

flu? cold? tonsillitis? strep throat? ear infection? sinus infection? bronchitis? pneumonia?

Flu and colds, along with most of the illnesses above, are caused by **viruses**. Antibiotics will not help! Your immune system will have to fight them off. *You can prevent the flu by getting a flu shot, which "wakes up" your immune system to the flu virus.*

Strep throat and most pneumonias, and a few ear and sinus infections, are caused by **bacteria**. Antibiotics do help. *Some people are at a higher risk of dying from pneumonia - babies, older folks, and people with lung diseases like COPD. They can prevent this by getting the pneumonia shot, which "wakes up" the immune system to the pneumococcus bacterium.*

Viruses and bacteria: how to tell the difference

FLU (viral): Comes on hard and sudden, like being hit by a truck, with a high fever (102+), all-over body pain, exhaustion, and headache (in addition to other cold symptoms).

COLD (viral): Builds up over a day or a night, with a lower fever (in addition to other cold symptoms). *It does not make any difference what color your mucus is.*

STREP (bacterial): Severe sore throat with a high fever (102+) and no cough, in a child or teenager, especially if exposed to another confirmed case.

TONSILLITIS (viral): Sore throat with a cough and low fever, especially in an adult, in the warmer months, and without exposure to true strep.

PNEUMONIA (bacterial): A terrible cough causing chest pain, with high fever (102+) and an abnormal chest x-ray. "Walking pneumonia": less severe.

BRONCHITIS: Cough and fever with normal lung exam (+/- x-ray): virus, *unless* you have a chronic lung disease, like COPD from years of smoking.

SINUS: Viral: facial pain with ordinary mucus and a lower fever. Bacterial: one-sided facial pain with mucus that is actually pus, for more than a week, and a high fever (102+).

EARS: Bacterial: earache with a high fever (102+) and abnormal ear exam. Viral: earache with low fever.

Six steps to prevention:

1. Wash your hands.
2. Wash them all the time.
3. Wash them, wash them, wash them. Use soap and water.
4. Ask your children's school if they are making the kids wash their hands.
5. Give your family members each a little pack of kleenex and a little bottle of hand sanitizer for when they are away from soap and water. Teach them to clean their hands after wiping their noses.
6. Make everyone wash their hands before meals and before they leave the house. They should use designated personal towels, changed weekly.

Treatments for viruses:

*(There **are** anti-viral flu medicines, but they don't reduce the illness very much. I recommend you treat the flu the same way you'd treat any other virus.)*

STAY HOME. Do not go to school, work, a party, or the doctor. (It might be housecall time, if you need to be seen.)

SLEEP. Sleep and sleep and sleep. Let your immune system get to work without distractions.

PUSH FLUIDS. Hot tea with honey, bottles of water, hot chicken or miso soup; no caffeine, alcohol, or soda pop. Drink more than 2 liters per day. (Imagine a two-liter soda bottle full of water; drink more than that.)

CONTROL PAIN OR FEVER, if you need to, by taking acetaminophen (two 500-mg pills, up to four times a day) and/or ibuprofen (three 200-mg pills, up to four times a day). Take cool baths; keep a cool cloth on your head.

COUGH AND CONGESTION: Thin out the mucus by breathing steam and/or putting menthol-eucalyptus ointment on your throat or chest. "Guaifenesin" is an expectorant medicine (pills or cough syrup) that also thins secretions, helping you get rid of them more easily.

DON'T MAKE IT WORSE!

- Avoid over-the-counter remedies, except for rare last-resort use (for example, diphenhydramine to help you sleep).
- Avoid decongestant nose sprays and eyedrops, which have a rebound effect, making the congestion worse when they wear off.
- Avoid "natural" treatments containing metals (for example, zinc, silver, chlorine) and those that are merely expensive scams (fizzy vitamin powders that are mostly sugar).
- Vitamins: Buy inexpensive simple tablets or chewables.
- Herbs: Focus on tea with honey: pre-prepared ('gypsy cold care,' 'sinus soother,' 'throat comfort,' etc.), or home-made (example: fresh ginger + fresh lemon + pure local honey + boiling water).

Keep it simple, and let your own immune system do the heavy lifting!

Is it bad to take antibiotics for a virus?

YES. (See next page.)

Treatments for bacterial infections:

These should usually be managed just like viruses! However, there are a few special cases where you really want to take an antibiotic:

1. *If you have strep throat, confirmed by a throat swab.* Sometimes the immune system overreacts to the strep germ, causing additional problems with the heart, kidneys, or joints. You need antibiotics to prevent these.
2. *If you have pneumonia, confirmed by a chest x-ray.* This could cause a hard-to-treat lung abscess, or an all-over illness (sepsis) if it gets out of hand.
3. *Bacterial ear or sinus infection:* These can occur on the heels of a viral infection. Watch for a high fever that appears suddenly, when you thought you were getting better. If it lasts more than a week or causes severe one-sided pain, you *may* need antibiotics.

When to call:

- Call your doctor **if you are worried**. They can help you figure out whether your symptoms are medically concerning.
- **If your immune system needs extra help** - If you are very young or very old, undergoing chemotherapy or on long-term immune suppressant medicine, or if you have a lung condition like COPD... Call your doctor when you get sick.
- **If you have asthma** that usually gets worse when you get a cold or flu, be prepared for quick action. If you don't have inhalers and an emergency asthma pill prescription (e.g., prednisone) on hand, let your doctor know.

What causes all these symptoms?

Your symptoms are actually not caused by the germs themselves, but by your immune system's healthy response!

Your immune system notices a virus or bacteria in a certain location (airway, sinus, middle ear), and produces an inflammatory reaction to kill it:

- White blood cells travel through the blood to attack the germs. This good blood supply causes tissue swelling (which can be painful).
- Mucous membranes make a lot of goo, to wash away the germs. You cough and sneeze to clear it away.
- Special hormone-like chemicals called **cytokines** turn up the heat - raising your temperature all over (with a fever), and/or locally (causing a red-hot throat or eardrum, for example).
- Cytokines make you feel worn out, achy, and depressed as a side effect. Technical term: "cytokine-mediated sickness behavior."

All of these effects combine to produce your symptoms.

Why no antibiotics?

Taking antibiotics makes many bacteria *stronger*.

Sometimes we are forced to do this, to save your life and your health, and to prevent epidemics - but most of the time, we're not.

We always have bacteria in our body: on the skin, in the nose, mouth, belly - everywhere. *This is natural!* But when we expose the whole body to an antibiotic, it kills off the weak bacteria, and only the strong survive.

If you repeat this process for years and years, you get a body full of drug resistant bacteria. They won't cause trouble unless they get out of hand.

Because most people in our society have been exposed to lots of antibiotics, we have many bacteria that are very strong and dangerous, and *can't be treated with ordinary antibiotics*. These include skin infections, sexually transmitted infections, lung infections, and diarrheal diseases. These often infect people who are otherwise very healthy!

Please note that "exposure to an antibiotic" doesn't only mean inappropriate prescribing by doctors. It also includes:

- ~~ Taking old leftover antibiotics when you get sick,
- ~~ Taking antibiotics that were not even prescribed for you,
- ~~ Eating animal foods & dairy products, most of which contain antibiotics,
- ~~ And possibly even overuse of antibacterial soaps, gels, and sprays (instead of plain soap and water).

For more information:

World Health Organization, "Antimicrobial resistance"

<http://bit.ly/5qRGYv>

Centers for Disease Control, "Pediatric appropriate treatment"

<http://bit.ly/c5KcF5>

Centers for Disease Control, "Adult appropriate treatment"

<http://bit.ly/a9a7fC>

WebMD, "9 tips to treat the common cold"

<http://bit.ly/GPi8i>

Mayo Clinic: "What works, what doesn't"

<http://bit.ly/sc0t>

American Academy of Pediatrics, "Do vaccines weaken the immune system?" <http://bit.ly/aT9FsG>

Dr. Leigh, "Natural remedies for kids"

<http://bit.ly/8Xwj2u>

Dr. Leigh, "My approach to herbal medicines"

<http://bit.ly/bYeiJS>