

Vaccination of healthcare workers

1. Purpose

This guideline provides information to support Queensland Health in the development and implementation of a workforce vaccination program in accordance with national guidelines and the Queensland Health *Health employment directive: Vaccine Preventable Diseases (VPD) requirements* and *Health service directive: Vaccine preventable disease screening for Contractors, students and volunteers*. It also provides advice on acceptable forms of evidence confirming vaccination or that an individual is not susceptible to specified vaccine preventable diseases (VPDs).

2. Scope

This guideline provides information for all Queensland public health system employees (permanent, temporary and casual) and all organisations and individuals acting as its agents (including Visiting Medical Officers and other partners, Contractors, consultants, students and volunteers).

3. Related documents

Standards, procedures, guidelines

- [Health employment directive: Vaccine Preventable Diseases \(VPD\) requirements](#)
- [Health service directive: Vaccine preventable disease screening for Contractors, students and volunteers](#)
- [Protocol for vaccine preventable disease screening for Contractors, students and volunteers](#)
- [NSQHS Standard 3: Preventing and controlling healthcare associated infections](#)
- [Department of Health human resources policy B1: Recruitment and selection](#)
- [Implementation guide: Healthcare worker vaccination program](#)
- [Department of Health human resources policy B3: Work experience programs and placements](#)
- [Work Health and Safety Act 2011](#)
- [Public Health Act 2005](#)
- [Australian guidelines for the prevention and control of infection in healthcare](#)
- [Guideline for management of exposures to blood and body fluids](#)
- [The Australian Immunisation Handbook](#)
- [Hospital and Health Boards Act 2011](#)

- [Student deed and orientation](#)
- [Health service directive: Tuberculosis control](#)
- [Protocol for the control of tuberculosis](#)

4. Guideline for vaccination of healthcare workers

It should be noted that the information in this guideline relates to vaccinations either required as a condition of employment/engagement or recommended due to occupation as a healthcare worker. The information in this guideline is not designed to substitute individualised medical advice. It is advised that prospective workers, staff, Contractors, students and volunteers consult with their own healthcare providers as to any additional vaccinations or booster vaccinations that may be recommended due to their personal circumstances which may include, but are not limited to, pregnancy, planned pregnancy or immunocompromising medical conditions.

Key critical points

- **For categories of prospective workers whose role could allow acquisition and/or transmission of VPDs, proof of vaccination or evidence that an individual is not susceptible to specified VPDs is a condition of employment/engagement.**
- **As per an existing condition of employment, existing Queensland Health staff employed prior to 1 July 2016 who have direct contact with patients or who in the course of their work may be exposed to blood/body fluids or contaminated sharps are required to provide proof of vaccination or evidence that they are not susceptible to hepatitis B.**
- **All Queensland Health staff, Contractors and volunteers employed/engaged prior to 1 July 2016 are recommended and encouraged to be vaccinated in accordance with recommendations for health care workers in the current edition of [The Australian Immunisation Handbook](#).**
- **Employers should take all reasonable steps to encourage workers to be protected against VPDs according to recommendations in the current edition of [The Australian Immunisation Handbook](#).**

4.1 Vaccine Preventable Disease Screening Requirements

The policy framework for VPD pre-engagement screening requirements

Queensland Health is made up of the Hospital and Health Services (HHSs) and the Department of Health (the Department). These HHSs and the Department are referred to in this guideline as Queensland Health entities. The policy framework for VPD screening sets out the required conditions for workers in the different Queensland Health entities.

The policy framework includes the following documents:

- *Human resources policy B1: Recruitment and selection* provides the VPD requirements that apply to all health service employee candidates prior to an offer of employment being made. This policy is also used to set out the requirements for contractors, volunteers and students engaged in the Department of Health (the Department).

- The [Health service directive: Vaccine preventable disease screening for Contractors, students and volunteers](#) and associated [protocol](#) provide the VPD pre-engagement/pre-commencement screening requirements for contractors, volunteers and students engaged in Hospital and Health Services (HHSs).

Employment candidates

As per *Human resources policy B1: Recruitment and selection*, from 1 July 2016 it is a condition of employment for certain categories of employment candidates to provide evidence of vaccination or that they are not susceptible to specified VPDs prior to any offer of employment being made.

See [section 4.2](#) for information on risk categorisation.

Contractors and volunteers

As per *Health service directive: Vaccine preventable disease screening for Contractors, students and volunteers* and as per *Human resources policy B1: Recruitment and selection*, certain categories of prospective Contractors and volunteers must provide evidence of vaccination or proof that they are not susceptible to specified VPDs prior to engagement/commencement. "Contractor" is a defined term; please see definitions table. See [section 4.2](#) for information on risk categorisation.

Workers engaged under an arrangement with an employment agency or workforce labour company should provide evidence of vaccination or that they are not susceptible to specified VPDs to their employer, rather than to Queensland Health entities.

Students

As per *Health service directive: Vaccine preventable disease screening for Contractors, students and volunteers* certain categories of prospective students engaged in HHSs must provide evidence of vaccination or proof that they are not susceptible to specified VPDs prior to commencement.

As per *Human resources policy B1: Recruitment and selection* certain categories of prospective students engaged in the Department must provide evidence of vaccination or proof that they are not susceptible to specified VPDs prior to commencement.

Students should provide evidence of vaccination or that they are not susceptible to specified VPDs to their education provider. Queensland Health has a contract (Student Placement Deed) with education providers to ensure all students' and trainees' roles that meet the definition of a VPD risk role during clinical placements comply with requirements.

Existing staff

Staff employed prior to 1 July 2016 who are subject to a previously existing hepatitis B condition of employment continue to be required to provide evidence of vaccination or that they are not susceptible to hepatitis B.

Staff employed prior to 1 July 2016 who seek to become newly engaged in a role that is subject to the continuing hepatitis B requirement must provide evidence of vaccination or that they are not susceptible to hepatitis B.

Staff employed prior to 1 July 2016 are not subject to the new conditions of engagement relating to measles, mumps, rubella, varicella and pertussis unless they apply for a role with VPD screening requirements that is with a different Queensland Health entity (i.e. one HHS to another HHS, the Department to a HHS, or HHS to the Department).

In addition, it is recommended and strongly encouraged that all existing staff, but particularly those in contact with patients, ensure that they are protected against hepatitis B, measles, mumps, rubella, pertussis and varicella as for prospective workers.

4.2 Risk categorisation

All roles, whether for employees, Contractors or volunteers, should be assessed according to risk of acquisition or transmission of VPDs.

The following VPD risk categories apply for pre-engagement screening and occupational vaccination purposes. These VPD risk categories are particularly important in determining when vaccination for specified VPDs is mandatory or recommended. The risk categories should also be applied when planning screening and vaccination programs for all VPDs.

For prospective workers, roles are categorised based on risk of exposure to infectious material and risk of acquisition or transmission of specified VPDs to patients. Refer to the *Definitions of terms* for definitions of existing and prospective workers.

Please see below for the risk categorisation of roles based on specified VPD requirements:

NB: Roles are subject to risk assessment for risk of contracting and/or transmitting specified VPDs and may be subject to one, both or none of the VPD requirements.

4.2.1 Measles, mumps, rubella, varicella and pertussis requirement

Direct patient contact and indirect patient contact – prospective workers

Evidence of measles, mumps, rubella, varicella and pertussis vaccination or evidence that the person is not susceptible to measles, mumps, rubella and varicella is required for all prospective workers for roles that:

- have contact that would allow acquisition and/or transmission of measles, mumps, rubella, varicella or pertussis. This applies to roles in which:
 - work requires face to face contact with patients, or
 - normal work location is in a clinical area such as a ward, emergency department or outpatient clinic, or
 - work frequently requires them to attend clinical areas.

NB: Where pertussis vaccination is a role requirement, the worker is required to provide evidence of booster vaccination if or when a period of ten years has elapsed since the previous dose.

4.2.2 Hepatitis B requirement

Direct patient contact or indirect contact with blood or body fluids –prospective and existing workers

Evidence of hepatitis B vaccination or evidence that the person is not susceptible is required for all prospective workers and for all existing workers engaged prior to 1 July 2016 who were subject to a previously existing hepatitis B condition of employment for roles that:

- have direct contact with patients, or
- in the course of their work, may be exposed to blood/body fluids or contaminated sharps.

4.3 Other recommended vaccinations

Annual seasonal influenza vaccination is not mandatory for any group but is recommended and should be strongly encouraged for all workers.

It is important to note that there are further vaccinations that are recommended based on particular risks for roles associated with location or population demographics. For example (but not limited to); laboratory workers who may be exposed to specific infectious agents, or workers assigned to the outer Torres Strait Islands for a total of 30 days or more during the wet season may require additional vaccinations to those outlined in this guideline. For further information, refer to the current version of [The Australian Immunisation Handbook](#). Please check with your HHS for local requirements.

As per the [Health Service Directive Tuberculosis Control](#), and [Protocol for the Control of Tuberculosis](#) all new employees who will be working in clinical areas and students undergoing placement in a Queensland Health facility must be assessed for their risk of tuberculosis using the Queensland Health risk assessment and screening form found in the above mentioned protocol.

Table 1 - Risk categorisation

Evidence of vaccination or proof of non-susceptibility for:	Risk categorisation for prospective workers			Direct patient contact or Indirect contact with blood or body fluids for existing staff subject to a previously existing condition of employment	Workers for roles that do not meet criteria
	Direct patient contact	Indirect patient contact	Indirect contact with blood or body fluids		
Hepatitis B	Mandatory [†]	Recommended [†]	Mandatory [†]	Mandatory [†]	Recommended [†]
Measles, Mumps, Rubella Varicella (chickenpox), Pertussis [§] (whooping cough)	Mandatory	Mandatory	Recommended	Recommended	Recommended
Influenza	Recommended				
[†] Serological testing following vaccination is recommended for those at significant occupational risk of exposure. Refer to <i>The Australian Immunisation Handbook</i> for further guidance. https://immunisationhandbook.health.gov.au/contents/about-the-handbook					
[§] Where pertussis vaccination is a role requirement, the worker is required to provide evidence of booster vaccination if or when a period of ten years has elapsed since the previous dose.					

4.4 Evidence of a completed course of vaccination or protection

See [Appendix 1](#) for a detailed list of acceptable documentary evidence of a completed course of vaccination or evidence that a person is not susceptible to specified VPDs. If the prospective worker cannot meet the condition refer to *Human resources policy B1: Recruitment and selection* or *Health service directive protocol for vaccine preventable disease screening for Contractors, students and volunteers* for further guidance.

4.4.1 Hepatitis B

Workers with a documented history of a primary course of hepatitis B vaccination who remain seronegative for hepatitis B surface antibody should be managed in accordance with recommendations in the current version of *The Australian Immunisation Handbook*. This may involve:

- investigation for hepatitis B carriage
- further doses of vaccine
- inform worker of the need for hepatitis B immunoglobulin (HBIG) within 72 hours of parenteral exposure to hepatitis B
- consideration of intradermal hepatitis B vaccination.

4.5 Education

Information regarding vaccines and vaccine preventable diseases should be made available to staff and prospective workers. Information is available from [Queensland Health Communicable Disease Control Guidance and Information: A-Z](#), in [The Australian Immunisation Handbook](#), in [appendix 2](#) of this guideline, and in an educational resource provided by the Department.

4.6 Compliance monitoring by HHS

The Australian Commission on Safety and Quality in Health Care's *National Safety and Quality Health Services Standard 3* requires health service organisations to monitor compliance with their risk-based workforce immunisation program.

5. Definitions of terms used in the guideline

Term	Definition / Explanation / Details
Anti-HBs, HBsAb, hepatitis B surface antibody	Antibodies developed to hepatitis B surface antigen, indicating immunity. ¹
Contractor	Contractor means a person engaged to perform services within Hospital and Health Services as an independent Contractor, including: <ul style="list-style-type: none">• Contractors and consultants;• locum workers;• visiting medical practitioners;• authorised practitioners of a contracted VMO; and• workers engaged under an arrangement with an employment agency or workforce labour company, but does not include a person who is engaged as a health service employee under the <i>Hospital and Health Boards Act 2011</i> .
Employment Candidate	An individual who has applied for a permanent, temporary or casual position within Queensland Health.
Existing worker	Includes all existing workers engaged prior to 1 July 2016 who were subject to a previously existing condition of employment relating to hepatitis B. Includes workers moving between roles within a Queensland Health entity (see below definition of Queensland Health entities). The condition relating to measles, mumps, rubella, varicella and pertussis does not apply to existing workers.
HBsAg, Hepatitis B surface antigen	A marker in the blood that indicates the person is a carrier of active hepatitis B virus infection. ¹

Immunity	The ability of the body to fight off certain infections; immunity can result from natural ('wild') infections or from vaccination. ²
Prospective worker	Includes prospective employees to Queensland Health (engaged on a permanent, temporary or casual basis), existing employees and volunteers moving between Queensland Health entities (see below definition of Queensland Health entities), and prospective; Contractors, students and volunteers.
Queensland Health	All of Queensland Health, comprising; all Hospital and Health Services and the Department of Health.
Queensland Health entities	Queensland Health is comprised of HHS and the Department. Each HHS is a separate Queensland Health entity, and the Department is a Queensland Health entity. A move or transfer from one HHS to another, from the Department to a HHS, or from a HHS to the Department is a move between Queensland Health entities. A move or transfer within, a HHS, or within the Department, is a move within a Queensland Health entity.
Student	Any person who is a student of a school, university, TAFE, or other secondary or tertiary education provider undertaking work experience or placement.
Vaccination	The administration of a vaccine; if vaccination is successful, it results in immunity. ²
Vaccine	A vaccine is a biological preparation that improves immunity to a particular disease. A vaccine typically contains an agent that resembles a disease-causing microorganism, and is often made from weakened or killed forms of the microbe or its toxins. The agent stimulates the body's immune system to recognise the agent as foreign, destroy it, and "remember" it, so that the immune system can more easily recognise and destroy any of these microorganisms that it later encounters. ¹
Volunteer	An individual who supports services either through direct contact with patients/clients or other activities without financial gain or reward.

6. Document approval details

Document custodian

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7. Version control

Version	Date	Prepared by	Comments
1.0	01/07/2016	Communicable Diseases and Infection Management, Communicable Diseases Branch	New document “Guideline: Vaccination of Health Care Workers, version 2, December 2012” Rescinded.
1.1	26/07/2016	Communicable Diseases and Infection Management, Communicable Diseases Branch	Minor amendments to Appendix 1, and to first paragraph of section 4 on page 2.

8. References

1. Australian Commission on Safety and Quality in Health Care. Australian guidelines for the prevention and control of infection in healthcare. National Health and Medical Research Council. 2010.
2. National Health and Medical Research Council (NHMRC). The Australian Immunisation Handbook, 10th edition. Australian Government. (2015 update).

Appendix 1 – Evidence of a completed course of vaccination or proof that the person is not susceptible to specified VPDs

The below table provides details of evidence of vaccination or proof that an individual is not susceptible to specified VPDs. Statutory declarations from the individual should not be considered acceptable evidence that the person is vaccinated or not susceptible to the VPD. There may be rare examples that are not included in the table, particularly if a person presents evidence of vaccination from overseas where different brands of vaccine may be used, or pathology testing performed overseas. Translation of evidence in languages other than English is the responsibility of the individual. In instances of uncertainty, seek advice from local experts, e.g. staff health clinic, infection control unit, infectious diseases physician, public health unit, medical practitioner or nurse immuniser/practitioner.

A “*Vaccine preventable diseases evidence certification form*” and a “*Vaccine preventable diseases evidence form*” have been developed for use by prospective workers. These forms can be accessed from the [QHEPS recruitment](#) webpage and the [Work for us](#) webpage.

The requirement is for evidence of vaccination to be provided: immunity should not be required. However, if an individual is unable to provide evidence of vaccination (e.g. due to records being lost or prior infection with the VPD), evidence of immunity is to be accepted. Individuals who can provide acceptable evidence of immunity as per the table below are not required to undertake vaccination. In the case of pertussis, there is no acceptable evidence of immunity.

In general, for individuals who have completed a full course of vaccination, protection against that VPD is assumed. However, in order to continue to be adequately protected for pertussis, booster dosing with a pertussis-containing vaccine is required. Healthcare workers who commence with Queensland Health on or after 1 July 2016 who have contact that would allow acquisition and/or transmission of pertussis are required to have a booster dose of pertussis-containing vaccine if 10 years have elapsed since a previous dose.² For hepatitis B, measles, mumps, rubella, and chickenpox, completion of a full course of vaccination is considered to provide long-term protection.² However, it should be noted, that for hepatitis B vaccination, serological testing following vaccination is recommended for those at significant occupational risk² (refer to the [hepatitis B chapter of *The Australian Immunisation Handbook*](#) for further guidance).

HHSs may decide to engage an individual prior to their completion of a course of vaccination. Decisions regarding management of individuals who have commenced but not completed a vaccination course should be made on a case by case basis, as a risk assessment should be made in each individual circumstance. Such a risk assessment should be undertaken in consultation with local experts. Table 3 provides guidance as to the minimum doses of vaccine courses that should be required prior to commencement.

Table 2. Acceptable evidence of vaccination or acceptable documentation that the person is not susceptible to specified VPDs

Disease/Vaccine	Acceptable evidence
Hepatitis B	<p>Record of vaccination</p> <p><i>Vaccination record book with details of vaccine given and clinic attended, or letter from a medical practitioner, vaccine service provider or other health professional acceptable to the HHS or the Department with details of vaccine given.</i></p> <p>Hepatitis B vaccine is usually given as a 3 dose course with 1 month minimum interval between 1st and 2nd dose, 2 months minimum interval between 2nd and 3rd dose and 4 months minimum interval between 1st and 3rd dose but for adolescents between the ages of 11-15 it may be given as a two dose course 4-6 months apart</p> <p>Brand names of hepatitis B vaccines are:</p> <ul style="list-style-type: none"> • H-B-Vax II (adult or paediatric formulation) • Engerix-B (adult or paediatric formulation) <p>Brand names of combination vaccines containing hepatitis B vaccine are:</p> <ul style="list-style-type: none"> • Infanrix hexa (diphtheria, tetanus, pertussis, Haemophilus influenzae type b, hepatitis B, polio) • Twinrix/Twinrix Junior (hepatitis A, hepatitis B) • ComVax (Haemophilus influenza type B, hepatitis B) (<i>ComVax is not currently available in Australia, but has been used in past National Immunisation Program Schedules</i>). • Infanrix hep B (diphtheria, tetanus, pertussis, acellular, hep B) (<i>Infanrix hep B is not currently available in Australia, but has been used in past National Immunisation Program Schedules</i>). <p style="text-align: center;">OR</p>
	<p>Vaccine preventable diseases evidence certification form</p> <p><i>HHS will provide prospective workers with the vaccine preventable diseases evidence certification form.</i></p> <p>This form is to be completed by treating medical practitioner, registered nurse or occupational health provider.</p> <p style="text-align: center;">OR</p>
	<p>Record of immunity</p> <p><i>A pathology testing result showing positive anti-HBs (≥10 IU/L).</i></p> <p>The test may be written as:</p> <ul style="list-style-type: none"> • Hepatitis B surface antibody • Anti-HBs • HBsAb <p>Do not confuse this with other hepatitis B testing, for example; HBsAg, anti-HBc, HBeAg, anti-HBe.</p> <p>The result will be expressed as a number, or not detected. Any number equal to or greater than 10 IU/L (≥10IU/L) indicates immunity. If the result is less than 10 IU/L (<10 IU/L), this indicates a lack of immunity.</p> <p style="text-align: center;">OR</p>
	<p>Other</p> <p><i>Letter from a medical practitioner, vaccine service provider or other health professional acceptable to the HHS or the Department with a statement that the individual is not susceptible to hepatitis B.</i></p> <p>Such a letter should be on practice/facility letterhead, signed by the provider/practitioner, and including their professional designation, service provider number (if applicable) and practice stamp.</p> <p style="text-align: center;">OR</p>

	<p>Partial course of vaccination</p> <p><i>Documented evidence that individual has commenced a course of Hepatitis B vaccine. See Table 3. Minimum doses of a vaccine course that should be required prior to commencement.</i></p>
<p>Measles, Mumps, Rubella (MMR)</p>	<p>Record of vaccination</p> <p><i>Vaccination record book with details of vaccine given and clinic attended, or letter from a medical practitioner, vaccine service provider or other health professional acceptable to the HHS or the Department with details of vaccine given.</i></p> <p><i>Two (2) doses of MMR vaccine at least one month apart</i></p> <p>Brand names of MMR vaccine are:</p> <ul style="list-style-type: none"> • M-M-R-II • Priorix <p>Vaccines that contain measles, mumps, rubella and varicella (chickenpox) vaccines are:</p> <ul style="list-style-type: none"> • Priorix-tetra • ProQuad <p style="text-align: center;">OR</p> <p>Vaccine preventable diseases evidence certification form</p> <p><i>HHS will provide prospective workers with the vaccine preventable diseases evidence certification form.</i></p> <p><i>This form is to be completed by a medical practitioner or registered nurse.</i></p> <p style="text-align: center;">OR</p> <p>Record of immunity</p> <p><i>A pathology testing result showing positive IgG for measles and mumps and rubella.</i></p> <p><i>Do not confuse this with IgM.</i></p> <p style="text-align: center;">OR</p> <p>Other</p> <p><i>Birth date before 1 January 1966.</i></p> <p style="text-align: center;">OR</p> <p>Partial course of vaccination</p> <p><i>Documented evidence that individual has commenced a course of measles, mumps, rubella vaccine. See Table 3. Minimum doses of a vaccine course that should be required prior to commencement.</i></p>
<p>Varicella (chickenpox)</p>	<p>Record of vaccination</p> <p><i>Vaccination record book with details of vaccine given and clinic attended, or letter from a medical practitioner, vaccine service provider or other health professional acceptable to the HHS or the Department with details of vaccine given.</i></p> <p><i>Two doses of varicella vaccine at least one month apart (evidence of one dose is sufficient if the person was vaccinated before 14 years of age), or a single dose of Zoster vaccine (for those aged 60 years or over). Please note that Zoster vaccine is not indicated for primary vaccination against varicella-zoster virus.</i></p> <p>Brand names of varicella vaccine are:</p> <ul style="list-style-type: none"> • Varilrix • Varivax <p>Brand names of combination vaccine containing varicella vaccine are:</p> <ul style="list-style-type: none"> • Priorix-tetra • ProQuad

Varicella (continued)	Brand name of Zoster vaccine is: <ul style="list-style-type: none"> • Zostavax
	<p>Vaccine preventable diseases evidence certification form</p> <p><i>HHS will provide prospective workers with the vaccine preventable diseases evidence certification form.</i></p> <p>This form is to be completed by treating medical practitioner, registered nurse or occupational health provider.</p>
	OR
	<p>Record of immunity</p> <p><i>A pathology testing result showing positive IgG for varicella.</i></p> <p>Do not confuse this with IgM.</p>
	OR
<p>Other</p> <p><i>Letter from a medical practitioner who has made a clinical diagnosis of chickenpox or shingles with a statement that the individual is not susceptible to chickenpox.</i></p> <p>Such a letter should be on practice/facility letterhead, signed by the provider, and including their professional designation, service provider number and practice stamp.</p>	
OR	
<p>Partial course of vaccination</p> <p><i>Documented evidence that individual has commenced a course of varicella vaccine. See Table 3. Minimum doses of a vaccine course that should be required prior to commencement.</i></p>	
Pertussis (whooping cough)	<p>Record of vaccination</p> <p><i>Vaccination record book with details of vaccine given and clinic attended, or letter from a medical practitioner, vaccine service provider or other health professional acceptable to the HHS or the Department with details of vaccine given.</i></p> <p>One adult dose of diphtheria / tetanus / pertussis vaccine (dTpa) within the past 10 years.</p> <p>Brand names of dTpa vaccines are:</p> <ul style="list-style-type: none"> • Boostrix • Adacel • Boostrix-IPV (also contains polio vaccine) • Adacel Polio (also contains polio vaccine) <p>Do not accept evidence of ADT vaccine as it does not include pertussis vaccine.</p>
	OR
	<p>Vaccine preventable diseases evidence certification form</p> <p><i>HHS will provide prospective workers with the vaccine preventable diseases evidence certification form.</i></p> <p>This form is to be completed by treating medical practitioner, registered nurse or occupational health provider.</p>
	<p>Record of immunity</p> <p>Not applicable for pertussis.</p>

Table 3. Minimum doses of a vaccine course that should be required prior to commencement

<i>Vaccination</i>	<i>Pre offer of employment</i>	<i>Continuing employment</i>
Measles, mumps, rubella (MMR)	Minimum one dose	Second dose to be administered within three months of commencement
Varicella (chicken pox)	Minimum one dose	Second dose (if required) to be administered within three months of commencement
Hepatitis B	Minimum two doses	Third dose to be administered within six months of commencement
Pertussis (whooping cough)	One dose	One dose every ten years

Appendix 2 – Specified vaccine preventable diseases (VPDs): Additional information

Disease	Healthcare associated transmission and community exposure	Vaccine
Hepatitis B		
<p>Infectious agent: Hepatitis B virus (HBV)</p> <p>Mode of transmission: through blood-to-blood contact with an infected person which may include:</p> <ul style="list-style-type: none"> • Percutaneous exposure (IV, IM, SC or intradermal)^{1,2} • Coming into contact with inadequately sterilised instruments¹ • Sexual contact (hepatitis B is one of the most common sexually transmitted infections in the world).^{1,2} • Perinatal transmission from mother to child <p>Incubation period: Usually 45 - 180 days, average 60 - 90 days.¹</p> <p>Infectious period: Blood from infected persons is infective many weeks before the onset of symptoms and remains infective through the acute clinical course of the disease.¹</p> <p>Disease signs and symptoms: approximately 30 to 50% of adults, infection causes symptomatic acute hepatitis, but in neonates and young children, particularly those <1 year of age, initial infection is usually asymptomatic.^{1,2}</p> <p>Symptoms include fever, jaundice, malaise, anorexia, nausea and vomiting, abdominal pain (especially in the right upper quadrant), myalgia, and the passage of dark coloured urine and in light-coloured stools.^{1,2}</p> <p>Complications and serious consequences</p> <p>Severity ranges from unapparent cases detectable only by abnormal liver function tests to severe hepatitis with serious complications including fatal cases of acute hepatic necrosis.^{1,2}</p> <p>About 1 in 4 chronic HBV carriers will develop cirrhosis or liver cancer.¹</p> <p>Further information about HBV can be found on the Queensland Health communicable disease control guidance internet page.</p>	<p>HBV is a vaccine preventable disease and the incidence of healthcare associated transmission of HBV has declined following the widespread implementation of HBV vaccination of healthcare workers.⁵</p> <p>Since HBV is stable on environmental surfaces for at least seven days, indirect inoculation can occur via inanimate objects.</p>	<p>Hepatitis B vaccines</p> <p>Recombinant virus vaccines contain hepatitis B surface antigen.</p> <p>Side effects of hepatitis B vaccine:</p> <ul style="list-style-type: none"> • About 1 in 20 will have local swelling, redness or pain at the injection site • 2 in 100 will have fever. • Anaphylaxis occurs in about 1 in 1 million.² • Serious adverse events are very rare.² <p>Contraindications to receiving hepatitis B vaccine:</p> <ul style="list-style-type: none"> • Anaphylaxis following a previous dose of any hepatitis B vaccine² • Anaphylaxis following any vaccine component.² <p><i>In particular, hepatitis B vaccines are contraindicated in persons with a history of anaphylaxis to yeast.²</i></p> <p>Hepatitis B vaccine is recommended at a population level, and hepatitis B vaccination is part of the National Immunisation Program.</p> <p>Further information about the HBV vaccine, schedule and recommendations can be found in the online Australian Immunisation Handbook.²</p>

Disease	Healthcare associated transmission and community exposure	Vaccine
Influenza		
<p>Infectious agent: Influenza virus</p> <p>Mode of transmission: Contact with respiratory secretions and droplet transmission.^{1,2}</p> <p>Incubation period: 1 to 7 days (commonly 2-3 days).^{1,2}</p> <p>Infectious period: up to 24 hours before onset of symptoms and until 7 days after the onset of symptoms. Viral shedding in adults peaks in the first 1 to 2 days after symptom onset, then reduces to very low levels by 5 days after onset of symptoms.^{1,2}The infectious period can be extended in children, elderly persons, and those who are immunocompromised.</p> <p>Disease signs and symptoms: typically include fever, cough, fatigue, sore throat, headache, myalgia, and rigors or chills. Diarrhoea and/or vomiting may also occur.^{1,2}</p> <p>Illness can range from asymptomatic infection to severe disease.¹</p> <p>Complications and serious consequences</p> <p>Pneumonia may develop directly from influenza infection (primary influenza pneumonia) or from secondary bacterial infection.¹</p> <p>Acute respiratory distress syndrome (ARDS) may develop several days after disease onset.¹</p> <p>Further information about Influenza can be found on the Queensland Health communicable disease control guidance internet page.</p>	<p>Healthcare workers are at risk of exposure to influenza in the workplace and are at risk of transmitting influenza to patients and other workers.^{5,7,9}</p> <p>Healthcare workers who attend work while unwell and those who have an asymptomatic infection can pass the disease to susceptible patients, co-workers and other contacts.^{5,7,9}</p> <p>About 1/10 to 1/5 of all Australians will contract influenza every year and it is estimated that it causes around 3000 deaths in people older than 50 years of age each year in Australia.²</p> <p>The administration of influenza vaccine to persons at risk of complications of infection is the single most important measure in preventing or attenuating influenza infection and preventing mortality.² Annual influenza vaccination for healthcare workers is an important method for minimising the risk of healthcare associated transmission of influenza.</p>	<p>Influenza vaccine</p> <p>Inactivated virus vaccine</p> <p>The estimated overall efficacy of inactivated vaccines against laboratory confirmed influenza in healthy adults <65 years of age to be 59%.²</p> <p>It has been estimated that during periods of high virus circulation, when vaccine match is good, high influenza vaccination coverage in nursing home settings reduces hospitalisation due to influenza and pneumonia by approximately 45% and reduces all-cause mortality in persons aged >65 years by 60%.²</p> <p>Side effects of Influenza vaccine:</p> <p>About 1 in 10 has local swelling, redness or pain at the injection site.</p> <p>Fever occurs in about 1 in 10 children aged 6 months to 3 years.</p> <p>One influenza vaccine in the United States in 1976 was associated historically with a small increased risk of Guillain-Barré Syndrome (GBS). Close surveillance since then has shown that GBS has occurred at a very low rate of less than 1 in 1 million doses of influenza vaccine, if at all.²</p> <p>Serious adverse events are very rare.</p> <p>Contraindications to receiving Influenza vaccine</p> <ul style="list-style-type: none"> • Anaphylaxis following a previous dose of any influenza vaccine • Anaphylaxis following any vaccine component. <p>Further information about the influenza vaccine, schedule and recommendations can be found in the online Australian Immunisation Handbook.²</p>

Disease	Healthcare associated transmission and community exposure	Vaccine
Measles		
<p>Infectious agent: Measles virus</p> <p>Mode of transmission: Airborne via aerosol droplets and direct contact with respiratory secretions.</p> <p>Measles is one of the most highly communicable infectious diseases. ¹ There is a 90% chance that susceptible close contacts who are exposed to the disease will become infected.^{3,4}</p> <p>Incubation period: from 7-18 days (average 10)¹</p> <p>Infectious period: from 24 hours prior to onset of symptoms (or 4 days before onset of rash) until 4 days post onset of rash.</p> <p>Disease signs and symptoms: Measles is an acute illness characterised by fever, conjunctivitis, coryza (cold-like symptoms) and cough in the initial phase. This is followed by onset of a non-itchy, maculopapular (red, raised) rash beginning on the face or upper neck spreading to become generalised. Other symptoms may include: loss of appetite, diarrhoea, and swollen glands.</p> <p>Complications and serious consequences</p> <p><i>Common complications:</i> middle ear infection and chest infection/pneumonia.</p> <p><i>Serious complications and consequences:</i> about 1 in 15 children with measles develops pneumonia and 1 in 1000 develops encephalitis (brain inflammation). For every 10 children who develop measles encephalitis, 1 dies and many have permanent brain damage.</p> <p>About 1 in 100,000 will develop subacute sclerosing panencephalitis (SSPE) (progressive brain degeneration) up to several years after an apparent full recovery from a measles infection; it is always fatal.²</p> <p>Further information about measles can be found on the Queensland Health communicable disease control guidance internet page.</p>	<p>Despite the availability of a safe and effective vaccine, there has been an increase in measles outbreaks in countries where there is a high uptake of vaccination and no circulating wild measles virus⁴. These outbreaks are often caused by non-immune travellers importing the disease from countries affected by ongoing outbreaks of measles.^{1,4}</p> <p>Healthcare associated transmission of measles has been well documented.⁵</p> <p>Many of the adult cases identified in healthcare associated outbreaks have been unvaccinated healthcare workers who have transmitted the disease to susceptible patients.⁵</p> <p>Work related exposures result in susceptible healthcare workers being 13 to 19 times more likely to contract measles than susceptible members of the general population.⁶</p> <p>Patients exposed to measles are at increased risk for severe disease with high mortality and morbidity.^{5,6}</p> <p>The most effective method for eliminating the risk of healthcare associated transmission of measles among healthcare workers is vaccination.⁵</p>	<p>MMR (measles, mumps, and rubella) vaccine</p> <p>A live attenuated virus vaccine.</p> <p>A single vaccination is 95% effective in preventing measles and a second vaccination has been found to be 99% effective when given after 12 months of age.²</p> <p>Side effects of MMR vaccine:</p> <ul style="list-style-type: none"> • Adverse events are generally mild and well tolerated² • About 1 in 10 has local swelling, redness or pain at the injection site, or fever. • About 1 in 20 develops a rash, which is non-infectious. • Low platelet count (causing bruising or bleeding) occurs after the 1st dose of MMR vaccine at a rate of about 1 in 20 000 to 30 000. • About 1 in 100 may develop swelling of the salivary glands. • Serious adverse events are very rare. <p>Contraindications to receiving MMR vaccine</p> <ul style="list-style-type: none"> • Anaphylaxis following a previous dose of MMR-containing vaccine • Anaphylaxis following any vaccine component • Immunocompromised persons (seek further information from healthcare providers) • Pregnant women <p>Further information about the MMR vaccine, schedule and recommendations can be found in the online Australian Immunisation Handbook</p>

Disease	Healthcare associated transmission and community exposure	Vaccine
Mumps		
<p>Infectious agent: Mumps virus</p> <p>Mode of transmission: Droplet transmission and contact with respiratory secretions.</p> <p>Incubation period: from 12-25 days (average 16-18).¹</p> <p>Infectious period: maximum communicability occurs between 2 days before and 4 days after onset of illness.¹</p> <p>Disease signs and symptoms: mumps is an acute illness characterised by fever, swelling and tenderness of the parotid and/or other salivary glands.¹ Respiratory symptoms may also be present.</p> <p>Complications and serious consequences</p> <p><i>Common complications:</i> Orchitis (inflammation of the testes) occurs in 20-30% of adult and adolescent males¹, meningitis occurs in up to 10% of cases¹.</p> <p><i>Serious complications and consequences:</i> Occasionally, mumps causes infertility or permanent deafness.²</p> <p>Further information about mumps can be found on the Queensland Health communicable disease control guidance internet page.</p>	<p>Since the introduction of the mumps vaccine there has been a dramatic decrease in the incidence of the disease. Sporadic outbreaks do still occur, affecting those with possible waning immunity and populations with lower vaccine uptake.</p> <p>Community outbreaks of mumps have been associated with significant concurrent healthcare associated transmission of the disease.⁵</p> <p>Due to the nature of their occupation, non-immune healthcare workers are at increased risk of exposure to mumps with a greater likelihood of acquiring and transmitting the disease.^{5,7,8}</p> <p>The safest and most effective means for preventing healthcare associated transmission of mumps is vaccination of non-immune healthcare workers.</p>	<p>MMR (measles, mumps, and rubella) vaccine</p> <p>A live attenuated virus vaccine.</p> <p>A single Mumps vaccine is around 65%-80% effective and two doses of vaccine are approximately 88%-95% effective.²</p> <p>Side effects of MMR vaccine:</p> <ul style="list-style-type: none"> • Adverse events are generally mild and well tolerated² • About 1 in 10 has local swelling, redness or pain at the injection site, or fever. • About 1 in 20 develops a rash, which is non-infectious. • Low platelet count (causing bruising or bleeding) occurs after the 1st dose of MMR vaccine at a rate of about 1 in 20 000 to 30 000. • About 1 in 100 may develop swelling of the salivary glands. • Serious adverse events are very rare. <p>Contraindications to receiving MMR vaccine:</p> <ul style="list-style-type: none"> • Anaphylaxis following a previous dose of MMR-containing vaccine • Anaphylaxis following any vaccine component • Persons who are immunocompromised (seek further information from healthcare providers) • Pregnant women <p>Further information about the MMR vaccine, schedule and recommendations can be found in the online Australian Immunisation Handbook</p>

Disease	Healthcare associated transmission and community exposure	Vaccine
Pertussis (whooping cough)		
<p>Infectious agent: <i>Bordetella pertussis</i> (a bacteria)</p> <p>Mode of transmission: contact with respiratory secretions and droplet transmission.</p> <p>The disease is highly infectious and approximately 90% of non-immune household contacts develop the disease.²</p> <p>Pertussis can be a relatively mild disease, with a subtle onset in adults and older children, who may unwittingly be infectious and transmit the disease to those at serious risk, e.g. infants under 6 months of age.</p> <p>Incubation period: from 4-21 days (average 7 – 10 days).</p> <p>Infectious period: from the onset of catarrhal (runny nose, sneezing) symptoms until 3 weeks after onset of cough, or until completing 5 days of a course of an appropriate antibiotic.</p> <p>Disease signs and symptoms:</p> <p>Initial catarrhal phase: runny nose, sneezing, absent or low grade fever, mild occasional cough.¹</p> <p>Paroxysmal phase: paroxysmal cough (violent attacks of uncontrollable coughing) that may result in vomiting, cyanosis (bluish tinge to skin), and a characteristic “whoop” on breathing in.¹ Infants are more likely to have gagging, gasping, cyanosis, seizures, poor feeding, or to stop breathing.¹</p> <p>Complications and serious consequences</p> <p>The risk of complications and mortality is high in unvaccinated infants. Approximately 1 in 125 babies under the age of 6 months with whooping cough die from pneumonia or brain damage.</p> <p>The most common cause of death associated with pertussis infection is pertussis pneumonia, sometimes complicated by seizures and hypoxic encephalopathy.²</p> <p>Further information about pertussis can be found on the Queensland Health communicable disease control guidance internet page.</p>	<p>All healthcare workers should receive dTpa vaccine because of the significant risk of healthcare associated transmission of pertussis to vulnerable patients.²</p> <p>Healthcare associated transmission of pertussis has been documented to have occurred from hospital visitors to patients, from healthcare workers to patients, and from patients to healthcare workers.⁷</p> <p>Pertussis vaccination is an effective method for reducing the risk of healthcare associated transmission of pertussis between healthcare workers, patients and other members of the community.^{2,5,7}</p>	<p>Diphtheria-tetanus-pertussis (acellular) DTPa-containing vaccines and dTpa (reduced antigen) vaccines:</p> <p>Vaccination for pertussis is only available with a combination vaccine. This contains vaccine for diphtheria, tetanus (toxoid) and pertussis (subunit antigen) and is referred to as dTpa/DTPa.²</p> <p>A booster dose of dTpa for health care workers is recommended if 10 years have elapsed since a previous dose.²</p> <p>Side effects of dTpa vaccine:</p> <ul style="list-style-type: none"> • Low-grade temperature (fever)² • About 1 in 10 has local swelling, redness or pain at the injection site, or fever (DTPa/dTpa vaccine).² • Booster doses of DTPa may occasionally be associated with extensive swelling of the limb, but this resolves completely within a few days² • Occasionally, an injection-site nodule; may last many weeks; no treatment is needed.² • Serious adverse events are very rare.² <p>Contraindications to acellular pertussis-containing vaccine</p> <ul style="list-style-type: none"> • Anaphylaxis following a previous dose of any acellular pertussis-containing vaccine² • Anaphylaxis following any vaccine component.² <p>Further information about the dTpa vaccine, schedule and recommendations can be found in the online Australian Immunisation Handbook</p>

Disease	Healthcare associated transmission and community exposure	Vaccine
Rubella		
<p>Infectious agent: Rubella virus</p> <p>Mode of transmission: Contact with respiratory secretions and droplet transmission.</p> <p>Incubation period: from 14 – 21 days (average 14-17).</p> <p>Infectious period: From one week before to at least 4 days after the onset of rash.¹ Rubella is highly communicable.¹</p> <p>Disease signs and symptoms: rash, low grade fever, painful swollen glands, malaise and painful joints.^{2,5,7.}</p> <p>Complications and serious consequences</p> <p><i>Serious complications and consequences:</i> One in 3000 develops low platelet count (causing bruising or bleeding); 1 in 6000 develops encephalitis (brain inflammation).²</p> <p>Rubella infection during pregnancy can cause congenital infection in the infant and up to 9 in 10 babies infected during the first trimester of pregnancy will have a major congenital abnormality (including deafness, blindness or heart defects).²</p> <p>Rubella infection during pregnancy can also cause miscarriage and stillbirth.^{2,5,6}</p> <p>Further information about rubella can be found on the Queensland Health communicable disease control guidance internet page.</p>	<p>Prior to the introduction of the vaccine rubella was an endemic disease globally and healthcare associated transmission of the disease was not uncommon.</p> <p>Following the introduction of rubella vaccination there have not been any documented cases of healthcare associated transmission of rubella.^{5,7}</p> <p>Vaccination has been demonstrated to be a safe effective method for prevention of healthcare associated rubella infection.</p>	<p>MMR (measles, mumps, and rubella) vaccine</p> <p>A live attenuated virus vaccine.</p> <p>A single vaccination is 95% effective in producing an antibody response, with the aim of the second dose being to produce immunity in those who did not produce antibodies in response to the first dose².</p> <p>Side effects of MMR vaccine:</p> <ul style="list-style-type: none"> • Adverse events are generally mild and well tolerated² • About 1 in 10 has local swelling, redness or pain at the injection site, or fever. • About 1 in 20 develops a rash, which is non-infectious. • Low platelet count (causing bruising or bleeding) occurs after the 1st dose of MMR vaccine at a rate of about 1 in 20 000 to 30 000. • About 1 in 100 may develop swelling of the salivary glands. • Serious adverse events are very rare. <p>Contraindications to receiving MMR vaccine</p> <ul style="list-style-type: none"> • Anaphylaxis following a previous dose of MMR-containing vaccine • Anaphylaxis following any vaccine component • Immunocompromised persons (seek further information from healthcare providers) • Pregnant women <p>Further information about the MMR vaccine, schedule and recommendations can be found in the online Australian Immunisation Handbook</p>

Disease	Healthcare associated transmission and community exposure	Vaccine
Varicella (Chickenpox)		
<p>Infectious agent: the Varicella-zoster virus (VZV)</p> <p>Mode of transmission: airborne via aerosol droplets and direct contact with respiratory secretions or the vesicle fluid of the skin lesions of a varicella or herpes zoster infection.^{1,2,7}</p> <p>Up to 90% of non-immune contacts exposed to varicella will contract the disease.⁷</p> <p>Incubation period: 10 - 21 days (average 14 - 16 days)¹</p> <p>Infectious period: up to 5 (but usually 1 – 2) days before the rash appears and until all the vesicles have formed scabs, usually within 5 days of rash onset.¹</p> <p>Disease signs and symptoms: Chickenpox is an acute generalised viral disease with sudden onset of slight fever, mild constitutional symptoms and a skin eruption that is maculopapular for a few hours, vesicular for 3-4 days and leaves a granular scab.¹</p> <p>Complications and serious consequences</p> <p>Secondary bacterial infections of the vesicles may leave disfiguring scars or result in necrotising fasciitis (a serious tissue infection) or septicaemia (bloodstream infection).¹</p> <p>It is more severe in adults and can cause serious and even fatal illness in immunosuppressed subjects of any age.¹</p> <p>One in 100,000 patients who contract varicella develop encephalitis (brain inflammation).²</p> <p>Infection during pregnancy can result in congenital malformations in the baby. Infection in the mother around delivery time results in severe infection in the newborn baby in up to one-third of cases.²</p> <p>Further information about Varicella can be found on the Queensland Health communicable disease control guidance internet page.</p>	<p>Healthcare associated transmission of varicella infection from healthcare workers to co-workers and patients is well recognised.</p> <p>Healthcare associated varicella is recognised to present higher risks for severe complications and mortality.</p> <p>Up to 40% of healthcare workers may lack varicella immunity.⁵ Varicella vaccination has been demonstrated to be effective in prevention of varicella infection.</p>	<p>Varicella vaccine (VV)</p> <p>A live attenuated virus vaccine</p> <p>The estimated efficacy of a single dose of varicella vaccine is approximately 80% to 85% against any disease and 95% to 98% against severe varicella.²</p> <p>Side effects of varicella vaccine</p> <ul style="list-style-type: none"> • About 1 in 5 has a local reaction or fever. • About 3 to 5 in 100 may develop a mild varicella-like rash. • Serious adverse events are very rare. <p>Contraindications to varicella-containing vaccines:</p> <ul style="list-style-type: none"> • Anaphylaxis following a previous dose of any varicella-containing vaccine² • Anaphylaxis following any vaccine component.² • Immunocompromised persons due to HIV/AIDS.² • Persons with other medical conditions associated with significant immunocompromise² • Persons receiving high-dose systemic immunosuppressive therapy² • Pregnant women² <p>Further information about the varicella vaccine, schedule and recommendations can be found in the online Australian Immunisation Handbook</p>

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