

# The UK immunisation schedule

**NOTIFIABLE**

## The routine immunisation schedule

The overall aim of the routine immunisation schedule is to provide protection against the following vaccine-preventable infections:

- diphtheria
- Haemophilus influenzae type b (Hib)
- hepatitis B
- human papillomavirus (certain serotypes)
- influenza
- measles
- meningococcal disease (certain serogroups)
- mumps
- pertussis (whooping cough)
- pneumococcal disease (certain serotypes)
- polio
- respiratory syncytial virus (RSV)
- rotavirus
- rubella
- shingles
- tetanus
- varicella (chickenpox)

The routine immunisation schedule from 1 January 2026 is shown in Table 1 below. Significant changes were made to the childhood schedule in July 2025 with the introduction of a new vaccination appointment at 18 months, and in January 2026 with the introduction of the MMRV vaccination.

For older children who were vaccinated under previous schedules please see <https://www.gov.uk/government/publications/the-complete-routine-immunisation-schedule>.

The relevant chapters for each of the vaccine-preventable diseases listed above provide detailed information about the vaccines available and the immunisation programmes for these.

Table 1 Schedule for the UK's routine immunisation programme (excluding catch-up campaigns)

Age due	Diseases protected against	Vaccine given and trade name		Usual site <sup>1</sup>
Eight weeks old	Diphtheria, tetanus, pertussis (whooping cough), polio, <i>Haemophilus influenzae</i> type b (Hib) and hepatitis B	DTaP/IPV/Hib/HepB	Infanrix hexa or Vaxelis	Thigh
	Meningococcal group B (MenB)	MenB	Bexsero	Thigh
	Rotavirus gastroenteritis	Rotavirus <sup>2</sup>	Rotarix <sup>2</sup>	By mouth
Twelve weeks old	Diphtheria, tetanus, pertussis, polio, Hib and hepatitis B	DTaP/IPV/Hib/HepB	Infanrix hexa or Vaxelis	Thigh
	MenB	MenB	Bexsero	Thigh
	Rotavirus	Rotavirus <sup>2</sup>	Rotarix <sup>2</sup>	By mouth
Sixteen weeks old	Diphtheria, tetanus, pertussis, polio, Hib and hepatitis B	DTaP/IPV/Hib/HepB	Infanrix hexa or Vaxelis	Thigh
	Pneumococcal (13 serotypes)	PCV	Prevenar 13	Thigh
One year old (on or after the child's first birthday)	Pneumococcal MenB Measles, mumps, rubella, varicella	PCV MenB MMRV	Prevenar 13 Bexsero ProQuad or Priorix Tetra	Upper arm or thigh
Eighteen months old	Diphtheria, tetanus, pertussis, polio, Hib and hepatitis B Measles, mumps, rubella, varicella	DTaP/IPV/Hib/HepB MMRV	Infanrix hexa or Vaxelis  ProQuad or Priorix Tetra	Upper arm or thigh
Eligible paediatric age groups <a href="http://www.gov.uk/government/collections/annual-flu-programme">http://www.gov.uk/government/collections/annual-flu-programme</a>	Influenza (each year from September)	Live attenuated influenza vaccine LAIV  If LAIV is contraindicated or otherwise unsuitable use inactivated flu vaccine (check Green Book Chapter 19 for details)	Fluenz (Contains porcine gelatine)	Both nostrils
Three years four months old or soon after	Diphtheria, tetanus, pertussis and polio	DTaP/IPV	REPEVAX® or Boostrix®-IPV	Upper arm
Boys and girls aged twelve to thirteen years	Cancers and genital warts caused by specific human papillomavirus (HPV) types	HPV	Gardasil 9	Upper arm

1 Where two or more injections are required at the same time, these should ideally be given in different limbs. Where this is not possible, injections in the same limb should be given at least 2.5cm apart. Intramuscular injection into deltoid muscle in upper arm or anterolateral aspect of the thigh.

2 Rotavirus vaccine should only be given after checking for SCID screening result.

Age due	Diseases protected against	Vaccine given and trade name		Usual site <sup>1</sup>
Fourteen years old (school Year 9)	Tetanus, diphtheria and polio	Td/IPV (check MMR status)	REVAXIS®	Upper arm
	Meningococcal groups A, C, W and Y	MenACWY	MenQuadfi® or Menveo® or Nimenrix®	Upper arm
65 years old	Pneumococcal (23 or 20 serotypes) <sup>3</sup>	Pneumococcal Polysaccharide Vaccine (PPV23) or Pneumococcal conjugate vaccine (PCV20) once PPV23 stock exhausted	Pneumovax 23 or Prevenar20	Upper arm
65 years of age and older	Influenza (each year from September)	Inactivated influenza vaccine	Multiple	Upper arm
Individuals turning 65 from 1 Sept each year (commencing 1 Sept 2023 onwards)	Shingles	Shingles vaccine	Shingrix	Upper arm
70 to 79 years of age (plus eligible age groups and severely immunosuppressed over 18 years of age)	Shingles	Shingles vaccine	Shingrix	Upper arm
75 years of age	Respiratory syncytial virus (RSV)	RSV vaccine	Abrysvo	Upper arm

1 Where two or more injections are required at the same time, these should ideally be given in different limbs. Where this is not possible, injections in the same limb should be given at least 2.5cm apart. Intramuscular injection into deltoid muscle in upper arm or anterolateral aspect of the thigh.

The childhood immunisation schedule has been designed to provide early protection against infections that are most dangerous for the very young. This is particularly important for diseases such as whooping cough, rotavirus and those due to pneumococcal, Hib and meningococcal infections. Providing subsequent booster doses as scheduled should ensure continued protection. Further vaccinations are offered throughout life to provide protection against infections when eligible individuals reach an age where they can derive most benefit (such as because of an increased individual risk) or where the programme will provide optimal control of that disease for the whole population.

Recommendations for the age at which vaccines should be administered are informed by the age-specific risk for a disease, the risk of disease complications, the ability to respond to the vaccine and the impact on spread in the population. The schedule should therefore be followed as closely as possible.

Some individuals may be eligible for additional vaccines due to an underlying medical condition or circumstances that put them at increased risk of catching a vaccine preventable disease or of complications from that disease. These individuals should be vaccinated in accordance with the recommendations in [Chapter 7](#) and the disease specific chapters.

## Seasonal influenza

Those eligible for influenza vaccine (on the basis of age or clinical risk) should be vaccinated each winter, usually from October (from September for children and pregnant women).

It is preferable to vaccinate individuals at this point, prior to the time when the flu virus is likely to circulate (which typically peaks in December or January), as this will provide optimal protection during the highest risk period. However vaccination may still be of some benefit if given to an individual later in the flu vaccination season. The annual letters on the influenza programme should be consulted for age eligibility:

England: [www.gov.uk/government/collections/annual-flu-programme](http://www.gov.uk/government/collections/annual-flu-programme)

Northern Ireland: <https://www.health-ni.gov.uk/topics/hssmd-letters-and-urgent-communications>

Scotland: <https://www.publications.scot.nhs.uk/>

Wales: <https://www.gov.wales/health-circulars-2024-2027#content>

## Schedule flexibility

The schedule recommended by the Joint Committee on Vaccination and Immunisation (JCVI) incorporates the minimum intervals between subsequent doses of the same vaccine. As immunological memory from priming dose(s) is likely to be maintained in healthy individuals, increasing that interval will usually lead to a more pronounced response to the later dose. **Therefore, where any course of immunisation is interrupted, there is normally no need to start the course again – it should simply be resumed and completed as soon as possible.** Where vaccination was commenced some time previously, the product or eligibility may have changed, and the relevant chapter should be consulted.

Immunisations should not be given before the scheduled age unless there is a clear clinical indication for this. The first set of primary immunisations can be given from six weeks of age if required in certain circumstances, such as travel to an endemic country. Routinely administering the first set of primary immunisations before 6 weeks of age is not recommended, as it may result in a sub-optimal response to the vaccine which could undermine good control.

MMR vaccine can be given from six months of age, for example during a local outbreak or if travelling to a high incidence country. MMRV vaccine can be given from nine months of age. Any dose of MMR or MMRV given below the age of one year should be discounted as residual maternal antibodies may reduce the response to the vaccine. Two further doses of MMR-containing vaccine will therefore be required at the appropriate ages.

Delaying primary infant immunisations beyond eight weeks risks leaving babies unprotected against infections that can be very severe in the very young, such as whooping cough. The six to eight week baby check is not required as part of the assessment for immunisation, and so the eight week primary immunisations should never be delayed because of any delay in carrying out this examination. Every effort should be made to

ensure that all children and adults are immunised, even if they are older than the scheduled age; no opportunity to immunise them should be missed. The type of vaccine and number of doses recommended depends on the age of the individual, and some vaccines are not indicated after a certain age. In most instances, the upper age limit is set where the ability to benefit from vaccination is reduced because of lower risk (e.g. whooping cough), or lower effectiveness (e.g. for shingles). The exception is rotavirus vaccine, where vaccination at an older age is more likely to be associated with an adverse event (intussusception) (see [Chapter 27b: Rotavirus](#) for more information).

## Recording of immunisation

Following immunisation, all the patient's clinical records, including the GP-held record and, if a child, the record on the Child Health Information System (CHIS) and the Personal Child Health Record (Red Book), should be updated with all the relevant details in a timely manner (see [Chapter 4](#)).

When babies are immunised in special care units, or children and adolescents are immunised opportunistically in accident and emergency units or inpatient facilities, it is important that a record of the immunisation is entered onto the relevant CHIS and sent to the patient's GP for entry onto the practice-held patient record. In England, vaccinations provided in a maternity setting should be recorded on the NHS Record a Vaccination Service (RAVs) system in addition to the local maternity service system. Details of vaccines given in other areas, such as schools or in pharmacies, should also be sent to the patient's GP.

Where possible, records of immunisation should be requested from children and adults arriving from overseas and entered onto the GP-held record and other clinical records as appropriate. This will enable vaccinators to establish which vaccines are still required and provide reassurance during local outbreaks.

A World Health Organization (WHO) website containing information on current schedules used in several other countries can be accessed to facilitate accurate coding at the following: <https://immunizationdata.who.int/global?topic=Vaccination-schedule&location=>

## Childhood immunisation programme

When children attend for any vaccination, it is important to also check that they are up-to-date with any vaccines that they should have received previously. The table below gives an example checklist at each key stage; doses of those vaccines that have not been received but are still indicated at that age should be caught up. Catch-up doses should be administered as soon as possible but leaving the appropriate intervals as advised in the relevant chapters.

Where a child is identified as being behind with their vaccinations, healthcare professionals should refer to the [vaccination of individuals with uncertain or incomplete immunisation](#) guidance which gives specific advice on what to give and when, depending on the child's age and immunisation history.

Table 2 Routine immunisation schedule vaccination checklist for catch-up at key ages

Key age	Vaccines child should have had or catch-up with
At the age of 12 months	<ul style="list-style-type: none"> <li>● three doses of diphtheria, tetanus, polio, pertussis, Hib and hepatitis B containing vaccines</li> <li>● a single dose of PCV vaccine</li> <li>● two doses of MenB vaccine</li> </ul>
At the age of 24 months	<ul style="list-style-type: none"> <li>● at least three doses of diphtheria, tetanus, pertussis, polio and hepatitis B containing vaccine (children born on or after 1 July 2024 may have received more)</li> <li>● one dose of Hib-containing vaccine given after the age of one year</li> <li>● one dose of PCV vaccine given after the age of one year</li> <li>● either 2 doses of MenB under the age of one and one dose after the age of one year; or 2 doses of MenB after the age of one year</li> <li>● at least one dose of MMR/MMRV after the age of one year (children born on or after 1 July 2024 should have received two doses of an MMR containing vaccine with at least one dose after 18 months of age)</li> </ul>
At school entry	<ul style="list-style-type: none"> <li>● at least four doses of diphtheria, tetanus, pertussis and polio containing vaccine</li> <li>● one dose of Hib-containing vaccine given after the age of one year</li> <li>● at least three doses of hepatitis B-containing vaccine</li> <li>● at least two doses of MMR-containing vaccine (as MMR or MMRV) after the age of one year (with at least one dose having been given over 18 months of age).</li> </ul>
At transfer to secondary school	<ul style="list-style-type: none"> <li>● at least four doses of diphtheria, tetanus and polio containing vaccine</li> <li>● two doses of MMR-containing vaccine after the age of one year (with at least one dose having been given over 18 months of age)</li> </ul>
Before leaving school	<ul style="list-style-type: none"> <li>● at least five doses of diphtheria, tetanus, polio containing vaccine</li> <li>● a single dose of MenACWY vaccine after the age of 10 years</li> <li>● two doses of MMR-containing vaccine</li> <li>● a single dose of HPV vaccine<sup>1</sup></li> </ul>

1. All females remain eligible for HPV vaccine up to their twenty-fifth birthday. All males born on or after 1 September 2006 are eligible up to their twenty-fifth birthday.

## Adult immunisation programme

Five doses of diphtheria, tetanus and polio vaccines at the appropriate interval should ensure long-term protection through adulthood (although additional doses may be indicated for travel or following potential exposure to infection). Individuals who have not completed the five doses should have their remaining doses at the appropriate intervals. Where there is an unclear history of vaccination, adults should be assumed to be unimmunised. A full course of diphtheria, tetanus and polio vaccine should be offered to individuals of any age in line with advice contained in the relevant chapters. It is never too late in life to start a course of these vaccinations.

Measles, mumps and rubella vaccine should be offered to all young adults who have not received two doses as outlined in [Chapter 21](#), [Chapter 23](#) and [Chapter 28](#). In particular, vaccine status should be checked for all women of child-bearing age who should be offered MMR to prevent rubella in pregnancy (MMR should be offered before or after but not during pregnancy). In addition, MenACWY vaccine should be offered to individuals up to the age of 25 years who have not received it, (see [Chapter 22](#)) and HPV should be offered to eligible unvaccinated individuals (see [Chapter 18a](#) for eligibility).

Older adults (65 years and older) should routinely be offered a single dose of pneumococcal vaccine if they have not previously received it. Annual influenza vaccination should be offered from 65 years of age. Adults aged 65 or 70 years (as per the phased roll-out programme) become eligible for shingles vaccine and remain eligible until their 80th birthday. More information on shingles vaccine eligibility is available at: <https://www.gov.uk/government/collections/shingles-vaccination-programme>. Adults should be offered the respiratory syncytial virus (RSV) vaccine when or shortly after they turn 75 years old as outlined in [Chapter 27a](#).

As for children, it is good practice to check the immunisation status of any adults who attend for other reasons. The table below gives an example checklist at certain ages; doses of those vaccines that have not been received but are still indicated at that age should be caught up. Catch-up doses should be administered as soon as possible but leaving the appropriate intervals as advised in the relevant chapters.

**Table 3 Routine immunisation schedule vaccination history at key life stages**

<b>Key stage</b>	<b>Vaccines should have had or catch up with</b>
By 25th birthday	Five doses of diphtheria, tetanus, polio containing vaccine. A single dose of MenACWY vaccine after the age of 10 years. Two doses of MMR vaccine. A single dose of HPV vaccine <sup>1</sup>
By 50th birthday	Five doses of diphtheria, tetanus, polio containing vaccine. Two doses of MMR vaccine.
By 70th birthday	Five doses of diphtheria, tetanus, polio containing vaccine. Two doses of MMR vaccine if requested or if they are considered to be at high risk of exposure. One dose of pneumococcal vaccine Offered flu vaccine every year between October and December
By 80th birthday	Five doses of diphtheria, tetanus, polio containing vaccine. Two doses of MMR vaccine if requested or if they are considered to be at high risk of exposure. One dose of RSV vaccine One dose of pneumococcal vaccine Two doses of shingles vaccine

<sup>1</sup> All females remain eligible for HPV vaccine up to their twenty-fifth birthday. All males born on or after 1 September 2006 are eligible up to their twenty-fifth birthday.

## Selective immunisation programmes

There are a number of selective immunisation programmes for children and adults at particular risk of serious complications from certain infections, such as hepatitis B, hepatitis A, influenza, COVID, Hib, meningococcal, pneumococcal infection and shingles. Vaccines against other infections, including TB (BCG), HPV, hepatitis B, mpox and gonorrhoea, are also recommended for individuals at higher risk of exposure to infection due to lifestyle factors, close contact or recent outbreaks in their community.

For children born to mothers with hepatitis B infection, additional monovalent doses +/- immunoglobulin will be required to prevent mother to child transmission at or around the time of birth. Hepatitis B immunisation of the infant should start as soon as possible after birth, no later than 24 hours, following the selective neonatal post exposure schedule (as per [Chapter 18](#)).

Individuals at risk of exposure through their work should be advised about any required vaccinations by their employer or their occupational health service. For more information, please see [Chapter 12](#) and the disease specific chapters.

## Vaccination during and after pregnancy

In 2010, routine influenza immunisation of individuals was extended to include all pregnant women. This was based on evidence of the increased risk from influenza to the mother and to infants in the first few months of life. Vaccination protects the woman herself and provides passive immunity to the infant following birth for their first few months of life. Preventing infection in the mother will also reduce the risk of her transmitting influenza to her newborn baby. Inactivated influenza vaccine should therefore be offered to pregnant women at any stage of pregnancy (first, second or third trimesters), ideally before influenza viruses start to circulate. Influenza vaccination of pregnant women is usually carried out between September and January, but clinical judgement should be used to assess whether a pregnant woman should be vaccinated after this period. The current level and severity of influenza activity, the presence of other risk factors and the availability of inactivated influenza vaccine may form part of the consideration for late vaccination.

A programme for the vaccination of pregnant women against pertussis was introduced in October 2012. The purpose of the programme is to boost antibodies in these women so that high levels of antibody are transferred from mother to baby. This should protect the infant against pertussis infection until they can be vaccinated from eight weeks of age.

Pregnant women should be offered the combined tetanus, diphtheria and acellular pertussis Tdap (or dTaP/IPV if Tdap is unavailable) vaccine from week 16 of each pregnancy (for operational reasons, ideally vaccination should be offered at, or after the foetal anomaly scan at around 20 weeks). This programme is described in more detail in [Chapter 24](#).

In addition to older adults, a programme for respiratory syncytial virus (RSV) vaccination of pregnant women for infant protection was introduced in September 2024. While RSV can occur at any age, babies under one year of age are at the greatest risk of hospitalisation with more severe RSV. The aim of the RSV vaccination of pregnant women programme is to reduce the incidence and severity of RSV disease in infants through transplacental

antibody transfer. Vaccination should be offered to all pregnant women from week 28 gestation, in every pregnancy. Vaccination should ideally be offered in week 28 or soon after to maximise the likelihood that a baby will be optimally protected from birth. More information regarding this programme is available in [Chapter 27a](#).

From 2016, the routine antenatal testing of women for rubella susceptibility ceased. Pregnant women should have their vaccine status checked during or after pregnancy, for example at the post-natal check, and be offered any outstanding doses of MMR soon after delivery. **MMR vaccine should not be offered in pregnancy.**

Table 4 Routine vaccinations in pregnancy

Vaccine	Eligibility
Influenza	At any stage of each pregnancy during flu vaccination seasons (from September onwards)
Pertussis	From week 16 onwards of every pregnancy (for operational reasons, ideally vaccination should be offered at, or after the fetal anomaly scan at around 20 weeks)
RSV	In week 28 or soon after of every pregnancy

Further information on vaccination during pregnancy and whilst breastfeeding is available in [Chapter 6](#).

## Vaccination of individuals with unknown or incomplete immunisation status

For a variety of reasons, some individuals may present not having received some or all their immunisations or may have an unknown immunisation history. Where an individual born in the UK presents with an incomplete immunisation history, every effort should be made to clarify what immunisations they may have had. Anyone who has not completed the routine immunisation programme as appropriate for their age should have the outstanding doses as described in the relevant chapters.

If children and adults coming to the UK do not have a documented or reliable verbal history of immunisation, they should be assumed to be unimmunised, and a full course of required immunisations should be planned. This includes pregnant individuals with an unknown immunisation history where, assuming they are unimmunised, a full course of required immunisations should be planned (noting that live vaccines such as MMR should not be given in pregnancy but should instead be given soon after delivery).

Individuals coming from areas of conflict or from population groups who may have been marginalised in their country of origin (such as refugees, gypsy or other nomadic travellers) may not have had good access to immunisation services. In particular, older children and adults may also have been raised during periods before immunisation services were well developed or when vaccine quality was sub-optimal. Where there is no reliable history of previous immunisation, it should be assumed that any undocumented doses are missing and the UK catch-up recommendations for that age should be followed.

An algorithm for vaccinating individuals with uncertain or incomplete immunisation status is available at [www.gov.uk/government/publications/vaccination-of-individuals-with-uncertain-or-incomplete-immunisation-status](http://www.gov.uk/government/publications/vaccination-of-individuals-with-uncertain-or-incomplete-immunisation-status).

Individuals coming to the UK who have a history of completing immunisation in their country of origin may not have been offered protection against all the antigens currently offered in the UK. Most countries have offered protection against diphtheria, tetanus, polio and whooping cough for many years, but do not currently include MenACWY or MenB in their schedule and may have introduced PCV and Hib vaccine relatively recently. Some countries worldwide only offer single measles vaccines, rather than MMR or MMRV, or have only recently started to offer a rubella containing vaccine. Measles vaccine is also given below the age of one year in many lower income countries. Doses of measles-containing vaccine given below the age of one should be discounted and two further doses of MMR or MMRV (as appropriate for age) vaccine should be given to ensure adequate protection against both measles and rubella.

Current country-specific schedules are available on the WHO website (<https://immunizationdata.who.int/global?topic=Vaccination-schedule&location=>).

The UK immunisation schedule includes five or six doses of inactivated polio vaccine (IPV) which are given by injection and protect against three different serotypes (1, 2 and 3).

Children coming to the UK may have received oral polio vaccine (OPV) which is given in many countries. The trivalent OPV was withdrawn in April 2016 and replaced with the bivalent oral poliovirus vaccine, which contains only attenuated virus of types 1 and 3. If a child has received any OPV in another country since 2016 as part of their primary course or pre- school booster, these doses should be discounted. Many countries have a mixed OPV and IPV schedule and so if sufficient IPV doses have been received for their age, then no additional IPV doses are needed. It is also important when reviewing a vaccination history, to try and determine which type of diphtheria-containing vaccines an individual has received. Diphtheria vaccines are produced in two strengths according to the diphtheria toxoid content. Vaccines containing the higher dose of diphtheria toxoid (D) are used to achieve satisfactory primary immunisation of children under ten years of age (e.g. DTaP/IPV/Hib/ HepB). Low-dose preparations (d) are recommended for booster doses (e.g. dTaP/IPV and Td/ IPV) as per the UK routine immunisation schedule or for primary immunisations in individuals aged ten years and over. It is important to ensure that primary immunisation has been completed, and a sufficient interval has elapsed before administering any booster doses.

## Premature infants

It is important that premature infants have their immunisations at the appropriate chronological age (counted from their date of birth), in accordance with the national routine immunisation schedule. As the benefit of vaccination is high in this group of infants, vaccination should not be withheld or delayed.

As the occurrence of apnoea following vaccination is especially increased in infants who were born very prematurely, specific guidance on the immunisation of premature infants in [Chapter 7](#) and the disease specific chapters should be followed.

## Intervals between vaccines

Doses of different inactivated vaccines can usually be administered at any time before, after, or at the same time as each other, unless stated otherwise. Doses of inactivated vaccines can also be given at any interval before, after, or at the same time as a live vaccine and vice versa.

A minimum four-week interval is normally recommended between successive doses of the same vaccine – for example between each of the three doses of DTaP-containing vaccine in the primary schedule. A better response is made to some vaccines when an eight-week interval is observed between doses. Although shorter intervals may be advised to achieve more rapid protection, e.g. for travel or during an outbreak, this may lead to a lower immune response, particularly in infants, and may therefore provide less durable protection.

If one of the infant primary immunisation DTaP-containing vaccine doses is inadvertently or deliberately given up to a week early (such as for travel) however, the impact on the final response is minimal. If more than one dose in the three-dose schedule is given early, or one of the doses is given at less than a three week interval, then that dose should be repeated at least four weeks after the final dose. The preferred minimum interval between MenB infant doses is four weeks. Where an infant dose of MenB is inadvertently given at an interval of less than three weeks, an additional dose should be administered four weeks after the second dose to ensure adequate protection whilst still at a vulnerable age.

For other multiple dose schedules with inactivated vaccines e.g. hepatitis B, giving subsequent doses at a slightly shorter than the recommended interval is unlikely to be highly detrimental to the overall immune response. However, early vaccination should be avoided unless necessary to ensure rapid protection or to improve compliance, and additional doses may be recommended to ensure longer term protection.

Advice on intervals between different live vaccines is based on existing specific evidence of interference between vaccines. The current advice is detailed in Table 5. Recommended intervals between subsequent doses of the same live vaccine will depend upon the specific incubation period of the vaccine virus, and other factors, such as decline in maternally derived antibody. Please refer to the relevant chapters.

Table 5 Recommended time intervals when giving more than one live attenuated vaccine

Vaccine combinations	Recommendations
Yellow Fever and MMR-containing vaccine	A four week minimum interval period should be observed between the administration of these two vaccines. Yellow Fever and MMR or MMRV should not be administered on the same day. <sup>1</sup>
Varicella vaccine and MMR	If these vaccines are being given separately (rather than as MMRV) and are not administered on the same day, then a four week minimum interval should be observed between vaccines. <sup>2</sup>
Tuberculin skin testing (Mantoux) and measles-containing vaccine (MMR or MMRV)	MMR or MMRV can be administered on the same day as tuberculin skin (TST) or interferon-gamma release assay (IGRA) testing (CDC, 2024). MMR and MMRV can also be administered at any interval after an IGRA test. However, if a tuberculin skin test has already been initiated, then MMR or MMRV should be delayed until the tuberculin skin test has been read unless protection against measles is required urgently. If a child has had a recent MMR or MMRV, and requires a tuberculin skin test or IGRA, then a four week interval should be observed. If there is sufficient clinical urgency, TB testing (TST or IGRA) can be undertaken without delay. However, negative results should be treated with caution, given the potential for reduced reactivity. <sup>3</sup>
All currently used live vaccines (BCG, rotavirus, live attenuated influenza vaccine (LAIV), oral typhoid vaccine, yellow fever, varicella, MMR and MMRV)	Apart from those combinations listed above, these vaccines can be administered at any time before or after each other. This includes tuberculin (Mantoux) skin testing. <sup>4</sup>

- 1 Co-administration of these two vaccines can lead to sub-optimal antibody responses to yellow fever, mumps and rubella antigens (Nascimento et. al, 2011). Where protection is required rapidly then the vaccines should be given at any interval; an additional dose of MMR should be considered.
- 2 A study in the US (Mullooley & Black, 2001) showed a significant increase in breakthrough infections when varicella vaccine was administered within 30 days of MMR vaccine; suggesting that MMR vaccine caused an attenuation of the response to varicella vaccine. This effect was not seen when the vaccines are given on the same day (CDC, 2001). Where protection from either vaccine is required rapidly then the vaccines can be given at any interval and an additional dose of the vaccine given second should be considered.
- 3 Administering tuberculin (Mantoux) within 28 days of MMR or MMRV vaccine may result in decreased reactivity of the tuberculin and the false negative reporting of results. If tuberculin testing has already been initiated, MMR or MMRV vaccine should be delayed until the skin test has been read. If protection against measles is urgently required, then the benefit of protection from the vaccine outweighs the potential interference with the tuberculin test. In this circumstance, the individual interpreting the negative tuberculin test should be aware of the recent MMR or MMRV vaccination when considering how to manage that individual.

While there is no published evidence to support this recommendation with regard to IGRA testing, it is considered a reasonable approach when testing is not urgent (i.e. in suspected latent TB infection) as it helps to avoid any theoretical risk of immunological masking that could affect test results. If there is sufficient clinical urgency IGRA can be undertaken without delay. However, negative results should be treated with caution, given the potential for reduced reactivity.

- 4 Whilst there is no evidence of decreased reactivity or interference from other live vaccines, those interpreting the results of the tuberculin skin test should be aware of any recently administered live injectable vaccines.

## References

Centers for Disease Control and Prevention. Simultaneous administration of varicella vaccine and other recommended childhood vaccines: United States, 1995–1999. MMWR Morb Mortal Wkly Rep. 2001;50:1058–1061 [www.cdc.gov/mmwr/preview/mmwrhtml/mm5047a4.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5047a4.htm)

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