The Common Cold and Rhinoviruses
Essential Information
The Common Cold and Rhinoviruses

Origins

A cold is a mild upper respiratory tract viral infection (occurs in the sinuses, nose, and throat) that is often referred to as the "common cold" because colds occur with high frequency each year. Most colds occur during the winter and spring, but colds can and do occur any time of the year.

More than 200 different virus strains are capable of causing colds with rhinoviruses being the most common. Viruses causing colds include the list below with more than one virus frequently being present at the same time.

- Rhinoviruses, 35% (some estimates are 30-80%)
- Human coronavirus, 15%
- Influenza viruses, 10-15%
- Adenoviruses, 5%
- Other, 30% (includes Human parainfluenza virus, Human respiratory syncytial virus, enteroviruses (non-rhinovirus), and metapneumovirus)

For simplicity in this brochure, we will refer to a rhinovirus infection and a cold as the same thing, although as mentioned above, colds can be caused by other viruses as well.

Rhinoviruses have a diameter of 30 nm, which makes them one of the smaller viruses. They belong to a family of viruses called picornaviridae. There are more than 100 different types of rhinoviruses, several coronaviruses, and 47 adenoviruses, which makes developing a vaccine to prevent colds difficult since a vaccine is not likely to be effective against multiple strains of a virus. Studies have shown that after recovery from a rhinovirus infection, some level of immunity is acquired in 40-85% of people and when immunity is acquired, it may only be short-lived. This helps explain why colds continue to be frequent throughout a person's life.
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Geographic Risk

Colds occur globally and are considered the most common human disease, formally first identified in the 1950s, but are believed to have occurred since ancient times. They are more common during cold weather and wet (rain or winter) conditions. Traditionally, “catching a cold” was an expression used to describe the risk of getting a cold based on prolonged exposure to cold or wet weather, which has since been disproven, since colds are now known to be caused by viruses.

The economic impact is not well understood in much of the world, but in the United States, there are an estimated 62 million annual occurrences of the common cold, resulting in 1 billion+ colds and 20 million lost school days. For adults in the US, 40% of lost time from work is associated either with being sick with a cold or staying home to care for a child with a cold. Adults are estimated to have 2-4 colds per year, but children are estimated to have 6-8 per year with some children of school age having up to 12 colds per year.

Diagnosis

A person infected with rhinovirus will show symptoms within 12-72 hours of exposure, start shedding virus 24 hours after infection, and typically peak symptoms 2-4 days after symptom onset. Symptoms usually resolve within 7-14 days, but can continue up to 3 weeks in some cases. Symptoms of a cold include:

- Sneezing
- Watery eyes
- Stuffy/runny nose
- Mild headache
- Sore throat
- Mild body aches and fatigue
- Coughing

When a person is first infected with rhinovirus or another cold causing virus, the body attempts to expel the virus by producing clear mucus, which drains from the sinuses and reduces the level of bacteria normally found in the nose and sinuses. After 2-3 days, the mucus changes to yellow as the body’s immune system fights the cold. People with rhinovirus infections are believed to be most infectious during the first three days of symptoms. As bacteria normally found in the nose return, the mucus can change to green, which is a normal occurrence.

The symptoms of a cold usually last for up to 2 weeks, although the cough can continue for several weeks after other symptoms resolve. People with weakened immune systems, asthma, or respiratory conditions, may develop serious illness, such as pneumonia, after getting a cold.

The symptoms likely to present early in the illness are often seen in patients with other commonly occurring diseases, such as influenza which generate similar symptoms. Diagnosis and treatment should only be performed by a trained physician who can rule out other potential diseases. See a Healthcare provider if someone:

- Has a temperature over 100.4°F/38.0°C, especially if the person sick is a child of less than 3 months in age
- Symptoms last more than 10 days
- Symptoms are not relieved by over-the-counter medicines

Method of Transmission/Contagiousness

Rhinoviruses are spread through person to person contact. When a person has a cold, the rhinovirus (or other virus causing the cold) is located in the nose and sinus cavity (nasal mucous membrane) of the infected person. When the infected person sneezes or coughs, small droplets that contain the virus are spread. A single sneeze can release 40,000 droplets (aerosol), which can travel through the air and be inhaled or swallowed by others at distances of up to 2 meters (6 feet). The virus can live on surfaces for up to several days.

Droplets can also settle on surfaces and objects, where people can pick the virus up (indirect transmission) on their hands and by touching their mouth, nose, or eyes, become infected. Some authorities believe that aerosol transmission is less important than other routes. Rhinovirus is not believed to be transmitted by food if the food is handled and prepared properly.

Improper handwashing after using the toilet or changing a diaper of an infected infant can also contaminate people or surfaces. While rhinoviruses are less likely to be transmitted this way, other viruses causing colds, including enteroviruses and influenza, can be transmitted this way.

Colds are spread by:

- **Direct contact**: Having direct contact with a person who is infected.
- **Indirect contact**: Touching surfaces or objects that are contaminated with rhinovirus and thenouching eyes, nose, or mouth.
Prevention

Hand Hygiene: Frequent hand washing with soap and water or use of alcohol hand gel can prevent the transmission of viruses that can cause colds. Hand hygiene should be performed after sneezing or coughing. Avoid touching your face, mouth, eyes, and nose.

Respiratory Hygiene: Anytime you or others cough or sneeze, cover your mouth with a tissue or use your elbow. Dispose of the tissue once used. Wash your hands or use alcohol hand gel after sneezing or coughing. Some sources recommend the use of face masks when around people who are infectious to prevent inhalation of infectious droplets, but public health authorities (CDC and WHO) do not currently include this as a recommendation for people outside Healthcare settings.

Reduce Contact: Avoid or minimize contact with people who have colds or other upper respiratory infections.

Surface Cleaning/Disinfection: Viruses that can cause colds, including rhinovirus, can live for several days on environmental surfaces. Commonly touched surfaces (door handles, light switches, elevator buttons, keyboards, phone, etc.) should be cleaned and disinfected regularly, or when visible soiled. During cold and flu season the cleaning frequency of these surfaces is often increased depending on the severity of illness for that year.

Good Health Practices: Practicing good health is also helpful in preventing the development of illness. The strength of a person's immune system is often related to their overall health. Get plenty of sleep, eat healthy, be physically active, manage stress, and drink plenty of fluids to keep your immune system strong.

Protocol for Sick Staff Members: Staff members who lose pay for staying home when sick may be tempted to come to work sick, creating risk for other staff and customers. Facility policy should address how to resolve this issue.

Vaccination: There are no vaccines available for colds.

References and useful websites

Much of the Information used in the development of this brochure was taken from the sites listed below.

http://www.cdc.gov/getsmart/antibiotic-use/uri/colds.html
http://www.cdc.gov/Features/Rhinoviruses/index.html
http://www.who.int/maternal_child_adolescent/documents/fch_cah_01_02/en/