

How to Stop Coughing Without Cough Syrup

Expert Reviewed

Seven Methods: Using Home Remedies Using Maintaining Personal Hygiene Getting Profess

Remedies Using Herbal Remedies
Getting Professional Medical Help

Making Lifestyle Changes Trying an Altered Diet Plan Diagnosing Underlying Conditions

A cough is a natural reflex that protects your lungs by clearing your airways of lung irritants, such as smoke and mucus, in order to prevent infections. An occasional cough is a sign of a good immune system. However, a persistent cough can also be a sign of an underlying condition or infection such as a cold or flu. Prolonged coughing can cause unpleasant side effects, such as chest pain, exhaustion, light-headedness, and loss of bladder control. Coughing can also interfere with sleep, socializing, and work.^[1] You can follow a few simple steps to find out some ways to help prevent and reduce symptoms of your cough without cough syrup. Always be sure to check with your doctor or pharmacist before self-treating with supplements or herbs.

Method

Using Home Remedies

- **1 Use cough drops.** Cough drops have cough-suppressing ingredients. They are also a great way to keep your throat moist, which helps suppress a cough even further. Cough drops are not medicinal but simply help to activate your salivary glands, which brings extra moisture to the back of your throat. Cough drops are best used for dry coughs, rather than wet.
 - Buy cough drops that include ingredients like honey, lemon, eucalyptus, and mint to help ease your coughing symptoms.
- **Apply a warm compress.** A warm towel applied to the neck or chest may help relieve congestion in the lungs and nasal passages. This is due to the increase in stimulation, which encourages mucus drainage that can otherwise cause irritation in the throat. To use this method, soak a small, clean towel in lukewarm water for three to five minutes. Wring the water out and apply it to your chest or neck for five minutes. Rewet the towel again in warm water, then repeat the additional steps for up to 20 minutes.
 - Do not apply heat for longer than 20 minutes unless recommended by your doctor or physician.
 - If you don't want to use a towel, you can use a hot gel pack or water bottle to apply heat compression. Make sure it isn't hot enough to burn the skin — some kind of barrier, like cloth between the heat source and your skin
 - Do not apply heat if there is swelling or fever. Use an ice bag instead. People with poor circulation and diabetes should practice caution when using warm compression.^[2]
- Take a warm shower. When suffering from a bad cough, a warm shower or bath that lasts for five to 10 minutes can reduce it by soothing your throat, encouraging mucus drainage, and relaxing your sore muscles. It can help loosen up bronchial passages with increased humidity and moisture allowing for more productive cough. Make sure the water is not too hot or cold, especially if you have a fever. Keeping your body clean can also help reduce the risk of further viral or bacterial infections.
 - Lukewarm baths can also benefit children and infants with nasal congestion and sore throats. [3]
- Gargle salt water. When you are suffering from a cough due to a sore throat, gargle warm salt water. This helps soothe a sore throat and moisturizes your sinuses, which allows mucus to drain and prevents postnasal drip that can trigger coughs. Place 1/2 a teaspoon of salt in a glass of distilled or sterilized warm water and stir until it's dissolved. Gargle the water for one to two minutes, then spit it out. Do not swallow it.
 - If the salt irritates your mouth or throat, you can also use plain, distilled warm water for gargles.
 - Repeat every few hours.[4][5]

1/9/2017 2:21 PM

Method 2

Using Herbal Remedies

- Consume peppermint. Peppermint contains menthol, which can help soothe sore throats and dry coughs and act as a decongestant. You can find many different treatments with peppermint, such as extracts used in dietary supplements, lozenges, essential oils, and herbal teas. You can also use the fresh herb as flavoring in your meals every day.
 - You can drink peppermint tea up to three times a day. Peppermint oil is often used in aromatherapy or as a rub. Never take peppermint oil orally.
 - Don't use peppermint or menthol for children under two years of age.
- 2 Ingest garlic. Garlic has antiviral, anti-inflammatory properties that can help reduce inflammation in the throat and nasal passages, and is rich in antioxidants such vitamin B6, vitamin C and manganese, which help boost immunity against infections. Garlic has a sulfuric enzyme called alliin that helps protect against viruses. Garlic is best taken as a raw clove to release alliin.
 - To make it more edible, crush the garlic into a spoonful of honey or olive oil. This helps strengthen your immune system to reduce the likeliness of catching a cold when taken on a daily basis, and speeds up recovery when taken during a cold.
 - Also try two to four grams of fresh, minced garlic cloves to spice up your meals or cook it by lightly browning it
 over low heat so as not to destroy its active compounds.
 - Garlic has been shown to have other health benefits like lowering blood cholesterol and blood pressure.
 - There are many other forms of garlic available, such as garlic seasoning, garlic powder, and garlic salt. Too much garlic may cause bad breath and low blood pressure, so limit your intake to two to four cloves of garlic a day. [7][8]
- **3** Eat licorice root. Licorice root is an expectorant that has many medicinal benefits including the ability to reduce or eliminate a cough. There are several licorice root pills and serums you can take You can also eat one to five grams of real licorice root. Look for candy licorice with a main ingredient of licorice root, not anise or licorice flavoring.
 - An alternative to simply eating the licorice is to make a licorice tea. Soak one to five grams of licorice sticks in a
 cup of boiling water. Let it steep for three to five minutes, then strain and drink once every week.
 - Don't give a child licorice tea for more than a day without talking to your doctor. Never give any licorice tea to an infant or toddler. Licorice should also be avoided by anyone with high blood pressure, hepatitis, or liver or kidney disease.[9]
- Try blue vervain. Blue vervain works as an expectorant to loosen phlegm and mucus from the chest and throat, which eases congestion and prevents coughs. Blue vervain is available as a supplement, tea, and syrup at most nutrition stores and pharmacies. The recommended dose for blue vervain supplements is one capsule taken with a meal and glass of water, at least 1–2 times per day.
 - To make blue vervain tea, steep 1/2 a teaspoon in 1 cup of boiling water for three to five minutes. Strain and drink up to two times per day.
 - Blue vervain should not be used if you are taking diuretic medication or drink a lot of caffeine. It may cause dehydration.
 - Ask your doctor before using blue vervain if you are pregnant, have a digestive problem, or are taking any other medications.^[10]
- **Take elderberry extract.** Due to its anti-inflammatory and antiviral properties, elderberry is commonly used to treat respiratory illnesses, sore throats, coughs, and fevers. Elderberry extract can be found as a lozenge, dietary capsule supplement, or syrup at most nutrition or drug stores.
 - You can also try using dried elderberry flower as an herbal tea. Steep three to five grams of dried elder flower in a cup of boiling water for 10 to 15 minutes. Drink this mixture up to three times per day.
 - Prolonged use of elderberry is not recommended. Elderberry is a blood thinner and may not be recommended
 for people with low blood pressure. Only drink it every two or three days.
 - **Do not** use unripe or uncooked elderberries as they may be poisonous.^[11]

- **6 Use eucalyptus tinctures or aromatherapy.** Eucalyptus helps alleviate coughs, fight respiratory infections, and reduce congestion. Eucalyptus is available as vapor baths and lozenges to help soothe sore throats. You can also try topical ointments containing eucalyptus leaves, which can be applied to the nose and chest to relieve congestion and loosen phlegm. This helps prevent mucus from aggravating the throat.
 - For adults, eucalyptus is generally safe when applied to the skin.
 - Use fresh leaves to make a tea by steeping two to four grams of dried leaves in a hot cup of water for 10 to 15 minutes. You can also use the leaves to make a warm gargle mixture to soothe sore throats.
 - Never take eucalyptus or eucalyptus oil by mouth because it can be poisonous. [12]

Buy slippery elm. Slippery elm contains mucilage, a gel-like substance that coats and soothes the mouth, throat, stomach, and intestines to reduce coughs. It is available as tablets, lozenges, and powdered extracts at most health food stores. You can also make a tea infusion by steeping 1 tablespoon of powdered bark in a cup of boiling water for three to five minutes, which you can drink up to three times a day.

Do not give slippery elm to a child or use it during pregnancy without asking your doctor. [13][14]

Method 3

Making Lifestyle Changes

Use a humidifier. Dry air can aggravate the symptoms of a cold, making it harder for mucus to drain and triggering coughs. Using a humidifier in your bedroom or living room adds moisture to the air to help clear your sinuses and soothe your throat. With your humidifier, try to aim for the right humidity. The air should range from 30% to 55% humidity.

- If the humidity is too high, mold and dust mites may thrive, both of which are common causes of allergies and coughs.
- If the humidity falls too low, it may cause dry eyes, throat and sinus irritations. The simplest way to measure humidity is with a gauge called a humidistat, which can be purchased from most hardware stores.
- Both portable and central humidifiers must be cleaned often and thoroughly because they tend to become
 contaminated with mold and bacterial growth.^[15]

2 Get an indoor houseplant. If you don't want an electric humidifier, consider getting a houseplant. Plants can help regulate indoor humidity due to a process called transpiration, which is where water vapor is released from the flowers, leaves, and stems. Good indoor plants include bamboo palms, aloe vera, Chinese evergreens, various species of philodendron and dracaena, and weeping figs.

- Indoor plants also help clear the air of carbon dioxide and pollutants such as formaldehyde, benzene, and trichloroethylene, which may otherwise irritate your throat.^[16]
- Make sure you are not allergic to any plants you might bring into your home.

Try an air purifier. In addition to humidifiers, air purifiers help clear the air of allergens that cause coughs. It has the added bonus of keeping your house smelling nice and clean. An electronic cleaner is especially good at sweeping mold and pollen particles from the air by catching them on an electrically charged plate.

- Another type of cleaner, known as an ionizer, makes electrically charged ions that bond to particles in the air and causes them to cling to walls, ceilings, and drapes.^[17]
- Sleep on your side. Sleeping can be hard when you have a chronic cough. Getting enough sleep is important in order for your body to heal itself so you can get rid of your cough. Studies show that sleep deprivation can weaken the immune system, increase the production of stress hormones, put you at higher risk for chronic disease, and lower life expectancy.
 - If you have a persistent cough, try to lie on the side that is least congested to breathe comfortably and allow the mucus to drain.^{[18][19]}
- Frop your head on a pillow. If you have trouble breathing while you sleep due to cough, try to prop your head up

on a pillow to improve airflow and keep mucus from blocking the sinuses and throat. The pillow for your head should support the natural curve of your neck and be comfortable while also helping you breath better.

- A pillow that's too high can put your neck into a position that causes throat blockage and cough, as well as
 muscle strain on your back, neck, and shoulders.
- **6 Drink lots of water.** Water helps ease cough inducing behavior such as congestion caused by colds, postnasal drip that can irritate the throat, and dry throats. It moistens throat and thins mucus, allowing for easier clearing of problematic phlegm. Aim to drink at least 8 ounces of water every two hours. 2 liters of water is the daily recommendation for the average adult. If you take caffeinated beverages, drink 1 liter of water for every cup of caffeine.
 - Not getting enough water can also lead to dehydration. Dehydration can cause headaches, irritability, dizziness, irregular heartbeat, and shortness of breath. Non-caffeinated, glucose-free sports drinks with electrolytes can help alleviate dehydration as well.^{[21][22]}
- Avoid intense exercise. Try to avoid intensive training if you have a cough, cold, fever, or headache. If intensive exercise is triggering your cough, along with symptoms such as wheezing, chest pain, and shortness of breath, you may have exercise-induced bronchoconstriction (EIB). This happens when the tubes that bring air into and out of your lungs narrow with exercise, causing symptoms of asthma. Some people with EIB do not otherwise have asthma, and people with allergies may also have trouble breathing during exercise.
 - Talk to your physician or an immunologist to help develop a personalized fitness plan for your condition. Avoid cold, dry temperatures and changes in atmospheric pressure as these can trigger EIB. [23]
- Quit smoking. Smoking deprives the body of the necessary oxygen required to repair and build cells. This happens because of a narrowing of your blood vessels that carry blood to the leg and arm muscles and the brain. This can lead to many respiratory illnesses, chronic coughing, and even stroke. Smoking is one of the leading causes of chronic coughing and bronchitis, also known as smoker's cough.
 - Try to avoid secondhand smoke and other hazardous fumes if you have a cough or sore throat. Avoid smoking
 especially when you have a headache or fever, as smoking can weaken the immune system and prolong the
 condition. Ask your doctor about ways to reduce and quit smoking.^[24]

Method 4

Trying an Altered Diet Plan

- Consume honey. When you have a cough, drink tea or warm lemon water with honey. It can help soothe a sore throat and calm your cough. Mix two teaspoons of honey with warm water or tea once in the morning and once before bedtime to help reduce coughing. Honey is widely available at most supermarkets and health food stores.
 - Never give honey to a child younger than one year of age due to the risk of infant botulism, a serious form of food poisoning.^[25]
- **Aure soup.** Eating warm soup helps reduce inflammation in a sore throat and increases movement of nasal fluids to ease congestion. This is especially true if you have a persistent cough, cold, or fever. You can prepare your own soup or buy a healthy, low-sodium variety from your local grocery store. Heat it to a warm temperature and eat a bowl. Soup should be eaten one to three times daily until your symptoms reduce in severity or are completely cured.
 - To add a spicy kick that will also aid in clearing your cough, add chopped cayenne pepper or 1 to 2 teaspoons
 of cayenne pepper powder to your soup.
 - You can drink broth as well. Chicken and vegetable broth are most common. You can make your own or buy some from the store. Be careful because store bought broth can have high levels of sodium. Look for low- or no sodium varieties.
 - Children and infants should be given a bland soup, as this reduces the risk of nausea and vomiting. [26]
- **3** Eat pineapple. Pineapples are rich in an enzyme called bromelain which is used in medicine for reducing swelling and inflammation of the air passages, in order to prevent mucus buildup which can lead to congestion and

coughing. Eating pineapples can also help prevent respiratory infections that often trigger coughs. Incorporate more fresh pineapple and pineapple juice into your daily diet to get more of bromelain's helpful properties.

- Do not eat potatoes or soy products with your pineapple. These foods contain substances that may slow down bromelain's healing properties in the body.^[27]
- **Avoid foods that cause inflammation.** Certain foods can slow down the body's healing process, impair the immune system, and increase inflammation. They may also cause gastroesophageal acid reflux, which can increase the severity of coughs.
 - Lessen or avoid foods that can cause chronic inflammation, such as fried foods, veal, ham, steak, hot dogs, margarine, shortening, lard, refined carbohydrates, white bread, pasta, donuts, soda, and energy drinks. [28]
- **5** Eat more foods that reduce inflammation. While some foods can cause inflammation, certain foods can also help reduce inflammation to help ease a sore throat. Eat more fruit, such as strawberries, cherries, and oranges. You should also eat more hearty foods, such as almonds, walnuts, salmon, mackerel, sardines, tuna, and olive oil. Consuming whole grains such as millet, oatmeal, brown rice, flaxseed, and guinoa will also help reduce inflammation.
 - Also try more vegetables such as olives, spinach, kale, and broccoli.
 - Fruits with citric acid may cause acid reflux, aggravating your throat and triggering coughs. [29]
- **6 Use cayenne pepper.** Cayenne peppers contain capsaicin, which has antiviral, antioxidant, and anti-inflammatory properties to promote healing. This helps reduce congestion, coughs, and fevers. People who are allergic to latex, bananas, kiwi, chestnuts, or avocado may also have an allergy to cayenne.
 - Capsaicin should not be used by people with gastric reflux, low blood sugar, or people taking blood-thinning medications.
 - Cayenne may cause nausea and irritation in the throat of young children, so avoid giving cayenne or other peppers to children and infants.^[30]

Method 5

Maintaining Personal Hygiene

- Wash your hands regularly. One of the fastest ways to get sick is to interact with a sick person or go out in public without washing your hands before you touch your face. Bacteria and viruses can quickly spread through direct contact, so it's important to wash your hands with warm water and soap regularly before and after eating, after using the bathroom, after touching your face, etc. This will also keep you from spreading your germs to others when you have a cough.
 - Keep hand sanitizer with you to help disinfect your hands when you are out in public or at work. Remind your child not to put her fingers in her mouth or eyes, as germs are often spread this way. [31][32]
- **2** Use a tissue when coughing. Use a tissue when you sneeze or cough to avoid spreading germs through the air. This will also help you avoid letting other bacteria or viruses into your lungs when you inhale. If you don't have a tissue on hand, sneeze or cough into your elbow rather than cupping your hands over your face.
 - This helps you avoid spreading germs to your hands and them onto other objects as well. [33]
- Avoid common allergens. Allergens irritate your sinuses, which causes congestion that can lead to difficulty breathing, trigger postnasal drip, and aggravate the throat. Allergies happen when your immune system produces antibodies to fight free radicals by releasing chemical such as histamine, which can cause inflammation and allergy symptoms. Flower pollen, dust, and mold are some of the most common allergens.
 - Other common allergens include hazardous fumes, cigarette and secondhand smoke, shellfish, shrimp, fish, eggs, milk, peanuts, wheat, soy, pet allergies caused by shedding from common pets, insect stings, certain medications, certain substances you wear or touch, and chemicals and dyes in fabrics^[34]

Method 6

Getting Professional Medical Help

Visit your doctor. While most coughs go away after a few weeks, some may be warning signs of an underlying condition. You should go see your doctor with the first development of a cough if you or a loved one experience a sore throat, high fever, barking or whooping cough, or postnasal drip, which is a condition that feels like mucus running down your throat. These could be a sign of infection. Your doctor will perform a quick physical exam that involves using a lighted instrument to look at your throat, ears, and nasal passages, gently palpating your neck to check for swollen lymph nodes, and listening to your breathing with a stethoscope.

- You should contact your doctor immediately if you've previously been diagnosed with allergies, asthma, bronchitis, heartburn, or gastroesophageal reflux disease. Coughing can aggravate these conditions.
- Contact your doctor if you are taking ACE inhibitors for a heart condition and experience a persistent cough.
 ACE inhibitors can cause a cough, and this can be a sign of intolerance to the drug. Your doctor may be able to switch you to a different medication for your blood pressure if necessary.
- Smokers may experience coughing more frequently and should go see the doctor if the cough lasts longer than three to four weeks.
- Get emergency medical care immediately if you cough up blood or if you experience any difficulty in breathing. [35][36]

2 Get a throat swab if you also show signs of a throat infection. Your doctor may run a few test to see exactly what you have. If you have a reddened throat or pustules in back of your throat, she may perform a throat swab, during which a sterile swab is rubbed in the back of your throat to get a sample of secretions. She will check these secretions in the lab for streptococcal bacteria, which is the cause of strep throat. She will also check for a viral infection. This test can take a few minutes to 48 hours to process.^[37]

3 Take a chest X-ray. Your doctor may recommend getting a chest X-ray if you experience symptoms such as shortness of breath, chest pain, chronic cough, or fever. A chest X-ray is a quick, a painless, non-invasive test that creates pictures of the structures inside your chest, such as your heart, lungs, and blood vessels. Although a routine chest X-ray won't reveal the most common reasons for a cough, it may be used to check for lung cancer, pneumonia, and other lung diseases.

- An X-ray of your sinuses may reveal evidence of a sinus infection.
- Let your doctor know if you're pregnant or may be pregnant. In general, women should avoid all X-ray tests during pregnancy.^[38]

See an ear, nose, and throat (ENT) specialist. Your doctor may refer you to an ENT specialist, also known as an otolaryngologist, who can check your throat for signs of viral or bacterial infection. A specialist may also be needed if your cough may be due to an underlying cause relating to the ear, nose, or throat (such as sinusitis). An ENT specialist can also perform a nasal endoscopy, a procedure that uses a fiber optic scope to look at your sinuses for nasal polyps or other structural problems.

- This is only needed if you have a nasal infection. He may also suggest an endoscopic sinus surgery if your condition warrants it.
- You should tell your doctor about any other respiratory conditions you may have.^[39]
- If your doctor believes you have an infection in your lungs, you should be referred to a pulmonologist.

Method 7

Diagnosing Underlying Conditions

Seek medical care immediately for whooping cough. Whooping cough, also called pertussis, starts like the common cold with a runny nose or congestion, sneezing, a mild cough, fever, and sleep apnea. After one to two weeks, severe coughing can begin. Whooping cough can cause violent and rapid coughing, over and over, until the air is gone from the lungs and you are forced to inhale with a loud *whooping* sound. Occasionally, vomiting may also occur.

 You should see your doctor immediately if you have a whooping cough. It is important to know that many babies with whooping cough don't cough at all. Instead, it can cause them to stop breathing. Infants and children under six years should seek emergency medical care immediately.^[40]

• There is a vaccination for whooping cough. Make sure you vaccinate your children against this disease.

2 Watch for signs of nasal infection. A cough and sore throat can also be symptoms of nasal infection. If your doctor suspects chronic nasal infection, also called sinusitis, she may request imaging tests including an X-ray, computed tomography (CT) scan, or magnetic resonance imaging (MRI). Other common symptoms of nasal infection are fever and headache. If you have a high fever or severe headache, you should seek medical care immediately.

- You may also feel pressure in the forehead, temples, cheeks, nose, jaw, teeth, behind the eyes, or at the top of the head. Nasal infections are also accompanied by nasal stuffiness, loss of smell, nasal discharge that is typically yellowish green, or a post-nasal drip.
- Rare complications associated with chronic sinusitis can include blood clots, abscesses, orbital cellulitis which
 causes inflammation around the eyes, meningitis, and osteomyelitis, an infection that spreads to the bones of
 the face.^[41]
- Check for signs of bronchitis. Bronchitis is an inflammation and accumulation of mucus in the air passages of your lungs. This can often lead to chronic coughing and chronic obstructive pulmonary disease (COPD), regardless of whether you have acute or chronic bronchitis. It is usually caused by cold viruses, exposure to secondhand smoke, or gastroesophageal reflux disease. If you or a loved one experience symptoms such as chest pain, fever, wheezing, sore throat, fatigue, swelling of the feet, and a chronic cough that produces mucus, see your doctor immediately to determine if you have bronchitis.
 - The best way to avoid bronchitis is to stay away from air pollutants and secondhand smoke and to avoid catching a cold. [42][43][44]
 - Lifestyle modifications, such as eating right, getting enough rest, and staying hydrated, as well as diligent hand hygiene, can help protect you from becoming ill.

Go to the doctor for severe cold symptoms. There are certain severe symptoms of a cold that require medical attention. If you have a cough with green to yellowish phlegm or blood, high fever of 104°F (40°C), ear or nasal infection, nasal discharge, skin rashes, or breathlessness due to asthma or another respiratory, problem you should see a doctor or get emergency medical care.

- If you are experiencing severe symptoms of a cold or flu or have been previously diagnosed with any
 respiratory disease, you should seek professional care immediately. Babies are especially susceptible to the
 common cold as they have yet to develop immunity to common infections and are often around other older
 children who may not always wash their hands.
- Early symptoms of a cold in babies are congested or runny nose, nasal discharge, decreased appetite, irritability, difficulty sleeping or feeding, cough, and a low-grade fever. If your baby is younger than two to three months of age, you should see a doctor early in the illness.
- Babies are prone to respiratory difficulties as they are "obligatory nose breathers." If the baby's nose becomes
 congested, he will have problems breathing.
- See your doctor immediately if your baby has a temperature higher than 100.4°F (38°C), has red eyes or eye
 discharge, has trouble breathing, is bluish around the lips and mouth, coughs up blood, coughs hard enough to
 cause vomiting, and/or refuses to nurse or accept fluids, which can cause dehydration.^{[45][46]}

Community Q&A

What should I do with rumbling in my throat that is caused by phlegm and mucus?

Zora Degrandpre, N.D. If you can feel the phlegm in your throat, it is best either to cough it up or to swallow it. The acid in your stomach will destroy any viruses or bacteria in the phlegm. To loosen the phlegm in your throat, make sure you drink plenty of water and try some herbal teas like Echinacea, chamomile, or licorice tea with some honey and/or lemon.

Flag as duplicate Not Helpful 4 Helpful 6

Chat with this expert

7 of 8

Can you answer these readers' questions?		Refresh
	On How to Post Ads to Craigslist , a reader asks:	
	How can I change the available date to available now?	
	Your answer	Reply
	On How to Operate a Mini Excavator , a reader asks:	
	How do I change to a left hand operation?	
	Your answer	Reply
	On How to View Cookies , a reader asks:	
	How do I find hidden info?	
	Your answer	Reply

Warnings

- If you are pregnant, certain medications, herbs, and supplements may be harmful to your baby and should not be taken.
- If you have an underlying lung condition, such as asthma or emphysema, you should let your doctor know right away if you catch a cold.
- Some herbal remedies and supplements can interact with prescription drugs and cause a variety of adverse, and even fatal, effects. This is why you should speak with your doctor or pharmacist before attempting self-treatment.

Sources and Citations

- $1.\ http://www.mayoclinic.org/diseases-conditions/chronic-cough/basics/definition/con-20030883$
- 2. http://www.urmc.rochester.edu/encyclopedia/content.aspx?ContentTypeID=1&ContentID=4483
- 3. http://www.urmc.rochester.edu/encyclopedia/content.aspx? ContentTypeID=1&ContentID=4483

Show more... (43)