


# Understanding the Common Cold: An Infectious Disease

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## Abstract

The common cold, caused by various viruses, is a prevalent infectious syndrome affecting humans worldwide. It presents with symptoms like nasal stuffiness, sneezing, sore throat, cough, hoarse voice and though usually self-limiting in healthy individuals, it can lead to complications such as secondary bacterial infections and exacerbations of existing respiratory conditions. Depending on the specific virus involved, transmission of the common cold can occur through direct contact with contaminated surfaces and through airborne routes. Rhinoviruses are the most frequent cause of the common cold but other pathogens like coronaviruses and respiratory syncytial virus also contribute. The duration of symptoms varies with cough becoming more prominent as nasal symptoms subside. This study focuses on the short review of infectious disease common cold.

**Keywords:** Infectious disease; Common cold; Viruses; Sneezing; Cough

## Introduction

The common cold is the most prevalent infectious syndrome in humans, primarily characterized by symptoms like nasal stuffiness, sneezing, sore throat, cough and hoarse voice. Although it is usually self-limiting for healthy individuals, complications like secondary bacterial infections and exacerbations of existing respiratory conditions can occur. Despite its generally benign nature, the common cold imposes a significant economic burden due to increased medical consultations, school and work absenteeism and subsequent loss of earnings. Contrary to its name, the common cold can be caused by a variety of distinct viruses, making it a diverse illness [1].

The common cold is caused by various viruses, with rhinoviruses being the most frequent culprits. Other significant pathogens include coronaviruses and Respiratory Syncytial Virus (RSV). Influenza, parainfluenza and adenoviruses can also cause cold symptoms but often result in additional respiratory or systemic issues. Colds occur throughout the year but are less common in summer. The respiratory virus season usually begins with an increase in rhinovirus infections in August or September and ends with the spring peak in April or May. Different viral pathogens cause sequential outbreaks during this season. Common cold symptoms typically appear one to two days after viral infection with the peak occurring two to four days later. Early symptoms include nasal congestion, sneezing and a scratchy throat, but a sore throat is usually the most bothersome on the first day. Cough becomes more prominent around the 4th or 5th day as nasal symptoms subside.

The usual cold lasts about a week but 25% can last up to two weeks. Even after symptoms resolve, the virus can still be shed and people may remain contagious for several weeks. The incidence of the common cold is higher in preschool children with 5 to 7 infections per year on average. Exposure to other children such as in daycare centers, increases the risk of colds. Although the transmission of common cold viruses seems efficient due to its frequency, natural transmission of rhinovirus is surprisingly inefficient, with direct contact being the most effective mechanism. However, transmission routes may vary for different

viruses. Studies indicate that contact between the virus and the nasal mucosa is essential for infection initiation, with very small virus inoculums being enough to cause infection when applied to the nasal cavity. Conjunctival inoculation can also efficiently lead to rhinovirus infection, as the virus can reach the nasal cavity through the nasolacrimal duct [2].

In the past, human coronaviruses were considered mild and caused the common cold. However, in the 21st century, highly pathogenic coronaviruses like SARS-CoV and MERS-CoV emerged, causing severe epidemics with significant morbidity and mortality. In December 2019, a new pathogenic coronavirus, 2019-nCoV, was identified in Wuhan, China, leading to serious illness and death. Coronaviruses are diverse, with bats being the main reservoir for many of them and they can infect humans through intermediate hosts. SARS-CoV caused the Severe Acute Respiratory Syndrome (SARS) outbreak in 2002, spreading through international travel. It was found to have originated from bats and caused severe pneumonia, especially in older individuals with medical conditions. SARS spread in healthcare settings and occasional community transmission occurred. MERS-CoV was identified in 2012 and although it did not spread widely in the community, it caused sporadic zoonotic transmission and nosocomial outbreaks, particularly linked to super spreader events. MERS-CoV has caused severe respiratory illness and posed a significant challenge to healthcare systems. Both SARS and MERS demonstrated the potential of coronaviruses to cross the species barrier and cause severe human infections. The outbreaks led to extensive economic costs and increased awareness of pandemic threats [3].

The common symptoms of common cold are Sore Throat, Sneezing, Rhinorrhoea, Nasal congestion, Sinus pain, Watery eyes, Cough, Headache, Chilliness and fever, Anorexia, Muscle aches and pains, etc. [4]. The common cold, a viral illness affecting people of all ages, has limited effective treatment with antibiotics. Over-the-counter cough and cold medications should be avoided in children under four years due to potential harm. However, certain remedies like vapor rub, zinc sulfate, geranium extract and buckwheat honey can help alleviate symptoms in children. Probiotics, zinc sulfate, nasal saline irrigation and Chizukit herbal preparation can reduce cold incidence in children. For adults, antihistamines, intranasal corticosteroids, codeine and Echinacea preparations are ineffective. Pseudoephedrine, phenylephrine, inhaled ipratropium and zinc can modestly reduce symptoms' severity and duration in adults. Antihistamines in combination therapy are found beneficial in common colds. Nonsteroidal anti-inflammatory drugs and Echinacea purpurea may improve adult symptoms. Garlic can decrease cold frequency in adults but not affect symptom duration. Hand hygiene is crucial in preventing cold virus spread. Prophylactic vitamin C can modestly reduce symptom duration in both adults and children. Overall, complementary and alternative therapies are not recommended for cold treatment, but humidified

air and increased fluid intake may be useful without adverse effects [5-7].

Several published controlled trials of ascorbic acid have demonstrated statistical significance, with a confidence level of 95% or higher, indicating that it is effective in reducing both the occurrence and severity of the common cold [8]. Zinc has been tested in trials for treating the common cold, the studies found that zinc (lozenges or syrup) can reduce the duration of the common cold when taken within 24 hours of symptom onset and also lessen the persistence of symptoms beyond seven days of treatment. Prophylactic zinc supplementation for at least five months can decrease the incidence, school absences, and antibiotic prescriptions for children with the common cold. However, the use of zinc for people with underlying chronic illnesses, immunodeficiency or asthma has not been studied, so it cannot be recommended for them at present. Using zinc lozenges at a dose of 75mg/day is suggested for those considering zinc supplementation. However, side effects like a bad taste and nausea need to be balanced against the potential benefits [9]. Garlic is useful for the common cold and is rooted in both traditional use and some laboratory evidence supporting its potential as an antibacterial and antiviral agent. Throughout history, garlic has been recognized for its medicinal properties and it is often considered a natural remedy for various ailments, including the common cold [10].

## Conclusion

Common cold is the most observed infectious disease in society. All types of age groups may suffer from this disease. This review article highlights the general information, etiology and treatment of the common cold.

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