

Global Model WHO 2024

COMMITTEE A4

STUDY GUIDE

**ANTIMICROBIAL RESISTANCE:
ACCELERATING NATIONAL AND GLOBAL RESPONSES**

Geneva, Switzerland
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The Most Accurate Simulation of the World Health Assembly

Global Model WHO
Committee A4

Antimicrobial Resistance: Accelerating National and Global Responses (University)

This study guide is designed to help you navigate the complex topics of climate change, pollution, and health as you prepare for the Global Model WHO A1 simulation. Use it alongside the official UN document as a reference. The guide includes key questions to prompt deeper thinking, facts to expand your knowledge, and a glossary to clarify important terms. Be sure to consult the page and paragraph numbers listed for each comment to see exactly what section of the document it addresses.

As you read through each section, reflect on the questions provided to help shape your arguments and anticipate counterpoints. The guide also offers insights that can aid in forming well-rounded, innovative solutions during debates. Use this resource to complement your own research and strengthen your overall understanding of the issues.

INTRODUCTION

DID YOU KNOW THAT..

Page 1, Paragraph 2

- AMR is already responsible for around 700,000 deaths annually worldwide, and this number could skyrocket to 10 million deaths per year by 2050 if no action is taken. This would surpass cancer as a leading cause of death globally.

- Bacteria can develop resistance to antibiotics in just a few months after a new antibiotic is introduced. This happens because bacteria mutate quickly and can share resistance genes with each other through horizontal gene transfer.
- Up to 70% of antibiotics globally are used in animals, particularly for promoting growth in livestock, which contributes significantly to AMR.
- Bacteria have been around for billions of years (around 3.5 billion years)—long before dinosaurs—and have evolved sophisticated mechanisms to survive harsh conditions, including developing resistance to the antibiotics we use to kill them.

GLOSSARY

Page 1, paragraph 2

- **Antimicrobial Resistance (AMR):**

AMR occurs when microorganisms such as bacteria, viruses, fungi, and parasites evolve to resist the effects of antimicrobial drugs, including antibiotics, antivirals, antifungals, and antiparasitics. This makes infections harder to treat and increases the risk of disease spread, severe illness, and death.

DID YOU KNOW THAT...

Page 1, paragraph 4

The so-called "golden age" of antibiotics occurred from the **1940s to 1960s**, during which most of the antibiotics we use today were discovered. However, since the 1980s, **very few new classes of antibiotics** have been developed, making it harder to combat resistant bacteria.

DID YOU KNOW THAT...

Page 1, paragraph 4

- Pharmaceutical Companies have an important role to play in the development of new antimicrobials, ensuring the responsible promotion and distribution of their products, and supporting efforts to combat AMR through research, stewardship, and collaboration.
- Scientists are exploring alternatives to antibiotics, including **phage therapy**, which uses viruses called **bacteriophages** to infect and kill bacteria. This therapy shows promise in treating infections resistant to antibiotics, but it's still in the experimental stages.

GLOSSARY

Research and Development (R&D) Incentives:

Comment: Incentives provided to encourage the development of new antibiotics, vaccines, and alternative therapies. These incentives can include financial support, market exclusivity, and regulatory fast-tracking, aimed at addressing the lack of new antimicrobial agents.

DID YOU KNOW THAT..

Page 2, paragraph 5

- Without effective antibiotics, **common surgeries** such as caesarean sections, hip replacements, and organ transplants would become incredibly risky due to the high likelihood of infection. **Infections after surgery** are currently prevented by antibiotics, but AMR could make such procedures dangerous.
- AMR disproportionately affects vulnerable populations. In some LMICs, **sepsis** (a life-threatening infection) in newborns is increasingly being caused by resistant bacteria, making it harder to treat and leading to higher mortality rates.

GLOSSARY

Environmental Impact of AMR:

The role of the environment in the spread of antimicrobial resistance, including the contamination of water, soil, and ecosystems with antibiotics and resistant bacteria. Environmental factors can contribute to the proliferation and transmission of resistance.

GLOSSARY

Page 2, paragraph 6

- **The Global Action Plan on AMR (GAP-AMR):**

The GAP-AMR is a framework developed by the World Health Organization (WHO) to guide countries in developing national strategies to combat antimicrobial resistance. It outlines five strategic objectives: improving awareness, strengthening surveillance, reducing infection rates, optimizing antimicrobial use, and ensuring sustainable investment in new medicines. The plan sets the groundwork for national strategies and global cooperation.

- **National Action Plans (NAPs):**

NAPs are country-specific strategies designed in alignment with the GAP-AMR to address antimicrobial resistance at the national level. These plans typically include measures for improving surveillance, promoting antimicrobial stewardship, and raising public awareness.

Page 2, paragraph 6 and 8

- **One Health Approach:**

The One Health approach is a collaborative, multi-sectoral, and transdisciplinary strategy that recognizes the interconnectedness of human, animal, and environmental health. It aims to achieve optimal health outcomes by addressing health threats at the interface of these domains, particularly in managing diseases like AMR.

DID YOU KNOW THAT...

Page 2, paragraph 8

- The "One Health" approach is an interdisciplinary strategy that recognizes the connection between human, animal, and environmental health. It's especially important in the context of antimicrobial resistance, as pathogens can spread across species and environments. This approach calls for collaboration across various sectors to effectively manage health risks.
- Antibiotic residues from **hospitals, pharmaceutical companies, and farms** can end up in rivers, lakes, and soils. These residues create environments where bacteria can develop and share resistance, turning natural ecosystems into breeding grounds for resistant bacteria.

DID YOU KNOW THAT...

Page 2, Footnote 4

Some bacteria, like **MRSA (Methicillin-resistant Staphylococcus aureus)** and **CRE (Carbapenem-resistant Enterobacteriaceae)**, are often referred to as "superbugs" because they are resistant to multiple antibiotics, making infections extremely difficult to treat.

GLOSSARY

Page 3, paragraph 12

- **Surveillance and Monitoring Systems:**

Surveillance and monitoring systems are essential for tracking antimicrobial resistance trends and patterns. These systems collect and analyze data on antimicrobial use and resistance, which helps in guiding public health responses and policy-making.

Page 3, paragraph 12

- **Antibiotic Resistance:**

A specific type of AMR where bacteria evolve to resist the effects of antibiotics. This resistance can lead to treatment failures, prolonged illness, and an increased risk of spread to others.

- **Diagnostics in AMR**

Tools and technologies used to rapidly and accurately identify infections and their resistance profiles. Effective diagnostics are essential for guiding appropriate treatment and reducing the misuse of antibiotics.

DID YOU KNOW THAT...

Page 3, paragraph 12

- Vaccines play a crucial role in reducing the need for antibiotics by preventing infections in the first place. This helps to limit the spread of resistant bacteria. The promotion and development of new vaccines are considered a vital component in the fight against antimicrobial resistance.
- Surveillance systems are crucial for tracking the spread of antimicrobial resistance. These systems collect data on antibiotic use and resistance patterns, helping to inform public health policies and strategies. Investigating how different countries implement these systems could provide valuable insights into global efforts against AMR. The “One Health” response enhances the surveillance of antimicrobial resistance across species.

GLOSSARY

Page 4, paragraph 10

- **Multidrug-Resistant Organisms (MDROs):**
MDROs are pathogens that have developed resistance to multiple classes of antimicrobial drugs. These organisms are particularly challenging to treat and are associated with higher morbidity and mortality rates.

THINGS TO THINK ABOUT...

Page 4, paragraph 19

- What can be done to increase the financing of global health initiatives that aim to reduce antimicrobial resistance?
- Did you know that behavioral change among both health professionals and communities is essential for combating antimicrobial resistance?
- What are the various behavioral changes that individuals can make that can help reduce AMR?

GLOSSARY

Page 4, paragraph 20

- **Infection Prevention and Control (IPC):**

IPC refers to practices and measures that are implemented in healthcare and community settings to prevent the spread of infections, particularly those caused by resistant bacteria. This includes hand hygiene, sterilization of medical equipment, the use of personal protective equipment (PPE), and isolation protocols. Strengthening IPC practices can significantly reduce the incidence of AMR-related infections

THINGS TO THINK ABOUT...

Page 5, continuation of paragraph 22 from page 4

- What factors contribute to the rise of antibiotic resistance in low- and middle-income countries than it is in high-income countries?
- LMICs often face unique challenges in combating AMR due to limited healthcare infrastructure, inadequate surveillance systems, and over-the-counter sales of antibiotics without prescriptions. Addressing these challenges requires tailored strategies and international support, making this a critical area for focused interventions. What solutions are needed in LMICs to address these challenges?
- Why is it critical for National Action Plans on AMR to be multi-sectoral? And what health sectors and other stakeholders should be included in these plans to control AMR? What implications does this have for the second operative paragraph of your resolution where you could list the sectors that need to take action to control AMR?

SCOPE AND GUIDING PRINCIPLES

GLOSSARY

Page 5, paragraph 14

- **Behavioral Change in Healthcare Professionals:**

This refers to efforts to change the prescribing behaviors of healthcare professionals to reduce the misuse and overuse of antimicrobial agents. Education, guidelines, and feedback are common tools used to promote responsible prescribing.

- **Antimicrobial Use in Agriculture:**

The application of antimicrobial agents in livestock and agriculture, often as growth promoters or to prevent disease. This practice can contribute to the

development of AMR in animals, which can then be transferred to humans through food or environmental pathways.

Page 5, paragraph 22

- **Access to Antibiotics:**

The availability and ability to obtain necessary antibiotics for treating infections. In some regions, there is a lack of access to essential antibiotics, while in others, there is overuse or misuse, both of which contribute to the AMR crisis.

GLOSSARY

Public Awareness Campaigns:

Initiatives aimed at educating the public about the dangers of antimicrobial resistance and the importance of responsible antibiotic use. Effective campaigns can lead to behavioral changes that help reduce the misuse of antimicrobials.

STRATEGIC PRIORITIES

GLOSSARY

Page 6, paragraph 22

- **Economic Impact of AMR**

The financial burden caused by antimicrobial resistance, including increased healthcare costs, loss of productivity, and the economic consequences of untreatable infections. The economic impact highlights the need for preventive measures and investment in AMR strategies.

Page 8, 3rd column, 7th bullet

- **Antimicrobial Stewardship:**

Antimicrobial stewardship programs are initiatives designed to promote the appropriate use of antimicrobials, including antibiotics to improve patient outcomes, reduce resistance, and decrease unnecessary costs. These programs are essential for preventing the overuse and misuse of these drugs, which are key drivers of resistance.

DID YOU KNOW THAT...

Page 8, paragraph 29

The financial burden caused by antimicrobial resistance includes increased healthcare costs, loss of productivity, and the economic consequences of untreatable infections. The economic impact highlights the need for preventive measures and investment in AMR strategies.

OPERATIONAL PRIORITIES

Enabling actions to Support Member States

DID YOU KNOW THAT...

Page 9, paragraph 32

Tackling AMR requires a coordinated global response. International collaborations, such as partnerships between governments, NGOs, and the private sector, are essential for sharing knowledge, resources, and strategies. These partnerships help to build a unified front against AMR across borders.. Initiatives like the Global Antimicrobial Resistance Surveillance System (GLASS) and joint efforts by WHO, FAO, and OIE exemplify how global partnerships are driving progress.

SOMETHING TO TRACK...

This upcoming Ministerial Meeting on Antimicrobial Resistance, hosted by Saudi Arabia in November 2024, represents a significant opportunity for global leaders to come together and address the escalating AMR crisis. The meeting is expected to facilitate critical discussions on strengthening international cooperation, sharing best practices, and mobilizing resources to combat AMR. Given the growing threat of resistance worldwide, the outcomes of this meeting could play a pivotal role in shaping future global strategies and policies. Keep an eye on the developments and agreements that emerge from this high-profile event. <https://www.spa.gov.sa/w1818332>

GLOSSARY

Global Partnerships and Collaborations:

Cooperative efforts between governments, international organizations, non-governmental organizations, and the private sector to tackle AMR. These partnerships facilitate the sharing of knowledge, resources, and best practices across borders.

MONITORING AND TARGETS

THINGS TO THINK ABOUT...

Page 10, Table 2

What potential indicators are suggested for measuring progress in AMR?

Look up the indicators for monitoring WASH programmes and the two SDG indicators associated with SDG 3 on global health to see what these measures are in more detail.

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