

## Measles

### **Measles is a highly infectious viral illness with the potential for serious and life threatening complications**

Measles is a highly infectious viral illness with the potential for serious and life threatening complications. Travel remains an important factor in the international spread of measles.

Measles is spread by airborne or droplet transmission. Initial symptoms can include fever, runny nose, conjunctivitis and cough. A rash usually appears a few days later that starts at the head and spreads to the trunk and limbs over three to four days. Individuals are infectious from the time when the first symptom appears to four days after the appearance of the rash. The incubation period (the time from exposure to the virus to developing symptoms) is about ten days (ranging between seven and 18 days).

Complications of measles infection can occur including otitis media (ear infections), diarrhoea and convulsions (fits). Rarely encephalitis (inflammation of the brain) or sub-acute sclerosing pan-encephalitis (chronic late onset brain inflammation leading to death) are reported. The risk of death from the complications of measles infection is age-related; it is high in children younger than one year and in adults.

Measles is endemic in many countries. In particular, countries experiencing or recovering from a conflict or natural disaster are particularly prone to outbreaks of measles. Damage to health infrastructure and health services can interrupt routine immunisation schedules and overcrowding in residential camps greatly increases the risk of infection.

Measles is described as 'endemic' if the disease is commonly reported (continuous transmission) in a defined geographical area through a 12-month period. Many countries worldwide have successfully interrupted measles circulation. However, all regions are vulnerable to importing and re-introducing the disease.

Limitations in national surveillance and reporting systems together with cases not seeking healthcare, and so not being accounted for, result in an underestimate of the number of measles cases globally. The World Health Organization provides measles data on reported cases. See link to [reported measles and rubella cases and incidence rates by member states](#) (a spreadsheet which downloads to your computer). Data for 30 [European countries is also available from European Centre for Disease Prevention and Control](#).

Comparing the incidence rate, where available, of the country to be visited with that of the UK can be useful when considering early measles vaccination for children travelling abroad (see below). Information on the [UK measles elimination indicators and status](#) is available from UK Health Security Agency (UKHSA).

NaTHNaC may report some verified measles outbreaks worldwide if they are unexpected or unusual on the [Outbreak Surveillance](#) section, but does not routinely report measles.

Individuals with no history of measles infection or who are unvaccinated or incompletely

vaccinated may be at risk from measles when visiting countries reporting cases, especially if staying with friends or family and mixing with the local population.

## Prevention

All United Kingdom (UK) travellers should ensure they are up to date with the measles, mumps and rubella (MMR) vaccination, according to [current UK recommendations](#). Infants are routinely offered the first dose of measles vaccine (MMR) at one year old (on or within the month following the first birthday) and the second dose before school entry, normally at age three years and four months.

### Infants from six months to under 12 months of age travelling from the UK to measles reporting countries

Babies born to mothers immune to measles before pregnancy (either following natural measles infection or from measles vaccination) receive some protection from their mother as they develop in the womb. This immunity is temporary and wanes in the first year after birth.

The UKHSA, recommends that infants from six months of age travelling to measles endemic areas with a high incidence of measles or to an area with a current outbreak and are likely to be mixing with the local population, should receive the MMR vaccination early (see section below).

Age range	Dose	Schedule	Reinforcing immunisation
Children aged 12 to 13 months*	0.5ml	1 dose	Routinely, at 3 years and 4 months to 5 years (pre-school booster)**
Children aged 3 years and 4 months to 5 years	0.5ml	1 dose	No reinforcing dose required if two routine doses given at appropriate intervals
Adults	0.5ml	1 dose	If previously unvaccinated, one further dose at least one month apart from first dose

**\*MMR can be given from six months of age in some circumstances, e.g. before travel to an endemic country and/or where an outbreak is occurring if likely to be mixing with the local population. If first dose is given before a child's first birthday, this is considered a supplementary dose and not part of the routine UK schedule. Two further doses of MMR should be given at the recommended ages (12-13 months and 3 years and 4 months to 5 years).**

**\*\*Children travelling to measles endemic areas or to areas with current outbreaks who received one dose of MMR at the routine age should have the second dose brought forward to at least one month after the first. If the child is under 18 months of age and the second dose is given within three months of the first dose, then the routine pre-school dose (a third dose) should be given in order to ensure full protection.**

A four week minimum interval period should be observed between the administration of yellow fever and measles, mumps and rubella vaccines (MMR). Co-administration of these two vaccines can lead to sub-optimal antibody responses to yellow fever, mumps and rubella antigens. Where protection is required rapidly then the vaccines should be given at any interval; [UKHSA guidance](#) states an additional MMR dose should be considered and revaccination with yellow fever can also be considered for those at on-going risk.

[UKHSA advice on immunisation against measles](#) is also available for those whose immunisation status is uncertain.

In the UK, measles is a [notifiable disease](#). Any case of suspected measles should be reported to the [local Health Protection Team](#).

## Resources

- [UKHSA: Immunisation against infectious disease. Measles](#)
- [UKHSA: Measles symptoms, diagnosis, complications and treatment](#)
- [UKHSA: Measles guidance, data and analysis](#)
- [UKHSA: MMR for all, general leaflet](#)
- [UKHSA: Vaccine update Dec 2017 MMR vaccine, who is eligible and can I use stock from Immform to catch up adults?](#)
- [World Health Organization: Measles](#)
- [Details on measles containing vaccines can be found in: Summary of Product Characteristics \(SPC\), electronic medicines compendium](#)
- [European Centre for Disease Prevention and Control: Monthly measles and rubella monitoring](#)