

## European Antibiotic Awareness Day 2011

### Frequently asked questions

#### **1. What is antibiotic resistance?**

Antibiotic resistance is the natural process by which bacteria develop resistance over time to the medicines used to treat them. As resistance develops, these medicines become progressively less effective – and eventually they lose their effectiveness entirely. Antibiotic resistance is a consequence of the use of antibiotics, and misuse accelerates the emergence of resistance.

#### **2. What constitutes “inappropriate” use of antibiotics?**

Inappropriate (or imprudent) use occurs when antibiotics are taken when not needed, or taken for too short a time, at too low a dose, at inadequate potency, or for the wrong disease. Both overuse and underuse play a role: overuse such as through the over-prescribing of antibiotics, which tends to occur in wealthier nations, and underuse due to lack of access, inadequate dosing, poor adherence and poor quality drugs, mostly in poorer countries. For example, in some countries antibiotics can be purchased in single doses without a prescription. Economic hardship means that many patients stop taking an antibiotic as soon as they feel better, which may occur before the microbe has been eliminated.

#### **3. Is antibiotic resistance just about misuse of antibiotics?**

Misuse of antibiotics is certainly part of the problem, but antibiotic resistance is much broader than that. Because drug resistance is a natural process, all microorganisms could eventually develop resistance to the medicines used to treat them. Nevertheless, implementation of national policies and the rational use of medicines by providers and patients, and the rational use of antibiotics in animal health and animal production, combined with infection control, can help considerably in slowing down the development and spread of resistance.

#### **4. How much does antibiotic resistance cost society?**

There are no global data for the cost of resistance and many countries do not have an estimated cost for their own population, but some good evidence is available for parts of Europe and from the United States. In the European Union, 25 000 people die each year as a result of infection by multidrug-resistant bacteria, at an estimated cost to health care systems of €1.5 billion per year. In the United States, medical costs attributable to drug-resistant infections are estimated at over US\$ 20 billion each year, with over 8 million additional days spent in hospital as a result. The total cost to society amounts to over US\$ 35 billion a year.

Antibiotic resistance is both a medical and a financial burden. When the antibiotic of choice (first-line treatment) fails, other more expensive antibiotics need to be used (second-line treatment). The difference in cost between first- and second-line drugs is an estimated 50- to 100-fold increase for tuberculosis drugs, a 2- to 60-fold increase for antibiotics.

## **5. Why is WHO putting so much effort into combating antibiotic resistance?**

Antibiotic resistance is not a new problem and is in essence a natural phenomenon. It is, however, becoming more dangerous, as more bacteria develop or acquire resistance to the medicines used to treat them at an increasing and alarming speed. The invention of antibiotics and other antimicrobial drugs has changed the course of human history, but their effectiveness is under threat. In the absence of urgent corrective and protective actions, the world is heading towards a post-antibiotic era, in which many common infections will no longer have a cure and will, once again, claim lives.

Therefore, WHO calls for urgent and concerted action by governments, health professionals, industry, civil society and patients to slow down the emergence and spread of drug resistance, limit its impact today and preserve medical advances for future generations.

## **6. What is WHO doing?**

The emergence of antimicrobial resistance is a growing concern, as expressed in several resolutions approved by Member States and leading to several WHO initiatives. In September 2001, WHO launched the Global Strategy for Containment of Antimicrobial Resistance, which includes a large number of interventions to slow the emergence and reduce the spread of resistance in a diverse range of settings. Since then, further progress has been made through campaigns, expert consultations, risk assessments, guidance documents and capacity-building efforts by the various WHO programmes dealing with antimicrobial resistance.

WHO continues to advocate to governments the need to control and monitor antibiotic use, implement surveillance for antibiotic resistance, ensure strict compliance with infection prevention and control strategies and enact or enforce legislation to assure the continued efficacy of antimicrobial resistance. Through World Health Day 2011 on antimicrobial resistance, WHO brought widespread attention to this multifaceted issue. It is now working to bring together all these activities into one comprehensive approach, to equip Member States with the guidance and tools to combat antimicrobial resistance effectively at all levels of engagement.

## **7. What is WHO doing in the European Region?**

In September 2011, at the WHO Regional Committee for Europe in Baku, Azerbaijan, 53 countries adopted a new European strategic action plan on antibiotic resistance. Developed by the WHO Regional Office for Europe following extensive consultation with experts and policy-makers and based on the latest research, the action plan builds on the momentum created by World Health Day 2011, with its slogan of "No action today, no cure tomorrow".

The European strategic action plan on antibiotic resistance identifies seven key areas where action must be taken to ensure that Europeans are safe.

They are:

- national multisectoral coordination for the containment of antibiotic resistance;
- surveillance of antibiotic resistance and antibiotic consumption;
- strategies for the rational use of antibiotics and for strengthened surveillance of antibiotic consumption;
- infection control in hospitals and clinics;
- the development and spread of antibiotic resistance in the veterinary and agricultural sectors;
- innovation and research on new drugs and technology; and
- awareness, patient safety and partnership.

#### **8. What can governments do?**

Governments can take the lead by introducing comprehensive policies to prevent the emergence of antibiotic resistance and ensuring these policies are adequately resourced.

#### **9. What can consumers do?**

Antibiotics are a precious resource for everyone on the planet. Like any global good, we have a responsibility to protect this resource and to use it responsibly. Consumers can help by using antibiotics only when they are prescribed, and always completing the course of treatment. When people take only part of a course of treatment, this contributes to the development of drug resistance. It is important for consumers to understand that antibiotics designed for bacterial infections are not useful against viral infections such as a cold, a cough or influenza.

#### **10. What can doctors do?**

Doctors may come under pressure from patients and inappropriate pharmaceutical marketing to prescribe medicines when it may not be necessary. It is important that all health professionals, including doctors, resist this pressure. Doctors can help by explaining to their patients when antibiotics and other antimicrobial drugs are appropriate, and when they are not. In addition, doctors can inform their patients of the necessity of completing a course of medicine when it is prescribed, rather than stopping the treatment as soon as they start to feel better.

#### **11. What can pharmacists do?**

Pharmacists have an especially important role to play, because in most settings they are the ones distributing antibiotic medicines to patients. Like other health professionals, pharmacists can ensure that patients

understand the importance of taking only the medicines that are prescribed to them, and completing the full course of treatment.

### **12. What can veterinarians and farmers do?**

Sick animals need to be treated too but, as with humans, the treatment must be rational. The routine use of antibiotics in vast numbers of healthy animals, such as for growth promotion, is likely to result in the emergence and spread of antibiotic-resistant bacteria, and cause resistant infections in animals and humans. Resistant microorganisms carried by food-producing animals can spread to humans through consumption of contaminated food, from direct contact with animals, or by environmental spread, for example in contaminated water. Farmers can help by improving health management for food animal production by ensuring good hygiene practices and compliance with good farming practices. Veterinarians can help by being prudent when prescribing antibiotics, especially those that are also critically important for human medicine.

### **13. What can the pharmaceutical industry do?**

The research and development of new medicines, including drugs and vaccines, and new diagnostic tools are vital to help protect future generations. The development of vaccines to prevent bacterial diseases would reduce the need for use of antibiotics. On the other hand, as drug resistance develops, new medicines are needed, as well as new ways of using existing medicines. Currently, there are very few new antimicrobial medicines, diagnostics or vaccines in the research and development pipeline. For example, fewer than 5% of drugs currently in development are new antibiotics. The industry should engage with partners to overcome the barriers to research and development and to guarantee broad access to drugs, vaccines and diagnostic tools. Better incentives are also needed to encourage more research and development into this vital area.