Antimicrobial agents, such as antibiotics, are essential to treat some human and animal infectious diseases. AMR occurs when microorganisms change so that they are no longer affected by antimicrobial medicines used to treat them. There are different types of antimicrobials, which work against different types of microorganisms, such as antibacterials or antibiotics against bacteria, antivirals against viruses, and antifungals against fungi. The development of resistance is accelerated by the incorrect use of these medicines, for example, using antibiotics (which help to treat bacteria) for viral infections like flu, or as a growth promoter in agriculture.

Because of growing resistance, the world is running out of effective antimicrobials to treat infectious diseases. Unless appropriate action is taken, decades of progress in health and medicine will be jeopardized.

The Seventy-third session of the WHO Regional Committee for Europe launched the new Roadmap on AMR (2023–2030) to help accelerate the implementation of national strategies on AMR.

Priorities for the control of AMR include:
- promoting the new Roadmap that builds on a people-centred approach to addressing AMR, recognizing people as partners and addressing the main AMR-related challenges across the life course;
- antimicrobial stewardship (AMS), which refers to interventions aimed at promoting the optimal use of antibiotic agents;
- proof-of-principle projects, supported by WHO European Region upon a Member State’s request, which demonstrate the value of rapid and reliable microbiology diagnostic tests for guiding the appropriate treatment of patients and strengthening the surveillance of AMR;
- providing technical guidance to countries in strengthening national antimicrobial consumption (AMC) and AMR surveillance and improving diagnostic capacity, in particular through the Central Asian and European Surveillance of Antimicrobial Resistance (CAESAR) network and the WHO AMC network; and
- supporting countries to implement the core components of infection prevention and control (IPC) programmes.

Priorities for the prevention of NCDs include:
- designing innovative approaches to reduce exposure to NCD risk factors, in areas such as alcohol taxes, data and digital health, digital marketing and greener cities;
- supporting Member States to strengthen implementation and enforcement of tobacco control measures aligned with the WHO Framework Convention on Tobacco Control to reduce tobacco use and exposure to secondhand smoke;
- promoting healthy and sustainable diets through seven key workstreams;
- strengthening of health services to support breastfeeding;
- promoting physical activity as part of daily life in schools, workplaces and cities through primary health care, urban design, and community-based programmes; and
- using practical and evidence-based measures to decrease alcohol consumption and alcohol-related harm.

Four main NCDs – cardiovascular diseases, cancer, diabetes and chronic respiratory diseases – account for nearly 75% of deaths in the WHO European Region. There are many complex and multifaceted links between NCDs and AMR. Major NCD risk factors including poor diet, physical inactivity, tobacco and alcohol consumption and air pollution exposure can impact the immune system response and the body’s ability to fight infectious diseases, creating opportune conditions for the emergence and spread of antimicrobial resistant infections.

People living with NCDs have weakened immune systems making them susceptible to infections, which, if caused by antibiotic-resistant bacteria, could be more difficult to treat. These persons are more frequently hospitalized and require complex medical procedures and prolonged treatment, increasing their risk of acquiring a health-care-associated infection. Without effective antimicrobials, their lives are at serious risk. Thus, efforts to preserve antimicrobials are imperative for treating and managing patients with NCDs.

How can both areas benefit from each other?
Both global health threats need to be considered together, given they are influenced by a range of common variables and drivers, and include bidirectional causal relationships. For instance, the way we produce and transport our food and our eating habits can help mitigate risk factors contributing to both NCDs and AMR. Developing sustainable food systems can support a healthy diet while promoting prudent use of antimicrobials in food production.

Addressing NCDs and AMR together can create synergies for health across sectors and populations. The interconnections between NCDs and AMR highlight the need for a ‘One Health’ approach that addresses health issues in the human, animal and environment interface in a holistic and integrated manner.
**Achievements so far**

**Initiatives and partnerships to address AMR in WHO European Region.**

1. In collaboration with the European Centre for Disease Control and Prevention (ECDC), a surveillance report is published each year, giving an accurate picture of the AMR situation in the Region. Annual reports show consistent progress.

2. The WHO European Region has developed a massive open online course on antibiotic stewardship for a competency-based approach. It is free and accessible on OpenWHO in multiple languages (openwho.org).

3. The AWaRe system classifies antibiotics into three stewardship groups – Access, Watch and Reserve – to emphasize the importance of their optimal uses and potential for AMR. WHO set a target that at least 60% of overall country-level antibiotic use should be from medicines in the Access group.

4. A global report on IPC was published in 2022 featuring results from the Region based on use of the national IPC assessment tool.

**Initiatives and partnerships to address NCDs in WHO European Region.**

1. The WHO STEPwise Survey of NCD Risk Factors provides a cost-effective method for collecting, analysing and disseminating data on key NCD risk factors in Member States.

2. The NCD Dashboard presents data on key NCD risk factors and policy responses, for assessing and comparing progress among Member States.

3. The WHO European Childhood Obesity Surveillance Initiative (COSI) is the largest in the world and produces nationally-representative data on obesity and overweight and related health behaviours.

4. Awareness raising through the annual ‘World No Tobacco Day’ campaign.

5. The WHO Global Information System on Alcohol and Health regularly collects data on alcohol consumption, alcohol-attributable burden of disease and policy response in the Region and publishes reports and fact sheets on key areas, such as pricing and taxation.

**Causal loop diagram (CLD) of AMR and NCDs**

Systems thinking encourages consideration of the big picture in addressing complex problems and can help identify the right tools to accomplish win-win solutions in cross-cutting areas. CLDs are an example of a tool used in systems thinking to map causal relationships between different elements within a system, which can help to better understand how different factors impact policies and identify potential leverage points. A CLD of selected variables can illustrate the complex interplay between NCDs and AMR.

**Legend**

- Adds to / same direction
- Subtracts from / opposite direction

Source: WHO Collaborating Centre for training and research for complex systems and network science for NCD prevention and control, 2024.

**Controlling AMR through efforts to prevent and manage NCDs requires everyone’s commitment. Give this important issue the attention it deserves by prioritizing intersectoral actions that will tackle NCDs and AMR together.**