Antimicrobial Resistance - Frequently Asked Questions

1. What are antimicrobial agents and antibiotics?

There are many types of microorganism, such as bacteria, virus, fungi and parasites. Antimicrobial agents, including antibiotics, are drugs that can kill or suppress disease-causing microorganisms. 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 are not effective in curing viral infections such as common cold and influenza (flu) and cannot make recovery faster.

2. What are antimicrobial resistance bacteria?

‘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. These resistant bacteria are sometimes referred to as 'superbugs'. When the bacteria become resistant to most commonly used antibiotics, they are referred to as ‘multi-drug resistant organisms’ (or MDROs). When the medicines become ineffective and infections persist in the body, the risk of spread to others will also increase.

3. What causes antimicrobial resistance?

Antimicrobial resistance (AMR) occurs naturally over time, usually through genetic changes and can affect humans and animals. The emergence and dynamics of AMR genes in bacteria circulating among humans, the environment and animals are not entirely known. AMR develops when microorganisms adapt and grow in the presence of antimicrobials (including properly used antimicrobials). Resistance develops more rapidly through the misuse and overuse of antimicrobial medicines. Resistant bacteria are often acquired through ingestion or contact from colonised or infected animals, food or humans, or their contaminated environment. AMR has no respect for borders and direction and can be transmitted in a bi-directional manner from animals to humans and vice versa.

4. Can antimicrobial resistance affect me?

Yes. This is a major concern because infections due to resistant bacteria are more difficult to treat. It may even be fatal in severe cases. Without effective antimicrobials for prevention and treatment of infections, medical procedures such as organ transplantation, cancer chemotherapy, diabetes management and major surgery become very risky. Infections caused by resistant bacteria can spread to people around you and impose huge threats to community and population health.

5. What can I do to combat AMR?

- Proper use of antibiotics
  - Do not demand antibiotics from your doctor
  - Follow your doctor's advice when taking antibiotics
  - Do not stop taking antibiotics by yourselves even if you are feeling better
  - Do not take leftover antibiotics
  - Do not share your antibiotics with others
  - Do not self-purchase antibiotics without a prescription
- Practise frequent hand hygiene, especially before eating and taking medicine, and after going to the toilet
- Ensure your vaccination is up-to-date
- Maintain cough etiquette, wear a mask if you have respiratory symptoms

6. What are the precautions when taking antibiotics?

While taking antibiotic which is necessary to cure your infection, the antibiotic also kills the normal bacteria in your body and predisposes you to acquire more resistant bacteria. Therefore, you should enhance your personal hygiene to protect the health of you and your family.

- Practise frequent hand hygiene
- Eat or drink only thoroughly cooked and boiled items
- Disinfect and cover all wounds
- Wear a mask if you have respiratory symptoms
- Young children with symptoms of infections should minimise contact with other children

In addition, please follow your doctor's advice when taking antibiotics and do not stop taking antibiotics by yourselves even if you are feeling better. You may ask your doctor or pharmacist if in doubt.

7. Are antibiotics miracle drugs that cure all kinds of inflammation?

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

8. Are there any risks in taking antibiotics?

Yes. Antibiotics, like any other drugs, may cause side effects and allergic reactions. While antibiotics wipe out the bacteria causing the disease, they also affect the normal bacteria living inside your body and increase the risk of acquiring resistant bacteria which make treatment and control of subsequent infections difficult. Therefore, your doctor will consider your condition and balance the treatment benefits against risks before making a prescription. To protect your health, follow your doctor's instructions when taking antibiotics.

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

10. Do I always need antibiotics if I have cold or flu?

90% of upper respiratory tract infections (URTI) do not require antibiotic treatment (URTI such as common cold and influenza that are of viral origin). If you have a cold or 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 demand antibiotics from your doctor
- Do not self-purchase antibiotics without a prescription

11. 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, changes in the appearance of nasal discharge alone do not justify the use of antibiotics. Always consult your doctor for the use of antibiotics.

12. 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 infections. You should follow your doctor's advice for the use of antibiotics. For the sake of your own health, you should not demand antibiotics from your doctor nor self-purchase antibiotics without a prescription.

13. Why should I keep vaccination up-to-date?

The World Health Organization emphasized that vaccination is a key element in preventing infections, alongside with other factors such as improved sanitation and infection control. Pneumococcal vaccine has been shown by studies to be effective in reducing overall antibiotic prescription.

Another vaccine in focus is seasonal flu vaccine. The role of seasonal flu vaccination in fighting AMR is two-fold. It is not uncommon for people with flu symptoms to take antibiotics unnecessarily. According to the survey on Hong Kong general public's knowledge, attitude and practice on antimicrobial resistance, 54% of respondents have mistaken that cold and flu are treatable by antibiotics. Seasonal flu vaccination can therefore not only prevent the inappropriate primary use of antibiotics for seasonal influenza, but also their use for secondary bacterial infections. This translates into fewer opportunities for resistance to occur.

14. What can health care workers do to combat AMR?

Antibiotics are precious resources against infections. Healthcare workers play an essential role in preserving them:

- Prescribe antibiotics in accordance with therapeutic guidelines in consideration of clinical situations
- Educate your patients
  - To take antibiotics as prescribed and always complete the full course of medication
  - Discuss about the importance of appropriate antibiotic use and the dangers of AMR where appropriate
  - Talk about how to prevent infections and their spread. For example, vaccination, maintain good personal hygiene and hand hygiene
- Apply best practice of infection prevention and control, and to practise frequent hand hygiene
- Receive seasonal influenza vaccine

September 2019