

Antibiotic resistance

Key facts

- Antibiotic resistance is one of the biggest threats to global health today. It can affect anyone, of any age, in any country.
 - Antibiotic resistance occurs naturally, but misuse of antibiotics in humans and animals is accelerating the process.
 - A growing number of infections—such as pneumonia, tuberculosis, and gonorrhoea—are becoming harder to treat as the antibiotics used to treat them become less effective.
 - Antibiotic resistance leads to longer hospital stays, higher medical costs and increased mortality.
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Introduction

Antibiotics are medicines used to prevent and treat bacterial infections. Antibiotic resistance occurs when bacteria change in response to the use of these medicines.

Bacteria, not humans, become antibiotic resistant. These bacteria may then infect humans and are harder to treat than non-resistant bacteria.

Antibiotic resistance leads to higher medical costs, prolonged hospital stays and increased mortality. In the European Union alone, drug-resistant bacteria are estimated to cause 25,000 deaths and cost more than US\$1.5 billion every year in healthcare expenses and productivity losses. The world urgently needs to change the way we prescribe and use antibiotics. Even if new medicines are developed, without behaviour change, antibiotic resistance will remain a major threat. Behaviour changes must also include actions to reduce the spread of infections through vaccination, hand washing and good food hygiene.

Scope of the problem

Antibiotic resistance is rising to dangerously high levels in all parts of the world. New resistance mechanisms emerge and spread globally every day, threatening our ability to treat common infectious diseases. A growing list of infections—such as pneumonia, tuberculosis, blood poisoning and gonorrhoea—are becoming harder, and sometimes impossible, to treat as antibiotics become less effective.

In countries where antibiotics can be bought without a prescription, emergence and spread of resistance is made worse. Similarly, in countries without standard treatment guidelines, antibiotics are often over-prescribed by health workers and over-used by the public.

Without urgent action, we are heading for a post-antibiotic era, in which common infections and minor injuries can once again kill.

Prevention and control

Antibiotic resistance is accelerated by the misuse and overuse of antibiotics, as well as poor infection prevention and control. Steps can be taken at all levels of society to reduce the impact and limit the spread of resistance.

The general public can help by:

- Preventing infections by regularly washing hands, practicing good food hygiene, avoiding close contact with sick people and keeping vaccinations up to date
- Only using antibiotics when prescribed by a certified health professional
- Always taking the full prescription
- Never using left-over antibiotics
- Never sharing antibiotics with others.

Health workers and pharmacists can help by:

- Preventing infections by ensuring hands, instruments and environment are clean
- Keeping patients' vaccinations up to date
- When a bacterial infection is suspected, perform bacterial cultures and testing to confirm
- Only prescribing and dispensing antibiotics when they are truly needed
- Prescribing and dispensing the right antibiotic at the right dose for the right duration.

Policymakers can help by:

- Having a robust national action plan to tackle antibiotic resistance
- Improving surveillance of antibiotic-resistant infections
- Strengthening infection prevention and control measures
- Regulating and promoting the appropriate use of quality medicines
- Making information on the impact of antibiotic resistance available
- Rewarding the development of new treatment options, vaccines and diagnostics.

The agricultural sector can help by:

- Ensure that antibiotics given to animals - including food-producing and companion animals - are only used to treat infectious diseases and under veterinary supervision.
- Vaccinate animals to reduce the need for antibiotics and develop alternatives to the use of antibiotics in plants.
- Promote and apply good practices at all steps of production and processing of foods from animal and plant sources.
- Adopt sustainable systems with improved hygiene, biosecurity and stress-free handling of animals.
- Implement international standards for the responsible use of antibiotics, set out by OIE, FAO and WHO.

The healthcare industry can help by:

- Investing in new antibiotics, vaccines, and diagnostics.

Recent developments

While there are some new antibiotics in development, none of these are expected to be effective against the most dangerous forms of antibiotic-resistant bacteria.

Given the ease and frequency with which people now travel, antibiotic resistance is a global problem, requiring efforts from all nations.

Impact

When infections can no longer be treated by first-line antibiotics, more expensive medicines must be used. A longer duration of illness and treatment, often in hospitals, increases health care costs as well as the economic burden on families and societies.

Antibiotic resistance is putting the achievements of modern medicine at risk. Without effective antibiotics for the prevention and treatment of infections, organ transplantations, chemotherapy and surgeries such as caesarean sections become much more dangerous.

WHO response

Tackling antibiotic resistance is a high priority for WHO. A global action plan on antimicrobial resistance, including antibiotic resistance, was endorsed at the World Health Assembly in May 2015. The global action plan aims to ensure that the prevention and treatment of infectious diseases with safe and effective medicines continues.

The global action plan has 5 strategic objectives:

- To improve awareness and understanding of antimicrobial resistance
- To strengthen surveillance and research
- To reduce the incidence of infection
- To optimize the use of antimicrobial medicines
- To ensure sustainable investment in countering antimicrobial resistance.

In response to Objective 1, WHO is leading a global, multi-year campaign with the theme “Antibiotics: Handle with care”. The campaign will be launched during the first annual World Antibiotic Awareness Week from 16 to 22 November 2015.

WHO is supporting Member States to develop their own national action plans to address antimicrobial resistance, in line with the objectives of the global plan.

Fact sheet

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