

Safe Use of Antibiotics – Frequently Asked Questions

1. What are antibiotics? Can they treat all types of infections?

Antibiotics are drugs for treating bacterial infections, either by killing the bacteria or stopping them from growing. There are different types of antibiotics for treating different bacterial infections. Antibiotics will not be effective for viral infections such as common cold and influenza (flu). (For more information about the management of a cold or the flu, please refer to Q10, Q11 and Q12)

2. What is the difference between bacteria and viruses?

Bacteria are tiny organisms that can reproduce independently. On the other hand, viruses are even much smaller than bacteria and can only reproduce inside living cells. Bacteria and viruses have different properties and may cause different diseases which respond to different types of drugs. Indeed, most cases of upper respiratory tract infections are caused by viruses which do not need antibiotics. The following table shows some examples of bacteria and viruses and the diseases they cause:

Germs		Disease example(s)
Bacteria	<i>Escherichia coli (E.coli)</i>	Urinary tract infection, diarrhoeal diseases
	<i>Streptococcus pneumoniae</i>	Chest infection, middle ear infection
	<i>Staphylococcus aureus</i>	Skin and soft tissue infection
Viruses	Rhinovirus	Cold
	Influenza virus, e.g. H1N1, H3N2	Influenza
	Varicella-zoster virus	Chickenpox
	Enterovirus	Hand, foot and mouth disease

3. Are antibiotics magical anti-inflammatory drug that cure all kinds of inflammation?

No. Antibiotics are drugs for treating bacterial infections whereas anti-inflammatory drug is a general name referring to a group of drugs which can reduce inflammation and relieve pain, such as non-steroidal anti-inflammatory drugs like aspirin and their actions are different from that of antibiotics. If you have query about the drugs you are taking, you should consult your doctor.

4. Are there any risks in taking antibiotics?

Yes. Antibiotics, like any other drugs, may cause side effects and allergic reactions. While antibiotics are taken to wipe out the bacteria causing the disease, they also affect the normal bacteria living inside your body and predispose acquiring more bacteria with antibiotic resistance, which may make treatment and control of subsequent infections difficult. Therefore, the doctors will consider individual cases and balance the treatment benefits against risks before making prescription. To protect your health, follow your doctor's instructions when taking antibiotics.

5. What are the side effects of taking antibiotics?

Each antibiotic has its own specific side effects. In general, some people may experience side effects such as nausea, vomiting, constipation or diarrhea, and headache when they are taking antibiotics. If the side effects persist or worsen, you should consult your doctor. Some people may also develop allergic reactions such as rash, itchiness or breathlessness after taking antibiotics. If this should occur, consult your doctor immediately. If drug allergy is confirmed, you should tell the doctor about your history of drug allergy in your future consultations.

6. What is antimicrobial resistance?

Antimicrobial resistance occurs when microorganisms such as bacteria, viruses, fungi and parasites change in ways that render the medications used to cure the infections they cause ineffective. Antibiotic resistance occurs when bacteria change in ways to become resistant to the antibiotics which they are previously sensitive to, i.e. the previous effective treatment is no longer capable of controlling the same infection. When the bacteria become resistant to most commonly used antibiotics, they are commonly referred as “superbugs” or “MDROs”.

7. What are multi-drug resistant organisms (MDROs)?

MDROs refer to those bacteria that cause infections not treatable by several classes of commonly used antibiotics. Although there are some alternative antibiotics available for treatment, they may be less effective, or cause more side effects. MDROs can normally be carried in asymptomatic people. However, immunocompromised or critically ill patients are more prone to be infected, causing pneumonia, urinary tract infection, wound infection or even bacteremia. These infections in susceptible patients are often more severe with limited treatment options.

Here are some examples of MDROs:

- Methicillin-Resistant *Staphylococcus aureus* (MRSA) / Vancomycin-Intermediate / Resistant *Staphylococcus aureus* (VISA / VRSA)
- Extended Spectrum Beta Lactamase (ESBL) producing organisms
- Vancomycin-Resistant *Enterococcus* (VRE)
- Carbapenem-Resistant *Enterobacteriaceae* (CRE)
- Carbapenem-Resistant *Acinetobacter* (CRA) / Multi-Drug Resistant *Acinetobacter* (MDRA)
- Multi-Drug Resistant *Pseudomonas aeruginosa* (MRPA)

8. Can antibiotic resistant bacteria affect us?

Yes. This is a major concern because infections due to antibiotic resistant bacteria are more difficult to treat. In severe cases, it may be fatal. This type of infection can spread to the others and impose huge threats to community and population health.

9. When I need to take antibiotics, what can I do to prevent the emergence of antibiotic resistant bacteria?

Inappropriate and irrational use of antibiotics provides favorable conditions for resistant microorganisms to emerge and spread. Hence, the following points must be followed carefully when you are taking antibiotics:

- Only take antibiotics prescribed by your doctor
- Follow advises given by your doctor when taking antibiotics
- Enhance personal hygiene while you are taking antibiotics to protect yourself and to prevent the spread of bacteria:
 - Keep hands clean
 - Eat only well-cooked food. Drink only boiled water
 - Disinfect and cover all wounds
 - Wear mask if you have respiratory symptoms like cough, sneeze, runny nose and sore throat
 - Young children having symptoms of infection should minimize contact with other children
- Never share your antibiotics with others

10. How should I keep antibiotics?

Follow instructions on the drug label for proper storage of antibiotics. If fridge storage is required, store antibiotics in the fresh food compartment but not the frozen deck. If fridge storage is not necessary, store antibiotics in a dark, cool dry place which is out of children's reach.

11. What should I do if I have a cold or the flu?

If you have a cold or the flu, adopt the following measures:

- Have adequate rest and drink plenty of water. If symptoms persist, consult your doctor
- Follow your doctor's advice on the use of drugs
- Do not push your doctor to prescribe antibiotics
- Do not self-medicate antibiotics

12. If I am having a cold or flu and my nasal discharge changes to yellow or green, do I need antibiotics?

It is quite common for the discharge to become thick and change to yellow or green during a cold or flu. Therefore, change of the appearance of the nasal discharge alone does not justify the use of antibiotics. Always consult your doctor for the use of antibiotics.

13. Do I always need antibiotics if I have fever?

No. Fever is a common presenting symptom of infection which may or may not be caused by bacterial infection. You should follow your doctor's advice for the use of antibiotics. For the sake of your own health, you should neither push your doctor to prescribe nor self-medicate antibiotics.

14. Are there special precautions for women of child-bearing age or during pregnant to take when taking antibiotics?

Some antibiotics may decrease the efficacy of oral contraceptives, or cause harm to the fetus or infant. Therefore, women should inform their doctors of their contraceptive, pregnancy or breastfeeding status so that appropriate prescriptions could be given.

Centre for Health Protection

12 March 2015