**The issue of anti-microbial resistance**

Anti-microbial resistance (AMR) occurs when bacteria, viruses, fungi and parasites no longer respond to antimicrobial medicine as a result of genetic changes in the pathogens. In 2019, it was estimated that 1.27million global deaths out of the total 4.95million deaths were caused directly by bacterial AMR. Over-prescription, over-use or misuse of anti-microbial medicine in livestock, fish farming and people are the main contributors to the development of AMR, rendering many antimicrobial medicines ineffective, and causing infections to become difficult or even impossible to treat.

Antimicrobial in wastewater, agricultural runoff and healthcare settings also contributes to the spread of AMR in the environment, which may spread to humans, animals and plants. Not only so, veterinary use of antibiotics may also lead to the emergence of resistant pathogens that could contaminate the environment further and could be transmitted to humans through direct contact. Furthermore, AMR could affect the health of livestock, leaving few animals available for food production and possibly impact food supply and increased risk of zoonotic diseases.

Consequentially, this could lead to longer illness durations, more severe complications, higher deathrate, which creates a chain of economic problems for hospitals. More prolonged hospital stays along with long courses of treatment, diagnostic tests, expensive drugs meant healthcare becomes costly for both the patient as well as the healthcare system. Additionally, the spread of AMR can place more people in a position where they are unable to perform their duties, putting a noticeable strain on economies.

In addition, AMR would threaten our ability to treat infections and to perform life-saving procedures including cancer chemotherapy, caesarean section, organ transplantation and many other surgeries, which when delayed, could cost the lives of many. On top of this, groups which are vulnerable to infections (children, the elderly, immunocompromised individuals etc.), may not respond well to treatments but they also have a higher risk of suffering from untreatable infections, leading to higher rates of severe disease and death.

There is an inadequate research and development in the face of the rising levels of AMR and an urgent need for additional measures to ensure equitable access to new and existing vaccines, diagnostics and medicines. Recently, developments of antibiotics have slowed as a result of scientific challenges and economic disincentives, pharmaceutical companies are reluctant to invest in AMR research due to low returns on investment and short shelf life of medicine before resistance develops. This could hinder global response to new infectious disease outbreaks as new treatments cannot be developed quickly enough.

Unfortunately, there are a variety of different cases where pathogens have developed AMR. Pathogens know no borders, AMR is a global issue, the outbreak of an AMR infection could spread from nation to nation, continent to continent. Containment efforts may have to be put in place, potentially similar to the COVID-19 pandemic, which as we have seen, impacted the world adversely.

Access to healthcare varies greatly across the world, the problem of AMR is worsened by widespread misuse, limited access to new medicine and inadequate infection control practices. Moreover, many people are still unaware of the dangers of overuse and misuse of antimicrobial medicines, which only accelerates the rate at which AMR mutates.

Without significant action, the effects of AMR will only exacerbate.

Points to consider:

How will your country combat AMR?

What has your country already done to help with the issue of AMR?

What legislations does your country have on over-use and misuse of antimicrobial medicine?

What can your country do to help those effected with AMR?

How might your country prepare for the case of an outbreak or another pandemic?

How might education help to reduce development of AMR?

What might your country do to help the most vulnerable groups of people?

Useful websites:

<https://www.who.int/news-room/fact-sheets/detail/antimicrobial-resistance>

<https://www.who.int/news/item/21-11-2024-global-ministers-and-partners-pledge-action-with-new-jeddah-commitments-on-amr>

<https://news.un.org/en/story/2024/09/1154891>

<https://health.ec.europa.eu/latest-updates/unga-political-declaration-global-commitment-combat-antimicrobial-resistance-amr-2024-10-01_en>