

**An on-line 'catch-up calculator' is available at
www.health.sa.gov.au/immunisationcalculator**

This calculator is regularly updated for all catch-up scenarios relevant to the NIP. For non-NIP vaccines or complicated catch-up scenarios, expert advice should be sought (see Appendix 1, *Contact details for Australian, State and Territory Government health authorities and communicable disease control*).

To calculate a catch-up schedule, the on-line calculator requires the child's date of birth, State of residence, past vaccination history and Indigenous status. The calculator can be used for children ≤ 7 years of age (the age up to which vaccinations will be recorded on the ACIR) and can calculate catch-up schedules for children from all States and Territories. For recently arrived immigrants, the World Health Organization web site www.who.int/countries/en lists an immunisation schedule (where provided by that particular country) and may supplement information regarding which vaccines a child/adult may have received (see also Section 2.3.9, *Vaccination of immigrants to Australia*).

Alternatively, the instructions and guidelines below will assist in the manual calculation of a catch-up schedule.

Determining a vaccination history

Individuals with incomplete vaccination records

The most important requirement for assessment of vaccination status is to have written documentation of vaccination. The approach of providers to the problem of inadequate records should be based on the age of the individual, whether previous vaccines have been given in Australia or overseas, and the vaccines being considered for catch-up.

Vaccines given from 1 January 1996

The Australian Childhood Immunisation Register (ACIR) commenced on 1 January 1996 and all vaccinations given to children since then should be available from the ACIR. If the parent states that vaccines not recorded on the ACIR have been given, every effort should be made to contact the relevant immunisation service provider. If confirmation from the nominated provider or the ACIR cannot be obtained, and no written records are available, the vaccines should be considered as not received, and the child should be offered a catch-up course of vaccination appropriate for age (see Section 1.3.5). Parents can obtain an ACIR Immunisation History Statement from Medicare (see Section 1.5.4).

Older children and adolescents <18 years of age

No vaccination information is recorded on the ACIR after a child turns 7 years of age, but any information already held is retained. The information will relate only to vaccines received between birth and the 7th birthday. The ACIR Enquiry Line can be contacted on 1800 653 809 and any record held for an individual who

is ≥ 7 years of age can be made available to an immunisation service provider or parent/carer.

In older children and adolescents, alternative sources of documentation (such as personal health records) will be needed, but are less likely to be available with increasing age. Individuals who do not have personal vaccination records may seek evidence of past vaccination from their parents, their past and present healthcare providers or immunisation service providers, including Local Government immunisation service providers. Those born after 1990 may have some vaccinations recorded on the ACIR (see Section 1.5.4).

For most vaccines, there are no adverse events associated with additional doses in immune individuals. In the case of diphtheria and tetanus vaccines, additional doses may occasionally be associated with an increase in local adverse events in immune individuals (see Chapter 3.3, *Diphtheria*, Chapter 3.14, *Pertussis* or Chapter 3.21, *Tetanus*). However, the benefits of protection against pertussis are likely to outweigh the risk of an adverse reaction.

Adults (≥ 18 years of age)

In adults, written documentation of previous vaccination history may not be available. It is important, however, to seek information of any previous doses of diphtheria and tetanus vaccines, and of pneumococcal polysaccharide vaccination in the previous 5 years, as increased local reactions may occasionally occur in immune individuals (see Chapter 3.3, *Diphtheria*, Chapter 3.15, *Pneumococcal disease* or Chapter 3.21, *Tetanus*). Additional doses of MMR, varicella, IPV or hepatitis B vaccine are rarely associated with significant adverse events in adults.

Guidelines for planning catch-up vaccination

There are a number of tables in this section which are designed to help plan a catch-up schedule if not using the on-line calculator.

- Figure 1.3.1 is a worksheet for calculating and recording which vaccines are required, the number of doses outstanding and the timing of these doses.
- Table 1.3.5 can be used to assess the number of doses a child would have received if they were on schedule. Check under the current age of the child to see how many doses they should have already received and use that number of doses as the starting point for calculating a catch-up schedule. For example, a child who is 18 months old now should have received 3 doses of DTPa, 3 doses of IPV etc.
- Table 1.3.6 lists the minimum interval between doses.
- Tables 1.3.8–1.3.11 are for calculating catch-up for Hib and pneumococcal vaccination.

If documentation cannot be produced, assume that the vaccine has not been given previously, unless contact can be made with the immunisation service provider.

- Vaccine doses should not be administered at less than the recommended minimum interval¹⁶ (see Table 1.3.6).
- In exceptional circumstances, where early vaccination is required, Table 1.3.7 indicates the minimum age that the first dose of a vaccine may be given.
- Doses administered earlier than the minimum interval should not be considered as valid doses and should be repeated as appropriate using Table 1.3.5.
- When commencing the catch-up schedule, the standard scheduled interval between doses may be reduced or extended, and the numbers of doses required may reduce with age. For example, from 15 months of age, only 1 dose of (any) Hib vaccine is required.
- As a child gets older, the recommended number of vaccine doses may change (or even be omitted from the schedule), as the child becomes less vulnerable to specific diseases.
- For incomplete or overdue vaccinations, build on the previous documented doses.

Never start the schedule again, regardless of the interval since the last dose.

- If more than 1 vaccine is overdue, 1 dose of each due or overdue vaccine should be given now. Further required doses should be scheduled after the appropriate minimum interval (see Table 1.3.6).
- A catch-up schedule may require multiple vaccinations at a visit. Give all the due vaccines at the *same* visit – do not defer. See Section 1.4.9 for procedures for administering multiple injections at the same visit.
- The standard intervals and ages recommended in the NIP schedule should be used once the child or adult is up-to-date with the schedule.
- Some individuals will require further doses of antigens that are available only in combination vaccines. In general, the use of the combination vaccine(s) is acceptable, even if this means the number of doses of another antigen administered exceeds the required number.
- If different Hib vaccines are inadvertently used in the primary series, then 3 doses (of any Hib vaccine) are required at 2, 4 and 6 months of age, with a booster at 12 months of age (see Chapter 3.4, *Haemophilus influenzae type b*).

NB. Routine rotavirus vaccine ‘catch-up’ of older children is *not* recommended. Infants should commence the course of rotavirus vaccination within the recommended age limits for the first dose. It is also necessary to ensure that doses are not given beyond the upper age limits for the final dose of the vaccine course (see Chapter 3.18, *Rotavirus*).

Interruption to a vaccination

- If the process of administration of a vaccine given parenterally (IM or SC) is interrupted (eg. by syringe-needle disconnection) the whole dose should be repeated as soon as practicable.
- If an infant regurgitates or vomits part of a dose of oral rotavirus vaccine, it is not necessary to repeat the dose. Therefore, the regurgitated (and incomplete volume) dose is still considered as the valid dose (see Chapter 3.18, *Rotavirus*).

Determining a catch-up schedule for children <8 years of age

A catch-up schedule for a child <8 years of age should be planned by taking into account the guidelines above and using Table 1.3.5. The Catch-up Worksheet (Figure 1.3.1) provides a method of recording these steps. All catch-up vaccines administered to children aged <7 years should be reported as soon as is practicable to the ACIR.

Using the Catch-up Worksheet

1. Record the child's details including date of birth and current age in the top left corner of the worksheet.
2. For each vaccine, determine how many doses have been received and the date that the last dose was given. Record this on the worksheet.
3. Refer to Table 1.3.5 to check how many doses of each vaccine are required for the child's current age. Enter this number in the appropriate column of the worksheet.
4. Assess other factors that may affect the type or number of vaccines required, including:
 - anaphylaxis to any vaccine or one of its components (that vaccine is contraindicated),
 - impaired immunity due to disease or treatment (see Chapter 2.3, *Groups with special vaccination requirements*),
 - identifying as an Aboriginal or Torres Strait Islander (see Chapter 2.1, *Vaccination for Aboriginal and Torres Strait Islander people*),
 - children with an underlying medical risk condition which predisposes them to invasive pneumococcal disease (see Chapter 3.15, *Pneumococcal disease*),
 - a reliable history of previous varicella infection (varicella vaccine not required), and
 - babies born at <32 weeks' gestation (see Hib vaccine and hepatitis B vaccine catch-up below).

Record any relevant factor in the 'comments' column beside the relevant vaccine.

5. If any variations to the schedule are necessary due to recorded factors (eg. a child with impaired immunity may require different vaccines), adjust the 'number of doses required' accordingly.
6. For each vaccine, compare the 'last dose given' with the number required for the child's current age.
7. If the child has already received the number of doses required, the relevant 'dose number due now' and 'further doses' cells should be crossed through.
8. If the number of the 'last dose given' is less than the number required, a dose of the relevant vaccine should be administered now, and recorded in the 'dose number due now' cell. If this dose still does not complete the required doses, enter the further dose numbers in the 'further doses' cell.
9. Refer to Table 1.3.6 to determine the recommended minimum intervals required between doses and record in the relevant 'further doses' cells.
10. Convert this information into a list of proposed appointment dates, detailing vaccines and dose number needed at each visit on the Catch-up Worksheet.
11. Record this catch-up schedule in your provider records and provide a copy to the parent/carer.

Figure 1.3.1: Catch-up Worksheet for children <8 years of age

CATCH-UP WORKSHEET					
Name:	Last dose given	Number of doses required at current age*	Dose number due now	Further doses	Comments
DOB:	<i>Dose number and date</i>			<i>Interval or date</i>	
Age:					
DTPa					
Poliomyelitis (IPV)					
Hepatitis A					
Hepatitis B					
Hib					
7vPCV & 23vPPV					
MenCCV					
MMR					
Rotavirus					DO NOT give after upper age limits for each dose. See Table 3.18.1.
Varicella					
CATCH-UP APPOINTMENTS					
Date	Vaccines & Dose number	Interval to next dose		Comments	

* See step 5 'Using the Catch-up Worksheet' above.

Table 1.3.5: Number of vaccine doses that should have been administered by the current age of the child (table to be used in conjunction with Catch-up Worksheet)

VACCINE	CURRENT AGE						
	0–<2mo	2–<4mo	4–<6mo	6–<12mo	12–18mo	>18mo–<4yr	4yr–<8yr
DTPa*		1	2	3	3	3	4
Poliomyelitis (IPV)		1	2	3	3	3	4 [†]
Hepatitis A [‡]					1 [‡]	2 [‡]	2 [‡]
Hepatitis B	birth dose given [§]	2	3	4	4	4	4
	birth dose not given	1	2	3 [^]	3	3	3
Hib	Complex – see Table 1.3.8 for Hib vaccine catch-up						
7vPCV & 23vPPV	Complex – see Tables 1.3.9, 1.3.10 and 1.3.11 for pneumococcal vaccine catch-up						
MenCCV					1	1	1
MMR					1	2	2
Rotavirus [#]	There are specific age limits as per Chapter 3.18, <i>Rotavirus</i> , Table 3.18.1.			NO CATCH-UP			
Varicella						1	1

* Some children may have received 4 doses of DTP by 18 months of age, especially if moved from overseas. These children will require a 5th dose of DTPa at 4 years of age.

† If the 3rd dose of IPV is given after 4 years of age, a 4th dose is not required. However, if using a combination vaccine it is acceptable to receive a 4th dose.

‡ Indigenous children resident in NT, QLD, SA and WA only. Dependent on jurisdiction, the 1st dose is given at 12–18 months of age followed by the 2nd dose 6 months later at 18–24 months of age. Consult relevant State/Territory authorities for advice regarding catch-up in children older than 2 years of age.

§ Birth dose should be given within 7 days of birth. Although a birth dose of hepatitis B vaccine is recommended for all infants, a catch-up dose is not necessary if it was not given. Even if the birth dose was given, a further 3 doses of hepatitis B vaccine are required.

^ Some States/Territories schedule a 3rd dose (or the 4th dose) of hepatitis B vaccine at 6 months of age rather than 12 months.

There is *no catch-up* for rotavirus vaccine (see Chapter 3.18, *Rotavirus*).

Table 1.3.6: Minimum dose intervals for NIP vaccines for children <8 years of age (table to be used in conjunction with Catch-up Worksheet)

Vaccine	Minimum interval between dose 1 & 2	Minimum interval between dose 2 & 3	Minimum interval between dose 3 & 4
DTPa*	4 weeks	4 weeks	6 months
Poliomyelitis (IPV)	4 weeks	4 weeks	4 weeks [†]
Hepatitis A (Indigenous children in NT, QLD, SA & WA only)	6 months		
Hepatitis B			
If first dose given at birth or at ≤7 days after birth [‡]	4 weeks	8 weeks	8 weeks
If first dose is not given at birth or at >7 days after birth [§]	4 weeks	8 weeks	
Hib (PRP-OMP)	See Table 1.3.8 Hib vaccine catch-up		
Hib (PRP-T)			
Pneumococcal (7vPCV)	See Tables 1.3.9, 1.3.10, 1.3.11 Pneumococcal vaccine catch-up		
MenCCV [^]			
MMR [#]	4 weeks		
Rotavirus**	Rotarix	4 weeks	
	RotaTeq	4 weeks	4 weeks
Varicella	4 weeks		

* If DTPa is only available in combination with other antigens (eg. DTPa-IPV, DTPa-hepB-IPV-Hib or DTPa-HepB-IPV), these formulations can be used where necessary for primary course or catch-up doses in children <8 years of age.

† If the 3rd dose of IPV is given after 4 years of age, a 4th dose is not required. However, if using a combination vaccine, it is acceptable to receive a 4th dose.

‡ If dose given at birth or within 7 days of birth (considered dose 1 for this table), then 3 subsequent doses should be given.

§ If dose 1 is not given at birth or within 7 days of birth, then it should be given at 2 months of age, followed by a further 2 doses.

[^] The schedule is a single dose given at 12 months of age. Alternative schedules are available for children <12 months of age (see Chapter 3.12, *Meningococcal disease*).

[#] MMR vaccine may be given from 9 months of age if in contact with case, but dose *must* be repeated at 12 months of age.

** Consult Chapter 3.18, *Rotavirus*, Table 3.18.1 for upper age limits for administration of rotavirus vaccines. Catch-up is *not* recommended.

Table 1.3.7: Minimum age for the first dose of vaccine in exceptional circumstances*

Vaccine	Minimum age for first dose in exceptional circumstances	Minimum age accepted as valid by ACIR
DTPa	6 weeks	6 weeks
Poliomyelitis (IPV)	6 weeks	6 weeks
Hepatitis A (Indigenous children in NT, QLD, SA & WA only)	12 months	12 months
Hepatitis B	6 weeks	6 weeks
Hib (PRP-OMP)	6 weeks	6 weeks
Hib (PRP-T)	6 weeks	6 weeks
MenCCV	6 weeks [†]	12 months
MMR	9 months [‡]	11 months
Pneumococcal (7vPCV)	6 weeks	6 weeks
Rotavirus	6 weeks	not stated
Varicella	9 months [§] (Varilrix) 12 months [^] (Varivax)	not stated

* Exceptional circumstances may include infants/children being vaccinated before overseas travel, or opportunistic vaccination following early attendance to a provider. These ages may differ from routinely recommended ages of administration under the NIP.

† If 2 doses of MenCCV are given before 12 months of age, then a booster dose should be given at 12 months of age (see Chapter 3.12, *Meningococcal disease*).

‡ MMR vaccine may be given from 9 months of age if in contact with case, but dose *must* be repeated at 12 months of age.

§ If a child receives varicella vaccine at <12 months of age, a further dose should be given at 18 months of age.

^ Receipt of at least 1 dose of varicella vaccine is recommended from 12 months of age.

Catch-up guidelines for individual vaccines

- **DTPa**

Monovalent pertussis vaccine is not available in Australia. If a child has received previous doses of DT and requires pertussis catch-up, then DTPa or DTPa-combination vaccines can be used provided that no more than 6 doses of diphtheria and tetanus toxoids are given before the 8th birthday.

NB. If no birth dose of hepatitis B vaccine was given, and a DTPa-hepatitis B-containing combination vaccine is used, there should be a *minimum interval* of 8 weeks between doses 2 and 3.

- **Hepatitis B vaccine**

If the infant received the birth dose of hepatitis B vaccine, catch-up doses can be given 4–8 weeks apart.

If the infant did not receive the birth dose, a catch-up of this dose is not necessary. In this circumstance, hepatitis B vaccination should commence at 2 months of age. There should be a *minimum interval* of 8 weeks between doses 2 and 3.

In preterm babies under 32 weeks' gestation at birth or <2000 g birth weight, it is recommended to give hepatitis B vaccine at 0, 2, 4 and 6 months of age, and either:

- measure anti-HBs at 7 months of age and give a booster at 12 months of age if antibody titre is <10 mIU/mL, or
- give a booster at 12 months of age without measuring the antibody titre.

(See also Section 2.3.2, *Vaccination of women planning pregnancy, pregnant or breastfeeding women, and preterm infants* and Chapter 3.6, *Hepatitis B*).

- **Hib vaccine**

The recommended number of doses and recommended intervals of Hib vaccines vary with the vaccine type and with the age of the child (see Table 1.3.8). PRP-OMP is the Hib formulation contained in Liquid PedvaxHIB and COMVAX. PRP-T is the Hib formulation contained in Hiberix and Infanrix hexa.

Where possible, the same brand of Hib vaccine should be used for all doses. If different Hib vaccines are used in the primary series, then 3 doses (of any Hib vaccine) are required at 2, 4 and 6 months of age, with a booster at 12 months of age. Only 1 dose (of any Hib vaccine) is required after 15 months of age.

When PRP-OMP is used in an extremely preterm baby (<28 weeks' gestation or <1500 g birth weight), an additional dose should be given at 6 months of age, ie. doses should be given at 2, 4, 6 and 12 months of age (see Section 2.3.2, *Vaccination of women planning pregnancy, pregnant or breastfeeding women, and preterm infants*).

- **MMR vaccine**

If no previous documented doses have been given, catch-up for MMR consists of 2 doses given at least 4 weeks apart.

- **MenCCV**

MenCCV is recommended on the NIP for children at 12 months of age. If no dose was received at ≥ 12 months of age or if all doses have been received at < 12 months of age, a single dose of any meningococcal conjugate vaccine is recommended (see Chapter 3.12, *Meningococcal disease*).

- **7vPCV**

The number of doses and recommended intervals of 7vPCV for catch-up vary with the age of the child, health and Indigenous status of the child, as well as the State/Territory of residence (see Tables 1.3.9, 1.3.10 and 1.3.11 below).

Low-risk children (including all Indigenous children) aged ≥ 2 years of age do *not* require catch-up.

If < 2 years of age at presentation, use Table 1.3.9 for low-risk children (including Indigenous children living in the Australian Capital Territory, New South Wales, Victoria and Tasmania) and Table 1.3.10 for Indigenous children residing in the Northern Territory, Queensland, South Australia and Western Australia. Table 1.3.11 provides catch-up details for children aged ≤ 5 years with an underlying medical condition. Please also refer to Chapter 3.15, *Pneumococcal disease* for further details.

- **Poliomyelitis vaccine**

If no previous documented doses of poliomyelitis vaccine have been given, give 3 doses of IPV or IPV-containing vaccines at least 4 weeks apart. (Previous doses of OPV are interchangeable with IPV.)

If the third dose of IPV is administered before 4 years of age, give the fourth (booster) dose at either the 4th birthday or 4 weeks after the third dose, whichever is later. If the third dose is given after the 4th birthday, a fourth dose is not required. However, if the use of combination vaccines is necessary, a further IPV-containing dose may be given.

- **Rotavirus vaccine**

Infants should commence the course of rotavirus vaccination within the recommended age limits for the first dose, that is by either 12 or 14 weeks of age depending on the vaccine to be used. It is recommended that vaccine doses are not given beyond the upper age limits specified in Table 3.18.1, Chapter 3.18, *Rotavirus*.

- **Varicella vaccine**

If a child receives varicella vaccine at < 12 months of age, a further dose should be given at 18 months of age.

Table 1.3.8: Recommendations for Hib catch-up vaccination for children <5 years of age when doses have been delayed or missed

Previous vaccination history	Age at presentation	Type of Hib vaccine to be used	1st dose	2nd dose	3rd dose	Booster dose
0 doses	3–6 months	PRP-OMP	Give now	1 month later	Not needed	12 months of age
		PRP-T	Give now	1 month later	1–2 months later	12 months of age
	7–11 months	PRP-OMP	Give now	2 months later	Not needed	12 months of age or 2 months after 2 nd dose (whichever is later)
		PRP-T	Give now	2 months later	Not needed	12 months of age or 2 months after 2 nd dose (whichever is later)
	12–14 months	PRP-OMP	Give now	Not needed	Not needed	2 months later
		PRP-T	Give now	Not needed	Not needed	18 months of age
15–59 months	PRP-OMP or PRP-T	Give now	Not needed	Not needed	Not needed	
1 previous dose (given at least 4 weeks previously)	3–6 months	PRP-OMP	PRP-OMP previously given	Give now	Not needed	12 months of age
		PRP-T	Either PRP-OMP or PRP-T previously given	Give now	1–2 months later	12 months of age
	7–14 months	PRP-OMP or PRP-T	Previously given	Give now	Not needed	12 months of age or 2 months after 2 nd dose (whichever is later)
	15–59 months	PRP-OMP or PRP-T	Previously given	Not needed	Not needed	Give now*
2 previous doses of PRP-OMP	12–59 months	PRP-OMP or PRP-T	Previously given	Previously given	Not needed	At least 2 months after last dose*
2 previous doses of PRP-T (or 1 of each of PRP-OMP and PRP-T)	7–14 months	PRP-OMP or PRP-T	Previously given	Previously given	At least 1 month after last dose	12–18 months of age, at least 2 months after last dose
	15–59 months	PRP-OMP or PRP-T	Previously given	Previously given	Not needed	At least 2 months after last dose*

*A booster dose is not needed if the last previous dose was given at >15 months of age.

Table 1.3.9: Recommendations for pneumococcal catch-up vaccination for low-risk children (including Indigenous children living in ACT, NSW, VIC and TAS) <2 years of age, when doses have been delayed or missed

CATEGORY	Previous doses of 7vPCV	Age at presentation	1st dose 7vPCV	2nd dose 7vPCV	3rd dose 7vPCV
All non-Indigenous children and Indigenous children living in ACT, NSW, VIC and TAS	None	3–6 months	Give now	1 month later	1–2 months later*
		7–17 months	Give now	1–2 months later*	Not needed
		18–23 months	Give now	Not needed	Not needed
	1 previous dose (given at least 4 weeks previously)	5–11 months	Previously given	Give now	1–2 months later*
		12–23 months	Previously given	Give now	Not needed
	2 doses	7–11 months	Previously given	Previously given	Give now
		12–23 months	Previously given	Previously given	Not needed

* Catch-up doses of 7vPCV can be given a minimum of 1 month apart to infants aged <12 months. For children aged ≥12 months, there should be a 2 month interval between doses of 7vPCV.

Table 1.3.10: Recommendations for pneumococcal catch-up vaccination for Indigenous children <2 years of age in NT, QLD, SA and WA, when doses have been delayed or missed

CATEGORY	Previous doses of 7vPCV	Age at presentation	1st dose 7vPCV	2nd dose 7vPCV	3rd dose 7vPCV	23vPPV*
Indigenous children living in NT, QLD, SA and WA	None	3–6 months	Give now	1 month later	1–2 months later†	18–24 months of age
		7–17 months	Give now	1–2 months later†	Not needed	18–24 months of age or 2 months after 2 nd dose of 7vPCV (whichever is later)
		18–23 months	Give now	Not needed	Not needed	18–24 months of age or 2 months after 1 st dose of 7vPCV (whichever is later)
	1 dose (given at least 4 weeks previously)	5–11 months	Previously given	Give now	1–2 months later†	18–24 months of age
		12–23 months	Previously given	Give now	Not needed	18–24 months of age or 2 months after 2 nd dose of 7vPCV (whichever is later)
	2 doses	7–11 months	Previously given	Previously given	Give now	18–24 months of age
		12–23 months	Previously given	Previously given	Not needed	18–24 months of age or 2 months after 2 nd dose of 7vPCV (whichever is later)

* The timing of 23vPPV varies between States and Territories. Contact your State or Territory health authority for the appropriate timing.

† Catch-up doses of 7vPCV can be given a minimum of 1 month apart to infants aged <12 months. For children aged ≥12 months, there should be a 2 month interval between doses of 7vPCV.

Table 1.3.11: Recommendations for pneumococcal catch-up vaccination for children ≤5 years of age* with underlying medical conditions

CATEGORY	Previous doses of 7vPCV	Age at presentation	1st dose 7vPCV	2nd dose 7vPCV	3rd dose 7vPCV	Booster dose 7vPCV	23vPPV
Children ≤5 years of age with underlying medical conditions	None	3–6 months	Give now	1 month later	1–2 months later†	12 months of age	4–5 years of age
		7–11 months	Give now	1–2 months later†	Not needed	12 months of age or 2 months after 2 nd dose of 7vPCV (whichever is later)	4–5 years of age
		12–59 months	Give now	2 months later	Not needed	Not needed	4–5 years of age or 2 months after 2 nd dose of 7vPCV (whichever is later)
	1 dose	5–6 months	Previously given	Give now	1 month later	12 months of age	4–5 years of age
		7–11 months	Previously given	Give now	Not needed	12 months of age or 2 months after 2 nd dose of 7vPCV (whichever is later)	4–5 years of age
		12–59 months	Previously given	Give now	Not needed	Not needed	4–5 years of age or 2 months after 2 nd dose of 7vPCV (whichever is later)
	2 doses	7–11 months	Previously given	Previously given	Give now	12 months of age or 2 months after 3 rd dose of 7vPCV (whichever is later)	4–5 years of age
		12–59 months	Previously given	Previously given	Give now	Not needed	4–5 years of age or 2 months after 3 rd dose of 7vPCV (whichever is later)
	3 doses	12–59 months	Previously given	Previously given	Previously given	Give now	4–5 years of age or 2 months after booster dose of 7vPCV (whichever is later)

* Children up to the age of 10 years who, after the 6th birthday, develop asplenia, HIV infection, or a haematological malignancy, or who receive a transplant, should receive 2 doses of 7vPCV 2 months apart, and a dose of 23vPPV 2 months later. If these children need catch-up doses of 7vPCV, the recommendations are the same as for the 12–59 month age-group in Table 1.3.11, with a dose of 23vPPV 2 months after the last dose of 7vPCV. See Chapter 3.15, *Pneumococcal disease* recommendations and Table 3.15.1

† Catch-up doses of 7vPCV can be given a minimum of 1 month apart to infants aged <12 months. For children aged ≥12 months, there should be a 2 month interval between doses of 7vPCV.

Catch-up schedules for children ≥ 8 years of age, adolescents and adults

Catch-up is much less commonly required for these age groups than for young children. Nevertheless, issues surrounding booster doses or revaccinations are common, particularly in adults. People who escaped natural infection as children and were not vaccinated remain at unnecessary risk of vaccine-preventable diseases.

If a vaccine course is incomplete, never start the course again, regardless of the interval since the last dose.

Recommendations on vaccination for adults at occupational risk or in a special risk group can be found in Chapter 2.3, *Groups with special vaccination requirements*.

Use Table 1.3.12 to determine:

- how many doses of a particular vaccine a person should have received to be considered completely vaccinated (column 2: Doses required),
- deduct any previous doses of the vaccine from that number, and
- go to the appropriate minimum interval column.

For example, a 32-year-old woman who has received only 1 dose of hepatitis B vaccine, 4 doses of the oral poliomyelitis vaccine, 1 dose of MMR vaccine and 2 doses of DTPw as a child, would require:

- 2 adult doses of hepatitis B, 1 dose given now and a further dose in 8 weeks,
- 1 dose of dT (preferably given as dTpa),
- no further doses of poliomyelitis vaccine (is fully vaccinated against poliomyelitis),
- varicella vaccine if non-immune,
- 1 dose of MMR vaccine.

Where several vaccines are required, eg. dTpa, hepatitis B and poliomyelitis vaccines, *never* use the available childhood combination vaccines as the antigen content differs and may result in a severe adverse event. The childhood combination vaccines are not registered for use in children aged ≥ 8 years, adolescents or adults.

Table 1.3.12: Catch-up schedules for individuals ≥8 years of age

Vaccine		Doses required	Minimum interval between Dose 1 & 2	Minimum interval between Dose 2 & 3
dT (dTpa*)		3 doses	4 weeks	4 weeks
Hepatitis B	Aged 8–19 years	3 paediatric doses	4 weeks	8 weeks
Hepatitis B	Aged 11–15 years only	2 adult doses	4–6 months	Not required
Hepatitis B	Aged ≥20 years	3 adult doses	4 weeks	8 weeks
IPV		3 doses	4 weeks	4 weeks
Human papillomavirus (females aged 10–26 years only)		3 doses	4 weeks	3 months
MMR		2 doses	4 weeks	Not required
Varicella vaccine†		At least 1 dose if aged <14 years	If 2nd dose given, a 4 week interval is required	Not required
		2 doses if aged ≥14 years	4 weeks	Not required

* One of the doses should be given as dTpa (or dTpa-IPV if poliomyelitis vaccination is also needed) and complete the course with dT. In the unlikely event that dT is *not* available, dTpa or dTpa-IPV may be used for all 3 primary doses *but this is not routinely recommended as there are no data on the safety, immunogenicity or efficacy of dTpa for primary vaccination* (see also Chapter 3.14, *Pertussis*).

† Varicella vaccine should be given to either non-immune people or people with no history of previous varicella infection. At least 1 dose should be given to those aged <14 years, and all must receive 2 doses if aged ≥14 years.

References

Full reference list available on the electronic *Handbook* or website <http://immunise.health.gov.au>.