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Measles Fact Sheet

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Overview

Measles is a highly contagious viral disease caused by the measles virus, a member of the *Morbillivirus* genus in the *Paramyxoviridae* family. Though primarily a childhood illness, measles can affect individuals of any age who are unvaccinated or lack immunity. The virus is transmitted through respiratory droplets when an infected person coughs or sneezes and can linger in the air or on contaminated surfaces for up to two hours. A single infected individual can transmit the virus to 12–18 susceptible persons, making measles one of the most infectious diseases known.

The period of infectivity begins approximately four days before the appearance of the characteristic rash and continues until about four days after its onset. Humans are the only reservoir of the virus, and there is only one serotype, meaning that infection or complete vaccination generally confers lifelong immunity. These virological features, combined with the availability of an effective vaccine, make measles a disease that can be eliminated through high population-level immunity.

Signs and Symptoms

After an incubation period of 7 to 14 days, the illness typically begins with a prodrome of high fever (>38.5°C), cough, coryza (runny nose), and conjunctivitis (red, watery eyes). A hallmark feature is the appearance of Koplik spots—small white lesions on the buccal mucosa—shortly before the onset of rash. The measles rash emerges as flat, red spots that typically start on the face and spread downward across the body. The rash usually lasts for 4–7 days and may be accompanied by a spike in fever.

Complications of Measles

Although measles is often self-limiting, it can result in serious complications, particularly in young children, immunocompromised individuals, and malnourished persons, especially with vitamin A deficiency. Common complications include otitis media (middle ear infection), pneumonia (the most common cause of measles-related death), and severe diarrhoea leading to dehydration. Less commonly, measles can cause encephalitis, which may result in long-term neurological damage or death. A rare but fatal complication is subacute sclerosing panencephalitis (SSPE), a progressive, degenerative brain disorder that typically manifests 7 to 10 years after the initial infection.

Immune Amnesia

A major but underappreciated consequence of measles is "immune amnesia," whereby the virus suppresses the immune system's memory of prior pathogens. Measles infection can erase immune memory for 20% to 70% of previously acquired immunity, leaving individuals susceptible to other infections for months or even years. This dangerous effect is unique to natural infection and is not caused by the vaccine, which instead helps preserve and strengthen immune memory.

Progress in Control in Sri Lanka

Sri Lanka has achieved substantial success in controlling measles, largely due to the effectiveness of its National Immunisation Programme. In 2019, the World Health Organisation verified that Sri Lanka had eliminated endemic measles transmission. The country provides the measles vaccine free of charge and maintains high coverage, with nearly 99% of children receiving two doses. As of 2025, the immunisation schedule includes the first dose of a measles-containing vaccine (MCV1) at 9 months and a second dose (MCV2) at 3 years, both as part of the combined Measles, Mumps, and Rubella (MMR) vaccine.

Measles Outbreak 2023–2025

Despite the 2019 elimination milestone, Sri Lanka experienced a measles outbreak beginning in May 2023, initially concentrated in the Colombo district and later spreading into many other districts. Many cases occurred among vaccine-hesitant families and in communities with low immunisation coverage. The outbreak underscores the necessity of maintaining high immunisation coverage at the subnational level, even in the post-elimination phase. As of May 2025, the outbreak is largely under control, with a marked reduction in reported cases.

Measles Surveillance

Measles is a notifiable disease in Sri Lanka. All suspected cases must be reported immediately to the Medical Officer of Health (MOH) and the Epidemiology Unit via special notification forms or electronic communication. The country employs a robust, case-based surveillance system guided by the WHO-recommended definition of "fever and maculopapular rash."

Laboratory confirmation is critical for case classification and outbreak management. Blood samples are tested for measles-specific IgM antibodies, while RT-PCR testing of throat swabs or nasopharyngeal samples is used to detect measles RNA. Genotyping of virus samples is performed through regional reference laboratories to support outbreak investigations and global surveillance efforts.

Surveillance quality is assessed using indicators such as the Non-Measles, Non-Rubella (NMNR) Discarded Rate. WHO recommends a rate of at least 2.0 per 100,000 population annually to ensure adequate sensitivity of the system.

Immunity Gaps and Vaccine Hesitancy

Despite Sri Lanka's high national immunisation coverage, immunity gaps remain among adults aged 20 to 30 years, largely due to missed opportunities during the introduction of the second MCV dose. The recent outbreak also highlighted vaccine hesitancy as an emerging concern. Even small clusters of under-vaccinated individuals can trigger sustained outbreaks. Combating this requires sustained community engagement, targeted risk communication, and countering vaccine misinformation.

Public Health Response to Measles Cases

Upon identification of a suspected measles case, an immediate case investigation is initiated by the Public Health Inspector (PHI), followed by a special investigation by the MOH for confirmed cases. The households of confirmed cases, along with approximately 50 neighbouring households, are screened for symptoms, vaccination status, and contact exposure. Susceptible individuals are promptly vaccinated, and symptomatic persons undergo clinical evaluation and laboratory testing. Isolation of confirmed cases and active follow-up for two incubation period cycles (28 days) are standard to prevent onward transmission.

Global Burden of Measles

Measles remains a leading cause of vaccine-preventable death worldwide, especially in regions with weak health systems and low vaccine coverage. According to the WHO, in 2023, an estimated 10.3 million measles cases occurred globally, resulting in approximately 107,500 deaths, predominantly among children under five. An estimated 22 million children missed their first dose of the measles vaccine in 2023, primarily in fragile and conflict-affected settings. The resurgence of measles globally highlights the urgent need to maintain \geq 95% coverage with two doses of measles-containing vaccine in every community to prevent future outbreaks.

Contact Information

For more information or to report a suspected case of measles, please contact the Epidemiology Unit of the Ministry of Health:

- **C** Telephone: +94 11 2695112
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- Website: <u>www.epid.gov.lk</u>