

Patient Information:

Appropriate Antibiotic Use by the College Student

“When I have a cold or ‘flu’ my mucus turns yellow. My mom always says that means I have a sinus infection and need an antibiotic. Is this correct?”

No. When viruses (e.g. rhinovirus, corona viruses and influenza) that cause colds and “flu” first infect the nose, sinuses and throat, the nose makes clear mucus. This helps wash the viruses out of the nostrils and is swallowed. After two or three days, the body’s immune cells fight back, changing the mucus to a white or yellow color. As the bacteria that normally live in the nose grow back, they change the mucus to a yellow or greenish color. Furthermore, mucous may dry, thicken, and discolor overnight from sitting in the head - showing color in the morning when you “cough it up”. This color misconception has contributed to the current problem with antibiotics being used for viral upper respiratory infections.

“What should I use if an antibiotic is not the right thing for colds or ‘flu’?”

The best treatment is watchful waiting, 8 hours of sleep a night, fluids, and the use of cold medications to lessen symptoms. Runny nose, posterior nasal drainage (PND), cough, sore throat, and symptoms like fever, headache, and muscle aches may be bothersome, but antibiotics such as a Z-Pak[®], amoxicillin, Keflex[®], Levaquin[®], and doxycycline won’t make them go away any faster. Only your immune system can “cure” a viral infection, commonly known as a “cold” or “U.R.I.” (upper respiratory infection). Sometimes influenza or “the flu” causes these symptoms, but only time and your immune system defeats “the flu”. It takes up to 10-14 days for these illnesses to resolve; most feel markedly better in 5-7 days. Often runny nose and intermittent cough are the last symptoms to resolve taking 2 weeks.

Some students find that using Benadryl[®], Tavist[®], or Drixoral[®] antihistamines for runny nose and PND are helpful. Newer antihistamines like Claritin[®], Allegra[®], Zyrtec[®], Xyzal[®], Alavert[®], are allergy medicines that won’t help with nasal symptoms from infections! You may use decongestants such as Sudafed[®] or

pseudoephedrine for stuffy nose. Delsym[®] may be given for cough suppression and Tussin[®], Mucinex[®], or Robitussin[®] help with phlegm. Tylenol[®], Motrin[®], Advil[®], or Aleve[®] can help with chills, fever, sore throat, and head and body aches. Tea, lozenges, and salt water gargles are helpful for some with sore throat. Echinacea and mega-dosing on multi-vitamins have shown no benefit in curing the common the cold faster than those whom don’t take them.

“When are antibiotics appropriate for acute illness or sickness?”

Antibiotics are needed only if your health care provider tells you that you have a bacterial complication of a viral illness. These complications are *sinusitis*, *ear infection*, or *pneumonia*. Most college students with uncomplicated colds and “flu” get better, with time. *Strep throat* (or *Strep pharyngotonsillitis*) is not a complication of cold or “flu”, but is an uncommon reason to use antibiotics we see at SHC. *Strep throat* is responsible for 1 in 20 sore throats in college students. It is correctly diagnosed by a throat culture or rapid strep test. Usually it doesn’t have nasal symptoms and cough. Unless a medication reaction occurred, always complete antibiotic given, never save a couple of doses for the next illness, and don’t take “a friend’s” antibiotics!

“I have an exam in 2 days... Why not try antibiotics now?”

Taking antibiotics when they are not needed can be harmful (see below). Data shows only a 1 in 4000 chance of helping an early upper respiratory infections, like colds, simple sore throat, and “flu” with and antibiotic. Each time you take an antibiotic, vulnerable bacteria are killed, but resilient bacteria in and on you are strengthened by exposure to these drugs. They develop antibiotic resistance mechanisms. These surviving bacteria multiply and even share these resistance traits with other bacteria! Patients who frequently use antibiotics are more likely to carry resistant bacteria in their noses, throats, colons, genital area, and skin. These resistant forms cannot be killed by common antibiotics. While you

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might not usually have these organisms on your person, your friends that do frequently use antibiotics may and are more likely to carry them. They are more likely to leave them with you and the community.

“What are some adverse events that can occur from use of antibiotics?”

We are fortunate to have these drugs, but antibiotics are not harmless! Unnecessary use of antibiotics for viral infections is rendering them ineffective when we need them for bacterial infections. For instance:

- ◆ Persons have a 1 in 4 risk of diarrhea.
- ◆ Persons have a 1 in 50 chance of developing a rash that may resemble hives, red bumps or a sun burn.
- ◆ Persons have a 1 in a 1000 chance that an anaphylactic reaction may result leading to and emergency room visit. The nature of these reactions can put you at risk of death.
- ◆ Serious super-infections of the colon causing severe diarrhea called *Clostridium difficile colitis* can occur.
- ◆ More recently communities have been plagued by methicillin resistant *Staphylococcus aureus* (MRSA), a direct result of antibiotic over-use.
- ◆ Birth control pill efficacy can be altered, putting women at pregnancy risk.

- ◆ Good bacteria on the skin are killed which may lead to yeast infections of the skin, throat and vagina.

“My doctor always gives me an antibiotic for “bronchitis.” Why not now?”

First, acute bronchitis means “swollen or inflamed air passages”. It is caused by a virus, in nearly every case in the college age population; the same that caused your initial cold symptoms. Sadly, many practitioners casually use antibiotics and label your cough “bronchitis” because it sounds serious enough to validate antibiotic use and justify a sizeable visit fee to their clinic, when you have only complained of cold symptoms and cough of no more than a few days. On the other hand, this practice is due to increased patient expectation of receiving a prescription for their wait-time and visit fee.

There is also the wrong perception that antibiotics are “magic bullets” for all infectious illnesses. I often hear, “I got better on a Z-Pak® the last time I had this”. True you did get better, but perhaps it may have been that the immune system had defeated the virus naturally, around the time the drug was taken? Studies repeatedly show patients have gotten better in the same amount of time on cold medications and inhalers as those patients who took expensive, side-effect inducing, potentially harmful, and drug-resistance inducing antibiotics.