

MISUSE OF ANTIBIOTICS

Antibiotic misuse has resulted in antibiotic-resistant bacteria that can cause severe infections and even result in death. Everyone (childcare staff, teachers, school nurses, parents/guardians, health care providers, and the community) has a role in preventing antibiotic misuse.

Antibiotics and What They Do

- **What kinds of germs cause infections?**
Viruses and bacteria are two kinds of germs that can cause infections and make people sick.
- **What are antibiotics?**
Antibiotics are powerful medicines that are mostly used to treat infections caused by bacteria. These are known as anti-bacterial drugs. These drugs cannot fight viruses; there is a special class of medicines called antivirals that specifically fight infections caused by viruses. There are many classes of antibiotics, each designed to be effective against specific types of bacteria. When an antibiotic is needed to fight a bacterial infection, the correct antibiotic is needed to kill the disease-producing bacteria.
- **When are antibiotics needed?**
Anti-bacterial drugs are needed when a person has an infection caused by bacteria. These drugs cannot fight infections caused by viruses.
- **How can I tell if an illness is caused by a virus or bacteria?**
The symptoms of viral infections are often the same as those caused by bacterial infections. Sometimes diagnostic tests are needed, but it is important that your doctor or health care provider decide if a virus or bacteria is causing the infection.
- **If an infection is caused by a virus, and an antibiotic will not work, what can be done to relieve the symptoms?**
A person may need extra rest, plenty of fluids (water and juice), and healthy foods. Some over-the-counter medications, like acetaminophen (follow package directions or your health care providers' instructions for dosage) or saline nose drops, may help while the body is fighting a virus. A cool mist vaporizer may help too. Viral infections (like chest colds, acute bronchitis, and most sore throats) resolve on their own but symptoms can last several days or as long as a couple weeks.

When Antibiotics Are Needed

- **Are antibiotics needed to treat a runny nose with green or yellow drainage?**
No. An antibiotic will not help. A runny nose is a common symptom of a chest cold or acute bronchitis. A runny nose may begin with clear drainage then turn to yellow or green drainage. Color changes in nasal mucous are a good sign that your body is fighting the virus. If a runny nose is not getting better after 10 to 14 days or if other symptoms develop, call your health care provider.
- **Are antibiotics needed for a sore throat?**
Not usually. Most sore throats are caused by a virus and antibiotics will not help. Only throat infections caused by Group A strep bacteria need an antibiotic. Your health care provider can do a lab test. If Group A strep bacteria is present, they can prescribe an antibiotic.
- **Does acute bronchitis need antibiotics?**
No. Most cases of acute bronchitis (another name for a chest cold) are caused by viruses, and antibiotics will not help. Children with chronic lung disease are more susceptible to bacterial infections and sometimes they need antibiotics.

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- **Does a sinus infection need antibiotics?**

Sometimes. Antibiotics are needed for sinus infections caused by bacteria; antibiotics are not needed for sinus infections caused by viruses. Check with your health care provider if cold symptoms last longer than 10 to 14 days without getting better or pain develops in your sinus area.

- **Do ear infections need an antibiotic?**

Sometimes. Ear infections can be caused by bacteria or viruses, so not all ear infections need antibiotics. Your health care provider will need to assess your symptoms and determine whether antibiotics are needed.

Antibiotic Resistance

- **What are antibiotic resistant bacteria?**

Antibiotic resistant bacteria are germs that are not killed by commonly used antibiotics. These bacteria are very difficult to cure and sometimes very powerful antibiotics are needed to treat infections caused by these bacteria.

- **How do bacteria become resistant?**

Each time we take antibiotics, sensitive bacteria are killed but resistant ones are left to grow and multiply. When antibiotics are used excessively, used for infections not caused by bacteria (for instance, those caused by viruses), or are not taken as prescribed (such as not finishing the whole prescription or saving part of a prescription for a future infection), resistant bacteria grow. Under these circumstances, bacteria learn how to “outsmart” antibiotics.

- **Is antibiotic resistance a problem?**

Yes. Antibiotic resistance is a growing problem throughout the United States – including Minnesota. The Minnesota Department of Health has seen an increase in antibiotic resistance among bacteria that commonly cause disease in children. An increasing number of these bacteria are resistant to more than one type of antibiotic, making these infections harder to treat.

- **How do bacteria become resistant to certain antibiotics?**

There are three different ways that bacteria become resistant to antibiotics:

- Taking antibiotics can increase your chance of developing antibiotic-resistant bacteria. Antibiotics kill the disease-causing bacteria, but they also kill some good bacteria. Some bacteria that have been exposed to the antibiotic have developed ways to fight them and survive. These bacteria become stronger, can multiply, and begin to cause symptoms. These resistant bacteria not only can cause you to be ill, but you can spread these resistant bacteria to others and they too may become ill.
- Antibiotic resistant-infections can be spread from people or objects that are contaminated with resistant bacteria. These bacteria can enter your body when you touch these objects and then touch your mouth or nose or eat food with your hands. The best way to prevent spreading any germs is to wash your hands!
- Antibiotic-resistant bacteria can also outsmart the antibiotics designed to kill them. This happens when the bacteria inside your body share, exchange, or copy genes that allow them to survive the antibiotic.

- **Are antibacterial products (e.g., antibacterial soaps) better than ordinary products?**

At home, antibacterial (or antimicrobial) products are no better than ordinary soap for preventing infections. The use of antibacterial soaps are not recommended in childcare and school settings.



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- **Why should I be concerned about antibiotic resistance?**
Improper use of antibiotics can cause more frequent and possibly more severe illness for you and your family. Antibiotic misuse also is bad for your community by increasing the number of bacteria that are hard for health care providers to treat.
- **What if I get sick with an antibiotic-resistant infection?**
Antibiotic-resistant bacterial infections require stronger antibiotics. These medications often must be given through a vein and may require a hospital stay. They may also cause more severe side effects. Antibiotic-resistant infections of the blood or brain can be life-threatening.
- **How can I prevent antibiotic-resistant Infections?**
 - Use antibiotics only when your health care provider prescribes them. Always take all the medicine that is prescribed, even if you are feeling better before you finish the prescription.
 - Never ask for antibiotics for a viral infection such as a cold, acute bronchitis, cough, or green/yellow runny nose.
 - Never let anyone take leftover antibiotics or a prescription that was used by someone else in your household.
 - Handwashing helps prevent the spread of infections! Wash your hands thoroughly – and teach your children to wash their hands too – using soap and running water for 15-20 seconds after blowing or wiping your nose, after using the toilet, after changing diapers, and before preparing food or eating.

Appropriate Use of Antibiotics

- **Are antibiotics safe?**
Yes. Antibiotics taken as prescribed are generally safe and effective at combating bacterial infections. Some people may be allergic to certain antibiotics, but can usually take other types of antibiotics if needed. All medications can have side effects, so be sure to ask your health care provider about potential side effects and how to manage them.
- **When should I take antibiotics?**
You should take antibiotics – the complete prescription – when your health care provider prescribes them for a bacterial infection. Never save antibiotics for a later use.
- **When I'm feeling better can I stop taking the antibiotic?**
No. You should complete all of the medication prescribed. The prescription is written to cover the time needed for your body to completely kill the bacteria. If you stop taking the antibiotic early, the bacteria that are still alive are more likely to be resistant and could restart the infection – or be passed on to others.
- **Can I save antibiotics for the next time I'm sick?**
No. Taking incomplete doses of antibiotics will not make you better and will increase your risk for developing resistant bacteria in the future. Also, your next illness may be caused by a virus instead of bacteria - and antibiotics won't help.

For more information, call the Minnesota Department of Health at (651) 201-5414 or visit the Minnesota Antibiotic Resistance Coalition at www.minnesotaarc.org/

Adapted from Minnesota Antibiotic Resistance Coalition (MARC) *Stop Antibiotic Misuse in Minnesota*

