

WHO

Measles Fact Sheet

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Key facts

- Measles is one of the leading causes of death among young children even though a safe and cost-effective vaccine is available.
- In 2013, there were 145 700 measles deaths globally – about 400 deaths every day or 16 deaths every hour.
- Measles vaccination resulted in a 75% drop in measles deaths between 2000 and 2013 worldwide.
- In 2013, about 84% of the world's children received one dose of measles vaccine by their first birthday through routine health services – up from 73% in 2000.
- During 2000-2013, measles vaccination prevented an estimated 15.6 million deaths making measles vaccine one of the best buys in public health.

Measles is a highly contagious, serious disease caused by a virus. In 1980, before widespread vaccination, measles caused an estimated 2.6 million deaths each year.

The disease remains one of the leading causes of death among young children globally, despite the availability of a safe and effective vaccine. Approximately 145 700 people died from measles in 2013 – mostly children under the age of 5.

Measles is caused by a virus in the paramyxovirus family and it is normally passed through direct contact and through the air. The virus infects the mucous membranes, then spreads throughout the body. Measles is a human disease and is not known to occur in animals.

Accelerated immunization activities have had a major impact on reducing measles deaths. During 2000-2013, measles vaccination prevented an estimated 15.6 million deaths. Global measles deaths have decreased by 75% from an estimated 544 200 in 2000 to 145 700 in 2013.

Signs and symptoms

The first sign of measles is usually a high fever, which begins about 10 to 12 days after exposure to the virus, and lasts 4 to 7 days. A runny nose, a cough, red and watery eyes, and small white spots inside the cheeks can develop in the initial stage. After several days, a rash erupts, usually on the face and upper neck. Over about 3 days, the rash spreads, eventually reaching the hands and feet. The rash lasts for 5 to 6 days, and then fades. On average, the rash occurs 14 days after exposure to the virus (within a range of 7 to 18 days).

Most measles-related deaths are caused by complications associated with the disease. Complications are more common in children under the age of 5, or adults over the age of 20. The most serious complications include blindness, encephalitis (an infection that causes brain swelling), severe diarrhoea and related dehydration, ear infections, or severe respiratory infections such as pneumonia. Severe measles is more likely among poorly nourished young children, especially those with insufficient vitamin A, or whose immune systems have been weakened by HIV/AIDS or other diseases.

In populations with high levels of malnutrition and a lack of adequate health care, up to 10% of measles cases result in death. Women infected while pregnant are also at risk of severe complications and the pregnancy may end in miscarriage or preterm delivery. People who recover from measles are immune for the rest of their lives.

Who is at risk?

Unvaccinated young children are at highest risk of measles and its complications, including death. Unvaccinated pregnant women are also at risk. Any non-immune person (who has not been vaccinated or was vaccinated but did not develop immunity) can become infected.

Measles is still common in many developing countries – particularly in parts of Africa and Asia. The overwhelming majority (more than 95%) of measles deaths occur in countries with low per capita incomes and weak health infrastructures.

Measles outbreaks can be particularly deadly in countries experiencing or recovering from a natural disaster or conflict. Damage to health infrastructure and health services interrupts routine immunization, and overcrowding in residential camps greatly increases the risk of infection.

Transmission

The highly contagious virus is spread by coughing and sneezing, close personal contact or direct contact with infected nasal or throat secretions.

The virus remains active and contagious in the air or on infected surfaces for up to 2 hours. It can be transmitted by an infected person from 4 days prior to the onset of the rash to 4 days after the rash erupts.

Measles outbreaks can result in epidemics that cause many deaths, especially among young, malnourished children. In countries where measles has been largely eliminated, cases imported from other countries remain an important source of infection.

Treatment

No specific antiviral treatment exists for measles virus.

Severe complications from measles can be avoided through supportive care that ensures good nutrition, adequate fluid intake and treatment of dehydration with WHO-recommended oral rehydration solution. This solution replaces fluids and other essential elements that are lost through diarrhoea or vomiting. Antibiotics should be prescribed to treat eye and ear infections, and pneumonia.

All children in developing countries diagnosed with measles should receive two doses of vitamin A supplements, given 24 hours apart. This treatment restores low vitamin A levels during measles that occur even in well-nourished children and can help prevent eye damage and blindness. Vitamin A supplements have been shown to reduce the number of deaths from measles by 50%.

Prevention

Routine measles vaccination for children, combined with mass immunization campaigns in countries with high case and death rates, are key public health strategies to reduce global measles deaths. The measles vaccine has been in use for 50 years. It is safe, effective and inexpensive. It costs approximately one US dollar to immunize a child against measles.

The measles vaccine is often incorporated with rubella and/or mumps vaccines in countries where these illnesses are problems. It is equally effective in the single or combined form. Adding rubella to measles vaccine increases the cost only slightly, and allows for shared delivery and administration costs.

In 2013, about 84% of the world's children received 1 dose of measles vaccine by their first birthday through routine health services – up from 73% in 2000. Two doses of the vaccine are recommended to ensure immunity and prevent outbreaks, as about 15% of vaccinated children fail to develop immunity from the first dose.

WHO response

The fourth Millennium Development Goal (MDG 4) aims to reduce the under-five mortality rate by two-thirds between 1990 and 2015. Recognizing the potential of measles vaccination to reduce child mortality, and given that measles vaccination coverage can be considered a marker of access to child health services, routine measles vaccination coverage has been selected as an indicator of progress towards achieving MDG 4. Overwhelming evidence demonstrates the benefit of providing universal access to measles and rubella-containing vaccines.

By 2013, the global push to improve vaccine coverage resulted in a 75% reduction in deaths. During 2000-2013, with support from the Measles & Rubella Initiative (M&R Initiative), measles vaccination prevented an estimated 15.6 million. During 2013, about 205 million children were vaccinated against measles during mass vaccination campaigns in 34 countries. All WHO Regions have now established goals to eliminate this preventable killer disease by 2020.

The M&R Initiative is a collaborative effort of WHO, UNICEF, the American Red Cross, the United States Centers for Disease Control and Prevention, and the United Nations Foundation to support countries to achieve measles and rubella control goals.

In 2012, the MR Initiative launched a new Global Measles and Rubella Strategic Plan which covers the period 2012-2020. The Plan includes new global goals for 2015 and 2020:

By the end of 2015

- To reduce global measles deaths by at least 95% compared with 2000 levels.
- To achieve regional measles and rubella/congenital rubella syndrome (CRS) elimination goals.

By the end of 2020

- To achieve measles and rubella elimination in at least 5 WHO regions.

The strategy focuses on the implementation of 5 core components:

- achieve and maintain high vaccination coverage with 2 doses of measles- and rubella-containing vaccines;
- monitor the disease using effective surveillance, and evaluate programmatic efforts to ensure progress and the positive impact of vaccination activities;
- develop and maintain outbreak preparedness, rapid response to outbreaks and the effective treatment of cases;
- communicate and engage to build public confidence and demand for immunization;
- perform the research and development needed to support cost-effective action and improve vaccination and diagnostic tools.

Implementation of the Strategic Plan can protect and improve the lives of children and their mothers throughout the world, rapidly and sustainably. The Plan provides clear strategies for country immunization managers, working with domestic and international partners, to achieve the 2015 and 2020 measles and rubella control and elimination goals. It builds on years of experience in implementing immunization programmes and incorporates lessons from accelerated measles control and polio eradication initiatives.

Based on current trends and performance, global immunization experts concluded that the 2015 measles milestones and elimination goals will not be achieved on time. Resuming progress will require countries and immunization partners to raise the visibility of measles elimination, address barriers to measles vaccination, and make substantial and sustained additional investments to strengthen health systems and achieve equitable access to immunization services.