

Routine Childhood Immunisation

Immunisation has caused dramatic improvements in health. Because of immunisation, diseases such as diphtheria, tetanus, whooping cough, measles and polio which used to be major causes of ill health are now rare in many countries.

Normal immunisation schedule for children in the UK

AGE	- Immunisation (Vaccine Given)
2 months	- DTP/Polio/Hib (Diphtheria, Tetanus, Pertussis, Polio, and Haemophilus Influenza B) - all in one injection, plus: Pneumococcal (PCV) - in a separate injection
3 months	- DTP/Polio/Hib (2nd dose), plus: MenC (Meningococcus Group C) - in a separate injection
4 months	- DTP/Polio/Hib (3rd dose), plus: MenC (2nd dose) - in a separate injection, plus: Pneumococcal (PCV) (2nd dose) - in a separate injection
Around 12 months	- Hib/MenC (combined as one injection - 4th dose of Hib and 3rd dose of MenC)
Around 13 months	- MMR (Measles, Mumps and Rubella - combined as one injection), plus: Pneumococcal (PCV) (3rd dose) - in a separate injection
Around 4-5 years	- 'Pre-school' booster of: DTP/Polio , plus: MMR (second dose) - in a separate injection
Around 13-18 years	- Td/Polio booster. (A combined injection of Tetanus, low dose Diphtheria, and Polio.)

Note:

- DTP, Polio and Hib vaccines are combined into one injection - the DTP/Polio/Hib vaccine.
- Pneumococcal (PCV) is a separate injection and was added to the routine immunisation schedule in September 2006.
- Meningococcus group C vaccine (MenC) is sometimes given as a separate injection but is combined with Hib for one injection.
- Td/Polio is Tetanus, low dose Diphtheria and Polio vaccines combined as one injection.
- Polio immunisation changed in 2004. The polio vaccine is now combined with DPT/Hib or Td and given by injection. It used to be given by mouth (oral vaccine) as a few drops of vaccine on the tongue. If you have previously started a course of polio immunisation with oral vaccine you can finish off the course with polio injections. You do not need to start again.
- Measles, mumps and rubella vaccines are combined into one injection - the MMR vaccine.
- BCG immunisation to protect against tuberculosis (TB) is no longer given routinely to all schoolchildren. It was offered to all children at about aged 13 up until autumn 2005. BCG is now offered only to those at increased risk of catching TB.
- Other immunisations are given to certain 'at risk' groups of children. For example, immunisation against flu is given each year to children with certain medical conditions.
- Vaccines against some other infections are being developed and tested, and may be added to the routine schedule in the future.

What if I forget about or delay immunisations?

If the usual schedule is interrupted or delayed for any reason, it can be resumed at any time. There is no need to start again. However, it is best to have the immunisations at the correct time as the earlier the child is protected, the better. Some exceptions to this rule are:

- Pertussis vaccine is not usually given to children over the age of seven years.
- Meningococcal group C vaccine ('Men C'). If the child starts immunisation over the age of four months, then only two doses of Men C are needed, four weeks apart. If the child is over one year old and has not had any previous doses of Men C then only one dose is needed.
- Hib vaccine. If the child is over 13 months but under four years, and has not had any previous doses, then only one dose is needed. Hib is not given to children over four years as the risk of infection from this bacterium is much less than in young children and babies.
- Pneumococcal PCV vaccine. If a child between the age of one and two years has not had any previous dose of PCV, or only had one previous dose, then a single dose of PCV should be given. Children aged over two years and who are not in an at-risk group do not need to be immunised.

Who should NOT be immunised?

There are very few reasons why children should not receive their full course of immunisations. Immunisations are generally safe and effective. For *some* immunisations the two commonest reasons why it might not be advisable are:

- If the immune system is not working properly then *some* vaccines are not given. For example, in children with HIV infection, children undergoing chemotherapy or who are receiving high doses of steroids.
- If a child has previously had a severe reaction to the same vaccine.

See the leaflets on the individual immunisations for details.

Which diseases are prevented with childhood immunisations?

Diphtheria is caused by the bacterium *Corynebacterium diphtheriae*. It causes a serious throat and chest infection. Since immunisation was started in the 1950s, diphtheria has now become rare in the UK.

Haemophilus influenzae b (Hib) is a bacterium which can cause pneumonia and meningitis. Children under the age of four are most at risk. Before the introduction of the vaccine in 1992, 1 in 600 children developed some form of Hib disease before their fifth birthday. It is now rare.

Measles is caused by the measles virus. It causes a miserable feverish illness with a rash. Complications occur in some cases such as pneumonia, convulsions or encephalitis (brain inflammation). Before the introduction of a measles vaccine in 1968, measles was a common childhood illness. It is now rare in the UK.

Mumps is caused by the mumps virus. The infection typically causes inflammation and swelling of the salivary glands. Complications occur in some cases such as pancreatitis, orchitis (inflammation of the testes), meningitis, and encephalitis (inflammation of the brain). Mumps may cause permanent deafness in one ear. Again, mumps is now rare in the UK due to immunisation.

Rubella (german measles) is caused by the rubella virus. It causes a mild illness with a rash. However, if a pregnant woman has rubella, the virus is likely to cause serious damage to the unborn child. The child is likely to be born with multiple defects (Congenital Rubella Syndrome). The aim of rubella immunisation is to eliminate the rubella virus from the community as much as possible. Since rubella vaccination was introduced in 1970 there has been a dramatic fall in the number of babies born with the Congenital Rubella Syndrome.

Meningococcus group C is a bacterium which is one cause of meningitis and septicaemia (severe blood poisoning). There are other types of meningococcus, but cases of meningitis and septicaemia caused by group C have fallen since immunisation was introduced.

Pertussis (whooping cough) is caused by a bacterium called *Bordetella pertussis*. This causes a prolonged and distressing cough. Some infected children develop complications such as pneumonia or brain damage. There used to be regular epidemics of whooping cough in the UK before immunisation became available. Pertussis is now uncommon in the UK.

Pneumococcus is a bacterium (germ) which can cause pneumonia, meningitis and some other infections. Pneumococcal infection can affect anybody. However, young children, people aged 65 and over, and some other groups of people are at increased risk of pneumococcal infection.

Poliomyelitis (polio) is an illness caused by the polio virus. The virus first infects the gut, but then travels to the nervous system and can cause a meningitis-like illness. This may damage some nerves. This may lead to wasting of muscles and sometimes paralysis of one or more of the limbs. The illness can seriously affect breathing in some people and may lead to death. In 1955, before the introduction of polio immunisation, there were nearly 4,000 reported cases of polio in England and Wales. As a result of immunisation it is now rare in the UK.

Tetanus is an infection caused by a bacterium called *Clostridium tetani* which is found in the soil. It causes severe and agonizing muscle contractions and is often fatal. Between 1984 and 1995 there were 145 notifications of tetanus in England and Wales. Deaths from tetanus in the UK are mainly in people over the age of 50 years who have not been immunised as immunisation was introduced in the 1950s.

How does immunisation work?

The body is given a vaccine which is a small dose of an inactive form of a bacterium or virus (germ), or a toxin (poison) made by the germ. As it is inactive it does not cause infection. However, the body makes antibodies and/or immune cells (white blood cells) against the germ or toxin. Antibodies are proteins in the bloodstream that attack infecting germs. Once we are immunised the antibodies and/or immune cells are ready to attack the germ if it begins to invade our body. More antibody can quickly be made from cells which have previously made the particular antibody.

For some bacteria and viruses it has been difficult to produce a vaccine, but technology is advancing and new vaccines will be available in the future.

A new-born baby has 'passive' immunity to several diseases such as measles, mumps and rubella, from antibodies passed from its mother via the placenta. This passive immunity of babies usually only lasts for a few weeks or months, but for measles, mumps and rubella it lasts up to one year. Immunisation with vaccines is called 'active' immunity and provides long-term immunity.

Further information

Information on immunisation

www.immunisation.org.uk

From the NHS aimed at the general public.

Immunisation Against Infectious Disease (The Green Book)

www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/GreenBook/fs/en

From the Department of Health. Aimed at health professionals but of interest to all.

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