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Promotional material

A guide to immunisation for babies up to 13 months of age: for children born on or after 1 January 2025

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Contents

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Keeping up to date with vaccinations helps to protect your baby when they need it most.

Summary of immunisations

At 8 weeks

Your baby will have immunisations against:

- diphtheria
- tetanus
- pertussis (whooping cough)
- polio
- Haemophilus influenzae type b (Hib)
- hepatitis B
- meningococcal group B disease (MenB)
- rotavirus

These will be given as 2 injections (DTaP/IPV/Hib/HepB and MenB) and drops into the mouth (rotavirus).

At 12 weeks

Your baby will have immunisations against:

- diphtheria
- tetanus
- pertussis (whooping cough)
- polio
- Hib

- hepatitis B
- meningococcal group B disease (MenB)
- rotavirus

These will be given as 2 injections (DTaP/IPV/Hib/HepB and MenB) and drops into the mouth (rotavirus).

At 16 weeks

Your baby will have immunisations against:

- diphtheria
- tetanus
- pertussis (whooping cough)
- polio
- Hib
- hepatitis B
- pneumococcal disease

These will be given as 2 injections (DTaP/IPV/Hib/HepB and PCV).

At one year

Your baby will be immunised against:

- pneumococcal disease (their booster dose)
- measles, mumps, rubella and chickenpox (their first dose)
- meningococcal group B (Men B) (their booster dose)

These will be given as 3 injections (PCV, MMRV and MenB).

Information about immunisation

Immunisation is a way of protecting against serious infectious diseases. Once we have been vaccinated, our bodies are better able to fight those diseases if we come into contact with them. Vaccination is a safe way to help to prevent the serious impact of these diseases in the community.

How vaccines work

There are some infectious diseases that regularly cause children to suffer, and may also kill or cause long term damage to their health.

Vaccines are given to prepare your child's immune system to fight off those diseases if they come into contact with them.

Vaccines contain a small amount of either a weakened form or a carefully chosen part of the germ (the virus or bacterium) that causes a disease. Vaccines work by causing the body's immune system to develop cells that are programmed to remember the targeted infection.

If your child later comes into contact with the infection, these cells will recognise it and rapidly produce antibodies and other substances that fight off infection and help to protect them.

Because vaccines have been used so successfully in the UK, diseases such as diphtheria have almost disappeared from this country.

When your baby should be immunised

It is important that your baby has their vaccines at the right age – the first doses are given at 8 weeks old. They will be given further doses when they are 12 weeks old and 16 weeks old. Other vaccines are given at one year of age (https://www.gov.uk/government/publications/immunisations-between-12-and-13-months-of-age) with more at 18 months (https://www.gov.uk/government/publications/vaccinations-for-children-aged-18-months) and then at 3 years and 4

months of age (https://www.gov.uk/government/publications/pre-school-vaccinations-a-guide-to-vaccinations-from-2-to-5-years), just before they start school.

Why babies are vaccinated so early

Many of these diseases can be particularly serious in young babies. It is important to make sure babies are protected as early as possible to prevent them catching these infections.

Why babies need more than one dose of vaccine

Most immunisations have to be given more than once to prepare your child's immunity. For example, 4 doses of DTaP/IPV/Hib/HepB vaccine are needed to provide protection in babies and young children.

Booster doses are then given later in life to provide longer-term protection.

How will you know when your baby is due for their immunisations

You will receive a letter or text message telling you what to do when your baby is due their vaccines. Most surgeries and health centres run special immunisation or baby clinics.

If you can not get to the clinic, contact the surgery to make another appointment. All childhood immunisations are free. You can also find details in your child's red book (https://www.nhs.uk/conditions/baby/babys-development/height-weight-and-reviews/baby-reviews/).

What happens at a vaccination appointment

The doctor or nurse will explain the immunisation process to you, and answer any questions you have. Most vaccines are injected into the muscle of the child's thigh or the upper arm. Rotavirus vaccine is given as drops by mouth.

Missed vaccination appointments

If you miss the appointment or need to delay the immunisation, make a new appointment. You can pick up the immunisation schedule where it stopped without having to start again.

Rotavirus vaccine can only be started in babies up to 15 weeks of age and no dose of the vaccine is given over 24 weeks of age.

Why we still immunise against diseases that are less common in this country

In the UK, many diseases are kept at bay by high immunisation rates. Around the world, millions of people a year die from infectious diseases with more than 5 million of these being children under the age of 5. Many of these deaths could be prevented by vaccination.

As more people travel abroad and more people come to visit this country, there is a risk that they will bring these infections into the UK. The infections may spread to people who are not protected so your baby is at greater risk if they have not been vaccinated.

Vaccination does not just protect your child; it also helps to protect your family and the whole community, especially those children who, for medical reasons, can not be vaccinated. Refer to reasons why your baby should not be immunised for details.

Vaccine safety

Before they are allowed to be used, all medicines (including vaccines) are

thoroughly tested to assess how safe and effective they are. After they have been licensed, the safety of vaccines continues to be monitored. Any rare side effects that are discovered can then be assessed further. All medicines can cause side effects, but vaccines are among the very safest. Research from around the world shows that immunisation is the safest way to protect your child's health.

Worries about your baby being upset by having an injection

Your baby may cry and be upset for a few minutes, but they will usually settle down after a cuddle.

Remember
It's never too late to have your child vaccinated.

Even if your child has missed a vaccination and is older than the recommended ages, talk to your doctor, practice nurse or health visitor to arrange for your child to be vaccinated.

Side effects

Some babies will have side effects after an injection. They may:

- have redness, swelling or tenderness where they had the injection (this will slowly disappear on its own)
- be a bit irritable and feel unwell
- have a temperature (fever)
- babies having the rotavirus vaccine may get mild diarrhoea

Fever

A fever is a temperature over 37.5°C.

Fevers are quite common in young children, but are usually mild. If your child's face feels hot to the touch and they look red or flushed, they may have a fever.

You should check their temperature with a thermometer.

Treating and preventing fever
Keep your child cool by:

- making sure they do not have too many layers of clothes or blankets on
- giving them plenty of cool drinks

A dose of infant paracetamol liquid may help reduce your child's fever. Read the instructions on the bottle very carefully. You may need to give another dose 4 to 6 hours later.

Fever is more common when babies have the MenB vaccine alongside their other vaccines. Because of this we advise that paracetamol is given to all babies when they get their first and second set of vaccines (at 8 and 12 weeks). Refer to the section about MenB vaccine below.

> Never give medicines that contain aspirin to children under 16 years.

If you are worried about your child, trust your instincts. Speak to your doctor or call the free NHS helpline 111.

Call the doctor immediately if, at any time, your child:

- has a temperature of 39°C or above
- has a fit

If the surgery is closed and you cannot contact your doctor, trust your instincts, and go to the emergency department of your nearest hospital.

Allergies

Asthma, eczema, hay fever, food intolerances and allergies do not prevent

your child having any vaccine in the childhood immunisation programme. If you have any questions, speak to your doctor, practice nurse or health visitor.

Allergic reactions

Very rarely, children can have an allergic reaction soon after immunisation. This reaction may be a rash or itching affecting part or all of the body. The doctor or nurse giving the vaccine will know how to treat this. It does not mean that your child should stop having vaccinations.

Anaphylactic reaction

Even more rarely, children can have a severe reaction, within a few minutes of the immunisation, which causes breathing difficulties and can cause the child to collapse. This is called an anaphylactic reaction. A recent study has shown that there is less than 1 anaphylactic reaction for every million vaccinations given.

An anaphylactic reaction is a severe and immediate allergic reaction that needs urgent medical attention. The people who give immunisations are trained to deal with anaphylactic reactions and children recover completely with treatment.

Reasons why your baby may not be able to be immunised

There are very few reasons why babies cannot be immunised. Vaccines should not be given to babies who have had:

- a confirmed anaphylactic reaction to a previous dose of the vaccine
- a confirmed anaphylactic reaction to a known ingredient of the vaccine

Immunosuppressed children

In general, children who are ‘immunosuppressed’ (have a weakened immune system) should not receive live vaccines (those that contain weakened but living forms of the germ).

Children who are immunosuppressed include:

- those whose immune system does not work properly because they are undergoing treatment for a serious condition such as a transplant or cancer
- those who have any condition which affects the immune system, such as severe primary immunodeficiency. Primary immunodeficiencies are very rare diseases that mean you are more likely to catch infections. They are usually caused by a faulty gene and are diagnosed soon after birth

If this applies to your child, you must tell your doctor, practice nurse or health visitor before the immunisation. Your child's healthcare professional may need to get specialist advice on using live vaccines such as MMRV, rotavirus vaccine and Bacillus Calmette-Guérin vaccine (BCG).

There are no other reasons why vaccines should definitely not be given.

Illness on the day of your baby's vaccination appointment

If your baby has a minor illness without a fever, such as a cold, they should have their immunisations as normal. If your baby is ill with a fever, put off the immunisation until they have recovered.

This is to avoid the fever being associated with the vaccine, or the vaccine increasing the fever your child already has.

If your baby:

- has a bleeding disorder (for example, haemophilia, in which the blood does not clot properly),
- has had a fit not associated with fever

Speak to your doctor, practice nurse or health visitor before your child has any immunisation. The healthcare professional may advise specific care during or after the vaccination.

Fits and febrile seizures or convulsions

Fits are also called seizures or convulsions. Some are associated with fever and some are not.

Fits associated with a fever are known as febrile convulsions or febrile seizures, and they can happen with a fever of any cause. They are rare in the first 6 months of life and are most common in 1 and 2 year olds. 1 in 25 children will have a febrile convulsion by the time they turn 5. They are rare after the age of 6. Usually, children recover quickly and there are no long-term consequences.

If a child has a fit after vaccination, it might have been triggered by a fever due to the vaccine, or it might be due to an underlying medical condition. If your baby has a fit after vaccination, you should seek urgent medical advice. If your surgery is closed or if you cannot contact your doctor, go straight to the emergency department of your nearest hospital.

Premature babies

Premature babies may be at greater risk of infection. They should be immunised in line with the recommended schedule from 8 weeks after birth, no matter how premature they were.

For more information on immunisation for premature babies, refer to a guide to childhood vaccinations for the parents of premature babies (https://www.gov.uk/government/publications/a-quick-guide-to-childhood-immunisation-for-the-parents-of-premature-babies).

Deciding to vaccinate your baby

In the UK, parents can decide whether or not to have their children immunised. Vaccination is recommended because it gives your baby protection against serious diseases, most of which can kill.

Around the world, many children are now routinely protected with vaccines. Because of this, some of the world's most serious diseases may soon disappear.

Immunisations and swimming

You can take your baby swimming at any time before and after their immunisations.

Multiple vaccinations

From birth, babies' immune systems protect them from the germs that surround them. Without this protection, babies would not be able to cope with the tens of thousands of bacteria and viruses that cover their skin, nose, throat and intestines. This protection carries on throughout life.

Studies have shown that it is safe to have several vaccinations at the same time and your baby will be protected from some very serious infections.

Other immunisation methods

There is no other proven safe and effective alternative to vaccinations to protect your baby from these diseases.

Changes to the immunisation programme

Immunisation programmes are regularly reviewed to make sure that all children are offered the best protection against preventable diseases. As new vaccines become available, or research shows that giving existing vaccines at different times improves protection, the programme will be changed.

Recent changes to the UK programme have been:

- replacing MMR with MMRV to protect against chickenpox (varicella) as

well as measles, mumps, and rubella

- giving MenB vaccine to babies at 8 weeks, 12 weeks and one year of age
- adding a dose of 6 in 1 vaccine at 18 months of age
- changing the age of the first dose of pneumococcal vaccine to 16 weeks of age
- giving HPV vaccine to boys as well as girls from September 2019

The childhood immunisation programme

Immunisations at 8, 12 and 16 weeks of age

Immunisations are given to babies at 8, 12 and 16 weeks of age. Further immunisations are given at one year of age and at 18 months old, as seen in the complete routine childhood schedule (https://www.gov.uk/government/publications/routine-childhood-immunisation-schedule).

When	Diseases protected against	Vaccine given
8 weeks old	Diphtheria, tetanus, pertussis (whooping cough), polio, Haemophilus influenzae type b (Hib) and hepatitis B	DTaP/IPV/Hib/HepB
	Meningococcal group B (MenB)	MenB
	Rotavirus gastroenteritis	Rotavirus
12 weeks old	Diphtheria, tetanus, pertussis, polio, Hib and hepatitis B	DTaP/IPV/Hib/HepB
	Meningococcal group B (MenB)	MenB
	Rotavirus	Rotavirus

When	Diseases protected against	Vaccine given
16 weeks old	Diphtheria, tetanus, pertussis, polio, Hib and hepatitis B	DTaP/IPV/Hib/HepB
	Pneumococcal (13 serotypes)	Pneumococcal conjugate vaccination (PCV)

Remember to bring your child's red book (https://www.nhs.uk/conditions/baby/babys-development/height-weight-and-reviews/baby-reviews/) with you to each appointment to record their immunisations.

DTaP/IPV/Hib/HepB vaccine (6 in 1 vaccine)

Your baby should be immunised with DTaP/IPV/Hib/HepB vaccine when they are 8, 12 and 16 weeks old.

The DTaP/IPV/Hib/HepB (6 in 1) vaccine protects against 6 different diseases:

- diphtheria
- tetanus
- pertussis (whooping cough)
- polio
- haemophilus influenzae type b (Hib)
- hepatitis B

Effectiveness of the DTaP/IPV/Hib/HepB (6 in 1)

vaccine

Studies have shown that DTaP/IPV/Hib/HepB vaccine is very effective in protecting your baby against these 6 serious diseases. There are 2 makes of 6 in 1 vaccine, called Vaxelis and Infanrix hexa.

Your baby may receive either of these vaccines and you can read more in the patient information leaflets from the manufacturers:

- Infanrix
- Vaxelis (https://assets.publishing.service.gov.uk/media/659d4ca5aaae22000d56dc77/FOI_22-895_PDF_attachment__3_.pdf)

Diphtheria
Diphtheria is a serious disease that usually begins with a sore throat and can quickly cause breathing problems. It can damage the heart and nervous system and, in severe cases, it can kill. Before the diphtheria vaccine was introduced in the UK, there were up to 70,000 cases of diphtheria a year, causing up to 5,000 deaths.

Tetanus
Tetanus is a disease affecting the nervous system which can lead to muscle spasms, cause breathing problems and can kill. It is caused when germs that are found in soil and manure get into the body through open cuts or burns. Tetanus cannot be passed from person to person.

Pertussis (whooping cough)
Whooping cough is a disease that can cause long bouts of coughing and choking, making it hard to breathe. Whooping cough can last for several weeks or months. Babies under one year of age are most at risk from whooping cough. For these babies, the disease is very serious and it can kill. It is not usually as serious in older children and adults.

Before the pertussis vaccine was introduced, the average number of cases of whooping cough reported each year in the UK was 120,000. In the year before the programme started 92 children died from pertussis. Because babies under one year of age are at particular risk of severe complications, vaccination of pregnant women was introduced in 2012.

This vaccine boosts the antibodies made by the woman’s body and these are then passed onto the baby. These antibodies help to protect them during the first few months of life until they are old enough to have a vaccine themselves. Because the protection generated by the maternal vaccination doesn’t last very long in the baby, it is still very important that babies are

vaccinated at the right age.

Polio
Polio attacks the nervous system and can cause permanent paralysis of muscles. If the paralysis spreads to the chest muscles it can affect breathing and sometimes polio can kill.

Before the polio vaccine was introduced, there were as many as 8,000 cases of polio in the UK in epidemic years. Because of the continued success of the polio vaccination, there have been no cases of natural polio infection in the UK for over 30 years (the last case was in 1984).

Hib
Hib is an infection caused by Haemophilus influenzae type b bacteria. It can lead to a number of major illnesses such as blood poisoning (septicaemia), pneumonia and meningitis. The Hib vaccine only protects your baby against the type of meningitis caused by the Haemophilus influenzae type b bacteria – it does not protect against any other causes of meningitis.

The illnesses caused by Hib can kill if they are not treated quickly. Before the Hib vaccine was introduced, there were about 800 cases of Hib in young children every year. Since it's been introduced, the number of children under 5 years of age with Hib has fallen by 99%.

Hepatitis B
Hepatitis B is an infection of the liver caused by the hepatitis B virus. In children, the infection can persist for many years and can sometimes lead to complications such as scarring of the liver (cirrhosis) which prevents it from working properly, and liver cancer.

Although the number of children living with the hepatitis B virus is low in the UK, the vaccine has been offered to children at higher risk since the 1980s. In 2017, hepatitis B vaccine was added to the routine immunisation programme so that all children can benefit from protection against this virus.

3 doses of the 6 in 1 vaccine provides long lasting protection against infection with hepatitis B, but not to other forms of hepatitis.

After immunisation with DTaP/IPV/Hib/HepB

Your child might get some side effects, which are usually mild:

- redness, swelling or tenderness where they had the injection
- your baby may be miserable for up to 48 hours after having the injection
- your baby could develop a mild fever
- you might notice a small lump where your baby had the injection; this may last for a few weeks but will slowly disappear

If you think your baby has had any other reaction to the DTaP/IPV/Hib/HepB vaccine and you are concerned about it, talk to your doctor, practice nurse or health visitor.

MenB vaccine

Your baby should be immunised with MenB vaccine when they are 8 weeks, 12 weeks and 12 months old.

This vaccine protects against meningitis and septicaemia (blood poisoning) caused by meningococcal group B bacteria. The MenB vaccine does not protect against meningitis and septicaemia caused by other bacteria or by viruses. Refer to the meningitis and septicaemia section below for further information.

Meningococcal B bacteria

There are several types of meningococcal bacteria (A, B, C, W, Y and Z) and most cases of meningitis and septicaemia in the UK are caused by the B strains, especially in young children. A vaccine that helps to protect against MenB disease was introduced into the UK programme in September 2015.

How common MenB disease is

In England and Wales, in 2013, there were over 500 confirmed MenB cases, with more than half of the cases in children under 5 years of age. Without vaccination, around 1 in 3,500 infants under one year and 1 in 8,000 toddlers aged 1 to 4 years will develop meningococcal disease every year.

After immunisation with MenB vaccine

Some babies may:

- have redness, swelling or tenderness where they had the injection (this will slowly disappear on its own within a few days)

- be a bit irritable and feed poorly
- have a temperature (fever)

Giving paracetamol following the 8 and 12 week vaccinations
Fever can be expected after any vaccination, but is very common when the MenB vaccine is given with the other routine vaccines at 8 and 12 weeks. The fever shows the baby's body is responding to the vaccine, although the level of fever depends on the individual child and does not indicate how well the vaccine has worked.

Giving infant paracetamol will reduce the risk of fever, irritability and general discomfort (including pain at the site of the injection) after vaccination.

When to give doses of paracetamol for your baby
You will need to give your baby a total of 3 doses of paracetamol (2.5ml of infant paracetamol 120mg/5ml suspension) to prevent and treat any potential fever after both the 8 and 12 week vaccination visits.

You should give the first dose of paracetamol as soon as possible after your baby is given the first set of vaccines. You should then give the second dose 4 to 6 hours later and the third dose 4 to 6 hours after that.

You will need to follow the same steps after their 12 week vaccinations.

No paracetamol is required at the 12 month dose (see section MenB booster vaccine). If you do not have any infant paracetamol liquid at home you should get some in time for your first vaccination visit. It is widely available from pharmacies and supermarkets.

More information about the meningitis B vaccine called Bexsero (https://www.medicines.org.uk/emc/product/5168/pil) is available in the patient information leaflet.

Pneumococcal conjugate vaccine (PCV)

Your baby should be immunised with PCV when they are 16 weeks and 12 months old.

PCV provides some protection against one of the most common causes of meningitis, and also against other conditions.

This vaccine only protects against 13 types of pneumococcal bacteria and does not protect against meningitis caused by other bacteria or viruses. Refer to the meningitis and septicaemia section below for further information.

Pneumococcal bacteria
There are more than 90 different pneumococcal types (serotypes) that can cause disease in humans, but the 13 types in the vaccine were the most common.

The infection causes serious (invasive) disease such as meningitis and septicaemia (blood poisoning) and less serious infections such as ear infections (otitis media), sinusitis, pneumonia and bronchitis.

How common invasive pneumococcal infection is
More than 5,000 cases are diagnosed each year in England. The number of cases peaks in December and January.

It particularly affects:

- the very young
- the elderly
- people with certain medical conditions

Invasive infections due to the strains covered by the vaccine have declined dramatically since the vaccine was introduced.

After immunisation with PCV
Some babies may get swelling, redness or tenderness at the injection site or a mild fever (see the section on fever).

Further information is available in the patient information leaflet on the pneumococcal vaccine for infants called Prevenar 13 (https://www.medicines.org.uk/emc/product/453/pil).

Rotavirus vaccine

The vaccine will be given with your baby's other routine vaccinations at 8 and 12 weeks of age.

Rotavirus is an infection that causes vomiting and diarrhoea. In England,

before the vaccine was introduced, almost all babies got rotavirus at sometime in their first 5 years of life and about 1 in every 5 required medical attention. About 1 in 10 of these (roughly 13,000) were admitted to hospital because of rotavirus.

How rotavirus spreads
The virus can be spread through hand to mouth contact and be picked up from surfaces such as toys, hands or dirty nappies. It can also be spread through the air by sneezing and coughing.

When your baby will have the vaccination
The vaccine will be given with the other routine vaccinations at 8 and 12 weeks of age. Your baby needs 2 rotavirus vaccinations at least 4 weeks apart to get the best protection.

If your baby misses one of the vaccinations, the first dose can be given up to 15 weeks of age. No dose of the vaccine will be given to babies over 24 weeks of age.

How the vaccine is given
Rotavirus vaccine is given as a liquid from a dropper to make it easy for your baby to swallow.

Side effects
Many millions of doses of the vaccine have been used and it has a good safety record. Babies who have had the vaccine can sometimes become restless and irritable, and some may even develop mild diarrhoea.

In very rare cases (about 2 in 100,000 babies vaccinated), the vaccine can affect the baby's lower gut and they may develop abdominal pain, vomiting, and sometimes they may pass what looks like redcurrant jelly in their nappies. If this happens, you should contact your doctor immediately.

Further information is available in the patient information leaflet on the rotavirus vaccine called Rotarix (https://www.medicines.org.uk/emc/product/2739/pil).

Immunisations at one year of age

Your child will need the PCV, and the MenB vaccine at one year of age to boost their protection against meningococcal B and pneumococcal

infections. These vaccines will help to protect your child through early childhood.

Your child will also have their first dose of MMRV at this time to protect against measles, mumps, rubella and chickenpox (varicella). Your child will need a second dose of MMRV vaccine at 18 months of age.

The routine primary immunisations for babies at one year of age

When	Diseases protected against	Vaccine given
1 year old - on or after the child's first birthday	Pneumococcal booster	PCV
	Measles, mumps, rubella and varicella (chickenpox)	MMRV
	MenB	MenB booster

Each vaccination is given as a single injection into the muscle of the child's thigh or upper arm.

MenB booster vaccine

Your child should be immunised with their booster dose of MenB vaccine when they are one year of age at the same time as their PCV vaccinations and their first MMRV vaccination.

This booster dose provides longer-term protection against meningitis and septicaemia caused by meningococcal group B bacteria.

After immunisation with MenB vaccine
Some babies may:

- have redness, swelling or tenderness where they had the injection (this

will slowly disappear on its own within a few days)

- be a bit irritable and go off their food

The risk of fever, which is common after the vaccinations at 8 and 12 weeks of age (see MenB vaccine), is much less common after this vaccination because babies at this age can tolerate the vaccine better. There is no need, therefore, for paracetamol to be given as a precautionary measure, although it should be given if a fever does occur.

Pneumococcal booster vaccine (PCV)

Your child should be immunised with their booster dose of PCV at one year of age at the same time as their MenB booster and MMRV vaccinations.

This booster vaccination provides longer-term protection against pneumococcal infection.

After immunisation with the PCV booster
Out of 10 babies immunised, 1 or 2 may get swelling, redness or tenderness where they had the injection, or they may have a mild fever.

MMRV vaccine

Your child should be vaccinated with their first dose of MMRV vaccine at one year of age at the same time as their MenB and PCV vaccinations.

MMR protects your child against measles, mumps, rubella and chickenpox (varicella).

Types of MMRV vaccine

The MMRV vaccine contains weakened versions of live measles, mumps, rubella, and chickenpox (varicella) viruses. Because the viruses are weakened, people who have had the vaccine cannot infect other people.

In the UK, we have 2 MMRV vaccines. Both of the vaccines work very well, one contains porcine gelatine (gelatine derived from pigs) and the other does not.

How is the vaccine given

The vaccine is injected into the muscle of the child's thigh or upper arm. It is given to a child at one year of age after the immunity they got from their mother wears off. It should be given again when children are 18 months of age or soon after.

Effectiveness of the MMRV vaccine

Since MMR vaccine was introduced in 1988, cases of measles, mumps and rubella have all fallen to extremely low levels. MMRV offers the same protection as MMR, but adds protection against chickenpox. In countries where children already get a chickenpox vaccine, cases of chickenpox have also fallen dramatically. MMRV has been used for over 10 years in several countries and has a good safety record.

Measles
Measles is caused by a very infectious virus. Nearly everyone who catches it will have a high fever, a rash and generally be unwell. Children often have to spend about 5 days in bed and could be off school for 10 days.

Adults are likely to be ill for longer. It is not possible to tell who will be seriously affected by measles. Around 1 in every 5 people with measles will go to hospital. The complications include chest infections, fits, encephalitis (infection of the brain) and brain damage. In very serious cases, measles can kill.

Before the introduction of measles vaccine in 1968, around 500,000 cases and a 100 deaths occurred in epidemic years. In 1987 (the year before the MMR vaccine was introduced in the UK), 86,000 children caught measles and 16 died.

Mumps
Mumps is caused by a virus which can lead to fever, headache and painful, swollen glands in the face, neck and jaw. It can result in permanent

deafness, viral meningitis (infection of the lining of the brain) and encephalitis. Rarely, it causes painful swelling of the testicles in males and the ovaries in females. Mumps lasts about 7 to 10 days. Before the MMR vaccine was introduced, about 1,200 people a year in the UK went into hospital because of mumps.

Mumps is spread in the same way as measles. It is about as infectious as flu.

Rubella
Rubella is also caused by a virus. In children it is usually mild and can go unnoticed. It causes a short-lived rash, swollen glands and a sore throat.

When a pregnant woman catches rubella it can affect their unborn baby, causing serious damage to their sight, hearing, heart and brain. This condition is called congenital rubella syndrome (CRS). When the infection is caught in the first 3 months of pregnancy it causes damage to the unborn baby in 9 out of 10 cases.

Rubella is spread in the same way as measles and mumps. It is about as infectious as flu.

Chickenpox (varicella)
Chickenpox is a very infectious disease caused by the varicella zoster virus. It is very common in young children and causes a fever and an itchy, spotty rash. These spots can be painful and appear all over the body. Some children have serious complications including chest infection, fits, and encephalitis. It is more severe in adults, especially pregnant women and people with weakened immune systems.

Later in life, the chickenpox virus can re-activate and cause a painful rash. This is called shingles. It is worse in older people and in people with weakened immune systems.

Chickenpox mostly spreads from the fluid-filled spots in the rash. Your child can catch it by being in the same room as someone with chickenpox, or having contact with the rash.

After vaccination with MMRV
Your child may be sore at the injection site for the first couple of days. The 4 viruses in the vaccine act at different times and sometimes produce side effects that are milder forms of the symptoms caused by the diseases themselves. These mainly occur after the first dose.

The measles part of the vaccine starts to work 6 to 10 days after the

immunisation. About 1 in 10 children may develop a fever (see section on treating and preventing fever). Some develop a measles-like rash which is not infectious.

The mumps and rubella parts of the vaccine start to work 2 to 3 weeks after the immunisation. A small number of children will have swelling of the face or pains in the joints. These are not infectious.

The chickenpox part of the vaccine starts to work from 3 to 4 weeks after immunisation. Some children will develop a few chickenpox-like spots at the site of the injection. The spots may contain infectious virus and should be covered. As long as the spots are covered children can go to nursery as normal.

Less common side effects
Around 1 in 1000 children may have a fit caused by a fever after having their first dose of MMRV. This is usually in the second week after the vaccine. This occurs slightly more frequently after MMRV than after the first dose of MMR, although the risk is small with both vaccines and much lower than the risk after the diseases themselves.

For comparison, 1 in 43 children who catch measles will have febrile convulsions. See the section on febrile seizures or convulsions.

Very rarely, children may get a rash of small bruise-like spots in the 6 weeks after the vaccination. This is usually caused by the measles or rubella parts of the vaccine. If you see spots like these, take your child to the doctor to be checked. The doctor will tell you how to deal with the rash.

Very rarely, children may develop a chickenpox-like rash (fluid-filled spots) over their body, not at the site of injection. If your child has a rash like this, take them to the GP.

Fewer than one child in a million develops encephalitis (swelling of the brain) after the MMRV vaccine. However, if a child who has not been vaccinated catches measles, the chance of developing encephalitis is between 1 in 200 and 1 in 5,000.

Seek urgent medical advice if your child has a fit or signs of encephalitis

- seizures or fits
- confusion or disorientation

- changes in personality and behaviour
- difficulty speaking
- weakness or loss of movement in some parts of the body
- loss of consciousness

Dial 999 for an ambulance immediately if you or someone else has these serious symptoms.

Egg allergies

The MMRV vaccine can safely be given to children who have had a severe allergy (anaphylactic reaction) to egg. This is because MMRV vaccine is grown on chick cells, not the egg white or yolk. If you have any concerns, talk to your health visitor, practice nurse or doctor.

Does the MMRV vaccine contain gelatine?

There are 2 MMRV vaccines which work equally well: ProQuad and Priorix Tetra. ProQuad contains porcine gelatine (gelatine from pigs) and Priorix Tetra does not. If you want your child to have the vaccine without gelatine, talk to your practice nurse or GP.

Further information is available in the patient information leaflets for both of the MMRV vaccines:

- ProQuad (http://www.medicines.org.uk/emc/product/101444/pil)
- Priorix Tetra (http://www.medicines.org.uk/emc/product/101321/pil)

More information on vaccines and porcine gelatine (https://www.gov.uk/government/publications/vaccines-and-porcine-gelatine) is available on GOV.UK.

MMRV and autism

In the past, there have been stories in the media linking MMR with autism. MMR makes up a part of the MMRV vaccine. It is now well established that there is no link.

Concerns about overloading your child's immune system

Giving your child the MMR vaccine, alongside MenB and PCV at the same age will not overload their immune system. From birth, babies' immune systems protect them from the germs that surround them. Without this protection, babies would not be able to cope with the tens of thousands of bacteria and viruses that cover their skin, nose, throat and intestines. This protection carries on throughout life.

In theory, a baby could respond effectively to around 10,000 vaccines at any one time. The baby's immune system can and does easily cope with the MMR and the other important vaccines given at the same time.

Side effects

Any side effects other than the common symptoms should be reported to your practice nurse or GP. Parents and carers can also report suspected side effects of vaccines and medicines through the Yellow card scheme from the Medicines and Healthcare Products Regulatory Agency (MHRA).

Reporting side effects

You can report suspected side effects of vaccines and medicines through the Yellow Card Scheme:

- online at Yellow Card Scheme (https://yellowcard.mhra.gov.uk/)
- by downloading and using the Yellow Card app on Apple (https://apps.apple.com/gb/app/yellow-card-mhra/id990237487) or Android (https://play.google.com/store/apps/details?id=uk.org.mhra.yellowcard&hl=en_GB)

- by calling the Yellow Card scheme on 0800 731 6789 (9am to 5pm)

Other immunisations

BCG vaccine

BCG protects babies against tuberculosis (TB).
In the UK, like many other countries, BCG is only offered to babies who are more likely than the general population to come into contact with someone with TB. This is because they either live in an area with high rates of TB or their parents or grandparents came from a country with high rates of TB.

The vaccination is usually offered around the first month after birth.

About TB
TB is an infection that usually affects the lungs. It can also affect other parts of the body, such as the lymph glands, bones, joints and kidneys. Most cases can be cured with treatment. TB can also cause a very serious form of meningitis.

> Although TB is no longer as common in the UK, worldwide it kills around 2 million people a year.

Babies that cannot have BCG vaccination
As with most other immunisations, the injection may not be given or should be delayed if:

- your baby has a high fever
- your baby is suffering from a generalised infected skin condition (if eczema is present, an injection site will be chosen that is free from skin lesions)

Rarely, in children who have weakened immune systems, the bacteria in the vaccine can cause serious infection.

It is very important that you tell the nurse or doctor if your child has, or is

suspected of having, a weakened immune system. For example:

- the child is on treatment for cancer or other serious conditions
- the child's mother had immunosuppressive biological therapy in pregnancy
- there is a family history of problems with the immune system (for example HIV, Severe Combined Immunodeficiency (SCID))
- babies who have or might have SCID

Your baby may be tested for SCID if this is suspected. Once your baby has had a SCID negative result, the BCG vaccination can go ahead.

After immunisation with BCG
A blister or sore may appear where the injection is given. If it does appear, it will heal gradually, and it is best if you do not cover it up. The sore may leave a small scar. If you are worried or think the sore has become infected, see your doctor.

The BCG vaccine is called BCG Vaccine AJV (https://www.medicines.org.uk/emc/product/9890/pil) and you can read more about it in the patient information leaflet.

You can also read the TB, BCG and your baby leaflet (https://www.gov.uk/government/publications/tb-bcg-and-your-baby-leaflet) for more information.

Hepatitis B vaccine

Although the hepatitis B vaccine is part of the routine childhood immunisation programme, it is also given to babies whose mothers have hepatitis B to prevent the babies getting the infection from their mothers at birth. If the immunisations are given on time they will reduce the risk of the baby developing hepatitis B by over 90%.

Babies at high risk of developing hepatitis B infection are given 6 doses of hepatitis B containing vaccine:

- the first dose of hepatitis B containing vaccine is given as soon as possible after birth, within 24 hours
- a second dose of hepatitis B containing vaccine is given when the baby is 4 weeks old

- the baby will then transfer to the routine immunisation schedule and will get their first dose of DTaP/IPV/Hib/HepB at 8 weeks of age
- a second dose of DTaP/IPV/Hib/HepB is given at 12 weeks of age
- a third dose of DTaP/IPV/Hib/HepB is given when the baby is 16 weeks of age
- at 18 months of age the baby will be given their final dose of hepatitis B containing vaccine which is necessary to provide longer-term protection

A blood test is taken between 12 and 18 months to check that the baby has not developed hepatitis B.

Further information is available in the patient information leaflets for both of the hepatitis B vaccines used:

- Engerix (https://www.medicines.org.uk/emc/product/8404/pil)
- HBVAXPRO (https://www.medicines.org.uk/emc/product/1684/pil)

Hepatitis
Hepatitis means inflammation of the liver. This can be caused by different things, including infection with hepatitis viruses. The vaccine protects against hepatitis caused by the hepatitis B virus, but it does not protect against other types of hepatitis.

The hepatitis B virus is passed through infected blood from mothers to their babies at birth. If you are pregnant and have hepatitis B, or if you get the disease during your pregnancy, you could pass it on to your baby. Your baby may not be ill immediately after birth but they have a high chance of developing serious liver disease later in life. Some people carry the virus in their blood without knowing it.

Pregnant women in the UK are offered a hepatitis B test during their antenatal care. If you have hepatitis B, you should have your baby vaccinated after birth to prevent them from becoming infected. It is safe to breastfeed your baby as long as they receive their vaccines on time.

After immunisation
The side effects of the hepatitis B vaccine are usually quite mild. There could be some redness, soreness or tenderness where the injection is given. This lasts for a few days.

Further information on hepatitis B vaccination (https://www.nhs.uk/conditions/vaccinations/) is available on NHS.UK.

Additional vaccines for individuals with underlying medical conditions

Because they are at more risk of becoming severely unwell and having to be admitted to hospital if they have some infectious diseases, people (including babies and young children) with underlying medical conditions may be offered additional vaccines, for example an annual flu vaccine.

Speak to your child's GP, nurse or health visitor if you think that this applies to your child.

Meningitis and septicaemia

Both meningitis and septicaemia are very serious. It is important that you recognise the signs and symptoms and know what to do if you see them. Early symptoms of meningitis and septicaemia may be similar to a cold or flu (fever, vomiting, irritability and restlessness).

However, people with meningitis or septicaemia can become seriously ill within hours, so it is important to act fast.

Meningitis

Meningitis is an infection of the lining of the brain. Meningitis can be caused by several types of bacteria including pneumococcus, meningococcus and Haemophilus influenzae or by viruses.

Septicaemia

Septicaemia is a very serious condition when the bloodstream is infected. Septicaemia can be caused by several types of bacteria including

pneumococcus, meningococcus and Haemophilus influenzae. The signs are cold hands and feet, pale skin, vomiting and being very sleepy or finding it difficult to wake up, and these signs can come on quickly. If you suspect you or someone else has septicaemia, get help urgently.

The bacteria that cause meningitis and septicaemia (blood poisoning), can also cause pericarditis (inflammation of the lining of the sac that contains the heart) and arthritis (swelling of the joints) and other serious infections.

Meningitis symptoms in babies
In babies, the main symptoms of meningitis may include:

- a high-pitched, moaning cry
- being irritable when picked up
- a bulging fontanelle
- feeling drowsy and not responding to you, or being difficult to wake
- being floppy and having no energy
- stiff with jerky movements (convulsions or fits)
- refusing feeds and vomiting
- having skin that is pale, blotchy or turning blue
- a fever

Septicaemia symptoms in babies
In babies the main symptoms of septicaemia may include:

- fever and shivering
- vomiting
- severe pains and aches in limbs and joints
- very cold hands and feet
- pale or mottled skin
- rapid breathing
- diarrhoea and stomach cramps
- red or purple ‘bruised’ or blotchy rash on skin that will not not fade under pressure – do the glass test; on dark skin, check inside the eyelids or roof of the mouth where the spots may be more visible
- difficulty walking or standing

- severe sleepiness or losing consciousness

Meningitis symptoms in older children, adolescents and adults
In older children, adolescents and adults, the main symptoms of meningitis may include:

- a stiff neck (check that they can kiss their knees or touch their forehead with their knees)
- a very bad headache (although this on its own is not a reason to get medical help)
- wanting to avoid bright lights
- vomiting
- a fever
- tiredness, being less responsive and confused
- a rash

Septicaemia symptoms in older children, adolescents and adults
In older children, adolescents and adults, the main symptoms of septicaemia may include:

- sleepiness, being less responsive, uninterested or confused (a late sign in septicaemia)
- severe pains and aches in the arms, legs and joints
- very cold hands and feet
- shivering
- rapid breathing
- red or purple spots that do not fade under pressure – do the glass test; on dark skin, check inside the eyelids or roof of the mouth where the spots may be more visible
- vomiting
- a fever
- diarrhoea and stomach cramps

Symptoms can occur in any order and some may not appear at all. Some of the symptoms are very similar to those of flu, so, if you're in any doubt about the health of your baby, trust your instincts and get advice urgently by contacting your doctor or call the NHS on 111.

The ‘glass test’

Glass pressing against rash.

Press the side of a clear drinking glass firmly against the rash so you can see if the rash fades and loses colour under pressure. If it does not change colour, contact your doctor immediately.

On dark skin, check inside the eyelids or roof of the mouth where the spots may be more visible.

Further information

Read more Meningitis information on NHS.UK (https://www.nhs.uk/conditions/meningitis/).

The following charities also provide information, advice and support.

Meningitis Research Foundation:

- free helpline 080 8800 3344 (9am to 5pm Monday to Friday)
- visit the Meningitis Research Foundation (https://www.meningitis.org/)

website

Meningitis Now:

- free helpline 0808 80 10 388 (Monday to Thursday 9am to 4pm, Fridays 9am to 1pm)
- visit the Meningitis Now (http://www.meningitisnow.org/) website

You can also ask your doctor, practice nurse or health visitor for advice, or for non-urgent enquiries call the free NHS helpline 111 or visit NHS.UK for more about child vaccination (https://www.nhs.uk/conditions/vaccinations/NHS-vaccinations-and-when-to-have-them/).

Vaccine Damage Payment Scheme

Current immunisations are extremely safe but, very rarely, an individual may suffer from a problem after vaccination. The Vaccine Damage Payment Scheme is designed to ease the present and future burdens of the person who, on that very rare occasion, may be affected by the vaccination. There are several conditions that need to be met before a payment can be made.

If you need more information, please contact:

Vaccine Damage Payments Unit
Department for Work and Pensions
Palatine House, Lancaster Road
Preston PR1 1HB
Phone: 01772 899944
Email: CAU-VDPU@dwp.gsi.gov.uk

If you want advice on immunisation, speak to your doctor, practice nurse, health visitor or pharmacist, or call the NHS helpline 111.

Travel advice for children

If your child is going abroad, make sure their routine immunisations are up to date. Your child may also need extra immunisations and you may also need to take other precautions.

Contact your doctor's surgery or a travel clinic well in advance for up-to-date information on the immunisations your child may need.

For more information

You can get more information on the NHS website (https://www.nhs.uk/) and Travel Health (https://travelhealthpro.org.uk/).

You can order free paper copies of this information from HealthPublications (https://www.healthpublications.gov.uk/ViewProduct.html?sp=Svaccinationforbabiesupto13monthsofage).

More information on vaccinations is available on NHS.UK (https://www.nhs.uk/conditions/vaccinations/).

Routine Childhood immunisation schedule from 1 January 2026

View the complete routine immunisation schedule for children including selective programmes on GOV.UK (https://www.gov.uk/government/publications/routine-childhood-immunisation-schedule).

Most vaccines are given as an injection in the thigh or upper arm. Rotavirus vaccine is given as drops to be swallowed and influenza vaccine as a nasal spray.

When	Diseases protected against	Vaccine given
8 weeks old	Diphtheria, tetanus, pertussis (whooping cough), polio, Haemophilus influenzae type b (Hib) and hepatitis B	DTaP/IPV/Hib/HepB
	Meningococcal group B (MenB)	MenB

When	Diseases protected against	Vaccine given
	Rotavirus gastroenteritis	Rotavirus
12 weeks old	Diphtheria, tetanus, pertussis, polio, Hib and hepatitis B	DTaP/IPV/Hib/HepB
	MenB	MenB
	Rotavirus	Rotavirus
16 weeks old	Diphtheria, tetanus, pertussis, polio, Hib and hepatitis B	DTaP/IPV/Hib/HepB
	Pneumococcal (13 serotypes)	Pneumococcal conjugate vaccination (PCV)
1 year old - on or after the child's first birthday	Pneumococcal (13 serotypes)	PCV
	Measles, mumps, rubella and chickenpox (varicella)	MMRV
	MenB	MenB booster
18 months old	Diphtheria, tetanus, pertussis, polio, Hib and hepatitis B	DTaP/IPV/Hib/HepB
	Measles, mumps, rubella and chickenpox (varicella)	MMRV
3 years and 4 months old or soon after	Diphtheria, tetanus, pertussis and polio	TdaP/IPV
All children aged 12 to 13 years	Cancers caused by certain human papillomavirus types (HPV)	HPV

When	Diseases protected against	Vaccine given
Fourteen years old (school year 9)	Tetanus, diphtheria and polio	Td/ IPV (check MMR status)
	Meningococcal groups A, C, W and Y disease	MenACWY