and provision of absence from work certificates (included in one plan each). Ensuring emergency medication supply was not included in any state and territory pandemic plan.

Pharmacists are highly trained and highly accessible to the public and have the potential to provide frontline healthcare to a large proportion of the population in the event of a pandemic. Infrastructure exists in pharmacists’ everyday practice to assist them with these five roles. However, without pre-planning of how pharmacists may be involved and utilised, pharmacists’ response will be ad hoc compromising the efficiency of their response. Not optimising the contribution of this section of the healthcare workforce would negatively impact the response to pandemic influenza and have implications for the broader health system and economy.

It is therefore recommended that state and territory Departments of Health review their pandemic plans to incorporate pharmacists and clearly define the roles that they expect pharmacists to fill during a pandemic influenza outbreak. By clarifying roles and expectations at a state and territory department level, individual pharmacists and professional pharmacy organisations can thoroughly plan for a pandemic, ensuring rapid, coordinated and cohesive response of the pharmacy workforce when a pandemic strikes.

**Recommendation 2. Consider legislation and policy that supports pharmacy practice during pandemic influenza**

Legislation exists internationally to support pharmacists’ roles in pandemic response and ensure that the public has access to affordable and flexible healthcare during a pandemic. Some legislative changes made by various countries during the H1N1 pandemic include the abolition of patient co-payments for antiviral medications and vaccinations, making antiviral medications available without a prescription from community pharmacies, changes to the type of patient pharmacists were able to vaccinate and allowing pharmacists to supply up to 30 days of a patients regular medications without a prescription. This Issues Brief also notes that an adjustment in the number of days for which pharmacists can supply absence from work certificates would allow for this role to have a greater impact on the health system.
While pandemics are unpredictable, it is important that factors which may hinder medication and healthcare access during a pandemic be considered in an Australian context before a pandemic event and appropriate legislation and policy put in place to minimise barriers. Leaving legislative and policy changes until a pandemic has already begun will delay tasks being started, cause issues with workforce upscaling and potentially undo careful pandemic preplanning, impacting the health system response.

It is recommended that state and territory Departments of Health in conjunction with the Australian Government Department of Health consider how legislation and policy could be modified to engage pharmacy practice during pandemic influenza and to more fully utilise this section of the healthcare workforce.

**Recommendation 3. Communication between departments of health and professional pharmacy organisations**

Communication with frontline health professionals is highlighted in state and territory pandemic plans as essential for pandemic planning and response. Four state pandemic plans note the use of professional pharmacy organisations in supplying information to frontline pharmacists in the event of a pandemic in Australia. Clear communication strategies between Departments of Health, professional pharmacy organisations and frontline pharmacists are essential to ensure rapid communications and actions in a pandemic event. Pandemic planning should also include mechanisms by which frontline pharmacists can provide feedback about pandemic response allowing for adjustment of response techniques and identification of potential issues and solutions.

It is recommended that state and territory plans include clarification on communication pathways that will be used between broad health services and frontline pharmacists during a pandemic. These communication pathways should allow for feedback from frontline pharmacists so that responses may be appropriately adjusted.

**Recommendation 4. Professional pharmacy organisations as stakeholders**

Only two state pandemic plans acknowledge professional pharmacy organisations as stakeholders in feedback and development of their pandemic plan. This is despite four state pandemic plans noting the use of pharmacy organisations as information conduits in a pandemic. It is important that professional pharmacy organisations contribute to the development and review of pandemic plans to ensure that pharmacists are incorporated into pandemic plans in realistic and viable roles. Engagement with professional pharmacy organisations in the planning stage of a pandemic will make engagement in their response more effective and well understood. Additionally, by utilising professional pharmacy organisations as stakeholders, they may promote to frontline pharmacists their expected roles in relevant state and territory pandemic plans and give advice on preplanning.

It is recommended that state and territory Departments of Health incorporate professional pharmacy organisation representatives as stakeholders in pandemic planning
to ensure they contain current pharmacy practice and to better prepare the pharmacy workforce for an outbreak.

**Recommendation 5. Liaison between broader health networks**

While liaison and communication between Departments of Health, pharmacy organisations and frontline pharmacists is essential, collaboration and engagement with a variety of stakeholders should be considered and enacted before a pandemic. Additional areas that may assist with identifying health needs and assisting with coordinating pharmacists’ health response to a pandemic include Public Health Units, Primary Health Networks and Local Hospital Networks.

It is recommended that state and territory Departments of Health liaise with and encourage liaison between frontline pharmacists, professional pharmacy organisations, Public Health Units, Primary Health Networks and Local Hospital Networks to ensure effective communication and response during a pandemic.

**Recommendation 6. Engagement with student workforce**

During a pandemic the healthcare workforce will be reduced due to illness causing difficulty in mounting an appropriate health workforce response to control pandemic influenza. In order to bolster the health workforce international pandemic plans note the potential use of locum, part-time and retired pharmacists. Another strategy highlighted in experiences from several disasters and emergencies in the United States is the use of pharmacy students in pandemic response. While students are unable to fill full clinical roles they may assist with roles such as calling pharmacies to determine stock levels, calling patients for follow up, assisting patients with forms and supporting workflow in mass vaccination or dispensing clinics.

Pre-existing relationships between universities and clinical placement sites could be utilised to distribute students across various areas and organisations. It is therefore recommended that state and territory pandemic planners engage with university partners, schools of pharmacy and student organisations to prepare the student workforce for pandemic response.

**Conclusion**

Pharmacists are underutilised in current pandemic planning and response as outlined in state and territory pandemic plans. While there is no certainty of where or when the next pandemic influenza outbreak will occur, it is considered inevitable that Australia will face another influenza pandemic 6. It is essential that planning efficiently utilises resources and personnel to their full potential in order to improve pandemic response and outcomes 6. Pharmacists are the third most common health professional in Australia, they are highly accessible, highly trained and supported by existing infrastructure to perform key roles in pandemic response. Utilisation of this sector of the health workforce with its pre-existing infrastructure and training is cost-effective and efficient 79. By leaving out this essential
health workforce, pandemic response and health systems may be compromised in the event of a pandemic in Australia.

Pharmacists play an essential role in the everyday healthcare team and have the potential to fill roles including antiviral distribution, vaccine administration, surveillance, provision of absence from work certificates and emergency medication supply within current Australian, State and Territory legislation. With some adjustment to legislation and policy, pharmacists would have a more profound impact on the health system during pandemic influenza and improving patient and community outcomes.

Communication with pharmacists is essential to ensure they receive up to date information and clinical advice to inform practice and ensure they provide members of the public with accurate and timely advice. Engagement with professional pharmacy organisations, Primary Health Networks and Local Hospital Networks is encouraged to ensure pharmacists are well connected in times of pandemic influenza response.

Ensuring workforce capacity is an essential consideration during a pandemic when a large proportion of healthcare professionals may be unable or unwilling to work. Utilisation of retired pharmacists, part time pharmacists, locum pharmacists and pharmacy students should be considered to assist with bolstering the workforce for a pandemic. Engagement with relevant stakeholders and key organisations is essential well before a pandemic to ensure that communications, recruiting strategies and expectations are in place so that pandemic response runs smoothly.

Ultimately, by including pharmacists in pandemic response, exploring how they could be better utilised and ensuring communication pathways are predefined, the pharmacy sector could be better prepared to contribute to the response to pandemics and other public health emergencies that may affect Australia. Engagement and ongoing cooperation of various stakeholders at multiple levels is needed well before a pandemic to ensure that pharmacists are included and their practice supported during pandemic response. The inclusion of pharmacists in pandemic planning and response would assist with taking pressure off other areas of the health system including emergency departments and general practitioners.
References


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