

*epi*TRENDS

Epidemiology and Public Health Practice in WA

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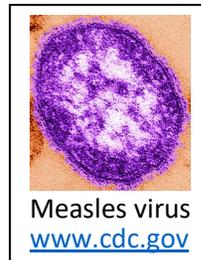
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Measles, 2024

Measles (rubeola) was once an almost universal childhood illness. Routine childhood vaccination resulted in dramatic reduction in cases, but periodic increases still occur including in recent months.

The Disease

The symptoms of measles include fever, cough, coryza (runny nose), and conjunctivitis followed by a classic descending rash lasting around five days. The illness is usually sufficiently serious to result in lost school or work time.



Complications of measles include effects of a high fever (which may reach over 105°F), ear infections, diarrhea, and more rarely severe effects such as pneumonia or encephalitis. Hospitalization may be required. Subacute sclerosing panencephalitis is another rare complication that occurs up to a decade after acute measles infection, involving progressive neurological symptoms including cognitive, behavioral, and motor function changes eventually leading to coma.

The severe complications of measles can result in death or life-long adverse effects; measles pneumonia is a particular risk for young children. Most subacute sclerosing panencephalitis cases are fatal within a few years of diagnosis. Measles infection during pregnancy can cause a premature or low-birthweight baby with potential long-term health consequences.

Humans are the only reservoir for measles, which is among the most contagious communicable diseases affecting people. Transmission is person-to-person through both droplet and airborne exposures. A person is contagious four to five days before the rash onset date through four days after. Infectious aerosolized droplet nuclei can persist in a room for up to two hours. When susceptible persons are exposed more than 90% are expected to develop measles. Introductions to communities with low immunity levels can result in large outbreaks and high morbidity and mortality.



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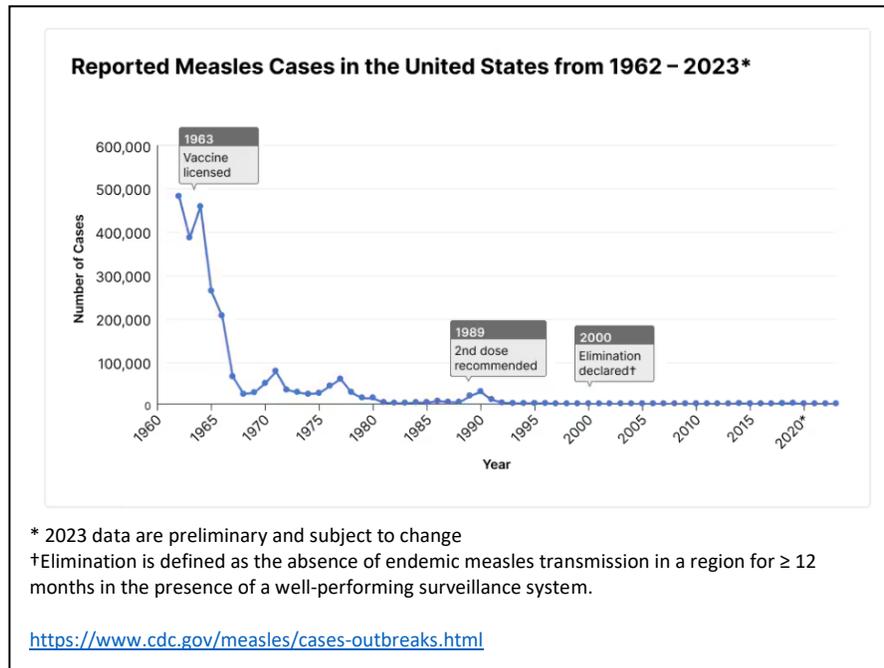
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Trends in Measles in the United States

Prior to vaccine availability most children were affected by measles, particularly children and adolescents living in urban areas with sufficient populations to sustain ongoing disease transmission. More remote regions might have periodic introductions of the disease. National annual incidence rates were hundreds of cases per 100,000 population until the 1960s. Annual incidence of the disease rapidly declined in the decade after measles vaccine was licensed in 1963, with an improved vaccine introduced in 1968.



Elimination is considered the absence of continuous measles transmission for greater than 12 months. The effort to eliminate measles in the United States was announced in 1978. Due to outbreaks among school-aged children in 1989, a second measles vaccine dose was recommended for all children. Since then low incidence has been sustained, and endemic transmission of measles in the United States was declared interrupted in 2000.

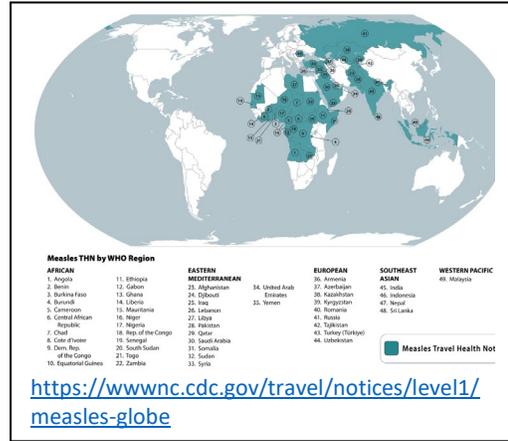
Introduced measles cases still occur due to international travel or visitors, and such cases can result in transmission within the country. Spread is most likely in communities with low levels of immunity against measles. Recently national measles case counts have ranged from dozens to over a thousand per year, far from the hundreds of thousands of annual cases that occurred in the past. Counts were particularly low in 2020 (13 cases) and 2021 (49 cases) during a period with widespread control measures for COVID-19, followed by 121 cases in 2022 and 56 cases in 2023.

Disease patterns were similar in Washington, with high historical annual incidence rates of reported measles cases and dozens of deaths each year prior to the introduction of vaccine. When vaccine became available, measles rates soon fell below 5/100,000 and 1993 was the first year that zero measles cases were reported in the state. Although typically fewer than five cases are reported a year, there are periodic outbreaks, including two outbreaks in 2019 that totaled 90 cases. There was a single measles case reported in the state during 2020 and no cases reported in 2021. In 2022, one measles case was reported.

Recent Outbreaks

Returning residents infected during international travel represent the majority of imported measles cases in the United States. In December 2023, World Health Organization (WHO) reported global increases in measles. Reduced vaccination efforts during the COVID-19 response may have resulted in larger populations of susceptible children.

In March, 2024, the Centers for Disease Control and Prevention (CDC) published a travel notice due to multiple countries with large measles outbreaks. It was recommended that travelers be fully vaccinated against measles at least two weeks before departure. Alternate travel or vacation plans may be appropriate if vaccination is not possible. Of note, no countries in the Americas were included in the travel notice.



In 2024 as of early May there have been 132 measles cases reported by 21 jurisdictions in the country including 3 cases in Washington. About 45% of cases were under five years of age and for that group 64% were hospitalized for either isolation or management of complications. Only 19% of cases were known to have received MMR vaccination (14% a single dose, 5% two doses). Eight outbreaks (3 or more related cases) have been identified, with a total of 91 cases. Multiple notices of potential exposures have been issued including at an Indiana children’s museum during the total eclipse, a shopping club in Illinois, and various tourist locations in California. Additional exposures were possible at healthcare facilities where case patients had sought care.

As a vaccine-preventable disease, measles could in theory be eliminated or controlled in most countries. Encouraging measles-containing vaccination uptake can protect against individual illness and increase community protection against the spread of illness. The Washington State Department of Health (WA DOH) continues to closely monitor measles activity globally, nationally and in the state. WA Public Health Laboratories (WA PHL) maintains rapid diagnostic measles testing capacity. Measles is an immediately notifiable condition. Local health jurisdictions should contact the DOH Communicable Disease Epidemiology 206-418-5500 to discuss any suspected measles cases and to request any measles investigation and testing support as needed.

Resources

CDC – Measles cases and outbreaks: <https://www.cdc.gov/measles/cases-outbreaks.html>

CDC – MMWR <https://www.cdc.gov/mmwr/volumes/73/wr/mm7314a1.htm#:~:text=During%20January%201%2C%202020%E2%80%93March,measles%20elimination%20status%20was%20maintained>

CDC – Pink Book background: <https://www.cdc.gov/vaccines/pubs/pinkbook/meas.html>