



## *Upper Respiratory Infection (URI/Common Cold)*

*Kathly M. Jean-Gilles,  
MSN, RN, RRT-NPS, FNP  
Gregory A. Wagoner, MD, MBA*

**A**n upper respiratory infection (URI) generally refers to the common cold. Infection may involve any of the airways and air passages above the lungs, including the bronchi, trachea, throat, nose, and sinuses. Other ailments included in this category are acute bronchitis, chronic bronchitis, pharyngitis, and acute sinusitis.

The common cold, the most frequently acquired illness in the USA, is caused by more than 200 known viruses. Rhinovirus causes the largest number of viral URI's, but other etiologies include:

- parainfluenza virus;
- adenovirus;
- coronavirus;
- coxsackievirus;
- echovirus; and
- respiratory syncytial virus (RSV).

URI is a self-limited illness, generally resolving on its own without major complications or specific treatment. A thorough review of the published information indicates that antibiotics are rarely beneficial.

### **Symptoms**

Typical symptoms of an upper respiratory infection include nasal discharge and congestion, coughing, sneezing, headache, sore or scratchy throat, chills, and general malaise. Some people experience burning eyes and pressure in the ears and sinuses. Adults rarely have fever with URIs, and when present the fever is often less than 101°F (38.3°C). Children can experience fevers as high as 102°F (38.9°C).

URIs generally last about one week. One in four people will have symptoms for 2 weeks or longer. When these signs and symptoms are focal, particularly severe, or persist for longer than two weeks, clinicians must evaluate for more serious conditions such as tonsillitis, otitis media, sinusitis, pharyngitis, or pneumonia.

The common cold must be differentiated from streptococcal pharyngitis, or strep throat, which requires early antibiotic treatment. As noted in the chapter on streptococcal pharyngitis, early treatment of strep throat can prevent rheumatic fever but not the glomerulonephritis caused by immune complex deposition. People with streptococcal infection may show a higher fever (to 104°F/40°C), and the physical examination may show tender anterior cervical lymph nodes and large inflamed tonsils with gray-white exudate. Cough is often absent in strep throat but almost always present in URI.

### **Complications**

The common cold rarely leads to secondary bacterial infections that require antibiotic treatment. Persistent signs and symptoms, including progressive dyspnea (shortness of breath) and the production of purulent sputum, may indicate a specific bacterial infection (tonsillitis, otitis media,

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*Viral Exanthem.  
This fine reddish  
macular rash is  
diffuse and typical of  
many viral illnesses.  
This man developed  
a URI several days  
later, which resolved  
within one week.  
Photo by  
Howard Koh MD*

sinusitis, pharyngitis) that requires treatment with antibiotics.

### Prevalence and Distribution

Upper respiratory infection is the most common and the most expensive illness in the USA, representing 9% of the practice of the average family physician or pediatrician. Each year, adults get an average of 2-4 colds, while children get an average of 6-8 colds. Although most cases are mild and usually last about a week, colds are the leading cause of lost days at work and at school.

URIs are very common because large numbers of viruses are able to cause these signs and symptoms. Because the human body does not develop effective immunity, these organisms cause reinfection of humans. Adults with children in the home have more colds than those without children, presumably due to the children's exposure to a wide variety of organisms at school. Cigarette smokers have the same incidence of colds as nonsmokers, but the illness is usually more severe in smokers. Children of smokers have a higher incidence of URIs than children of non-smokers.

### Transmission

Upper respiratory infections can be transmitted by direct contact, infection from surface particles, or inhaling infectious viral particles. Young children may serve as the reservoir of these infections, passing infection to one another at school and into homes. URIs are thought to spread when infected people cough, sneeze, or rub secretions onto their hands. They then pass the disease to others who infect themselves when they rub their eyes or touch their noses or mouths.

Infected people may also sneeze or cough infected droplets into the air. The droplets can then land directly on other people's mucous membranes or on surfaces (such as toys) mouthed by others. Secretions generally lose their infectivity if allowed to dry, but they can stay infectious for hours or even days on skin, nylon, and surfaces such as stainless steel and Formica™.

### Diagnosis

Patients usually recognize the typical symptoms of the common cold and diagnose themselves. Clinical examination does not help to identify the specific virus. It is important to rule out streptococcal infection by throat culture if this diagnosis is considered in the differential. Either throat cultures or one of the "rapid-strep" tests can be used to

confirm Streptococcus presence.

Direct complications of the URI, such as bacterial bronchitis, sinusitis, and otitis media, need to be identified and treated with the proper antibiotic. Clues to the occurrence of secondary bacterial infection include:

- fevers over 101°F (38.3° C) in adults and 102°F (38.9°C) in children;
- green or yellow purulent drainage from the nose accompanied by headache or facial pain;
- cough that produces green or yellow sputum;
- pain in one or both ears (more than a sensation of pressure).

These symptoms often show the need for laboratory tests to confirm the diagnosis. Useful tests include a throat or sputum culture, a sinus or chest x-ray, and a complete blood count (CBC). An elevated white blood count almost always points to something other than the common cold.

### Treatment

The common cold is caused by viruses and should never be treated with antibiotics. Taking antibiotics unnecessarily can lead to antibiotic resistance, a potentially dangerous situation in which infection-causing bacteria become immune to the effects of certain antibiotics. Unnecessary antibiotic use also increases the potential for adverse drug reactions. Symptomatic therapy remains the mainstay of common cold treatment.

Drinking plenty of fluids will help prevent dehydration from coughing and low-grade fevers. Bedrest, if the shelter setting permits, can help with the general fatigue that accompanies a cold, hasten recovery, and minimize transmission of the virus. Saline gargles can reduce the pain of a sore throat. Decongestants such as pseudoephedrine (Sudafed™) are designed to decrease nasal secretions and decrease the swelling of sinus passages. Patients should not take decongestants for more than 3 to 4 days to avoid a rebound of symptoms. Cough preparations containing suppressants such as dextromethorphan, codeine, or terpin hydrate can help reduce a cough. Aspirin, acetaminophen (Tylenol™), or an anti-inflammatory agent such as ibuprofen can help with general achiness. Aspirin should not be used in children under 18 years because of the risk of Reye syndrome.

Inhalants, such as cromolyn sodium or the intranasal use of ipratropium, may improve cold symptoms also. Both therapies are generally

well-tolerated and shown to reduce the severity of symptoms and/or reduce the duration of illness.

Other treatments, such as vitamin C, echinacea, or zinc, have not been consistently shown to be beneficial to cold sufferers.

### Prevention and Control

The common cold evades prevention, cure, and treatment. Researchers have tried many methods, such as vaccines, nasal interferon, ultraviolet light, and high dose vitamin supplements. None of these studies has yet proven conclusive for the general population.

The best way to prevent a cold is to avoid contact with the virus. In a shelter, viruses can spread easily within a large group of people. To curtail transmission, shelters should be well ventilated, and guests and staff should have the basic tools of hygiene readily available. For the common cold, this means an adequate supply of tissues and receptacles for their disposal. Both guests and staff should be aware of how the use of tissues can limit the spread of viruses. Hand washing is an additional preventative step. Use of a disinfectant such as phenol (as contained in Lysol™) may decrease transmission of virus left on hard surfaces.

Parents and caregivers should discourage children (and other adults) from touching their eyes and noses. Careful handwashing with warm water and soap is also especially important before preparing, serving, or eating food.

### Complications

Occasionally, upper respiratory infections are associated with subsequent complications, especially in immunocompromised patients. Sinusitis caused by either bacteria or virus can occur in association with a URI. The vast majority of these infections are viral in nature. Lower respiratory tract infections are uncommon sequelae, including pneumonia caused by respiratory syncytial virus and other types of pneumonia.

Other complications include asthmatic exacerbations, aggravation of congestive heart failure, and otitis media.

### Summary

An upper respiratory infection (URI), or the common cold, can come from many different viruses. Colds are most likely spread by coughing and sneezing infected droplets into the air. Others can then inhale these droplets. Transmission also

occurs when infected people touch secretions from their noses or throats and then touch other people's hands, other objects, or surfaces. Crowded shelters can promote the spread of many infections, especially when children are present.

No specific treatment exists for the common cold. Certain measures can relieve the symptoms, such as:

- bedrest for fatigue;
- fluids for dehydration;
- saltwater gargling for sore throats;
- medications including Tylenol for aching or Sudafed™ for nasal congestion.

People who have fevers over 101°F (38.3°C), coughs that produce sputum, or green or yellow discharge from the nose or throat should see a health care provider. These might be signs of a more severe illness.

Good hygiene can help prevent the spread of cold viruses. Shelters should be well ventilated and have an adequate supply of tissues, soap, and paper towels for guests and staff. ■■

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**References**

- Bauman KA. The family physician's reasonable approach to upper respiratory tract infection care for this century. *Archives of Family Medicine* 2000;9(7):596-597.
- Hirschmann JV. Antibiotics for common respiratory tract infections in adults. *Archives of Internal Medicine* 2002;162(3):256-264.
- Hwang MY. JAMA patient page: the common cold. *Journal of the American Medical Association* 1998;279(24):2066.