ANTIMICROBIAL RESISTANCE EXPLAINED

WHO lists antimicrobial resistance among the **top 10 threats to global public health.**
In 2021, antimicrobial resistance caused 1.14 million deaths worldwide and was associated with nearly 4.71 million deaths (*1*). By 2050, antimicrobial resistance could claim 39 million lives (*1*) – unless we act now.

Antimicrobial resistance occurs when microorganisms, such as bacteria, viruses, fungi and parasites, change over time and no longer respond to existing medicines. Microorganisms are found in people, other animals, plants, food and the environment (in water, soil and air). They can spread from person to person or between people and animals.

How does antimicrobial resistance develop?

Resistance develops naturally, but the problem is made worse by inappropriate use of antimicrobial drugs. When such drugs are used inappropriately, microorganisms can develop antimicrobial resistance, making infections harder to treat. This can lead to severe illness, disability and even death.

Patients with drug-resistant infections often require more complex care, which also increases health care costs.

What makes antimicrobial resistance develop and spread faster?

Main drivers of antimicrobial resistance include:

- overuse and misuse of antimicrobials in human and animal health and in agriculture, through health facilities, prescription and over-the-counter sales;
- people's lack of access to safe water, sanitation and hygiene;
- poor infection prevention and control in health facilities and on farms; and
- limited access to quality and affordable medicines, vaccines and diagnostics.

World Health Organization
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HANDLE ANTIMICROBIALS WITH CARE

Why is the Eastern Mediterranean Region more vulnerable to antimicrobial resistance?

Conflicts, humanitarian crises and vulnerability to natural disasters put the Region at greater risk of antimicrobial resistance. The Region is also more vulnerable to the development and spread of antimicrobial resistance because of:

- fragmented and/or destroyed health infrastructure;
- inadequate governance and regulations on prescription and use of antibiotics;
- limited local data and evidence on the extent of the problem;
- lack of awareness and understanding of the problem at all levels, from the general public to policy-makers;
- lack of national surveillance systems to track antimicrobial resistance;
- poor infection prevention and control measures; and
- lack of access to safe water, sanitation and hygiene.

How can we prevent the spread of antimicrobial resistance?

Collective action is needed to control the development and spread of antimicrobial resistance. This calls for a One Health approach across the human health, animal health, agriculture and environment sectors.

Among the measures needed are efforts to:

- reduce inappropriate use of antimicrobials in the human and animal health sectors through awareness, training and monitoring;
- improve infection prevention and control measures in health facilities to reduce the need for antibiotics;
- increase awareness and change behaviour to ensure that members of the public use antimicrobials responsibly;
- improve the surveillance of antimicrobial resistance and consumption of antimicrobials, and the use of such data in policy-making;
- boost vaccination coverage to reduce the risk of infections;
- improve biosecurity on farms to reduce the need for antibiotics; and
- innovate and invest more in research and development of new antimicrobial medicines, vaccines and diagnostic tools.

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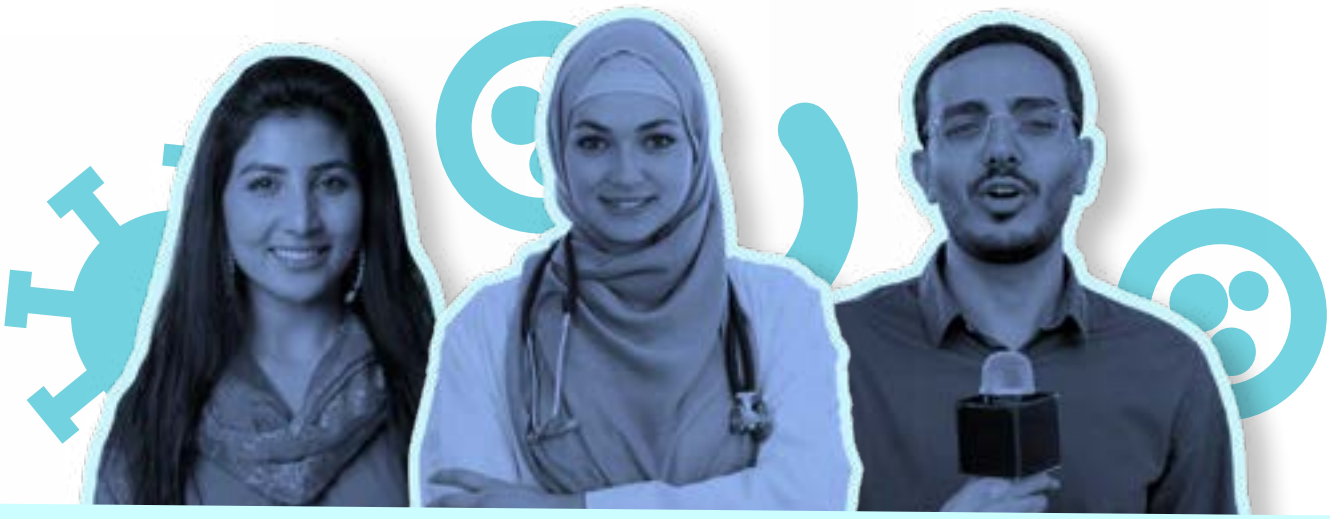

How can individuals help combat antimicrobial resistance?

Only take antibiotics prescribed by a qualified health provider – and always take antibiotics exactly as prescribed. Never share antibiotics with anyone else.

How can health workers help combat antimicrobial resistance?

Antibiotics are a limited resource. Only prescribe antibiotics when necessary and never for viral illnesses, like the flu and common colds.

Follow current national guidelines and consult the WHO AWaRe (Access, Watch, Reserve) antibiotic book – also available as an app – whenever you prescribe antibiotics. Always advise patients to take antibiotics exactly as prescribed.

Practise proper hand hygiene to protect yourself and your patients from serious infections. When we prevent infections, we reduce the need for antibiotics.

How can the media help combat antimicrobial resistance?

The media can appeal to people's values and help change behaviour, including by providing guidance on what actions can and should be taken. Regular reporting on antimicrobial resistance as a global public health threat, as well as positive stories about responsible antimicrobial use, help raise awareness of the issue.

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What is the situation of antimicrobial resistance in the Eastern Mediterranean Region?

The 2021 report on the global burden of bacterial antimicrobial resistance highlighted a concerning statistic: of the estimated 1.75 million sepsis-related deaths in the Eastern Mediterranean Region in 2021, 580 916 were due to bacterial infections (1). More than 64% of these deaths (373 703) were associated with antibiotic resistance, with 96 416 directly attributable to bacterial resistance.

All 22 countries and territories of the Region have developed national action plans on antimicrobial resistance but their level of implementation varies greatly. Lack of funding, human resources and technical capacity are among the key barriers to translating these plans into action.

Escherichia coli and *Staphylococcus aureus* are among the most common bacteria that cause bloodstream infections in the Region. Alarmingly, both bacteria have developed resistance to our last-resort antibiotics, which limits the options for treating patients infected with these microorganisms.

Data for the Region show that the prevalence median proportion of bloodstream infections due to:

- E. coli resistant to third generation cephalosporins increased from 49.75% in 2017 to 52.35% in 2021; and
- Methicillin-resistant S. aureus (MRSA) increased from 33.6% in 2017 to 39.35% in 2021.

Preventing infections is vital to limit the development and spread of drug-resistant microorganisms. Within the Region, 75% of countries and territories have now developed national guidelines and national- and facility-level governance structures for infection prevention and control. But access to critical infrastructure to support prevention – such as quality water, sanitation and hygiene facilities, and immunization – varies across the Region.

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1. Global burden of bacterial antimicrobial resistance 1990–2021: a systematic analysis with forecasts to 2050. Naghavi, Mohsen et al., Lancet 2024; 404: 1199 – 1226.