HEALTH BASICS

MMR (measles, mumps, and rubella) vaccine - what you need to know

The MMR vaccine protects against three viral infections: measles, mumps, and rubella.

WHAT IT IS
A combined vaccine against measles, mumps, and rubella

WHERE IT COMES UP
Routine vaccination, school records, pregnancy planning, travel, and outbreaks

WHY IT MATTERS
Reduces illness and complications from three viral infections

WHAT IT IS NOT
Not a disease or diagnosis

WHO TO ASK
Primary care clinician, pharmacist, or vaccination service

HOW IT IS CHECKED
Vaccination records; antibody blood tests in selected situations

Overview

The MMR vaccine is one injection that protects against measles, mumps, and rubella. These are contagious infections caused by three different viruses.

MMR is a live attenuated vaccine . This means it contains weakened forms of the viruses. They train the immune system without causing the usual infections in people with healthy immune systems.

MMR is not a disease, diagnosis, or treatment for an active infection. It is used before exposure, or as part of an outbreak response, to reduce the chance of becoming ill in the future.

Children are usually offered two doses, but the recommended ages differ between countries. Some adults also need vaccination if they do not have acceptable evidence of immunity. Earlier vaccination may be recommended for some infants during an outbreak or before international travel. An early dose may not replace the usual later doses.

MMR is also different from MMRV. MMRV combines the same three vaccines with a chickenpox, or varicella, vaccine.

How it works

The weakened viruses in MMR prompt your immune system to make antibodies and other immune cells. Antibodies are proteins that recognize and help control specific germs.

The immune system keeps a memory of this response. If you later meet measles, mumps, or rubella viruses, it can respond more quickly. Protection is strong but not perfect, and it takes time to develop after vaccination.

A second dose gives another opportunity to develop protection. It is especially important for people who did not respond fully to the first dose.

Because MMR contains live weakened viruses, it is not suitable for everyone. It is generally not given during pregnancy or to people with certain severe immune system problems. This includes some people receiving cancer treatment, high-dose immune-suppressing medicines, or treatment after an organ transplant. The decision depends on the condition, treatment, and timing.

Recent blood transfusions, antibody products, or some other live vaccines can affect when MMR should be given. A vaccination service can check the correct timing.

Why it matters for your health

Measles can cause high fever, cough, a widespread rash, pneumonia, and inflammation of the brain. It spreads very easily through the air.

Mumps commonly causes painful swelling of the salivary glands near the jaw. It can also cause meningitis, hearing problems, or inflammation of the testicles, ovaries, or pancreas.

Rubella is often mild in children and adults. The main concern is infection during pregnancy. Rubella can cause miscarriage, stillbirth, or congenital rubella syndrome, which can affect a developing baby's hearing, sight, heart, and brain.

Vaccination protects the person who receives it and helps limit spread to others. This matters for babies who are too young for routine vaccination and for people who cannot receive live vaccines.

There is no credible evidence that MMR causes autism. Large studies involving many children have found no association between MMR vaccination and autism.

What can go wrong

Most reactions to MMR are mild and temporary. They can include soreness where the injection was given, fever, a mild rash, or swelling of glands in the cheeks or neck. Temporary joint pain can occur, particularly in teenagers and adults.

A fever can occasionally trigger a febrile seizure , which is a seizure associated with fever in a young child. Although frightening to witness, febrile seizures generally do not cause lasting harm. Any first seizure still needs prompt medical assessment.

Rare complications include a temporary low platelet count. Platelets help blood clot, so a low count can cause unusual bruising or bleeding. A severe allergic reaction, called anaphylaxis, is also possible but rare.

Seek emergency help for signs of a severe allergic reaction, such as:

Seek urgent medical advice after vaccination for a seizure, unusual bruising or bleeding, or an illness that seems severe or is getting worse.

A mild fever, limited rash, sore arm, or temporary gland swelling can usually be discussed through routine follow-up if you are concerned. A post-vaccination rash does not usually mean that the person is contagious.

MMR should not be given during pregnancy. If it is given before someone realizes they are pregnant, they should contact their prenatal clinician for individual advice. Accidental vaccination is not considered, by itself, a reason to end a pregnancy.

A previous life-threatening reaction to an MMR dose or one of its ingredients may prevent further doses. Egg allergy, including severe egg allergy, does not usually prevent MMR vaccination. Other ingredients, such as gelatin or the antibiotic like amoxicillin or doxycycline neomycin, may matter for some people.

- Difficulty breathing
- Swelling of the face or throat
- Collapse, extreme weakness, or loss of consciousness
- Widespread hives together with breathing or circulation problems

What you can do

Look for written evidence of previous MMR vaccination. Useful records may come from a vaccination registry, primary care practice, pharmacy, school, employer, military service, or childhood health record. A remembered vaccination without documentation may not meet requirements for work, education, or travel.

Ask a vaccination service whether you need MMR if:

Tell the vaccinator about pregnancy, a possible pregnancy, severe immune system problems, previous serious vaccine reactions, and any history of unusually low platelets.

People who could become pregnant are generally advised to avoid pregnancy for 28 days after MMR vaccination. If you are planning pregnancy, ask whether your vaccination record is enough or whether a rubella antibody blood test is appropriate.

An antibody blood test can sometimes show evidence of immunity. It is not routinely needed after properly documented vaccination, and it does not replace a clinical review in every situation.

If you may have been exposed to measles, mumps, or rubella, contact a healthcare service promptly before arriving in person. This allows staff to assess timing and arrange care without exposing other people in a waiting area.

Keep the date and type of each vaccination in your health records.

- Your records are missing or incomplete
- You are planning international travel
- There is a local measles, mumps, or rubella outbreak
- Your school, workplace, or healthcare role requires evidence of immunity
- You are planning pregnancy
- You take medicines that weaken the immune system
- You have recently received blood products or another live vaccine

Common questions

Can MMR give me measles, mumps, or rubella?

The weakened vaccine viruses do not cause the usual infections in people with healthy immune systems. Mild fever, rash, or gland swelling can occur as the immune system responds.

Do adults need MMR?

Some do. The answer is based on age, vaccination records, laboratory evidence of immunity, occupation, travel plans, and outbreak risk. National schedules differ, so a vaccination service should review your record.

Can MMR be given during breastfeeding?

Breastfeeding is generally not a reason to avoid MMR. The vaccine can often be given after childbirth if rubella immunity was found to be low during pregnancy.

Is MMR safe with other vaccines?

MMR can be given at the same visit as many other vaccines. The timing may matter when it is given on a different day from another live vaccine. Blood products and immune-suppressing treatments can also affect timing.

What if I do not know whether I was vaccinated?

Try to obtain your records first. If they cannot be found, a clinician or vaccination service can assess whether vaccination or an antibody blood test is appropriate. Receiving an additional MMR dose is generally acceptable for many people who are already immune, but eligibility still needs to be checked.

Does MMR contain three separate injections?

No. Standard MMR combines protection against all three viruses in one injection. Each scheduled dose is one injection.

Sources

- Centers for Disease Control and Prevention: Measles, Mumps, and Rubella Vaccination-What Everyone Should Know
- Centers for Disease Control and Prevention: MMR Vaccine Information Statement
- Centers for Disease Control and Prevention: Pink Book-Measles, Mumps, and Rubella chapters
- US Food and Drug Administration: M-M-R II prescribing information
- NHS: MMR vaccine
- World Health Organization: Measles vaccines position paper