



Evaluation of the Victorian Pharmacist- Administered Vaccination Program

Final evaluation report for the Department of Health and Human Services

HealthConsult Pty Ltd
ACN 1 18 337 821

Melbourne Office: 429/838 Collins Street, Docklands, Victoria, 3008 Phone (03) 9081 1640

Sydney Office: 3/86 Liverpool Street, Sydney, New South Wales, 2000 Phone (02) 9261 3707

14 March 2018

Contents

Section	Page
Executive summary	4
1 Introduction and program context	10
1.1 Context and objectives of the program	10
1.2 Variation in pharmacist-administered vaccination services	11
1.3 Target groups.....	12
1.4 Program guidelines	12
1.5 Pharmacist training requirements	13
2 Overview of the evaluation methodology	14
2.1 Objectives of the evaluation	14
2.2 Evaluation methodology	14
2.3 Limitations of the gathered evaluation data	15
3 Consumer satisfaction and access	17
3.1 Consumer profile	17
3.2 Consumer satisfaction	19
3.3 Awareness of vaccination services.....	20
3.4 Accessing future vaccination services	20
4 Vaccination uptake	22
4.1 Government- and privately-funded vaccinations.....	22
4.2 Number of Victorians vaccinated.....	22
4.3 Increasing vaccination numbers.....	23
5 Impact on pharmacies and pharmacists	25
5.1 Pharmacist immuniser training	25
5.2 Number of pharmacist immunisers and staff trained in first aid.....	25
5.3 Volume of vaccinations administered.....	26
5.4 Pharmacist workload	26
5.5 Workforce capacity.....	27
5.6 Pharmacist career pathways.....	28
5.7 Appetite to continue offering services	29
6 Quality and safety	31
6.1 Communication with other health professionals	31

6.2	Cold-chain breach incidents	31
6.3	Adverse events.....	32
7	Costs.....	34
7.1	Costs associated with delivering the program.....	34
7.2	Perceived cost efficiency of the program	35
8	Perceived challenges, benefits, improvements and opportunities.....	37
8.1	Challenges of the program.....	37
8.2	Benefits of the program	37
8.3	Suggested improvements to the program.....	38
8.4	Opportunities to expand the program	39
9	Summary and future opportunities.....	40
9.1	Accessibility.....	40
9.2	Program impacts on the pharmacist workforce	40
9.3	Quality and safety.....	41
9.4	Costs and benefits	41
9.5	Sustainability	42
9.6	Options for future expansion.....	43
Appendix 1: Australian pharmacist-administered vaccine programs		44
Appendix 2: International pharmacist-administered programs		47
Appendix 3: Stakeholder consultation.....		49
Appendix 4: Distribution of vaccines		50
Appendix 5: PSA Victorian Pharmacist Immuniser Training Program		53
Appendix 6: Adverse events.....		54

Executive summary

The Victorian Pharmacist-Administered Vaccination Program commenced in June 2016, enabling adults across Victoria to receive influenza and pertussis-containing vaccinations from an appropriately trained, registered pharmacist. The key objectives of the program are to:

- improve consumer access to influenza and pertussis-containing vaccination
- create opportunities for consumer-centred care
- reduce or avoid the disease burden associated with influenza and pertussis
- maintain the quality and safety of vaccinations provided by pharmacists
- increase pharmacist workforce capacity and career pathways.

An evaluation of the program identified the following key outcomes:

- **Improved consumer access:** An estimated 42,525 vaccinations were administered by pharmacist immunisers in the period June 2016 to September 2017, with 40,061 consumers receiving influenza vaccinations and 2,464 receiving pertussis-containing vaccinations. Approximately 5,608 of these consumers received the influenza vaccine and 986 received the pertussis-containing vaccine for the first time as a result of the program.

Pharmacist-administered vaccination services are now provided at 268 pharmacy locations across Victoria, supporting a reduction in the disease burden associated with influenza and pertussis. Ninety-six per cent of program-registered pharmacy owners intend to continue providing vaccination services in the future and intend to train, on average, an additional 0.8 pharmacists per participating pharmacy. This suggests that for the 2018 influenza season there will be on average at least 2.7 pharmacist immunisers per participating pharmacy (for those that participated in the program in 2017).

- **Consumer-centred care:** Ninety-six per cent of consumers reported being ‘very satisfied’ or ‘extremely satisfied’ with the pharmacist-administered vaccinations they had received. Eighty-seven per cent of consumers reported it was ‘acceptable’ or ‘very acceptable’ to receive vaccinations from a pharmacist when compared with other health professionals. Ninety-six per cent of consumers reported they would use the service again.
- **Quality health outcomes for consumers:** Safety and quality were maintained in delivering pharmacist-administered vaccinations, with only six cold-chain breaches and no serious adverse events reported during the evaluation period.
- **Increased workforce capacity:** A total of 657 pharmacists completed an immuniser program of study and were issued a *Statement of attainment* between June 2016 and September 2017. On average, most pharmacies participating in the program had 1.9 pharmacist immunisers per pharmacy.
- **Improved workforce satisfaction:** Ninety-one per cent of pharmacist immunisers reported improved satisfaction with their work. Seventy-nine per cent of pharmacist immunisers reported improved career development opportunities as a result of the program.

The program was evaluated using a mixed-method approach that included a review of national and international literature, state and territory policies and programs, and an assessment of available data sources. Analyses of primary and secondary data sources were used to assess the performance of the program against the stated objectives. Key primary data sources included: surveys completed by consumers ($n = 503$), pharmacists ($n = 103$) and pharmacies ($n = 69$); and semi-structured interviews at 18 case study sites and with other key stakeholder groups.

Secondary data sources included:

- pharmacy system extracts
- government vaccine distribution data

- ‘adverse event following immunisation’ data
- cold-chain breaches data
- pharmacist immuniser training numbers
- Australian Immunisation Register (AIR) vaccination data.

Impact on reducing or avoiding disease burden associated with influenza and pertussis

The number of pharmacies registered to deliver the program grew rapidly from 36 in early February 2017 to 151 by April 2017. As of 14 February 2018, 268 pharmacies were registered with the Department of Health and Human Services for a government-funded vaccine account.

Between June 2016 and September 2017, an estimated 42,525 vaccinations (40,061 influenza and 2,464 pertussis-containing) were administered by a pharmacist immuniser to Victorians through the program. The majority of these vaccines were *privately funded* (79 per cent of influenza and 81 per cent of pertussis-containing vaccines). The evaluation estimated that 5,608 (14 per cent) of these consumers received the influenza vaccine and 986 (40 per cent) received the pertussis-containing vaccine as a result of the program for the first time.

Given there is strong evidence that vaccination reduces and prevents disease burden,¹ these evaluation results suggest that the program has had an impact on reducing and/or avoiding disease burden associated with influenza and pertussis. With further expansion in the number of participating pharmacies and number of trained pharmacists, it is anticipated that this impact will continue to increase.

Consumer accessibility and satisfaction

Ninety-three per cent of consumers received their vaccination on a weekday between the hours of 9.00 am and 6.00 pm. Seventy-seven per cent of consumers reported that they ‘just showed up on the day’. Ninety-one per cent waited less than 10 minutes to receive their vaccination. The majority of consumers thought that the ‘access to appointment/convenience’ (85 per cent) and ‘wait time to receive vaccinations’ (80 per cent) were better for community pharmacists than for other health professionals. This data suggests consumers value ease of access to vaccination services in community pharmacies.

Of those consumers who had previously been vaccinated against pertussis or influenza, 71 per cent had obtained their vaccination in a non-community pharmacy setting (from a general practice or in the workplace). This data suggests there is awareness and willingness among consumers to accept pharmacist-administered vaccination services.

Ninety-six per cent of consumers reported they were either ‘very satisfied’ or ‘extremely satisfied’ with the pharmacist-administered vaccination they had received. Eighty-seven per cent of consumers reported it was ‘acceptable’ or ‘very acceptable’ to receive vaccinations from a pharmacist when compared with other health professionals. Ninety-six per cent of consumers reported they would use the service again and recommend the service to family and friends. This data suggests there will be continued consumer demand in the 2018 influenza season, and this is likely to increase from the evaluation period.

Some consumers felt improvements could be made to the physical waiting area provided within pharmacies offering the program. The vaccination waiting area was usually the same area used by

¹ FE Andre, R Booy, HL Bock, et al. 2008, [Vaccination greatly reduces disease, disability, death and inequity worldwide](http://www.who.int/bulletin/volumes/86/2/07-040089/en/), *Bulletin of the World Health Organization*, no. 86, p. 2, <<http://www.who.int/bulletin/volumes/86/2/07-040089/en/>>

consumers waiting for a script. This had implications for post-vaccination monitoring because these consumers were often seated with those waiting for a script, which was not always comfortable for consumers who had just been vaccinated, and made distinguishing between consumers difficult. As the number of clinical programs delivered in community pharmacies grows, it may be more appropriate for pharmacies to create a dedicated waiting area for consumers accessing clinical services that is more private. More discrete waiting facilities may help community pharmacies to enhance consumers' experience of clinical services and further improve the quality and safety associated with the post-vaccination monitoring period.

Consumer uptake of the program may be increased with a focused effort on promoting the service through pharmacies, particularly as the majority of consumers were made aware of the program through word of mouth or local pharmacy advertising.

The evaluation concluded that the program provided increased consumer access to vaccination services. The program has created an opportunity for consumer-centred care by providing additional options for where consumers may choose to receive vaccination services. Consumers were very satisfied with the experience of receiving vaccination services from pharmacists and were highly likely to continue using the service.

Quality and safety

During the evaluation period there were six cold-chain breaches and no serious adverse events associated with pharmacist-administered vaccinations. Between July 2016 to September 2017, Surveillance of Adverse Events Following Vaccination In the Community (SAEFVIC)² reported 13 'adverse event following immunisation' (AEFI) reports for vaccines administered by a pharmacist. None of these reports were deemed serious. Correspondence from SAEFVIC indicated that the number of significant adverse events associated with pharmacist-administered vaccinations was considered to be low compared with vaccinations administered by other providers.

The evaluation identified that there is currently no formal feedback mechanism provided by SAEFVIC to inform immunisers (of any provider type) of adverse events that have occurred and are subsequently reported to SAEFVIC by another health provider. Pharmacists may be copied into email correspondence between the reporting provider and SAEFVIC but this is not always consistent. Developing a formal feedback mechanism would further support the quality and safety of the Pharmacist-Administered Vaccination Program, and of Victoria's wider immunisation program.

The evaluation found that the impact of the program on improving communication between pharmacists and general practitioners and other relevant health professionals was minimal. Further promotion of the role of pharmacists in holistic patient care may result in improvements. However, this is not a role for the program itself but possibly a consideration for the department more broadly when it seeks to establish any multidisciplinary networks and/or forums (by inviting a pharmacist representative).

Impact on workforce capacity and career pathways

As a result of the program, 717 pharmacists undertook the immuniser program of study delivered by the Pharmaceutical Society of Australia (PSA). Of these participants, 657 received a *Statement of attainment* in the period between June 2016 and September 2017. The evaluation found that, on average, there were 1.9 pharmacist immunisers per pharmacy participating in the program.

² Note: The SAEFVIC reporting system is now called Adverse Events Following Immunisation – Clinical Assessment Network (AEFI-CAN). SAEFVIC is a founding member of the newly established AEFI-CAN. The website has changes to aefican.org.au to provide a central, national reporting hub. At the time the evaluation was undertaken, it was known as SAEFVIC.

The volume of vaccinations administered by pharmacists varied from two to 500. On average, regional and rural pharmacists provided more vaccinations (average = 151) than metropolitan pharmacists (average = 79). The most common factors influencing a pharmacist's decision to study as a pharmacist immuniser were the ability to administer vaccines (85 per cent) and the availability of pharmacist immuniser roles (65 per cent).

The program has resulted in pharmacists spending more of their time on clinical activities. The average amount of additional clinical time per pharmacist was 2.8 hours per week. The majority of pharmacists reported that the program improved satisfaction with their work (91 per cent), enabled them to work to their full scope of practice (82 per cent) and improved their career development opportunities (79 per cent). There was no difference in the results when comparing metropolitan with regional/rural pharmacists.

Most pharmacies reported that the impact of the program on workforce capacity was minimal. However, the hours pharmacies allocated to providing pharmacist-administered vaccination services were restricted as a result of the availability of pharmacist immunisers. This situation was mainly due to pharmacy owners deciding not to change the number of pharmacists working during times that the pharmacy offered vaccination services, but rather to assess the demand for the service in its first year before making workforce decisions.

After offering pharmacist-administered vaccination services in the 2017 influenza season, 96 per cent of participating pharmacy owners reported they are willing to continue to offer vaccination services in the future and are planning to train, on average, an additional 0.8 pharmacists per participating pharmacy before the 2018 influenza season. This increase indicates a strong willingness among pharmacies to continue participating in the program and will provide consumers with greater access to vaccination services. Also, given the continued demand for pharmacists to undertake the PSA's immuniser program of study, there may also be a market for additional training providers.

Costs and benefits

The average service fee charged to consumers who were eligible to receive government-funded vaccines was \$9 for the influenza vaccine and \$11 for the pertussis-containing vaccine. The average total fee charged (service fee plus vaccine fee) to consumers who were ineligible to receive government-funded vaccines was \$20 for an influenza vaccination and \$43 for a pertussis-containing vaccination. Regional consumers were charged, on average, slightly higher fees.

The average cost incurred by pharmacists to participate in the program was \$295 per pharmacist, which mostly related to the cost of undertaking the immuniser program of study. Some pharmacists funded the training themselves, whereas others were funded by employers to undertake the training. The average cost incurred by pharmacy owners to participate in the program was \$663. There was a large variation in the costs incurred, which related to whether pharmacies needed to make modifications to their consultation space or purchase new equipment, or to cover course fees, travel and accommodation costs associated with an employee attending the training.

The benefits obtained from the program varied according to different stakeholder groups. For example:

- For *consumers*, the benefits included: increased access to vaccination services for influenza and pertussis-containing vaccines; a reduction in wait time to access vaccination services; and, for some (non-bulk-billed patients), a reduction in the service fee paid.
- For *pharmacist immunisers*, the benefits included expanding their skills and service delivery offerings, which resulted in increased work satisfaction levels and potential growth in employment opportunities.

- For *pharmacy owners*, the benefits included: improved work satisfaction of their pharmacist immuniser workforce; expansion of the pharmacy's service offerings and an increase in the number of consumers attending the pharmacy.
- For the *Victorian community*, the benefits included an increase in the number of Victorians who were vaccinated against influenza and pertussis, thus improving herd immunity in Victoria.

Overall, pharmacists and pharmacy owners and managers thought the costs incurred to offer the program were reasonable and the benefits of the program outweighed the costs. Although most pharmacies reported not realising any financial benefit during the evaluation period, greater efficiencies are expected to be realised next influenza season. The reasons offered for this related to better pharmacy preparation, fewer establishment costs, streamlining of administration and reporting processes, and an increase in the number of consumers receiving pharmacist-administered vaccination services.

Sustainability

The sustainability of the program is strong. Supporting indicators include:

- high levels of consumer satisfaction with pharmacist-administered vaccination services
- a high proportion of consumers willing to continue using pharmacist-administered vaccination services
- pharmacy owners' commitment to continue offering pharmacist-administered vaccination services in coming influenza seasons
- pharmacy owners' intentions to support employed pharmacists to complete an immuniser program of study within the next 12 months.

Increased uptake and expansion of the current program is likely to be supported by:

- increasing the number of consumers who receive vaccination services from a pharmacist immuniser, which can be achieved with further promotion of the service
- generating sufficient remuneration from offering the service, which will be achieved with increased consumer uptake of pharmacist-administered vaccination services and increased efficiency in service delivery as a result of experience in offering the program in prior years
- providing sufficient access to the immuniser program of study
- ensuring an adequate supply of the pharmacist immuniser workforce and continued workforce satisfaction by offering opportunities to utilise their new skills
- streamlining administration processes, including data capture and reporting processes, through using software programs to collect the required data and/or installing computers in consultation rooms (this development would also improve workforce satisfaction, minimise the impact on workforce capacity and increase efficiency of the program)
- establishing a formalised feedback process through SAEFVIC so that pharmacist immunisers are made aware of adverse events that have occurred as a result of pharmacist-administered vaccinations and are subsequently reported to SAEFVIC by another health provider. This feedback will ensure continuous quality improvement and safety in delivering the program.

Changes to the scope of the program

Although pharmacists (who participated in the survey and/or were interviewed) were generally comfortable with the current program scope, three opportunities were identified for consideration as the program moves forward:

- **Increasing the types of vaccines that pharmacists can administer** ($n = 8$: tetanus, hepatitis B, measles/mumps/rubella (MMR) vaccine, travel vaccines). Other Australian jurisdictions are progressing towards a more flexible approach (MMR vaccine is available through pharmacist immunisers in Queensland and the Northern Territory, and the age range has been reduced to over 16 years of age in South Australia and the Northern Territory).
- **Increasing the age range for consumers** to 10 years or older ($n = 6$). However, a number of pharmacists recognised that there are higher clinical and operational risks associated with vaccinating children and adolescents, and were not in favour of changing the age of consumers who could receive pharmacist-administered vaccinations.
- **Enabling pharmacists to offer vaccination services in a wider range of settings** ($n = 3$; offering onsite business employee vaccinations similar to the current nurse-led vaccination services).

There is the potential to increase the type of vaccines that can be administered by a pharmacist or to increase the age profile of consumers. However, expansion is not yet recommended, given that:

- there are problems associated with vaccination data capture by pharmacies (incomplete, inconsistent data that is double- or triple-entered into systems)
- there remain AIR reporting challenges (large gaps in data)
- there has been a low uptake of government-funded vaccines in comparison with other providers that administer government-funded vaccination services
- expansion of clinical programs, including vaccination, has not been matched by developments in facilities or infrastructure that would more appropriately accommodate a broader range of clinical services. For example, the majority of pharmacies do not have comparable waiting areas or designated consultation rooms with appropriate patient monitoring facilities, or computers with integrated software programs that enable the pharmacist to collect the required client-level information and then generate essential reports and make financial claims. This results in workforce efficiency and satisfaction issues as well as potential problems with the security of paper-based client information.

Until these issues are addressed, an increase in program scope is not recommended, and would likely compound these issues.

Introduction and program context

The Victorian Pharmacist-Administered Vaccination Program began in June 2016 in response to marked increases in influenza notifications and in pertussis cases in Victoria. To provide greater access to vaccinations, the program saw 657 Victorian pharmacists upskilled to provide vaccinations in 268 pharmacies via a Pharmaceutical Society of Australia (PSA) program of study.

In 2017 the Department of Health and Human Services engaged HealthConsult to conduct an evaluation of the program to determine whether it was meeting its objectives and to recommend any changes that the department might make to ensure its ongoing sustainability.

The evaluation used a mixed-method approach that included a review of the literature, and both qualitative and quantitative studies with pharmacists, consumers and other key stakeholders.

This report summarises the findings of HealthConsult's evaluation and notes options for expanding the program.

1.1 Context and objectives of the program

The Minister for Health announced the Victorian Pharmacist-Administered Vaccination Program in November 2015 and it began in June 2016. A range of factors informed its establishment, including:

- a 75 per cent increase in influenza notifications between 2014 and 2015³
- a 62 per cent increase in pertussis cases between 2013 and 2014⁴
- a decrease in vaccination rates among Victorians 65 years of age or older who are eligible for the National Immunisation Program (NIP)⁵
- the introduction of pharmacist-administered vaccination programs and pilots in all other Australian jurisdictions and the establishment of such programs internationally including in the United Kingdom, Canada, the United States, New Zealand and many European countries
- confirmation from the Pharmacy Board of Australia that vaccination is within the scope of practice of a pharmacist and the release of *Mapping of pharmacists' competency standards for the administration of vaccines*⁶ in 2013.

Across Australia there has been progressive implementation of pharmacist-administered vaccination programs, beginning with Queensland and Western Australia in 2014 and followed by South Australia and New South Wales in 2015. Victoria implemented its program without a pilot because program evaluations from other jurisdictions and countries showed that pharmacist-administered vaccination programs were well established, safe and effective.

The key objectives of the Victorian program are to:

- improve consumer access to influenza and pertussis-containing vaccination
- create opportunities for consumer-centred care

³ [National Notifiable Diseases Surveillance System](http://www9.health.gov.au/cda/source/rpt_4.cfm) <http://www9.health.gov.au/cda/source/rpt_4.cfm>

⁴ *ibid.*

⁵ [Adult Vaccination Survey](http://www.aihw.gov.au/publication-detail/?id=10737418409) <http://www.aihw.gov.au/publication-detail/?id=10737418409>

⁶ [Mapping of pharmacists' competency standards for the administration of vaccines](http://advancedpharmacypractice.com.au/download/resources/CompStds2010-immuniser-comps-mapped-for-web.pdf) <http://advancedpharmacypractice.com.au/download/resources/CompStds2010-immuniser-comps-mapped-for-web.pdf>

- reduce or avoid the disease burden associated with influenza and pertussis
- maintain the quality and safety of vaccinations provided by pharmacists
- increase pharmacist workforce capacity and career pathways.

1.2 Variation in pharmacist-administered vaccination services

Following the Pharmacy Board of Australia’s recognition that vaccination is within pharmacists’ scope of practice, the Australian Pharmacy Council developed standards for pharmacists who provide vaccination services.⁷ The Pharmacy Guild of Australia and the PSA also published practice guidelines for pharmacists administering vaccinations in the community.^{8,9}

The primary point of difference between the Victorian program and programs in other states and territories is that Victorian pharmacists can administer both government-funded and privately-funded vaccines in either a community or hospital-based pharmacy. The immuniser program of study for pharmacists must also be consistent with the educational requirements for nurse immunisers in Victoria and reflect whole-of-life vaccination schedule material. This program aligns to the recently endorsed *National immunisation education framework for health professionals*.¹⁰

Programs nationally and internationally vary according to a range of factors as described in Table 1.1.

Table 1.1: Variation in pharmacist-administered vaccination programs

Factor	Example of variation
Eligibility	From five years old in Ontario, Canada to > 16 to > 18 years of age in Australia
Vaccines administered	In Canada there are 13 prescription vaccines including: hepatitis A and B, typhoid, human papilloma virus (HPV), rabies and varicella In Australian jurisdictions, pharmacists are authorised to administer either influenza only or influenza plus other vaccines (measles mumps rubella (MMR) and/or diphtheria, tetanus and polio (DTPa)
Access to government-funded vaccines	Victoria is the only Australian jurisdiction that allows pharmacists to administer government-funded vaccines through the NIP New Zealand has also recently authorised pharmacists to administer government-funded vaccines

A comparison of pharmacist-administered vaccination programs in Australia and internationally is available at Appendix 1 and Appendix 2.

In Australia, all vaccines must be administered in accordance with the current edition of the *Australian immunisation handbook*.¹¹ These standards outline specifications to deliver a safe and effective patient-centred service.

Progressive rollout of pharmacist-administered vaccination services across Australia will serve to strengthen strategic priorities 1 and 7 of the *National immunisation strategy for Australia 2013–18*.¹²

- *Strategic Priority 1: Improve immunisation coverage*
- *Strategic Priority 7: Ensure an adequately skilled immunisation workforce through promoting effective training for immunisation providers.*

⁷ *Standards for the accreditation of programs to support pharmacist administration of vaccines* <https://www.pharmacycouncil.org.au/policies-procedures/standards/standards_vaccination_feb2015.pdf>

⁸ *Practice guidelines for the provision of immunization services within pharmacy 2014* <<http://www.psa.org.au/download/practice-guidelines/immunisation-guidelines.pdf>>

⁹ *Guidelines for conducting pharmacist initiated and administered vaccination services* <<https://www.guild.org.au>>.

¹⁰ *National immunisation education framework for health professionals* <[http://www.immunise.health.gov.au/internet/immunise/publishing.nsf/Content/669035950C410C22CA2581CB007E8B73/\\$File/Nat-Immun-Education-Framework-Health-Profess.pdf](http://www.immunise.health.gov.au/internet/immunise/publishing.nsf/Content/669035950C410C22CA2581CB007E8B73/$File/Nat-Immun-Education-Framework-Health-Profess.pdf)>

¹¹ *Australian immunisation handbook* <<http://www.immunise.health.gov.au>>

¹² *National immunisation strategy for Australia 2013–18* <<http://www.immunise.health.gov.au>>

1.3 Target groups

Under the program, Victorian pharmacist immunisers are authorised to administer **influenza vaccine** to certain target groups without a prescription or other instruction from a health practitioner. Target groups are as follows:

- **target group 1** – adults who are eligible for government-funded influenza vaccine through the NIP. This includes adults 65 years of age or older, people of Aboriginal and Torres Strait Islander descent 18 years of age or older and people 18–64 years of age with medical conditions that can lead to complications from influenza such as severe asthma, lung or heart disease, low immunity or diabetes
- **target group 2** – adults 18 years of age or older who are not eligible for the NIP.

Under the program, Victorian pharmacist immunisers are authorised to administer **pertussis-containing vaccine** for the express purpose of achieving immunity against pertussis in the following target groups:

- **target group 1** – adults who are eligible for government-funded pertussis-containing vaccine through the Victorian Government’s Parent Whooping Cough Vaccine Program, including:
 - pregnant women in their third trimester of pregnancy from 28 weeks’ gestation
 - partners of women who are at least 28 weeks’ pregnant, if the partner has not received a pertussis-containing booster in the past 10 years
 - parents and guardians of a baby, if the baby is under six months of age and the parents/guardians have not received a pertussis-containing booster in the past 10 years
- **target group 2** – adults 18 years of age or older who are not eligible for the Victorian Government’s Parent Whooping Cough Vaccine Program and who wish to reduce the likelihood of becoming ill with pertussis.

1.4 Program guidelines

The *Victorian Pharmacist-Administered Vaccination Program guidelines*¹³ were released in June 2016. They describe the requirements of the program and support registered pharmacists to provide safe, high-quality immunisation services. All premises must also meet the guidelines for facilities providing immunisation services, as described in the *Victorian Pharmacy Authority guidelines*¹⁴ that are current at the time.

The program guidelines outline the conditions that apply to pharmacist immunisers in relation to:

- immuniser programs of study and ongoing continuing professional development
- facility standards, accreditation, registration and insurance
- pharmacy staff skills and workforce requirements during vaccination administration
- equipment and resources
- protocols in place for:
 - emergency response
 - cold-chain maintenance
 - assessment, consent and monitoring
 - adverse event management and reporting
 - record keeping and reporting.

¹³ [Victorian pharmacist administered vaccination program guidelines](https://www2.health.vic.gov.au/public-health/immunisation/immunisers-in-victoria/pharmacist-immunisers) <<https://www2.health.vic.gov.au/public-health/immunisation/immunisers-in-victoria/pharmacist-immunisers>>

¹⁴ [Victorian Pharmacy Authority guidelines](http://www.pharmacy.vic.gov.au) <<http://www.pharmacy.vic.gov.au>>

1.5 Pharmacist training requirements

In 2012 the then Victorian Department of Health (now the Department of Health and Human Services) introduced a process for the Victorian Chief Health Officer to recognise nurse immuniser programs of study. This process was reviewed and amended in 2016 so that all future recognised programs of study would be appropriate for all immunisers in Victoria, including pharmacists.

All pharmacists administering vaccines in Victoria must first complete a course that has been recognised by the Chief Health Officer as an immuniser program of study. All recognised courses must also comply with any current professional guidelines and standards for immunisation training that are relevant to the health professionals to whom the course will be delivered. For pharmacists, this includes the Australian Pharmacy Council's *Standards for the accreditation of programs to support pharmacist administration of vaccinations*.¹⁵

On successful completion of the core learning outcomes from the immuniser program of study, pharmacist immunisers should have:

- an overview of immunisation services in Australia
- a reasonable level of understanding of public health and clinical issues relevant to immunisers
- developed specific knowledge and skills to enable them to promote immunisation and respond to common myths about immunisation
- an understanding of the role of immunisers in Victoria
- knowledge of the guidelines and regulations that affect practice as an immuniser in Victoria
- demonstrated specific knowledge and clinical skills to enable them to provide immunisation services, utilise clinical knowledge and immunisation skills, and apply clinical decision-making skills
- satisfactorily completed a workshop in managing immunisation emergencies and resuscitation.

Existing Victorian providers of the nurse immuniser program of study were invited to revise and resubmit these programs to the Chief Health Officer for recognition as an immuniser program of study.

The PSA revised its existing immunisation training program offered in other states and territories to meet Victoria's requirements. It also offers an online continuing professional development immunisation update module and a practical refresher workshop. Current cardiopulmonary resuscitation (CPR) qualifications and a first aid certificate (senior level 2 inclusive of anaphylaxis management, and/or anaphylaxis training) are prerequisites for the course and must be renewed regularly, as per the program guidelines. As of February 2018, the PSA has been the only provider of immunisation training to pharmacists in Victoria. In March 2018, the Pharmacy Guild of Australia's program of study was recognised by the Chief Health Officer.

¹⁵ [Standards for the Accreditation of Programs to Support Pharmacist Administration of Vaccines](https://www.pharmacycouncil.org.au/policies-procedures/standards/standards_vaccination_feb2015.pdf) <https://www.pharmacycouncil.org.au/policies-procedures/standards/standards_vaccination_feb2015.pdf>

Overview of the evaluation methodology

This chapter provides an overview of the objectives of the evaluation and the gathered evaluation data.

2.1 Objectives of the evaluation

The objectives of the program evaluation were to consider and assess:

- the accessibility of the program for consumers, including consumer acceptance and awareness
- the program's quality and safety
- the program's impacts on pharmacist workforce capacity
- the program's effectiveness
- the cost efficiency of the pharmacist workforce delivering the influenza and pertussis-containing vaccination program, and integration with other health professions that offer vaccination services
- the sustainability of the program including the availability of the pharmacy workforce to deliver vaccination services and the sustainability of consumer demand.

2.2 Evaluation methodology

The evaluation involved a mixed-method design that included a review of the national and international literature, other state and territory policies and an assessment of available data sources. This led to developing a comprehensive evaluation framework that described how each of the evaluation questions were to be measured, which data sources would be used to measure each key performance indicator and the analysis method used to assess whether the indicator was achieved. Ethics approval for the evaluation was sought and granted from Bellberry Pty Ltd.

The ethics committee requested that pharmacy involvement in the evaluation was voluntary. Recruitment therefore involved the evaluators writing to all pharmacies that were registered with the department to provide pharmacist-administered vaccination services (152 pharmacies were sent a letter in April 2017). Pharmacies could nominate the extent of their involvement including: completing a survey; being a case study site; and/or distributing surveys to consumers following the vaccination service. Recruitment of pharmacists to complete the online survey was undertaken with the assistance of the PSA.

The quantitative and qualitative data included in the evaluation consists of:

- a survey of pharmacies that registered with the department to offer vaccination services ($n = 69$)
- a survey of pharmacists who had completed the required training to administer vaccinations ($n = 103$)
- a survey of consumers who had received vaccination services from a pharmacist ($n = 503$)
- case study visits to 18 community pharmacies across Victoria (10 regional and eight metropolitan) that involved semi-structured interviews with pharmacy owners and managers ($n = 14$) and pharmacists ($n = 19$) that administered or did not administer vaccines
- semi-structured interviews with key sector stakeholders including the department, training providers, the PSA and the Pharmacy Guild ($n = 17$, refer to Appendix 3)
- data extracts obtained from secondary sources including:

- a GuildCare vaccination data extract ($n = 12,717$ consumer vaccination records, 104 pharmacies)
- a Chemist Warehouse data extract ($n = 9,554$ consumer vaccination records, 35 pharmacies)
- paper vaccination records from three pharmacies ($n = 523$ consumer vaccination records)
- departmental data on the number of distributed government-funded vaccines, the number of adverse events, the number of cold-chain breaches and the number of pharmacists who completed the immuniser program of study and obtained their *Statement of attainment*
- an Australian Immunisation Register data extract ($n = 10,808$ consumer vaccination records, 95 pharmacies).

It is also important to note that where a number of data sources were combined to form one data source (data obtained from pharmacies' data collection systems including software and paper copies), not all data fields were captured by the individual data sources. Hence the denominator for some of the data differs. For example, the Indigenous identifier was only captured in the GuildCare data extract and paper vaccination records.

Triangulation of the analysis of these various data sources informed the evaluation findings presented in this report. A limitation of the evaluation design was that community pharmacies and pharmacists that were included in the evaluation were not randomly sampled (they volunteered following an invite from the evaluation team). However, this was a requirement of the ethics committee.

2.3 Limitations of the gathered evaluation data

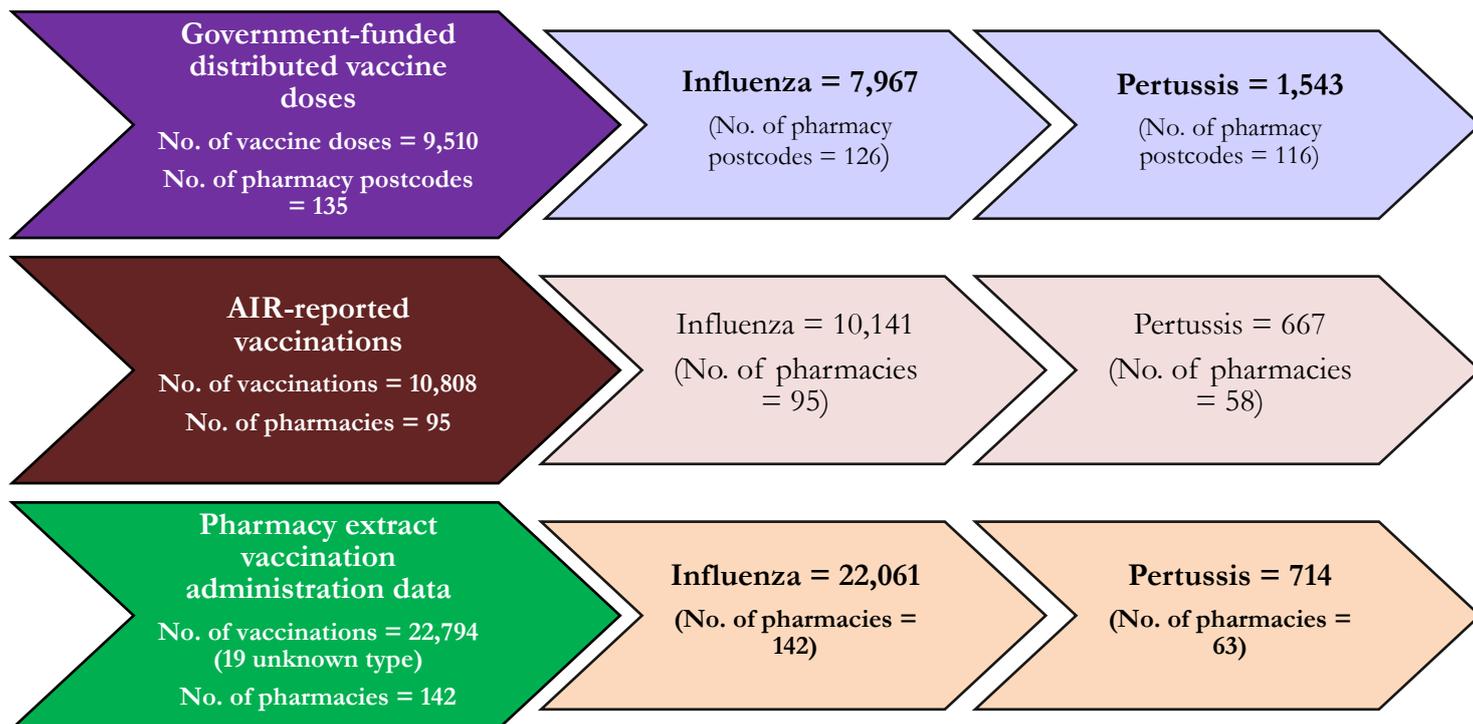
Pharmacists participating in the program are required to register as an immuniser with the Australian Immunisation Register (AIR) to enable vaccination data to be transmitted to the AIR. Pharmacists are then required to submit vaccination details including patient identifiers, the vaccine administration date, the disease vaccinated against and vaccine details (batch number and vaccine name) for each consumer they vaccinate.

The AIR data was an important data source to inform whether the program has so far resulted in an increase in the number of Victorians immunised against influenza and pertussis in the period June 2016 to September 2017. Specifically, the AIR data was required to understand two data parameters: (1) the total number of influenza and pertussis-containing vaccinations that were administered by pharmacist immunisers; and (2) the number of vaccinations administered by pharmacist immunisers compared with those administered in other settings (general practice or workplaces).

However, it emerged during the evaluation that some data entry was not completed due to significant delays in establishing the AIR portal. Further, there were misunderstandings regarding what data needed to be submitted by pharmacist immunisers, and some pharmacists were submitting consumer vaccination details for government-funded vaccinations only, whereas other pharmacists were submitting for both government- and privately-funded vaccinations.

Gaps in the AIR data were highlighted when an analysis of the pharmacy software data extract showed that HealthConsult had obtained records of 22,061 influenza vaccinations administered in 142 community pharmacies, yet records of only 10,141 influenza vaccinations from 95 pharmacies appeared in the AIR data (as depicted in Figure 2.1). Therefore, the *actual* total number of Victorians immunised against influenza and pertussis could not be accurately determined. By using the other data sources gathered through the evaluation process, the total number of influenza and pertussis-containing vaccinations administered by pharmacist immunisers has been estimated, as presented in chapter 4.

Figure 2.1: Data obtained from AIR and pharmacy system extracts (for the period Jun 2016 to Sep 2017)



Adult vaccinations were not recorded on the AIR until September 2016, at which time it converted from the Australian Child Immunisation Register to the AIR. Therefore, it is likely that similar issues with the portal and misunderstandings as to which vaccinations were to be submitted were being experienced by other providers, not just pharmacist immunisers. Over time, it is anticipated that the AIR data will become more reliable.

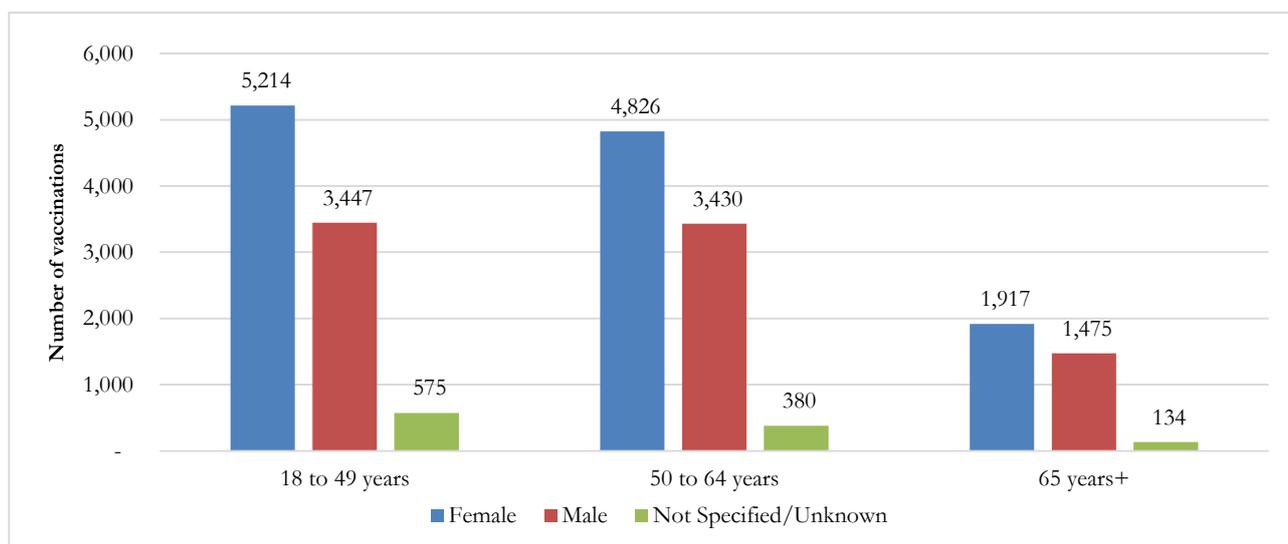
Consumer satisfaction and access

This chapter presents an analysis of the impact of the program on consumer satisfaction and access to vaccinations.

3.1 Consumer profile

Analysis of the pharmacy extract data was used to understand the gender and age profile of consumers who received pharmacist-administered vaccination services. Figure 3.1 shows that 56 per cent of consumers who received pharmacist-administered vaccination services were female. Of these, 44 per cent were 18–49 years of age and 40 per cent were 50–64 years of age. Males 18–64 years of age represented 32 per cent of all consumers accessing the service. These sex and age profiles are consistent with those emerging from the consumer survey ($n = 503$).

Figure 3.1: Number of vaccinations by gender and age group



Source: Pharmacy Guild of Australia, Chemist Warehouse and paper records ($n = 21,398$)

Only data obtained from the Pharmacy Guild and paper vaccination data extracts included an Indigenous identifier. Using this subset of data, it was identified that only eight people (0.06 per cent) identified as an Indigenous Australian.¹⁶

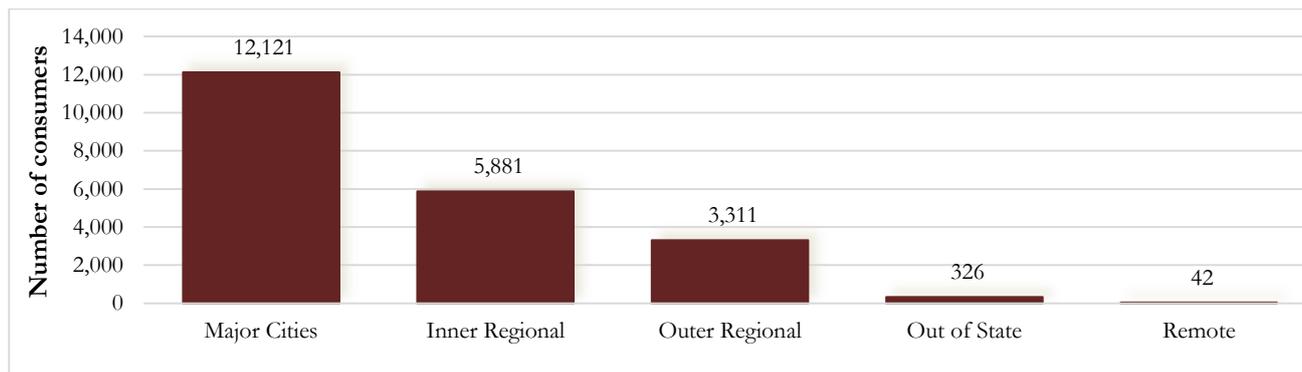
Analysis of the pharmacy software extract data was also used to understand the locations where consumers received pharmacist-administered vaccination services. Figure 3.2 shows that 56 per cent of consumer respondents lived in a metropolitan area, followed by inner regional (27 per cent) and outer regional areas (15 per cent).¹⁷ There were also some consumers ($n = 326$) who lived outside Victoria but received vaccinations services from a Victorian community pharmacy.

¹⁶ Note: There was approximately 80 per cent completion of the Indigenous data field across Pharmacy Guild and paper vaccination data extracts.

¹⁷ [Australian Bureau of Statistics Postcode 2012 to Remoteness Area 2011](http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/1270.0.55.006July%202011?OpenDocument)

<<http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/1270.0.55.006July%202011?OpenDocument>>

Figure 3.2: Number of consumers that received vaccination by ASGS remoteness structure



Source: Pharmacy Guild of Australia, Chemist Warehouse and paper records ($n = 21,681$). ASGS = Australian statistical geography standard is the remoteness structure developed by the Australian Bureau of Statistics (ABS)

Analysis of Pharmacy Guild and paper vaccination records ($n = 13,238$) was also used to estimate the proportion of consumers who received pharmacist-administered vaccination services and had any vaccination risk factors (chronic obstructive pulmonary disease, severe asthma, lung or heart disease, diabetes or low immunity). Analysis of the data found that 190 consumers (1.4 per cent) had one or more of these factors.

The findings of the consumer profiling suggests that older and NIP-eligible cohorts tend to receive their vaccination in other settings (most likely general practices). This is further supported by the knowledge that only 7,967 out of 1,165,840 government-funded influenza doses of vaccine (0.7 per cent) were distributed to community pharmacies in 2017, although pharmacies represent 10.5 per cent of all providers registered with the department. This finding also aligns with the views of several key stakeholder groups that suggested that the program is providing healthy adults with increased access to vaccination services but highlights an opportunity to work with pharmacies to promote access to government-funded vaccines for those most at risk of vaccine-preventable disease.

Analysis of the consumer survey data was used to understand what day of the week and what time of the day consumers most commonly received pharmacist-administered vaccination services. Table 3.1 shows that 93 per cent ($n = 20,784$) of consumers received their vaccination on a weekday.

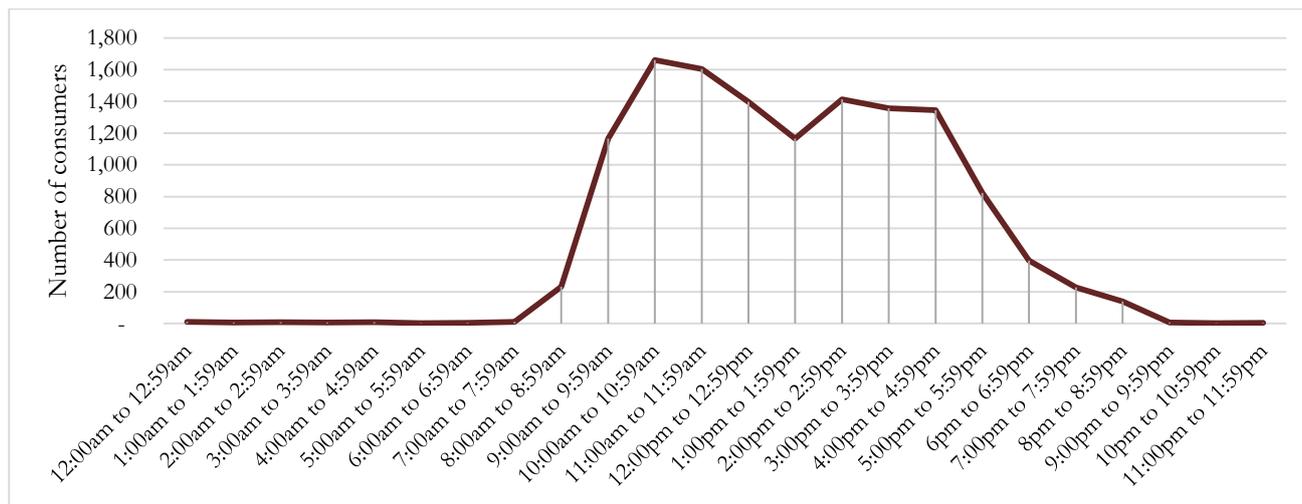
Table 3.1: Day of the week consumers received a pharmacist-administered vaccination

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Total
Number of people	3,913	4,179	4,299	4,585	3,808	1,369	273	22,426
Percentage of total	17%	19%	19%	20%	17%	6%	1%	100%

Source: Pharmacy Guild of Australia, Chemist Warehouse and paper records

Figure 3.3 shows the number of consumers accessing pharmacist-administered vaccination services per hour based on an extract from pharmacy systems data. The spread of times at which consumers received vaccinations services correlates with the common opening hours of pharmacies. Of the reported opening hours, 71–88 per cent of pharmacies offered pharmacist-administered vaccination services between 8.00 am and 6.00 pm and 3–12 per cent of pharmacies extended the service offering beyond 6.00 pm (Monday to Friday).

Figure 3.3: Number of consumers received pharmacist-administered vaccinations per hour of the day



Source: Pharmacy Guild of Australia and paper vaccination records

The majority (77 per cent) of consumers reported that they ‘just showed up on the day’ without an appointment, with 91 per cent reporting they waited less than 10 minutes to receive their vaccination.

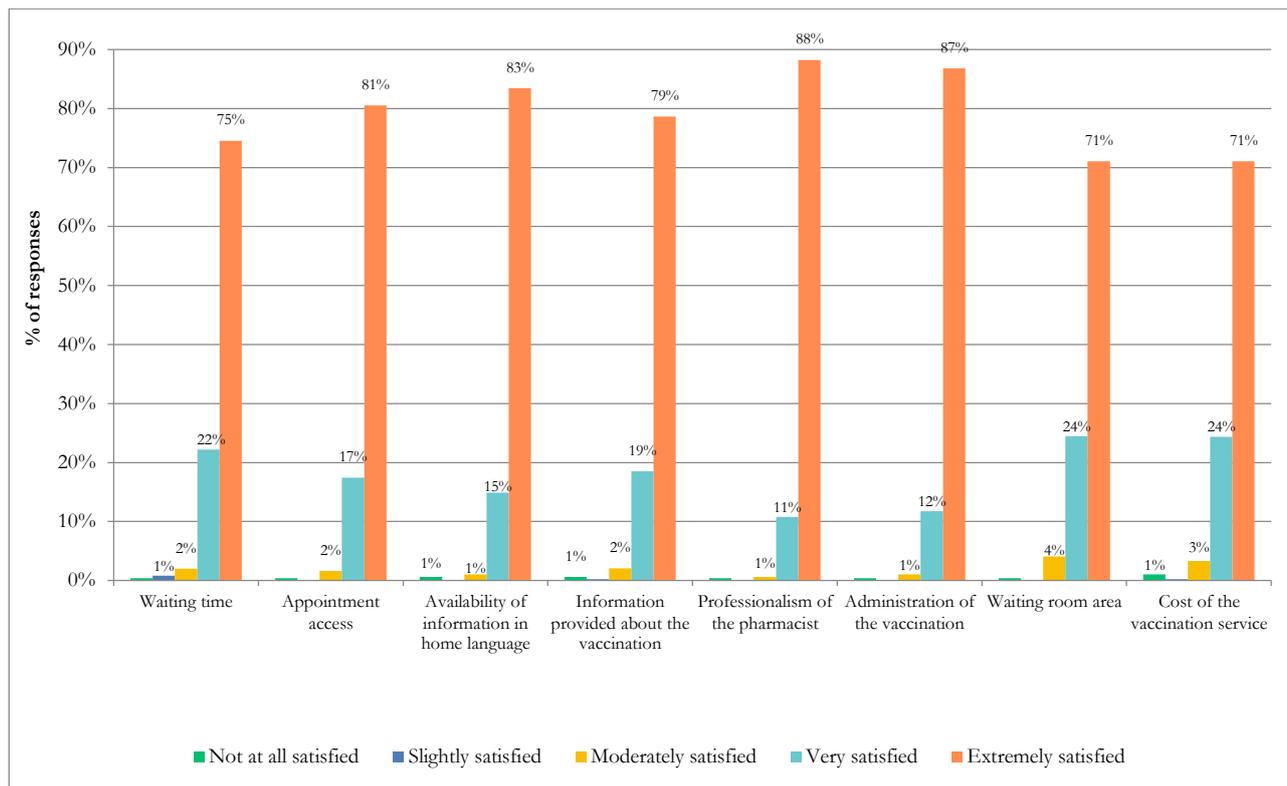
3.2 Consumer satisfaction

Figure 3.4 shows that at least 96 per cent of consumers rated their experience of receiving a pharmacist-administered vaccination, across various measures of satisfaction, as ‘very satisfied’ or ‘extremely satisfied’. Both regional and metropolitan consumers reported similar satisfaction levels (95 per cent and 96 per cent respectively).

The elements of the pharmacist-administered vaccination services that rated the highest levels of satisfaction (‘extremely satisfied’) were ‘professionalism of the pharmacist’ (88 per cent) and ‘administration of the vaccine’ (87 per cent). Analysis of consumer survey comments identified that the reasons for these high levels of satisfaction related to service convenience, value for money and professional care.

The waiting room received the lowest ranking of satisfaction in the consumer survey. Observation at the case studied pharmacies identified that the waiting areas, which were used by consumers waiting to receive a vaccination and those waiting the allocated time after the vaccine had been administered, was no different from the chairs used by consumers waiting for their script to be dispensed. Some pharmacies used identifying cards or stickers to indicate the consumer had been vaccinated. The views of consumers suggests that improvements could be made in the waiting area and process. The consumers ($n = 22$) who offered criticism suggested there were not enough appointment times for consumers who work full time, the service was expensive (compared with being bulk-billed by their general practitioner) and that Medicare should cover the vaccine service fee.

Figure 3.4: Consumer-rated satisfaction with pharmacist-administered vaccination service



Source: HealthConsult Evaluation of the Victorian Pharmacist-Administered Vaccination Program Consumer Survey 2017. Note: Where the data label is blank, the percentage of consumers was less than 1 per cent)

3.3 Awareness of vaccination services

Analysis of the consumer survey found that most consumers became aware that they could receive their vaccines from a pharmacist through word of mouth (35 per cent) or advertising at the pharmacy (34 per cent). Advertising in the media/newspapers (14 per cent) or other means (18 per cent) were cited to a lesser degree, with ‘other means’ including through a workplace, Google, Facebook, medical practitioner or pharmacist or pharmacy technician/assistant.

3.4 Accessing future vaccination services

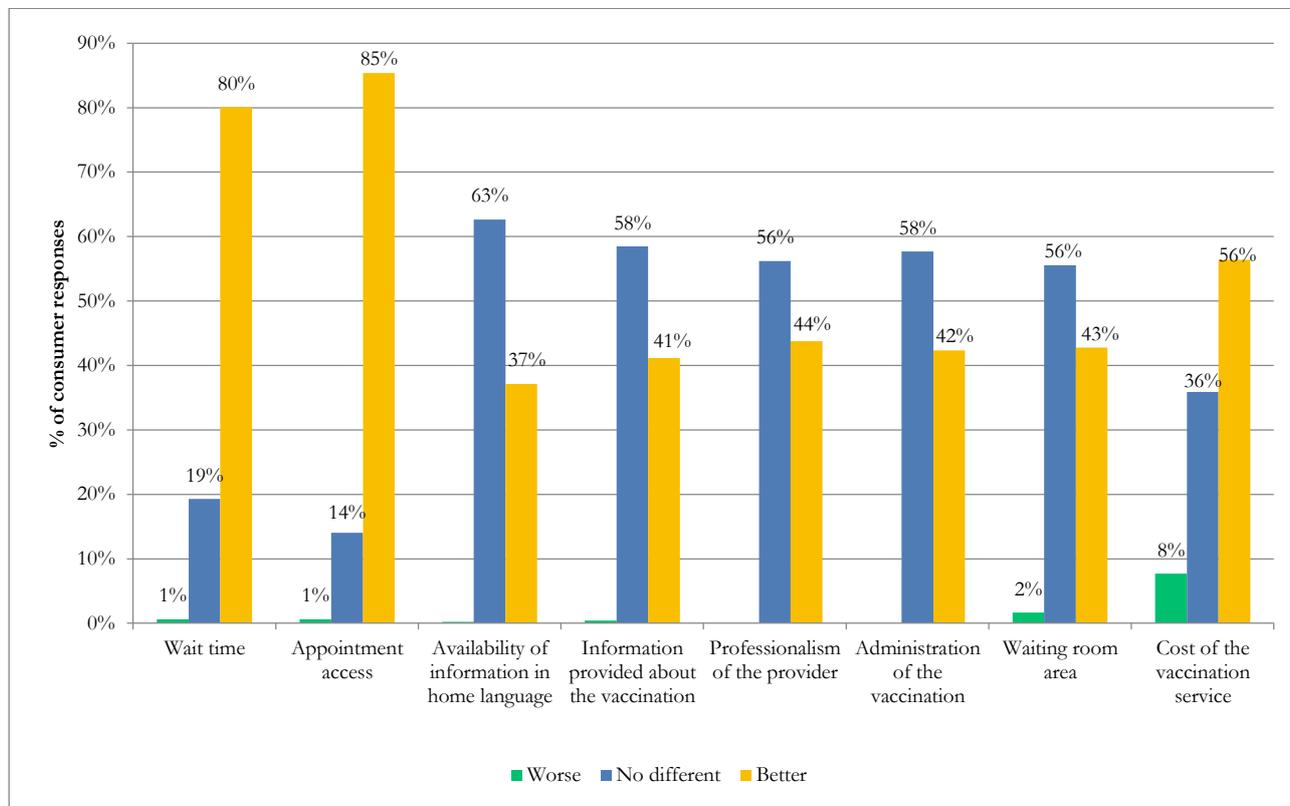
The consumer survey data was used to:

- assess whether the pharmacist-administered vaccination service was acceptable
- compare the pharmacist-administered vaccination service with other provider type vaccination services
- understand consumer intentions to use a pharmacist-administered vaccination service in the future
- understand how likely consumers were to recommend the pharmacist-administered vaccination service to family and friends.

Analysis of the consumer survey found that 87 per cent ($n = 407$) of consumers reported that it was ‘acceptable’ or ‘very acceptable’ to receive vaccinations from a pharmacist when compared with other health professionals from whom they had received vaccinations. Figure 3.5 shows that when consumers compared their experiences of receiving their vaccinations from other health professionals with their experiences with pharmacists, the majority thought that the ‘access to appointment/convenience’ (85 per cent) and ‘wait time to receive vaccinations’ (80 per cent) was better with a community pharmacist

than with other health professionals. The only aspects that were reported to be worse were the costs of the vaccination service (8 per cent), the quality of the waiting room area (2 per cent), access to appointments (1 per cent) and wait time (1 per cent).

Figure 3.5: Differences in receiving vaccination services from a pharmacist compared with another health professional



Source: HealthConsult Evaluation of the Victorian Pharmacist-Administered Vaccination Program Consumer Survey 2017. Note: Where the data label is blank, the percentage of consumers was less than 1 per cent)

When asked if they would use the pharmacist-administered vaccination service in the future, 96 per cent ($n = 474$) of consumer survey respondents reported they would use the service again and only 4 per cent ($n = 19$) indicated they were unsure. One consumer indicated they would not visit a pharmacist for future vaccinations. This consumer was an employer who brought their employees to the community pharmacy to get the influenza vaccine. They commented that the ‘process in community pharmacy took way longer than an onsite nurse vaccination [service]’.¹⁸ Whether they had an appointment or how many employees they brought with them is not known.

All except two consumers reported they would recommend pharmacist-administered vaccination services to family and friends. Consumers living in regional/rural areas had similar levels of intentions compared with those living in metropolitan areas (94 per cent and 95 per cent respectively) to use the service again and would recommend pharmacist-administered vaccination services to family and friends (98 per cent and 99 per cent respectively).

¹⁸ ¹⁸ HealthConsult Evaluation of the Victorian Pharmacist-Administered Vaccination Program Consumer Survey 2017

Vaccination uptake

This chapter presents an analysis of the program's impact on increasing the uptake of influenza and pertussis-containing vaccination.

4.1 Government- and privately-funded vaccinations

Given the limitations with the AIR data (as described in section 2.3), survey data and pharmacy system extract data was used to estimate the proportion of privately- and government-funded vaccines administered by pharmacists.

Table 4.1 shows that an estimated 28 government-funded influenza vaccines (19 per cent) and three (21 per cent) pertussis-containing vaccines were administered, on average, per participating pharmacy, and that 116 (81 per cent) privately-funded influenza vaccines and 11 (79 per cent) pertussis-containing vaccines were administered per pharmacy between June 2016 and September 2017.

Table 4.1: Average number of vaccinations administered between June 2016 and September 2017

Data source	Unit	Influenza	Pertussis-containing
Pharmacy survey	Average government-funded (per pharmacy)	28	3
Pharmacy survey	Average privately funded (per pharmacy)	135	10
Pharmacist survey	Average per pharmacist (not split by funding source)**	89	11
Pharmacy system data extract*	Average government-funded per pharmacy	–	3
	Average privately funded per pharmacy	126	–
All	Average government-funded vaccines per pharmacy	28	3
	Average privately funded vaccines per pharmacy	116	11

* Excludes Chemist Warehouse extract as data could not be split per pharmacy by vaccine type
 ** Based on the assumption that the funding source is all privately-funded vaccines

Analysis of the postcodes to which government-funded vaccines were distributed suggests they were equally distributed to metropolitan and regional locations (refer to Appendix 4). The proportion of government-funded vaccines distributed to community pharmacies represented less than 0.7 per cent of the government-funded vaccines distributed during the 12-month period ending 31 October 2017.

4.2 Number of Victorians vaccinated

To estimate the number of Victorians who were vaccinated against influenza or pertussis by a community pharmacist, the following data was used:

- The average number of pharmacist-administered vaccines per pharmacy was estimated to be 28 government-funded and 116 privately-funded influenza vaccines and three government-funded and 11 privately-funded pertussis-containing vaccines (refer to Table 4.1).
- The total number of pertussis-containing and influenza vaccinations administered from 142 (obtained through secondary data extracts) of the 268 pharmacies (registered with the department to administer vaccination services) is 22,794. To estimate the number of vaccinations administered

by the remaining 125 pharmacies, the calculated average number of vaccines administered per pharmacy was used (refer to Table 4.1).

Table 4.2 presents the data used to estimate that pharmacists administered 40,061 influenza vaccines and 2,464 pertussis-containing vaccines under the program. Using the ratio of government- to privately-funded vaccinations (refer to section 4.1), the evaluation estimates that 32,449 influenza and 1,947 pertussis-containing vaccines were privately funded and 7,612 influenza and 517 pertussis-containing vaccines were government-funded. The estimates of government-funded vaccinations are consistent with the number of *known* government-funded vaccines distributed by the government to community pharmacies (refer to Figure 2.1). It is also important to note that only 0.7 per cent of government-funded influenza vaccines were distributed to community pharmacies compared with other providers of vaccination services (general practitioners, nurse immunisers).

Table 4.2: Measurements used to determine the total number of vaccinations administered under the program

Measurement	Influenza	Pertussis-containing
Average number per pharmacy of <i>government-funded</i> vaccinations administered	28	3
Average number per pharmacy of <i>privately-funded</i> vaccinations administered	116	11
Number of pharmacies with no data extracted	125	125
Number of administered vaccinations from pharmacies with no data extract	18,000	1,750
Number of administered vaccinations from pharmacies with data extract	22,061	714
Estimated total number of vaccines administered under the program	40,061	2,464
Estimated total number of government-funded vaccinations	7,612 (19%)	517 (21%)
Estimated total number of privately-funded vaccinations	32,449 (81%)	1,947 (79%)

Source: Pharmacy system extract data; HealthConsult Victorian Pharmacist-Administered Vaccination Program Pharmacy and Pharmacist Survey 2017

Note: As an example, if on average there were 116 privately-funded and 28 government-funded influenza vaccines administered per pharmacy, hence $(125 \times 116) + (125 \times 28)$, it is estimated that 18,000 influenza vaccinations were administered by the 125 pharmacies where there is no data available.

Based on the consumer survey data showing that only 4 per cent of consumers who received vaccination services from a community pharmacy would not return to a pharmacy to receive their vaccination next year, and given the results from the pharmacy survey about their intentions to further train pharmacist immunisers and expand their vaccination services, it is expected that there will be an increase in the number of Victorians immunised against influenza and/or pertussis by community pharmacists in 2018. Due to the recency and limitations of the AIR data, the actual growth rate from pre-program introduction cannot be determined. However, with improvements in the AIR data it is anticipated that this will be possible in future years using the 2017 influenza season as the baseline.

4.3 Increasing vaccination numbers

The consumer survey data was used to estimate the growth in the number of Victorians who were immunised against influenza and/or pertussis. Table 4.3 shows that 14 per cent of consumers had received the influenza vaccination for the first time and 40 per cent of consumers had received the pertussis-containing vaccination for the first time. Using these proportions, together with the estimated total number of vaccines administered under the program, the evaluation estimates that an additional 5,608 consumers received the influenza vaccine as a result of the program, and an additional 986 consumers received the pertussis-containing vaccine. Of those consumers who had previously been immunised against influenza and/or pertussis, only 91 of the 471 consumers (19 per cent) received their vaccination at a community pharmacy the previous year. This suggests that 81 per cent of consumers previously received their vaccination services in other settings (general practice clinics).

Table 4.3: Increase in the number of Victorians immunised against influenza or pertussis

Measurement	Influenza	Pertussis
Percentage of consumers immunised for the first time	14%	40%
Total number of consumers vaccinated under the program	40,061	2,464
Increase in the number of consumers vaccinated as a result of the program	5,608	986

Source: Refer to Table 4.2; HealthConsult Victorian Pharmacist-Administered Vaccination Program Consumer Survey 2017

Impact on pharmacies and pharmacists

This chapter presents analysis of the impact of the Victorian Pharmacist-Administered Vaccination Program on pharmacies and the pharmacist workforce and career pathways. It begins with an analysis of the number of pharmacists who completed the immuniser program of study and the volume of vaccinations pharmacists are administering. It also explores the appetite of pharmacies and pharmacists to continue offering pharmacist-administered vaccination services.

5.1 Pharmacist immuniser training

During the evaluation period the PSA has been the only training provider in Victoria to have pharmacists who are enrolled and have successfully completed an immuniser program of study. Through analysis of training data held by the department, the evaluation found that 717 pharmacists attended the immuniser program of study conducted by the PSA in the period June 2016 to September 2017.¹⁹ Of those who attended the training workshops, 657 (92 per cent) pharmacists were issued with a *Statement of attainment*. Three of these pharmacists also completed refresher training (in August 2017). The highest number of pharmacists were enrolled and trained during March 2017 (29 per cent, $n = 208$), coinciding with the beginning of the 2017 influenza season (refer to Appendix 5). This was followed by a marked increase in the number of pharmacies that registered for a government-funded vaccine account between April and May 2017.

5.2 Number of pharmacist immunisers and staff trained in first aid

The pharmacy survey data was analysed to determine how many pharmacist immunisers were, on average, employed per pharmacy. Table 5.1 shows that, based on 62 pharmacy survey respondents, an average of 1.9 pharmacists per pharmacy have undertaken the immuniser program of study. An average of 3.3 pharmacists and 2.6 pharmacy support staff are trained in first aid and/or CPR per pharmacy. Pharmacy owners and managers reported in the case study interviews that the availability of pharmacist-administered vaccination services was contingent on at least one other staff member being trained in first aid and/or CPR. In the majority of case studies, pharmacies noted their policy (irrespective of the requirements of the program) was to have at least one or all support staff members trained in first aid and/or CPR, in addition to trained pharmacists. The number of hours a pharmacy offered vaccination services was dependent on the availability of pharmacist immunisers and additional staff with a first aid/CPR certification.

¹⁹ This does not include pharmacists who failed the workshop or did not attend on the day of the workshop.

Table 5.1: Training provided by pharmacist owners/managers

Proportion of pharmacy owners/managers (<i>n</i> = 62)	Range	Average	Total
How many of your pharmacists have undertaken the training to provide vaccination services?	1–4	1.9	114
How many of your pharmacists are trained in first aid and/or cardiopulmonary resuscitation?	1–10	3.3	207
How many of your pharmacy support staff are trained in first aid and/or cardiopulmonary resuscitation?	1–15	2.6	160

Source: HealthConsult Evaluation of the Victorian Pharmacist-Administered Vaccination Program Pharmacy Survey 2017

5.3 Volume of vaccinations administered

The pharmacist survey data was used to estimate the volume of pharmacist-administered vaccinations, on average, each pharmacist immuniser administered between June 2016 and September 2017. Of 92 pharmacist survey respondents who had completed an immuniser program of study, 77 per cent (*n* = 71) reported that they had administered at least two vaccinations under the program since receiving their *Statement of attainment*. The number of reported vaccinations administered by these 71 pharmacists totalled 8,010. The median and maximum number of vaccinations administered by any one pharmacist was higher in regional areas (*n* = 151) compared with metropolitan-based (*n* = 79) pharmacists.

Table 5.2: Number of vaccinations reported administered by pharmacists (Jun 2016 to Nov 2017)

Pharmacy location	Number	Minimum	Median	Average	Maximum
Metropolitan	38	2	50	79	400
Regional/rural	33	2	100	151	500
All	71	2	60	112	500

Source: HealthConsult Evaluation of the Victorian Pharmacist-Administered Vaccination Program Pharmacist Survey 2017

Note: Two pharmacist postcodes were excluded from metro/regional split because they were outside Victoria: 4215 (Qld) and 2605 (NSW)

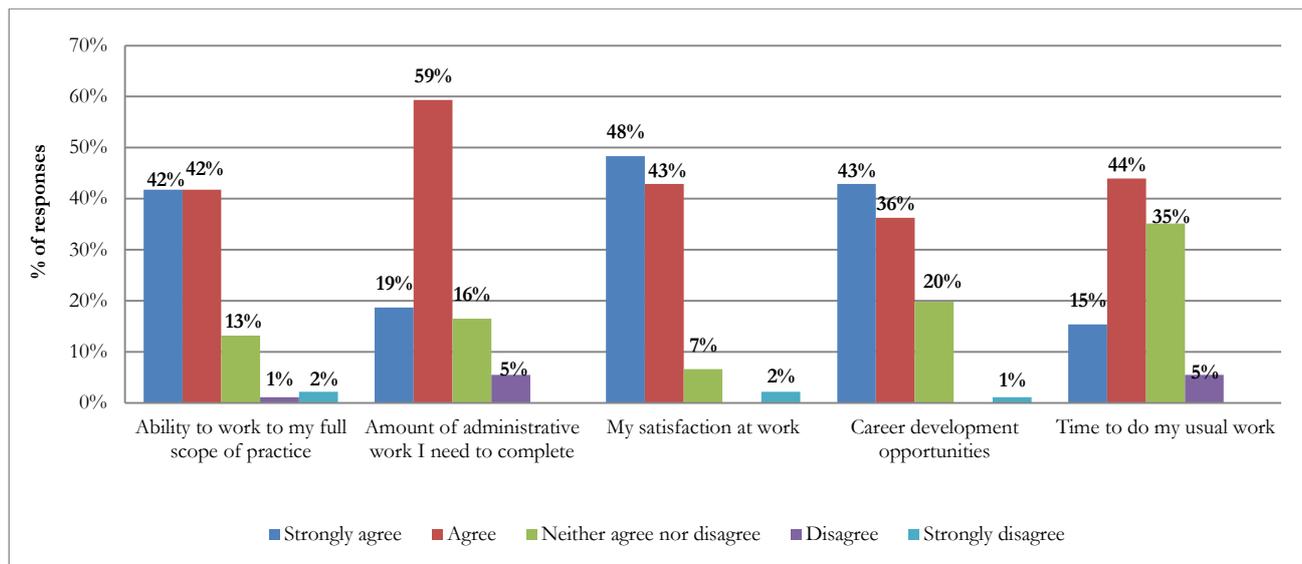
Of the 19 pharmacists who had not yet administered vaccinations to consumers, 50 per cent reported that their pharmacy was not yet set up to deliver vaccination services. Other reasons included that their pharmacy had not yet registered with the department, that they had changed jobs, that they had no suitable area in their pharmacy and that the pharmacy where they work did not offer the service.

It is important to note that although hospital pharmacists are also able to administer vaccinations under the program, at the time of conducting the evaluation only three hospital pharmacies had registered with the department and only one had administered vaccinations under the program. This hospital pharmacist immuniser role functioned to administer influenza vaccinations to hospital staff when the infection control nurse was unavailable. Through a consultation with one hospital pharmacist, it was apparent that their ability to administer vaccinations to health service staff and consumers was influenced by issues associated with professional boundaries within the hospital and with pharmacist workforce capacity. However, as only one hospital pharmacy was consulted, it is unclear whether this experience is isolated or applies more broadly to challenges being experienced by hospital pharmacists.

5.4 Pharmacist workload

Figure 5.1 shows that 59 per cent (*n* = 54) of pharmacist survey respondents reported that they *strongly agreed* or *agreed* that offering pharmacist-administered vaccinations impacted on the time they had to do their usual work; it was also noted that the program resulted in additional administrative work. Almost all (91 per cent) reported that the program improved (“strongly agree”/“agree”) their satisfaction with their work. The majority of pharmacists (82 per cent) also reported that the program enabled pharmacists to work to their full scope of practice.

Figure 5.1: Pharmacists' opinions on the program's impact on their role



Source: HealthConsult Evaluation of the Victorian Pharmacist-Administered Vaccination Program Pharmacist Survey 2017

Several stakeholders representing nursing and medical professions thought that the program may negatively impact on pharmacists' core capacity or capability to dispense medications and discuss medication use with consumers.

Two-thirds (66 per cent, $n = 58$) of pharmacist survey respondents reported that more of their time was being spent on clinical activities as a result of offering pharmacist-administered vaccination services. Of those pharmacists who reported an increase in time spent on clinical activities, an average increase of 2.8 hours per week was reported, with a range of two to 15 hours and a median of two hours. The majority (86 per cent, $n = 48$) of pharmacists reported this as a positive impact on their work or role. Five of the 18 case-studied pharmacies reported that the main benefit of offering the vaccination service was the clinical component of administering a vaccination service that included a patient interaction and a conversation about the patient's general health and wellbeing. This benefit resulted in an improvement in pharmacists' satisfaction with their role. In addition, four case-studied pharmacies considered the clinical component of the program to be an effective and efficient use of the pharmacist's time.

5.5 Workforce capacity

The data obtained from the case study visits and through analysis of the pharmacy survey were used to assess what, if any, impact the program had on workforce capacity. The majority of case-studied pharmacies reported minimal impact on workforce capacity as a result of offering pharmacist-administered vaccination services. However, as reported above, 59 per cent of pharmacists reported that the program has an impact on the time they have to do their usual work. Two pharmacies described the integration of the program into pharmacy operations as challenging. An additional pharmacy reported the need for extra pharmacist shifts on weekends or to extend pharmacists' hours on weekdays to offer vaccination services.

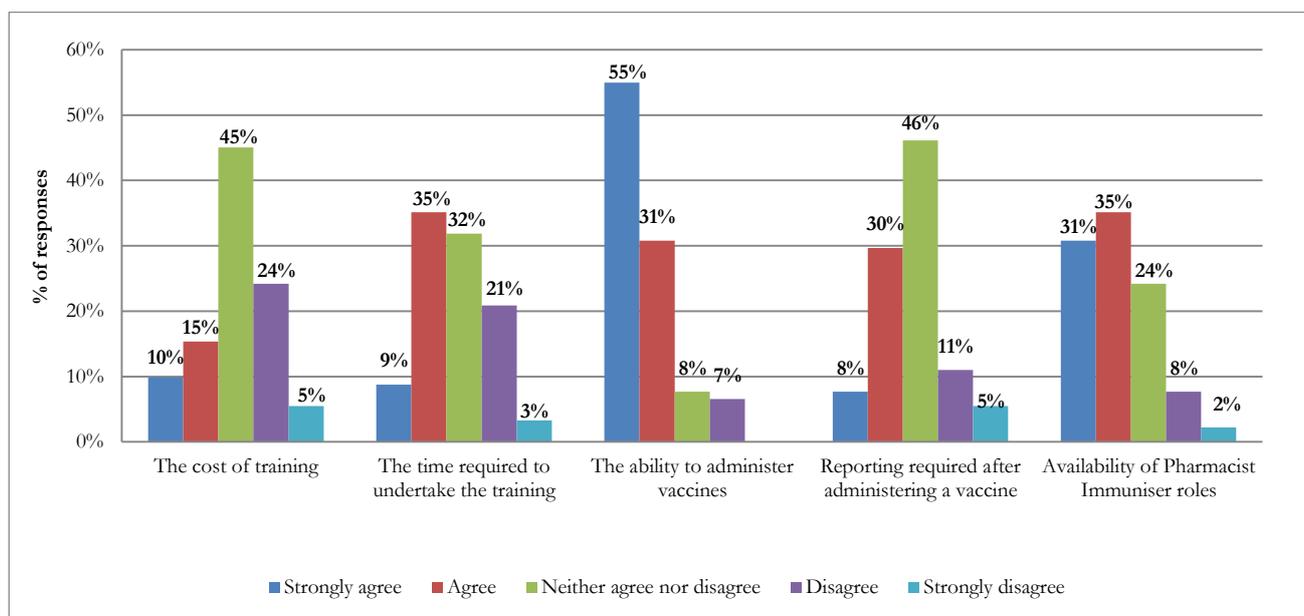
The majority of pharmacy survey respondents (85 per cent, $n = 50$) reported no modification to the number of pharmacists working during times when their pharmacy offered vaccination services. However, 71 per cent ($n = 42$) of pharmacy survey respondents reported the hours allocated to providing vaccination services in their pharmacy was restricted by the availability of staff. The pharmacist immuniser group were reported (81 per cent, $n = 34$ pharmacies) to be the primary workforce effected when vaccination services were offered. Other factors reported as affecting operational hours of vaccination services included associated paperwork and reporting, and attracting and/or retaining pharmacist immunisers.

Through observation of case-studied pharmacies, it was noted that most consultation rooms did not have computers, and this required pharmacists who were using a software vaccination module to at least double-enter the data on each consumer receiving vaccination services (once on paper and again into their software system and then on the AIR). Other pharmacies were not using a software program and were maintaining paper records. The lack of integrated processes to maintain and enter records of vaccination services increases the time it takes to offer a vaccination service and presents a challenge to the sustainability of clinical services offered in pharmacies. It was also noted that some consultation rooms were being used for purposes other than for consultation including as a beauty room (ear piercing) or for storage. Using the consultation room for storage is inconsistent with the Victorian Pharmacy Authority’s guidelines²⁰ and the vaccination program guidelines.

5.6 Pharmacist career pathways

The pharmacist survey data was analysed to determine what factors influenced a pharmacist’s decision to train as a pharmacist immuniser. Figure 5.2 shows that the main factor (85 per cent strongly agreed or agreed) influencing a pharmacist’s decision to train as a pharmacist immuniser was ‘the ability to administer vaccines’. The second most common (65 per cent) factor was ‘availability of pharmacist immuniser roles’.

Figure 5.2: Factors that influenced a pharmacist’s decision to train as a pharmacist immuniser



Source: HealthConsult Evaluation of the Victorian Pharmacist-Administered Vaccination Program Pharmacist Survey 2017

Through interviews with pharmacists at case study visits, the main ($n = 15$) motivations reported to train as a pharmacist immuniser was expansion of skills and service delivery and the satisfaction of being able to provide vaccination services. The perceived impact on career pathways reported by these pharmacists related to broadening their career opportunities as opposed to having a new or different career pathway. A number of pharmacists ($n = 5$) reported that they expected no impact on their career pathways as a result of the program. Most pharmacy owners ($n = 14$) interviewed thought the additional skills and expanded scope of practice to be beneficial to the pharmacy profession. Some pharmacy owners ($n = 3$) thought pharmacist immunisers were more employable in those pharmacies offering the program.

²⁰ The [VPA guidelines](http://www.pharmacy.vic.gov.au) <http://www.pharmacy.vic.gov.au> state: *The dispensary is not to be used for immunisation services. The room or area may be dedicated to the purpose or an existing consulting room may be used. It is not to be used as a storeroom or staff room.*

Interviews with pharmacists at case-studied pharmacies who had not undertaken the immuniser program of study found that the primary reasons cited for not doing so were because they had a needle phobia, worked part time or because the pharmacy and/or pharmacy group was first testing consumer demand for the program.

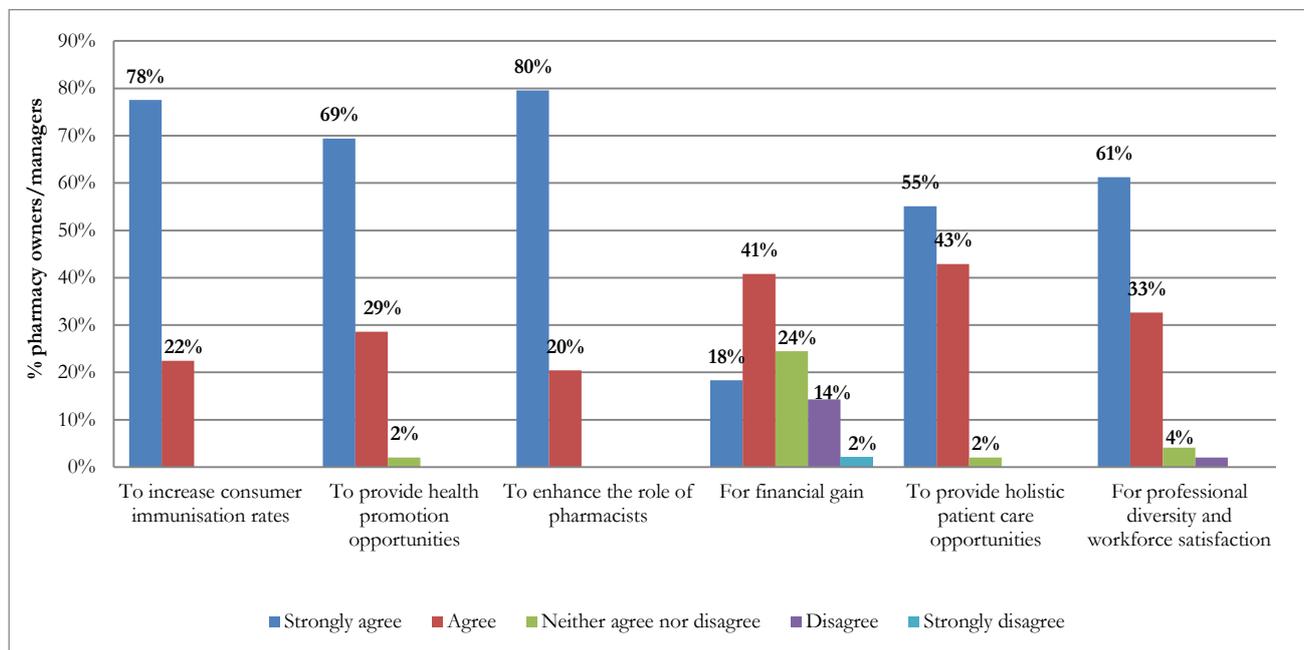
5.7 Appetite to continue offering services

This section analyses the pharmacy and pharmacist survey to determine whether pharmacy owners intend to continue to offer pharmacist-administered vaccination services and whether pharmacist immunisers are interested in continuing to provide the service.

Ninety-six per cent ($n = 87$) of pharmacy survey respondents reported that they intended to continue to offering vaccination services in the future. Just over half (53 per cent, $n = 62$) of these respondents also intended to have, on average, 1.5 additional pharmacists trained in providing vaccinations in the 12 months following the survey, while 47 per cent ($n = 28$) did not. This suggests that for the 2018 influenza season there will be an average of at least 2.7 pharmacist immunisers per participating pharmacy (an additional 0.8 pharmacist immuniser capacity per registered pharmacy than for the 2017 influenza season).

Figure 5.3 shows the main reasons (‘strongly agree’ or ‘agree’) that pharmacy owners and managers gave for intending to continue offering the service as to: increase consumer immunisation rates (100 per cent); enhance the role of pharmacists (100 per cent); provide health promotion opportunities (98 per cent); and provide holistic patient care opportunities (98 per cent). The least common reason was for financial gain (59 per cent).

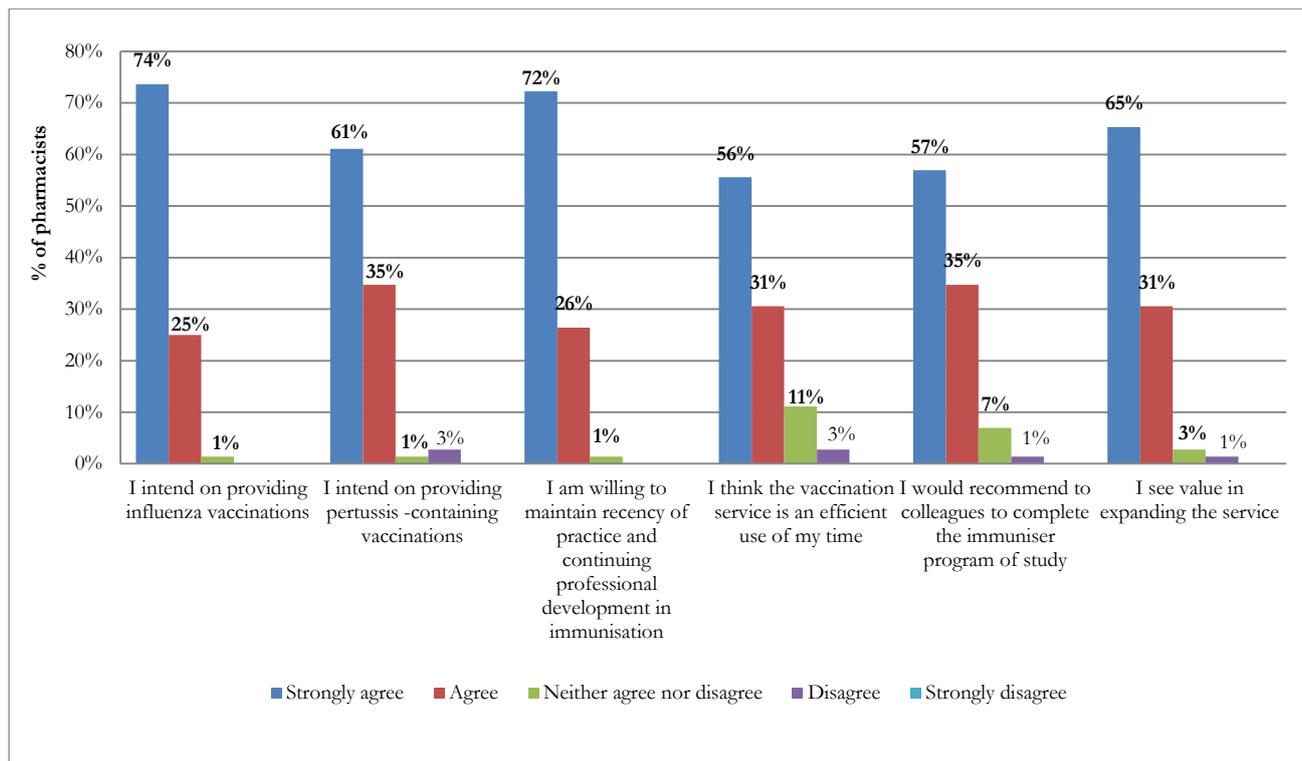
Figure 5.3: Pharmacy owner reasons for continuing to offer vaccination services



Source: HealthConsult Evaluation of the Victorian Pharmacist-Administered Vaccination Program Pharmacy Survey 2017. Note: Where the data label is blank, the percentage of responses was less than 1 per cent

In addition, pharmacists expressed strong support (‘strongly agree’ or ‘agree’) for continuing to provide both influenza vaccinations (99 per cent, $n = 71$) and pertussis-containing vaccinations (96 per cent, $n = 69$) (refer to Figure 5.4). Pharmacists also ‘strongly agreed’ or ‘agreed’ (99 per cent, $n = 71$) that they intended to maintain recency of practice and continue professional development in immunisation.

Figure 5.4: Pharmacists' opinions on continuing to offer vaccination services



Source: HealthConsult Evaluation of the Victorian Pharmacist-Administered Vaccination Program Pharmacist Survey 2017

The most prevalent barriers reported by pharmacy owners and pharmacist immunisers that would prevent them continuing to provide vaccination services were:

- limited remuneration for both the pharmacy owner and the pharmacist immuniser ($n = 51$)
- cost to the business to implement the program ($n = 26$)
- availability of trained staff ($n = 13$)
- additional workload and staff levels (associated with additional administrative requirements) ($n = 6$)
- lack of consumer demand, which impacts on the financial viability of offering the service ($n = 3$).

All case-studied pharmacies reported that they intended to continue offering the program, based on the benefits realised. The benefits they reported included providing comprehensive pharmacy services, community demand for the service, and the need to increase vaccination rates and access.

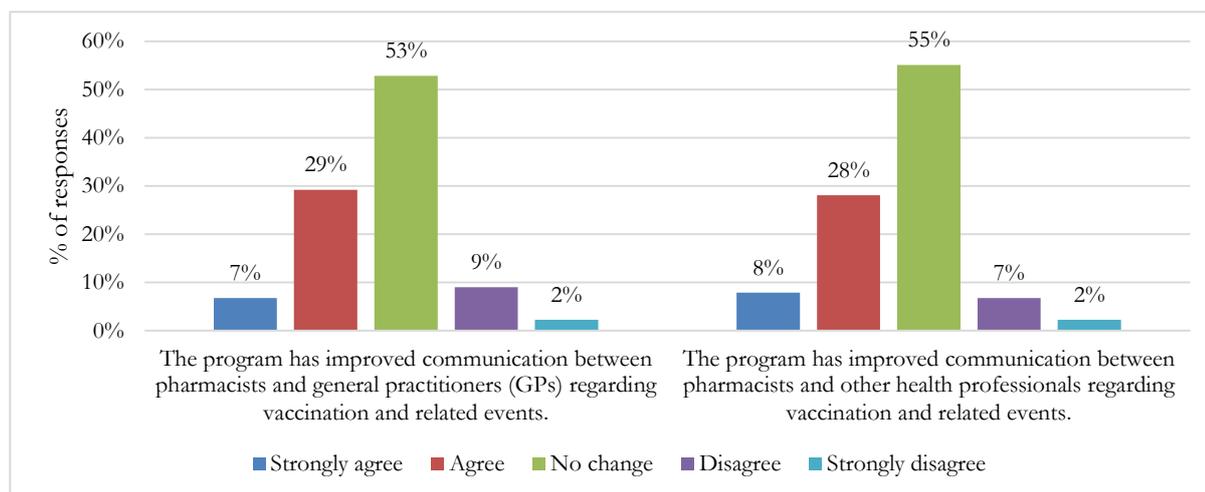
This chapter presents an analysis of the program's quality and safety. Specifically, it presents an analysis of the impact the program has had on improving communication between health professionals, the number of cold-chain breach incidents and adverse events related to pharmacist-administered vaccinations in Victoria.

6.1 Communication with other health professionals

Figure 6.1 shows that only 36 per cent of pharmacists 'strongly agreed' or 'agreed' that the program improved communication between pharmacists and general practitioners or other health professionals. Thematic analysis of the case study interviews with pharmacists supports the proposition that the impact of the program on communication between pharmacies, general practitioners and other relevant health professionals was minimal. Some pharmacies notified local general practitioners or general practice managers of available pharmacist-administered vaccination services. Transmitting consumer vaccination records to general practitioners (with consent) was noted to be the most prevalent form of communication, though indirect, with general practitioners. However, not all consumers consented to a copy of their vaccination record being sent to their general practitioner.

The lack of communication between pharmacists (who administered vaccinations) and other health professionals was a contributing factor to fragmented patient care. The interviewed stakeholder representative of the Australian Medical Association was not aware of any reported impact on communication between pharmacists and general practitioners regarding consumer vaccinations.

Figure 6.1: Pharmacists' opinions on communication between pharmacists and other health professionals



Source: HealthConsult Evaluation of the Victorian Pharmacist-Administered Vaccination Program Pharmacist Survey 2017

6.2 Cold-chain breach incidents

All pharmacist immunisers, like other health professionals who are immunisers, need to follow the principles of safe vaccine storage and cold-chain maintenance to ensure that consumers receive effective and potent vaccines. Cold-chain breaches are reported to the Immunisation section at the department by submitting a *Cold-chain breach report* form.

Between June 2016 and September 2017 there were six cold-chain breaches reported by community pharmacies storing vaccines intended for pharmacist-administered vaccinations. Four pharmacies were not required to discard vaccines, while two pharmacies were required to discard vaccines at a cost of \$336. Only 0.02 per cent of cold-chain breaches were reported by community pharmacies compared with 0.85 per cent for vaccination services provided in other provider settings.

All 18 case-studied pharmacies used purpose-built vaccine refrigerators with inbuilt monitoring and/or data logging with a standard alarm and other safety features. Pharmacies previously stored and dispensed vaccines prescribed by general practitioners prior to offering pharmacist-administered vaccination services. Hence, most had the necessary equipment prior to offering pharmacist-administered vaccination services.

6.3 Adverse events

Pharmacist immunisers, like other types of immunisers, must report any significant 'adverse event following immunisation' (AEFI) to Surveillance of Adverse Events Following Vaccination In the Community (SAEFVIC).²¹ SAEFVIC is a public health partnership initiative of the Victorian Immunisation Program. AEFIs are classified as 'common/minor' or 'significant', and only 'significant' AEFIs are reported to SAEFVIC. A 'significant' AEFI is one that results in death, is life threatening, requires inpatient hospitalisation or prolongation of an existing hospitalisation, results in persistent or significant disability/incapacity, causes a congenital anomaly/birth defect, or is deemed medically important. SAEFVIC reported that none of the pharmacist-reported AEFIs in the period July 2016 to September 2017 fit the criteria for a significant AEFI.

Between July 2016 and September 2017, SAEFVIC received 13 AEFI reports for vaccines administered by a pharmacist (10 were reported by the pharmacist themselves, three by other reporters) and a further four reports were submitted by pharmacists for vaccines administered by a non-pharmacist provider. Two of the 13 were classified as 'minor/common/expected' adverse events, which did not actually require reporting. The other 11 reports required reporting but were not deemed serious. Refer to Appendix 6 for details about the reactions reported.

Correspondence from SAEFVIC²² reported that the number of significant adverse events associated with pharmacist-administered vaccinations was considered low compared with vaccinations administered by other providers. However, no data was provided.

A common comment made by pharmacists interviewed was that there is currently no feedback mechanism to inform pharmacist immunisers of adverse events that have occurred as a result of a pharmacist-administered vaccination but reported to SAEFVIC by another health provider. Currently pharmacists may be copied into email correspondence between the reporting provider and SAEFVIC, but this is not always consistent. It is understood that no formal process exists for other types of immunisers either.

There was a general view among pharmacists that pharmacist-administered vaccinations in community pharmacies are safe because risks are appropriately managed. The requirements for immunisation were noted to be the same for pharmacists as they are for other health professionals, with adequate equipment, staff, guidelines and protocols in place. It was noted through discussions with pharmacists and stakeholders that the consumer complaints and rights processes, in the context of pharmacies providing a clinical health service, were unclear. However, the complaints process is clearly described in the program guidelines.

²¹ Note: The SAEFVIC reporting system is now called Adverse Events Following Immunisation – Clinical Assessment Network (AEFI-CAN). SAEFVIC is a founding member of the newly established AEFI-CAN. The website has changed to aefican.org.au to provide a central, national reporting hub. At the time the evaluation was undertaken, it was known as SAEFVIC.

²² Email received from SAEFVIC on 12 May 2017

Several other stakeholder groups thought the risks were adequately managed through the guidelines and training for pharmacist immunisers. However, some stakeholder groups voiced concerns around clinical risk in a community pharmacy environment, particularly regarding post-vaccination observation (consumers not waiting and management of adverse reactions). It was noted that post-observation waiting areas were present at all case study sites visited, with some pharmacies using identifying cards or stickers to indicate the consumer had been vaccinated.

This chapter presents the reported costs associated with the preparation and delivery of the program, along with the perceived cost efficiencies of the program.

7.1 Costs associated with delivering the program

This section presents an analysis of the gathered data describing out-of-pocket expenses for consumers and costs incurred by pharmacies and pharmacists.

7.1.1 Consumer costs

Table 7.1 shows that although some consumers were not charged at all for receiving a government-funded influenza or pertussis-containing vaccine, the average service fee paid by consumers eligible to receive a government-funded vaccine was \$9 for an influenza vaccine and \$11 for a pertussis-containing vaccine. Overall, the out-of-pocket costs to consumers not eligible to receive a government-funded vaccine varied between \$0 and \$45 for an influenza vaccination and between \$0 and \$96 for a pertussis-containing vaccination. The average overall out-of-pocket cost to consumers ineligible for government-funded vaccines was \$20 for an influenza vaccination and \$43 for a pertussis-containing vaccination. Regional consumers incurred higher average out-of-pocket costs than metropolitan consumers – an additional \$2 for influenza and \$1 for pertussis-containing vaccinations. The maximum service fee charged for the pertussis-containing vaccine was markedly higher than for the influenza vaccines, regardless of whether the vaccine was government-funded or private stock.

Table 7.1: Costs incurred to consumers for pharmacist-administered vaccinations

Charges for consumers *ineligible* to receive a government-funded vaccination

Charges	All (average charge)	Metropolitan (average charge)	Regional (average charge)	All (charge range)	Metropolitan (charge range)	Regional (charge range)
Service fee: influenza vaccine	\$9	\$9	\$9	0 to \$25	0 to \$25	0 to \$25
Vaccine fee: influenza vaccine	\$11	\$10	\$13	0 to \$32	0 to \$25	0 to \$32
Total charge (influenza)	\$20	\$19	\$21	0 to \$45	0 to \$36	0 to \$45
Service fee: pertussis-containing vaccine	\$10	\$10	\$10	0 to \$48	0 to \$48	0 to \$45
Vaccine fee: pertussis-containing vaccine	\$34	\$33	\$34	0 to \$65	0 to \$65	0 to \$50
Total charge (pertussis-containing)	\$43	\$43	\$44	0 to \$96	0 to \$96	0 to \$95

Source: HealthConsult Evaluation of the Victorian Pharmacist-Administered Vaccination Program Pharmacy Survey 2017

Charges for consumers *eligible* to receive a government-funded vaccination

Charges	All (average charge)	Metropolitan (average charge)	Regional (average charge)	All (charge range)	Metropolitan (charge range)	Regional (charge range)
Service fee: influenza vaccine	\$9	\$9	\$9	0 to \$25	0 to \$25	0 to \$15
Service fee: pertussis-containing vaccine	\$11	\$11	\$11	0 to \$50	0 to \$50	0 to \$50

Source: HealthConsult Evaluation of the Victorian Pharmacist-Administered Vaccination Program Pharmacy Survey 2017

7.1.2 *Pharmacist-incurred costs*

Pharmacists reported the costs incurred to participate in the program as ranging from \$0 to \$1,800, with an average cost of \$295 per pharmacist. The types of costs incurred by pharmacists (travel and accommodation to attend training) ranged from \$0 to \$1,000, averaging less than \$100. The immuniser program of study was available in various locations (metropolitan and regional areas), and this would also explain some of the variation in costs incurred. However, the analysis also suggests that at least some pharmacists were paying for the course themselves, whereas others were paid by their employers to undertake the training, with their employers covering the costs of training.

7.1.3 *Pharmacy-incurred costs*

The reported costs incurred by pharmacy owners to participate in the program ranged from \$0 to \$10,000. The average cost, based on pharmacist survey results, was \$663. These incurred costs included expanding the consultation space and purchasing the necessary equipment, as well as covering the travel and accommodation costs of an employee to undertake the training, the latter being the most prevalent reported cost. Other costs incurred (aside from the cost of the immuniser program of study) included: vaccination consumables and consultation area; first aid and CPR training; and staff replacement wages for employees attending training.

7.2 **Perceived cost efficiency of the program**

Most of the costs reported by pharmacy owners or pharmacists related to an initial cost of participating in the program (such as pharmacy set up and/or pharmacist training). The majority of pharmacy owners ($n = 27$) and pharmacists ($n = 45$) thought the costs incurred to participate in the program were reasonable.

Several pharmacy owners and managers interviewed noted the program may be less costly in the next influenza season. This would be the result of lower program establishment costs (any pharmacy modification costs would have been incurred during the 2017 influenza season), greater consumer awareness of pharmacist-administered vaccination services, and readiness to offer the service at the beginning of the influenza season, therefore realising better cost efficiency. One stakeholder stated that, 'the first year of the program was likely not profitable for pharmacies'.²³

A number of pharmacy managers and owners ($n = 5$) thought the Victorian immuniser program of study was expensive but comprehensive, more so than in other states and territories. A few stated ($n = 3$) that the Victorian program of study courses represents greater value for money.

Pharmacy owners and pharmacists reported that the administrative component (AIR registration and data entry), which is a consistent requirement for all immunisers, was not adequately covered by the vaccination service fee and was not a reasonable amount. The vaccination service fee is set by the pharmacy and may be increased to compensate for time spent on the administrative requirements of the program. In addition, the evaluation found that the majority ($n = 15$) of pharmacists entered the data themselves and did not use pharmacy staff for this purpose.

Representatives of several of the key stakeholder groups (from medical, nursing and pharmacy) perceived the program to be cost efficient for otherwise healthy consumers in the context of the program offering convenience. One said that, 'consumers that may otherwise pay a consultation fee for vaccine administration by a general practitioner, may incur lower costs by accessing pharmacist-administered vaccination services'.²⁴ They also felt that cost efficiencies may be realised from the

²³ HealthConsult Evaluation of the Victorian Pharmacist-Administered Vaccination Program Pharmacy Survey 2017

²⁴ HealthConsult Evaluation of the Victorian Pharmacist-Administered Vaccination Program stakeholder consultations 2017

reduced waiting time to access pharmacist-administered vaccination services for consumers. The time convenience for consumers was noted across several aspects of discussions with pharmacy owners and managers interviewed. This aligns to the findings outlined in chapter 3.

Perceived challenges, benefits, improvements and opportunities

This chapter presents an analysis of stakeholder views about the perceived challenges and benefits, improvements and opportunities for the program.

8.1 Challenges of the program

Pharmacist immunisers and pharmacies reported that delays in receiving AIR registration login details, difficulties navigating the AIR portal, and lack of clarity regarding submission requirements were challenges to their participation in the program. This also affected the amount of data that was submitted to AIR during the evaluation period. A number of pharmacy groups involved in the evaluation noted that they are currently developing protocols and processes to centrally submit vaccination data to AIR.

Pharmacists, through the survey and case study visits, cited a number of additional challenges to service delivery of pharmacist-administered vaccinations including:

- consumer education and awareness about the pharmacist immuniser role/service ($n = 30$)
- pharmacy operational workload in peak times ($n = 18$)
- costs to implement and administer pharmacist-administered vaccinations ($n = 14$)
- workforce issues including the availability of trained staff ($n = 12$)
- resistance of the medical community to pharmacists providing vaccination services ($n = 12$)
- delays in the availability of vaccines at the start of the influenza season ($n = 6$).

8.2 Benefits of the program

The perceived benefits of the program were identified through analysing survey responses (pharmacists, pharmacy owners and consumers) as well as through interviews conducted as part of the case study visits and with key stakeholder groups.

The main benefits reported by *consumers* accessing the program included:

- increased access to and the convenience of vaccination services ($n = 485$)
- increased opportunities to have conversations with pharmacists about general health and wellbeing ($n = 12$)
- reduced service fee relative to a general practitioner consultation service fee that is not bulk-billed ($n = 12$).

The main benefits reported by *pharmacist immunisers* participating in the program included:

- professional satisfaction and expansion of pharmacist skills ($n = 50$)
- offering a more comprehensive and holistic service to consumers ($n = 12$)
- community recognition of pharmacists as health service providers ($n = 5$)
- more employment opportunities as a result of acquiring an additional skill ($n = 5$).

The main benefits reported by *pharmacy owners* participating in the program included:

- improved profile of a pharmacy as being more consumer service-oriented and less commercial and subsequently competitive ($n = 17$)
- improved work satisfaction of the pharmacist immuniser workforce ($n = 16$)
- expansion of service offerings resulting in an increase in the number of consumers attending their pharmacy and hence an increase in revenue opportunities ($n = 15$)
- offering a more comprehensive and holistic service to clients ($n = 9$).

The main benefits for the *Victorian community*, as identified by stakeholders involved in the evaluation, included:

- increased vaccination against influenza and pertussis (thus herd immunity) in Victoria ($n = 7$)
- better utilisation of general practitioner time and government spending ($n = 3$).

8.3 Suggested improvements to the program

A number of suggested improvements to the program were identified through analysing the data gathered from pharmacy owners and pharmacists:

- streamlining administration and reporting processes ($n = 31$)
- improving the marketing and media messaging related to pharmacist-administered vaccination services to improve consumer awareness ($n = 25$)
- ensuring sufficient remuneration, at least aligned to general practitioner remuneration for the same service ($n = 13$)
- enabling processes (through software and public messaging) that result in improvements in communication with general practitioners and other health professionals ($n = 5$)
- establishing a formalised feedback process through SAEFVIC so that pharmacist immunisers are made aware of adverse events that have occurred following a pharmacist-administered vaccination and are subsequently reported to SAEFVIC by another health provider ($n = 3$)
- establishing a more robust complaints/feedback process for both consumers and other health professionals ($n = 3$)
- ensuring pharmacists are invited to be part of established multidisciplinary networks/forums. This will assist with promoting the role of pharmacists as part of a multidisciplinary team, resulting in improved communication with other health professionals ($n = 3$).

The evaluators note that although streamlining of administration and reporting processes would be an improvement, this relies on pharmacy software vendors to develop modules that align with the clinical programs (and their data requirements) currently funded in pharmacies.

Some of the suggestions made by pharmacy owners and pharmacists demonstrate a need for additional promotion and education about information contained in the program guidelines. For example:

- Although the complaints process is clearly described in the program guidelines, there is potential to better communicate this requirement through training bodies and professional associations, as some pharmacists reported that the process was unclear.
- Pharmacy owners, managers and pharmacists also suggested removing ‘the variation in training requirements across states and territories so pharmacist immunisers can transfer and use skills in all states and territories’ and developing ‘a common [national] process for accrediting training

providers'.²⁵ The evaluators note that the *National immunisation education framework for health professionals* has been endorsed (and rollout is imminent) and will address these areas and hence these were not listed as areas for suggestion. The PSA Victoria also has a procedure for recognising prior learning for pharmacists who have completed a training program in another state or territory. These pharmacists may apply for recognised prior learning and do not necessarily need to complete the entire program of study.

8.4 Opportunities to expand the program

Although pharmacists were generally comfortable with the current program scope, three opportunities were identified through the pharmacists surveyed and/or interviewed:

- **Increasing the types of vaccines that pharmacists can administer** ($n = 8$; tetanus, hepatitis B, MMR vaccine, travel vaccines). Other Australian jurisdictions are progressing towards a more flexible approach (MMR vaccine is available through pharmacist immunisers in Queensland and the Northern Territory, and the age range has been reduced to over 16 years of age in South Australia and the Northern Territory).
- **Increasing the age range for consumers** to 10 years or older ($n = 6$). However, a number of pharmacists recognised that there are higher clinical and operational risks associated with vaccinating children and adolescents and were not in favour of changing the age of consumers that could receive pharmacist-administered vaccinations. Some pharmacists suggested that utilising data on immunisation rates/disease incidence and workforce utilisation could be used to assess whether there is a benefit to expanding the program.
- **Enabling pharmacists to offer vaccination services in a wider range of settings** ($n = 3$; offering onsite business employee vaccinations similar to the current nurse-led vaccination services).

In the future, there is the potential to increase the type of vaccines that can be administered by a pharmacist or to increase the age profile of consumers. However, expansion is not yet recommended, given that:

- there are problems associated with vaccination data capture by pharmacies (incomplete, inconsistent data that is double- or triple-entered into systems)
- there remain AIR reporting challenges (large gaps in data)
- there has been a low uptake of government-funded vaccines (in comparison with other providers) among currently offered pharmacist-administered vaccination services
- expansion of clinical programs, including vaccination, has not been matched by developments in facilities or infrastructure, which would more appropriately accommodate a broader range of clinical services. For example, the majority of pharmacies do not have comparable waiting areas or designated consultation rooms with appropriate patient monitoring, nor do they have computers with integrated software programs that enable the pharmacist to collect required client-level information and then generate essential reports and make financial claims. This results in workforce efficiency and satisfaction issues as well as and potential problems with the security of paper-based client information.

It is anticipated that these implementation challenges would be compounded if the program were to be expanded immediately. Although it is anticipated that these issues will be resolved over time, an increase in program scope is not currently recommended.

²⁵ HealthConsult Evaluation of the Victorian Pharmacist-Administered Vaccination Program Pharmacy Survey 2017

Summary and future opportunities

This chapter draws on the findings documented in chapters 3–8 to present the conclusions and associated suggestions against the evaluation objectives. Where multiple data sources are available, triangulation of data sources has been used to draw the conclusions.

9.1 Accessibility

The number of pharmacies registered to deliver the Victorian Pharmacist-Administered Vaccination Program grew substantially from 36 in February 2017 to 151 by April 2017. As at 14 February 2018, 268 pharmacies were registered with the department for a government-funded vaccine account.

The program provided Victorians with an estimated 42,525 influenza and/or pertussis-containing vaccinations delivered by a pharmacist immuniser between June 2016 and September 2017. Of those who had previously received influenza/pertussis-containing vaccine, the majority of consumers had obtained it in a non-community pharmacy setting. This suggests consumers' willingness to shift where they obtain their vaccination services and a growing awareness and acceptance of pharmacist immunisers.

The timing of consumer access to pharmacist-administered vaccination services was restricted by the availability of the pharmacist immuniser workforce and resulted in restricted days/hours of services offered by community pharmacies. However, the majority of consumers were very satisfied to extremely satisfied with the pharmacist-administered vaccination service, with most reporting to have waited less than 10 minutes to receive their vaccination.

When comparing pharmacist-administered vaccination services with receiving vaccinations from other health professionals, the majority of consumers thought the access to appointments, convenience and wait time to receive vaccinations was better with a pharmacist than with other health professionals. The only aspects that were reportedly worse were the waiting room area and the costs of the vaccination service. However, the proportion of consumers who reported these aspects was small (< 8 per cent).

9.2 Program impacts on the pharmacist workforce

Between June 2016 and September 2017, 657 pharmacists completed the PSA's immuniser program of study.

The volume of vaccinations administered per pharmacist varied from one to 500. On average, regional/rural pharmacists administered more vaccinations per pharmacist ($n = 151$) compared with metropolitan pharmacists ($n = 79$). About 23 per cent of surveyed pharmacist immunisers had not administered any vaccinations under the program. It will be important to ensure that pharmacists undertake refresher courses if there has been a period of non-practice to ensure recency of practice as stated in the program's guidelines.

The majority of pharmacists reported that the program improved satisfaction with their work (91 per cent), enabled them to work to their full scope of practice (82 per cent) and improved their career development opportunities (79 per cent). On average, pharmacists reported increasing the amount of time they spent on clinical activities by about 2.8 hours per week under the program. The majority of pharmacists reported this as a positive impact on their work or role.

A number of pharmacy owners reported that they intentionally restricted the number of hours and the number of pharmacists trained in pharmacist-administered vaccination services to first assess the demand for the service. Now, after the influenza season, the majority of pharmacy owners intend to continue to offer vaccination services in the future. Just over half of pharmacy survey respondents intend on training, on average, an additional 1.5 pharmacist immunisers in the next 12 months. This suggests that there will be, on average, at least 2.7 pharmacist immunisers per current participating pharmacy to offer vaccination services for the next influenza season (an additional 0.8 pharmacist immunisers per participating pharmacy).

Given that there is continued demand for pharmacists to undertake the PSA's immuniser program of study and that 53 per cent of pharmacy owners intend to train additional pharmacist immunisers within the next 12 months, there may be a market for additional training providers.

Although the overall reported impact on workforce capacity was minimal, the impact on workforce capacity would be further reduced if pharmacies were more adequately set up to deliver clinical services. For example, most of the consultation rooms did not have a computer, so this meant pharmacists were documenting the service on paper and later entering this data into a pharmacy software package (double data entry) followed by entering the information into the AIR module (triple data entry). Some pharmacies were not using a software program at all and were maintaining paper records. These pharmacies still need to make the time to provide this data on the AIR module (double data entry). In addition, in almost all circumstances, pharmacists (not pharmacy support personnel) were responsible for entering the data into the required systems. The lack of integrated and efficient processes to support data entry is likely to have a greater impact on workforce capacity and efficiency as the volume of services increases, and could be assisted with greater use of pharmacy assistants and technicians.

9.3 Quality and safety

During the evaluation period there were no serious adverse events and six cold-chain breaches associated with pharmacist-administered vaccinations, which SAEFVIC considers to be low compared with vaccinations administered by other providers.

There is currently no feedback mechanism for SAEFVIC to inform immunisers (of any provider type) of adverse events that have occurred and are subsequently reported to SAEFVIC by another health provider. Developing such a feedback mechanism would further support the quality and safety of the program.

The program had minimal impact on improving communication between pharmacies and general practitioners or other relevant health professionals. The lack of communication between pharmacists administering vaccinations and other health professionals may be a contributing factor to the potential fragmentation of patient care, along with the 'opt-in' model of consumer consent to send a copy of their vaccination record to their general practitioner. Further promotion of the role of pharmacists in holistic patient care may result in improvements. However, this is not a role for the program itself but possibly a consideration for the department more broadly when it seeks to establish any multidisciplinary networks and/or forums (by inviting a community pharmacist representative).

9.4 Costs and benefits

The average service fee charged to consumers who were eligible to receive a government-funded vaccine was \$9 for influenza vaccine and \$11 for pertussis-containing vaccine. The average total charge (service plus vaccine fee) to consumers who were ineligible to receive government-funded vaccine was \$20 for an influenza vaccination and \$43 for a pertussis-containing vaccination. Regional consumers were charged, on average, slightly higher fees for the pharmacist-administered vaccination service.

The average cost incurred by individual pharmacists was \$295 per pharmacist and related largely to the cost of undertaking the immuniser program of study. Some pharmacists funded the study themselves, while the cost of training was paid for by some employers. The average cost incurred by pharmacy owners to participate in the program was \$663 (ranged from \$0 to \$10,000). The variation in cost incurred related to whether the pharmacy needed to make modifications to their consultation space, purchase new equipment, or simply cover the travel and accommodation costs of an employee to undertake the training.

The benefits of participating in the program varied according to different stakeholder groups. For example:

- *Consumers* benefited from an increase in access to these vaccination services, a reduction in wait time and, for some patients, a smaller fee.
- *Pharmacist immunisers* benefited from expanding their skills and service delivery offerings, which resulted in an increase in work satisfaction and a potential increase in the employment opportunities.
- *Pharmacy owners* benefited from more satisfied staff and expanded service offerings, which resulted in increased revenue opportunities.
- The *community* benefited from more Victorians vaccinated against influenza and pertussis, thus improving herd immunity in Victoria.

Overall, pharmacists and pharmacy owners and managers thought the costs incurred to offer the program were reasonable and that the benefits of the program outweighed the costs, with greater cost efficiencies expected to be realised next influenza season.

9.5 Sustainability

The sustainability of the program is strong. The supporting indicators include:

- high levels of consumer satisfaction with pharmacist-administered vaccination services
- a high proportion of consumers willing to continue using pharmacist-administered vaccination services
- pharmacy owners' commitment to continue offering pharmacist-administered vaccination services in coming influenza seasons
- pharmacy owners' intentions to support employed pharmacists to complete an immuniser program of study within the next 12 months.

Increased uptake and expansion of the current program is likely to be supported by:

- increasing the number of consumers who receive vaccination services from a pharmacist immuniser, which can be achieved with further promotion of the service
- generating sufficient remuneration from offering the service, which will be achieved with an increased consumer uptake of pharmacist-administered vaccination services and increased efficiency in service delivery as a result of experience in offering the program in prior years
- providing sufficient access to the immuniser program of study
- ensuring an adequate supply of the pharmacist immuniser workforce and continued workforce satisfaction by offering opportunities to utilise their new skills
- streamlining administration processes, including data capture and reporting processes, through using software programs to collect the required data and/or installing computers in consultation rooms (this development will also improve workforce satisfaction, minimise the impact on workforce capacity and increase the efficiency of the program)

- establishing a formalised feedback process through SAEFVIC so that pharmacist immunisers are made aware of adverse events that have occurred as a result of a pharmacist-administered vaccination and subsequently reported to SAEFVIC by another health provider. This feedback will ensure continuous quality improvement and safety in delivering the program.

9.6 Options for future expansion

Further expansion of the program is not recommended at this time, given that there are challenges associated with vaccination data capture by pharmacies, reporting to AIR and a low uptake of government-funded vaccines. The growing number of clinical programs now delivered in community pharmacies has not been matched by developments in facilities or infrastructure that would more appropriately accommodate an enhanced range of clinical services, including vaccination.

It is recommended that the department explores opportunities to expand the program only once these issues are addressed. Taking a staged approach that considers the likelihood of uptake among pharmacists, integration of new or expanded vaccination services into existing business processes, and the clinical risks and benefits associated with individual vaccines or among specific consumer groups is recommended. Any expansion should recognise and harness the important role that pharmacists can play in increasing access to vaccinations and promoting herd immunity, and ensure that the pharmacy workforce is utilised effectively to administer government-funded vaccines to those most at risk of vaccine-preventable disease. This will require pharmacists to take a more active role in promoting government-funded vaccines and commit to undertaking continued professional development to maintain their skills and expertise in vaccination so they can offer comprehensive immunisation services that meet community needs.

Appendix 1: Australian pharmacist-administered vaccine programs

Table A1.1 provides a jurisdictional comparison of key features of pharmacist-administered vaccination programs across Australia as at March 2017.

Table A1.1: Australian jurisdictional comparison of pharmacist-administered vaccine program standards

Dimension	Vic.	NSW	Qld	SA	WA	NT	Tas.	ACT
Program commencement	2016	2015	2014-15 (trial) 2016	2015	2015	2015-16 pilot	2016	2016
Vaccines administered	Influenza, pertussis- containing	Influenza	Influenza, DTPa, MMR	Influenza	Influenza	Influenza, DTPa, MMR	Influenza	Influenza

Eligibility

Dimension	Vic.	NSW	Qld	SA	WA	NT	Tas.	ACT
Adults – NIP ²⁶ eligible	✓ Fee for service aged 18 years offer GP referral	x	✓ Fee offer GP referral first	x	✓ Fee offer GP referral first			
Adults – NIP ineligible	✓ 18+ years of age Fee for service and cost of vaccine	✓	✓	✓ 16+ years of age	✓	✓ 16+ years of age	✓	✓

Registration/accreditation

Dimension	Vic.	NSW	Qld	SA	WA	NT	Tas.	ACT
State government program registration	✓	x	n.s	✓	n.s	✓ Pilot	✓ Approval	n.s
Australian Immunisation Register (registry) ²⁷	✓	n.s	n.s	n.s	n.s	n.s	submit data to AIR	n.s
Accreditation and insurance inclusive of vaccination	✓	✓	✓	✓	✓	✓	✓ Insurance	✓ Insurance
Pharmacy staff with CPR and first aid certificates present	✓1+	✓1	✓1+	✓ Referred to PSA ²⁸	2+ pharmacists	✓	✓1 Referred to PSA	✓ Sufficient staffing

²⁶ [NIP schedule](http://www.immunise.health.gov.au/) <http://www.immunise.health.gov.au/>

²⁷ [Australian Immunisation Register for health professionals](https://www.humanservices.gov.au/health-professionals/services/medicare/australian-immunisation-register-health-professionals) <https://www.humanservices.gov.au/health-professionals/services/medicare/australian-immunisation-register-health-professionals>

²⁸ [Practice guidelines for the provision of immunization services within pharmacy](http://www.psa.org.au/download/practice-guidelines/immunisation-guidelines.pdf) <http://www.psa.org.au/download/practice-guidelines/immunisation-guidelines.pdf>.

HealthConsult

Immuniser training

Dimension	Vic.	NSW	Qld	SA	WA	NT	Tas.	ACT
State/territory-approved immuniser training	✓ APC standards	APC approved	APC standards	✓	✓ PSA	✓ APC standards	✓	APC standards
Other state/territory-approved immuniser training	✗ CHO approved only	APC approved	APC standards	CHO approved	WA DoH approved	NT DoH approved	✓ State approved	APC standards

Pharmacists training requirements

Dimension	Vic.	NSW	Qld	SA	WA	NT	Tas.	ACT
First aid certificate	✓	✓	✓	✓	✓	✓	✓	✓
CPR certificate	✓	✓	✓	✓	✓	✓	✓	✓
Anaphylaxis training	✓	✓	✓	✓	✓	✓	✓	✓

Required data and/or processes

Dimension	Vic.	NSW	Qld	SA	WA	NT	Tas.	ACT
Informed consent, administration and post-vaccination area	✓	✓	✓	✓	✓	✓	✓	✓
Maintain patient-level vaccination data	✓	✓	✓	✓	✓	✓	✓	✓
Vaccination and adverse event (AE) reports provided to	✓ State	✓ State	✓ State	✓ State	✓ State	✓ State	✓ AEs direct to TGA	✓ State
Copy of vaccination report provided to patients GP	✓	✓	✓	✓	n.s	✓	n.s	✓
Cold-chain management ²⁹	✓	✓	✓	✓	✓	✓	✓	✓

Evaluation

Dimension	Vic.	NSW	Qld	SA	WA	NT	Tas.	ACT
Program evaluation	Underway	Not known	Yes (trial)	Not known	Yes	Underway	Underway	Not known

Abbreviations: National Immunisation Program (NIP), cardiopulmonary resuscitation (CPR), Chief Health Officer (CHO), Australian Pharmacy Council (APC), Therapeutic Goods Administration (TGA), Department of Health (DoH); not specified (n.s)

Pharmacist-administered vaccination standards and program guidelines have been developed by each state and territory. These are designed to be read in conjunction with relevant state, territory and national legislation, Acts, policies and guidelines including

- *Victorian Pharmacist Administered Vaccination Program guidelines*³⁰
- New South Wales *NSW Pharmacist vaccination standards*³¹
- *Queensland pharmacist vaccination standard*³²
- South Australia Department for Health and Ageing *Vaccine administration code*³³

²⁹ National Vaccine Storage Guidelines – Strive for 5 – Australian Government Department of Health

³⁰ [Victorian Pharmacist-Administered Vaccination Program guidelines](https://www2.health.vic.gov.au/public-health/immunisation/immunisers-in-victoria/pharmacist-immunisers/guidelines) <https://www2.health.vic.gov.au/public-health/immunisation/immunisers-in-victoria/pharmacist-immunisers/guidelines>

³¹ [NSW Pharmacist Vaccination Standards](http://www.health.nsw.gov.au/pharmaceutical/Documents/pharmacist-vacc-standards.pdf) <http://www.health.nsw.gov.au/pharmaceutical/Documents/pharmacist-vacc-standards.pdf>

³² [Queensland pharmacist vaccination standard, June 2016](https://www.health.qld.gov.au/_data/assets/pdf_file/0016/444130/standard-pharmacy-vaccination.pdf) <https://www.health.qld.gov.au/_data/assets/pdf_file/0016/444130/standard-pharmacy-vaccination.pdf>

HealthConsult

- Australian Capital Territory *Pharmacist vaccination standards*³⁴
- Western Australia Department of Health *Pharmacist vaccination code*³⁵
- Northern Territory Department of Health NT-PLIP *Guidelines for immunisation at pharmacy premises in the Northern Territory*³⁶
- *Tasmanian vaccination program guidelines*.³⁷

³³ [Vaccine Administration Code, August 2016](#)

<<http://www.sahealth.sa.gov.au/wps/wcm/connect/ea1c9b0040741be0959db7a05d853418/VAC+1.3+August+2016.pdf?MOD=AJPERES&CACHEID=ea1c9b0040741be0959db7a05d853418&CACHE=NONE>>

³⁴ [Pharmacist vaccination standards](#) <http://www.health.act.gov.au/sites/default/files/Pharmacist%20vaccinations%20-%20Standards_0.pdf>

³⁵ [Pharmacist vaccination code](#) <http://ww2.health.wa.gov.au/~/_media/Files/Corporate/general%20documents/medicines%20and%20poisons/Word/Pharmacist_vaccination_code.ashx>

³⁶ [Guidelines for immunisation at pharmacy premises in the Northern Territory 2016](#) <[http://digitallibrary.health.nt.gov.au/prodjsui/bitstream/10137/840/1/NT%20Pharmacist-Led%20Immunisation%20Pilot%20Guidelines%20\(July%202016\).pdf](http://digitallibrary.health.nt.gov.au/prodjsui/bitstream/10137/840/1/NT%20Pharmacist-Led%20Immunisation%20Pilot%20Guidelines%20(July%202016).pdf)>

³⁷ [Tasmanian vaccination program guidelines 2016](#) <http://www.dhhs.tas.gov.au/__data/assets/pdf_file/0020/211808/Tasmanian_Vaccination_Program_Guidelines_Feb_2016.pdf>

Appendix 2: International pharmacist-administered programs

Table A2.1 provides a summary comparison of pharmacist-administered vaccination programs internationally as at March 2017.

Table A2.1: Comparison of pharmacist-administered vaccines internationally

Dimension	Australia	New Zealand	United Kingdom	Ireland	Canada
Year services began	<ul style="list-style-type: none"> • 2015 	<ul style="list-style-type: none"> • 2011 	<ul style="list-style-type: none"> • Early trials started in 2002 • NHS commissioning started in 2010–11 (2015 in England) 	<ul style="list-style-type: none"> • 2011 	<ul style="list-style-type: none"> • Implementation of pharmacist policy (province dependent) started in 2009
Vaccines	<ul style="list-style-type: none"> • Influenza • DTPa • MMR 	<ul style="list-style-type: none"> • Influenza • Pertussis • Meningococcal • Varicella (shingles) • Cholera and <i>E. coli</i> 	<ul style="list-style-type: none"> • Influenza • Hepatitis B • Travel vaccines • Extended range including meningococcal, MMR, DTaP and HPV 	<ul style="list-style-type: none"> • Influenza • Pneumococcal • Herpes zoster 	<ul style="list-style-type: none"> • Influenza • 13 prescription vaccines including hepatitis A and B, typhoid, HPV, rabies and varicella (jurisdictional)
Authorised patient population	<ul style="list-style-type: none"> • Adults 18+ years of age • Self-pay and government-funded (eligible) 	<ul style="list-style-type: none"> • Adults 18+ years of age • Privately-purchased vaccines 	<ul style="list-style-type: none"> • Self-pay and government-funded (NHS) to adults 18+ years of age 	<ul style="list-style-type: none"> • Adults 18+ years of age 	<ul style="list-style-type: none"> • Persons 5+ years of age
Pharmacist training	<ul style="list-style-type: none"> • State-approved immuniser training • First aid, CPR and anaphylaxis • Recency of practice and CPD in vaccinations 	<ul style="list-style-type: none"> • Vaccinator training course approved by the Ministry of Health • First aid, CPR and anaphylaxis • Recency of practice and CPD in vaccinations 	<ul style="list-style-type: none"> • Training compliant to content set by national minimum standards for immunisation training • Anaphylaxis, advanced life support and injectables training 	<ul style="list-style-type: none"> • First aid, CPR, anaphylaxis and parenteral medicines administration training • Training accredited and approved by national pharmacy institute and council 	<ul style="list-style-type: none"> • Accredited immunisation training • First aid, CPR and anaphylaxis • Recency of practice and CPD in vaccinations
Pharmacy requirements	<ul style="list-style-type: none"> • Additional staff present trained in first aid and CPR • Cold-chain maintenance • Standards-compliant consultation room • Accreditation, insurance 	<ul style="list-style-type: none"> • Additional staff present trained in first aid and CPR • Cold-chain maintenance • Standards-compliant consultation room • Indemnity insurance 	<ul style="list-style-type: none"> • Declaration of competence • Additional trained pharmacy staff • Cold-chain maintenance • Standards-compliant consultation room 	<ul style="list-style-type: none"> • Additional staff present trained in first aid and CPR • Cold-chain maintenance • Standards-compliant consultation room • Indemnity insurance 	<ul style="list-style-type: none"> • Cold-chain maintenance • Vaccination principles outlined in the <i>Canadian immunization guide</i> • Practice proficiencies outlined <i>Immunisation competencies for health professionals</i>

HealthConsult

Dimension	Australia	New Zealand	United Kingdom	Ireland	Canada
Record keeping and reporting	<ul style="list-style-type: none"> • Informed patient consent • Patient-level data • Patient GP notification • Vaccination and adverse event reporting to state/territory • Registration/approval with state government • National Immunisation Register 	<ul style="list-style-type: none"> • Informed patient consent • Patient-level data • Patient GP notification • Adverse event reporting to Centre for Adverse Reactions Monitoring • National Immunisation Register (future) 	<ul style="list-style-type: none"> • Informed patient consent • Patient-level data • Patient GP notification • Vaccination, adverse events and notifications to appropriate public health authorities 	<ul style="list-style-type: none"> • Informed patient consent • Patient-level data and tracking • Patient GP notification • Adverse event reporting • Vaccination reports to National Immunisation Office 	<ul style="list-style-type: none"> • Informed patient consent • Patient-level data and tracking • Patient GP notification • Vaccination, adverse events and notifications to appropriate public health authorities
Policy and Protocol compliance	<ul style="list-style-type: none"> • State/territory/national-specific government and vaccine guidelines and legislation 	<ul style="list-style-type: none"> • Legislation and regulations specific to (not limited to) immunisation, medicines, health privacy and infectious diseases 	<ul style="list-style-type: none"> • National Health Service Act, relevant legislations and guidelines pertaining to vaccinations 	<ul style="list-style-type: none"> • National regulations and advisory committee guidelines pertaining to medicines, immunisation and health 	<ul style="list-style-type: none"> • National Association of Pharmacy Regulatory Authorities • Federal drug legislation

Abbreviations: cardiopulmonary resuscitation (CPR), continued professional development (CPD), National Health Service (NHS)

Appendix 3: Stakeholder consultation

Table A3.1 includes the key sector stakeholder groups that were consulted to inform the evaluation.

Table A3.1: Stakeholder groups consulted

Stakeholder group	Stakeholder organisation
Pharmacy	Victorian Pharmacy Authority
Pharmacy	Pharmaceutical Society Australia
Pharmacy	Pharmacy Guild of Australia
Pharmacy	Pharmacy Board of Australia
Pharmacy	Society of Hospital Pharmacists
Education	La Trobe University
Medical	Australian Medical Association Victoria
Medical	Royal Australian College of General Practitioners
Nursing	Australian Nursing and Midwifery Federation
Nursing	Australian College of Nursing
Nursing	Australian College of Nurse Practitioners
Other	Victorian PHN Alliance
Other	Surveillance of Adverse Events Following Vaccination In the Community (SAEFVIC)
State and territory	Australian Capital Territory Health
State and territory	Western Australia Department of Health (Communicable Disease Control Directorate, Poisons and Regulation)
State and territory	New South Wales Department of Health (Immunisation Branch)
State and territory	Queensland Health (Medicines Regulation and Quality)

Appendix 4: Distribution of vaccines

In total, 9,510 government-funded vaccine doses (4,777 units) were distributed between June 2016 and October 2017 to community pharmacies across metropolitan and regional Victoria for the purpose of pharmacist-administered vaccinations. Table A4.1 presents the monthly breakdown of government-funded vaccine unit distribution. It shows that 0.67 per cent of all government-funded influenza vaccines (Table A4.2) were distributed between November 2016 and November 2017 to pharmacist immunisers and 1.17 per cent of government-funded pertussis-containing vaccines (Table A4.3). These tables are not dissimilar from the proportion of pharmacist-administered vaccinations represented in the AIR data sample (1.71 per cent).

Table A4.1: Distribution of government-funded vaccine to Victorian pharmacies June 2016 to October 2017

	Metropolitan (number)	Metropolitan (proportion)	Regional (number)	Regional (proportion)	Total
Number of pharmacy locations that influenza vaccine units were distributed to	74	59%	52	41%	126
Number of influenza vaccine doses distributed to pharmacies	3,999	50%	3,968	50%	7,967
Number of influenza vaccine units distributed to pharmacies	1,752	53%	1,563	47%	3,315
Number of pharmacy locations pertussis-containing vaccines distributed to	66	57%	50	43%	116
Number of pertussis-containing vaccine doses distributed to pharmacies	953	62%	590	38%	1,543
Number of pertussis-containing vaccine units distributed to pharmacies	890	54%	572	35%	1,462

Source: Department of Health and Human Services Immunisation Unit, November 2017

Table A4.2: Percentage of influenza vaccine distributed to pharmacies (November 2016 to November 2017)

Customer group	Sub category description	Sum of total doses	% total doses for immunisation program
Victorian pharmacists	Influenza vaccines	7,781	0.67%
Total all Victorian provider types	Influenza vaccines	1,162,070	100.00%

Source: Department of Health and Human Services Immunisation Unit, November 2017

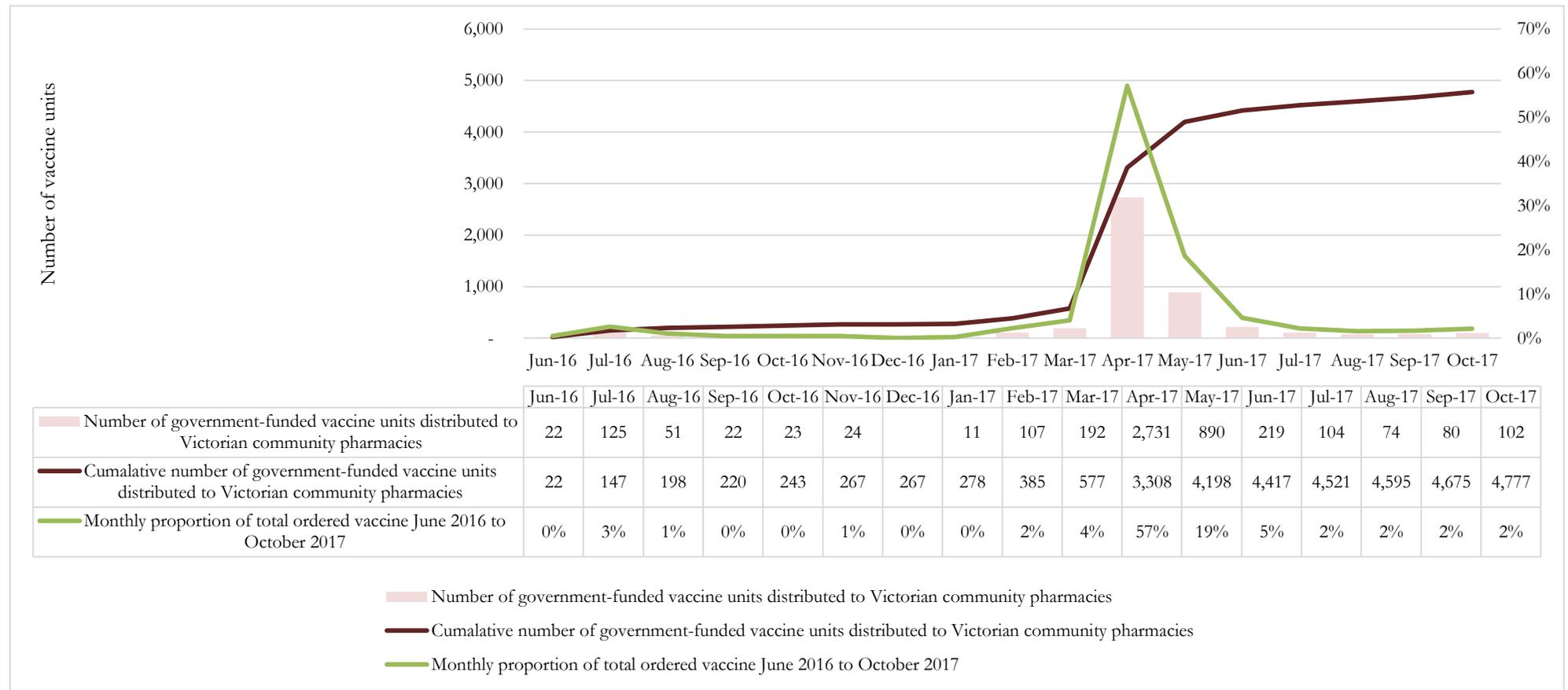
Table A4.3: Percentage of parent pertussis-containing vaccine distributed to pharmacies (November 2016 to November 2017)

Customer group	Supplier part	Sum of total doses	% total doses for immunisation program
Victorian pharmacists	E0050 – parent pertussis-containing	1,331	1.17%
Total all Victorian provider types	E0050 – parent pertussis-containing	113,358	100.00%

Source: Department of Health and Human Services Immunisation Unit, November 2017

Figure A4.1 and Table A4.4 show the breakdown of government-funded vaccine distribution to Victorian community pharmacies.

Figure A4.1: Monthly breakdown of government-funded vaccine distribution to Victorian community pharmacies



Source: Department of Health and Human Services Immunisation Unit November 2017

Table A4.4: Monthly breakdown of government-funded vaccine distribution to Victorian community pharmacies

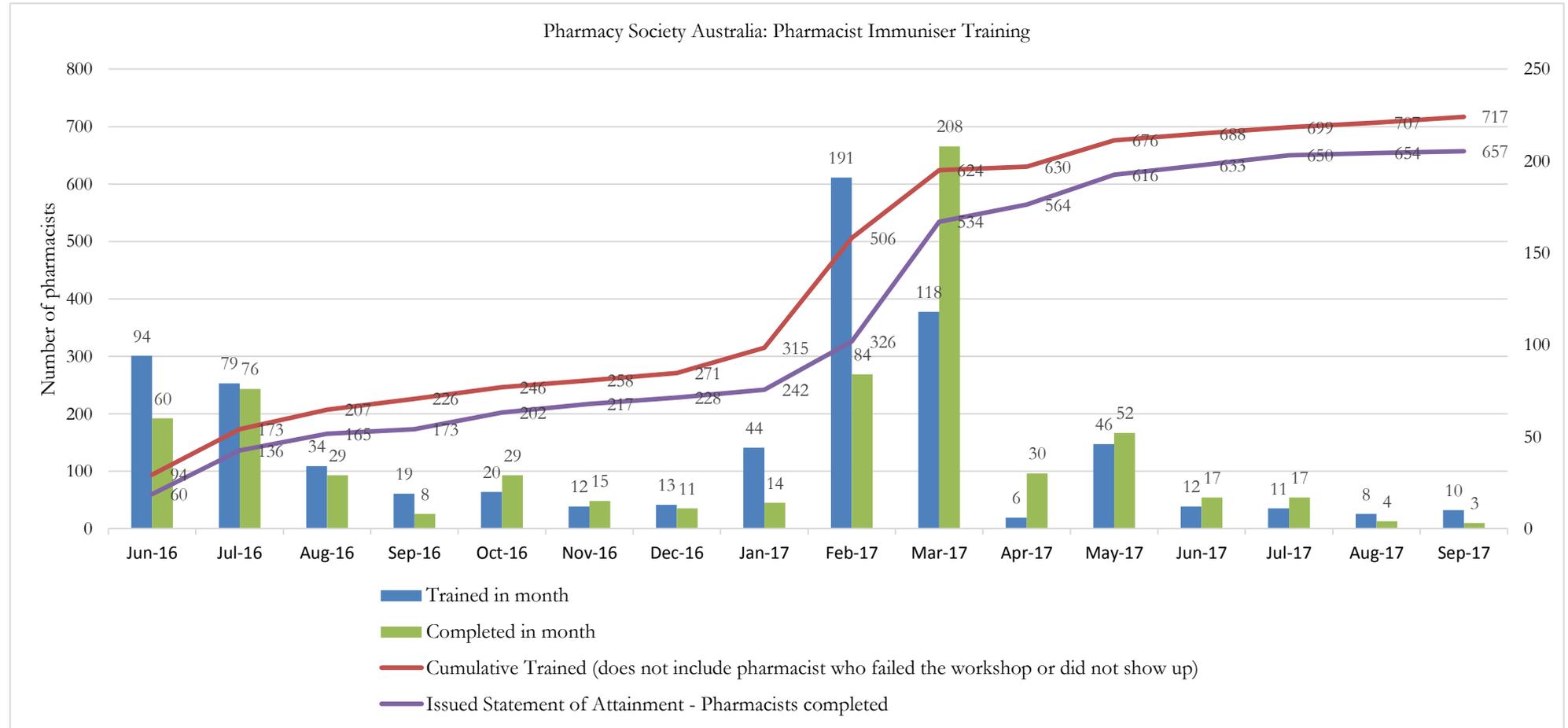
Number of units	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Total vaccine units	Total vaccine doses
Number of units distributed	22	125	51	22	23	24		11	107	192	2,731	890	219	104	74	80	102	4,777	9,510
Cumulative number of units distributed	22	147	198	220	243	267	267	278	385	577	3,308	4,198	4,417	4,521	4,595	4,675	4,777		
Monthly proportion of total ordered vaccine June 2016 to October 2017	0%	3%	1%	0%	0%	1%	0%	0%	2%	4%	57%	19%	5%	2%	2%	2%	2%		

Source: Department of Health and Human Services Immunisation Unit November 2017

Appendix 5: PSA Victorian Pharmacist Immuniser Training Program

Figure A5.1 shows the uptake and completion rates for the Pharmaceutical Society of Australia’s Victorian Pharmacist Immunisation Training Program.

Figure A5.1: PSA Victorian Pharmacist Immunisation Training Program uptake and completion



Source: PSA Victoria

Appendix 6: Adverse events

Table A6.1 shows the number and type of ‘adverse events following immunisation’ reported to SAEFVIC by pharmacists between July 2016 and September 2017.

Table A6.1: AEFIs reported to SAEFVIC by pharmacists between July 2016 and September 2017

Reactions reported	Count
Angiodema	1
Arthralgia	1
Cellulitis at injection site	1
Fever (not measured)	2
Hypertension	1
Influenza-like illness	1
Injection site reaction – minor/common/expected	2
Lethargy	1
Lymphadenopathy/thrombosis	1
Nodule at injection site	1
Rigors	1
Urticaria/hives/allergic rash	1
Myalgia and migraine	1
Migraine	1
Tachycardia	1
Total	17

Source: SAEFVIC

The number of reports submitted to SAEFVIC (for vaccines administered by a pharmacist) by vaccine trade name is summarised in Table A6.2 comparatively against the number of adverse event reports submitted to the Therapeutic Goods Administration (TGA). Similar to SAEFVIC, adverse event reports submitted to the TGA may contain multiple adverse events (reactions). The TGA’s Database of Adverse Event Notifications³⁸ (DAEN) – medicines, provides information about adverse events related to medicines and vaccines used in Australia.

Table A6.2: Number of reports for adverse events following vaccination

Vaccine trade name	Number of reports submitted to SAEFVIC	Number of reports submitted to the TGA
Afluria Quad	2	132 (2 under 18 years, 23 age unknown)
Fluarix Tetra	1	191 (20 under 18 years, 20 age unknown)
FluQuadri	8	300 (32 under 18 years, 36 age unknown)
Fluvax	1	40 (1 under 18 years, 23 age unknown)
Boostrix	1	286 (67 under 18 years, 31 age unknown)
Total	13	949 (827 excluding under 18 years)

Sources: SAEFVIC 1 July 2016 to 30 September 2017, TGA (DAEN) 1 July 2016 to 16 August 2017

³⁸ [TGA DAEN <https://www.tga.gov.au/about-daen-medicines>](https://www.tga.gov.au/about-daen-medicines)