



Influenza

During the flu season, the majority of respiratory illnesses are caused by organisms other than the flu (rhinoviruses, coronaviruses, parainfluenza, etc.). While the common cold and influenza share many clinical features, acute cold symptoms typically appear gradually over 1-2 days, whereas **influenza symptoms** (high fever, severe muscle aches, dry cough, severe headache) are typically more **severe** and **abrupt** in onset, often developing within hours.

- ? Prevention ? How NOT to get the flu!
- ? Do I have the flu?
- ? Flu Symptoms and Treatment
- ? Cold Symptoms and Treatment ^[1]
- ? When should I seek medical attention?
- ? How should I seek care for my flu-like illness?
- ? Influenza Treatment
- ? What should I do to get vaccinated for seasonal or H1N1 flu?
- ? How do I keep from spreading the flu?
- ? Flu Vaccine Information for 2009-2010
- ? National and Local Resources

Flu Symptoms (novel H1N1 and Seasonal Flu)

Symptoms in otherwise healthy individuals include:

- ? **Fever:** Influenza causes higher temperatures for 3-5 days in most adults, while the common cold causes lower-grade fevers (less than 100 degrees Fahrenheit). The majority of healthy adults diagnosed with the flu (novel H1N1 or seasonal flu) have had abrupt onset of fever greater than 100.0 degrees Fahrenheit, along with one of the following symptoms.
- ? **Muscle aches** are more severe with influenza than with colds, and improve within 3-5 days.
- ? **Cough:** a dry cough, sometimes' severe for 3-5 days, is common with the flu. A milder, but improving cough may linger another 2-4 weeks.
- ? **Headache:** a severe generalized headache is common with the flu, and is milder with colds.
- ? **Fatigue:** is most severe during the acute febrile stage of the flu, but can sometimes' linger another several weeks.
- ? **Sore throat, runny nose, and nasal congestion** are generally milder with influenza, and are more typical features of the common cold.
- ? **Diarrhea, nausea** and/or **vomiting** are uncommon flu symptoms in adults, but can occur in

almost a third of infants/young children.

Influenza Treatment

Before taking any medication, it is important to **read the package label for active ingredients**. Certain medications should be **avoided by persons with certain medical conditions, drug allergies, or who are taking medicines that could cause unwanted drug interactions**.

Consult with your pharmacist or healthcare provider if you are not certain about the appropriateness of a particular medication.

Avoid the 'everything but the kitchen sink' multi-drug cold formulas since many contain unnecessary medications that cause unwanted side-effects. It is best to take only the medication(s) that will alleviate your predominant respiratory symptoms. **Antibiotics will not hasten the resolution of acute cold symptoms.**

1. **Monitor your temperature:** Fever greater than 100 degrees Fahrenheit can be a distinguishing feature of influenza, as well as an indicator for determining when to seek medical attention for complications of a respiratory infection. If you do not own a thermometer, it is recommended that you obtain one to monitor your illness.

2. **Analgesics** may be used to control fever, muscle aches, headache, and sore throat. These include: Acetaminophen, Ibuprofen, Naproxen, and Aspirin. Aspirin use should be avoided in children and teenagers if influenza is suspected.

3. **Decongestants*** help alleviate **nasal congestion, sinus pressure** and **ear pressure** from inflamed/swollen sinus passages caused by most acute respiratory infections. Decongestants are chemically related to adrenalin and can cause side-effects that include increased pulse, jitteriness, insomnia, and loss of appetite.

? **Pseudoephedrine (PSE)** is the most effective oral decongestant for adults. While it is a non-prescription item, illegal use to produce methamphetamine has required it to be moved behind the counter at pharmacies.

? **Phenylephrine (PE)** is a weaker, less effective decongestant available OTC.

? **Oxymetazoline** is a potent topical nasal decongestant that does not cause the systemic side effects seen with oral agents. Because rebound nasal congestion can occur with this agent, multi-daily use should be limited to less than or equal to 3 days, 6 if only used at night.

**Persons with certain medical illness (including cardiovascular disease) or who are on certain medications (including MAO inhibitors) should consult with their healthcare provider before using decongestants or dextromethorphan.*

4. **Nasal Drainage:** To properly clear nasal secretions, one should blow gently, one nostril at a time. For tenacious secretions one can use nasal decongestants to decrease the blockage, and instill saline into the nasal passages to thin the mucus, making them easier to clear with gentle blowing. Blowing your nose forcefully transports air, mucus, and bacteria into the sinuses; this can worsen sinus pressure and potentially increase the risk of a secondary bacterial infection.

5. **Expectorants** help loosen thick secretions and facilitate drainage from the sinuses and chest. These include:

- ? **Water** is an effective expectorant. Drink approximately 8 glasses a day.
- ? **Steam, Humidified Air, Hot Shower** can help loosen secretions.
- ? **Guaifenesin**: Available as a liquid or pill to help loosen nasal secretions to facilitate drainage.
- ? **Saline nasal irrigation** of the nasal passages can loosen nasal secretions to facilitate drainage and relieve obstruction.

6. **Cough Suppressants*** have demonstrated modest success in alleviating the cough which commonly accompanies acute respiratory infections. These include:

- ? **Dextromethorphan**: Over-the-counter
- ? **Opioid Cough Suppressants (Codeine/Hydrocodone)**: Rx required.
- ? **Benzonatate perles (non-narcotic peripherally acting agent)**: Rx required.
- ? **First Generation Antihistamines (Diphenhydramine, Chlorpheniramine, Brompheniramine)**: help thicken respiratory secretions when cough is due to post-nasal drainage.

**Some cough suppressants cause sedation or should not be used in patients with certain medical conditions. It is important to consult with your healthcare provider and pharmacist on the advisability of taking certain agents.*

7. **Antihistamines** are commonly found in over-the-counter cough/flu formulas and in allergy medications. The elevated histamine levels seen in allergic conditions are not present in most viral respiratory infections, so the benefits of 1st generation antihistamines are in large part due to their anti-cholinergic properties (increasing the viscosity of nasal secretions).

? **1st Generation Antihistamines** include Carbinoxamine, Diphenhydramine, Tripeleminamine, Chlorpheniramine, Brompheniramine, and Clemastine. Benefits include: decreasing the cough when due to post-nasal drainage, decreasing sneezing, decreased runny nose in cold sufferers. They are **not effective** in treating nasal congestion, sinus pressure, sore throat, headache, or malaise from infections. Sedation is a common side-effect and should be used at bedTime and avoided when engaged in activities that require mental alertness.

? **2nd Generation Antihistamines (Loratidine, Fexofenadine, Cetirizine)** lack anti-cholinergic properties and have no proven benefit in relieving cold and flu symptoms.

When should I seek medical attention?

The current novel H1N1 influenza strain that is circulating globally appears to have the same severity as seasonal influenza. Most otherwise healthy adults who are experiencing flu-like symptoms do not need to be tested for influenza or treated with an anti-viral medication. Persons in the following groups are at **higher risk** for complicated illness and death from the H1N1 and seasonal flu: See CDC site ^[2] for more information

- ? Chronic Lung Disease(Cystic Fibrosis, Chronic Obstructive Pulmonary Disease, or Asthma that has been treated within the past three years)
- ? Immunosuppressed Conditions (HIV, sickle cell disease, immunodeficiency, cirrhosis, renal dialysis, transplant recipient, ongoing or recently completed cancer treatment)
- ? Immunosuppressive Medications (regular use of methotrexate, azathioprine, cyclophosphamide, oral steroids)

- ? Cardiac Disease
- ? Pregnancy
- ? Diabetes Mellitus
- ? Chronic Neurological Conditions (cerebral palsy, stroke, multiple sclerosis or muscular dystrophy)
- ? Children less than 5 years old

Immediate medical attention is needed for **adults** with flu-like symptoms who:

- ? Experience high fever(greater than 102 degrees Fahrenheit) for more than 3 days, fever (greater than 100 degrees Fahrenheit) for longer than 5 days, or fever that reappears within 1-2 weeks after the acute illness has resolved.
- ? Experience fever and headache associated with inability to touch chin to chest, look at bright light, or who are experiencing altered mental status.
- ? Experience breathing difficulties (rapid breathing rate at rest, inability to complete a sentence).
- ? Experience fever and cough producing green/yellow phlegm.
- ? Experience severe or persistent vomiting.
- ? Develop unexplained pain or pressure in the chest or abdomen.
- ? Develop a skin rash
- ? In one of the **high risk groups*

Immediate medical attention is needed for **children** experiencing:

- ? Fast breathing or trouble breathing
- ? Bluish or gray skin color
- ? Not drinking enough fluids
- ? Severe or persistent vomiting
- ? Not waking up or not interacting
- ? Being so irritable that the child does not want to be held
- ? Flu-like symptoms improve but then return with fever and worse cough

How to Obtain Medical Evaluation of Symptoms

? Students experiencing acute respiratory symptoms that are abrupt and unusually severe should call Student Health at (415) 476-1281 to speak to a clinician to see if further evaluation is warranted. These symptoms include

- ? fever (greater than 100 - 101 degrees Fahrenheit)
- ? severe muscle aches
- ? severe generalized headache
- ? worsening sinus pain after 5-7 days that is not responding to decongestants.

? If medical evaluation is necessary, **CALL STUDENT HEALTH FIRST**. This is to avoid transmitting infection to others in the waiting area and save yourself the time if you are better off at home resting.

? If you are schedule to see an SHCS provider, masks will be provided at the entrance. Please put on a mask when you arrive at the Student Health clinic.

? When seeking medical attention for your illness, you can optimize your evaluation by providing the following information:

1. **Onset of Illness:** date/time your symptoms began.
2. **Progression of Illness** where the symptoms gradual in onset (1-2 days) vs abrupt (go from feeling normal to severely ill in several hours).
3. **Symptoms:** Make note of the presence, severity, and quality of the following:

? **Fever:** the degree of measured temperature is helpful in distinguishing influenza from other acute respiratory infections. Colds raise body temperature around 1 - 1.5 degrees above normal, whereas the majority of healthy adults diagnosed with the flu have a temperature greater than 100 degrees Fahrenheit. Everyone should own a thermometer to better evaluate and monitor their illness.

? **Cough:** dry vs productive, presence of wheezing, shortness of breath - unable to catch your breath or complete a sentence.

? **Headache:** generalized pain vs focal pressure over one side of the face.

? **Muscle Aches**

? **Sore Throat:** constant pain vs transient morning scratchy/raw feeling.

? **Nasal Congestion**

? **Nasal/Post-Nasal Drainage**

4. **Medications:** Prescription and OTC medications currently taking.

5. **Chronic Medical Conditions**

6. **Drug Allergies**

How Do I Keep from Spreading the Infection?

1. **Stay Home!** You are contagious until you have been free of fever (without the aid of fever reducing analgesics) for at least 24 hours. UCSF Campus policy is that staff, students, and faculty should not return to work or class until 7 days after the onset of symptoms. You are most contagious in the first three days after symptoms appear.

2. **Infectious Time Period:** Adults are contagious to others starting the day before symptoms begin through about 7 days after illness onset. Viral shedding peaks 24 -48 hours after the onset of illness and then rapidly declines over the next 5 days, though longer periods of viral shedding can occur in children and immunocompromised persons.

3. **Transmission**

? **Droplet Transmission:** The influenza virus is typically transmitted from person to person by inhaling a respiratory droplet from an infected person's cough or sneeze.

? **Contact Transmission:** The influenza virus can remain viable on non-porous surfaces up to 48 hrs, cloth (8-12 hrs), and up to 5 minutes on hands. Inoculating oneself (nose/mouth) with infectious material remains a possible, though less efficient route of transmission.

4. **Infection Control Measures** to avoid transmission include:

? **Cough etiquette:** Covering the nose and mouth with the bend of your elbow or disposable tissue when you cough or sneeze. Avoid handkerchiefs which harbor virus and may re-inoculate the hands with virus after use.

? **Washing your hands** often with soap and water, especially after you cough or sneeze. If you are not near water, use an alcohol-based hand cleaner.

? **Social distancing:** Avoid enclosed public spaces (pharmacy, grocery store, etc.) by having a classmate, family member, or friend bring you necessary medications, groceries, or school material. If entering an enclosed public space is absolutely necessary (doctor's office/ER,

pharmacy, etc.) then a face mask that covers the nose and mouth should be worn.

? **Home Isolation** to avoid spreading the infection to other members of the household, you should remain in a closed room for the duration of your illness. A facemask should be worn when entering common household space. Uninfected household members should avoid handling any potentially contaminated objects, and remain more than 6 feet from you when possible. If a private bathroom is not available, bathroom surfaces should be cleaned daily with a household disinfectant. See the CDC [2] for more specific information

Prevention of the Flu

The best way to not get the flu is to **get vaccinated!**

1. **Annual Seasonal Flu Vaccine:** Almost all seasonal influenza A (H3N1) currently circulating globally is resistant to Oseltamivir (Tamiflu). Because the usual anti-viral medication (Tamiflu) will likely not be effective against the seasonal influenza A (H3N1) strain this year, it is especially important to receive the annual seasonal influenza vaccine which will be available in mid-October 2009. The majority of adults will develop antibody protection against the anticipated seasonal influenza viruses within 2 weeks after vaccination. For optimal protection against the seasonal flu, it is recommended to receive the vaccine in October/November, before peak flu season hits later in the winter.

2. **H1N1 Vaccine:** it is anticipated that the vaccine against the novel H1N1 virus will be available in October - November 2009. It is likely that only a limited supply of H1N1 vaccine will be available in the initial shipment, so the first priority is to immunize the high risk groups. The vaccine will be made available to the broader population as more vaccine becomes available. See FLU VACCINE INFORMATION FOR 2009 - 2010. ? link to flu clinic dates

3. **Hand washing** frequent hand washing is the best way to prevent some of the most common infections - this includes protection against the common cold, certain gastrointestinal pathogens, as well as influenza. Scrub vigorously with soap and water for at least 15 seconds (the Time it takes to sing "Happy Birthday"). If soap and water are not available, use an alcohol-based hand gel containing at least 60 percent alcohol.

4. **Regular Exercise, Sleep and Nutritious Diet** improve the body's immune functioning which reduces the frequency and severity of infections.

5. **Avoid large social gatherings** during Times when the flu is known to be circulating in the community. During these Times it is also permissible to dispense with customary social greetings (handshakes, hugs, etc.)

6. **Maintain a Safe Workplace** by insisting that ill colleagues remove themselves from classes and clinical rotations. While the flu may only cause moderately severe symptoms in healthy individuals, it can be fatal to young children, pregnant women, and those with weakened immune systems.

Flu vaccine information for 2009-2010

Unless you plan on holding your breath for the next 6 months, the best way to avoid getting the flu is to **get vaccinated!** In healthy adults, the vaccine provides up to 90% protection from getting the flu. Even in years where the vaccine was not a perfect match for the circulating influenza strains, partial immunity helps lessen the severity of infection.

1. Annual Seasonal Flu Vaccine: The 2009-2010 seasonal flu vaccine should be available in mid-October 2009 and will be free of charge to all UCSF students. Watch for emails that will tell you when it will be offered. Almost all seasonal influenza A (H1N1) strains currently circulating globally are resistant to Oseltamivir (Tamiflu). Because the usual anti-viral medication (Tamiflu) will not be effective against the seasonal influenza A (H1N1) strain this year, it is especially important to receive the annual seasonal influenza vaccine. The majority of adults will develop antibody protection against the anticipated seasonal influenza viruses within 2 weeks after vaccination. For optimal protection against the seasonal flu, it is recommended to receive the vaccine in October/November, before peak flu season hits later in the winter.

2. H1N1 Vaccine: It is anticipated that the vaccine against the novel H1N1 virus will be released in October/November 2009. There has been a great deal of concern from the public on the safety of this "new vaccine". Keep in mind that the seasonal flu vaccine produced every year is comprised of three "new" influenza strains and has an excellent safety record. The new H1N1 vaccines are being produced using methods similar to those used for seasonal influenza vaccines. Licensure of vaccines against novel influenza A (H1N1) virus will be based on the same licensure standards used for seasonal influenza vaccines, as is done routinely each year when strains are changed in the seasonal vaccine. Therefore it is anticipated that the novel H1N1 vaccine will have the same excellent safety profile as the seasonal flu vaccine.

This novel H1N1 virus has disproportionately affected children and young adults (age 5-24 yrs). The severity has been comparable to the seasonal flu in healthy adults, but it has caused more complicated illness and death in children < 5 years of age and in persons with chronic medical and immunosuppressed conditions. When the H1N1 vaccine is released this fall, priority groups to receive the initial supply include:

- ? Pregnant women
- ? Persons who live with or provide care for infants aged less than 6 months (e.g., parents, siblings, and daycare providers)
- ? Health-care and emergency medical services personnel
- ? Persons aged 6 months - 24 years
- ? Persons aged 25-64 years who have medical conditions that put them at higher risk for influenza-related complications.

More information and resources can be found at:

US Centers for Disease Control and Prevention [3]

CDC Flu Page [4]

World Health Organization [5]

UCSF Occupational Health [6]

San Francisco Department of Public Health [7]

UCSF Main Site

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Source URL: <https://studenthealth.ucsf.edu/influenza>

Links

[1] <https://studenthealth.ucsf.edu/cold>

[2] <http://www.cdc.gov/>

[3] <http://cdc.gov/>

[4] <https://www.cdc.gov/flu/>

[5] <http://www.who.int/en/>

[6] <https://www.occupationalhealthprogram.ucsf.edu/>

[7] <http://www.sfdph.org/dph/default.asp>