



Review of pharmacist vaccination reporting to the Australian Immunisation Register

Final report – Parts A and B
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- Pharmacy 777
- GuildLink
- MedAdvisor
- Fred Dispense
- Minfos Dispense

Abbreviations and glossary

AHPPC	Australian Health Protection Principle Committee
ACIR	Australian Childhood Immunisation Register
ACT	Australian Capital Territory
The Board	Pharmacy Board of Australia
CPA	Community Pharmacy Agreement
CPR	Cardiopulmonary resuscitation
COAG	Council of Australian Governments
The Council	Australian Pharmacy Council
dTpa	diphtheria-tetanus-pertussis vaccine
Health	Australian Government Department of Health
GP	General Practitioner
The Guild	The Pharmacy Guild of Australia
HESA	Health Education Services Australia
The Framework	The National Immunisation Education Framework for Health Professionals
MMR	Measles-mumps-rubella vaccine
NCIRS	National Centre for Immunisation Research and Surveillance
NIP	National Immunisation Program
NSW	New South Wales

NT	Northern Territory
PSA	Pharmaceutical Society of Australia
QLD	Queensland
SA	South Australia
TAS	Tasmania
VIC	Victoria
WA	Western Australia

Executive summary

Background

In recent years pharmacists have had an expanding role in vaccination in Australia, with scope of practice varying by jurisdiction. An important component of vaccine administration by any provider is reporting vaccinations to the Australian Immunisation Register (AIR). There has been limited exploration of pharmacist vaccination in Australia, particularly how pharmacists record and report vaccinations to AIR.

This report covers the first two parts of a planned three-part study looking into pharmacist-administered vaccination encounters and reporting of these pharmacist vaccinations to AIR. The term 'pharmacist vaccination' is used throughout to refer to vaccinations administered by pharmacists and/or reported to AIR under a pharmacy immunisation provider number, although some vaccinations reported to AIR in this way may have been administered by other health professionals, as outlined under Limitations.

The aims of this study were to analyse pharmacist vaccination data in AIR, describe the landscape of pharmacist vaccination and outline processes for recording and reporting pharmacist vaccinations to AIR.

Methods

Part A

We undertook a descriptive analysis of pharmacist vaccination data in AIR from 1 January 2016 to 31 December 2019. We analysed provider type to describe the proportion of vaccines administered by pharmacists over time. We also analysed vaccine recipients by provider type, sex, Indigenous status, jurisdiction and age group. We described vaccination encounters by a pharmacy's remoteness category, the vaccine type administered and method of reporting to AIR.

Part B

We invited stakeholders who play a key role in the pharmacy sector, pharmacist vaccination and reporting to take part in telephone interviews or to provide responses to a questionnaire via email. These stakeholders included representatives of peak bodies, software companies, banner groups (pharmacy chains) and government bodies. Data gathered via interviews were supplemented by information collected through literature review to inform a description of:

- the basic workflows and processes followed by community pharmacies in recording and reporting vaccinations to AIR
- the landscape of the pharmacy industry in respect of vaccination, including training and accreditation for pharmacist vaccinators, and the relationships among key pharmacy industry stakeholders.

Key findings

Part A

Analysis of AIR pharmacist vaccination data between 2016 and 2019 revealed the following:

- **Number of vaccination encounters:** There were 576,780 pharmacist vaccinations recorded in AIR for this 4-year period, with the majority (449,719; 78.0%) given in 2019. Pharmacist vaccinations accounted for 1.2% of the total encounters recorded in AIR from all providers over the 4 years and for 2.7% in 2019.
- **Sex:** Females were more frequently reported to receive pharmacist vaccinations than did males (320,461; 55.6%).
- **Aboriginal and Torres Strait Islander populations:** the proportion of people receiving a pharmacist vaccination was 5.5 per 1,000 in Aboriginal and Torres Strait Islander people and 22.1 per 1,000 in non-Indigenous Australians.
- **Patterns in reporting over time:** The number of reported pharmacist vaccinations increased every year from 2016 to 2019 (October to December 2016 = 25; 2017 = 14,464; 2018 = 112,572; 2019 = 449,719). Among jurisdictions, New South Wales (NSW) had the highest proportional increase in reported pharmacist vaccinations between 2018 and 2019 (40-fold, 3,089 to 122,596).
- **Jurisdictions:** Overall, the highest number of pharmacist vaccinations was reported in Victoria (VIC; 147,757) and the highest rate in Western Australia (WA; 5,182 per 100,000 population).
- **Age group:** The highest number of pharmacist vaccinations was in those aged 50–59 years (140,134; 24.3%) and the highest age-specific rate was in those aged 60–64 years (5,515 per 100,000).
- **Remoteness of area of residence:** A majority of reported pharmacist vaccination encounters occurred in major cities (357,769; 62.2%), while the highest rate was seen in regional areas (3,077 per 100,000).
- **Type of vaccine:** Most pharmacist vaccinations were administered for influenza (545,928; 94.7%). Other vaccines administered included diphtheria-tetanus-pertussis (dTpa; 26,299, 4.6%), meningococcal ACWY (3,248, 0.6%) and measles-mumps-rubella (MMR; 818, 0.1%).
- **Vaccination outside pharmacists' scope of practice:** Some reported pharmacist vaccinations involved a vaccine (n=487) and/or administration to an age group (n=519) that are not permitted in any jurisdiction.
- **Method of reporting to AIR:** The most common method of reporting of pharmacist vaccinations to AIR was through the AIR secure website (343,453; 59.5%) followed by automated software reporting (232,576; 40.3%) and manual non-standard forms such as posted paper forms (751; 0.1%).

Part B

Types of pharmacies in Australia

The pharmacy industry in Australia comprises community, hospital and online sectors. Community pharmacy involves retail stores that are part of banner groups (large chains), buying groups (independent pharmacies with combined purchasing power), friendly societies or are independently owned.

Jurisdictional requirements for pharmacist vaccination

Over the last decade, there has been extensive advocacy and policy change to expand pharmacists' scope of practice to include vaccination. Since 2014, all jurisdictions have introduced legislation to allow adequately trained pharmacists to vaccinate. There is a wide variety of differences in legislation and requirements for pharmacist vaccination in each jurisdiction. As at 11 March 2020, pharmacists in every jurisdiction are able to administer influenza and dTpa vaccines to people aged >16 years. As at March 2020, some jurisdictions (VIC, WA, Tasmania [TAS], Queensland [QLD] and NSW) allow children aged ≥10 years to be vaccinated for influenza at a pharmacy. All jurisdictions, except the Australian Capital Territory (ACT), allow pharmacists to administer MMR vaccine to those aged ≥16 years. In addition, trained pharmacists in QLD can now administer dTpa-poliomyelitis, *Haemophilus influenzae* type b, hepatitis A, meningococcal ACWY and monovalent poliomyelitis vaccines to people aged ≥16 years.

There are various other requirements for pharmacist vaccination and requirements differ by jurisdiction. These include regulations around AIR reporting and information sharing with primary healthcare providers; requirements to make vaccinated patients aware of their eligibility for publicly funded vaccinations; and requirements for registration of vaccinating pharmacists and pharmacies.

Immunisation training programs

Pharmacists must complete an immunisation training program recognised in their jurisdiction before they can administer vaccines. Development and approval of pharmacist immunisation training programs differ by jurisdiction. Training is predominantly offered by the Pharmacy Guild of Australia (the Guild) and the Pharmaceutical Society of Australia (PSA) and involves online learning modules and face-to-face training on vaccine administration techniques. How to report to AIR is included in both the PSA and the Guild curricula.

Recording and reporting vaccinations to AIR

Pharmacies use professional services software or paper-based systems to store vaccination records. Pharmacies report to AIR directly via the AIR website or via paper-based forms or automatically through the professional services software. GuildCare NG and MedAdvisor, the two largest professional services software providers, established integration with AIR in August 2018 and March 2019, respectively, facilitating automated reporting. Approximately 2,000 and 3,000 pharmacies in Australia are currently using a GuildCare NG or MedAdvisor platform, respectively, although these subscriptions may or may not include vaccination recording tools.

Pharmacies offering vaccinations and number of vaccines being administered

As at June 2019, there were 5,762 community pharmacies in Australia. The number of pharmacies providing vaccinations is known in some jurisdictions where registries are kept by health authorities (the ACT, VIC, South Australia, TAS and the Northern Territory). In these jurisdictions, just under half of pharmacies are known to be offering vaccination services (n=975/2099; 46.5%), and of those, half actively reported to AIR between 1 July 2018 and 30 June 2019 (n=525/975; 53.8%). Approximately 500,000 vaccines were reported (through interview) to have been administered in 2019 by three banner groups operating across all jurisdictions.

Limitations

While the majority of pharmacy industry stakeholder groups were represented among the stakeholders interviewed, some did not respond to invitations to participate, including the Medical Software Industry Association and the large banner groups of Sigma Healthcare. Findings of AIR data analysis should be interpreted with caution. It is not possible to accurately assess the completeness of pharmacist vaccination data in AIR either overall or at a practice or geographical level, as no private market vaccine distribution data are available. Data presented on vaccines outside pharmacists' scope of practice were analysed only for the vaccines and age groups not permitted in any jurisdiction. It was also not possible for us to determine what proportion of vaccinations reported to AIR under a pharmacy provider number were: administered by non-pharmacist providers (e.g. nurse practitioners or nurse immunisers); administered by pharmacists in a hospital setting; or dispensed by a pharmacy in a hospital setting but not administered by a pharmacist.

Conclusions

The number of reported pharmacist vaccinations is increasing, representing 2.7% of all vaccinations in AIR in 2019. However, data from AIR and stakeholder interviews suggest substantial underreporting of pharmacist vaccinations to AIR. Of the pharmacies that are registered with jurisdictions as offering vaccination services, the data from 1 July 2018 to 30 June 2019 indicate that only half are supplying valid vaccination data to AIR. From stakeholder interviews, more vaccines were reported to have been administered in 2019 by three banner groups combined than were recorded in AIR for all pharmacy providers in that year. In addition, pharmacy peak bodies have reported that over 1 million influenza vaccinations were administered in pharmacies in 2018 and over 2 million in 2019 – 10 and 4 times more than those reported to AIR, respectively.

Part C of this study, which will involve an online survey of community pharmacies and cross checking of the number of vaccinations reported as given against the number recorded in AIR, aims to more accurately estimate the completeness of pharmacist vaccination reporting to AIR. Part C will also explore what factors contribute to engagement with AIR reporting; the processes being used by pharmacists to record and report vaccinations; and pharmacists' understanding of and compliance with their scope of practice and vaccination guidelines as detailed in the Australian Immunisation Handbook.

Recommendations

A series of recommendations to improve pharmacist vaccination data in AIR are provided below, on the basis of Parts A and B of the study. Further recommendations will be provided following completion of Part C of the study.

1. Explore ways to improve pharmacist education and training to increase reporting to AIR

Ways to develop and enhance education and training materials for pharmacists should be explored to support providers to accurately record and report all immunisation encounters to AIR. The Australian Government Department of Health (Health) could collaborate with Services Australia, state and territory health departments and pharmacy stakeholders to facilitate this.

2. Encourage legislation to mandate reporting to AIR across all jurisdictions

Legislation mandating reporting of pharmacist vaccinations to AIR should be encouraged across all jurisdictions. Health, in collaboration with state and territory health departments, could explore ways to facilitate this, including through the Australian Health Protection Principal Committee working group tasked with recommending options for a nationally consistent approach to pharmacist vaccination.

3. Increase and improve electronic reporting to AIR

Opportunities should be explored to expand the quantum of pharmacy professional services software with functionality to report directly to AIR and improve the quality of automated electronic reporting. Audits and compliance checks on pharmacies could be undertaken to identify the completeness and accuracy of reporting to AIR. Health, in collaboration with Services Australia, Medical Software Industry Association, pharmacy peak bodies and pharmacy software companies, could explore ways to facilitate these initiatives.

4. Enhance ability to distinguish between community-based and hospital-based pharmacy reporting

Ways to distinguish between community-based and hospital-based pharmacy reporting to AIR should be explored to allow for more accurate analysis, including identification of vaccines given out of scope. Further research to delineate processes surrounding vaccinations reported by hospital-based pharmacies to AIR could be undertaken. Health, in collaboration with Services Australia, could explore ways to distinguish between these pharmacy provider types.

5. Source data on number of vaccines supplied to pharmacies

Capacity to source data on the numbers of vaccines distributed to pharmacies should be explored to facilitate assessment of completeness of pharmacist vaccination data in AIR. Health could liaise with pharmaceutical companies and medical supply companies to explore whether/how data on the number of private vaccines supplied to pharmacies in Australia can be sourced.

Introduction

The Australian Immunisation Register (AIR) is a national register that records vaccines given to people of all ages in Australia.¹ In addition to recording vaccinations, AIR is also used to identify parts of the country at risk during disease outbreaks; monitor the effectiveness of vaccines and vaccination programs; inform immunisation policy and research; determine eligibility for Family Tax Benefit and Child Care Subsidy payments; document proof of vaccination for entry to child care and school, and for employment purposes; and to monitor vaccination coverage across Australia.^{2,3}

An increasing number of vaccines are being delivered in Australia by pharmacists. As shown in the National Centre for Immunisation Research and Surveillance (NCIRS) *Vaccines from community pharmacy – at a glance* information sheet ([Appendix 4](#)), state and territory legislations allow for multiple vaccine types to be administered by pharmacists to a range of age groups.⁴ Peak bodies, including the Pharmacy Guild of Australia (the Guild) and the Pharmaceutical Society of Australia (PSA), continue to advocate for expansion of pharmacists' scope of practice in administering vaccines to include additional vaccine types, age groups and greater access to National Immunisation Program (NIP) vaccines.^{5,6}

Pharmacists have an important emerging role in contributing to vaccination coverage in Australia. Evaluations of pharmacist vaccination programs and pilots have taken place in Tasmania (TAS), the Northern Territory (NT), Victoria (VIC), Western Australia (WA) and Queensland (QLD). These have shown that between 94% and 100% of recipients of vaccinations from pharmacists have been satisfied with the experience.⁷⁻¹² These reports have also documented that between 14% and 33% of those being vaccinated were receiving an influenza vaccination for the first time or that they would not have been vaccinated if the service was not available in a pharmacy.⁸⁻¹² As such, pharmacists are increasing access to, and uptake of, vaccination services in Australia and may have a particularly important role in regional areas.¹³

There are, however, limited published data on the actual number of vaccinations provided in pharmacies in Australia. Pharmacy peak bodies have reported that pharmacists administered over 1 million influenza vaccinations in 2018 and over 2 million in 2019.^{14,15}

To date, there have been no published studies investigating how pharmacist vaccinations are recorded and reported to AIR and the completeness of pharmacist vaccination data in AIR. This study has been conducted under the funding agreement between NCIRS and the Australian Government Department of Health (Health), and builds on previous studies undertaken by NCIRS to review the transfer of data into AIR.¹⁶ This report incorporates the first two parts of a three-part study.

This study focuses on pharmacist-administered vaccination encounters in the community pharmacy setting. The term 'pharmacist vaccination' will be used throughout to refer to vaccinations administered by pharmacists and those reported to AIR under a pharmacy immunisation provider number. We note that other types of immunisation providers (e.g. nurse practitioners) engaged to conduct vaccination clinics in pharmacies may sometimes report under a pharmacy provider number to AIR; while we assume this is relatively uncommon and declining as

pharmacists are increasingly trained as immunisation providers, we will explore this further in Part C of the study.

It was also not possible for us to determine what proportion of vaccinations reported to AIR under a pharmacy provider number were: administered by non-pharmacist providers (e.g. nurse practitioners or nurse immunisers); administered by pharmacists in a hospital setting; or dispensed by a pharmacy in a hospital setting but not administered by a pharmacist.

Aims

The aims of Parts A and B of this study were to:

- analyse pharmacist vaccination data in AIR
- describe the landscape of the pharmacy industry, including training and accreditation for pharmacist immunisation providers and the relationships among key pharmacy industry stakeholders
- outline basic workflows and processes of pharmacies to record and report vaccinations to AIR.

Methods

Part A

We undertook a descriptive analysis of pharmacist vaccination encounter data that are recorded in AIR. Data were extracted as at 31 December 2019, and SAS software (version 9) was used for analysis.

All vaccination encounters recorded on AIR between 1 January 2016 and 31 December 2019 were extracted and analysed by provider type. Provider types were described by:

- Aboriginal Health Service/Worker
- Community Health Service/Nurse
- Council
- General Practice
- Public and Private Hospital
- State Health/PHU
- Pharmacy
- Other

All vaccination encounters reported to AIR under a pharmacy immunisation provider number from 1 January 2016 to 31 December 2019 were extracted and analysed by:

- Sex
- Aboriginal and Torres Strait Islander status

- Jurisdiction
- Age group
- Remoteness category
- Vaccine type
- Method of reporting to AIR

If Aboriginal and Torres Strait Islander status was missing, individuals were categorised as non-Indigenous. Jurisdictional analysis was undertaken on the basis of the provider's postcode to reflect the regulations in the place the vaccine was administered. Remoteness categories were formulated using the Accessibility/Remoteness Index of Australia (ARIA++). ARIA++ categories were grouped into remote areas (including remote and very remote categories), regional areas (including inner and outer regional categories) and major cities. Age groups were selected to reflect relevant regulatory age points for pharmacist vaccination and NIP eligibility (e.g. categories allow for analysis of those aged 65 years and older to assess the group eligible for NIP influenza vaccines). Vaccine types were grouped into the following categories: influenza; measles-mumps-rubella (MMR); diphtheria-tetanus-pertussis with or without inactivated polio (dTpa and dTpa-IPV); meningococcal ACWY; and other (any vaccines that do not fall into the aforementioned categories). Population denominators for national, jurisdictional and remoteness category rate calculation were based on AIR population counts.

Part B

We invited stakeholders who play a key role in the pharmacy sector, in pharmacist vaccination or in vaccination reporting to take part in semi-structured telephone interviews or to provide responses to a questionnaire via email (refer to [Table 1](#)). Refer to [Appendix 1](#) for interview questions. Summary AIR data provided by Services Australia and published by the Australian Government were used to determine the number of pharmacies reporting to AIR between 1 July 2018 and 30 June 2019.¹⁷ In addition, all jurisdictions except NSW, QLD and WA were able to supply data detailing the number of pharmacies approved to provide vaccination services in their relevant state or territory. These data, along with the information gathered through interviews, questionnaires and literature review, were used to inform a description of:

- how pharmacies record and report pharmacist vaccination encounters to AIR
- the landscape of the pharmacy industry, including training and accreditation for vaccination providers and the relationships between key pharmacy industry stakeholders.

Table 1. Stakeholders invited to participate in interviews

Group	Stakeholder
Peak bodies	Pharmacy Council of Australia
	Pharmaceutical Society of Australia
	Pharmacy Guild of Australia
	Medical Software Industry Association
Government	Services Australia*
	Jurisdictional Immunisation Committee (JIC) representatives [†]
Banner groups [‡]	API pharmacies (Priceline/Soul Pattinson)
	Chemist Warehouse
	Pharmacy 777/Friendlies
	TerryWhite Chemmart
	Sigma pharmacies (Amcal)
Software companies [§]	GuildLink (GuildCare NG)
	MedAdvisor
	Minfos Dispense
	Lots Dispense

*At the time Services Australia was the Australian Government Department of Human Services

[†] All stakeholders were interviewed via telephone, except JIC who filled in a questionnaire via email and were followed up by phone as necessary

[‡] Banner groups = large pharmacy chains

[§] Software companies = software used in pharmacy managing stock, dispensing pharmaceuticals and record keeping

Ethical consideration

Ethical approval for this study was sought and granted by the Sydney Children's Hospital Network's Human Research Ethics Committee, protocol 2019/ETH13380.

Results

Part A

Between 2016 and 2019, 576,780 pharmacist vaccinations were recorded in AIR, with the majority (449,719) being recorded in 2019. The first report of a pharmacist vaccination to AIR was in October 2016, after the Australian Childhood Immunisation Register (ACIR) expanded on 30 September 2016 to capture adult vaccinations. No retrospective reports of pharmacist vaccinations prior to this date were recorded in AIR at the time of analysis. The number of reported vaccinations increased every year from 2016 to 2019 (October to December 2016 = 25; 2017 = 14,464; 2018 = 112,572; 2019 = 449,719).

Provider type

Between 2016 and 2019, pharmacist vaccinations made up 1.2% (576,780/48,760,123) of all vaccination encounters on AIR (refer to [Table 2](#)). This increased each year, with pharmacists administering 0.1% of reported vaccinations in 2017 to 2.7% in 2019.

Table 2. Number and proportion of vaccines administered each year by immunisation provider type, 2016 to 2019

Immunisation provider type	2016	2017	2018	2019	Total 2016 to 2019
Aboriginal Health Service/Worker	47,221 (0.6%)	78,756 (0.7%)	84,769 (0.6%)	93,183 (0.6%)	303,929 (0.6%)
Community Health Service/Nurse	701,265 (9.5%)	823,359 (7.4%)	851,208 (6.2%)	836,069 (5.1%)	3,211,901 (6.6%)
Council	973,324 (13.1%)	1,070,593 (9.6%)	825,454 (6.0%)	908,381 (5.5%)	3,777,752 (7.7%)
General Practice	4,994,916 (67.3%)	8,558,196 (76.6%)	11,265,302 (81.7%)	13,265,059 (81.0%)	38,083,473 (78.1%)
Pharmacy	25 (0.0%)	14,464 (0.1%)	112,572 (0.8%)	449,719 (2.7%)	576,780 (1.2%)
Public and Private Hospitals	139,644 (1.9%)	154,465 (1.4%)	183,852 (1.3%)	189,506 (1.2%)	667,467 (1.4%)
State Health/PHU	562,969 (7.6%)	464,024 (4.2%)	463,584 (3.4%)	635,328 (3.9%)	2,125,905 (4.4%)
Other	1,132 (0.0%)	2,459 (0.0%)	3,974 (0.0%)	7,123 (0.0%)	12,916 (0.0%)
Total	7,420,496	11,166,316	13,790,715	16,384,368	48,760,123

PHU = Public Health Unit

Source: Australian Immunisation Register, data as at 31 December 2019

Sex

Just over half of those recorded as receiving pharmacist vaccinations between 2016 and 2019 were females (320,461; 55.6%).

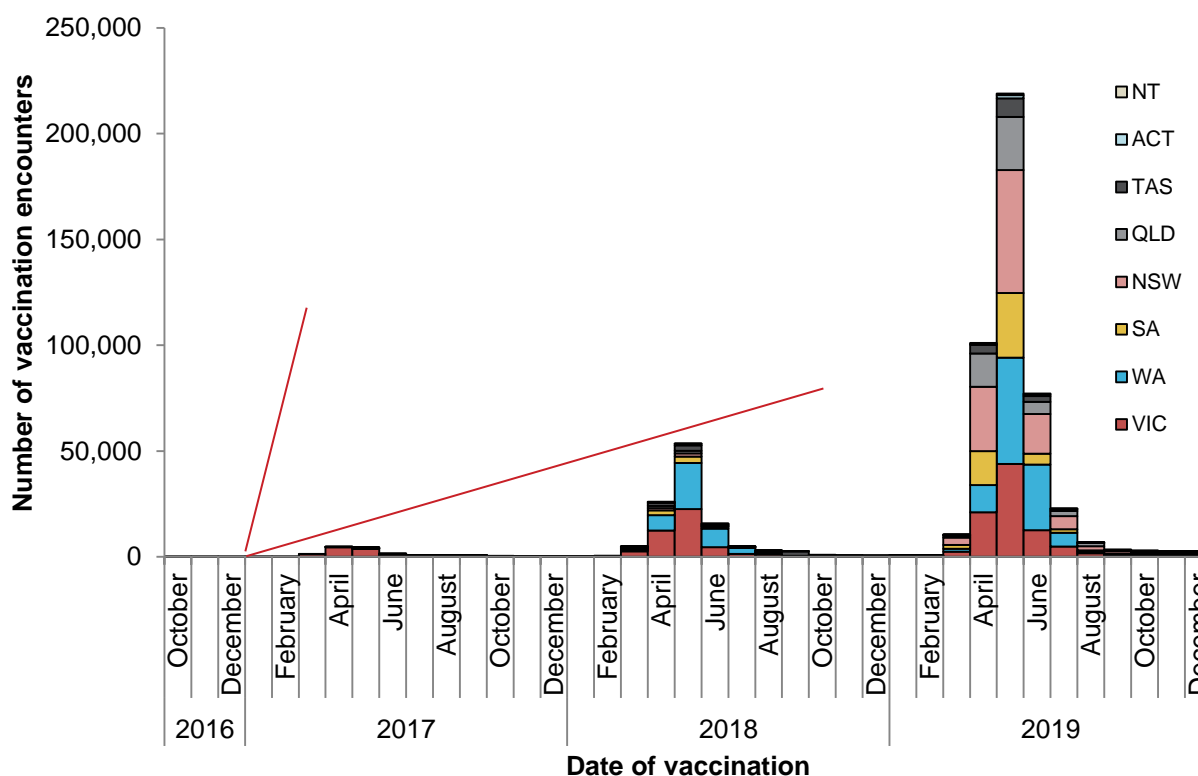
Indigenous status

Between 2016 and 2019, 0.7% (3,964/576,780) of pharmacist vaccinations were recorded as in Aboriginal and Torres Strait Islander people. The highest proportion of these records was in TAS (457/25,880; 1.8%), followed by the NT (31/2,177; 1.4%) and VIC (1,640/147,757; 1.1%). Between 2016 and 2019, the proportion of people recorded as receiving a pharmacist vaccination was 5.5 per 1,000 in Aboriginal and Torres Strait Islander people and 22.1 per 1,000 in non-Indigenous Australians.

Jurisdiction

The highest number of pharmacist vaccinations recorded in AIR between 2016 and 2019 was in VIC (147,757; 25.6%), followed by WA (146,734; 25.4%) and New South Wales (NSW: 126,048; 21.9%). The number of reported vaccinations in each jurisdiction increased every year (refer to [Figure 1](#)). The highest rate of pharmacist vaccinations during this period was in WA (5,182 per 100,000), followed by TAS (4,610 per 100,000) and South Australia (SA; 3,607 per 100,000).

Figure 1: Pharmacist vaccinations by jurisdiction, October 2016 to December 2019



ACT = Australian Capital Territory; NSW = New South Wales; NT = Northern Territory; QLD = Queensland; SA = South Australia; TAS = Tasmania; VIC = Victoria; WA = Western Australia

Source: Australian Immunisation Register, data as at 31 December 2019

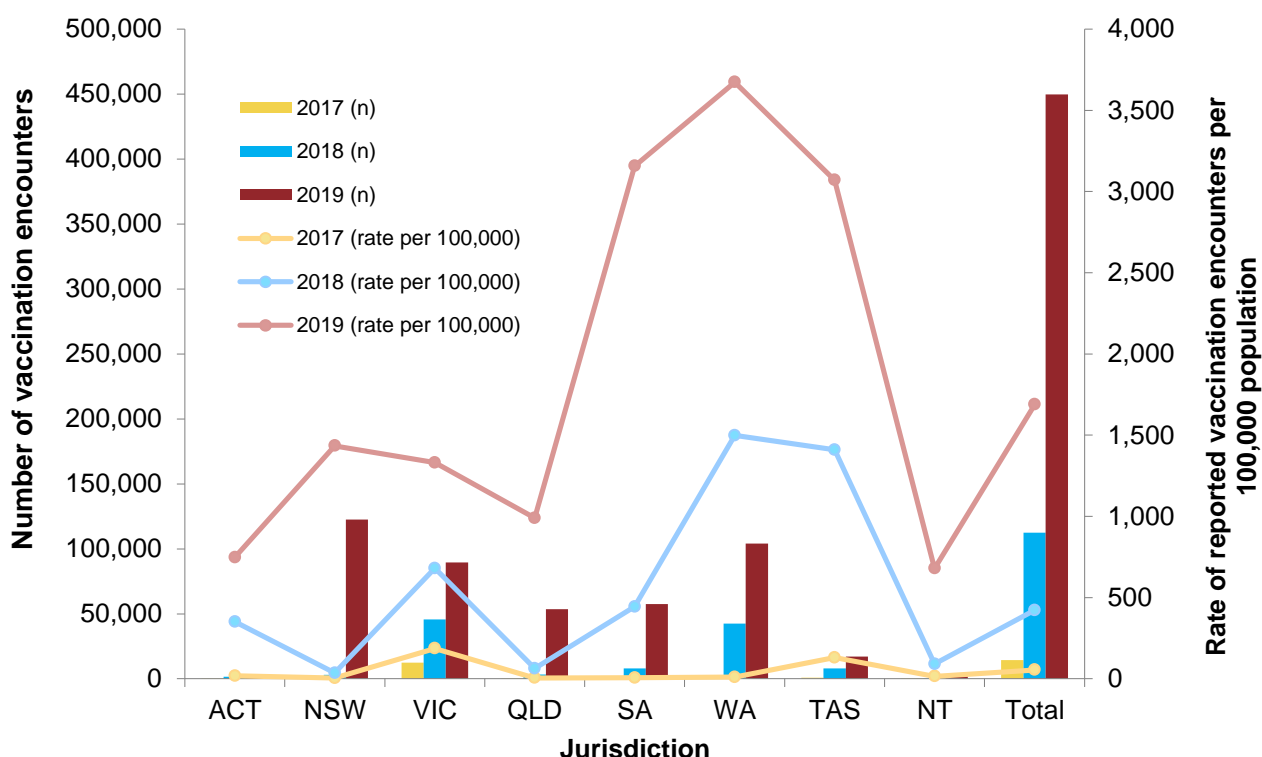
In 2016, VIC was the only jurisdiction where pharmacist vaccinations were reported to AIR (n=25). In 2017, 14,464 pharmacist vaccinations were reported to AIR with the highest number in VIC (12,530; 86.6%), followed by TAS (733; 5.1%).

In 2018, 112,572 pharmacist vaccinations were reported to AIR, with the highest number again in VIC (n = 45,750; 40.6%), followed by WA (42,429; 37.7%). The highest rate of pharmacist vaccinations in 2018 was in WA (1,498 per 100,000 population), followed by TAS (1,410 per 100,000) (refer to [Figure 2](#)).

In 2019, 449,719 pharmacist vaccinations were reported to AIR, with the highest number in NSW (n = 122,596; 27.3%), a 40-fold increase from 2018. Large numbers of pharmacist vaccinations continued to be reported in 2019 in WA and VIC (104,021; 23.1% and 89,452; 19.9%, respectively) with 7- to 16-fold increases from 2018 in QLD, the NT and SA (53,601; 1,881; and 57,509, respectively). The highest rate of reported pharmacist vaccinations by population in 2019 continued to be in WA (3,673 per 100,000), followed by SA (3,156 per 100,000) and TAS (3,097/100,000). Refer to [Appendix 2](#) for a breakdown of the number of pharmacist vaccinations by vaccine brands and jurisdiction.

Most pharmacist vaccinations (556,265, 96.4%) were recorded as occurring in the person's jurisdiction of residence (range: 77.4% in the NT to 99.0% in WA).

Figure 2: Rate and number of pharmacist vaccinations in each jurisdiction by year, 2017 to 2019[†]



* Number and rate of pharmacist vaccinations in 2016 not presented due to small numbers

[†] AIR population count used for denominator and may differ from ABS population data

ACT = Australian Capital Territory; NSW = New South Wales; NT = Northern Territory; QLD = Queensland; SA = South Australia; TAS = Tasmania; VIC = Victoria; WA = Western Australia

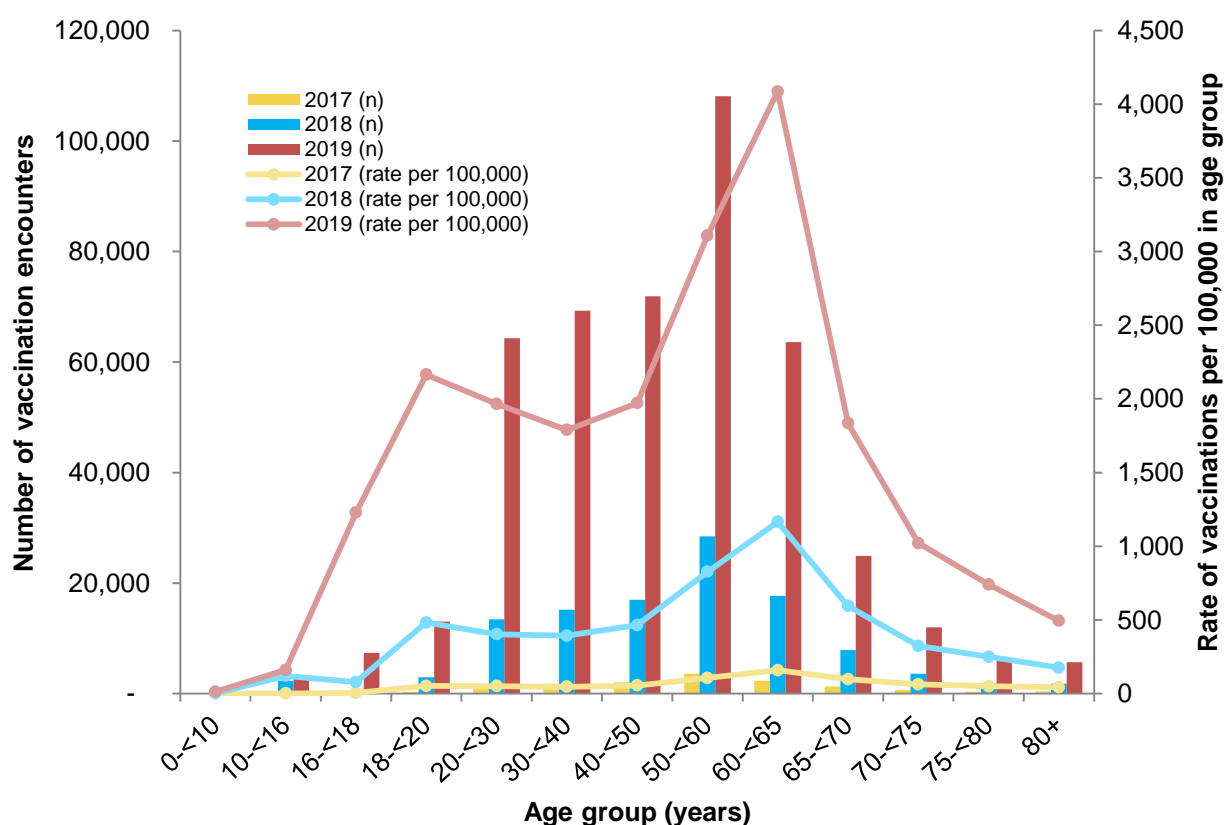
Source: Australian Immunisation Register, data as at 31 December 2019

Age group

Between 2016 and 2019, the highest number of pharmacist vaccinations reported by age group was in 50–59 year olds (140,134; 24.3%), followed by 40–49 year olds (90,893; 15.8%) and 60–64 year olds (83,581; 14.5%). However, the highest age-specific rate of pharmacist vaccinations was in the 60–64 years age group (5,515 per 100,000), followed by 50–59 years (4,072 per 100,000) and 18–19 years (2,682 per 100,000) (refer to [Figure 3](#)).

While the total number of people recorded as receiving pharmacist vaccinations has increased each year, the pattern of administration by age has remained largely unchanged, with median age similar across years (2016 = 46 years, 2017 = 55 years, 2018 = 52, 2019 = 49 years). Refer to [Appendix 2](#) for a jurisdictional breakdown of the number of pharmacist vaccinations by age group.

Figure 3: Number and rate of pharmacist vaccinations by age group and year, 2016 to 2019^{*†}



*Number and rate of vaccinations in 2016 not presented due to small numbers

†AIR population count used for denominator and may differ from ABS population data

Source: Australian Immunisation Register, data as at 31 December 2019

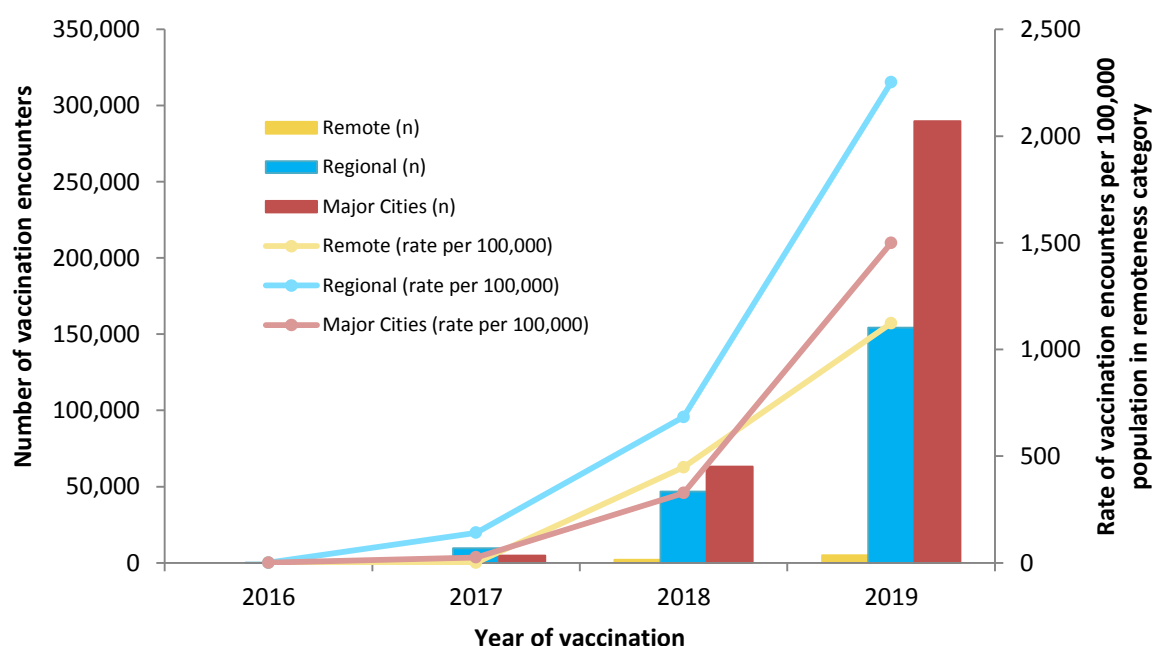
Remoteness

Between 2016 and 2019, 99.8% (575,519) of pharmacist vaccinations recorded in AIR had a provider post code that could be assigned a remoteness category. During this period, the highest number of pharmacist vaccinations were reported as occurring in major cities (357,769; 62.2%), followed by regional (210,795; 36.63%) and remote areas (6,955; 1.2%). This pattern changed over time, with regional areas the most common location for pharmacist vaccinations in 2016 and 2017 and major cities the most common location in 2018 and 2019 (refer to [Figure 4](#)).

While the highest number of reported pharmacist vaccinations over the study period was in major cities, the highest rate was in regional areas (3,077 per 100,000 population), followed by major cities (1,851 per 100,000) and remote areas (1,570 per 100,000). Regional areas also had the highest rate of vaccination in each year from 2016 to 2019 (refer to [Figure 4](#)).

Between 2016 and 2019, the number of reported pharmacist vaccinations was highest in major cities for all age groups, except children aged <16 years who were most frequently vaccinated in pharmacies in regional areas (refer to [Figure 5](#)).

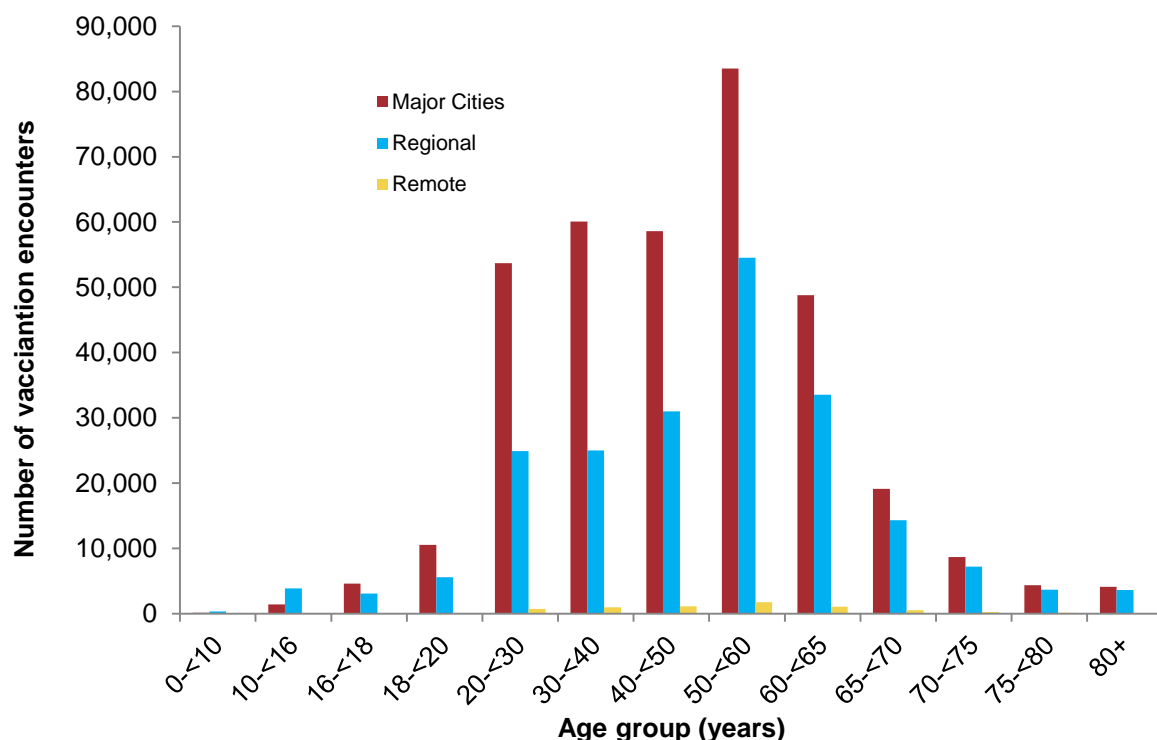
Figure 4: Rate and number of pharmacist vaccinations per 100,000 population by remoteness category and year, 2016 to 2019



* AIR population count used for denominator and may differ from ABS population data

Source: Australian Immunisation Register, data as at 31 December 2019

Figure 5: Number of pharmacist vaccinations by age and remoteness category, 2016 to 2019



Source: Australian Immunisation Register, data as at 31 December 2019

Vaccine type

Between 2016 and 2019, the most reported pharmacist vaccinations were for influenza (545,928; 94.7% of all pharmacist vaccinations), with most of these recorded as quadrivalent influenza vaccine (518,988; 95.1%). The number of influenza vaccinations administered in pharmacies increased each year from 2016 to 2019 (refer to [Figure 6](#)). Influenza vaccination was reported most frequently in the 50–59 years age group (134,568; 24.6%, [Figure 7](#)) and in WA (145,049; 26.6%, [Figure 8](#)).

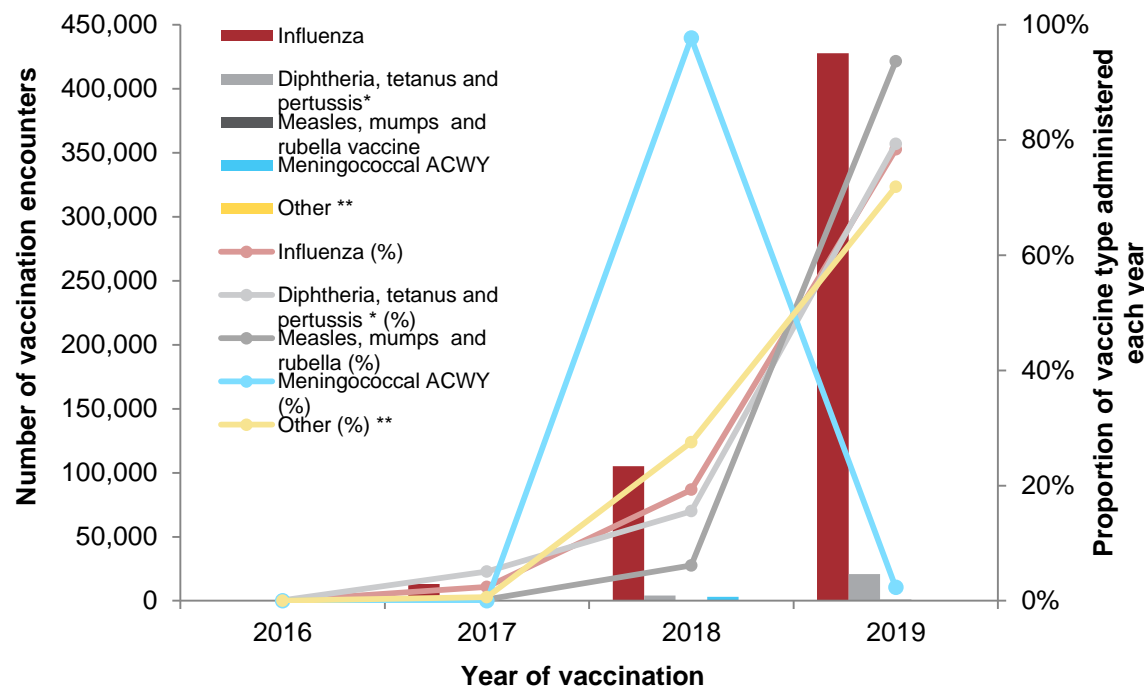
Between 2016 and 2019, 26,299 dTpa vaccines (with or without IPV) were recorded as administered in pharmacies (4.6% of all pharmacist vaccines), with the number increasing each year. The highest number of dTpa vaccinations was in the 20–29 years age group (n=7,439; 28.3%, [Figure 7](#)) and in VIC (n=8,759; 33.3%, [Figure 8](#)).

Between 2016 and 2019, 3,248 meningococcal ACWY vaccines were recorded as administered in pharmacies (0.6% of all pharmacist vaccinations). Meningococcal ACWY vaccination was reported most frequently in the 10–15 years age group (2,231; 68.7%) and in TAS (3,214; 99.0%). A vast majority of meningococcal ACWY vaccinations (97.7%) were reported as occurring in 2018 in Tasmania, likely due to a vaccination program implemented in the state. The program targeted all Tasmanians aged between 6 weeks and 21 years, with pharmacists being able to administer the vaccine.

Between 2016 and 2019, 818 MMR vaccines were recorded as administered in pharmacies (0.1% of all pharmacist vaccinations). MMR vaccination was most commonly reported in the 30–39 years

age group (197, 24.1%) and in NSW (n=251; 30.7%). The number of reported MMR vaccinations increased each year from 2016 to 2019.

Figure 6: Number of pharmacist vaccinations and proportion of vaccine type by year, 2016 to 2019

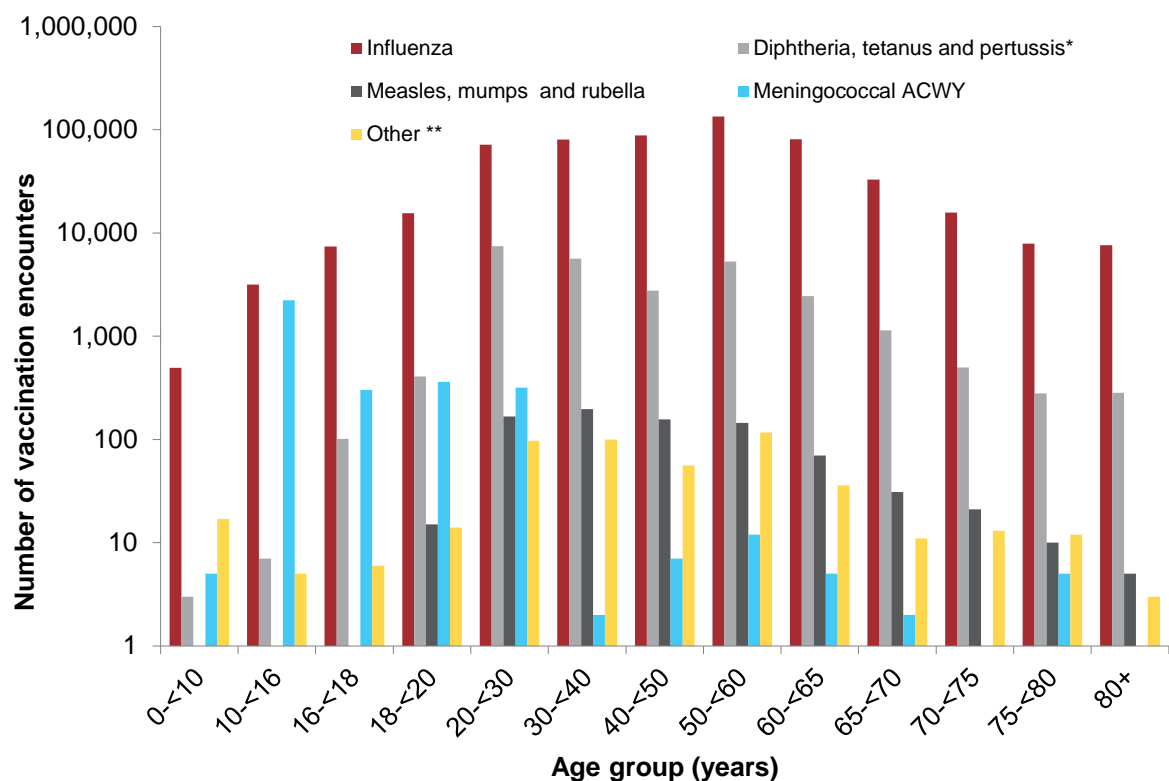


* With or without IPV

** Varicella, rotavirus, typhoid, combined diphtheria-tetanus, monovalent tetanus pneumococcal, rabies, Japanese encephalitis, human papillomavirus, hepatitis, *Haemophilus influenzae* type b, meningococcal B or C and tuberculosis vaccines

Source: Australian Immunisation Register, data as at 31 December 2019

Figure 7: Number of pharmacist vaccinations by vaccine type and age group, 2016 to 2019

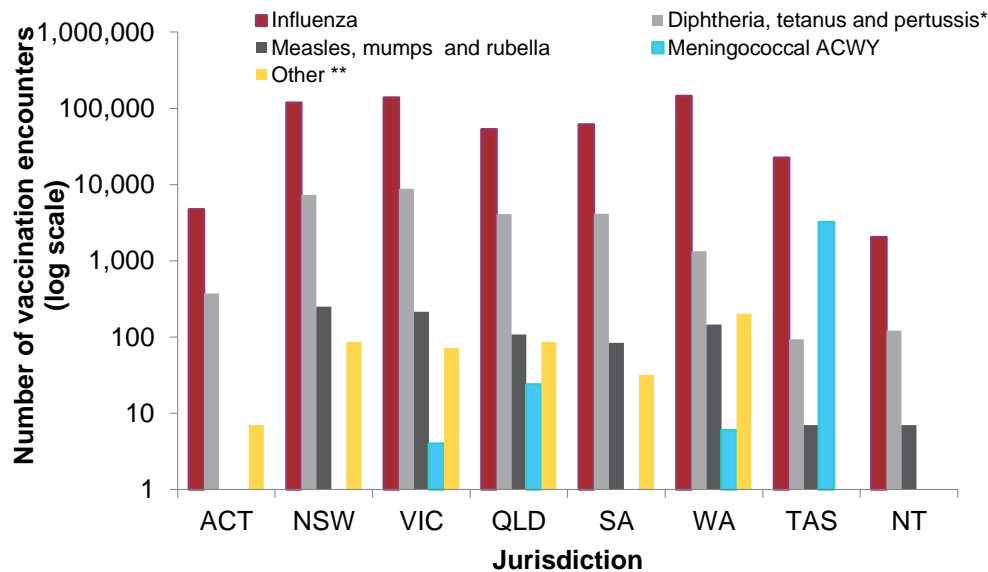


* With or without IPV

** Varicella, rotavirus, typhoid, combined diphtheria-tetanus, monovalent tetanus pneumococcal, rabies, Japanese encephalitis, human papillomavirus, hepatitis, *Haemophilus influenzae* type b, meningococcal B or C and tuberculosis vaccines

Source: Australian Immunisation Register, data as at 31 December 2019

Figure 8: Number of pharmacist vaccinations by vaccine type and jurisdiction, 2016 to 2019



**Varicella, rotavirus, typhoid, combined diphtheria-tetanus, monovalent tetanus pneumococcal, rabies, Japanese encephalitis, human papillomavirus, hepatitis, *Haemophilus influenzae* type b, meningococcal B or C and tuberculosis vaccines

Note: Jurisdiction is the location of the pharmacy.

ACT = Australian Capital Territory; NSW = New South Wales; NT = Northern Territory; QLD = Queensland; SA = South Australia; TAS = Tasmania; VIC = Victoria; WA = Western Australia

Source: Australian Immunisation Register, data as at 31 December 2019

Vaccination encounters outside pharmacists' scope of practice

Between 2016 and 2019, 487 pharmacist vaccinations were reported that involved age groups that were not within pharmacists' scope of practice in any jurisdiction, and 519 pharmacist vaccinations were reported that involved antigens or vaccine combinations that were not within pharmacists' scope of practice in any jurisdiction. Vaccines given out of scope included varicella, rotavirus, typhoid, pneumococcal, rabies, Japanese encephalitis, human papillomavirus, hepatitis A and/or B, *Haemophilus influenzae* type b, tuberculosis, meningococcal B or C, combined diphtheria-tetanus and monovalent tetanus. These vaccines were most frequently administered in the 50–59 years age group (n=117; 24.0%) and in WA (202; 41.5%) (refer to [Table 3](#)). A large proportion of the vaccinations recorded in WA were for hepatitis (Engerix B [paediatric] and Twinrix). Further analysis revealed that all hepatitis vaccinations reported in WA (171) were from one postcode; Services Australia investigated further and advised that all were reported to AIR by a single hospital pharmacy.

Of the 519 vaccinations reported in children aged <10 years, the median age was 7 years, with most frequent reporting in those aged 9 years (118). Vaccinations in children aged <10 years were most frequently reported by pharmacies in NSW (201), SA (147) and WA (61), and influenza vaccine was the most commonly reported vaccine type (493; 95.0%) (refer to [Table 4](#)). Vaccination encounters reported in children aged <10 years increased each year from 2016 to 2019 (2016 = 0; 2017 = 6; 2018 = 100; 2019 = 413).

Table 3. Vaccine types outside pharmacists' scope of practice administered in pharmacies, 2016 to 2019

Vaccine brand	Vaccine type	Provider jurisdiction								Total
		ACT	NSW	VIC	QLD	SA	WA	TAS	NT	
ADT	Combined Diphtheria-Tetanus	5	31	15	24	15	4	0	0	94
Avaxim	Hepatitis A	0	4	4	0	1	0	0	0	9
BCG	Tuberculosis	0	0	1	0	0	0	0	0	1
Bexsero	Meningococcal B	0	3	7	25	0	1	0	0	36
Comvax	Hib, Hepatitis B	0	1	0	0	0	0	0	0	1
Engerix B (adult)	Hepatitis B	0	15	4	1	4	0	0	0	24*
Engerix B	Hepatitis B	0	3	0	0	0	125	0	0	128*

(paediatric)										
Twinrix	Hepatitis B, Hepatitis A	0	8	10	0	0	46	0	0	64
Havrix	Hepatitis A	0	5	3	0	1	0	0	0	9
Havrix Junior	Hepatitis A	0	1	0	0	0	2	0	0	3
Hiberix	Hib	0	0	1	11	0	0	0	0	12
Gardasil	HPV	0	0	1	0	0	0	0	0	1
Gardasil 9	HPV	0	0	7	0	0	0	0	0	7
Infanrix Hexa	Diphtheria, Tetanus, Pertussis, Hepatitis B, Polio, Hib	0	0	1	0	0	0	0	0	1
Infanrix Penta	Diphtheria, Tetanus, Pertussis, Hepatitis B, Polio	0	0	0	0	0	2	0	0	2
Inactivated Polio Vaccine	Polio	0	0	1	0	0	0	0	0	1
Jespect	Japanese encephalitis	0	0	1	0	0	0	0	0	1
Meningitec	Meningococcal C	0	1	0	0	0	0	0	0	1
Rabipur	Rabies	0	6	0	0	0	0	0	0	6
Pneumovax 23	Pneumococcal	0	0	0	13	0	0	0	0	13
ActHIB	Hib	0	1	2	1	2	1	0	0	7
Prevenar 13	Pneumococcal	0	0	2	11	0	0	0	0	13
Priorix-Tetra	MMR, Varicella	0	1	0	1	0	1	0	0	3
Rotarix	Rotavirus	0	0	1	0	0	0	0	0	1
Tet-Tox	Monovalent tetanus	0	0	0	0	2	0	0	0	2
Typhim Vi	Typhoid	0	6	1	0	2	2	0	0	11
Vivaxim	Hepatitis A, Typhoid	2	1	7	0	5	1	0	0	16
Varilrix	Varicella	0	0	1	0	0	12	0	0	13
Varivax	Varicella	0	0	0	0	0	5	0	0	5
Zostavax	Varicella	0	0	2	0	0	0	0	0	2
Total		7	87	72	87	32	202	0	0	487*

Hib = *Haemophilus influenzae* type b; HPV = human papillomavirus; MMR = measles-mumps-rubella

ACT = Australian Capital Territory; NSW = New South Wales; NT = Northern Territory; QLD = Queensland; SA = South Australia; TAS = Tasmania; VIC = Victoria; WA = Western Australia

* 152 vaccine encounters were identified as being recorded by a hospital-based pharmacy in WA.

Source: Australian Immunisation Register, data as at 31 December 2019

Table 4. Vaccine types administered in pharmacies to children aged <10 years, 2016 to 2019

Vaccine brand	Vaccine type	Provider jurisdiction							Total
		ACT	NSW	VIC	QLD	SA	WA	TAS	
Afluria Quad	Flu (quadrivalent)	1	51	23	7	111	18	2	213
Bexsero	Meningococcal B	0	2	3	0	0	1	0	6
Boostrix	Diphtheria, Tetanus, Pertussis only	0	0	1	0	0	0	0	1
Comvax	Hib, Hepatitis B	0	1	0	0	0	0	0	1
Fluarix	Flu (quadrivalent)	0	0	0	1	0	0	0	1
Fluarix Tetra	Flu (quadrivalent)	0	77	7	6	24	2	1	117
Fluquadri Junior	Flu (trivalent)	0	0	1	0	0	0	0	1
Fluquadri	Flu (quadrivalent)	0	63	14	27	8	28	3	143
Havrix Junior	Hepatitis A	0	1	0	0	0	2	0	3
Infanrix Hexa	Diphtheria, Tetanus, Pertussis, Hep B, Polio, Hib	0	0	1	0	0	0	0	1
Infanrix-IPV	Diphtheria, Tetanus, Pertussis, Polio only	0	1	1	0	0	0	0	2
Influvac Tetra	Flu (quadrivalent)	0	2	2	2	3	8	0	17
Influvac	Flu (trivalent)	0	0	0	0	1	0	0	1
Menactra	Meningococcal ACWY	0	0	0	0	0	0	5	5
Meningitec	Meningococcal C	0	1	0	0	0	0	0	1
MMR II	MMR	0	1	0	0	0	0	0	1
Prevenar 13	Pneumococcal	0	0	1	0	0	0	0	1
Priorix-Tetra	MMR, Varicella	0	1	0	0	0	0	0	1
Rotarix	Rotavirus	0	0	1	0	0	0	0	1
Typhim Vi	Typhoid	0	0	0	0	0	2	0	2
Total		1	201	55	43	147	61	11	519

Hib = *Haemophilus influenzae* type b; MMR = measles-mumps-rubella

Source: Australian Immunisation Register, data as at 31 December 2019

Method of reporting to AIR

Between 2016 and 2019, pharmacist vaccinations were reported to AIR most frequently through the AIR secure website (343,453; 59.5%), followed by automated software reporting (n=232,576; 40.3%) and manual non-standard forms (n=751; 0.1%) (refer to [Table 5](#)). In the ACT, NSW, QLD, SA and the NT, automated software reporting was the most common method (range 53.3%–66.9%) (refer to [Table 6](#)). However, in VIC, WA and TAS, the most common reporting method was via the AIR site (range 71.3%–74.8%).

Between 2016 and 2018, the vast majority of pharmacist vaccinations were reported via the AIR site (2016 = 100.0%; 2017 = 99.9%; 2018 = 99.8%) and only 213 (0.2%) vaccinations were reported via automated software (refer to [Table 5](#)). In 2019, there was a substantial change in reporting methods, with 51.7% of pharmacist vaccinations reported through software and only 48.2% through the AIR site. This shift was predominantly driven by pharmacist vaccinations from jurisdictions where there were large increases in reporting from 2018 to 2019 (NSW, QLD, SA and the NT). Refer to [Appendix 2](#) for more detailed results on the method of pharmacist vaccination reporting to AIR by jurisdiction and year.

Table 5. Method of pharmacist vaccination reporting to AIR by year, 2016 to 2019

Method of AIR reporting	2016	2017	2018	2019	Total
Manual (non-standard forms)	0	0	35	716	751
Automated software	0	1	212	232,363	232,576
AIR site	25	14,463	112,325	216,640	343,453
Total	25	14,464	112,572	449,719	576,780

AIR = Australian Immunisation Register

Source: Australian Immunisation Register, data as at 31 December 2019

Table 6. Method of pharmacist vaccination reporting to AIR by jurisdiction, 2016 to 2019

Method of AIR reporting	ACT	NSW	VIC	QLD	SA	WA	TAS	NT	Total
Manual (non-standard forms)	0 (0.0%)	40 (0.0%)	383 (0.3%)	3 (0.0%)	0 (0.0%)	325 (0.2%)	0 (0.0%)	0 (0.0%)	751 (0.1%)
Automated software	2,725 (53.3%)	67,691 (53.7%)	42,021 (28.4%)	38,361 (66.9%)	36,612 (55.7%)	36,635 (25.0%)	7,287 (28.2%)	1,244 (57.1%)	232,576 (40.3%)
AIR site	2,392 (46.7%)	58,317 (46.3%)	105,353 (71.3%)	18,982 (33.1%)	29,109 (44.3%)	109,774 (74.8%)	18,593 (71.8%)	933 (42.9%)	343,453 (59.5%)
Total	5,117	126,048	147,757	57,346	65,721	146,734	25,880	2,177	576,780

AIR = Australian Immunisation Register

ACT = Australian Capital Territory; NSW = New South Wales; NT = Northern Territory; QLD = Queensland; SA = South Australia; TAS = Tasmania; VIC = Victoria; WA = Western Australia

Source: Australian Immunisation Register, data as at 31 December 2019

Part B

Representatives from 15 organisations representing a range of stakeholder groups were invited to participate in interviews or surveys (refer to [Table 7](#)). Three stakeholders did not respond to the invitation to participate (Medical Software Industry Association, Sigma Healthcare and Lots Dispense). Input from individual stakeholders has not been attributed; rather responses from interview participants, in combination with the literature review, have been used to provide an overall description of the pharmacy industry and processes related to pharmacist vaccinations.

Table 7. Stakeholder invitations and participation in interviews

Group	Stakeholder	Participated in interview [*]	Number of interview participants [*]
Peak bodies	Australian Pharmacy Council	✓	1
	Pharmaceutical Society of Australia	✓	1
	Pharmacy Guild of Australia	✓	5
	Medical Software Industry Association	X	0
Government	Services Australia [†]	✓	4
	Jurisdictional Immunisation Committee (JIC) representatives	✓	8
Banner groups[‡]	API pharmacies (Priceline/ Soul Pattinson)	X	0
	Chemist Warehouse	✓	4
	Pharmacy 777/Friendlies	✓	1
	TerryWhite Chemmart	✓	1
	Sigma pharmacies (Amcal)	X	0
Software companies[§]	GuildLink (GuildCare NG)	✓	1
	MedAdvisor	✓	1
	Minfos Dispense	✓	1
	Lots Dispense	✓	1

* All stakeholders were interviewed via telephone, except JIC representatives who filled in a questionnaire and returned via email, with subsequent follow up by phone as necessary

† At the time Services Australia was the Australian Government Department of Human Services

‡ Large pharmacy chains

History of pharmacist vaccination

Community pharmacies have provided vaccinations by offering nurse-delivered services for several years.¹⁸ In 1998 and 2004, the Guild commissioned reports on the role of pharmacists in providing vaccinations. The second report recommended pharmacists become involved in the active promotion and education of their customers about immunisation.¹⁹ In 2011, the Guild released its first policy on vaccination in community pharmacies, which proposed that suitably trained pharmacists should be able to administer vaccines.

In 2013, the Grattan Institute proposed pharmacist vaccination as a mechanism to address general practitioner (GP) shortages in rural Australia, and the case for pharmacist vaccination in Australia was also made in peer-reviewed literature.^{20,21} Also in 2013, the Board determined that vaccination was within pharmacists' scope of practice and requested the Advanced Pharmacy Practice Framework Steering Committee (APPFSC) develop a framework for recognition of the role of pharmacists in vaccine administration.^{22,23} APPFSC membership comprised representatives of key pharmacy sector stakeholders and professional organisations, including the Council, Guild, PSA and the Australian College of Pharmacy.

On 1 January 2014, the QLD Pharmacist Immunisation Pilot (QPIP) began. In October 2014, an inquiry into community pharmacy conducted by the Parliament of Victoria recommended a pharmacist vaccination trial in the state.²⁴ Pilot pharmacist vaccination programs occurred in multiple jurisdictions in subsequent years. In 2014, the Guild updated its national policy on pharmacist vaccination to highlight progress and detail the next steps in regulation and training. In December 2014, WA was the first jurisdiction to legislate pharmacist vaccination, which initially only included influenza for patients aged >18 years.¹³ Between 2014 and 2017 all jurisdictions introduced legislation to allow pharmacist vaccinations. Refer to [Appendix 3](#) for a detailed timeline of the introduction of pharmacist vaccination.

In 2015 the Australian Pharmacy Council published the first *Standards for the accreditation of programs to support pharmacist administration of vaccines*, which provided the framework to accredit pharmacist immunisation provider training.¹⁸

The QPIP study concluded on 31 March 2016 and provided evidence that pharmacist vaccination is safe, effective and feasible.¹²

In 2018, the Guild released its latest national policy on pharmacist vaccination, which referenced the necessity of increasing reporting to and use of AIR and called for a nationally consistent scope of practice.⁵ In October 2018, the Council of Australian Governments' (COAG) Health Council tasked the Australian Health Protection Principal Committee (AHPPC) with establishing a working group to recommend options for a nationally consistent approach to pharmacist vaccination.²⁵

The landscape of the pharmacy sector

Distribution of pharmacies

As at 30 June 2019, there were 31,955 registered pharmacists and 5,762 community pharmacies in Australia.^{26,27} TAS has the highest number of pharmacies proportionate to the population (27 pharmacies per 100,000 people), followed by SA (25 per 100,000) (refer to [Table 8](#)).

Table 8. Number of community pharmacies by jurisdiction and population, as of 30 June 2019*

	ACT	NSW	VIC	QLD	SA	WA	TAS	NT	Australia
Number of pharmacies[†]	78	1,886	1,369	1,151	459	626	153	40	5,762
Number of pharmacies per 100,000 population	17	22	20	21	25	22	27	14	22

* AIR population count used for denominator and may differ from ABS population data

[†] Community pharmacies that are PBS-approved suppliers

ACT = Australian Capital Territory; NSW = New South Wales; NT = Northern Territory; QLD = Queensland; SA = South Australia; TAS = Tasmania; VIC = Victoria; WA = Western Australia; PBS = Pharmaceutical Benefits Scheme

Source: PBS Expenditure and Prescriptions Report 1 July 2018 to 30 June 2019; Australian Immunisation Register, data as at 31 December 2019

Types of pharmacies in Australia

The pharmacy industry in Australia comprises community, hospital and online sectors. Community pharmacy involves retail stores that are part of banner groups (large chains), buying groups, friendly societies or are independently owned.

Banner groups are franchised groups that facilitate joint marketing, standardised processes and promotions, store layout and business advice. Three pharmaceutical wholesalers run the major banner groups in Australia: Australian Pharmaceutical Industries (API), Sigma Healthcare and EBOS Group (Symbion). EBOS runs banner groups including TerryWhite Chemmart, Pharmacy Choice, HealthSave, Good Price Pharmacy Warehouse and Ventura Health brands; API runs Priceline, Soul Pattinson and Best Buy pharmacies; and Sigma Healthcare runs Amcal, Chemist King, Discount Drug Stores and Pharmasave pharmacies.²⁸⁻³⁰ Independent banner groups not affiliated with these wholesalers also exist.

Buying groups are a collection of independent pharmacies that work together to collectively purchase products and obtain more competitive pricing.³¹ These groups may obtain products from wholesalers and also directly from manufacturers.

Friendly society pharmacies are not-for-profit mutual organisations that function on a cooperative principle.³¹ They were formed to provide community access to medicines at affordable prices before the introduction of the Pharmaceutical Benefits Scheme (PBS). New friendly society

pharmacies are not able to be formed in some jurisdictions and only 32 continue to operate across Australia.³²

Pharmacy location and ownership regulations

The ownership and location of pharmacies is regulated in Australia. These laws are in place to facilitate a decentralised, profession-based ownership structure and enable a competitive small business sector that supports distribution of pharmacies across the country.^{33,34} Regulations include (with some variation by jurisdiction):

- Pharmacies must be owned by a pharmacist (friendly societies are an exception to this).^{31,35}
- There is a limit to the number of pharmacies a single person can own. This varies by jurisdiction, but in a majority the limit is five pharmacies.³⁴
- The location of any pharmacy that supplies PBS-subsidised medication is subject to approval by the Australian Government through the Pharmacy Location Rules.³⁶ Generally, new pharmacies must be at least 1.5 km from existing pharmacies.

The Community Pharmacy Agreement

The pharmacy industry is supported by the Community Pharmacy Agreement (CPA), which is negotiated every 5 years between the Guild and the Australian Government.³⁷ The most recent CPA (6th CPA 2015–2020) provides approximately \$18.9 billion to community pharmacies for a variety of activities, including dispensing PBS medicines and administering pharmacy programs and services.³⁸

Professional services in pharmacy

In addition to traditional prescription and over-the-counter medicine provision services, the scope of pharmacists' practice is expanding to include a variety of other professional programs and services. Specific examples of professional services available in pharmacies include sleep apnoea support, smoking cessation, health promotion and absence from work certificates.³⁹ A 2018 report found that in the 12 months prior, 65% of pharmacies had introduced a new professional service.⁴⁰ Many professional services and programs are specified under the 6th CPA and are attached to funding, including medication adherence and medication management programs as well as a trial program to extend the role of pharmacists in the delivery of health services to the community.³⁸ Some professional services are not included in the CPA but are supported by professional organisations and/or are negotiated through changes in legislation. Pharmacist vaccination is a significant professional service that is not included in the CPA and has involved coordinated advocacy and legislative change to enable pharmacists to be approved immunisation providers.

Key stakeholders

The pharmacy industry has a wide variety of key stakeholders, including peak bodies, businesses and government authorities. Refer to [Table 9](#) for roles and activities of key stakeholders relevant to this study.

Table 9. Key stakeholders in the pharmacy industry and their roles

Key stakeholder	Role and responsibilities	Key activities in pharmacist vaccination
Pharmacy Board of Australia	<ul style="list-style-type: none"> Professional registration of students and pharmacists⁴¹ Develop standards and codes for the pharmacy profession Handle complaints and disciplinary hearings Approve accreditation standards and accredited courses of study 	<ul style="list-style-type: none"> Approve accreditation standards for pharmacist vaccination
Australian Pharmacy Council	<ul style="list-style-type: none"> Accredit pharmacy education and training on behalf of the Pharmacy Board of Australia⁴² Develop and maintain accreditation standards for degree programs and continuing professional development for registered pharmacists 	<ul style="list-style-type: none"> Produce standards for the accreditation of programs to support pharmacist vaccination Accredit programs to train pharmacists in administration of vaccines
Pharmaceutical Society of Australia	<ul style="list-style-type: none"> Represent and promote members' interests, and pharmacy profession's interests more broadly (membership includes approximately half of all pharmacists) Provide professional support to pharmacists Advocate for recognition and remuneration for services within the profession including providing strategic direction through guiding documents⁴³ 	<ul style="list-style-type: none"> Advocate and lobby for expansion of pharmacists' scope of practice Run accredited training programs for pharmacists to administer vaccines Develop profession-wide strategic planning documents
Pharmacy Guild of Australia	<ul style="list-style-type: none"> Represent and promote members' interests, and pharmacy owners' interests more broadly (membership includes approximately three-quarters of all community pharmacy owners) Develop policies and position statements on pharmacy issues Manage the CPA with the Commonwealth of Australia 	<ul style="list-style-type: none"> Advocate and lobby for expansion of pharmacists' scope of practice Run accredited training programs for pharmacists to administer vaccines Draft and publish policies, position statements and strategic planning documents on the role and scope of pharmacists' practice
Pharmacy software providers	<ul style="list-style-type: none"> Provide pharmacies with software to manage and record activities including dispensing of medication and professional services 	<ul style="list-style-type: none"> Provide software to dispense vaccines (dispensing software) and record vaccination encounters (professional services software) Some providers facilitate automated reporting of vaccination encounters to AIR
Pharmacy banner groups	<ul style="list-style-type: none"> Provide pharmaceutical services, generally in a coordinated standardised way usually in a franchise setting 	<ul style="list-style-type: none"> Provide vaccinations, generally in a coordinated, standardised way across the banner group
Independently owned pharmacies	<ul style="list-style-type: none"> Provide pharmaceutical services, with no association as a franchisee 	<ul style="list-style-type: none"> Provide vaccinations

CPA = Community Pharmacy Agreement; AIR = Australian Immunisation Register

Source: Stakeholder interviews and references included in table

Jurisdictional requirements for pharmacist vaccination

Key differences in pharmacist vaccination standards and regulations in each jurisdiction are outlined in [Table 10](#) and explained in detail in the following sections.

Table 10. Jurisdictional requirements and provisions for pharmacist vaccination

Requirements and provisions	ACT	NSW	VIC	QLD	SA	WA	TAS	NT
Pharmacist must make patient aware of eligibility for NIP vaccination through a different provider	✓	✓	✓	✓				
AIR reporting mandated through legislation	✓	✓						
Pharmacist must provide details of vaccination encounter to patient's nominated primary health care provider	✓		✓	✓				
Pharmacist able to vaccinate outside community pharmacy (e.g. in hospitals)	✓		✓	✓	✓		✓	✓
Pharmacist immunisation training programs must seek approval from health authorities for their training program to be recognised*	✓		✓		✓	✓	✓	
Pharmacist immunisation training undertaken in other jurisdictions is recognised				✓		✓	✓	✓
Trained pharmacists must register with jurisdictional health authorities to finalise authorisation to administer vaccines					✓		✓	
Student pharmacists are able to be trained and administer vaccinations under direct supervision	✓	✓				✓	✓	
Pharmacies offering vaccination services must register with jurisdictional health authorities			✓		✓		✓	

* The NT does not approve programs; however, it recognises accredited programs from other jurisdictions that meet a set of its own criteria. In NSW and QLD, training programs must be accredited by the Pharmacy Council and there is no additional jurisdictional approval process.

AIR = Australian Immunisation Register; ACT = Australian Capital Territory; NSW = New South Wales; NT = Northern Territory; QLD = Queensland; SA = South Australia; TAS = Tasmania; VIC = Victoria; WA = Western Australia

Source: Jurisdictional questionnaire, as at December 2019

Vaccinations available in pharmacies

Legislation has changed at different times in each jurisdiction to allow pharmacists to administer a variety of vaccines to different age groups. As at 11 March 2020, pharmacists in every jurisdiction are able to administer influenza and dTpa vaccines to people aged >16 years. In some jurisdictions (VIC, WA, QLD, NSW and TAS) the permitted age of administration is lower, with children aged ≥10 years being able to be vaccinated for influenza (refer to [Table 11](#)). All jurisdictions, except the ACT, allow pharmacists to administer MMR to those aged ≥16 years. In addition, trained pharmacists in QLD can now administer dTpa and poliomyelitis (dTpa-IPV); *Haemophilus influenzae* type b; hepatitis A; meningococcal ACWY and poliomyelitis vaccines to people aged ≥16 years. WA is the only other jurisdiction that allows pharmacist administration of meningococcal

ACWY vaccine as at March 2020. TAS allowed pharmacist administration of meningococcal ACWY vaccine from August 2018 to February 2019 in response to an outbreak of meningococcal W disease.

NIP-funded influenza vaccines are available for specific age and eligibility groups in pharmacies in the ACT, WA and VIC (VIC – any NIP eligibility; ACT and WA - those aged ≥65 years). State-funded vaccines can also be administered in some jurisdictions, including dTpa and MMR in VIC and MMR in TAS. Refer to [Appendix 3](#) for a comprehensive description of vaccinations available in pharmacies by jurisdiction as at January 2020.

Table 11. Pharmacists' scope of practice and ability to access and administer publicly funded vaccines by jurisdiction, vaccine type and age group, as at March 2020

Jurisdiction	Influenza	dTpa	MMR	MenACWY	Publicly funded
ACT	≥16 years*	≥16 years*	X	X	Influenza [†]
NSW	≥10 years	≥16 years	≥16 years	X	X
NT	≥16 years	≥16 years	≥16 years	X	X
QLD	≥10 years	≥16 years	≥16 years	X	X
SA	≥16 years	≥16 years	≥16 years	X	X
TAS	≥10 years	≥16 years	≥16 years	X	MMR [‡]
VIC	≥10 years	≥16 years	≥16 years	X	Influenza, [§] MMR, ^{‡§} dTpa ^{§**}
WA	≥10 years	≥16 years	≥16 years	≥16 years	Influenza [†]

Adapted from National Centre for Immunisation Research and Surveillance (2020). "Vaccines from community pharmacy – at a glance." Retrieved 2/04/2020, from <http://ncirs.org.au/public/vaccines-community-pharmacy>.

* For people aged ≥16 years and not pregnant

† For people aged ≥65 years (NIP-funded)

‡ For people born in 1966 and onwards (state-funded)

§ For people who meet any condition for a NIP-funded dose

|| For women planning pregnancy or post-partum with low or negative rubella antibody levels (state-funded)

** For partners of pregnant women, parents of guardians of babies aged <6 months (state-funded)

ACT = Australian Capital Territory; NSW = New South Wales; NT = Northern Territory; QLD = Queensland; SA = South Australia; TAS = Tasmania; VIC = Victoria; WA = Western Australia; MMR = Measles-mumps-rubella vaccine; dTpa = diphtheria-tetanus-pertussis vaccine; MenACWY = Meningococcal ACWY vaccine; NIP = National immunisation program

Patient awareness of vaccination options

In some jurisdictions (the ACT, NSW, QLD, VIC) it is legislated that pharmacists must make patients aware if they are eligible to receive an NIP vaccine at a GP or other immunisation provider before administering a private market vaccine. In VIC, pharmacists must also advise patients about the availability of bulk-billing services for vaccination when charging a fee to administer an NIP vaccine. NCIRS has developed the *Vaccines in community pharmacy: at a glance* resource to assist consumers with identifying vaccines that they can receive at a pharmacy and any costs involved and how that compares to other immunisation provider settings (refer to [Appendix 4](#)).

Reporting to AIR

Pharmacist vaccination reporting to AIR is mandated through legislation in two jurisdictions: the ACT (as of April 2019) and NSW (as of January 2019). In other jurisdictions, AIR reporting is listed in vaccination protocols and reporting to AIR is strongly encouraged. The NT is considering introducing legislation to mandate AIR reporting. There are currently no mechanisms in place to monitor AIR reporting where it is legislated. NSW is planning to conduct a pilot audit of pharmacist vaccinator compliance with the NSW Pharmacist Vaccination Standards (which includes AIR reporting) in 2020. There will be no financial penalties; however, notifications of poor practice will be investigated and may result in removal of vaccinating authority where appropriate.

Pharmacists are not eligible to receive administrative payments for reporting vaccinations to AIR. Other immunisation providers can receive payments for administering NIP vaccines to young children; pharmacists are not able to administer vaccines to this age group.

Providing vaccination records to other primary healthcare providers

In the ACT, QLD and VIC, pharmacists are required to provide details of a pharmacist vaccination to the patient's nominated primary healthcare provider. In the ACT this is legislated and for QLD and VIC it is contained within the Queensland Pharmacist Vaccination Standard and Victorian Pharmacist-Administered Vaccination Program Guidelines, respectively. Immunisation providers in all jurisdictions can view vaccinations given by other providers in AIR where reporting has occurred.

Pharmacist vaccination outside of community pharmacies

In most jurisdictions (all except NSW and WA) pharmacists are allowed to vaccinate outside of the community pharmacy setting. Depending on the jurisdiction, these settings may include hospitals, pharmacy depots (secure drop-off points where pharmacists send prescription medicines for patient collection), public health facilities, workplace settings or community settings.⁴⁴

Communication of changes to legislation

Changes to pharmacist vaccination legislation are communicated to pharmacists through a range of avenues. All banner group representatives interviewed specified that their banner groups have mechanisms in place for regular communication with pharmacists about legislative change. The Guild and the PSA circulate regular bulletins to their members (weekly to fortnightly) which include messages about changes to vaccination legislation. The PSA also use social media platforms to communicate with their members.

Jurisdictional health authorities play a key role in communicating changes to legislation and other policies related to pharmacist vaccinations. In addition to providing information via the PSA and the Guild, jurisdictions communicate with pharmacists through immunisation newsletters, letters and emails directly to pharmacies and engage in communications via the Chief Pharmacist.

Nationally consistent approach to pharmacist vaccination

Work by an AHPPC working group is underway to provide recommendations to COAG for a nationally consistent approach towards pharmacist vaccination. NSW is leading the development of the recommendations in consultation with other jurisdictions. To establish national consistency, the working group is seeking agreement on a minimum set of vaccinations that should be administered in pharmacies, the minimum age for pharmacist vaccinations and minimum immunisation training program authorisation requirements. A position paper is currently being finalised.

Immunisation training programs

Pharmacists must complete an immunisation training program that is recognised in their jurisdiction before they can administer vaccinations.

Immunisation training standards

Development and approval of immunisation training programs for pharmacists is a multi-layered system that differs by jurisdiction. An overarching document, the National Immunisation Education Framework for Health Professionals (the Framework), developed by the National Immunisation Committee and published by Health, promotes consistency in the implementation and application of immunisation training across jurisdictions and professions.⁴⁵ The Framework provides a minimum set of curriculum requirements for all immunisation training programs. Health Education Services Australia (HESA) is a newly established agency that has been authorised by Health to accredit immunisation education providers against the Framework. However, the accreditation process that will be used by HESA is in preliminary stages and is not compulsory for the provision of immunisation training in Australia.

Specific standards exist for pharmacist immunisation training programs. The Australian Pharmacy Council (the Council) is the authority that accredits pharmacist education and training on behalf of the Board. The Council develops the Standards for the Accreditation of Programs to support Pharmacist Administration of Vaccines (the Vaccination Standards), which align with the national framework. The Vaccination Standards are a set of criteria that are used by pharmacist continuing education development (CPD) organisations accredited by the Council in the development and delivery of pharmacist immunisation training.

While the National Framework and the Vaccination Standards provide national processes for pharmacist immunisation training, jurisdictions hold authority over which training programs are recognised in their jurisdiction.

Jurisdictional approval of immunisation training programs

Oversight of immunisation training programs varies by jurisdiction. In most jurisdictions (SA, TAS, VIC, the ACT and WA), training programs are subject to approval by state health authorities. The NT does not approve programs; however, it recognises Council-accredited programs from other jurisdictions that meet a set of its own criteria. In NSW and QLD, training programs must be accredited by the Council and there is no additional jurisdictional approval process.

The NT, WA, TAS and QLD recognise pharmacist immunisation training undertaken in other jurisdictions (QLD and the NT specify which courses are recognised), while NSW, VIC, SA and the ACT only accept training undertaken in their own jurisdiction.

HESA accreditation is not currently being utilised as a criterion for recognition or approval of immunisation training programs in any jurisdiction. NSW is considering recognition of any HESA-approved immunisation training programs, and VIC and TAS are considering adding HESA approval to the criteria for approval of programs in their jurisdictions.

Pharmacist immunisation training providers

The two largest immunisation training providers are the Guild and the PSA. In the ACT, NSW, QLD, VIC and WA, the Guild and the PSA are the only providers of immunisation training programs. The NT recognises any Council-accredited training program and SA requires completion of a state-run course in addition to the Guild or the PSA training. In TAS, the University of Tasmania, La Trobe University and the Australian College of Nursing are recognised training providers in addition to the Guild and the PSA.

As part of the latest version of the Council's Vaccination Standards (published in 2019), the scope of pharmacist immunisation training was expanded to include training of unregistered pharmacists (student pharmacists) as part of pharmacy degree programs.¹⁸ This has been implemented in some jurisdictions. Pharmacists can be trained and can administer vaccines under direct supervision before registration as a pharmacist in the ACT, NSW and WA. TAS allows pharmacy students to be trained but not to administer vaccines until they are registered. Others (the NT, QLD, SA and TAS) restrict training to registered pharmacists.

Some of the banner groups interviewed fund immunisation training for their pharmacists and some align with a particular immunisation training program (either the PSA or the Guild).

Immunisation training program curriculum

The Council's Vaccination Standards outline the competencies that should be met through pharmacist immunisation training programs. The PSA and the Guild courses are structured similarly. Both have an online module that includes background information and theory, followed by a face-to-face component that reinforces the prior online learning and teaches vaccination administration techniques. Core modules include background on immunisation, the epidemiology of relevant vaccine preventable diseases, legislative requirements and managing adverse events. There are varying jurisdictional requirements for the number of hours of learning needed, and training courses are tailored to meet the specific requirements in each state and territory. Depending on jurisdiction, training components are added as legislation changes to allow additional vaccines to be administered, meaning some pharmacists need to go back for further training or refresher courses. AIR reporting is included as part of the training and includes information on how to report, why it is important and legislative requirements.

Training in cardiopulmonary resuscitation (CPR), first aid and anaphylaxis management are prerequisites to the immunisation training programs. These are not provided by the Guild or the PSA.

Once a training program has been completed, pharmacists in SA and TAS must register with their jurisdictional health authority to finalise their authorisation to vaccinate. Other jurisdictions do not require any health authority involvement for pharmacists to finalise vaccination qualifications.

Ongoing training requirements

Following completion of immunisation training, pharmacists are required to maintain their accreditation as per [Table 12](#).

Table 12. Requirements to maintain accreditation as a pharmacist immunisation provider by jurisdiction

Jurisdiction	CPR	First aid training	Anaphylaxis training	AHPRA registration	CPD in delivering immunisation services	Practical refresher*
ACT	✓	✓	✓			
NSW	✓	✓		✓		
NT	✓	✓	✓		✓	
QLD	✓	✓			✓	✓
SA	✓	✓				
TAS	✓	✓	✓	✓	✓	
VIC	✓	✓		✓	✓	
WA	✓	✓				

CPR = Cardiopulmonary Resuscitation; CPD = Continuing Professional Development; ACT = Australian Capital Territory; NSW = New South Wales; NT = Northern Territory; QLD = Queensland; SA = South Australia; TAS = Tasmania; VIC = Victoria; WA = Western Australia

* Practical refreshment of subcutaneous injection technique where more than 12 months since training has passed without injecting at least two subcutaneous measles vaccines

Source: Jurisdictional Immunisation Committee members, as at December 2019

Current picture of pharmacist vaccination services

Pharmacists trained to administer vaccinations

Data on the number of pharmacists who have been trained to administer vaccinations in Australia are held by training organisations. The Guild and the PSA, who are the major training providers, have advised that these data cannot be shared.

Pharmacies offering vaccinations

The number of pharmacies offering vaccinations is known in some jurisdictions (refer to [Table 12](#)). It is a requirement in SA, TAS and VIC for pharmacies providing vaccinations to register with health authorities. In the ACT and the NT, pharmaceutical services teams (within health

departments) maintain lists of pharmacies that provide vaccination services. In all jurisdictions, health departments provide approval for pharmacies to register for an immunisation provider number with AIR; however, data on the number of approvals is not captured in all jurisdictions. Data on the number of pharmacy immunisation providers registered with AIR have been requested from Services Australia. The Guild holds a register of self-reported Guild-member-owned pharmacies that provide vaccinations, but this is not available to be shared publicly. The Guild estimated that 60–70% of pharmacies have consultation rooms, which are required for vaccination provision. However not all pharmacies with a consultation room offer vaccinations.

Data from jurisdictional registers (where they exist and were available for sharing as per [Table 13](#)) indicate that just under half of pharmacies are offering vaccinations (range = 36.7–66.9%).

All pharmacy banner group representatives interviewed reported that vaccinations are offered in a majority of their pharmacies. Banner groups reported having coordinated seasonal influenza vaccination campaigns which involve standardised promotional materials and information regarding increased vaccination provision. Campaigns generally occur between March and June and additional pharmacies may provide vaccines during this period compared with other times of the year.

Data from Services Australia indicate that 53.8% of pharmacies that are known to provide vaccination services were actively reporting to AIR between 1 July 2018 and 30 June 2019 (range = 32.0 – 73.3% by jurisdiction) (refer to [Table 13](#)).

Table 13. Number and proportion of pharmacies providing vaccination services and reporting to AIR by jurisdiction

Jurisdiction	Total pharmacies (n)	Pharmacies providing vaccination services (n)	Proportion of pharmacies offering vaccination services (%)	Pharmacies actively reporting to the AIR* (n)	Proportion of pharmacies offering vaccinations that are actively reporting to the AIR* (%)
ACT	78	50	64.1%	16	32.0%
VIC	1369	503	36.7%	306	60.8%
SA	459	307	66.9%	128	41.7%
TAS	153	100	65.4%	64	64.0%
NT	40	15	37.5%	11	73.3%
NSW	1,886	Unknown	Unknown	453	Unknown
QLD	1,151	Unknown	Unknown	183	Unknown
WA	626	Unknown	Unknown	325	Unknown
Total where vaccinating pharmacies are known[†]	2,099	975	46.5%	525	53.8%

* Pharmacies that have supplied valid vaccination data to the AIR between 1 July 2018 and 30 June 2019

† Includes all jurisdictions except NSW, QLD and WA

ACT = Australian Capital Territory; NSW = New South Wales; NT = Northern Territory; QLD = Queensland; SA = South Australia; TAS = Tasmania; VIC = Victoria; WA = Western Australia; PBS = Pharmaceutical Benefits Scheme; AIR = Australian Immunisation Register

Source: Services Australia for number of pharmacies reporting to AIR; PBS Expenditure and Prescriptions Report 1 July 2018 to 30 June 2019 for total pharmacies data; Jurisdictional survey for the ACT, SA and TAS vaccinating pharmacies data; Victorian Department of Health and Human Services for VIC vaccinating pharmacies data; Pharmacy Premises Committee for NT vaccinating pharmacies data.

Number of vaccines being administered in pharmacies

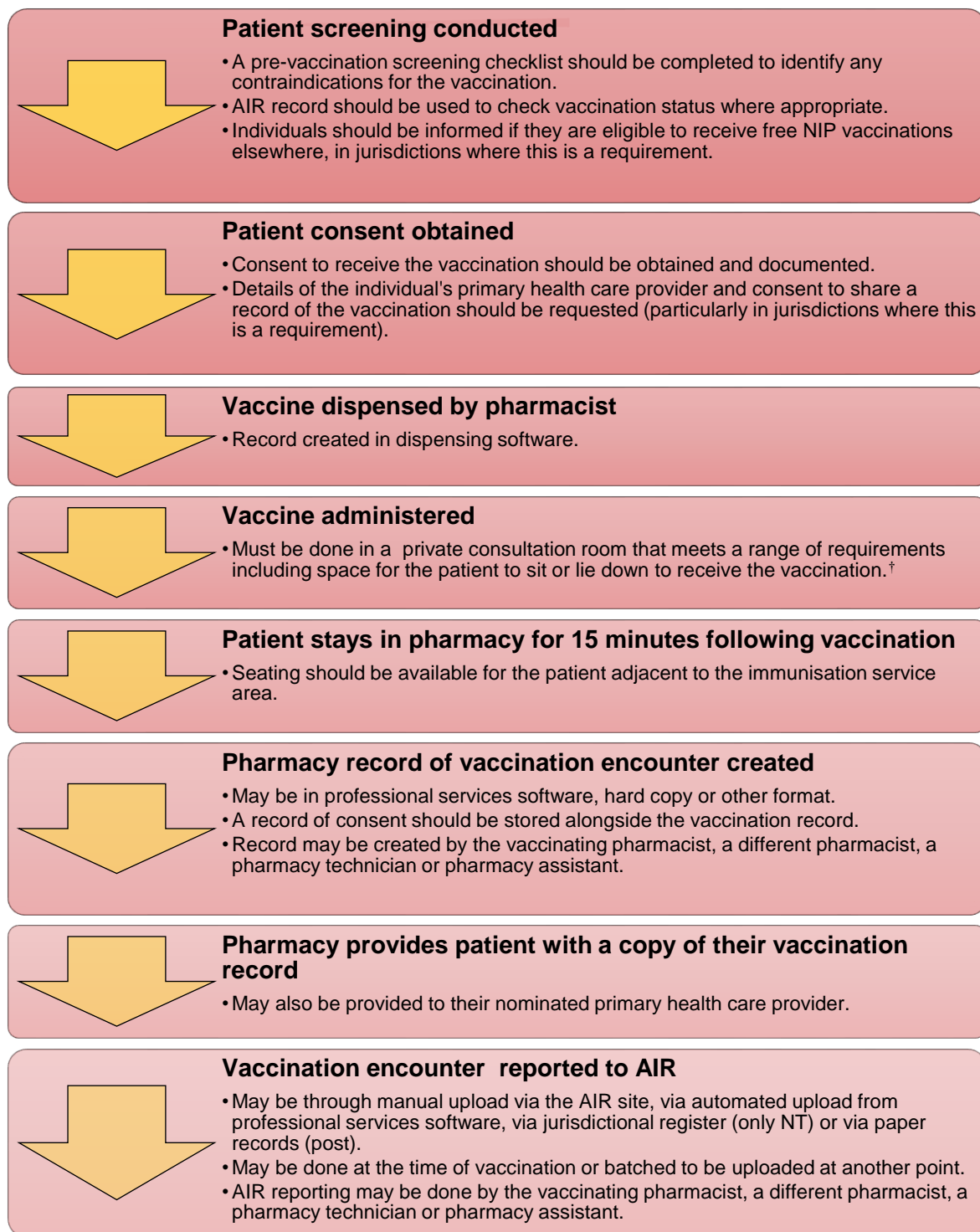
Jurisdictions where NIP vaccines can be administered in pharmacies (the ACT, VIC and WA) reported being aware of the number of vaccines being distributed. However, private market vaccination distribution is not shared with jurisdictional health authorities in any jurisdiction.

Of the banner group representatives interviewed (n=4), three reported that their groups administered from 50,000 to 250,000 vaccines in 2019 (a total of approximately 500,000). The other banner group interviewed could not share their data.

Pharmacist vaccination encounter process

The general steps involved in a pharmacist vaccination encounter are outlined in [Figure 9](#).

Figure 9: Pharmacist vaccination encounter process*



AIR = Australian Immunisation Register

* May vary in order and process depending on the pharmacy, jurisdiction and situation

† Room may or may not have a computer to report to AIR

Recording and reporting pharmacist vaccinations

Registering with AIR as an immunisation provider

Pharmacies were able to register as immunisation providers with AIR for the first time in 2016 and since then they have been able to record pharmacist vaccinations on AIR. Before this, pharmacies either kept their own records or provided them to the patient to enable them to report the encounter to their GP. Pharmacies need to complete the Services Australia *Application to register as a vaccination provider with the Australian Immunisation Register* (IM004) form to register with AIR. The form requires state or territory health department approval and confirmation by that department that the applicant is endorsed by the state or territory to administer vaccines. Once approved and processed by SA, the pharmacy will be given an immunisation provider number that can be used to record vaccination encounters given by individual pharmacists in that pharmacy on AIR.

Some pharmacies may engage GPs, nurse practitioners and nurse immunisers to administer vaccines. However, the banner groups interviewed reported that this is happening less frequently as pharmacists increasingly become trained as immunisation providers. Interviews also indicated that where nurse practitioners are being engaged in pharmacies, they would generally report to AIR under their own provider number, not that of the pharmacy. This will be explored in Part C of this study (survey of pharmacists).

Processes for recording vaccination encounters

Pharmacies use a variety of methods to record vaccinations administered in their pharmacy, including practice software programs and paper-based records. Practice software contains one or more programs that are either used individually or as part of a suite of services. These programs include dispensing software, professional services software and consumer applications. A large number of dispensing software packages are available to pharmacies, but fewer professional services software applications.

Dispensing software is used to record the provision of the vaccine to the patient. This software identifies the patient's full name, date of birth, address and Medicare number (if applicable). Professional services software is usually integrated with dispensing software and collects more details on the service that is being provided, for example, the administration of the vaccine. The professional services software populates basic patient information from the dispensing software and then additional information is entered, including the vaccine brand name, dose number, batch number, date and time of vaccination, site of administration, full name of the health professional administering the vaccine and the date that the next vaccination is due (if appropriate). A Medicare number is not a mandatory field to provide a professional service such as vaccination and the vaccination encounter can still be transmitted to AIR without it.

Reporting to AIR

Currently, there are two primary ways in which pharmacies can report to AIR.

- Professional services software: vaccination encounters can be recorded in the professional software programs at pharmacies and transmitted to the AIR directly.
- Using the AIR site: Providers can record vaccination details using the 'identify individual' feature and record encounter functions directly onto AIR site.

Currently only two professional services software programs, GuildCare NG and MedAdvisor, are integrated with AIR and can send encounter information directly to AIR. Not all pharmacies use GuildCare NG or MedAdvisor. From 13 March 2022, it will be a requirement of Services Australia that all software companies that have direct reporting to Services Australia will need to be integrated with AIR.

Paper reports sent via post are accepted by AIR, but are not encouraged. Pharmacists in the NT also have the option of reporting to the NT immunisation register, which then reports to AIR.

Pharmacy software integrated with AIR

GuildCare NG

GuildCare NG software is the professional services platform for GuildLink (a subsidiary of the Guild established 20 years ago) and is one of two professional services software that are able to report directly to AIR. It was developed during the 5th community pharmacy agreement period, in which pharmacies needed to record the provision of professional services to access funding. GuildLink provides a framework to meet program requirements to access this funding. Ability to record vaccinations within the software was first established in 2013. GuildCare NG integrates with all dispensing software.

GuildCare NG integrated with AIR in August 2018 to facilitate automated reporting. Approximately 2,000 pharmacies in Australia currently use GuildCare NG, including a number of pharmacy chains including Priceline. The software provides a consent form, pre-vaccination screening checklist (as provided in the Australian Immunisation Handbook) and confirmation of suitability of patient to receive vaccine. Within the patient record, GuildCare NG requires the disease to be selected, then the vaccine type. Only vaccines within pharmacists' scope of practice in that jurisdiction (both vaccine types and age groups) can be selected. Reporting to AIR is processed through an 'action taken' section and all details regarding transmission can be reviewed via an 'AIR report' function. This function details all vaccines that have been given and whether the encounter has been transmitted. The pharmacy can review all vaccines that have been transmitted to AIR. A patient's Medicare number is not a required field for transmission of the encounter to AIR.

If incorrect information is entered into the GuildCare NG platform, the pharmacy needs to contact AIR or edit the encounter on the AIR site as they cannot resend the information within the software following edits. GuildCare NG releases frequent updates that are automatically integrated within the software. There are currently no links between GuildCare NG and GP software but options may be considered in the future.

GuildCare NG also has a patient application called myPharmacyLink. This application allows for messages to be sent to patients, for example, to advise them when scripts are ready. Services provided at the pharmacy, including vaccinations administered, are also recorded on the patient app.

Guildcare NG provides user guides through their software and provides webinars to train users in the software. They can also offer face-to-face training and have a support line that can assist users over the telephone.

MedAdvisor

MedAdvisor, established in 2013, is the other professional services software that is able to report pharmacist vaccinations directly to AIR. Integration was undertaken in March 2019 in response to demand from pharmacies when reporting to AIR became compulsory in some jurisdictions. Approximately 3,000 pharmacies in Australia are currently subscribed to use MedAdvisor and may be accessing one or more of their available platforms. MedAdvisor has also developed a professional services app for banner groups including TerryWhite Chemmart. This app is powered by MedAdvisor but is branded for the TerryWhite Chemmart pharmacies. MedAdvisor also has a white labelling feature in its software which enables it to customise the software to different pharmacy banner groups.

Processes for recording information within MedAdvisor are similar to what is detailed above for GuildCare NG. However, once a disease is selected, the list of vaccines available to be chosen is shortened but is not tailored to the differences in scope of practice within each jurisdiction. For example, when influenza vaccine is selected, only the influenza vaccines available for that season will be listed and one is able to be selected.

If the transmission of data from MedAdvisor to AIR is not successful, an error message is displayed when attempting to complete the immunisation form, and the form stays in draft mode. There is no reminder to upload later, but the user can view the immunisation report to view encounters that have failed to transmit. The user can then attempt re-submission of the individual forms. There is no process to allow multiple encounters to be batched and sent to AIR at one time. The process for transmission to AIR occurs following completion of each individual vaccination report. A patient's Medicare number is not a required field for transmission of the encounter to AIR.

Any software updates are automatically integrated within the platform and any advice is sent via communication pathways to pharmacies.

MedAdvisor also has a consumer application that can be used on a mobile device or accessed via a website. Currently there are 1.2 million patients registered using this app or website. This application allows patients to access a current list of their medications that they have had dispensed at the pharmacy, request a refill of their script and any vaccinations received at the pharmacy can also be listed on this app.

MedAdvisor provides online, webinar and group face-to-face training for its software and also has a support line that can assist users over the telephone.

Banner groups use of AIR reporting mechanisms

The banner group representatives interviewed for this study identified that in some instances they have overarching guidelines and processes for recording and reporting vaccinations to AIR but it is generally up to the individual pharmacy which processes they implement, including the use of professional services software. Some banner groups reported that they do not use software that is currently integrated with AIR, so these pharmacies report to AIR directly via the AIR site.

In WA, there was a merger in late 2019 of the banner group Pharmacy 777 and Friendlies pharmacies. This merger will result in a change from pharmacies using professional services software that integrates with AIR to using software that does not currently integrate with AIR. These pharmacies will now be required to report directly to the AIR site.

Discussion

Pharmacies are an important emerging setting for vaccinations in Australia that potentially increase access to and uptake of vaccination services. Since 2014, all jurisdictions have introduced legislation to allow adequately trained pharmacists to vaccinate and the types of vaccines and age groups that can receive pharmacist vaccinations have progressively broadened. These legislations have changed throughout this study period. Alongside this increase in service delivery comes a responsibility to report to AIR to ensure that vaccination data are accurate and complete and can be used to inform individual patient management and public health program monitoring and action. In this study, we found that the number of pharmacist vaccinations reported to AIR has risen each year since 2016 and that pharmacy providers are responsible for an increasing proportion of vaccinations recorded in AIR (0.1% in 2017, 2.7% in 2019). The vast majority of vaccinations recorded were for influenza (94.7%).

The highest age-specific rate of pharmacist vaccination was in the 60–64 years age group. This may represent pharmacies capturing a population that are more likely to have medical conditions for which influenza vaccination is recommended but who are not yet eligible for a free NIP-funded vaccine.⁴⁶ The highest rate of pharmacist vaccination was seen in regional areas, where there may be difficulty in accessing other primary healthcare providers.²¹ This has also been demonstrated in WA as part of an evaluation of pharmacist vaccination services.¹³

Since 2016, pharmacist vaccinations have most frequently been reported directly to the AIR site, but automated software reporting is emerging as a more common method of reporting. Automated reporting through professional services software was introduced by GuildCare NG and MedAdvisor in August 2018 and March 2019, respectively. While software integration with AIR corresponds with a large increase in AIR reporting (4-fold increase from 2018 to 2019), direct reporting to the AIR site has also increased, doubling from 2018 to 2019, with just under half of total reports received via this method in 2019.

Our study suggests there is substantial underreporting of pharmacist vaccinations. Although vaccinations can be recorded on AIR retrospectively, most pharmacist vaccinations that occurred before pharmacists were able to report to AIR (in late 2016) have not been captured. This includes at least 35,000 vaccines administered in QLD between 2014 and 2016, 15,600 vaccinations in WA in 2015 and 8,000 vaccinations in TAS in 2016.^{11–13} In five jurisdictions (the ACT, VIC, SA, TAS and the NT), the number of pharmacies offering vaccination services is known. Only half of these pharmacies reported vaccination data to AIR between 1 July 2018 and 30 June 2019. It is possible that some pharmacies that have registered do not provide vaccinations. However, this apparent underreporting is supported by other information collected as part of this study. The number of vaccines reported to have been administered in 2019 by three banner groups combined was higher than the number recorded in AIR from all pharmacy providers combined. In addition, pharmacy peak bodies have reported that over 1 million influenza vaccinations were administered in pharmacies in 2018 and over 2 million in 2019 – 10 and 4 times more than those reported to AIR, respectively.^{14,15} A previous study in VIC estimated that 42,525 vaccinations were administered in pharmacies in 2017; three times the 12,530 vaccinations reported to AIR.⁸ Relatively few vaccination encounters for vaccines other than influenza have been reported to AIR, with only six meningococcal ACWY vaccinations recorded in WA in 2019 after it was added to

pharmacists' scope of practice in that jurisdiction on 1 August 2019. Similarly, only 818 MMR vaccinations have been reported in total across the country despite it being in scope in all jurisdictions, except the ACT, since late 2016. Part C of this study aims to investigate the completeness of data currently being reported to AIR in more depth.

Legislation to mandate AIR reporting is one method aiming to increase completeness of AIR data. Currently, while AIR reporting is strongly encouraged in all jurisdictions, it is a legislated requirement only in NSW (since 1 January 2019) and the ACT (since April 2019). However, while NSW had the highest proportional increase in reported pharmacist vaccinations of all jurisdictions between 2018 and 2019 (40-fold), the ACT had one of the lowest (2-fold). The two jurisdictions with the highest rate of reported pharmacist vaccination (VIC and WA) do not have legislation to mandate AIR reporting. Further research into the factors determining engagement with reporting will be another focus of Part C of this study.

A small proportion of reported vaccinations in pharmacies involved a vaccine (487) or age group (519) that is outside pharmacists' scope of practice in every jurisdiction. It is unclear to what extent these reflect data entry error or genuine vaccine misadministration. The most common vaccination outside pharmacists' scope of practice was combined adult diphtheria-tetanus (ADT). The high number of ADT vaccines recorded could be either a result of data entry error (e.g. they may involve inadvertent selection from the vaccine type list instead of dTpa vaccine, which is within pharmacists' scope of practice) or a genuine misadministration. The highest proportion of vaccination encounters recorded in children aged <10 years was in children aged 9 years (23%), which could indicate that such children are being considered 'close enough' to the age cut-off for administration.

Further investigation identified that a substantial proportion of hepatitis vaccinations (out of scope for pharmacists) were reported by a single hospital pharmacy in WA. These vaccines may have been dispensed and reported by the pharmacy but administered elsewhere in the hospital, for example, by nurses on wards. Other vaccinations that appear to be outside pharmacists' scope of practice may have been administered by nurse practitioners engaged to provide vaccination services in community pharmacy settings. However, while nurses can administer a larger range of vaccines to broader age groups than pharmacists, interviews with key stakeholders indicated that where nurse practitioners are providing vaccines in pharmacies, they would generally report to AIR under their own provider number, not that of the pharmacy. Stakeholders also indicated that non-pharmacist immunisation providers are being engaged less frequently as pharmacists are increasingly trained to provide vaccinations. It was not possible to investigate these issues, as a single immunisation provider number is used for each pharmacy and AIR does not record who provided the vaccination.

This study has highlighted the vast number of differences that exist in jurisdictional requirements for vaccination in pharmacies. While we have captured a snapshot of the current situation, jurisdictional legislation and requirements are continually evolving. The variety of differences that exist highlights the importance of the work being undertaken by the AHPPC working group towards proposing options to COAG for a nationally consistent approach to pharmacist vaccination.

There are several limitations of this study. Interviews conducted with key stakeholders were not representative of every aspect of the pharmacy industry. While many stakeholder representatives were pharmacists, full-time pharmacists were not specifically targeted in interviews; they will be surveyed in Part C. The results of AIR data analyses should be interpreted with caution given the likely substantial underreporting. Data presented on vaccines administered outside pharmacists' scope of practice may underestimate the true extent of this issue as they do not include analysis of jurisdiction-specific vaccine type and age group changes over time. As noted above, some pharmacist vaccinations in AIR may be from settings outside community pharmacy or administered by other immunisation providers in the pharmacy setting. Data presented on the number of vaccinating pharmacies actively reporting to AIR is not national, and jurisdictional registers of vaccinating pharmacies may not be current as they are updated at differing frequencies.

Conclusions

This study provides an analysis and exploration of pharmacist vaccinations and reporting to AIR. The increasing number of pharmacist vaccinations over time is supported by jurisdictional reviews demonstrating that there is strong acceptance and uptake of pharmacist vaccination in Australia. This study highlights a number of questions that warrant further investigation. These include the completeness of pharmacy vaccination data on AIR; factors that contribute to engagement with AIR reporting; the processes being used by pharmacists to record and report vaccinations; and pharmacists' understanding of and compliance with their scope of practice. Part C of this study will involve an online survey of community pharmacies and will include cross checking of the number of vaccinations reported as given by pharmacies against the number recorded in AIR. This study component will endeavour to address the questions raised in this report. A series of recommendations to improve pharmacist vaccination data in AIR are provided below, on the basis of Parts A and B of the study. Further recommendations will be provided following completion of Part C of the study.

1. Explore ways to improve pharmacist education and training to increase reporting to AIR

Ways to develop and enhance education and training materials for pharmacists should be explored to support providers to accurately record and report all immunisation encounters to AIR. Health could collaborate with Services Australia, state and territory health departments and pharmacy stakeholders to facilitate this.

2. Encourage legislation to mandate reporting to AIR across all jurisdictions

Legislation mandating reporting to AIR of pharmacist vaccinations should be encouraged across all jurisdictions. Health, in collaboration with state and territory health departments, could explore ways to facilitate this, including through the work of the AHPPC working group tasked with recommending options for a nationally consistent approach to pharmacist vaccination.

3. Increase and improve electronic reporting to AIR

Opportunities should be explored to expand the quantum of pharmacy professional services software with functionality to report directly to AIR and improve the quality of automated electronic reporting. Audits and compliance checks on pharmacies could be undertaken to identify the completeness and accuracy of reporting to AIR. Health, in collaboration with Services Australia,

Medical Software Industry Association, pharmacy peak bodies and pharmacy software companies, could explore ways to facilitate these initiatives.

4. Enhance ability to distinguish between community-based and hospital-based pharmacy reporting

Ways to distinguish between community-based and hospital-based pharmacy reporting to AIR should be explored to allow for more accurate analysis, including identification of vaccines given out of scope. Further research to delineate processes surrounding vaccinations reported by hospital-based pharmacies to AIR could be undertaken. Health, in collaboration with Services Australia, could explore ways to distinguish between these pharmacy provider types.

5. Source data on number of vaccines supplied to pharmacies

Capacity to source data on the numbers of vaccines distributed to pharmacies should be explored to facilitate assessment of completeness of pharmacist vaccination data in AIR. Health could liaise with pharmaceutical companies and medical supply companies to explore whether/how data on the number of private vaccines supplied to pharmacies in Australia can be sourced.

Appendices

- Appendix 1. Interview questions
- Appendix 2. Supplementary tables and figures
- Appendix 3. Timeline of pharmacist vaccination in Australia
- Appendix 4. NCIRS Information Sheet - Vaccines from community pharmacy: at a glance

Appendix 1. Interview questions

Review of the transfer of community pharmacy vaccination data into the Australian Immunisation Register

Semi-structured interview questions for Part B of the study

This document outlines the questions that will be used to interview key stakeholders for Part B of the study. It is divided into topic areas and grouped based on themes within those topics. Specific questions are listed for each stakeholder under the topics. A separate list of questions for JIC that will be tailored to each jurisdiction is at the end of the document.

Stakeholders to be interviewed:

- Department of Human Services, Australian Immunisation Register team (DHS)
- Pharmaceutical Society of Australia (PSA)
- The Pharmacy Guild of Australia (the Guild)
- The Australian Pharmacy Council (Council)
- Large pharmacy chains (banner groups) e.g. Chemist Warehouse, Priceline, Friendlies etc.
- Pharmacy software companies e.g. Guildlink, MedAdvisor, MINFOS dispense, FRED dispense, Lots dispense etc.
- Jurisdictional Immunisation Committee members (JIC)

Topic 1. The pharmacy landscape and history of pharmacy vaccinations

- **Guild:** Can you describe the landscape of pharmacy businesses in Australia – what kind of pharmacies exist? Banner groups, individually owned etc.? How do they function differently? How is the market divided between these groups? Is there a pattern in their distribution (e.g. are some more rural or urban)?

- **PSA/Guild:** How many members do you have and what proportion of all pharmacists/pharmacy owners is that? How do you engage with your members? What is your role in supporting and representing them?
- **Council:** I understand that your role in the pharmacy industry is to accredit pharmacy education and training in Australia and New Zealand on behalf of the Pharmacy Board of Australia. What is your interaction with the Board? Do you interact at all with the Guild, the PSA or federal government?
- **Council:** You have been involved in adding vaccination to the scope of practice for Australian pharmacists through production of the *Standards for Accreditation of Programs to Support Pharmacist Administration of Vaccines*. Over the years leading up to this change, were you involved in any advocacy or support for it?
- **PSA/Guild:** I understand that you have been involved in advocating to add vaccination to the scope of practice for Australian pharmacists (PSA – *Pharmacists in 2023*; Guild – *Community pharmacy 2025* [strategic plan] – vaccinations are listed under health services as a growth pathway;). We are trying to construct a timeline of the changes and milestone events. My understanding is that:
 - Historically, pharmacies facilitated access to vaccines by offering nurse delivered services.
 - In 2013, proposals for there were proposals for pharmacist involvement in vaccination to address GP shortages in rural Australia.
 - In 2014, Queensland Pharmacist Immunisation Pilot (QPIP) occurred and in 2016 it concluded and provided evidence that pharmacist administration of vaccination is safe, effective and feasible.
 - During 2015 and 2016, jurisdictions amended legislation to allow trained community pharmacists to administer particular vaccines to consenting adults.
 - What was your organisation's role in each of these steps and were there any other major milestones? What advocacy and support have you provided? Who were the other main players in the change to vaccination provision?
- **PSA/Guild/Council:** Do you have a sense the proportion of pharmacists that are endorsed vaccination providers? Are they increasing year to year? Do you have a sense of the distribution of pharmacy vaccination services? Are they centralised in metropolitan or rural areas?
- **PSA/Guild:** Other than pharmacists providing vaccinations in their pharmacy, what other ways is the pharmacy industry involved in vaccination provision (e.g. are pharmacists providing any mobile services such as workplace vaccinations? Are there still nurses providing vaccinations in pharmacies as clinics? Do pharmacists provide rotating vaccination services through multiple pharmacies? Are you involved in providing corporate vaccination services e.g. <http://www.guildcorporatehealth.com.au/>)
- **PSA/Guild/Council:** What are the roles, interactions and differences between you and:
 - The Australian Pharmacy Council

- The Pharmacy Board of Australia
- The PSA
- The Guild
- **DHS:** Can you discuss the history of DHS's involvement with pharmacies being approved vaccination providers? What modifications were needed within AIR to facilitate this change and when did this occur [prompts: provider type]
- **DHS:** Have you had any interaction with the PSA/Guild or pharmacies directly about reporting to AIR? Have you provided any promotional or educational materials to these groups?
- **DHS:** Have you liaised with pharmacy software companies in regards to AIR reporting integration? In what way and who initiates these discussions?
- **DHS:** Are there any recent or upcoming updates to software integration or other system changes (e.g. Prota)?
- **DHS:** Is there any quality assurance processes carried out by DHS for AIR data (e.g. a vaccine is given at the wrong age point – are there any alerts)? Are there any limitations or a set list of vaccines that can be reported?
- **Software companies:** What software products do you offer to pharmacies? What kind of uptake does your software have? Do you affiliate with any particular banner groups or individual pharmacies?
- **Software companies:** What is the scope of functionality of your software (dispensing, record keeping, clinical management etc.)? Do you customise the vaccine types or ages that are able to be entered into the record by jurisdiction?
- **Software companies:** Do you have any affiliation with key pharmacy stakeholders (Guild, PSA)?
- **GuildCare:** How does integration with the Guild work? Do they have oversight of GuildLink or are you independent/at level?
- **GuildCare:** Out of the 5000 pharmacies that are reported to use a GuildLink product - do you know what proportion use GuildCare?
- **Banner groups:** Can you tell us about the model of your banner group: are pharmacies franchised? Do all pharmacies in the banner group follow the same procedures and policies or are they independent in some ways? Do they all use the same software? Is there an overarching central office and/or state offices?
- **Banner groups:** Do you provide vaccinations in your pharmacies? Do you do this in every pharmacy? If not, what proportion? Do you provide/support/hire based immunisation training for your staff? Is it always a pharmacist providing vaccinations or do you contract independent providers (clinics/nurses)? Where do you source the vaccines?
- **Banner groups:** Are there standardised processes for providing vaccinations (communications materials, pricing, procedures etc – noting these would differ by jurisdiction)? Is it a coordinated effort to get vaccinations promoted e.g. for flu season?

- **Banner groups:** Does your banner group provide guidance to pharmacies on legislation changes?
- **Banner groups:** Do you have an overarching 'banner group' membership with the guild, or would it be up to individual pharmacies to be members? Do you know if your pharmacists members of the PSA?
- **Banner groups:** Do you provide government and/or private market vaccines (where applicable)? Is there a difference in price?
- **Banner groups:** How do you source/procure vaccines?
- **Banner groups:** Do you provide any vaccinations for your central office staff? Do you have any awareness of how these are reported to AIR?
- **PSA/Guild:** Do you collaborate with banner groups or provide overarching banner group memberships?
- **Guild:** You indicated that you might be able to reach out to state and territory branches to better understand how many pharmacies provide vaccinations – is this an option going forward? Are you able to provide a crude indication based on the database that informs the 'find a pharmacy' website of how many pharmacies provide vaccinations?
- **Guild:** You have indicated that 60-70% of pharmacies have consultation rooms (which are required for vaccination provision), what else would these be used for?
- **Guild, PSA, JIC, Council, software companies:** Do you communicate with pharmacists/pharmacies about changes to legislation or other policies related to vaccination in pharmacy?
- **PSA/Guild:** Are you involved in the work by COAG/AHPPC to harmonise a nationally consistent approach to pharmacist administered vaccination? I note in a PSA presentation that a focus for harmonisation is access to NIP vaccines, would this change pricing of vaccines in pharmacy?
- **DHS:** Is filling out an 'IM004' form the process for becoming a registered immunisation provider with AIR? How long does this take? Is there any special requirements for pharmacist vaccinators? Does this have any link to jurisdictional authorisation of a pharmacist to become accredited as a provider or is there any cross checking process
- **Guild/PSA:** I believe that the pharmacy industry uses PHARIA as a remoteness index (instead of ARIA) – where did this originate and how/why was it developed?

Topic 2. Immunisation training programs for community pharmacists

- **PSA/Guild:** What is the structure of your immunisation training program? Are there any training components related to reporting to AIR? Is this different in each jurisdiction? I believe there are additional components for different vaccinations in some jurisdictions (e.g. additional training is needed to administer MMR and dTpa in NSW) – can you elaborate on how this works [prompts: is it a separate training course, what are the differences in what is taught]?

- **PSA/Guild:** How was this program developed? [Prompts: developed in line with the Australian Pharmacy Council's *Standards for Accreditation of Programs to Support Pharmacist Administration of Vaccines*, jurisdictional pharmacist vaccination standards and/or the Department of Health's *Immunisation Education Framework for Health Professionals*]
- **PSA/Guild/JIC:** Which other organisations provide vaccination training programs? Do you collaborate at all?
- **Council:** How did you go about developing the Standards? Did you interact with the Department of Health on the *Immunisation Education Framework for Health Professionals*? Do you liaise at all with the jurisdictions on their pharmacist vaccination standards?
- **Council:** NSW standards specify that training needs to occur at an 'Australian Pharmacy Council accredited pharmacy education program provider' – do you accredit education providers? Do you accredit all providers? What is the accreditation process? Does it vary by jurisdiction? Do you have a register of education providers? Might they then have a register of accredited pharmacists?
- **Council:** In the standards it says "The APC recognizes that the *National Immunisation Education Framework* is the primary document for development and delivery of immunisation education programs. The intent of updating the APC standards is to reflect the *National Framework* until the Government (COAG) immunisation harmonisation process is completed and State and Territory legislation are amended." – have you been involved in this harmonisation process at all?
- **PSA/Guild/Council/JIC:** Once a pharmacist has undertaken a vaccination training program, do they then need government endorsement/authorisation (may vary by jurisdiction)? How do they seek this authorisation? Are you involved in this process? Does this have any link to registering with AIR to become a registered immunisation provider [prompt: does this count towards authorisation or is there any cross checking?]
- **Council:** In the Standards it mentions the move towards allowing students to take an accredited vaccination training program. Are you aware of whether any universities have incorporated this training into degree programs? Does the longevity of this accreditation differ to registered pharmacists?
- **Council/JIC:** I believe there are different/additional components for different vaccinations in some jurisdictions (MMR and dTpa need more on top of flu in NSW) – can you elaborate on how this works and where the oversight/requirements come from? Do all jurisdictions require additional courses to administer different types of vaccines?
- **PSA/Guild/Council/JIC:** Outside of the addition of particular vaccine administration courses, accreditation seems to predominantly be a one-off process with maintenance of CPR and first aid required over time (with variances by jurisdiction). Are there any other processes or requirements to uphold vaccination accreditation over time? Does the duration of accreditation differ for courses delivered to pharmacy students who are not registered pharmacists (only applicable in some jurisdictions)?
- **Council:** Do you provide any guidance on including training components related to reporting to AIR?

- **PSA/Guild:** Do you have any ongoing consistent communication with pharmacists you have trained?
- **PSA/Guild:** I believe the PSA and Guild are the predominant providers of pharmacy vaccination training. Do you have a record of all the pharmacists you have trained? Are we able to obtain a number of pharmacists trained?
- **JIC/Council:** What is the governance structure for vaccination training programs (who is responsible for providing quality assurance/oversight of the multiple training courses on offer – noting it is legislated in some jurisdictions)? Do you enforce the standards in the Council's *Standards for Accreditation of Programs to Support Pharmacist Administration of Vaccines*?
- **Banner groups:** Do you organise group training for vaccination accreditation? Which training programs do your staff predominantly use to become accredited? Do you endorse/support particular programs? Do you try to have a proportion of pharmacies with a vaccination provider? Do make training compulsory or hire based on vaccination accreditation?
- **Software companies:** Do you have any involvement with training programs [e.g. demonstrations, materials on reporting]?

Topic 3. Workflows and processes undertaken to record and transmit vaccination encounters

- **DHS:** Can you explain how pharmacies would report to AIR? What are all of the options available for reporting? Do they have a provider number in AIR? Can you confirm whether this would be for a pharmacy or a pharmacist? Is this a unique number generated by AIR or is it some kind of registration number for another system? Is there any oversight mechanism for cross-checking pharmacists against accreditation as an endorsed vaccination provider [prompt: do they have to provide proof of accreditation]? As discussed with JIC, is it possible to cross check the number of pharmacies registered in Australia (a number used for PBS perhaps), the number of pharmacies registered as vaccination providers to report to AIR and the number that have reported to AIR?
- **DHS:** What are the options for reporting vaccinations to the AIR? Do you collect method of transmission? Do you have a sense of which method of transmission is most popular? Has anything changed in the way reports are transmitted to AIR since February 2018 (when the last process framework was documented by NCIRS)?
- **DHS:** Is there any penalty for not reporting where legislated? If so, who enforces this?
- **DHS:** Do you liaise with software companies to provide support to upload to AIR? How does this work?
- **PSA/Guild:** Do you have a sense of how your members generally record vaccinations given to patients [prompt: Paper based files or software – integrated with prescribing software]?
- **PSA/Guild:** What is your awareness of the options/processes for upload to AIR? Do you have any sense of which transmission methods are most popular?

- **PSA/Guild/Banner groups/Software companies:** If an independent provider is engaged to conduct vaccination clinics in the pharmacy setting, would they record and report vaccinations to AIR or would they provide them to the pharmacy to do so? If a nurse is providing vaccinations in a pharmacy clinic setting, would they report the vaccinations as a nurse provider or as a pharmacist provider to AIR?
- **DHS:** If a nurse is providing vaccinations in a pharmacy clinic setting, would they report the vaccinations as a nurse provider or as a pharmacist provider to AIR?
- **PSA/Guild/Software groups/Banner groups:** Do you think there is an awareness of the AIR amongst pharmacists providing vaccinations? Do you think there are any ways that awareness of reporting can be raised and/or reporting can be further promoted and facilitated? Do you provide any awareness raising or promotional activities for pharmacists to do with providing vaccinations?
- **Banner groups:** Which software do you use to record vaccinations? Do all pharmacies within your banner group use the same software? Does every pharmacy use the same processes and systems to record vaccinations? What are they (software, paper)? Do you report vaccinations to AIR? Does every pharmacy use the same options and processes to upload to AIR? How does that process work? (prompts: automatic upload from record keeping software; manual entering to AIR website; bulk upload; paper forms)? Do you report at the point of care or in bulk? When you report to AIR do you receive any confirmation of the report being successful?
- **PSA/Guild:** Are you aware of any interaction/communication between pharmacists and patients' GPs with regards to vaccinations and record keeping?
- **Banner groups:** Do you have any policies about communicating with the patient's GP about vaccinations provided (i.e. give the patient a copy of the record for them to pass to the GP)?
- **Banner groups/software groups:** How could we have vaccination records provided to us as part of Part D of the study (are pharmacists able to export data or records in excel/PDF)? What fields are included in an exported record – are they customisable?
- **Software groups:** Is your software integrated with AIR and able to transmit vaccination encounters to AIR? When (exact date) was your software able to report to AIR and how did you coordinate this [prompt: liaison with DHS]? Prior to that, are you aware of how your software users reported to AIR (if at all); was there an option to select reporting or print for reporting? Was there any integration that wasn't automated? Have there been any other changes to the structure of your software to link to AIR over time and what have these changes been? Is this integration with AIR something that differs between iterations of software (e.g. if a pharmacy hasn't paid to update software they wouldn't have it)?
- **Software companies:** How does the record keeping and reporting process work from your software? Does the pharmacist look up the patient's record in the software and enter the vaccination encounter there? Would they need to create an encounter record to access/print the consent form? What information is collected in the encounter record (prompts: name; DOB; Medicare number; address; vaccine type, brand, batch, expiry; site of administration;

immunisation provider's details)? How are vaccines sorted once you select the disease? Alphabetical drop down? Limited to the disease selected?

- **Software companies/PSA/Guild/Banner groups:** At the point of vaccination, does a pharmacist prescribe, dispense and then deliver vaccines? Does this get recorded across different software platforms (e.g. dispensing and then clinical record keeping)?
- **Software companies:** Is there an option to select reporting to AIR, or does this happen automatically? Is there any confirmation provided that the encounter was successfully reported [Note: Both Medadvisor and Guildlink have confirmation of upload at the end]. What happens if the AIR upload wasn't successful? Do you get an error or reminder to upload?
- **Software companies:** Does your software integrate or provide printable reports to link with GPs at all?
- **Software companies:** are there any quality assurance processes in place for entering data [prompt: e.g. only allowing vaccines that are legislated for provision by pharmacists can be entered etc.]
- **Guildlink:** I believe there are some fail safe mechanisms built into the way that vaccination records are entered in GuildCare (prompts provided for allowable age groups and legislated vaccines in each jurisdiction). Do you only include the vaccines that are legislated for provision in the list of vaccines that can be selected to create the record?
- **Guildlink:** I believe Guilddata is used to report on aggregate data for advocacy purposes. Would you have data on vaccinations provided through this software?
- **Software companies/Banner groups:** Do you have any data on the number of vaccines given in each pharmacy during a week in flu season?
- **Software companies that do not integrate with AIR** (e.g. MinFOS dispense): Are you a prescribing software only or do you record other information e.g. vaccinations or clinical management such as diabetes? Do you provide any options to export records for upload to AIR? Do you have any plans to integrate with AIR? Do you predominantly work with banner groups/individually owned?

Other

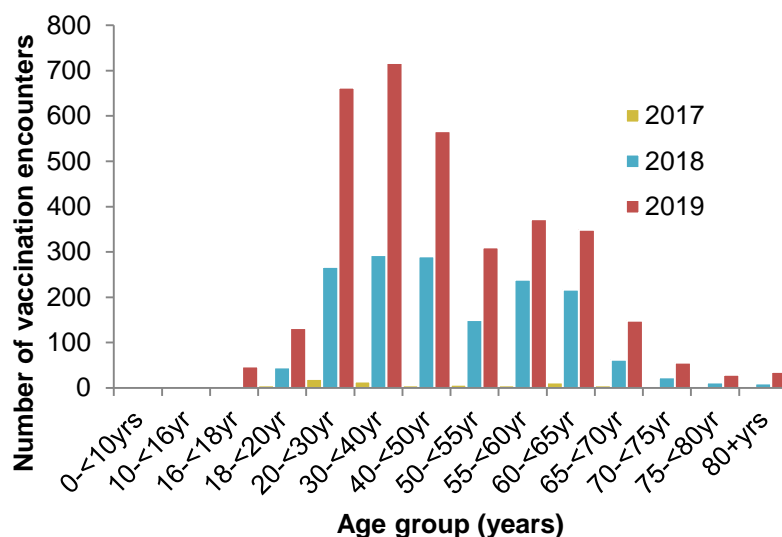
Questions specifically for JIC

- Questions will be tailored for JIC based on publicly available materials but will cover:
 - Date that pharmacist vaccination was legislated;
 - Dates of legislative change allowing different age groups to be vaccinated, different vaccines to be administered and NIP vaccine availability;
 - Whether or not AIR reporting is legislated and the date of legislative change;
 - Whether it is legislated to look up AIR records prior to vaccination;
 - Whether there is any oversight of reporting to AIR where it is legislated, whether there are any penalties for not reporting and who would enforce this;

- Any use of jurisdictional immunisation registers by pharmacies (noting they are being phased out);
- Oversight of vaccination provider training programs (and whether there are more than those provided by the Guild and PSA);
- Oversight of pharmacies providing vaccinations (chemist inspectorate, pharmaceutical services etc.);
- Oversight of pharmacists that have been accredited to provide vaccinations (and any centralised register of pharmacists accredited to provide vaccines);
- Whether unregistered (student) pharmacists are allowed to undertake vaccination training and become providers;
- Whether additional training is needed to provide different vaccines;
- What upkeep is needed to maintain vaccination accreditation (if any in addition to CPR and First Aid);
- Whether GPs must be notified of details of the vaccine provided;
- Whether the patient needs to be made aware of eligibility to receive a NIP vaccine at a GP or immunisation service;
- Whether insurance is required to provide vaccinations;
- Whether training from other jurisdictions is recognised;
- Whether pharmacists are able to vaccinate outside of the community pharmacy setting;
- The process for developing vaccination standards [prompt: any liaison with the Pharmacy Council or other jurisdictions];
- Context around COAG Health Council's request for an AHPPC working group to recommend options for 'nationally consistent approach to pharmacist administered vaccination';
- The possibility of obtaining data on government funded vaccines provided to pharmacies, so as to analyse variations in reporting of government-funded and private market vaccinations.

Appendix 2. Supplementary tables and figures

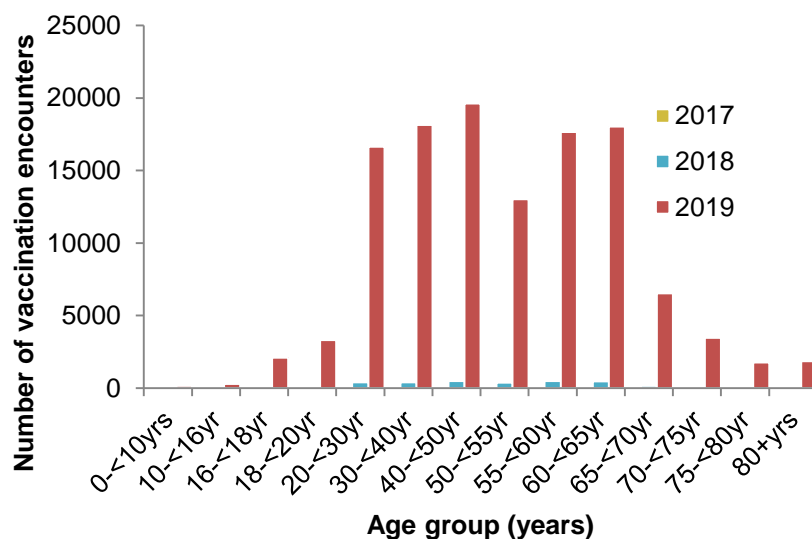
Figure 1. Number of pharmacist vaccinations in ACT by age group and year, 2017-2019



ACT = Australian Capital Territory

Source: Australian Immunisation Register, data as at 31 December 2019

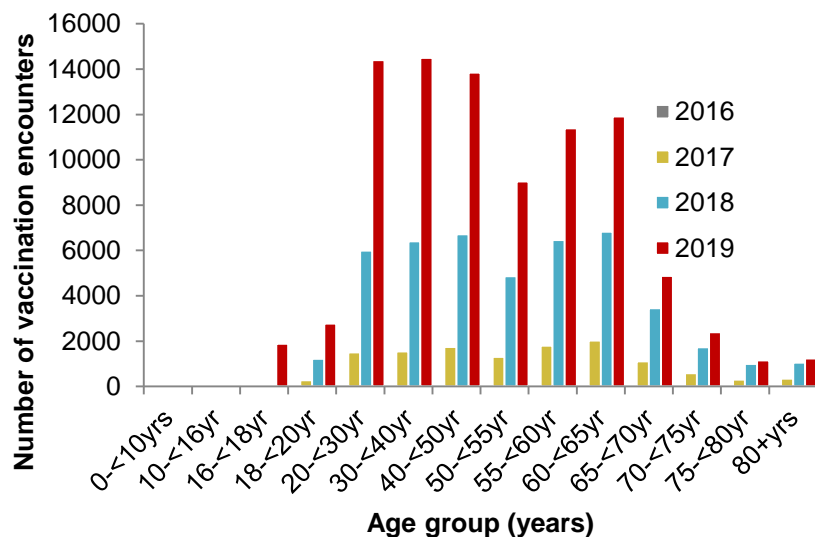
Figure 2. Number of pharmacist vaccinations in NSW by age group and year, 2017-2019



NSW = New South Wales

Source: Australian Immunisation Register, data as at 31 December 2019

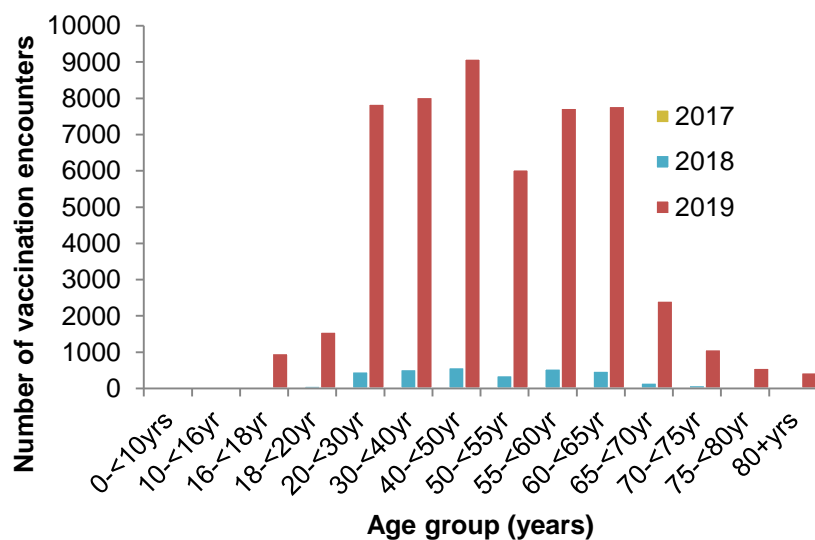
Figure 3. Number of pharmacist vaccinations encounters in VIC by age group and year, 2016-2019



VIC = Victoria

Source: Australian Immunisation Register, data as at 31 December 2019

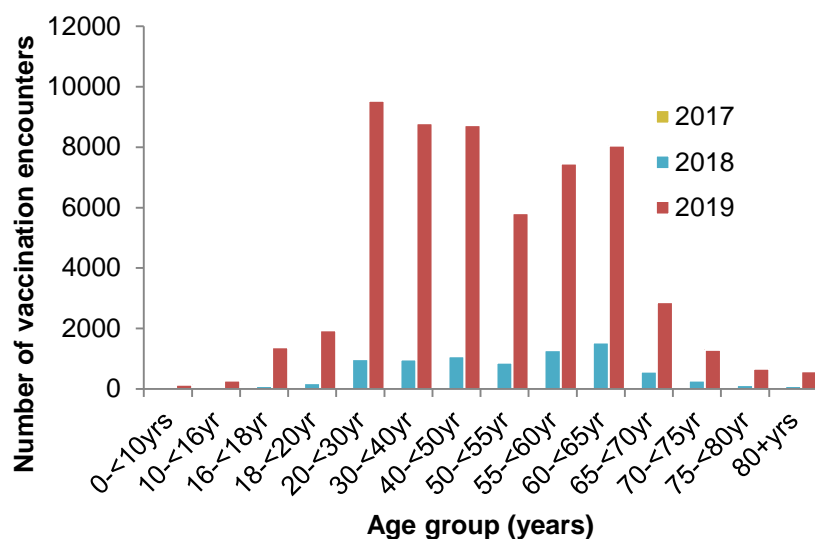
Figure 4. Number of pharmacist vaccinations in QLD by age group and year, 2017-2019



QLD= Queensland

Source: Australian Immunisation Register, data as at 31 December 2019

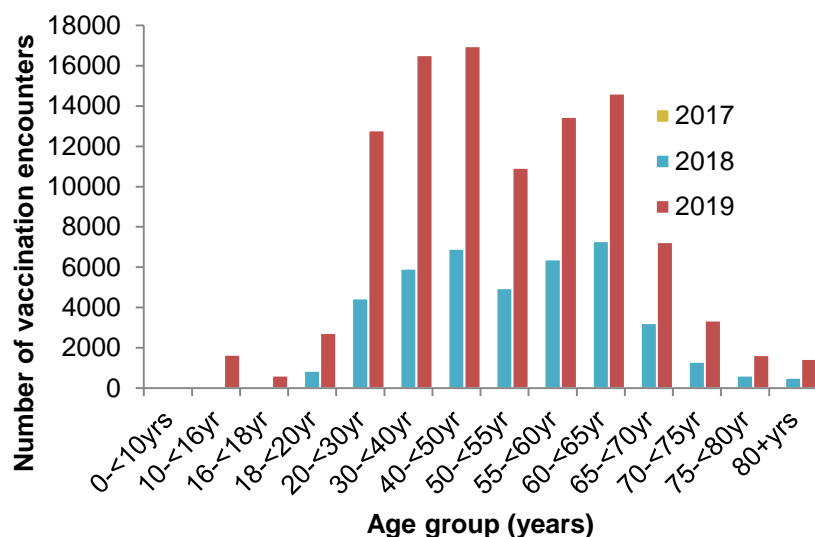
Figure 5. Number of pharmacist vaccinations in SA by age group and year, 2017-2019



SA = South Australia

Source: Australian Immunisation Register, data as at 31 December 2019

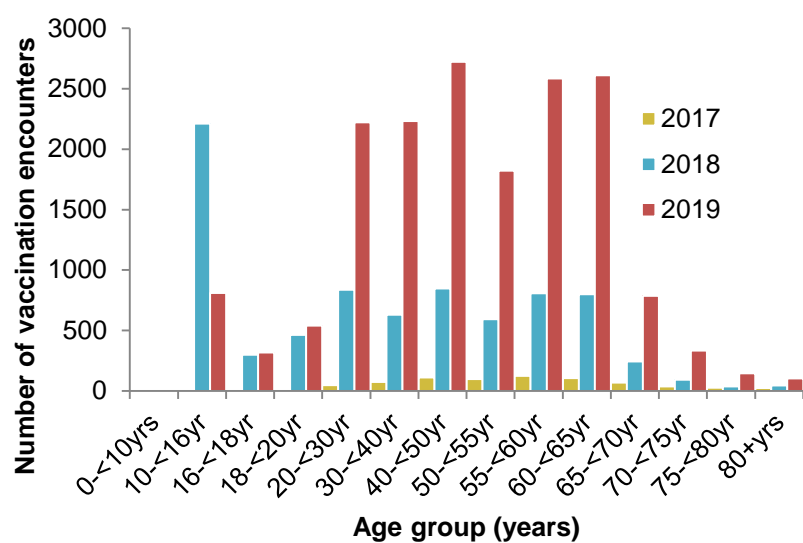
Figure 6. Number of pharmacist vaccinations in WA by age group and year, 2017-2019



WA = Western Australia

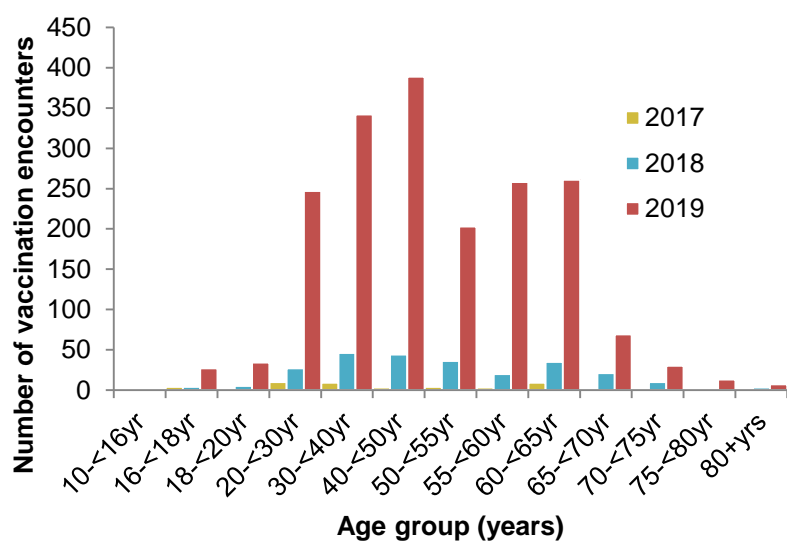
Source: Australian Immunisation Register, data as at 31 December 2019

Figure 7. Number of pharmacist vaccinations in TAS by age group and year, 2017-2019



TAS = Tasmania
Source: Australian Immunisation Register, data as at 31 December 2019

Figure 8. Number of pharmacist vaccinations in NT by age group and year, 2017-2019



NT = Northern Territory
Source: Australian Immunisation Register, data as at 31 December 2019

Table 1. Number of pharmacist vaccinations by jurisdiction, month and year, 2016–2019

Date of vaccination encounter		ACT	NSW	VIC	QLD	SA	WA	TAS	NT	Total
2016	October	0	0	2	0	0	0	0	0	2
	November	0	0	11	0	0	0	0	0	11
	December	0	0	12	0	0	0	0	0	12
	Total 2016	0	0	25	0	0	0	0	0	25
2017	January	0	0	12	0	0	0	0	0	12
	February	0	0	40	0	0	0	0	0	40
	March	0	0	1,217	0	0	0	120	0	1,337
	April	0	122	4,571	0	2	19	143	0	4,857
	May	0	120	3,737	64	14	192	314	10	4,451
	June	5	63	1,115	57	1	47	68	6	1,362
	July	15	18	460	46	6	14	23	4	586
	August	18	12	467	63	6	9	47	6	628
	September	20	9	536	24	32	0	17	5	643
	October	7	7	203	15	10	3	0	5	250
	November	4	5	83	22	25	0	0	3	142
	December	13	7	89	17	25	0	1	4	156
	Total 2017	82	363	12,530	308	121	284	733	43	14,464
2018	January	13	1	120	17	40	1	3	4	199
	February	12	5	161	16	56	4	3	0	257
	March	84	151	2,573	323	988	606	111	3	4,839
	April	455	1,055	12,398	1,076	2,364	7,249	1,358	41	25,996
	May	721	1,500	22,487	1,268	2,979	21,887	2,519	134	53,495
	June	248	251	4,618	359	932	8,697	483	46	15,634
	July	53	40	1,313	96	271	2,921	169	15	4,878
	August	11	56	1,086	76	113	832	702	3	2,879
	September	1	12	288	23	81	110	2,051	1	2,567
	October	7	11	267	22	86	35	379	5	812
	November	2	2	239	62	80	65	83	1	534
	December	2	5	200	99	101	22	53	0	482
	Total 2018	1,609	3,089	45,750	3,437	8,091	42,429	7,914	253	112,572
2019	January	5	79	224	64	129	39	25	7	572
	February	3	196	200	53	112	33	25	1	623
	March	31	3,454	2,486	999	1,801	1,297	327	46	10,441

April	487	30,498	21,039	15,756	16,003	12,842	4,047	482	101,154
May	1,531	57,986	43,962	25,177	30,613	50,168	8,712	874	219,023
June	856	18,733	12,549	5,787	5,056	31,112	2,770	290	77,153
July	155	6,216	4,927	2,426	1,717	6,374	946	91	22,852
August	189	1,975	1,660	1,432	642	758	210	40	6,906
September	62	1,216	614	531	416	374	37	16	3,266
October	18	810	671	478	314	390	22	17	2,720
November	36	728	543	428	373	296	52	8	2,464
December	53	705	577	470	333	338	60	9	2,545
Total 2019	3,426	122,596	89,452	53,601	57,509	104,021	17,233	1,881	449,719
Total 2016-2019	5,117	126,048	147,757	57,346	65,721	146,734	25,880	2,177	576,780

ACT = Australian Capital Territory; NSW = New South Wales; NT = Northern Territory; QLD = Queensland; SA = South Australia; TAS = Tasmania; VIC = Victoria; WA = Western Australia

Source: Australian Immunisation Register, data as at 31 December 2019

Table 2. Number of vaccination encounters by vaccine brand and jurisdiction, 2016–2019

Vaccine brand	ACT	NSW	VIC	QLD	SA	WA	TAS	NT	Total
Adacel	0	192	584	163	190	38	6	0	1,173
Adacel Polio	0	1	1	0	0	2	0	0	4
ADT	5	31	15	24	15	4	0	0	94
Afluria Quad	2,621	52,157	64,009	32,027	39,551	31,685	13,612	1,021	236,683
Agrippal	1	4	4	1	0	1	0	0	11
Avaxim	0	4	4	0	1	0	0	0	9
BCG	0	0	1	0	0	0	0	0	1
Bexsero	0	3	7	25	0	1	0	0	36
Boostrix IPV	0	18	21	16	29	2	0	0	86
Boostrix	373	7,145	8,152	3,941	3,923	1,289	88	122	25,033
Comvax	0	1	0	0	0	0	0	0	1
Energix B (adult)	0	15	4	1	4	0	0	0	24
Energix B (paediatric)	0	3	0	0	0	125	0	0	128
Fluarix	12	996	560	521	36	108	9	4	2,246
Fluad	195	69	7,798	27	16	10,368	3	0	18,476
Fluzone high dose	2	133	3,701	49	28	2,527	3	9	6,452
Flu (generic)	0	0	6	0	0	0	0	0	6
Fluarix tetra	186	28,744	15,151	6,829	3,252	5,981	2,214	431	62,788
bioCSL Fluvax	0	17	300	4	0	14	3	2	340
Fluquadri junior	0	41	17	27	5	24	4	3	121

Fluquadri	395	20,601	21,225	6,863	4,496	28,287	3,213	304	85,384
Generic Flu	0	1	0	0	0	0	0	0	1
Generic Men ACWY	0	0	0	0	0	0	6	0	6
Twinrix	0	8	10	0	0	46	0	0	64
Havrix	0	5	3	0	1	0	0	0	9
Havrix Junior	0	1	0	0	0	2	0	0	3
Hiberix	0	0	1	11	0	0	0	0	12
Gardasil	0	0	1	0	0	0	0	0	1
Gardasil 9	0	0	7	0	0	0	0	0	7
Infanrix Hexa	0	0	1	0	0	0	0	0	1
Infanrix-IPV	0	1	1	0	0	0	0	0	2
Infanrix penta	0	0	0	0	0	2	0	0	2
Infanrix	0	1	0	0	0	0	0	0	1
Influvac Tetra	1,324	15,404	25,518	6,453	13,934	65,507	3,500	247	131,887
Influvac	1	185	418	205	144	547	4	27	1,531
Inactivated polio vaccine	0	0	1	0	0	0	0	0	1
Jespect	0	0	1	0	0	0	0	0	1
Menactra	0	0	0	0	0	3	3,203	0	3,206
Meningitec	0	1	0	0	0	0	0	0	1
Mencevax ACWY	0	0	0	0	0	0	2	0	2
MMR II	0	53	159	5	13	1	6	0	237
Priorix	0	198	56	103	71	145	1	7	581
Nimenrix	0	0	4	24	0	3	3	0	34
Rabipur	0	6	0	0	0	0	0	0	6
Pneumovax 23	0	0	0	13	0	0	0	0	13
ActHIB	0	1	2	1	2	1	0	0	7
Prevenar 13	0	0	2	11	0	0	0	0	13
Priorix-Tetra	0	1	0	1	0	1	0	0	3
Rotarix	0	0	1	0	0	0	0	0	1
Tet-Tox	0	0	0	0	2	0	0	0	2
Typhim Vi	0	6	1	0	2	2	0	0	11
Vaxigrip	0	0	0	1	1	0	0	0	2
Vivaxim	2	1	7	0	5	1	0	0	16
Varilrix	0	0	1	0	0	12	0	0	13
Varivax	0	0	0	0	0	5	0	0	5
Zostavax	0	0	2	0	0	0	0	0	2

Total	5,117	126,048	147,757	57,346	65,721	146,734	25,880	2,177	576,780
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ACT = Australian Capital Territory; NSW = New South Wales; NT = Northern Territory; QLD = Queensland; SA = South Australia; TAS = Tasmania; VIC = Victoria; WA = Western Australia

Source: Australian Immunisation Register, data as at 31 December 2019

Table 3. Method of pharmacist vaccination reporting to the AIR by jurisdiction and year, 2016 to 2019

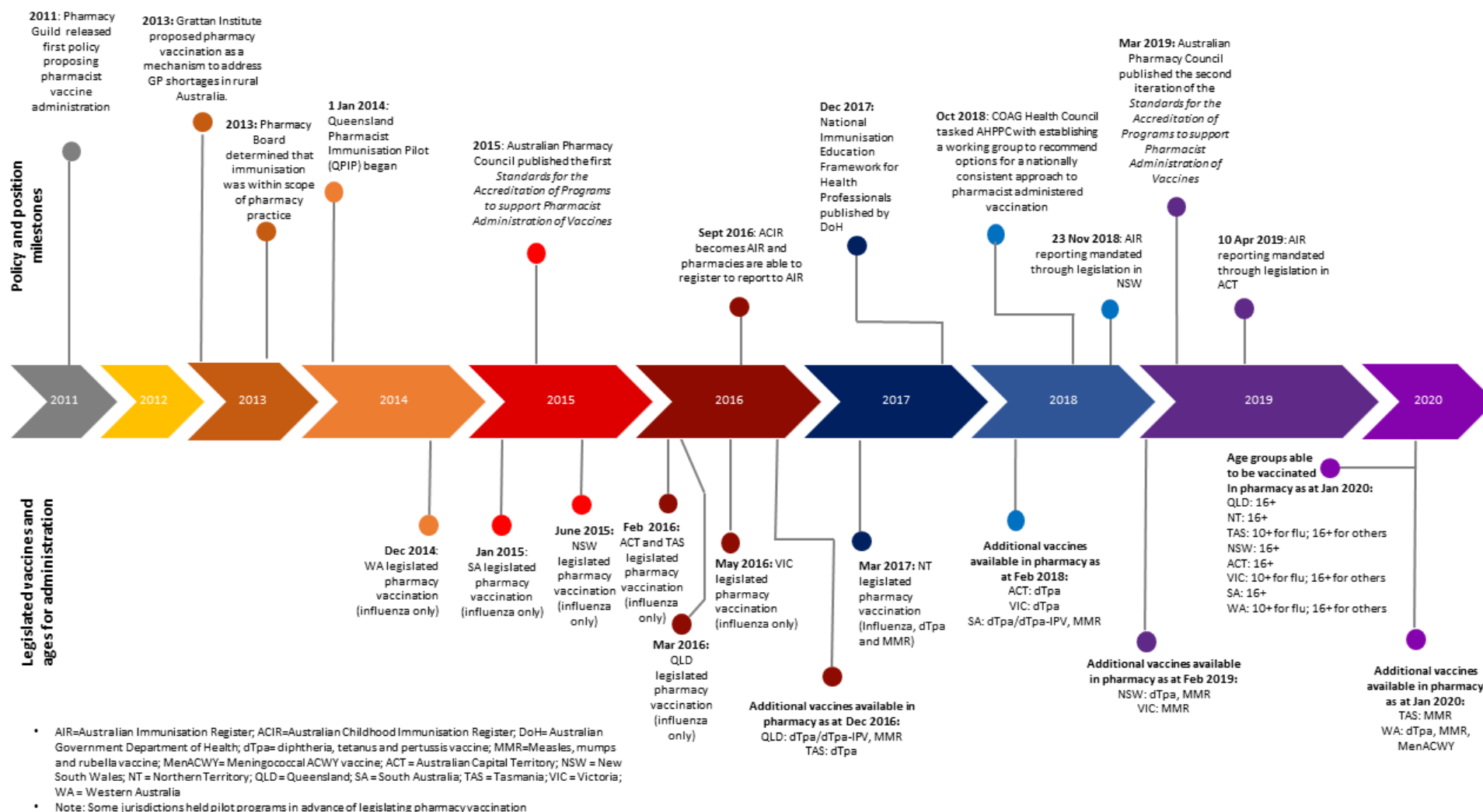
Year	Method of AIR report	ACT	NSW	VIC	QLD	SA	WA	TAS	NT	Total
2016	AIR site	0	0	25	0	0	0	0	0	25
	Total 2016	0	0	25	0	0	0	0	0	25
2017	Automated software reporting	0	0	0	1	0	0	0	0	1
	Web/Internet - AIR site	82	363	12,530	307	121	284	733	43	14,463
	Total 2017	82	363	12,530	308	121	284	733	43	14,464
2018	Manual (non-standard forms)	0	0	35	0	0	0	0	0	35
	Automated software reporting	10	1	7	98	2	44	50	0	212
	AIR site	1,599	3,088	45,708	3,339	8,089	42,385	7,864	253	112,325
	Total 2018	1,609	3,089	45,750	3,437	8,091	42,429	7,914	253	112,572
2019	Manual (non-standard forms)	0	40	348	3	0	325	0	0	716
	Automated software reporting	2,715	67,690	42,014	38,262	36,610	36,591	7,237	1,244	232,363
	AIR site	711	54,866	47,090	15,336	20,899	67,105	9,996	637	216,640
	Total 2019	3,426	122,596	89,452	53,601	57,509	104,021	17,233	1,881	449,719
2016-2019	Total 2016-2019	5,117	126,048	147,757	57,346	65,721	146,734	25,880	2,177	576,780

AIR=Australian Immunisation Register

ACT = Australian Capital Territory; NSW = New South Wales; NT = Northern Territory; QLD = Queensland; SA = South Australia; TAS = Tasmania; VIC = Victoria; WA = Western Australia

Source: Australian Immunisation Register, data as at 31 December 2019

Appendix 3. Timeline of pharmacist vaccination in Australia



Appendix 4. NCIRS information sheet - Vaccines from community pharmacy – at a glance



Vaccines from community pharmacy – at a glance

Q. What are the vaccines that I may be able to receive from a community pharmacy, and do I have to pay for them?

A. This varies across the country and is controlled by the legislation of the state or territory. It also depends on your age, whether you are pregnant and your eligibility for vaccines funded under the National Immunisation Program (NIP). The summary table below provides a guide.*

State/Territory	Vaccines that can be administered by a pharmacist immuniser†	Who can receive vaccinations administered by a pharmacist?‡	Is the vaccine free if I get it from a community pharmacy?§	Would the same vaccine be free if I get it from a GP, local medical centre or an Aboriginal medical service?¶
Australian Capital Territory	Influenza	10 years and older	Yes, for people aged 65 years and older (NIP-funded); otherwise No	Yes, if you meet any condition for a NIP-funded dose – Refer to Notes
	Diphtheria-tetanus-pertussis (dTpa)	16 years and older	No	
	Measles-mumps-rubella (MMR)	16 years and older	No	Yes, for people born in 1966 and onwards (state-funded), or if you meet any condition for a NIP-funded dose – Refer to Notes
New South Wales	Influenza	10 years and older	No	Yes, if you meet any condition for a NIP-funded dose – Refer to Notes
	Diphtheria-tetanus-pertussis (dTpa)	16 years and older	No	
	Measles-mumps-rubella (MMR)	16 years and older	No	Yes, for people born in 1966 and onwards (state-funded), or if you meet any condition for a NIP-funded dose – Refer to Notes
Northern Territory	Influenza	16 years and older	No	Yes, if you meet any condition for a NIP-funded dose – Refer to Notes
	Diphtheria-tetanus-pertussis (dTpa)	16 years and older	No	
	Measles-mumps-rubella (MMR)	16 years and older	No	Yes, for people born in 1966 and onwards (territory-funded), or if you meet any condition for a NIP-funded dose – Refer to Notes
Queensland	Influenza	10 years and older	No	Yes, if you meet any condition for a NIP-funded dose – Refer to Notes
	Diphtheria-tetanus-pertussis (dTpa)§	16 years and older	No	
	Measles-mumps-rubella (MMR)	16 years and older	No	Yes, for people born in 1966 and onwards (state-funded), or if you meet any condition for a NIP-funded dose – Refer to Notes
	Cholera	16 years and older	No	No
	Haemophilus influenzae type B	16 years and older	No	
	Hepatitis A	16 years and older	No	
	Meningococcal ACWY	10 years and older	No	Yes, for catch up of missed doses for all people aged <20 years
	Pneumococcal	16 years and older	No	Yes, if you meet any condition for a NIP-funded dose – Refer to Notes
	Poliomyelitis	16 years and older	No	Yes, for catch up of missed doses for all people aged <20 years, all refugees and other humanitarian entrants
South Australia	Influenza	10 years and older	No	Yes, if you meet any condition for a NIP-funded dose – Refer to Notes
	Diphtheria-tetanus-pertussis (dTpa)§	16 years and older	No	
	Measles-mumps-rubella (MMR)	16 years and older	No	
Tasmania	Influenza	10 years and older	No	Yes, if you meet any condition for a NIP-funded dose – Refer to Notes
	Diphtheria-tetanus-pertussis (dTpa)	16 years and older	No	
	Measles-mumps-rubella (MMR)	16 years and older	Yes, for people born in 1966 and onwards (state-funded); otherwise No	Yes, for people born in 1966 and onwards (state-funded), or if you meet any condition for a NIP-funded dose – Refer to Notes
Victoria	Influenza	10 years and older	Yes, if you meet any condition for a NIP-funded dose – Refer to Notes	Yes, if you meet any condition for a NIP-funded dose – Refer to Notes
	Diphtheria-tetanus-pertussis (dTpa)	15 years and older	Yes, for partners§ of pregnant women, parents§ or guardians§ of babies <6 months of age (state-funded), or if you meet any condition for a NIP-funded dose – Refer to Notes	Yes, for partners§ of pregnant women, parents§ or guardians§ of babies <6 months of age (state-funded), or if you meet any condition for a NIP-funded dose – Refer to Notes
	Measles-mumps-rubella (MMR)	15 years and older	Yes, for people born in 1966 and onwards, women planning pregnancy or post-partum with low or negative rubella antibody levels (state-funded), or if you meet any condition for a NIP-funded dose – Refer to Notes	Yes, for people born in 1966 and onwards, women planning pregnancy or post-partum with low or negative rubella antibody levels (state-funded), or if you meet any condition for a NIP-funded dose – Refer to Notes
	Meningococcal ACWY	15 years and older	Yes, for catch up of missed doses for all people aged <20 years	Yes, for catch up of missed doses for all people aged <20 years
Western Australia	Influenza	10 years and older	Yes, for people aged 65 years and older (NIP-funded); otherwise No	Yes, if you meet any condition for a NIP-funded dose – Refer to Notes
	Diphtheria-tetanus-pertussis (dTpa)	16 years and older	No	
	Measles-mumps-rubella (MMR)	16 years and older	No	Yes, for people born in 1966 and onwards (state-funded), or if you meet any condition for a NIP-funded dose – Refer to Notes
	Meningococcal ACWY	16 years and older	No	Yes, for catch up of missed doses for all people aged <20 years

Notes

The National Immunisation Program (NIP) provides free vaccines to people who meet specified conditions, as listed below.

Influenza vaccine: Free for people aged 6 months to <5 years and ≥65 years, Aboriginal and Torres Strait Islander people, pregnant women and people with specified medical conditions that increase their risk of influenza disease (for a full list of conditions eligible for NIP-funded influenza vaccines, refer to [Seasonal influenza vaccines – clinical advice for vaccination providers](#) fact sheet).

MMR vaccine: Free for catch up of missed doses for all people aged <20 years, all refugees and other humanitarian entrants.

dTpa vaccine: Free for pregnant women, for catch up of missed doses for all people aged <20 years, all refugees and other humanitarian entrants.

Pneumococcal vaccine: The 23-valent pneumococcal polysaccharide vaccine (23vPPV) is free for Aboriginal and Torres Strait Islander people aged 15–49 years with specified medical risk factors.**

Aboriginal and Torres Strait Islander people aged ≥ 50 years and for people aged ≥65 years.

There are additional NIP- and state-funded vaccines available free through a GP, local medical centre or an Aboriginal Medical Service.

* This information sheet is a guide to show what is permissible under the state/territory legislation. Not all pharmacies will offer this service, and not all pharmacists are permitted to administer vaccines.

† These vaccination restrictions only apply to pharmacist immunisers and may differ for other immunisers, such as nurses, who may be administering vaccines in a community pharmacy.

‡ Although some vaccines may be free as a result of being funded on the NIP or by the state/territory, pharmacies may charge a service fee.

§ Although vaccines may be free as a result of being funded on the NIP or by the state/territory, GP and local medical centres may charge a consultation fee.

¶ Diphtheria-tetanus-pertussis-inactivated poliovirus vaccine (dTpa-IPV) may be used if diphtheria-tetanus-pertussis (dTpa) vaccine is not available.

** Only for those who have not received a pertussis booster in the last 10 years.

** Refer to the [Australian Immunisation Handbook](#) for the list of specified medical risk factors.

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