OPOMUN
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WORLD HEALTH ORGANIZATION – RESEARCH REPORT

Combating anti-microbial resistance

Introduction to the Topic:

Antimicrobial resistance (AMR) has emerged as one of the most urgent and complex global health threats of the 21st century. It occurs when bacteria, viruses, fungi, and parasites evolve to resist medicines designed to combat them. As a result, common infections become harder or sometimes even impossible to treat. The World Health Organization identifies this issue as one of its top ten global public health threat due to its devastating effects on patients' healthcare and outcomes as well as its global development.

Although antibiotic resistance is the most talked about form of AMR, resistance like this is rising across pathogen types. Misuse or even overuse of antimicrobials in human medicine, agriculture and animal health accelerate this process, for example in many countries, broad spectrum antibiotics are still used without proper diagnoses, and antimicrobials are routinely administered to livestock for growth promotion rather than treatment, creating fertile ground for resistant strains to profligate.

Antimicrobial resistance causes about 1.27 million deaths directly and contributes to nearly 5 million deaths worldwide (see Fig. 1 below). Without immediate coordinated action, experts warn. That AMR could cause around 1.91 million deaths directly attributable to resistant infections annually and can be associated with around 8.22 million deaths a year, and be of high financial cost to the global economy, due to prolonged illness, higher medical cost and reduced productivity for individuals

At the same time, the development of new antimicrobials has slowed dramatically. Pharmaceuticals companies often avoid antimicrobial research because it is costly with limited commercial incentives. Resistance infections spread faster than new drugs are developed, creating a widening innovation gap that threatens modern medicine itself, including surgeries transplants and cancer treatments.

Background information

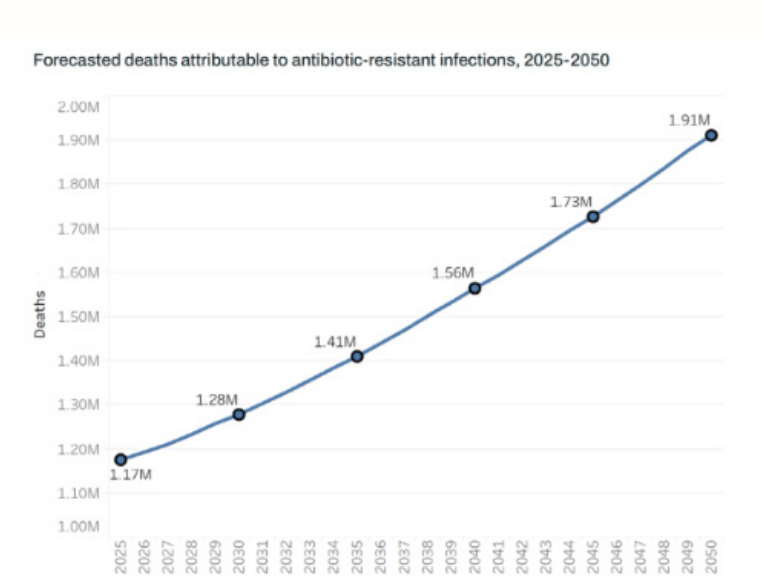
Antimicrobial resistance (AMR) has long been a concern dating back to the discovery of penicillin by Alexander Fleming who at his Nobel Prize acceptance speech in 1945 warned the medical community that "negligent use of penicillin" - by which he referred to under-dosage - could lead to resistance. The ensuing golden decades of discovery of new antimicrobials from 1950s to the end of 20th Century (the so-called Antibiotic Era) did not eliminate the microbial threats, mainly because of misuse and overuse of antimicrobials in healthcare and livestock industry, poor sanitary conditions, inappropriate food handling and poor infection prevention and control in hospitals.

Antimicrobial resistance is a pressing threat to global health. The unifying themes across pathogen types are clear: the discovery of antimicrobials has driven down mortality from infectious diseases, including bacteria, fungi, mycobacteria, and viruses. Pathogens undergo mutations that, with the selective pressure from exposure to antimicrobials, lead to emergence and persistence of antimicrobial resistance. Where the burden of infection is greatest—whether because of compromised immunity or geopolitical forces—and where access to antimicrobials is inconsistent or unstable, resistance thrives.

Beyond the ethical and moral imperatives to reduce suffering and disease, the COVID-19 pandemic has illustrated that infectious threats anywhere are infectious threats everywhere and that one threat (in this case a virus) can have downstream implications for a wide range of infectious diseases and their treatments.

Colonial-era mentalities regarding borders and the segregation of illness and poverty are incongruent with the reality of antimicrobial resistance as a global health threat. Preserving past successes and advancing our battle against infectious diseases requires continued discovery, new therapeutics, improved global health infrastructures, and robust collaborations among stakeholders in the antimicrobial development process. We must act now to ensure that the wonder drugs of yesteryear remain viable options for treating the patients of today and to ensure that the wonder drugs of

Graphs



Past UN Actions

United Nations (UN) actions to combat antimicrobial resistance (AMR) have evolved from technical health guidelines to high-level political commitments integrating human, animal, and environmental health through a "One Health" approach. Some examples of this are:

79th UN General Assembly High-Level Meeting (2024): Leaders approved a political declaration committing to a 10% reduction in global AMR-related deaths by 2030. It also set a goal for 60% of countries to have funded National Action Plans (NAPs) by 2030, supported by $100 million in catalytic funding.

Global action plan on AMR (2015): Originally adopted by the World Health Assembly, this plan was later endorsed by the UN General Assembly. It established five strategic objectives: improving awareness, strengthening surveillance, reducing infection incidence, optimizing antimicrobial use, and developing the economic case for investment.

One health tripartite cooperation: Coordinates multi sectoral AMR response across human, animal, and environmental health (tripartite joint secretariat, 2018)

GLASS (global antimicrobial resistance and use surveillance system: Implemented in 2015 to standardize global AMR reporting (World Health Organization, 2022)

Un high level meeting on AMR (2016): Only the fourth timing in history that the un general assembly addressed a health issue at this level (United Nations General Assembly (UNGA), 2016)

Multi-Partner Trust Fund (MPTF): established in 2020, this fund supports countries in implementing their NAPs by pooling resources from international donors

Focus of the Debate

Debate in this committee should emphasize

· How nations can strengthen one health coordination between, human, animal and environmental sectors

· Strategies to increase rational antimicrobial use, including stewardship programs, prescription regulations and public education

· Approaches to scale up surveillance, laboratory capacity, and data sharing under GLASS

· Increasing support for innovation including new antibiotics, alternatives, rapid diagnosis and vaccines

· Ensuring equitable access to essential antimicrobials while reducing misuse.

· Enhancing infections prevention and control in healthcare facilities, especially in low resource regions.

· Addressing agriculture antimicrobials use by promoting regulations, alternatives and sustainable farming

· Encouraging public-private partnerships and international funding mechanisms

Significant Parties

The Netherlands, Norway, and the UK: Were identified in a 2016 study as leaders in taking necessary actions. The UK has a national action plan informed by the WHO's global plan.

India: Experienced a dramatic increase in antibiotic usage between 2000 and 2018 and has high internal inequalities in usage. South Asia, including India, consumes over a quarter of all antibiotics globally.

China: Has historically high levels of antibiotic resistance and consumption, but has recently made significant progress in banning antibiotics as growth promoters in animals.

Brazil: High infections disease burdens and environmental risk factors (Pan-American Health Organization (PAHO), 2022).

Italy and Spain: High reported resistance levels in Europe, though linked to increased surveillance in some cases.

Sweden: Noted for having some of the lowest AMR levels in Europe due to early, coordinated efforts and broad awareness campaigns.

Thailand: Has a successful "Antibiotics Smart Use" campaign that has significantly reduced unnecessary antibiotic prescriptions for common ailments.

Kuwait: Has also shown high levels and a rapid growth rate of antibiotic resistance in specific studies.

Glossary and Key Terms:

Antibiotic stewardship: programs that ensure responsible antimicrobial prescribing and use

Antimicrobial resistance: the ability of microorganisms to survive exposure to drugs that would normally kill them

Carbapenems: last resort antibiotics often used to treat severe infections

GLASS (global antimicrobial resistance and use surveillance system): WHO system collecting standardized global AMR data

One health: a framework integrating human, animal and environmental health

Superbug: a microorganism resistant to multiple antimicrobial classes

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