Nurses, Immunisation and Health

October 2019

INTRODUCTION

The Australian College of Nursing (ACN) is committed to advancing nurse leadership to enhance health care. As the preeminent professional nursing organisation, ACN is also committed to advocating on behalf of nurses so that their unique insights can contribute to quality health care environments for the benefit of the Australian community. One approach that ACN takes to that advocacy work is the development of discussion papers and position statements on issues of concern to the profession and the Australian community. As a national nursing organisation, ACN also recognises that one of its professional ethical obligations is to advocate for safe and healthy environments: vaccination is one means of facilitating achievement of this obligation[1].

ACN considers that the role nurses play in delivering vaccinations and advocating for immunisation programs is pivotal to the ongoing health of all Australians from birth to old age. Accordingly, ACN has developed this Discussion Paper and an accompanying Position Statement to highlight the issues for nurses and the Australian community relative to vaccination and immunisation programs.

The Position Statement and the Discussion Paper have been designed to be complementary and although stand-alone documents, it is preferable that they be read in conjunction with each other https://www.acn.edu.au/wp-content/uploads/position-statement-nurses-immunisation-and-health.pdf. The Discussion Paper is based on the best evidence currently available and it informs the statements and recommendations made in the Position Statement. The purpose of the Discussion Paper is to identify the relevant issues for nurses in this complex specialty area, to establish the reasons for the focus on adult immunisation and its role as a preventive health measure, and to provide the evidence base for the key statements and the recommendations made in the Position Statement. Both the Discussion Paper and the Position Statement will facilitate and enhance the ability of the nursing profession to meet the immunisation needs of Australian adults.

The Discussion Paper is structured into six sections as summarised below. It includes a glossary which defines key terms used throughout the paper, for example, the difference between vaccines and immunisation, vaccine preventable disease and herd immunity.

Neither the Discussion Paper nor the Position Statement include clinically related advice or specific detail about vaccinations or immunisation programs. For up to date guidance and information about the delivery of specific vaccines across the life span (including pregnancy[2]) and for immunisation programs in detail please refer to the *Australian Immunisation Handbook* and the *National Immunisation Program Schedule*[3].

EXECUTIVE SUMMARY

Access to vaccines is an important preventive health measure for all Australians, particularly for the very young and the very old. Australia has an extensive and internationally recognised vaccination and immunisation program which is available across the life-span. *Australia's National Immunisation Program Schedule* (NIP Schedule) provides around 17 vaccines with routine vaccination beginning at birth. The recommended vaccination schedules continue into adulthood with specific groups targeted, for example, adults aged 65 years and over and Aboriginal and Torres Strait Islander people aged 50 years and over[4]. In addition, some states and territories provide further vaccines, for example, Meningococcal vaccination programs[5]. The positive value of these programs to the health of the Australian public is immense. It has markedly reduced the incidence of vaccine preventable diseases (VPD), particularly for children[6]. It has also made an important contribution to the improved health of many other groups of Australians such as adolescents and those

1 Nursing and Midwifery Board of Australia, *The ICN Code of ethics for nurses*. (2012). "Element 1: Nurses and people". Retrieved 12 September 2019, from https://www.nursingmidwiferyboard.gov.au/News/2018-03-01-new-codes-of-ethics-in-effect.aspx

2 Australian College of Midwives, (2017). *Immunisation (ACM) Draft Position Statement – 2017*. Retrieved 17 June 2019, from https://www.midwives.org.au/resources/immunisation-acm-draft-position-statement-2017.

3 Australian Technical Advisory Group on Immunisation (ATAGI), (2018). *Australian Immunisation Handbook*, Australian Government Department of Health, Canberra. Retrieved 11 September 2019, from https://immunisationhandbook.health.gov.au/about-the-handbook

Australian Government, Department of Health, (2019). *National Immunisation Program Schedule*. Retrieved 11 September 2019, from https://www.health.gov.au/health-topics/immunisation/immunisation-throughout-life/national-immunisation-program-schedule

4 Australian Government, Department of Health, (2018). *National Immunisation Strategy for Australia 2019-2024*. Retrieved 12 September 2019, from https://www.health.gov.au/sites/default/files/national-immunisation-strategy-for-australia-2019-2024_0.pdf

5 Government of South Australia, SA Health, *Meningococcal Vaccines*, (May 2019). Retrieved 29 May 2019, from https://www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/health+topics/health+conditions+prevention+and+treatment/immunisation/vaccines/meningococcal+vaccines

6 *National Immunisation Program Schedule*, (2019), *op cit*. *National Immunisation Strategy for Australia 2019-2024*, (2018), *op cit*, 7, 9-15 and 29.

Australian Institute of Health and Welfare, (2018). *Australia's Health 2018*. Australia's health series no. 16. AUS 221. Canberra: AIHW. Ch 7. Retrieved 29 May 2019, from https://www.aihw.gov.au/reports/australias-health/australias-health-2018/contents/table-of-contents

living with chronic co-morbidities[7]. Constant vigilance is required however, to ensure that these positive outcomes are sustained, not only in Australia but within the region and internationally[8].

Included in the annual report of the Australian Health Practitioners Regulatory Agency for 2017-18, is a "snapshot" of nursing provided by the Nursing and Midwifery Board of Australia (NMBA). The NMBA's figures show that there are 398,596 nurses registered to practice in Australia, and they comprise 56.7% of all "registered health practitioners"[9]. Further, *Australia's Health 2018* reports that for 2016, there were more nurses and midwives employed than any other health care professional[10]. Under the terms of licensure, the NMBA requires all nurses to advocate for immunisation programs with some nurses choosing to extend their scope of practice by undertaking specific education and training in the speciality area of vaccination and immunisation (nurse immunisers)[11]. This Discussion Paper and associated Position Statement sets out the issues for all nurses, whether they are nurse immunisers or not, as they fulfil their professional, regulatory and ethical obligations in relation to vaccination and immunisation programs in the Australian context.

The very nature of a nurse's work makes them vulnerable to not only contracting a VPD but also to becoming a vector for the transmission of VPD to patients and others through-out the community. Workplace immunisation programs have been established to protect workers (including nurses) and minimise the spread of VPD, and some are mandatory in some sectors, for example, residential aged care[12]. Anecdotally it seems though that there is a shortage of nurse immunisers available to meet the demand for vaccine delivery at times of surge, such as annual programs to immunise for influenza (flu). There is a paucity of data and research generally about the nature and extent of nurses' involvement (whether specifically trained or not) in the delivery of vaccines and in immunisation related education and communication campaigns. ACN is a strong advocate of the benefits of workplace vaccination programs for all nurses including those outlined in the *Australian Immunisation Handbook* and the *National Safety and Quality Health Service Standards*[13]. ACN also supports the funding of more targeted research to determine the numbers of nurse immunisers in particular who are specifically trained to safely deliver vaccines and to advocate for and communicate the positive benefits of immunisation programs.

Despite the success of immunisation programs for children the available evidence strongly suggests that the coverage and uptake of vaccinations for adults is less than desirable[14]. There is a paucity of current research on this topic, but the reasons seem to include lack of confidence in the influenza vaccine in particular[15], as well as a lack of access to immunisation programs especially for the frail elderly[16] whilst for some groups cost can be a factor[17]. As the average age of the population increases, more and more adults are living with chronic co-morbidities for long periods of time making them vulnerable to a VPD such as influenza[18]. It has been shown that recommendations from a health care professional (such as a registered nurse), are highly influential in decisions to vaccinate especially for adults[19]. As nurses constitute the majority of the health care workforce, they are well placed to make these recommendations and to safely deliver adult vaccines, especially in Australia's regional, rural and (very) remote areas.

Vaccines constitute a significant preventive health care measure[20]. Since their introduction into Australia in the 1930's vaccines have "successfully reduced the incidence of harmful infectious diseases"[21]. This also means that vaccines delivered for a VPD, have the potential to reduce the burden of disease for those with chronic co-morbidities, many of whom are older adults[22]. Vaccines change and evolve over time and as they do, and as research demonstrates new areas of need, immunisation policies and funding also need to

7 *National Immunisation Strategy for Australia 2019-2024*, (2018), *ibid*.

8 World Health Organization, (2014). *Report of the SAGE Working Group on Vaccine Hesitancy: November 2014*. Retrieved 12 September 2019, from https://www.who.int/immunization/sage/meetings/2014/october/1_Report_WORKING_GROUP_vaccine_hesitancy_final.pdf

New South Wales Government, NSW Health, Infectious diseases, Alerts. (28 March 2019). *Measles alert- International flights and domestic airports*. Retrieved 12 September 2019, from https://www.health.nsw.gov.au/Infectious/alerts/Pages/measles-alert-20190327.aspx

9 Australian Health Practitioners Regulatory Agency. Annual Report 2017/18, *The National Boards: protecting the public*. Retrieved 12 September 2019, from https://www.ahpra.gov.au/annualreport/2018/national-boards.html#nursing

10 *Australia's Health 2018*, (2018), *op cit*. 38.

11 Australian College of Nursing, (2019). *Immunisation for health practitioners*. Retrieved 12 September 2019, from https://www.acn.edu.au/education/immunisation/immunisation-for-health-practitioners

12 Australian Government, Department of Health, (2019) *Immunisation for work*, (1 May 2019). Retrieved 12 September 2019, from https://www.health.gov.au/health-topics/immunisation/immunisation-throughout-life/immunisation-for-work

Australian Government, Department of Health, Ageing and Aged Care, (15 February 2019). *Mandatory influenza (flu) vaccination program for residential aged care providers*. Retrieved 12 September 2019, from https://agedcare.health.gov.au/mandatory-influenza-flu-vaccination-program-for-residential-aged-care-providers

13 *Australian Immunisation Handbook*, (2018), *op cit*.

Australian Commission on Safety and Quality in Health Care (ACSQHC), (2017). *National Safety and Quality Health Service Standards.* 2nd ed. Retrieved 12 September 2019, from https://www.safetyandquality.gov.au/standards/nsqhs-standards

14 *National Immunisation Strategy for Australia 2019-2024*, (2018), *op cit*, 31.

15 Chandini Raina MacIntyre. (2013). Elderly vaccination—The glass is half full. *SciRes*, 5:12A, 80-85. Retrieved 3 June 2019, from http://dx.doi.org/10.4236/health.2013.512A011.

Holly Seale., Julie Leask. and C. Raina MacIntrye. (2009). Attitudes amongst Australian hospital healthcare workers towards seasonal influenza vaccination, *Influenza and Other Respiratory Viruses*, 4: 41-46.

16 Sevan Dirmesropian., James G. Wood., C. Raina MacIntyre., Phillipe Beutels and Anthony T. Newell. (2016). Economic Evaluation of Vaccination Programmes in Older Adults and the Elderly: Important Issues and Challenges, *PharmacoEconomics*, 34: 723-731. MacIntyre, (2013), *ibid*. 81.

17 Dirmesropian et al, (2016), *ibid*. 727-728.

18 Dirmesropian et al, (2016), *ibid.*

19 Robert I Menzies., Julie Leask., Jenny Royle and C Raina MacIntyre. (2017). Vaccine myopia: adult vaccination also needs attention *Med J Aust*; 206: 6, 238-239. || doi: 10.5694/mja16.00811. Retrieved 19 June 2019, from https://www.mja.com.au/journal/2017/206/6/vaccine-myopia-adult-vaccination-also-needs-attention

Australian Institute of Health and Welfare, (2011). *2009 Adult Vaccination Survey: summary results*. Cat. no. PHE 135. Canberra: AIHW. 17.

Dirmesropian et al, (2016), *op cit*, 727.

20 *Australia's Health 2018*, (2018), *op cit*, 372.

21 *Australia's Health 2018*, (2018), *op cit*, 376.

National Immunisation Strategy for Australia 2019-2024, (2018), *op cit*, 50.

22 *Australia's Health 2018*, (2018), *ibid.*

change if immunisation programs are to continue to achieve their positive benefits[23]. Good programs and good policy require objective evidence in the form of robust data and quality research. A source of data in terms of immunisation policy development and change is the Australian Immunisation Register (AIR)[24]. Established in 2016 from its precursor body, the Australian Childhood Immunisation Register, AIR collects data about government funded and privately purchased vaccinations across the life span. When combined with other data sources such as developments in e-health records and disease surveillance, current programs can be strengthened and modified[25]. The Australian Primary Health Care Nurses Association (APNA) states that "Every day around 60% of primary health care nurses provide an immunisation, and a further 18% immunise at least weekly"[26]. Although not all nurses who deliver vaccines are located in primary health care settings, the APNA data cited above, does suggest substantial involvement of nurses in this important sector of preventive health care. Nurses who deliver vaccines need to be actively involved in data entry and collection to facilitate the collection of reliable data: currently the access of nurses to AIR is variable or even restricted. The experience of nurses in other areas related to immunisation programs (education for instance), also needs to be researched and the relevant data collected so that any reviews of immunisation programs or changes to vaccination schedules takes into account the nursing experience.

It has been said that "One of the great public health achievements of the 20th century is vaccination against infectious disease"[27]. Nurses, as the majority professional group in the health care workforce, are crucial to the delivery of vaccines and for the improvements to immunisation programs required to ensure their ongoing success. This Discussion Paper and the related Position Statement set out the evidence for further enhancement of Australia's existing immunisation programs and for the crucial role nurses play in that endeavour.

23 *National Immunisation Strategy for Australia 2019-2024*, (2018), *op cit*, 42.

24 Australian Government, Department of Human Services, *Australian Immunisation Register*, (2019). Retrieved 16 September 2019, from https://www.humanservices.gov.au/individuals/services/medicare/australian-immunisation-register

25 *National Immunisation Strategy for Australia 2019-2024*, (2018), *op cit*, 42-45.

26 Australian Primary Health Care Nurses Association (APNA), (19 February 2019). *APNA welcomes $12 million boost to national immunisation education*. Retrieved 16 September 2019, from https://www.apna.asn.au/hub/news/apna-welcomes--12-million-boost-to-national-immunisation-education

27 Noel T. Brewer., Gretchen B. Chapman., Alexander J. Rothman., Julie Leask and Allison Kempe. (2017). Increasing Vaccination: Putting Psychological Science Into Action. *Psychological Science in the Public Interest* 18:3, 149-207.

STRUCTURE OF THE DISCUSSION PAPER

The Discussion Paper is structured into six sections as summarised below.

Section A: the context for immunisation programs in Australia and adult vaccination uptake: the nurses role

A.1 Australia's internationally recognised vaccination and Immunisation programs

- The *Australian Immunisation Handbook* and the *National Immunisation Program Schedule*
- Funding for the programs and what that means for individuals

A.2 Understanding vaccination uptake in adults

- Vaccination rates and coverage for children is satisfactory although it could be improved
- The coverage rates for adults however, is "not optimal"[28]. Some reasons for that and some consequences.

Section B: The professional context for nurses delivering vaccines and requiring vaccinations as part of (mandatory) workplace programs

B.1 The professional, regulatory and legal requirements for all nurses in relation to immunisation

- The Nursing and Midwifery Board of Australia (NMBA): how professional practice standards establish the legal and regulatory requirements for nurses to deliver vaccines and a mandate for all nurses to advocate for the positive benefits of immunisation

B2 Nurses as vulnerable health care workers and (mandatory) workplace vaccinations

- Mandatory and recommended workplace vaccination schedules in accordance with the *Australian Commission on Safety and Quality in Health Care's National Safety and Quality Health Service (NSQHS) Standards*: Standard number 3 and the Australian Government's "Immunisation for work" program
- Benefits to nurses and the community of these programs and some challenges in improving uptake coverage rates.

Section C: Understanding adults and their immunisation requirements: specific vaccination needs for particular groups of adults and 'vaccine hesitancy' in adults

C.1 Vaccine needs specific to adults

- *National Immunisation Program Schedule* and recommended vaccinations for adults including 'booster' and 'catch-up' vaccinations and vaccination needs of migrants, refugees and adults planning international travel

C.2 Vaccines for older adults and ameliorating the 'burden of disease' especially for those with chronic co-morbidities

C.3 What the research reveals about barriers to vaccine coverage and uptake for adults

- 'Vaccine hesitancy' (cost and access) and some common misconceptions about immunisation recommendations for adults
- The role nurses can play in addressing some of these factors.

Section D: Understanding immunisation and vaccination needs for Aboriginal and Torres Strait Islander people: successes and challenges

D.1 The challenges and some initiatives to address them.

Section E: Some strategies to address the issues raised in Sections A-D above

E.1 Increase the number of nurses completing nurse immuniser courses to improve the coverage rates for adult vaccinations. Those nurses also need to be involved in the development and delivery of educational programs designed to dispel myths and misunderstandings about vaccination and so facilitate vaccination uptake by adults.

E.2 Increase nurse involvement in the collection and analysis of immunisation data and its role in monitoring vaccine preventable disease with particular emphasis on the Australian Immunisation Register.

Section F: Summary, acknowledgements, terminology, and acronyms and abbreviations.

28 *National Immunisation Strategy for Australia 2019-2024*, (2018). *op cit*, 31.

SECTION A: THE CONTEXT FOR IMMUNISATION PROGRAMS IN AUSTRALIA AND THE NURSE'S ROLE

A.1 Australia's internationally recognised vaccination and immunisation programs

Childhood vaccination for diphtheria was introduced into Australia in 1932 with further programs of vaccinations introduced progressively from 1945, for example, tetanus, poliomyelitis, pertussis (whooping cough), measles and mumps[29]. Since then Australia has developed a highly successful and internationally recognised immunisation program[30]. It has been reported that the introduction of these childhood immunisation programs in Australia led to a fall in deaths from vaccine preventable diseases (VPD) of 99%[31]. Immunisation is undoubtedly one of the most cost-effective public health measures ever introduced[32]. It saves millions of lives every year and one of its most successful achievements has been the eradication of smallpox[33].

Australia now has "one of the most comprehensive publicly funded immunisation programs in the world"[34]. A feature of these programs is that they are now jointly funded by the Commonwealth and state and territory governments[35]. For example, all vaccines listed in the *National Immunisation Program Schedule* (NIP Schedule) are free and funded by the Commonwealth. The vaccines available include childhood vaccinations as well as those specific for adults such as vaccination for herpes zoster (shingles), and catch-up vaccines[36]. In practice, this means that funding for some vaccines is from the Commonwealth (through the NIP schedule), whilst other funding is from the state or territories. For example, the State Government of South Australia, Meningococcal B (MenB) Immunisation Program provides free meningococcal B vaccines to specified groups such as children and young people who are residents of South Australia[37].

Whilst the NIP Schedule provides a schedule (list) of vaccines and the age at which they are to be given, the *Australian Immunisation Handbook* (the Handbook) provides "clinical guidelines for healthcare professionals and others about using vaccines safely and effectively". The advice in the Handbook also includes recommended vaccinations for people not routinely included in the NIP Schedule, for example, adults travelling internationally. The Australian Technical Advisory Group on Immunisation (ATAGI) develops the recommendations in the Handbook which is available online: its current membership includes a Nurse Practitioner[38].

This Discussion Paper refers to both the NIP Schedule and the Handbook but it does not provide details of vaccination schedules and immunisation programs. It is an expectation of ACN therefore that nurses who deliver vaccines will make themselves aware of the requirements for vaccination as set out in the NIP Schedule and the Handbook. It is also a requirement of state and territory jurisdictions that nurses who deliver vaccines have completed an immunisation specific course. Nurses who have not completed an immunisation specific course however, may also deliver vaccines if they have first been prescribed by a medical practitioner: for details see Section B below.

A.2 Understanding vaccination uptake in adults

Vaccination coverage rates for children in Australia is generally regarded as good with average rates of between 92-94 % or above but for adults, these rates are rarely achieved. The *National Immunisation Strategy for Australia 2019-2024* (the Strategy) Strategic Priority 1, notes that "Vaccination uptake among at-risk adults…is not optimal". The Strategy goes on to observe that vaccination rates need to be improved for "this important population group". The Strategy cites data from the *2009 Adult Vaccination Survey: Summary results* (the Survey) released by the Australian Institute of Health and Welfare (AIHW) in 2011[39]. Although dated 2009, the AIHW survey remains one of the few pieces of evidence about adult vaccination coverage rates in Australia. In 2016 the Australian Immunisation Register (AIR) was introduced with the aim of capturing all vaccinations received across the lifespan (for details of AIR see Section E below). This change should lead to improved accuracy and accessibility of adult vaccination data which can be used to inform vaccination programs and assess individual vaccination needs[40].

29 Australian Health Ministers' Advisory Council, (AHMAC), (2017), *Aboriginal and Torres Strait Islander Health Performance Framework 2017 Report*, 149. Retrieved 12 September 2019, from https://www.pmc.gov.au/sites/default/files/publications/2017-health-performance-framework-report_1.pdf

National Immunisation Strategy for Australia 2019-2024, (2018), *op cit*; "Appendix A: Key dates when vaccines first came into widespread use in Australia", 50.

Australia's Health 2018, *op cit*, 376.

30 *National Immunisation Strategy for Australia 2019-2024*, (2018), *op cit*, 9.

31 AHMAC report, (2017), *op cit*, 149.

32 *2018 Assessment report of the Global Vaccine Action Plan* (2018). Strategic Advisory Group of Experts on Immunization. Geneva: World Health Organization: (WHO/IVB/18.11). Retrieved 12 September 2019, from https://www.who.int/immunization/global_vaccine_action_plan/SAGE_GVAP_Assessment_Report_2018_EN.pdf?ua=1

33 Royal Society for Public Health, (2018). *Moving The Needle: Promoting vaccination uptake across the life course*, 5. Retrieved 12 September 2019, from https://www.rsph.org.uk/our-work/policy/vaccinations/moving-the-needle-promoting-vaccination-uptake-across-the-life-course.html

34 *Australian Guidelines for the Prevention and Control of Infection in Healthcare*, (2019). National Health and Medical Research Council, 197. Retrieved 12 September 2019, from https://www.nhmrc.gov.au/about-us/publications/australian-guidelines-prevention-and-control-infection-healthcare-2019#block-views-block-file-attachments-content-block-1

35 *National Immunisation Strategy for Australia 2019-2024*, (2018), *op cit*. 9.

36 *National Immunisation Program Schedule*, (2019), *op cit*. See too Section C below.

37 Government of South Australia, SA Health, (May 2019). *Meningococcal B (MenB) Immunisation Program*. Retrieved 12 September 2019, from https://www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/health+topics/health+conditions+prevention+and+treatment/immunisation/immunisation+programs/meningococcal+b+immunisation+program

38 Australian Technical Advisory Group on Immunisation (ATAGI): Members. Retrieved 11 September 2019, from https://www.health.gov.au/committees-and-groups/australian-technical-advisory-group-on-immunisation-atagi#members.

Australian Immunisation Handbook, (2018), *op cit*.

39 *National Immunisation Strategy for Australia 2019-2024*, (2018), *op cit*, 28-32.

2009 Adult Vaccination Survey: Summary results, (2011), *op cit*.

40 *Australia's Health 2018*, (2018), *op cit*, 379.

C. Raina MacIntrye., Robert Menzies., Elizabeth Kpozehouen., Michael Chapman., Joanne Travaglia., Michael Woodward., Lisa Jackson Pulver., Christopher J. Poulos., David Gronow and Timothy Adair. (2016). Equity in disease prevention: vaccines for older adults – a national workshop, Australia 2014. *Vaccine*, 34: 5463-5469.

In addition to data about vaccination uptake, there is a need to better understand the reasons for the lower uptake rates of vaccination in adults as opposed to that in children. Recent efforts to understand these issues have predominantly centred around childhood vaccination with a subsequent paucity of research on adults in Australia[41]. The report of a workshop concerning vaccines and (older) adults held in Australia in 2014, noted that immunisation for adults contributed substantially to positive ageing and to improved quality of life for older adults. The report also suggested that it "may be more appropriate to compare adult vaccination with other accepted adult preventive strategies than with infant vaccination"[42]. It has been shown that a recommendation from a health professional (including nurses) is the most important factor influencing vaccination uptake in adults[43]. In light of these issues, there needs to be more research concerning adult vaccination uptake rates as well as the role of nurses in delivering vaccines and in developing and delivering educational programs and relevant communication strategies (see too Section C below).

SECTION B: THE PROFESSIONAL CONTEXT FOR NURSES DELIVERING VACCINES AND REQUIRING VACCINATIONS AS PART OF (MANDATORY) WORKPLACE PROGRAMS

B.1 The professional, regulatory and legal requirements for all nurses in relation to immunisation

The Nursing and Midwifery Board of Australia (NMBA) regulates nursing practice with the overall aim of protecting the public, for example, through the implementation and monitoring of professional practice standards for the profession. Included in the standards are the *ICN Code of Ethics for Nurses* (Code of ethics) and the *Code of conduct for nurses* (the Code)[44]. The Code of ethics states that nurses are to advocate for equity and social justice whereas the Code states that nurses are expected to play a significant role in immunisation advocacy and delivery[45]. Principle 7 of the Code, "Health and wellbeing", specifically requires all nurses to fulfil their obligations to engage in disease prevention including through vaccination[46]. It is a legislative requirement that all nurses practicing in Australia are registered with the NMBA. Once registered, nurses are to be familiar with and observe the NMBA's standards and other professional practice requirements and frameworks. The Code of ethics and the Code therefore constitute mandatory standards which all nurses must observe as part of their license to practice. The two codes also establish the expectation that nurses have an obligation to protect the public: vaccination is one proven means of achieving that aim.

Although the *National Immunisation Program Schedule* (NIP Schedule) applies to all states and territories across Australia, the legislation which governs who can deliver vaccines under the NIP Schedule varies in each jurisdiction. The eight states and territories are responsible for legislation governing the use of drugs and poisons including vaccines: vaccines are included as a Schedule 4 (S4) class of drug. By their very nature then vaccines are prescription only but prescribing rights vary across the states and territories because of legislative variations. That variation only applies to nurses and other health care workers as the legislation does not vary for medical practitioners. In addition, each state and territory has its own legislation in relation to requirements to be endorsed as a nurse immuniser, that is, able to deliver vaccines independently of medical direction or supervision. Generally speaking, the legislation requires a nurse to demonstrate completion of an accredited nurse immuniser course before being endorsed, for example, as outlined in the New South Wales, *Policy Directive: Immunisation Services*[47].

For nurses who administer vaccines, whether as nurse immunisers or not, it is their responsibility to ensure that they are suitably qualified to do so, that is, make sure that giving vaccines is within their scope of practice and that they are competent to do so[48]. To practice safely and ethically, those nurses also need to be aware of the professional, legislative and regulatory requirements outlined in this section.

The *National Immunisation Strategy for Australia 2019-2024* (the Strategy), identifies eight "strategic priorities and key actions". One of them, Strategic priority 7, aims to "Ensure an adequately skilled immunisation workforce through promoting effective training for immunisation providers", for example, nurse immunisers. The *National Immunisation Education Framework for Health Professionals* (National Framework) is the benchmark for immunisation education providers in Australia[49]. Registered nurses who have undertaken endorsed programs of education under this framework are legally qualified to deliver vaccinations independently provided they do so within the legislative and regulatory framework applicable for the relevant state or territory jurisdiction. Under the National Framework ACN is an endorsed provider of education for

41 Menzies et al. (2017), *op cit*.

42 MacIntrye et al. (2016), *op cit*, 5464.

43 Dirmesropian et al. (2016), *op cit*. Menzies et al. (2017), *op cit*, 1.

44 Nursing and Midwifery Board of Australia, (2018). *Professional Standards: Professional Codes and Guidelines*. Retrieved 11 September 2019, from https://www.nursingmidwiferyboard.gov.au/Codes-Guidelines-Statements/Professional-standards.aspx

45 *The ICN Code of ethics for nurses*, (2012), *op cit*. "Element 1: Nurses and people".

Nursing and Midwifery Board of Australia, (2018). *Code of conduct for nurses*, Section 7.2.c. Retrieved 27 March 2019, from https://www.nursingmidwiferyboard.gov.au/Codes-Guidelines-Statements/Professional-standards.aspx

46 *Code of Conduct*, (2018), *ibid*.

47 New South Wales Government, Health, (February 2015). *Policy Directive: Immunisation Services - Authority for Registered Nurses and Midwives*; PD2015_011. Retrieved 18 September 2019, from https://www1.health.nsw.gov.au/pds/ActivePDSDocuments/PD2015_011.pdf

48 *Professional Standards: Professional Codes and Guidelines*, (2018), *op cit*. This section of the Nursing and Midwifery Board of Australia includes detailed descriptions of what scope of practice and competence means for all nurses (and midwives).

49 Australian Government, Department of Health, (2018). *National Immunisation Education Framework for Health Professionals*. Retrieved 12 June 2019, from https://beta.health.gov.au/resources/publications/national-immunisation-education-framework-for-health-professionals

National Immunisation Strategy for Australia 2019-2024, (2018), *op cit*, 46-47.

nurses and others[50]. It is the additional education nurses receive, such as that conducted by ACN, which gives them prescribing rights for vaccines under certain conditions, (according to jurisdictional drugs and poisons regulations).

One of the few available data sets indicating how many nurses across Australia are completing nurse immunisation courses, is ACN's data. It shows a steady increase of nurses completing the course, rising from 784 in 2014, to 1140 in 2018, with a total of 4,620 completions from 2014-2018. The Australian Primary Health Care Nurses Association (APNA) states that "Every day around 60% of primary health care nurses provide an immunisation, and a further 18% immunise at least weekly"[51]. If Strategic priority 7 of the Strategy is to be met, then there needs to be more of these data sets to confirm the nature and extent of nurse immuniser involvement in immunisation programs. In turn that facilitates appropriate planning and funding to meet identified areas of need.

B.2 Nurses as vulnerable health care workers and mandatory workplace vaccinations

The Preamble to the *ICN Code of Ethics for Nurses* requires nurses to provide care to anyone who needs it and wherever they may be. Consequently, nurses are at increased risk of exposure to a number of VPD such as influenza and hepatitis B[52]. In addition, the *Code of Conduct for Nurses in Australia* states that nurses have a responsibility to maintain their physical and mental health to practise safely and effectively[53]: receiving the appropriate vaccinations is an important way that nurses can meet this responsibility. Further, nurses may serve as a vector for the transmission of VPD to patients and others within the healthcare environment. To prevent the spread of VPD nurses also need to strictly adhere to standard infection prevention practices such as those promulgated by *National Safety and Quality Health Service Standards* and the *Australian Guidelines for the Prevention and Control of Infection in Healthcare*[54]. Health care workers may not always be aware that they have been infected: they may be asymptomatic for instance. In those situations, they may unknowingly put vulnerable patients in their care and their colleagues at risk of infection. In these circumstances, immunisation is the most effective mechanism to protect individual nurses and to prevent the potential for infection of others with a transmittable VPD.

The Australian Commission on Safety and Quality in Health Care (the Commission) has developed eight National Safety and Quality Health Service (NSQHS) Standards to drive the implementation of safety and quality systems and improve the quality of health care in Australia. The NSQHS Standards provide a nationally consistent statement about the level of care consumers can expect from health services[55]. Standard number 3 "Preventing and Controlling Healthcare-Associated Infection", includes action 3.13 in relation to workforce immunisation. This action requires health service organisations to have a risk-based immunisation program that:

- is consistent with the current edition of the *Australian Immunisation Handbook*[56]
- is consistent with jurisdictional requirements for vaccine-preventable disease
- addresses specific risks to the workforce and patients[57].

The residential aged care environment is an example where Standard number 3 is demonstrated. One of the particularly contagious and potentially dangerous infections for residents of aged care homes and those who care for them is seasonal influenza (flu). According to the *Australian Guidelines for the Prevention and Control of Infection in Healthcare* both organisations and health care workers have a responsibility to prevent the spread of infections through for instance, participation in workplace vaccination programs[58]. Under the NIP Schedule influenza vaccines are provided free on an annual basis for certain groups of people including all those aged 65 years and over and all Aboriginal and Torres Strait Islanders aged 6 months and older[59]. In addition, from 1 May 2018, all Australian Government-subsidised providers of residential aged care are required to have in place an influenza vaccination program for staff and volunteers[60]. The *Australian Influenza Surveillance Report* states that for the period 6-19 May 2019, influenza and influenza-like illness activity was higher than in previous years[61] suggesting that the need for vaccination may increase in subsequent influenza seasons. It is therefore crucial that there are sufficient numbers of appropriately trained nurses with the expertise to fulfil their legislative and professional requirements when administering vaccines and when advocating for immunisation. There is anecdotal evidence to suggest however, that there are insufficient numbers of nurse immunisers to deliver the recommended vaccines at time of surge such as those in the 2019 influenza season. Research is required to (dis)confirm this situation and to design policies to address identified shortfalls.

50 Australian College of Nursing, (2019). *Immunisation for health practitioners*. Retrieved 28 March 2019, from https://www.acn.edu.au/education/immunisation/immunisation-for-health-practitioners

51 *APNA welcomes $12 million boost to national immunisation education,* (2019), *op cit*.

52 *Immunisation for work*, (2019), *op cit*.

53 *Code of Conduct*, (2018), *op cit*, 7.1

54 *Australian Guidelines for the Prevention and Control of Infection in Healthcare*, (2019), *op cit*.

National Safety and Quality Health Service Standards, (2017), *op cit*.

55 *National Safety and Quality Health Service Standards*, (2017). *op cit*.

56 *The Australian Immunisation Handbook*, (2019) provides details of the vaccines specifically recommended for healthcare workers as well as others with increased risk of exposure to vaccine preventable disease such as child care workers and laboratory workers. Retrieved 17 April 2019, from https://immunisationhandbook.health.gov.au/vaccination-for-special-risk-groups/vaccination-for-people-at-occupational-risk

57 *National Safety and Quality Health Service Standards*, (2017), *op cit*.

58 *Australian Guidelines for the Prevention and Control of Infection in Healthcare*. (2019), *op cit*. Section 4.2

59 *National Immunisation Strategy for Australia 2019-2024*, (2018), *op cit*.

60 *Mandatory influenza (flu) vaccination program for residential aged care providers*. (2019), *op cit*.

61 Australian Government, Department of Health. (2019). *Australian Influenza Surveillance Report*, no 2, 2019. Retrieved 11 September 2019, from https://www1.health.gov.au/internet/main/publishing.nsf/Content/cda-surveil-ozflu-flucurr.htm

SECTION C: UNDERSTANDING ADULTS AND THEIR IMMUNISATION REQUIREMENTS: SPECIFIC VACCINATION NEEDS FOR PARTICULAR GROUPS OF ADULTS AND 'VACCINE HESITANCY' IN ADULTS

The NIP Schedule referred to above, defines all those aged 15 years and over as adults. It also provides specific recommendations for different groups, such as the pneumococcal vaccine for Aboriginal and Torres Strait Islander people aged 50 years and over and for others aged 65 years and over[62]. A separate section of the Department of Health's website titled "Immunisation for adults", describes adults as those aged 20-64 years of age[63]. Accordingly, the Discussion Paper has defined adults as those aged 20-64 years of age and older adults as those aged 65 years or over (the vaccination needs for the different cohorts are not necessarily the same).

C.1 Vaccine needs specific to adults including booster and catch-up vaccines, migrants, refugees and adults as international travellers

Vaccination is just as important for adults as it is for children, and as has been stated throughout the Discussion Paper, it constitutes an important preventive health measure for all adults. Adults are not as homogenous as children in their vaccination requirements though as this section will explain.

The immunity conferred by vaccines is not necessarily life-long so 'booster' vaccines may be required by older adults[64]. In addition, the body's immune processes wane with age so the immune process itself may not be as effective as it is in childhood. Furthermore, as the average age of the population increases, more and more adults are living with chronic co-morbidities for long periods of time and this can make them vulnerable to VPD such as influenza (flu)[65]. Increasing the uptake of vaccination rates across the life-span protects the whole community through the phenomena known as 'herd immunity'. This protection is especially relevant for those who for some reason or another cannot be vaccinated, for example, immunocompromised individuals or the very young, older adults and the very old. Consequently, immunisation programs act as a powerful preventive health measure for everyone.

Booster and catch-up vaccination

Under the NIP Schedule booster and catch-up vaccinations are available for adults whose childhood immunisation schedule was not completed, or for migrants and refugees.

Booster vaccinations: In Australia, most vaccines are administered in childhood, adolescence and early adulthood. The protections afforded from being vaccinated as a child or adolescent however, do not always last a life time. In these instances, a 'booster' dose of a vaccine is required. It is called a booster because it boosts the immune system. Examples of a VPD where a booster dose is required in adulthood include tetanus, diphtheria and pertussis (whooping cough)[66].

Adults who plan to travel, especially internationally, may also need booster doses for VPD's such as measles and mumps, or vaccination against diseases such as rabies that are not prevalent in Australia[67].

Catch-up vaccinations: The incidence of Australians who have not been vaccinated is estimated at 4.1 million and the vast majority of them (92%) are adults[68]. Some adults then who are eligible for free vaccinations under the NIP Schedule have not taken advantage of this health measure[69]. So called 'catch-up vaccination' can assist in addressing that gap.

The Australian Government provides catch-up vaccines for various groups of adults including those Australians up to 19 years of age who have not had all the recommended childhood vaccinations: catch-up vaccines are also available for migrants, refugees, and people with medical risk factors. Some of the vaccines are available free under the NIP Schedule whilst others are not[70]. The intent of catch-up vaccines is to benefit the individual concerned and to protect the community at large by maintaining herd immunity. Refugees and migrants who come to Australia from countries where a robust and successful vaccination program like that in Australia is not available, pose challenges such as the introduction of VPD like measles into Australia[71]. Both the NIP Schedule and the *Australian Immunisation Handbook* provide details of how to assess an individual's immunisation status (includes links to international immunisation schedules). This level of detail can assist in determining the vaccines which migrants and refugees may need so that their vaccine status is consistent with NIP Schedule recommendations for Australians[72]. Other less obvious groups of adults who benefit from catch-up vaccines are prisoners, many of whom experience disadvantage prior to entering prison and thus lack access to routine vaccinations[73].

62 *National Immunisation Program Schedule*, (2019), *op cit*.

63 Australian Government, Department of Health, (2019). *Immunisation for adults*. Retrieved 6 May 2019, from https://beta.health.gov.au/health-topics/immunisation/immunisation-throughout-life/immunisation-for-adults

64 *National Immunisation Program Schedule*, (2019), *op cit*.

65 Dirmesropian et al. (2016), *op cit*.

66 *Immunisation for adults* (2019), *op cit*.

67 Australian Government, Department of Health, (2019). *Immunisation for travel*. Retrieved 9 September 2019, from https://www.health.gov.au/health-topics/immunisation/immunisation-throughout-life/immunisation-for-travel.

Australian Immunisation Handbook, (2018), *op cit*, *National Immunisation Program Schedule*, (2019), *op cit*.

68 Macintyre et al, (2016), *op cit*. Menzies et al, (2017), *op cit.*

69 Menzies et al, (2017), *op cit.*

70 Australian Government, Department of Health, (2019). *Catch-up vaccination*, January 2019. Retrieved 17 June 2019, from https://immunisationhandbook.health.gov.au/catch-up-vaccination

71 Abela Mahimbo., Holly Seale and Anita E Heywood, (2017). Immunisation for refugees in Australia: a policy review and analysis across all States and Territories, *Australia and New Zealand Journal of Public Health*, 41:6, 635-640.

72 *Australian Immunisation Handbook*, (2018), *op cit. National Immunisation Program Schedule*, (2019), *op cit*.

73 Australian Institute of Health and Welfare, (2019). *The health of Australia's prisoners 2018*. 139. Retrieved 30 May 2019, from https://www.aihw.gov.au/getmedia/2e92f007-453d-48a1-9c6b-4c9531cf0371/aihw-phe-246.pdf.aspx?inline=true.

Adults as travellers

Australians are renowned as enthusiastic international travellers and it is a popular past time for older retired people[74]. Those Australians who choose to travel internationally and to countries where the VPDs they may encounter are not prevalent in Australia will require additional vaccinations: the exact requirements and recommendations are set out in the Handbook and the NIP Schedule[75]. They may also require booster vaccines or catch-up vaccines. The vaccines are delivered for the protection of the individual and importantly, to prevent the importation of disease into Australia and so compromise herd immunity.

The need for constant vigilance in relation to vaccinations and immunisation programs is highlighted through the increasing incidence of measles in 2018 and 2019, with many countries experiencing significant measles outbreaks[76]. Though Australia has been declared free of endemic measles transmission[77] there continues to be imported cases, usually in returning travellers[78]. For this highly contagious disease, it is crucial to maintain high levels of population (herd) immunity through vaccination in order to prevent local disease transmission[79].

Vaccinations have also been found to contribute substantially to an enhanced quality of life for older Australians, including those with chronic co-morbidities and the frail elderly[80]. None of these individual circumstances is necessarily a barrier to international travel, but it may require extra vigilance on the part of nurse immunisers for particular cohorts.

C.2 NIP Schedule funded vaccines for older adults and the 'burden of disease'

As adults age, the physiology of the body changes and one of the changes is that the effectiveness of the immune response wanes and this change increases with increasing age (the totality of the changes is known as immunosenescence). Two of the consequences are that vaccines may be less effective and older adults are more at risk of contracting a VPD such as influenza[81].

Australia's Health 2018 has found that on average, Australian women can expect to live to 84.6 years of age and men to 80.4 years[82]. In 2017, 15% of Australians (3.8 million) were aged 65 years and over; this proportion is projected to grow steadily over the coming decades[83]. *Australia's Health 2018* outlines some of the many initiatives implemented to promote healthy ageing[84]. In addition to the decline in immune function experienced with ageing, older adults are more likely to suffer from chronic co-morbidities further challenging the immune system[85]. As the population ages, vaccination therefore becomes an important preventive health measure not only for healthy older adults, but also for at risk groups such as those with chronic co-morbidities[86].

Influenza: Older adults and Aboriginal and Torres Strait Islander adults are recognised to be at higher risk of severe disease or complications from influenza compared to others in the population. This includes higher rates of influenza-associated hospitalisation and mortality. Since 1999 the NIP Schedule has funded seasonal influenza vaccination for all adults aged 65 years or older and all Aboriginal and Torres Strait Islander adults aged 50 years or older[87]. In 2009 an estimated 74.6% of adults aged 65 years or older received influenza vaccination under the NIP Schedule[88]. The NIP schedule now funds free vaccinations for all Aboriginal and Torres Strait Islander people aged 6 months or over as well as those with certain co-morbidities, for example, heart disease, kidney disease and diabetes[89].

Pneumococcal disease: Older adults and Aboriginal and Torres Strait Islander adults experience high rates of invasive pneumococcal disease. Overall rates of invasive pneumococcal disease are 7-9 times higher in Aboriginal and Torres Strait Islander populations[90]. Some of this disease is preventable through funded vaccine programs; adults aged 65 years or older and Aboriginal and Torres Strait Islander Australians aged 50 years or older are eligible for vaccination under the NIP Schedule[91]. In 2009 an estimated 54.4% of adults aged 65 years or older received pneumococcal vaccination under the NIP Schedule[92].

74 MacIntyre, (2013), *op cit*.

75 *Immunisation for travel*, (2019), *op cit*.

76 Australian Government, Department of Health, (2019). *Measles outbreaks*. Retrieved 2 June 2019, from http://www.health.gov.au/internet/main/publishing.nsf/Content/ohp-measles-outbreaks-2019.htm

77 Australian Government, Department of Health, (2014). *Measles – Elimination Achieved in Australia*, 20 March 2014. Retrieved 4 June 2019, from https://www.health.gov.au/internet/main/publishing.nsf/Content/ohp-measles-elim-announce-2014.htm.

78 *Measles alert- International flights and domestic airports*, (28 March 2019) *op cit*.

Victoria, State Government: health.vic. (2019). *Health alerts and advisories, Further measles cases in Victoria*, 28 March 2019. Retrieved 11 September 2019, from https://www2.health.vic.gov.au/about/news-and-events/healthalerts/measles-case-22-march-2019

79 *Measles Outbreak*, (2019), *op cit*.

80 *Australia's Health 2018*, (2018), *op cit*, 156, Ch 7. MacIntyre et al. (2013), *op cit*.

81 Dirmesropian et al. (2016), *op cit*. MacIntyre et al, (2016), *op cit. Moving The Needle*, (2018), *op cit*. 9

82 *Australia's Health 2018*, (2018), *op cit*, 3.

83 Australian Institute of Health and Welfare, (2018). *Older Australia at a glance*. Cat. No. AGE 87. Retrieved 2 May 2019, from https://www.aihw.gov.au/reports/older-people/older-australia-at-a-glance/contents/demographics-of-older-australians

84 *Australia's Health 2018*, (2018), *op cit*. 3.

85 *Australia's Health 2018*, (2018), *op cit*, Chapter 3.3. *Moving The Needle*, (2018), *op cit*, 9. Dirmesropian et al, (2016), *op cit*. MacIntyre et al, (2016), *op cit*.

86 *National Immunisation Program Schedule*, (2019), *op cit*.

87 Jean Li-Kim-Moy., Jiehui Kevin Yin., Cyra Patel., Frank H Beard., Clayton Chiu., Kristine K Macartney and Peter B McIntyre, (2016). Australian vaccine preventable disease epidemiological review series: Influenza 2006 to 2015. CDI Vol 40: 4. Retrieved 19 June 2019, from http://www.health.gov.au/internet/main/publishing.nsf/Content/cda-cdi4004f.htm

88 *National Immunisation Strategy for Australia 2019-2024*, (2018), *op cit*, 28-32.

2009 Adult Vaccination Survey: Summary results, (2011), 3.

89 *National Immunisation Program Schedule*, (2019), *op cit*.

90 AHMAC Report, (2017), *op cit*, 45.

91 Cindy Toms, Rachel de Kluyver and the Enhanced Invasive Pneumococcal Disease Surveillance Working Group for the Communicable Diseases Network Australia, (2016). Invasive pneumococcal disease in Australia, 2011 and 2012. *Communicable Diseases Intelligence,* 40:2, E267-E284

92 *2009 Adult Vaccination Survey: Summary results*, (2011), *op cit, 5-6*.

Herpes Zoster (Shingles) and Post Herpetic Neuralgia: Shingles is a viral infection caused by a reactivation of the chickenpox virus. It is a serious disease associated with various complications including post-herpetic neuralgia, a debilitating and painful condition in adults[93]. From November 2016 a shingles vaccination program has been funded on the NIP Schedule for adults at 70 years of age including a catch-up program for those 71-79 years of age, funded to 2021[94]. The National Centre for Immunisation Research and Surveillance report of the program, states that in the first 17 months, the uptake of the shingles vaccine in target groups was low; 33.9% of 70-year-olds and 25.8% for 71-79 year-olds with higher uptake by Aboriginal and Torres Strait Islander Australians[95].

Chronic diseases as the name implies, last for a long time and are typically associated with multiple conditions (co-morbidities). They are a leading cause of premature death and as people live longer, they are having a greater impact on Australia's health care system[96]. Chronic co-morbidities have been found to account for 61% of the burden of disease in Australia's population[97]. The concept of 'burden-of-disease' is associated with living with illness and dying early, that is before the expected life-span of years. Vaccine preventable diseases (VPD) including influenza, pneumococcal disease and shingles are associated with substantial health and economic burdens[98] and those with chronic co-morbidities are at greater risk of contracting VPD. There is an NIP Schedule funded vaccine for influenza, pneumococcal disease and shingles for older adults with additional recommendations for Aboriginal and Torres Strait Islander adults (see Section D below). Vaccine uptake needs to be improved however, so that the full potential of these programs in ameliorating the burden of disease, can be realised.

C.3 Vaccine hesitancy (cost and access) and myths and misconceptions

The World Health Organization (WHO) has identified ten threats to global health in 2019, with vaccine hesitancy ranked number eight. According to the WHO, vaccine hesitancy "refers to delay in acceptance or refusal of vaccines despite availability of vaccine services"[99]. The WHO vaccine advisory group has established that the main reasons for vaccine hesitancy are complacency, inconvenience in accessing vaccines and lack of confidence[100]. In 2015, Jarrett et al published the results of a "systematic review" of strategies to address vaccine hesitancy which found that "interventions" designed to increase vaccine uptake needed to be "multicomponent and/or have a focus on dialogue-based approaches"[101].

The WHO Strategic Advisory Group of Experts on Immunisation (SAGE) developed a working party to address vaccine hesitancy. Consistent with Jarrett et al, the report from SAGE considers that the most effective approaches to address vaccine hesitancy are "multicomponent" and include strategies that are "dialogue-based" and targeted specifically to "under-vaccinated population groups" (the provision of information alone is insufficient in overcoming vaccine hesitancy). The SAGE report indicates that ways to reduce vaccine hesitancy include recognising its "highly contextual" nature as well as working to stimulate demand for vaccines, for example, by increasing awareness of the benefits of vaccination with community engagement programs[102]. Consistent with the SAGE recommendations, the *National Immunisation Strategy for Australia 2019-2024* (the Strategy) has identified a strengthening of "current communication strategies" as a key action in the implementation of "Strategic Priority 5: Maintain and ensure community confidence in the National Immunisation Program through effective communication strategies"[103]. Programs and measures that continue to focus on building skills around communicating with vaccine hesitant individuals is required to assist in dispelling the many myths around vaccination and to improve an individual's confidence in the undoubted benefits of immunisation programs. For example, the Australian Academy of Science has produced a comprehensive set of videos and print material which simply and clearly explains the science of immunisation. It also answers common questions and concerns surrounding immunisation, such as "Are vaccines safe?"[104].

In addition to simple misunderstandings about the benefits of vaccination, and matters such as boosters and catch-up vaccines, the cost of vaccines for adults may be a factor in vaccine hesitancy[105]. The cost varies across jurisdictions with some vaccines costing as little as $6.00 whilst others cost as much as $200.00. For example, under the NIP Schedule, the vaccine for shingles is

93 Australian Government, Department of Health, (June 2018). *Shingles: Herpes Zoster*. Retrieved 16 September 2019, from https://www.health.gov.au/health-topics/shingles-herpes-zoster

94 National Centre for Immunisation Research and Surveillance, (2019). *Evaluation of the national shingles vaccination program process and early impact evaluation: Final report* 1 March 2019, 5. Retrieved 11 September 2019, from http://ncirs.org.au/shingles-vaccination-program-positive-report

95 *Evaluation of the national shingles vaccination program process and early impact evaluation: Final report* 1 March 2019, (2019). *op cit*, 8-9.

96 *Australia's Health 2018*, *op cit.* 11, 84-87, 94-102

97 *Australia's Health 2018*, *ibid*, 96-98.

98 *Australia's Health 2018*, *ibid*, Section 3.19.

99 World Health Organization, (2019). *Ten threats to global health in 2019*. Retrieved 12 September 2019, from https://www.who.int/emergencies/ten-threats-to-global-health-in-2019

Report of the SAGE working Group on Vaccine Hesitancy, (2014), *op cit*. 7-8.

100 *Report of the SAGE working Group on Vaccine Hesitancy*, (2014), *op cit*. 8-9.

101 Caitlin Jarrett., Rose Wilson., Maureen O'Leary., Elisabeth Eckersberger., Heidi J. Larson and the SAGE Working Group on Vaccine Hesitancy, (2015). *Vaccine* 33; 4180-4190.

102 World Health Organization, (2019). *Immunization, Vaccines and Biologicals: Improving vaccination demand and addressing hesitancy*. Retrieved 12 September 2019, from https://www.who.int/immunization/programmes_systems/vaccine_hesitancy/en/

Jarrett et al, (2015), *ibid*. *Report of the SAGE working Group on Vaccine Hesitancy*, 2014, *op cit*. 38-43.

103 *National Immunisation Strategy for Australia 2019-2024* (2018), *op cit*, 39-41.

104 Australian Academy of Science, (2017). *The science of immunisation*. Retrieved 16 September 2019, from https://www.science.org.au/education/immunisation-climate-change-genetic-modification/science-immunisation

105 Although specific to children, an indication of the costs of privately funded vaccination (as at 2018) can be seen in the details provided by the Royal Children's Hospital, Melbourne. Retrieved 29 April, from https://mvec.mcri.edu.au/wp-content/uploads/2018/01/PRIVATE-VACCINE-COSTS-2018.pdf.

provided free for individuals at 70 years of age with a catch-up program to the age of 79 years funded to 2021[106]. The vaccine is recommended though for people who are 50, 60, or 80 years of age and the cost of obtaining the vaccine in these age groups is reportedly around $200.00 or more[107].

Whilst vaccine concern or refusal is not a new notion there is now an increased dissemination of misinformation and anti-vaccination sentiments across social media[108]. The NMBA has released a Position Statement on the role nurses are expected to play in advocating for and administering vaccinations[109] (see too Section B above). The NMBA's Position Statement makes it very clear that nurses are required to practice in accordance with the standards it promulgates and in accordance with the available evidence. For immunisation, that means administering vaccines and promoting the benefits of vaccines in accordance with the *Australian Immunisation Handbook*.

Another strategy that has been found to be effective in vaccine hesitancy situations is that of a health provider recommendation. The WHO recognises that "health workers remain the most trusted advisor and influencer of vaccination decisions"[110]. Evidence from the published literature repeatedly highlights that provider recommendations and engagement strongly influence willingness to vaccinate[111]. Since nurses constitute the majority of the health care workforce (see Executive Summary) and according to APNA deliver vaccines on a daily basis[112], then nurse immunisers in particular need to be actively involved in reviews of existing vaccination data systems (See Section E below). They also need to be actively involved in any communication and education strategies specifically designed to increase vaccine uptake in adults.

SECTION D: UNDERSTANDING IMMUNISATION AND VACCINATION NEEDS FOR (OLDER) ABORIGINAL AND TORRES STRAIT ISLANDER ADULTS: SUCCESS AND CHALLENGES

D.1 Aboriginal & Torres Strait Islander people

There are a number of unique challenges faced by Aboriginal and Torres Strait Islander people in terms of their overall health with Indigenous Australians having, on average, worse health than non-indigenous Australians[113]. Since 2006, the *Aboriginal and Torres Strait Islander Health Performance Framework* has monitored Indigenous health outcomes and found that whilst health outcomes are getting better there is still substantial room for improvement. Immunisation is one of the health outcome areas where rates could be improved[114].

Ensuring higher immunisation coverage rates for Aboriginal and Torres Strait Islander people contributes to Closing the Gap in Indigenous health outcomes[115]. Aboriginal and Torres Strait Islander people experience higher rates of many VPD's compared to non-Indigenous Australians[116]. Accordingly, the National Immunisation Program funds specific additional vaccination recommendations for Aboriginal and Torres Strait Islander people in addition to other vaccines available under the usual immunisation schedules. Examples include funded influenza and pneumococcal vaccines for some Aboriginal and Torres Strait Islander adults[117]. It is important therefore that immunisation providers establish the Indigenous status of their clients so that additional vaccines are offered as appropriate[118].

The *Aboriginal and Torres Strait Islander Health Performance Framework: 2017 Report* (the Report) provides estimates around vaccination coverage for influenza and pneumococcal vaccines for Aboriginal and Torres Strait Islander adults aged 50 years and older. The Report states that for 2012-13, "57% of Aboriginal and Torres Strait Islander peoples aged 50 years and over had been vaccinated against influenza in the previous 12 month"[119].

106 *Evaluation of the national shingles vaccination program process and early impact evaluation: Final report* 1 March 2019, (2019), *op cit*, 5.

107 Australian Medical Association, *Shingles vaccine to cost unless you are 70*, April 2017. Retrieved 6 May 2019, from https://ama.com.au/ausmed/shingles-vaccine-cost-unless-you-are-70.

108 Benjamin Hickler., Sherine Guirguis and Rafael Obregon, (2015). Vaccine Special Issue on Vaccine Hesitancy. *Vaccine*, 33: 4155-4156.

Adult vaccination in the Asia Pacific: Mobilising Policy and Practice Knowledge, Consensus Statement April 2019, (2019). International Federation on Ageing. Retrieved 9 September 2019, from https://www.ifa-fiv.org/wp-content/uploads/2019/05/Singapore-Consensus-Statement.pdf

Report of the SAGE working Group on Vaccine Hesitancy, (2014), *op cit*.

Ayelet Evrony and Arthur Caplan, (2017). The overlooked dangers of anti-vaccination groups' social media presence, *Human Vaccines and Immunotherapy.* 13:6, 1475-1476. https://doi.org/10.1080/21645515.2017.1283467

109 Nursing and Midwifery Board of Australia, (2016). *Position Statement: Nurses, midwives and vaccination*. Retrieved 11 September 2019, from https://www.nursingmidwiferyboard.gov.au/Codes-Guidelines-Statements/Position-Statements/vaccination.aspx

110 *Immunization, Vaccines and Biologicals: Improving vaccination demand and addressing hesitancy*, (2019), *op cit*. *Ten threats to global health in 2019, (2019), op cit. Report of the SAGE working Group on Vaccine Hesitancy*, (2014), *op cit*, 35, 50.

111 Dirmesropian et al. (2016), *op cit*. Brewer et al. (2017), *op cit*.

Menzies et al. (2017), *op cit*. Jarrett et al. (2015), *op cit*. *2009 Adult Vaccination Survey: Summary results*, (2011), *op cit*.

112 *APNA welcomes $12 million boost to national immunisation education*, (2019), *op cit*.

113 *Australia's Health 2018*, *op cit*, Ch 6.7

114 Alexandar J. Hendry., Frank H. Beard., Aditi Dey., Dennis Meijer., Sue Campbell-Lloyd., Katrina K. Clark., Brynley P. Hull and Vicky Sheppeard. (2018). Closing the vaccination coverage gap in New South Wales: the Aboriginal Immunisation Healthcare Worker Program. *Med J Aust*, 2009: 1, 24-28. https://doi.org/10.5694/mja18.00063

Australian Aboriginal and Torres Strait Islander Health Survey: First Results, Australia, 2012-13, 2013, *op cit*. 45, 149. *National Immunisation Strategy for Australia 2019-2024*, *op cit*.

115 *National Immunisation Strategy for Australia 2019-2024*, *op cit*.

116 Hendry et al, (2018), *op cit*. AHMAC report, (2017), *op cit*, 30-31, 149.

117 *Australian Immunisation Handbook*, (2018), *op cit*,

Australia's Health 2018, Ch 6.7. AHMAC report, (2017), *op cit*, 5.

Latika Naidu., Clayton Chiu., Andrew Habig., Christopher Lowbridge., Sanjay Jayasinghe., Han Wang., Peter McIntyre and Robert Menzies. (2013). Vaccine preventable diseases and vaccination coverage in Aboriginal and Torres Strait Islander people, Australia 2006-2010. *Commun Dis Intell Q Rep*, *37 Suppl*, S1-95. Retrieved 11 September 2019, from https://www1.health.gov.au/internet/publications/publishing.nsf/Content/cda-cdi37suppl.htm/$FILE/cdi37suppl.pdf

Australian Institute of Health and Welfare, (2018). *Vaccine preventable diseases fact sheets*. Cat No. PHE 236. AHMAC report, (2017), *op cit*, 149.

118 Naidu et al, (2013). *ibid*.

119 *Aboriginal and Torres Strait Islander Health Performance Framework: 2017 Report*, (2017), *op cit*, 149.

Culturally appropriate resources, communication and service delivery are important approaches to improving vaccination outcomes in Aboriginal and Torres Strait Islander people[120]. Dedicated programs involving Aboriginal healthcare workers have shown promise in improving coverage and timeliness of vaccination in Aboriginal children[121] and such programs may also benefit adults.

E: SOME STRATEGIES TO ADDRESS THE ISSUES AND CHALLENGES IDENTIFIED IN SECTIONS A-D ABOVE

A repeated theme that has emerged in the course of preparing this Discussion Paper is the lack of evidence (data) about crucial aspects of the delivery of immunisation programs for adults and older adults in the Australian community. Since it has been shown that vaccination is a significant preventive health measure, and a cost effective one, there is an urgent need for more funded research to address the many issues that have arisen. These include (but are not limited to):

- identification of factors in programs which successfully increase the uptake of vaccination in all adults, including workplace vaccinations[122];
- identifying the unique contribution nurses make to immunisation programs, not only in delivering vaccines but in promoting the positive benefits of vaccinations (as required by the professional practice standards outlined in Section B above);
- determining how a nuanced and whole of life approach to immunisation programs contributes to healthy ageing and an improved quality of life for specific population groups of adults in the community, for example, older adults and those with chronic co-morbidities[123].

The Position Statement articulates the recommendations around these issues more precisely, whilst the following section of the Discussion Paper outlines some of the situations where nurses already make a positive contribution.

E.1 Education of nurse immunisers and developing communications approaches to vaccine hesitancy for adults[124]

As described in Section B above, the *National Immunisation Education Framework for Health Professionals* is the benchmark for immunisation education providers in Australia[125]. Under this framework ACN is an endorsed provider of education for nurses and others[126]. Registered nurses who have undertaken endorsed programs of education such as that offered by ACN, are legally qualified to deliver vaccinations independently provided they do so within the legislative and regulatory framework applicable for the relevant state or territory jurisdiction. There is a paucity of data however, about the number of nurses completing these endorsed educational programs (see Section B for ACN's data).

Nurses constitute the majority of the health care workforce[127] with available data for December 2018 from the NMBA, indicating that there are 294,390 registered nurses in Australia[128]. It has proven extremely difficult however, to locate health workforce data which provides detail on how many of those nurses deliver vaccines, how many have undertaken courses which qualify them as authorised nurse immunisers, and where the gaps are in relation to the need for their specialist expertise, for instance, the number in regional, rural and remote or very remote areas.

The published literature indicates that a recommendation from a health care professional (or vaccine provider) is a significant factor in increasing vaccination uptake in adults, that is, in addressing vaccine hesitancy[129]. It is also clear that successful strategies to address vaccine hesitancy and negative approaches to vaccination in (older) adults is multi-faceted[130]. One of the negative consequences of low vaccination rates in adults is the effect on herd immunity: when there are under-vaccinated groups in the community the whole population is at risk as demonstrated with the recurrence of measles as described in Section C above.

In the absence of adequate data, planning for courses which will equip nurses to deliver vaccines safely and within the bounds of the various jurisdictional requirements is problematic. It is likewise problematic to determine where these nurses are located so their specialist skills can be utilised in policy development and/or in the design and delivery of communication and educational strategies specifically designed to increase vaccine uptake and overcome some of the issues identified in vaccine hesitancy (see Section C above).

E.2 Immunisation data and its role in monitoring disease: importance of data for adults

Immunisation data allows for the monitoring and evaluation of programs to inform program action and address coverage gaps[131]. One of the eight priorities in the *National Immunisation Strategy for*

120 *National Immunisation Strategy for Australia 2019-2024*, 2018), *op cit.*

121 Patrick M. Cashman., Natalie A. Allan., Katrina K. Clark., Michelle T. Butler., Peter D. Massey and David N. Durrheim, (2016). Closing the gap in Australian Aboriginal infant immunisation rates – the development and review of a pre-call strategy. *BMC Public Health*, 16, 514. doi:10.1186/s12889-016-3086-x.

122 Seale et al, (2009), *op cit*.

123 Menzies et al, (2017), *op cit*. Dirmesropian et al. (2016), *op cit*. MacIntyre, et al. (2016), *op cit*. MacIntyre, (2013), *op cit*.

124 *National Immunisation Strategy*, (2018), *op cit*, 26, 41.

125 *National Immunisation Program Schedule*, (2019), *op cit*, 46-47.

126 Australian College of Nursing, *Immunisation for health practitioners*, (2019), *op cit*.

127 *Australia's Health 2018*, (2018), *op cit*, 38.

128 Nursing and Midwifery Board of Australia, Statistics: Nurse and Midwife-Registration data table-December 2018. https://www.nursingmidwiferyboard.gov.au/about/statistics.aspx Accessed 28 March 2019.

129 Menzies et al. (2017), *op cit*. Dirmesropian et al. (2016), *op cit*, 727. *Ten threats to global health in 2019* (2019), *op cit*. Report of the SAGE working Group on Vaccine Hesitancy, (2014), *op cit*, 8-9.

130 Jarrett et al. (2015), *op cit. Report of the SAGE working Group on Vaccine Hesitancy*, (2014), *op cit*, 8-9, 23.

131 *National Immunisation Strategy*, (2018), *op cit. Report of the SAGE working Group on Vaccine Hesitancy*, (2014), *op cit*, 23.

Australia 2019-2024 is to "Strengthen monitoring and evaluation of the National Immunisation Program though assessment and analysis of immunisation data"[132]. The Strategy recommends linking data held in national registries with other health data sets in order to improve assessment of the outcomes of vaccination programs.

The Australian Immunisation Register (AIR) is a national register that collects all government funded and privately purchased vaccinations across the life-span. It was originally set up in 1996 as the Australian Childhood Immunisation Register (ACIR) to capture data in childhood vaccinations. In 2016 ACIR was expanded and renamed to become the AIR. It was then intended to capture all vaccination across the life-span, that is, adult vaccinations, not just childhood vaccinations. Prior to the establishment of AIR there was no regular or nationally consistent source of data collection for adolescents or adults. As a government program AIR is protected under the *Privacy Act 1988* and the *Australian Immunisation Register Act 2015*[133]. Access to AIR however, is variable and dependent upon provider type and service need. Currently most general practice software is linked to AIR so there is no need for nurses to manually enter the vaccine administered. Difficulties have been reported with entering data into AIR though including lack of automatic access to the register and the time required for accurate (manual) entry of all data fields[134].

Although AIR is a national register, data can only be entered by individual health care practitioners associated with a provider number[135]. Nurses are not eligible for a Medicare provider number and they administer vaccines as a non-billable service. In some situations, nurses may not be able to access AIR to assess or enter vaccinations associated with patient care and this may impact on the accuracy and completeness of AIR data. The most recently available data on adult vaccination rates is from a large survey conducted by the Australian Institute of Health and Welfare: *2009 Adult Vaccination Survey*[136]. The survey provides estimates of influenza and pneumococcal vaccine coverage in Australian adults and shows that coverage is sub-optimal in target groups such as adults 65 years and older who are eligible for funded vaccines. Improving the capture of adult immunisation data via the AIR will enhance the ability to assess and further refine adult vaccination programs.

In all its advocacy work, ACN is committed to the development of health care policies which promote the valuable insights and leadership nurses can provide in their chosen field of expertise. ACN considers that quality policy is dependent on the application of sound research data (evidence). As far as immunisation is concerned, that includes the ability of nurses to access the AIR and to be involved in technological systems (such as e-health) which strengthen evaluation of the National Immunisation Program[137].

SECTION F: CONCLUSIONS, ACKNOWLEDGMENTS, TERMINOLOGY, AND ACRONYMS AND ABBREVIATIONS

F.1 Conclusions

Vaccination and immunisation is a complex issue raising many challenges for the nursing profession and the community at large. It has not been possible to address all of those issues in this Discussion Paper. For instance, MacIntyre et al. report that there are a number of ethical concerns in relation to vaccination for older adults, for instance, those aged 80 years and over are less likely to be vaccinated[138]. Whilst the ethical issues are beyond the scope of this Discussion Paper, since nurses constitute the majority of the health care workforce, their involvement in strategies to address alleged inequities in the care of (older) adults and other vulnerable populations such as those who are homeless, is paramount. Other issues not able to be addressed, include the legal and professional aspects associated with the implementation of mandatory vaccination programs for occupational groups including nurses (refer to Section B above for details of the programs).

Australia's internationally recognised immunisation programs have had a marked and positive effect on the health and well-being of the Australian community. The Discussion Paper has highlighted the key issues and challenges nurses face in fulfilling their professional and legal obligations when administering vaccines and in acting as advocates for the benefits of immunisation. The associated Position Statement sets out the view of ACN on this important topic as well as ACN's recommendations.

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132 *National Immunisation Strategy*, (2018), *op cit,* 42.

133 *Australia's Health 2018*, *op cit,* 379. MacIntrye et al, (2016), *op cit*.

134 Mahimbo et al. (2017), *op cit*, 638.

135 *National Immunisation Strategy* (2018), *op cit*, 42-45.

136 *2009 Adult vaccination Survey: Summary results*, (2011), *op cit*.

137 *National Immunisation Strategy for Australia 2019-2024*, (2018), *op cit*, 42-45.

138 MacIntyre et al. (2016), *op cit*, 5465-5466.

F.3 Terminology

Active Immunisation: Active immunisation uses vaccines to stimulate the immune system to produce a protective immune response. That process usually mimics the response to natural infection but avoids the disease that is the harmful consequence of infection with a VPD[139]. As a result, the body develops an immune response (or physiological memory) and that process protects individuals from that specific VPD in the future.

Australian Immunisation Handbook (the Handbook): The Handbook provides clinical guidelines for healthcare professionals and others about delivering vaccines safely and effectively[140].

Australian Immunisation Register (AIR): AIR, is a national register that collects all government funded and privately purchased vaccinations across the life-span. Originally set up in 1996 as the Australian Childhood Immunisation Register, it was expanded in 2016 and renamed to become the AIR. It now captures all vaccinations across the life-span, that is, adult vaccinations, not just childhood vaccinations[141].

Booster: A booster is an extra dose of a vaccine that has been given before, that is, it 'boosts' the earlier response of the immune system to that VPD. Examples of booster vaccines include tetanus and whooping cough (pertussis)[142].

Catch-up vaccination: This form of vaccination is defined as immunisations which aim to provide optimal protection against disease as quickly as possible for individuals who have missed recommended age-related vaccines by completing the vaccinations. Immunisation providers actively review a person's vaccination history and give the appropriate catch-up vaccines[143].

Immunisation: Immunisation occurs when a vaccine has resulted in the body developing immunity to that specific VPD. In other words, immunisation involves both receiving a vaccine and becoming immune to that VPD as a result[144]. It is important to note that although often used interchangeably, the words vaccination and immunisation do not mean the same thing: vaccination is the process of receiving a vaccine, whilst immunisation is the process of receiving a vaccine and then becoming immune to a disease as a result of that vaccination.

Herd (community) Immunity: When enough people in a community are immunised against an infectious disease there is less spread of that disease simply because there is less of the infective agent to be spread. This phenomenon is called herd or community immunity[145]. Herd immunity is particularly significant for susceptible individuals such as those with a compromised immune system, a chronic co-morbidity or others who cannot safely be vaccinated, for example, the very young or the very old. For herd immunity to be effective however, it is necessary to have a certain percentage of the population vaccinated: this is generally considered to be between 92-94% or above depending on the VPD[146].

National Immunisation Education Framework for Health Professionals: The framework is the benchmark for immunisation education providers in Australia[147].

National Immunisation Program (NIP) Schedule (2019): The NIP Schedule is a series of funded immunisations in Australia which are given at specific times throughout a person's life. The immunisations range from birth through to adulthood[148].

National Immunisation Strategy for Australia 2019-2024 (2018) (the Strategy): The National Immunisation Strategy builds on the success of the previous 5-year strategy (2013–2018), and aims to expand and improve the NIP Schedule.

Nurse immunisers: These are registered nurses who are approved to independently administer specified vaccines and who can manage adverse reactions where there may not be a medical practitioner immediately present. To become an authorised nurse immuniser requires completion of an approved course of study under the relevant jurisdiction which aligns to the *National Immunisation Education Framework for Health Professionals*, for example, ACN's course.

Vaccines: Simply put, a vaccine is a product that is administered to stimulate the body's immune responses. A vaccine contains dead or weakened forms of the bacteria, virus or toxin causing the VPD. The exact nature of the vaccine varies over time as scientific advances lead to improvements[149].

Vaccination: The process of vaccination involves receiving a vaccine from either a needle or drops in the mouth. Vaccines are administered by healthcare professionals such as nurses[150].

Vaccine hesitancy: According to the World Health Organization vaccine hesitancy "refers to delay in acceptance or refusal of vaccines despite availability of vaccine services"[151] and is a world-wide phenomenon.

139 *Australian Immunisation Handbook*, (2018), *op cit*, "Fundamentals of immunisation". Retrieved 12 September 2019, from https://immunisationhandbook.health.gov.au/

Victorian State Government, Better Health Channel. *Immunisations – catch up and boosters*, (2018). Retrieved 12 September 2019, from https://www.betterhealth.vic.gov.au/health/healthyliving/immunisations-catch-ups-and-boosters

140 *Australian Immunisation Handbook*, (2018), *op cit.*

141 *Australian Immunisation Register,* (2019), *op cit*.

142 *Immunisation for adults*, (2019), *op cit*.

143 Australian Government, Department of Health, (January 2019). "*Catch-up Immunisations*". Retrieved 12 September 2019, from https://www.health.gov.au/health-topics/immunisation/health-professionals/catch-up-immunisations

144 Australian Government, Department of Health, *National Immunisation Program: get the facts*, (2019). Retrieved 16 September 2019, from https://campaigns.health.gov.au/immunisationfacts

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145 Australian Government, Department of Health, (August 2017). *Community (herd) immunity*. Retrieved 12 September 2019, from https://campaigns.health.gov.au/immunisationfacts/community-herd-immunity

146 Australian Government, Department of Health, (2019). *Childhood Immunisation coverage*. Retrieved 16 September 2019, from https://www.health.gov.au/health-topics/immunisation/childhood-immunisation-coverage

147 *National Immunisation Education Framework for Health Professionals*, (2018), *op cit.*

148 *National Immunisation Program Schedule*, (2019), *op cit.*

149 *National Immunisation Program: get the facts*, (2019), *op cit. Immunisation or vaccination – what's the difference?* (2019), *op cit.*

150 *Get the facts*, (2019), *op cit. Immunisation or vaccination – what's the difference?* (2019), *op cit.*

151 *Report of the SAGE Working Group on Vaccine Hesitancy: November 2014*, (2014), *op cit*, 7.

Acronyms and common abbreviations in the Discussion Paper

ACN:	Australian College of Nursing
The Handbook:	the Australian Immunisation Handbook
National Framework:	the National Immunisation Education Framework for Health Professionals
NIP Schedule:	the National Immunisation Program (NIP) Schedule
The Strategy:	the National Immunisation Strategy for Australia 2019-2024
NMBA:	Nursing and Midwifery Board of Australia
VPD:	Vaccine preventable disease
The Code:	Code of conduct for nurses
Code of ethics:	The ICN Code of Ethics for Nurses

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