

## MEASLES

- Measles is a viral infection that attacks the immune system.
- Measles can have serious, or fatal, complications.
- There is no cure but vaccination is highly effective at preventing infection.

### SUMMARY

Measles is a viral disease spread through inhaling viral particles from infected coughs and sneezes. The disease attacks the immune system in both children and adults. In about 1 in 15 cases, complications develop that vary from a mild ear infection to encephalitis. The infection cannot be cured with antiviral drugs; the only realistic way to tackle it is through vaccination. The combined measles, mumps and rubella (MMR) vaccine given to prevent measles is effective, and has an excellent safety record.

### WHAT IS MEASLES?

Measles is a serious viral illness that attacks the immune system. It is spread through inhaling viral particles from coughs and sneezes. It is one of the most infectious diseases known. This means that if someone has measles, there is a very high chance of it spreading to others who are susceptible, even though contact may be fleeting. The only realistic way to prevent spread is through vaccination. Wearing standard surgical masks or washing hands does not limit the spread of measles.

The disease attacks both children and adults. It cannot be cured with antiviral drugs, nor is the vaccine curative. Therefore, once a person succumbs, only supportive treatment is available. In about 1 in 15 cases, complications develop that vary from a mild ear infection to (in rare and tragic instances) encephalitis, and a degenerative neurological condition called SSPE.

We estimate that around 10–20% of children with symptomatic disease need hospitalisation. In the remainder, measles is an unpleasant but self-limiting disease characterised by high fever and rash. In the UK, death occurs in 1 in 2,000–3,000 cases. Rates are higher in undernourished children or those with underlying conditions such as suppressed immunity.

### PREVENTING MEASLES THROUGH VACCINATION

The first measles vaccine was introduced in the UK in 1968. Initially, uptake was less than 50% but gradually increased to over 80%. Although the vaccine cut measles rates substantially it did not eradicate the problem. The combined measles, mumps and rubella (MMR) vaccine was introduced to the UK in 1988. In the early 1990s, a series of campaigns drove vaccination rates over 90%, cutting measles incidence to thousands of cases. In 1996, a second dose of the vaccine was recommended to maximise protection levels with the aim of totally eliminating measles, mumps and rubella.

National vaccination rates dropped to 80% in the late 1990s, following publication of research led by Andrew Wakefield interpreted as showing a link between MMR, autism and bowel conditions. Subsequent studies have confirmed there is no link between the vaccine and these conditions; vaccination rates have since rebounded to 94% among two-year old children, an all-time high.

The UK's health authorities are now urgently conducting a campaign to protect individuals – probably around one million across the country – who did not receive the vaccine in the 2000s due to concerns triggered by Wakefield. The aim is to prevent a major outbreak.



Vaccination. iStockphoto / iStock

## HOW ARE MMR VACCINES MADE?

Vaccines cannot be chemically synthesised and have to be manufactured in living cells. The measles vaccine is grown in cells isolated from chickens. The vaccine is combined with the mumps and rubella vaccines, which have been made in a similar way. There are only two licensed suppliers of the MMR vaccine in the UK, GlaxoSmithKline and Sanofi Pasteur/Merck. Each batch of vaccine produced – corresponding to about 50,000 individual doses – is tested for safety, and lack of contaminants, by an independent registered laboratory. In the UK, the National Institute for Biological Standards and Control, near London, tests the vaccines. Once the vaccine has been safety checked, it can be used.



## THE NEED FOR A HIGH LEVEL OF VACCINATION

Measles is one of the most infectious diseases known. This means that a very large proportion of the population must be protected to stop transmission, and eradicate the disease. High-levels of vaccination produce 'herd immunity' (recently dubbed 'community immunity'). Under these circumstances, vaccinated individuals block transmission of the infection, protecting even those who have not been vaccinated.

A vaccination campaign against measles that does not achieve high coverage can be dangerous. Cutting the rate of the disease to low levels does not eradicate it. Unvaccinated individuals are unlikely to contract the disease naturally, and develop immunity; they therefore remain susceptible and should not travel to areas where the virus is endemic. If the disease should re-establish itself, anyone unprotected is at high risk of infection: a major outbreak can develop.

## THE UK'S VACCINATION STRATEGY – NOW, AND IN THE FUTURE

The UK now has good levels of childhood vaccine uptake. However, keeping vaccination rates high is a continual task requiring that we:

- Keep an accurate vaccination record for each child.
- Provide GP practices with the capacity, knowledge, and communication skills to answer their patients' questions on vaccination.
- Design vaccination campaigns which engage the expertise of those who deliver vaccinations, such as school and practice nurses, and health visitors. These professionals have valuable experience reaching out to at-risk groups.
- Ensure that inequalities in vaccination uptake do not develop. Vaccination is a public health measure – all need access to it.
- Maintain high-quality web-based information resources on vaccination, aimed at the public.

## SGM BRIEFINGS

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