

Table 3: Recommendations* for Interrupted or Delayed Routine Immunization - Summary of WHO Position Papers

Antigen		Age of 1st Dose	Doses in Primary Series (min interval between doses)**	Interrupted primary series***	Doses for those who start vaccination late		Booster
					If ≤ 12 months of age	If > 12 months of age	
Recommendations for all immunization programmes							
BCG 1		As soon as possible after birth	1 dose	NA	1 dose	1 dose	Not recommended
Hepatitis B 2		As soon as possible after birth (<24h)	Birth dose <24 hrs plus 2-3 doses with DTPCV (4 weeks)	Resume without repeating previous dose	3 doses	3 doses	Not recommended
Polio 3	bOPV + IPV	bOPV 6 weeks IPV 14 weeks (preferred) bOPV 6 weeks IPV 6 weeks (early option)	5 [3 bOPV (min 4 weeks) & 2 IPV (min 8 weeks)]	Resume without repeating previous dose	5 doses (if >3 months old IPV to be given with 1 st & 3 rd dose of bOPV)	5 doses (IPV to be given with 1 st dose & 3 rd dose of bOPV)	Not recommended
	IPV / bOPV Sequential	8 weeks (IPV 1 st) bOPV (4-8 weeks after 2 nd IPV)	4 (2 IPV followed by ≥ 2 bOPV) (min 4-8 weeks)		2 doses of IPV followed by 2 doses of bOPV	2 doses of IPV followed by 2 doses of bOPV	Not recommended
	IPV -only	6-8 weeks	3 (min 4-8 weeks)		3 doses	3 doses	If 1 st dose given at 6 weeks of age booster to be given ≥ 6 months after the 3 rd dose
	Alternative IPV-only (fractional permitted)	≥14 weeks	2 (min 4-8 weeks)		2 doses	2 doses	Not recommended
DTP-containing vaccine (DTPCV) 4		6 weeks (min)	3 doses (4 weeks)	Resume without repeating previous dose	3 doses	3 doses with interval of at least 4 weeks between 1 st & 2 nd dose, and at least 6 mos between 2 nd & 3 rd dose (if > 7 yrs use only aP containing vaccine; if > 4 yrs Td containing vaccine is preferred and should only be used for >7 yrs)	3 boosters: 12-23 months (DTP-containing vaccine); 4-7 years (Td/DT containing vaccine), see footnotes; and 9-15 yrs (Td containing) (if > 7 yrs use only aP containing vaccine) If tetanus vaccination started during adolescence or adulthood only 5 doses required for lifelong protection
Haemophilus influenzae type b 5	Option 1	6 weeks (min)	3 doses (4 weeks)	Resume without repeating previous dose	3 doses	1 dose >5 yrs not recommended if healthy	None
	Option 2		2-3 doses (8 weeks if 2 doses; 4 weeks if 3 doses)		2-3 doses		At least 6 months (min) after last dose
Pneumococcal (Conjugate) 6		6 weeks (min)	3 doses (3p+0) with DTPCV (4weeks) or 2 doses (2p+1) (8 weeks)	Resume without repeating previous dose	2-3 doses	12-24 months: 2 doses 2-5 yrs: 1 dose 1-5 yrs at high-risk: 2 doses	Booster at 9-18 months if following 2 dose schedule Another booster if HIV+ or preterm neonate Vaccination in older adults
Rotavirus 7		6 weeks (min)	2 or 3 depending on product given with DTPCV	Resume without repeating previous dose	2 or 3 depending on product	>24 months limited benefit	Not recommended if > 24 months old
Measles 8		9 or 12 months (6 months min, see footnote)	2 doses (4 weeks)	Resume without repeating previous dose	2 doses	2 doses	Not recommended
Rubella 9		9 or 12 months	1 dose with measles containing vaccine	NA	1 dose	1 dose	Not recommended
HPV 10		As soon as possible from 9 years of age (females)	1-2 doses (6-12 months)	Resume without repeating previous dose	NA	Girls: 9-14 years 1-2 doses (see footnote)	Not recommended

* For some antigens the WHO position paper does not provide a recommendation on interrupted or delayed schedules at this present time. When the position paper is next revised this will be included. In the meantime, some of the recommendations are based on expert opinion.

** See Table 2: Summary of WHO Position Papers - Recommended Routine Immunizations for Children for full details (www.who.int/immunization/documents/positionpapers/).

*** Same interval as primary series unless otherwise specified.

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Antigen		Age of 1st Dose	Doses in Primary Series (min interval between doses)**	Interrupted primary series***	Doses for those who start vaccination late		Booster Dose
					If ≤ 12 months of age	If > 12 months of age	
Recommendations for certain regions							
Japanese Encephalitis 11	Inactivated Vero cell-derived vaccine	6 months	2 (4 weeks) generally	Resume without repeating previous dose	2 doses (generally)	2 doses (generally)	Not recommended
	Live attenuated	8 months	1	NA	1 dose	1 dose	
	Live recombinant vaccine	9 months	1	NA	1 dose	1 dose	
Yellow Fever 12		9-12 months	1 dose with measles containing vaccine	NA	1 dose	1 dose	Not recommended
Tick-Borne Encephalitis 13	FSME-Immun & Encepur	≥ 1 yr	3 doses (1 st to 2 nd 1-3 mos; 2 nd to 3 rd 12 mos)	Resume without repeating previous dose	3 doses	3 doses	At least 1 booster
	TBE_Moscow & EnceVir	≥ 3 yr	3 doses (1 st to 2 nd 1-7 mos; 2 nd to 3 rd 12 mos)	Resume without repeating previous dose	3 doses	3 doses	Every 3 years
Recommendations for some high-risk populations							
Typhoid 14	TCV-Typbar	>6 months	1 dose	NA	1 dose	1 dose	Every 3 years
	Vi PS	2 years (min)	1 dose	NA	Not recommended	1 dose	
	Ty21a	Capsules 6 years (min) (see footnote)	3-4 doses (1 day) (see footnote)	If interruption between doses is < 21 days resume without repeating previous dose; If > 21 days restart primary series	Not recommended	> 6 yrs: 3-4 doses	
Cholera 15	Dukoral (WC-rBS)	2 years (min)	2-5 yrs: 3 doses ≥ 6 yrs: 2 doses (≥ 7 days)	If interval since last dose ≥ 6 weeks restart primary series	Not recommended	2-5 yrs: 3 doses > 6 yrs: 2 doses	2-5 yrs: every 6 months. If booster is delayed > 6 months the primary series must be repeated. >6 yrs: every 2 years. If booster is delayed > 2 yrs the primary series must be repeated.
	Shanchol, Euvchol and mORCVAX	1 year (min)	2 doses (2 weeks)	Resume without repeating previous dose	Not recommended	2 doses	After 2 years
Meningococcal 16	MenA conjugate	9-18 months	1	NA	2 doses if < 9 months with 8 week interval	1	Not recommended
	MenC conjugate	2-11 months	2 (8 weeks min)	Resume without repeating previous dose	2 doses	1 dose	2-11 months of age after 1 year
		>12 months	1	NA			
	Quadrivalent conjugate	9-23 months	2 (12 weeks min)	Resume without repeating previous dose	2 doses	1 dose	
		≥ 2 years	1	NA			

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					If ≤ 12 months of age	If > 12 months of age	
Hepatitis A 17	Inactivated	> 12 months	1 or 2	Resume without repeating previous dose	Not recommended	1 or 2	Not recommended
	Live attenuated	18 months	1			1	
Rabies 18		As required	2 (1 st to 2 nd 7 days)	Resume without repeating previous dose	2 doses	2 doses	Only if occupation puts a frequent or continual risk of exposure, titres should be tested if possible
Dengue (CYD-TDV) 19		9 years (min)	3 doses (6 months)	Resume without repeating dose	Not recommended	3 doses ≥ 9 years	Not recommended
Malaria (RTS,S) 20		>5 months	4 doses (4 weeks)	Resume without repeating previous dose	4 doses	4 doses	
Recommendations for immunization programmes with certain characteristics							
Mumps 21		12-18 months	2 doses with measles containing vaccine (4 weeks)	Resume without repeating previous dose	Not recommended	2 doses	Not recommended
Seasonal influenza (inactivated tri- and quadri-valent) 22		6 months (min)	2 (6 month to 8 years) 1(≥ 9 years)	Resume without repeating previous dose	2 doses	2 (6 month to 8 years) 1(≥ 9 years)	Revaccinate annually 1 dose only
Varicella 23		12-18 months	1-2 (4 weeks – 3 months, depending on manufacturer)	Resume without repeating previous dose	Not recommended	1-2 doses	

Summary Table 3 - Notes

- The attached table summarizes the WHO recommendations for interrupted or delayed routine vaccination. Its purpose is to assist national decision-makers and programme managers to develop appropriate policy guidance in relation to their national immunization schedule.
- This table is designed to be used together with two other summary tables - Table 1: Summary of WHO Position Papers - Recommendations for Routine Immunization; and Table 2: Summary of WHO Position Papers - Recommended Routine Immunization for Children.
- Vaccines can generally be co-administered (i.e. more than one vaccine given at different sites during the same visit). Recommendations that explicitly endorse co-administration are indicated in the footnotes. Lack of an explicit co-administration recommendation is often due to a lack of evidence and does not necessarily imply that the vaccine cannot be co-administered. Exceptions to co-administration are stated.
- Refer to <http://www.who.int/immunization/positionpapers/> for the most recent version of this table (and Tables 1 and 2) and position papers.

¹ BCG

- Position paper reference: [Weekly Epid. Record \(2017, 92:369-392\)](#) [pdf 660KB]
- BCG vaccination is recommended for unvaccinated TST- or IGRA-negative older children, adolescents and adults from settings with high incidence of TB and/or high leprosy burden and those moving from low to high TB incidence/ leprosy burden settings.

² Hepatitis B

- Position paper reference: [Weekly Epid. Record \(2017, 92:369-392\)](#) [pdf 2.4MB]
- In general, the dose for infants and children (aged < 15 years) is half the recommended adult dose.
- Co-administration of HepB vaccine does not interfere with the immune response to any other vaccine and vice versa.
- If delayed or interrupted scheduling of vaccination for children, adolescents and adults, 3 doses are recommended, with the second dose administered at least 1 month after the first, and the third dose 6 months after the first dose. If the vaccination schedule is interrupted it is not necessary to restart the vaccine series.

³ Polio

- Position paper reference: [Weekly Epid. Record \(2022, 97:277-300\)](#) [pdf 589KB]

bOPV plus IPV

- For infants late in starting the routine immunization schedule (age >3 months) the first IPV dose should be administered at the first immunization contact along with bOPV and the other routinely recommended vaccines.

Sequential IPV–bOPV

- For sequential IPV– bOPV schedules, WHO recommends that the first dose of IPV be given starting from 8 weeks of age with an interval of 4–8 weeks before administration of the second IPV dose. This should be followed by at least 2 doses of bOPV separated by 4–8 weeks depending on the risk of exposure to poliovirus in early childhood.

IPV-only

- A primary 3-dose series of IPV administered beginning at 6 or 8 weeks of age, with a minimum 4 week interval between doses, is recommended.
- If the primary series begins at 6 weeks, a booster dose should be given 6 months or more after the third dose.
- Alternatively, a 2-dose or fractional dose IPV schedule, starting at 14 weeks of age or older, with a second dose 4 months or more later can be considered. This schedule is currently recommended for use after OPV cessation.
- While both options provide high immunogenicity (>90%), the 3 dose primary series provides protection in early infancy.

⁴ DTP-containing vaccines (Diphtheria, Tetanus and Pertussis)

- Position paper reference: Diphtheria - [Weekly Epid. Record \(2017, 92:417-436\)](#) [pdf 526KB];
- Tetanus - [Weekly Epid. Record \(2017, 92: 53-76\)](#) [pdf 636KB]; Pertussis - [Weekly Epid. Record \(2015, 90: 433-460\)](#) [pdf 667KB]
- If either the start or the completion of the primary series has been delayed, the missing doses should be given at the earliest opportunity with an interval of at least 4 weeks between doses.
- 3 booster doses of diphtheria toxoid-containing vaccine should be provided during childhood and adolescence. The diphtheria booster doses should be given in combination with tetanus toxoid using the same schedule, i.e at 12–23 months of age, 4–7 years of age, and 9–15 years of age, using age-appropriate vaccine formulations. Ideally, there should be at least 4 years between booster doses.
- Tetanus - To ensure lifelong protection against tetanus all people should receive 6 doses (3 primary plus 3 booster doses) of tetanus toxoid-containing vaccine (TTCV) through routine childhood immunization schedules.
- If tetanus vaccination is started during adolescence or adulthood, a total of only 5 appropriately spaced doses are required to obtain lifelong protection.
- To provide and sustain both tetanus and diphtheria immunity throughout the life course and for both sexes, age-appropriate combinations of tetanus and diphtheria toxoids should be used. For children <7 years of age DTWP or DTaP combinations may be used. For children aged 4 years and older Td containing vaccine may be used and is preferred.
- From 7 years of age only Td combinations should be used. Age-appropriate combinations containing pertussis vaccine with low-dose diphtheria antigen are also available.
- Pregnant women and their newborn infants are protected from birth-associated tetanus if the mother received either 6 TTCV doses during childhood or 5 doses if first vaccinated during adolescence/adulthood (documented by card, immunization registry and/or history) before the time of reproductive age. Vaccination history should be verified in order to determine whether a dose of TTCV is needed in the current pregnancy.
- Pertussis vaccine: Only aP-containing vaccines should be used for vaccination of persons aged ≥7 years.
- Pertussis containing booster: A booster dose is recommended for children aged 1–6 years, preferably during the second year of life (≥6 months after last primary dose), unless otherwise indicated by local epidemiology; the contact could also be used to catch up on any missed doses of other vaccines. This schedule should provide protection for at least 6 years for countries using wP vaccine. For countries using aP vaccine, protection may decline appreciably before 6 years of age.
- Delayed or interrupted DTP-containing series: For children whose vaccination series has been

interrupted, the series should be resumed without repeating previous doses. Children aged 1 to < 7 years who have not previously been vaccinated should receive 3 doses of vaccine following a 0, 1, 6 month schedule. Two subsequent booster doses using Td or Tdap combination vaccines are needed with an interval of at least 1 year between doses.

5 Haemophilus influenzae type b (Hib)

- Position paper reference: [Weekly Epid. Record \(2013, 88: 413-428\)](#) [pdf 209KB]
- The number of primary doses should be set after consideration of the local epidemiology, vaccine presentation (Hib conjugate monovalent vaccine versus Hib conjugate vaccine in combination with other antigens) and how this fits into the overall routine immunization schedule.
- If the vaccination course has been interrupted, the schedule should be resumed without repeating the previous dose. Children who start vaccination late, but are aged under 12 months, should complete the vaccination schedule (e.g. have 3 primary doses or 2 primary doses plus a booster).
- When a first dose is given to a child older than 12 months of age, only one dose is recommended.
- Hib vaccine is not required for healthy children after 5 years of age.

6 Pneumococcal (Conjugate)

- Position Paper Reference: [Weekly Epid. Record \(2019, 94: 85-104\)](#) [pdf 444KB]
- For administration of PCV to infants, WHO recommends a 3-dose schedule administered either as 2p+1 or as 3p+0, starting as early as 6 weeks of age.
- If the 2p+1 schedule is selected, an interval of ≥8 weeks is recommended between the 2 primary doses the booster dose should be given at 9–18 months of age, according to programmatic considerations; there is no defined minimum or maximum interval between the primary series and the booster dose.
- If the 3p+0 schedule is used, a minimum interval of 4 weeks should be maintained between doses.
- Interrupted schedules should be resumed without repeating the previous dose.
- If a series cannot be completed with the same type of vaccine, the available PCV product should be used. Restarting a series is not recommended, even for the primary series.
- Wherever possible, catch-up vaccination at the time of introduction of PCV should be used to accelerate its impact on disease in children aged 1–5 years, particularly in settings with a high disease burden and mortality. If there is limited availability of vaccine or of financial resources for catch-up vaccination, the youngest children (e.g. < 2 years of age) should be prioritized to receive catch-up doses of PCV because of their higher risk for pneumococcal disease.
- Catch-up vaccination can be done with a single dose of vaccine for children ≥24 months
- Unvaccinated children aged 1–5 years who are at high risk for pneumococcal infection because of underlying medical conditions, such as HIV infection or sickle-cell disease, should receive at least 2 doses separated by at least 8 weeks.
- WHO does not currently have recommendations on the use of PCV in individuals over 5 years of age.

7 Rotavirus

- Position paper reference: [Weekly Epid. Record \(2013, 88: 49-64\)](#) [pdf 950KB]
- Early immunization is favoured with the first dose of rotavirus vaccine to be administered from 6 weeks of age, however, in order to benefit those who may come late infants can receive doses without age restriction. Because of the typical age distribution of rotavirus gastroenteritis (RVGE), rotavirus vaccination of children >24 months of age is not recommended.
- Regardless of the duration of delay, interrupted schedules should be resumed as soon as possible without repeating previous doses.
- Rotavirus vaccinations can be administered simultaneously with other vaccines in the infant immunization programme.

8 Measles

- Position paper reference: [Weekly Epid. Record \(2017, 92:205-228\)](#) [pdf 600KB].
- Reaching all children with 2 doses of measles vaccine should be the standard for all national immunization programmes. In addition to the first routine dose of MCV1, all countries should add a second routine dose of MCV2 to their national immunization schedules regardless of the level of MCV1 coverage.
- Regardless of the duration of delay, interrupted schedules should be resumed as soon as possible without repeating previous doses.
- Because many cases of measles occur in children aged >12 months who have not been vaccinated, routine delivery of MCV1 should not be limited to infants aged 9–12 months and routine delivery of MCV2 should not be limited to infants 15 to 18 months of age. Every opportunity (e.g. when children come into contact with health services) should be taken to vaccinate all children that missed one or both MCV routine doses, particularly those under 15 years of age. Policies which prohibit use of vaccine in children >1 year of age, older children and teenagers should be changed to allow these individuals to be vaccinated.
- The minimum interval between MCV1 and MCV2 is 4 weeks.

9 Rubella

- Position paper reference: [Weekly Epid. Record \(2020, 86: 301-316\)](#) [pdf 413KB]
- Because rubella is not as highly infectious as measles and because the effectiveness of 1 dose of an RCV is > 95% even at 9 months of age, only 1 dose of rubella vaccine is required to achieve rubella elimination if high coverage is achieved. However, when combined with measles vaccination, it may be easier to implement a second dose of RCV's using the same combined MR vaccine or MMR vaccine for both doses.
- RCV's can be administered concurrently with inactivated vaccines. As a general rule, live vaccines should be given either simultaneously with RCV's, or at least 4 weeks apart. An exception to this is oral polio vaccine, which can be given at any time before or after RCV's without interfering in the response to either vaccine.
- Interference may occur between MMR and yellow fever vaccines if they are simultaneously administered to children < 2 years of age.
- Because of a theoretical, but never demonstrated, teratogenic risk rubella vaccination in pregnant women should be avoided in principle, and those planning a pregnancy are advised to avoid pregnancy for 1 month following vaccination.
- Administration of blood or blood products before or shortly after vaccination may interfere with

vaccine efficacy. If using only rubella vaccines persons who received blood products should wait at least 3 months before vaccination and, if possible, blood products should be avoided for up to 2 weeks post-vaccination. Vaccinated persons are not eligible to donate blood for 1 month after vaccination.

10 Human Papillomavirus (HPV)

- Position paper reference: [Weekly Epid. Record \(2022, 97: 645-672\)](#) [pdf 590KB]
- The current evidence supports the recommendation that a 2-dose schedule be used in the primary target group from 9 years of age and for all older age groups for which HPV vaccines are licensed.
- The minimum interval between first and second dose is 6 months. A 12-month schedule results in higher GMTs and is suggested for programmatic and efficiency reasons.
- There is no maximum recommended interval between doses and longer intervals – up to 3 or 5 years – can be considered if useful from a programme perspective.
- Alternative single-dose schedule: As an off-label option, a single-dose schedule can be used in girls and boys aged 9–20 years. Current evidence suggests that a single dose has comparable efficacy and duration of protection as a 2-dose schedule and may offer programme advantages, be more efficient and affordable, and contribute to improved coverage. From a public health perspective, the use of a single dose schedule can offer substantial benefits that outweigh the potential risk of a lower level of protection if efficacy wanes over time, although there is no current evidence of this.
- Individuals known to be immunocompromised or HIV-infected (regardless of age or antiretroviral therapy status) should receive at least two HPV vaccine doses (minimum 6 months interval) and, where possible, three doses.
- HPV vaccines can be co-administered with other non-live and live vaccines using separate syringes and different injection sites. Co-administration of a booster dose of tetanus-diphtheria (Td) vaccination should be considered to improve programme efficiency and avoid missed opportunities to receive needed vaccinations.
- As a precaution HPV vaccine is not recommended in pregnancy. If pregnancy occurs following the first dose of vaccination, the subsequent dose should be delayed until after the pregnancy. Termination of pregnancy is not indicated if vaccination was carried out inadvertently during pregnancy. Breastfeeding is not a contraindication for HPV vaccination.

11 Japanese Encephalitis (JE)

- Position paper reference: [Weekly Epid. Record \(2015, 90: 69-88\)](#) [pdf 950 KB].
- The following vaccine dosing schedules and age of administration are recommended. The need for a booster dose in endemic settings has not been clearly established for any of the vaccines listed below:
 - Inactivated Vero cell-derived vaccine: Primary series according to manufacturer's recommendations (these vary by product), generally 2 doses at 4-week intervals starting the primary series at ≥6 months of age in endemic setting
 - Live attenuated vaccine: Single dose administered at ≥8 months of age
 - Live recombinant vaccine: Single dose administered at ≥9 months of age
- Despite a lack of comprehensive immunogenicity/effectiveness and safety data for all possible combinations of JE and other routine vaccines, co-administration for programmatic reasons seems acceptable, even in the context of mass campaigns.

- Regardless of the duration of delay, interrupted schedules should be resumed as soon as possible without repeating previous doses.

12 Yellow Fever

- Position paper reference: [Weekly Epid. Record \(2013, 88: 269-284\)](#) [pdf 1.24MB]
- A single dose of YF vaccine is sufficient to confer sustained life-long protective immunity against YF disease; a booster dose is not necessary.
- The vaccine is contraindicated in children aged < 6 months and is not recommended for those aged 6-8 months, except during epidemics when the risk of infection with the YF virus is very high. Other contraindications for YF vaccination are severe hyper-sensitivity to egg antigens and severe immunodeficiency.
- YF vaccine may be administered simultaneously with other vaccines

13 Tick-Borne Encephalitis (TBE)

- Position paper reference: [Weekly Epid. Record \(2011, 86: 241-256\)](#) [pdf 318KB]
- Regardless of the duration of delay, interrupted schedules should be resumed as soon as possible without repeating previous doses.

14 Typhoid

- Position paper reference: [Weekly Epid. Record \(2018, 93: 153-172\)](#) [pdf 297KB].
- TCV is recommended for infants and children from 6 months of age and in adults up to 45 years. Administration of TCV at the same time as other vaccine visits at 9 month of age or in the second year of life is encouraged. ViPS – single dose from 2 years of age. Ty21a is recommended as 3-doses to be administered orally every second day from 6 years of age.
- Regardless of the duration of delay, interrupted schedules should be resumed as soon as possible without repeating previous doses.
- Typhoid vaccination is recommended in response to confirmed outbreaks of typhoid fever and may be considered in humanitarian emergency settings depending on the risk assessment in the local setting.
- The potential need for revaccination with TCV is currently unclear. Revaccination is recommended every 3 years for ViPS, and every 3-7 years for Ty21a.

15 Cholera

- Position paper reference: [Weekly Epid. Record \(2017, 92:477-500\)](#) [pdf 676KB]
- Regardless of the duration of delay, interrupted schedules should be resumed as soon as possible without repeating previous doses.
- Revaccination is recommended where there is continued risk of *V. cholerae* infection. For WC vaccines revaccination is recommended after 3 years. For WC-rBS vaccine: children age 2-5 years revaccination is recommended within 6 months. If less than 6 months have passed, 1 dose for revaccination. If more than 6 months have passed, the primary series of 3 doses should be repeated. For those aged ≥6 years of age, if less than 2 years have passed, 1 dose

for revaccination. If more than 2 years have passed, the primary series of 2 doses should be repeated.

- For control of cholera outbreaks vaccination should be considered to help prevent the spread to new areas. For vaccination campaigns, a single-dose strategy using WC vaccines (Shanchol, Euvchol or mORCVAX) could be considered in areas experiencing cholera outbreaks.

16 Meningococcal

- Position paper reference: [Weekly Epid. Record \(2011, 86: 521-540\)](#) [pdf 1.1MB] and Update for MenA conjugate [Weekly Epid. Record \(2015, 90: 57-68\)](#) [pdf 852KB]
- MenA conjugate vaccine (5µg) a 1-dose schedule is recommended at 9-18 months of age based on local programmatic and epidemiologic considerations.
- MenA conjugate vaccine (10 µg) should be used for catch-up and periodic campaigns from 12 months of age onwards.
- There is no reason to expect interference when co-administered with other vaccines. The need for a booster dose has not been established.
- If in a specific context there is a compelling reason to vaccinate infants younger than 9 months, a 2-dose schedule should be used starting at 3 months of age, with an interval of at least 8 weeks between doses.
- For monovalent MenC conjugate vaccine one single intramuscular dose is recommended for children aged ≥12 months, teenagers and adults. Children 2-11 months require 2 doses administered at an interval of at least 2 months and a booster about 1 year after.
- If the primary series is interrupted, vaccination should be resumed without repeating the previous dose.

17 Hepatitis A

- Position paper reference: [Weekly Epid. Record \(2022, 97: 493-512\)](#) [pdf 518.2 KB]
- For children, inactivated hepatitis A vaccines can be given as a single- or 2-dose schedule, and administered intramuscularly. With a 2-dose schedule, the first dose should be given starting from age ≥12 months. The interval between doses is flexible, from 6 months up to 4–5 years or more, but is usually 6–18 months. Data on vaccine effectiveness, antibody persistence, and modelling on long-term seroprotection indicate that an off-label, single dose schedule is equivalent to the two-dose schedule in children, in addition to being less costly and easier to implement.
- For adults aged >40 years, vaccination with inactivated vaccines using the 2-dose schedule is preferred since there is insufficient evidence on the immunogenicity and long-term protection from a single dose in this age group.
- For immunocompromised individuals, until further experience has been obtained with a single-dose schedule, a 2-dose schedule of inactivated vaccine is recommended. Inactivated hepatitis A vaccines should also be considered for use in pregnant women at risk of HAV infection.
- Live attenuated vaccines are licensed for individuals aged ≥18 months and are administered as a single subcutaneous dose. Live attenuated vaccines may pose a theoretical risk to the developing foetus and therefore should not be used during pregnancy, nor should they be used in severely immunocompromised patients.

18 Rabies

- Position paper reference: [Weekly Epid. Record \(2018, 93: 201-220\)](#) [pdf 370 KB].
- If any doses are delayed, vaccination should be resumed, not restarted. A change in the route of administration or in vaccine product during a PEP or PrEP course is acceptable if such a change is unavoidable.

19 Dengue (CYD-TDV)

- Position paper reference: [Weekly Epid. Record \(2108, 93, 457-76\)](#) [pdf 513KB].
- CYD-TDV is recommended as a 3-dose series given 6 months apart. Should a vaccine dose be delayed for any reason, it is not necessary to restart the course and the next dose in the series should be administered as soon as possible.

20 Malaria (RTS,S)

- Position paper reference: [Weekly Epid. Record \(2022, 97: 67-78\)](#) [pdf 577KB]
- WHO recommends that the first dose of vaccine be administered from 5 months of age. There should be a minimum interval of 4 weeks between doses. The vaccine should be administered in a 3-dose primary schedule, with a fourth dose provided approximately 12–18 months after the third dose to prolong the duration of protection.
- There can be flexibility in the schedule to optimize delivery, for example, to align the fourth dose with other vaccines given in the second year of life.
- Children who begin their vaccination series should complete the 4-dose schedule.
- The RTS,S/AS01 vaccine may be administered simultaneously with other vaccines of the childhood immunization programme.

21 Mumps

- Position paper reference: [Weekly Epid. Record \(2007, 82: 49-60\)](#) [pdf 311KB]
- In countries that decide to use mumps vaccine, the combination of mumps vaccine with measles and rubella vaccines is recommended.
- Regardless of the duration of delay, interrupted schedules should be resumed as soon as possible without repeating previous doses.

22 Seasonal Influenza (Inactivated Vaccine)

- Position paper reference: [Weekly Epid. Record \(2022, 97: 185-208\)](#) [pdf 600.1 kB]
- A single dose is appropriate for those ≥ 9 years of age, and healthy adults.
- Live attenuated influenza vaccines (LAIVs) are currently not recommended for children under 2 years of age and adults, including older adults and those with comorbidities, because VE has not been consistently demonstrated in these age groups. Because LAIV is a live-virus vaccine and data on its administration to pregnant women and the associated maternal and fetal risks are limited, LAIV is also not recommended during pregnancy.
- Inactivated influenza vaccine is safe to give throughout pregnancy.

- Children aged 6 months to 8 years should receive 2 doses at least 4 weeks apart.
- Those who have previously been vaccinated at least once should subsequently receive 1 annual dose,
- Co administration of influenza vaccine, including with COVID-19 or live vaccines is acceptable. When 2 vaccines are administered at the same visit, the contralateral limb should be used.

23 Varicella

- Position paper reference: [Weekly Epid. Record \(2014, 89: 265-288\)](#) [pdf 889KB]
- Varicella vaccine can be administered concomitantly with other vaccines. Unless given together with other live viral vaccines (measles, MR, MMR), it should be administered at a minimum interval of 28 days.
- Regardless of the duration of delay, interrupted schedules should be resumed as soon as possible without repeating previous doses.