

Antimicrobial resistance targets: how can we reach them by 2030?



Microorganisms become resistant to antimicrobials: why is this an issue?

Antimicrobial resistance is a major public health challenge in Europe and globally. Each year throughout the European Union (EU), Iceland and Norway, more than 35 000 people die from infections with bacteria that are resistant to antimicrobials¹. This number has increased in recent years. The impact that these infections have on public health is comparable to that of influenza, tuberculosis and HIV/AIDS combined.

Over time, bacteria, fungi and parasites can adapt to withstand the effects of the antimicrobials that were designed to kill them. This resistance is the result of inappropriate and excessive use of antimicrobials in people, animals and farming, as well as inadequate infection prevention and control measures in healthcare settings.



When antimicrobials (including antibiotics) become less effective, regular infections become increasingly difficult or impossible to treat. This can result in long-lasting sicknesses and sometimes even death.

Antimicrobial resistance is a threat to human and animal health, as well as the environment, as microorganisms such as bacteria spread in and between all sectors. Therefore, this issue needs to be addressed with integrated action from multiple sectors, known as the One Health approach.

The annual cost of antimicrobial resistance in EU and European Economic Area (EEA) countries is nearly 11.7 billion EUR, or 24 EUR per capita. 6.6 billion EUR of the total cost (around 13.4 EUR per capita) is connected to extra health expenditure from treating resistant infections and their consequences. Additionally, 5.1 billion EUR (10.4 EUR per capita) is related to economic losses due to reduced participation in the workforce (e.g. premature loss of life or reduced productivity due to long sick leaves)².

What could the future look like?

Without urgent action, severe health, social and economic consequences are foreseen:

- Simple infections could become difficult or impossible to treat with antibiotics or other antimicrobials, causing long-lasting sickness.
- Simple surgical procedures, organ transplants and cancer treatments would be severely affected, as patients rely on the availability of effective antimicrobials to prevent and treat infections.
- Healthcare facilities could face an increase in patients with infections that are difficult to treat, putting pressure on resources and increasing the demand for specialised care.
- Prolonged hospital stays, increased healthcare costs and decreased productivity due to illness or premature death could lead to an increased economic impact on individuals, families and societies.






What are the antimicrobial resistance targets and why are they important?

A concrete and measurable way to monitor progress at EU and national levels

The Council Recommendation on stepping up EU actions to combat antimicrobial resistance in a One Health approach was adopted on 13 June 2023³. The document outlines five targets related to antimicrobial consumption and antimicrobial resistance to be reached by 2030, using 2019 as a baseline.

The recommended targets represent an effective way to monitor progress and achieve goals related to the prevention and reduction of antimicrobial resistance. They are concrete and measurable goals for the EU overall and for each EU Member State, according to their individual situations.

How is the EU progressing towards the 2030 antimicrobial resistance targets?

 <p>Reduce by 20% the total consumption of antibiotics in humans As defined daily doses (DDD) per 1 000 inhabitants per day</p>	2019 Baseline	19.9	-
	2022	19.4	-2.5%
	2030 TARGET	15.9	-20%
 <p>At least 65% of the total consumption of antibiotics in humans belongs to the 'Access' group of antibiotics As defined in the AWaRe classification of the WHO</p> <p><small>*Population-weighted mean % consumption in 'Access' group. **Percentage point difference from 2019.</small></p>	2019 Baseline	61.1%*	-
	2022	59.8%*	-1.3%**
	2030 TARGET	65%	+3.9%**
 <p>Reduce by 15% the total incidence of bloodstream infections with meticillin-resistant <i>Staphylococcus aureus</i> (MRSA) Number per 100 000 population</p>	2019 Baseline	5.6	-
	2022	4.9	-12.2%
	2030 TARGET	4.8	-15%
 <p>Reduce by 10% the total incidence of bloodstream infections with third generation cephalosporin-resistant <i>Escherichia coli</i> Number per 100 000 population</p>	2019 Baseline	10.4	-
	2022	8.7	-16.8%
	2030 TARGET	9.4	-10%
 <p>Reduce by 5% the total incidence of bloodstream infections with carbapenem-resistant <i>Klebsiella pneumoniae</i> Number per 100 000 population</p>	2019 Baseline	2.2	-
	2022	3.3	+49.7%
	2030 TARGET	2.1	-5%

By 2022, total consumption of antibiotics in humans (community and hospital sectors combined) had decreased by 2.5% since the baseline year of 2019, indicating a slow progress towards the EU target to reduce total consumption by 20% by 2030 (target 1).

Only 9 EU Member States met or exceeded the target of at least 65% of antibiotic consumption being from the 'Access' group (as per WHO's AWaRe classification of antibiotics) by 2022 (target 2), while 17 countries remained below this target. For the EU overall, this percentage was 59.8% in 2022.

The incidence totals for bloodstream infections with MRSA (target 3) and with third-generation cephalosporin-resistant *E. coli* (target 4) both showed decreasing trends at the EU level, with decreases of 12.2% and 16.8% between 2019 and 2022, respectively. For third-generation cephalosporin-resistant *E. coli*, this means that, overall, the EU already reached the 10% reduction target in 2022.

In contrast, the total incidence of bloodstream infections with carbapenem-resistant *K. pneumoniae* (target 5) increased by almost 50% between 2019 and 2022. This means that the situation in the EU worsened since 2019, rather than progressing towards the 5% reduction target by 2030.

Although there has been slow progress in certain areas, there is a need for intensified efforts to ensure that the targets are reached at both EU and national levels.

Reaching the targets by 2030: key actions

Antimicrobial resistance is a public health concern that needs to be tackled on various fronts and by different actors. While it is everyone's responsibility to ensure that antimicrobials remain effective, there are specific groups that have an enhanced responsibility, such as policymakers at national and local levels, as well as decision-makers in healthcare settings.

These groups can push forward or implement actions that will help reduce the emergence and spread of antimicrobial-resistant bacteria, including promoting prudent use of antimicrobials, supporting improvements in infection prevention and control practices, strengthening research and innovation, and ensuring that policies and procedures are in place at the national level.

Promote prudent use of antimicrobials in the community and in healthcare settings



Prudent use means only using antimicrobials when they are needed, in the correct dose, with appropriate dosage intervals and for the duration of the course.

In the community, promoting prudent use of antimicrobials can be done through the implementation of awareness-raising campaigns targeted at the general population. These should emphasise the importance of taking antimicrobials as prescribed by a health professional and only when they are needed.

In healthcare settings, this is effectively implemented through the establishment of antimicrobial stewardship programmes, which also improve patient outcomes, help reduce antimicrobial resistance rates and decrease the spread of healthcare-associated infections.

Be AWaRe about antibiotics

AWaRe⁴ is a tool developed by the World Health Organization to support antimicrobial stewardship efforts. The tool divides antibiotics into three groups, taking into consideration their respective impacts on antimicrobial resistance overall:

Access – Antibiotics for first- or second-line treatment of common infections (such as ear infections), with a low chance of contributing to the development and spread of antimicrobial resistance.

Watch – Antibiotics with a stronger negative impact on antimicrobial resistance, but that are the most effective options for a limited group of infections (e.g. kidney infections). Their use should be tightly monitored and restricted to limited indications.

Reserve – Last-resort antibiotics that can be effective against multidrug-resistant bacteria. These are a valuable tool that should be used as sparingly as possible.



Promote and implement effective infection prevention and control measures and policies in healthcare settings and in the community

Healthcare-associated infections cause more deaths in Europe than any other infectious disease under surveillance at ECDC⁵. Over 70% of antimicrobial resistance's health impact in the EU/EEA is due to healthcare-associated infections, half of which could be prevented through adequate infection prevention and control measures¹.

In healthcare settings, timely implementation of infection prevention and control measures is key to minimise the spread of antimicrobial-resistant bacteria and, consequently, their impact on hospitalised patients. This requires action to be taken by various groups, including policymakers, healthcare managers, healthcare professionals, patients and visitors.

In the community, many infections can be prevented through hand hygiene and other infection prevention and control measures, such as observing respiratory etiquette and staying home when sick, which can result in reduced medical care needs and less unnecessary antimicrobial prescriptions, as seen during the COVID-19 pandemic.

Increase surveillance of antimicrobial resistance and antimicrobial consumption

Strengthening surveillance of antimicrobial resistance and of antimicrobial consumption in human health, as well as in the veterinary and environmental sectors, is crucial for the EU. This helps to assess the spread of antimicrobial-resistant bacteria so that adequate policies and actions can be implemented to support prudent use of antimicrobials and appropriate infection prevention and control measures.

Member States also need to take further action to close existing surveillance and monitoring gaps, to ensure completeness of data for both antimicrobial resistance and antimicrobial consumption at all levels, and to develop integrated systems that encompass human health, animal health, plant health, food, wastewater and the environment⁶.

Strengthen One Health national action plans against antimicrobial resistance

In 2021, the European Commission published its evaluation⁶ of One Health national action plans against antimicrobial resistance and found that while plans are in place in all EU Member States, their content and detail varied from country to country.

These plans should be further developed following the One Health approach to promote prudent use of antimicrobials, intersectoral coordination and evidence-based measures to prevent, monitor and reduce the spread of antimicrobial resistance.

National action plans should be evaluated at least every three years and actions to address the findings of the evaluations should be implemented³.

Strengthen research and innovation

The Council of the European Union encourages Member States to strengthen research and innovation in the field of antimicrobial resistance to effectively prevent, detect and treat infections with antimicrobial-resistant bacteria in humans and animals, by developing new antimicrobials, as well as other tools and solutions³.

This can be accomplished through building and extending national and international partnerships, transnational research, and making use of funding opportunities provided by the EU through various mechanisms⁷. In 2023, the European Parliament passed a resolution on antimicrobial resistance that acknowledged the need for more research and development into novel antimicrobials and alternatives to antimicrobials⁸.

Beyond the numbers: Antimicrobial resistance affects real people



When Areti was 13 years old, she was diagnosed with acute lymphoblastic leukaemia, a cancer of the white blood cells.

During her cancer treatment, she developed an infection with a *Klebsiella* strain that was resistant to most available antibiotics.

Not only did she struggle to overcome the infection, but her chemotherapy also had to be put on hold, severely jeopardising her chances of survival.

The availability of effective antibiotics allowed her to beat the infection and continue with her cancer treatment. Today, 12 years later, Areti is alive and healthy.

Read Areti's full story: antibiotic.ecdc.europa.eu



References

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