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FOR TECHNICIANS**

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**Instructions**

1. After carefully reading this lesson, study each question and select the one answer you believe to be correct. Circle the appropriate letter on the attached reply card.
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# OTCs and the common cold

By Martin Rowland, BPharm, MSc, MRPharmS, BCPS

**Statement of objectives**

**Upon successful completion of this lesson, the technician should be able to:**

1. Understand the causes and the mode of transmission of the common cold.
2. Appreciate some widespread myths surrounding the common cold.
3. Recognize the usual symptoms of the common cold and the categories of medications used to treat these symptoms.
4. Understand the importance of referring high-risk patients to the pharmacist.

**Introduction**

The common cold, with or without a cough, is likely to be the most common condition people seek help for in Canadian pharmacies. Pharmacy technicians need to understand this very common disease in order to effectively direct to the pharmacist those patients who have questions or who are at higher risk of adverse events. It is also important for technicians to avoid inadvertently reinforcing commonly held misconceptions about colds and other upper respiratory tract infections.

Children in North America suffer from an estimated six to 12 colds per year, while adults have an average of two to four colds; although, this varies widely from individual to individual. The incidence is higher in women aged 20 to 30 years, probably because of their interaction with school-age children. Cold season in Canada usually runs from late August to April, coinciding with the school year and a greater proportion of time spent indoors.<sup>1</sup>

More than 200 viruses have been shown to cause colds. Although it is the most common infectious disease suffered by mankind, it is a self-limiting con-

**Table 1: Myths of the common cold**

Myth	Fact
Feed a cold, starve a fever.	There is no scientific basis for this. Some foods have been found to be helpful, such as chicken soup.
Do not treat a cold, as treatment will lengthen the duration of the illness.	Treatment has almost no effect on the duration of a cold and certainly will not lengthen it.
Being cold or chilled leads to developing a cold.	A 1968 <i>New England Journal of Medicine</i> study showed that this is not the case.
Susceptibility to cold requires a weakened immune system.	Immune status does not affect the likelihood of either infection or symptoms.

SOURCE: [www.commoncold.org/index.htm](http://www.commoncold.org/index.htm)

dition (that is, it will resolve without intervention in less than two weeks, with no lasting effects on the individual's health). For a small proportion of the public, however, there can be more serious effects. For example, colds have been shown to worsen asthma in some situations. As well, the economic effects of colds can be significant, due to the amount of time that sufferers are absent from school or work.<sup>2</sup>

Because colds play a central

role in our society, a number of myths have grown up around the condition. Table 1 presents some examples of these myths and the facts that dispel them.

While coughing and sneezing may spread viral particles, the primary source of transmission of the common cold virus is the hands; hence adequate and frequent hand washing is the most effective method of limiting infection of others.

Symptoms of a cold include

malaise (a general feeling of unwellness, aches and pains), cough, sore throat and nasal congestion. Nasal discharge usually starts clear and later becomes mucopurulent (consisting of mucus and pus). Fever and headache can occur but are rare. Symptoms typically last five to seven days but may persist for two weeks in severe cases. If symptoms are not accompanied by fever and last for more than two weeks, allergies should be suspected.

The most common complication of the common cold is acute bacterial sinusitis, which has been estimated to develop in 1% to 5% of colds. This should be suspected in cases where the cold has not improved or has worsened after seven to 10 days. Antibiotic treatment is usually required for this complication and the patient should be referred to a physician.<sup>3</sup>

Other reasons for medical referral include worsening of chronic bronchitis, where cough, fever, shortness of breath and production of purulent sputum may be seen, and acute bacterial middle ear infection, which will cause significant ear pain.

### Treatment

Self-treatment for the symptoms of a cold is extremely common. In many cases, over-the-counter (OTC) medications will be appropriate. However, while these medications may improve symptoms, there is no cure for a cold and antibiotics have no place in treat-

ment. Table 2 lists a summary of available OTC ingredients used for symptomatic treatment of the common cold.

Treatment for cold is becoming more complex, as the range of products is constantly expanding even though no new drug ingredients have been introduced for some years. Brand extensions mean that products with similar names have completely different active ingredients. For example, one manufacturer offers 17 different products under a single brand name on the Canadian market. As a result, patients may need help from pharmacy staff to navigate this maze of OTC products.

In general, drugs typically used by adults for the relief of cough and cold symptoms have not been shown to be effective in younger children and pose risks of toxicity. OTC medications should not be recommended for children five years of age or younger. The only treatments the World Health Organization recommends for younger children are acetaminophen, saline nose drops and adequate hydration. In children older than five years, symptomatic treatment with the same agents used by adults may be appropriate, but they should be used with caution.

The anticholinergic drying effects of older first generation antihistamines such as chlorpheniramine may relieve sneezing and runny nose. These medications cause

drowsiness and may be advantageous at bedtime to assist sleeping; however this effect can pose a risk when driving or operating machinery. As the drying effects are actually side effects of older antihistamines and not a result of their ability to block histamine, the newer 'non-drowsy' antihistamines, which do not have these side effects, are not useful in the treatment of the common cold.<sup>4</sup>

Fever, malaise and muscle ache may be relieved by acetylsalicylic acid (ASA), acetaminophen or ibuprofen. Many OTC cough and cold preparations contain these ingredients, and technicians can assist the pharmacist in screening for patients who purchase both a multi-ingredient cough preparation and a package of acetaminophen or ASA. If the patient inadvertently takes both products, there is the potential for an acetaminophen or ASA overdose and serious harmful effects.<sup>5</sup>

Reye's syndrome is a rare but serious neurological condition that is associated with the use of salicylates, particularly ASA (Aspirin), during or while recovering from an acute viral illness. While adults can be affected, the incidence of Reye's syndrome is much greater in children. As a result, preparations containing ASA should not be administered to children or teens except when supervised by a physician.

Nasal obstruction (stuffy nose) may be treated with decongestants. These relieve a

stuffy nose by causing constriction of the nasal blood vessels, thus reducing swelling and congestion of the nasal tract. Topical decongestants such as xylometazoline can be faster acting and a little more effective than oral decongestants. However, they can cause rebound congestion, which can be worse than the original stuffiness, if they are used for more than a few days.

Productive cough, which assists in removing phlegm from the lungs, usually should not be suppressed with drug treatment. In addition, there is no evidence for the effectiveness of any expectorant drug, including guaifenesin. Rather, adequate hydration (i.e., drinking plenty of fluids) is more effective than any expectorant.<sup>6,7</sup>

For the suppression of dry, non-productive acute (short-term) cough, there is no evidence for the effectiveness of codeine or dextromethorphan. These may be somewhat effective for chronic cough, however.<sup>6,7</sup>

The cause of chronic cough, which is a cough that lasts longer than three weeks, can usually be determined and treated. In smokers, chronic bronchitis will often cause cough. For non-smokers, the three most common causes of cough are postnasal drip syndrome, asthma and gastroesophageal reflux disease (GERD). There are a large number of less common causes of chronic cough, ranging from cancers (especially lung cancer) to ongoing drug therapy.<sup>8,9</sup> All patients with chronic cough should be assessed by a physician.

Some drugs may cause cough as a side effect, the most common being angiotensin converting enzyme (ACE) inhibitors, such as enalapril or ramipril. Angiotensin receptor blockers (ARBs), such as losartan or valsartan, have a lower but still significant incidence of cough.<sup>10</sup>

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PRACTICE

**Table 2: OTC drugs and traditional remedies for common cold symptoms**

Symptom	Remedy: examples	Comments	Side effects, safety	Caution
Postnasal drip Sneezing Runny nose	Antihistamines: chlorpheniramine doxylamine clemastine	Older, first generation agents more effective than the newer "non-drowsy" drugs for control of nasal symptoms	Drowsiness	Use with caution in patients with prostate enlargement, glaucoma
Fever Malaise Muscle ache	Antipyretics/analgesics: ibuprofen ASA acetaminophen	Ibuprofen and ASA more effective for inflammatory symptoms	Due to risk of Reye's syndrome, do not use ASA as first line agent	Use ibuprofen with caution in patients with gastro-intestinal, cardiac or renal disease. ASA contraindicated in children
Nasal obstruction	Decongestants (oral): pseudoephedrine phenylephrine	Somewhat effective, may be used for longer period than topical decongestants	May cause tachycardia, hypertension, central nervous system stimulation	Caution advised for patients with hypertension, prostate enlargement, glaucoma, diabetes, heart disease, thyroid disease. Contraindicated with monoamine oxidase inhibitors (MAOIs)
Nasal obstruction	Decongestants (topical): oxymetazoline phenylephrine xylometazoline	Faster acting and often more effective than oral agents	May cause rebound congestion if used for more than a few days	
Dry cough	Cough suppressants: dextromethorphan codeine	Only shown effective in chronic cough; little evidence for effectiveness for coughs due to colds	Codeine may cause constipation, drowsiness or itchiness.	Dextromethorphan contraindicated with MAOIs
Productive cough	Expectorants: guaifenesin	No evidence of effectiveness; adequate hydration is more effective		
Cold symptoms	Chicken soup	Shown to reduce nasal symptoms in small studies	Traditionally used since medieval times with small risk of side effects	
Cold symptoms and prevention	Herbal medicines: hyssop, goldenseal yarrow	There is no evidence for the effectiveness of any of these agents	Goldenseal and yarrow likely safe	Hyssop may cause convulsions if used orally
Cold symptoms and prevention	Herbal medicines: echinacea	Evidence suggests that echinacea is not effective for treating or preventing upper respiratory tract infections	Likely safe	
Cold symptoms and prevention	Vitamins: ascorbic acid (vitamin C)	Evidence suggests a very mild diminution of duration of colds when used at high (possibly unsafe) doses; no effect to prevent colds	Likely safe when taken in doses of 2 g daily or less	
Cold symptoms and prevention	Minerals: zinc	Zinc lozenges may have some activity to modestly reduce the duration of cold symptoms. No activity to prevent colds; oral zinc is not effective.	Taste disturbances common	
Sore throat	Topical anesthetic: benzocaine	Some short lasting mild relief		Not safe or effective for children

Sore throat may be treated with topical anesthetic lozenges such as benzocaine, which numb the throat and may provide some minor short-term relief. There is no basis for the use of antiseptic lozenges, however, as they are not effective against the viruses that commonly cause colds. The main benefit from any type of lozenge seems to come from the sucking action; sucking on an ice chip may be more effective. Ibuprofen taken orally is

also useful for relieving the pain of sore throat.<sup>11</sup>

#### Traditional remedies

A number of traditional remedies are promoted for the treatment or prevention of colds (see Table 2). Yet the only agent for which there is some evidence is chicken soup. Although any hot drink is beneficial, some small studies have shown that chicken soup reduces nasal symptoms.

There is minimal evidence

to support the use of herbal remedies such as echinacea, goldenseal, hyssop or yarrow for either the treatment or prevention of any symptoms of colds. While most of these agents seem safe in recommended doses, hyssop has been reported to cause convulsions if taken orally.<sup>12</sup>

The use of vitamin C is controversial. At best, the evidence suggests an extremely mild diminution of the duration of colds when used at high

(possibly unsafe) doses.

Zinc lozenges, but not oral zinc, may have some activity to modestly reduce the duration of cold symptoms.<sup>13</sup>

#### Technician's role

Although many members of the public may be able to identify a cold, misconceptions may lead to inappropriate self-diagnosis and treatment. In some cases, this may just lead to the purchase of a product that is useless for that patient.

In other cases, however, a potentially serious complication or adverse effect may be missed. Potentially serious conditions such as influenza or SARS (severe acute respiratory syndrome) may present with symptoms that could be confused with the common cold. A discussion of these disorders is beyond the scope of this article and interested technicians should refer to the following websites:

- [www.sars.ca](http://www.sars.ca) (Health Canada's website on severe respiratory infections)
- [www.who.int/csr/sars/guidelines/en/](http://www.who.int/csr/sars/guidelines/en/) (the World Health Organization's SARS website)
- [www.hc-sc.gc.ca/pp/hbdgsp-sp/publicat/info/influ\\_e.html#information](http://www.hc-sc.gc.ca/pp/hbdgsp-sp/publicat/info/influ_e.html#information) (Health Canada's influenza website)

Patients with special needs, such as pregnant or breastfeeding women, the elderly, very young children or people taking other medications (especially those listed in Table 2), should be referred to the pharmacist. Patients who have other medical conditions or who

have signs of complications of the common cold should also be referred to the pharmacist. Technicians are invaluable in ensuring that a busy pharmacist does not miss the opportunity to assist an at-risk patient.

**Conclusion**

Although the cold is common and usually self-limiting, it can be confused with other more serious conditions and can lead to adverse events in a small segment of the population. Pharmacy technicians can play a vital role in assisting the pharmacist to identify these at-risk patients and ensuring they have an opportunity to consult with the pharmacist so that appropriate treatment or referral can take place.

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**QUESTIONS**

1. Which individual is likely to experience most colds per year?  
 a) A 45-year-old businessman.  
 b) A 19-year-old female university student.  
 c) A 26-year-old mother of two children.  
 d) A 64-year-old man with a history of lung disease.
2. What is the most common means of transmission for the common cold?  
 a) Sneezing.  
 b) Kissing.  
 c) Hand-to-hand contact.  
 d) Coughing.
3. Which drug should not be given to an otherwise healthy 14-year-old with a cold?

- a) acetaminophen.  
 b) pseudoephedrine.  
 c) ASA.  
 d) dextromethorphan.
4. Which drug is most likely to cause a chronic dry cough?  
 a) ramipril.  
 b) ibuprofen.  
 c) losartan.  
 d) pseudoephedrine.
5. Newer non-drowsy antihistamines are not effective in relieving postnasal drip because they do not have the same anticholinergic side effects as the older antihistamines.  
 a) True.  
 b) False.
6. Which herbal medication

- has caused convulsions if taken by mouth?  
 a) Echinacea.  
 b) Goldenseal.  
 c) Yarrow.  
 d) Hyssop.
7. Chicken soup may be good for a cold.  
 a) True.  
 b) False.
8. Which preparation used for the common cold is most likely to cause a taste disturbance?  
 a) dextromethorphan syrup.  
 b) vitamin C tablets.  
 c) pseudoephedrine tablets.  
 d) zinc lozenges.
9. The most common complication of a cold is?  
 a) Asthma attack.

- b) Acute bacterial sinusitis.  
 c) Acute bronchitis.  
 d) Influenza.
10. Which of the following statements is false with respect to the OTCs used in the treatment of nasal obstruction:  
 a) Oral decongestants provide longer lasting relief than topical decongestants.  
 b) Topical decongestants should be used for only a few days as they may cause rebound congestion.  
 c) It is safe for patients with hypertension to take oral decongestants.  
 d) Patients taking MAOIs should not take oral decongestants.

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- Retail (independent)     Other (specify)  
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Are you a certified technician?     Yes     No

### Please help ensure this program continues to be useful to you by answering these questions.

1. Do you now feel more informed about OTCs and the common cold?     Yes     No
2. Was the information in this lesson relevant to you as a technician?     Yes     No
3. Will you be able to incorporate the information from this lesson into your job as a technician?     Yes     No     N/A
4. Was the information in this lesson...     Too basic     Appropriate     Too difficult
5. How satisfied overall are you with this lesson?     Very     Somewhat     Not at all
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