

# Measles

## Factsheet for healthcare professionals

## What is measles and how is it spread?

Measles is a morbillivirus of the paramyxovirus family.

Measles is spread through coughing and sneezing, close personal contact or direct contact with infected nasal or throat secretions.

Measles is one of the most highly communicable infectious diseases. Spending more than 15 minutes in contact with someone infected with measles is sufficient to transmit the virus.

## What are the symptoms and signs of measles?

Measles starts with a 2–4 day illness before the rash appears. This is called the prodromal phase. This typically includes:

- high fever;
- coryzal symptoms;
- cough;
- conjunctivitis.

Conjunctivitis is a more specific symptom that differentiates measles from many other causes of influenza-like illness. Symptoms typically peak on the first day of the rash.

Fever typically increases during the prodromal phase, peaks (generally  $>39^{\circ}\text{C}$ ) around the rash onset, and will gradually decrease after that.

The maculopapular (ie non-vesicular) rash generally starts on the face and behind the ears. The number of lesions/spots generally increases in the first 2–3 days, and their

distribution expands further to the face and trunk, though the rash can sometimes be generalised. Lesions can become confluent, particularly on the face and the trunk. The rash is red blotchy, maculopapular, not itchy, and generally lasts for 3–7 days, fading gradually.

Koplik spots may appear in the mouth around the time of the rash, sometimes one day before, and last for 2–3 days after the rash appears. These are small spots with white or bluish-white lesions, of about 2–3mm in diameter, on an erythematous base on the buccal mucosa. These can be confused with other lesions in the mouth and therefore their suspected presence is an unreliable marker for measles.

There are several other rash illnesses with a similar clinical presentation in children, including roseola (HHV6 infection), fifth disease (parvovirus B19 infection) and scarlet fever. Therefore identification based on clinical features alone in children can be unreliable. The timing and nature of symptoms is crucial in the differential diagnosis. For example, while symptoms, including fever, peaks with the onset of rash in measles, the onset of rash generally coincides with clinical improvement in the case of roseola.

Teenagers, adults and anyone who has missed their MMR vaccines could have measles, so it is important to consider it in the differential diagnosis of teenagers and adults with the symptoms outlined above.

## What are the potential complications of measles?

The most frequent complications include viral pneumonitis and otitis media, as well as diarrhoea. Tracheobronchitis (measles croup)

and pneumonia are frequent complications of measles due to secondary infection. Encephalitis occurs more rarely, in about 0.05% to 0.1% of the cases.

Subacute sclerosing panencephalitis (SSPE) is a very rare but very severe complication, occurring in about 0.01% of cases. Cases of SSPE generally present with progressive neuro-cognitive symptoms within a few years after disease, which generally lead to coma and death. The risk of SSPE is increased in children who acquire measles before the age of one.

Measles is particularly severe in immunosuppressed individuals. Immunosuppressed individuals are at higher risk of developing prolonged and severe disease than immunocompetent individuals, and have a much higher risk of complications. Viral pneumonitis is the most frequent severe complication, which generally develops within two weeks of symptom onset. It is also the most common cause of death in immunosuppressed individuals.

Measles in pregnant women can be severe and increases the risk of prematurity or foetal loss.

## When are people infectious with measles?

The period of infectiousness generally starts from about four days before the rash and lasts up to four days after the onset of rash.

The incubation period is typically around 10–12 days from exposure to onset of symptoms, but can vary from 7–21 days.

## Isolation of cases who present to GP or emergency departments

Measles is extremely infectious so patients who are suspected to have measles should not attend surgery when other patients are present.

They should ideally attend at the end of surgery or be seen at home.

Patients presenting to the emergency department with symptoms suspected of being measles should be isolated as soon as possible. Placing them in a cubicle with a curtain is not considered to be sufficient to contain the spread of infection to other patients in the department.

## Testing and notification of measles

Measles is a notifiable disease and so any healthcare professional who sees a suspected case of measles should report this to the Public Health Agency.

Please always notify the Public Health Agency on suspicion of measles without waiting for the test results, as interventions to prevent secondary cases (MMR or immunoglobulin) are likely to be more effective the sooner they are given.

Throat or mouth swabs can be sent for PCR testing to the Regional Virology Laboratory if sent within six days of the onset of the rash.

The Public Health Agency can also arrange for oral fluid swabs to be sent to the clinician or patient directly for self-collection of the sample and postage to the National Reference Laboratory. These tests can remain positive for up to two weeks after the onset of symptoms.

## What about staff who may be in contact with a suspected measles case?

*Immunisation against infectious disease* (The Green Book) recommends that all healthcare workers should have satisfactory evidence of immunity to measles, both for their own benefit and to protect their patients.

Satisfactory evidence of protection would include documentation of:

- having received two doses of MMR; or
- positive antibody tests for measles and rubella.

## MMR vaccination

The vaccine effectiveness of a single MMR dose is 90% and approximately 95% for two doses. To provide herd immunity to a population, 95% of people need to have received two doses of MMR. Although uptake of MMR in Northern Ireland is good, in some areas uptake falls well below this level and so these populations are vulnerable to the spread of measles.

We would encourage all practices to review their current MMR vaccine uptake and to look at ways this could be increased if it falls below the 95% level. The facility to offer opportunistic vaccinations if unvaccinated children attend the surgery for other reasons, can be helpful to improve uptake in people who have not attended for scheduled appointments.



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