

the Region of the Americas and threatened elimination in the United States, highlighting the continual risk. In 2019, the 1282 measles cases reported in the United States were the highest since 1992.

The Measles and Rubella Initiative, a partnership led by the American Red Cross, the United Nations Foundation, UNICEF, the U.S. Centers for Disease Control and Prevention (CDC), and the WHO, is playing an important role in reducing global measles incidence and mortality rates. Since its inception in 2001, the Initiative has provided governments and communities in 88 countries with technical and financial support for routine immunization activities, mass vaccination campaigns, and disease surveillance systems.

■ ETIOLOGY

Measles virus is a spherical, nonsegmented, single-stranded, negative-sense RNA virus and a member of the *Morbillivirus* genus in the family Paramyxoviridae. Measles was originally a zoonotic infection, arising from animal-to-human transmission of an ancestral morbillivirus thousands of years ago, when human populations had attained sufficient size to sustain virus transmission. Although RNA viruses typically have high mutation rates, measles virus is considered to be an antigenically monotypic virus; i.e., the surface proteins responsible for inducing protective immunity have retained their antigenic structure across time and distance. The public health significance of this stability is that measles vaccines developed decades ago from a single strain of measles virus remain protective worldwide. Measles virus is killed by ultraviolet light and heat, and attenuated measles vaccine viruses retain these characteristics, necessitating a cold chain for vaccine transport and storage.

■ EPIDEMIOLOGY

Measles virus is one of the most highly contagious directly transmitted pathogens. Outbreaks can occur in populations in which <10% of persons are susceptible. Chains of transmission are common among household contacts, school-age children, and health care workers. There are no latent or persistent measles virus