
Measles Vaccine

Frequently Asked Questions

1. What is the current measles vaccination schedule?

As of August 2016, the Expanded Program on Immunizations (EPI) schedules measles vaccination at 6 months and a second vaccine at 12 months of age. The current preparation is called 'MeasBio®'. The efficacy of two doses of measles vaccine ranges from to 93-99%. In addition to routine vaccination, in South Africa, supplementary immunisation activities (SIA) are conducted every 3-4 years to immunise any child who may have missed a measles vaccine, and to increase the efficacy of vaccination and population immunity. In 2023, the National Department of Health has decided to conduct a vaccination campaign in response to the current measles outbreak. This campaign targets the age group from 6 months to 15 years of age. Two types of single antigen measles vaccines are being used, namely MeasBio® and Measles Vaccine Cipla®. SIAs and outbreak vaccination campaigns DO NOT replace routine immunisation. All eligible infants and children should continue to receive their routine EPI measles vaccines at 6 and 12 months of age.

2. Which route of administration is used?

The vaccine is usually given as a deep subcutaneous injection, but may be given intramuscularly. Infants are vaccinated in the left thigh, whilst older children and adults are vaccinated in the shoulder.

3. What is the composition of the measles vaccine?

A monovalent (single strain) live attenuated (a live, but substantially weakened measles virus) measles vaccine is used in the EPI-SA schedule. The South African National Department of Health EPI is currently using a vaccine called Meas-Bio®. As with all vaccines, this vaccine preparation includes residual amounts of antibiotic (kanamycin and erythromycin), and also small amounts of sorbitol, lactose, porcine gelatin, cysteine, NaOH, and phenol red (0.002%) - as preservatives, stabilisers and residue from production. This vaccine does not contain any thiomersal, mercury compounds or hen's egg derivatives. A strain which is genetically identical, but which is prepared differently (without gelatin), is also available in combination with mumps and rubella as MMR vaccine. The MMR is available in the private sector.

4. What type of adverse reactions after vaccination can be expected?

Relatively common adverse reactions which occur after vaccination at a rate of less than 1 in 20 persons include pain at the injection site, fever between 7 and 12 days following the vaccination, morbilliform (macular) rash between 7 and 10 days following vaccination. These side effects are generally mild and are dealt with symptomatically. Very rare but more serious adverse reactions after vaccination include encephalitis (1 in 2 million), febrile seizures (1 in 3 000), thrombocytopenia or low platelets (1 in 30 000) and anaphylaxis or severe allergic reaction (1 in 1 million). The risks of serious complications following measles infection are enormously greater than vaccine-related serious adverse reactions and include death, pneumonia with permanent lung damage, and corneal scarring. Person-to-person transmission of measles vaccine strains has never been documented.

5. What are the contra-indications for measles vaccination?

Persons who should not receive the measles vaccine are those who have had severe anaphylaxis following a measles vaccination, patients with congenital immunodeficiency disorders, leukaemia, lymphoma or serious malignant disease and persons who are receiving treatment with chemotherapy, therapeutic radiation, or high dose corticosteroids (>20mg/day or >2mg/kg/day prednisone or equivalent). Measles vaccine should be avoided in pregnancy. However, in the 3rd and possibly the 2nd trimesters of pregnancy, the benefit of vaccination may well outweigh the risks of complications due to measles infection (high risk of severe maternal morbidity, foetal loss, prematurity, and perinatal infection). HIV-infected persons are at increased risk for serious complications and death from measles infection however, the risk is proportional to the degree of immunosuppression.

HIV infected persons on anti-retroviral therapy should receive measles vaccine as the risk of complications of measles likely outweighs any potential risks from measles vaccination. The efficacy of measles vaccine may be suboptimal in persons with advanced HIV and they may not develop adequate protection post- vaccination. These persons are at risk for complications of measles infection and should receive vaccine in consultation with their health practitioners.

Measles vaccine should not be administered to persons who have received immunoglobulin or other antibody-containing blood products, as the antibodies present in these blood products may neutralize the effect of measles vaccine for 3 - 11 months. Following measles vaccination, receipt of such blood products should be delayed for at least 2 weeks, if possible. There is currently no hyper-immune globulin for measles post- exposure prophylaxis. Pooled immunoglobulin is not effective.

6. Can the measles vaccine used in the SIA be co-administered with other vaccines?

Both the MeasBio® and Cipla® vaccines can be co-administered with other vaccines including the human papillomavirus vaccine and the tetanus/reduced diphtheria antigen (Td) vaccines. However, when administered at 6 months of age as part of the EPI, the MeasBio® vaccine should not be co-administered with other vaccines

7. Why do so many children have to be vaccinated to stop measles?

The measles virus is the most infectious virus known to humankind. It has one of the highest reproductive numbers of any infectious organism. In a susceptible population, a single case of measles will result in transmission to 11-18 other persons. However, if 95% of persons who come into contact with an infectious measles case are vaccinated, outbreaks will not occur. If fewer than 95% of persons are vaccinated against measles, clusters of cases may lead to outbreaks of measles. The more children vaccinated, more will be immune and able to stop virus transmission.

8. How important is it to get the second dose of the measles vaccine?

It is crucial as it will increase protection levels in the individual. Children who get only one dose of the vaccine are five times more likely to get infected with measles than those who get both doses. This is because children who are vaccinated at younger age-groups may not develop protective antibodies against the vaccine. In order to be sure that all children develop antibodies to the vaccine and are thus protected against measles, the WHO recommends that two measles vaccinations be administered in childhood.

9. If my child is fully vaccinated, should they receive the measles vaccine as part of a campaign?

Yes, the extra measles dose will boost the immunity against the measles virus. The measles booster dose does not pose any health risk for children. A very small proportion of children may not have responded to the vaccine when it was given in childhood. The booster vaccine will ensure that these children receive another opportunity to be vaccinated.

10. How should the measles vaccine be stored?

Maintaining the cold chain is very important. Lyophilized vaccine should be stored in the freezer. After reconstitution, the vaccine must be stored in the refrigerator at 2 - 8°C and used within 6 hours. After reconstitution, measles vaccine loses 50% potency every hour that it is kept at 27°C. Measles vaccine is dispensed in 10-dose vials, so it is essential to keep the measles vaccine vial cold during routine immunisation.

11. Health care workers and vaccination

When measles vaccination results in seroconversion, vaccination usually results in life-long protection against measles. However, there are occasional cases when antibody

levels may decline, or persons may become transiently immunocompromised (E.g. due to HIV or cancer chemotherapy) and lose immunity. Therefore, health care workers should consider boosting with measles vaccine if they are in contact with potential measles cases.

12. How to deal with parents/patients concerned about vaccines and safety

All persons have a right to know the risks and benefits of any medical intervention, including vaccination. It is appropriate to engage respectfully and transparently with concerned parents and individuals. It is appropriate to provide the vaccine package insert, and other resources that explain risks and benefits of vaccination. It is helpful to discuss commonly occurring side effects following vaccination with the caregiver/family member and to make persons aware that severe reactions are very rare. If parents are aware of controversies regarding measles vaccine and links to autism, attention deficit hyperactivity disorder (ADHD) or Guillain-Barré syndrome, provide reassurance that these myths are not grounded in observations and have been rejected by the international scientific community.

13. Should HCW vaccinate persons who have measles symptoms?

Children who have moderate or severe measles symptoms or who have laboratory-confirmed measles should not be vaccinated. This is because it might increase the chance of a side effect or cause an interference with the immune response already stimulated by the infection.

14. Can adults get the measles vaccine?

Yes, they may get the combination live attenuated MMR (measles, mumps and rubella) vaccine in the private sector, after consultation with their clinician. One dose of MMR vaccine is usually sufficient for most adults.

15. Is it possible for a measles vaccine to cause other infectious diseases?

The measles vaccine is a monovalent (single strain) live attenuated (a live, but substantially weakened measles virus) vaccine. Measles vaccine may cause mild signs and symptoms similar to measles infection in some vaccine recipients. These symptoms may be similar to conditions such as mumps, rubella or other viruses causing fever-rash syndrome. During an outbreak of mumps or rubella, it may be difficult to distinguish vaccine side effects from other causes of fever and rash in a child who was vaccinated with measles vaccine, especially if a child was administered a measles-mumps-rubella vaccine. Specialised diagnostic tests including PCR and genetic sequencing may be required, as antibody tests for measles, mumps and rubella vaccine are identical in vaccinated persons and persons infected with wild-type (community acquired) infection. However, measles virus and mumps virus are two different viruses that attack

different areas of the body. It is biologically impossible for measles vaccine to cause any other viral infection.

16. Useful vaccine information websites

- The South African Vaccination and Immunization Centre (www.savic.ac.za)
- National Institute of Communicable Diseases – FAQ on Measles (at <https://www.nicd.ac.za/diseases-a-z-index/measles/>)
- The Vaccine Page (www.vaccines.org).
- WHO – Immunization Safety (www.who.int/immunization_safety/en/).