

hand hygiene

I'm Preventable, but I'm Resurging

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I spread fast in the human population—really fast. In fact, one person can infect 12 to 18 other susceptible individuals with me. I am a single-stranded, enveloped RNA virus and a member of the *Morbillivirus* genus in the Paramyxoviridae family. You breathe me in unsuspectingly, but with vaccination, you can still successfully prevent my infection. This is why for decades, infection rates with me have remained low. But unfortunately, as vaccination rates continue to drop, I'm slowly making my return.

It's estimated that between 1855 and 2005, I killed approximately 200 million individuals. It's likely, however, that the number of total deaths attributed to me is higher than this because I've been around for much longer than we have mortality records for. At some point between 860 and 932 AD, I was first described by Persian physician Muhammad ibn Zakariya al-Razi, who distinguished my infection from smallpox in his book. History has tried to blame me for outbreaks of smallpox several times, but the 2 conditions are incredibly distinct from one another. It's speculated that at the time of al-Razi's description, I hadn't fully developed yet. However, I would fully develop shortly after his description and spread worldwide during the Renaissance period.

In 1757, a Scottish physician, Francis Home, would expose individuals infected with me to healthy individuals to demonstrate how my infection was being spread by an unseen infectious agent. By the year 1912, the year that reporting my infection became mandatory, approximately 6000 deaths due

to my virus were reported. In 1963, a vaccine would become available, leading the United States to declare by the year 2000 that I was entirely eradicated. That is, until 2008.

Initially, I settle in your respiratory tract. Carried there by droplets or aerosolized particles from an infected individual, I find my way in through your mouth or nose. Occasionally, I can gain entry to your body when you touch a contaminated surface and then touch your hands to your eyes, nose, or mouth. Once inside, I continue to replicate, spreading through lymphoid tissue to the bloodstream and other organs in the body.

Initial symptoms might include coughing, runny nose, and high fever, but once I spread throughout the body, usually 3 to 5 days after initial symptoms, a distinctive rash appears. The rash appears as flat red spots that usually begin on the face and spread downward to the neck, trunk, arms, legs, and feet. Tiny white spots, known as Koplik spots, may also appear inside the mouth 2 to 3 days after initial symptoms appear.

Although many people will recover from me with no complications, for some, severe complications may result. My infection can be especially dangerous for children younger than 5 years, adults older than 20 years, pregnant women, and individuals with immunocompromising conditions. Complications such as pneumonia and encephalitis (swelling of the brain)

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can result in death or permanent disability. In children younger than 5 years, 1 in 20 infections will result in pneumonia and 1 in 1000 infections will lead to encephalitis. Pneumonia is the most common reason for death in children younger than 5 years who are infected with me.

Do you want to know what is incredibly surprising? My infection is entirely preventable! You created a vaccine—an incredibly safe and effective vaccine. Until the year 2000, individuals worldwide received this vaccine routinely as infants.

Unfortunately, years of misinformation have misled individuals to believe that the vaccine and vaccines in general are no longer safe, needed, or effective. As a result, individuals began to refuse to vaccinate their children against my infection and others. Now the infectious diseases you've worked so hard to eradicate are coming back. Infections and outbreaks are reappearing all over the world.

In 2014, the United States saw a record year with 644 cases of infection with my virus, 14 years after they'd declared it fully eradicated. In 2017, thousands of cases were reported in Europe, with 35 preventable deaths. And in 2018, I began to circulate again in Venezuela. You can prevent me, but you don't. So, I'm coming back.

I am Measles! 