Antibiotic resistance in the context of Agenda 2030 and the Sustainable Development Goals

Karolinska Institutet–Shandong University Joint Symposium
Stockholm, Sweden; October 2-3, 2017

Sara Causevic¹,², Göran Tomson¹,²
¹Karolinska Institutet,
²Swedish Institute for Global Health Transformation (SIGHT) / KVA
WHO definition of antimicrobial resistance

“Antimicrobial resistance (AMR) is the ability of a microorganism (like bacteria, viruses, and some parasites) to stop an antimicrobial (such as antibiotics, antivirals and antimalarials) from working against it. As a result, standard treatments become ineffective, infections persist and may spread to others.”
AMR Global Action Plan

- Adopted by the World Health Assembly in May 2015
- One-Health approach
- Blueprint developed by the international community (countries, international organizations, civil society and others)
- Stepwise approach to implementation as countries have different starting points
- Provides framework actions for WHO, for Member States and international partners
- It is a global consensus that AMR poses a profound threat to human health and is the first global action plan on antimicrobial resistance endorsed by all WHO Member States

AMR Global Action Plan

- Looks at AMR through One-Health approach considering human health, animal health, agriculture and environmental aspects
- It has five strategic objectives:
  - To improve **awareness** and understanding of antimicrobial resistance;
  - To strengthen **surveillance and research**;
  - To **reduce the incidence of infection**;
  - To **optimize the use** of antimicrobial medicines;
  - To ensure sustainable **investment** in countering antimicrobial resistance.

Resistance is developing for all antimicrobial drugs but “...resistance to antibiotics...is the greatest and most urgent global risk....”

UN Political Declaration 21st September 2016

Source: Otto Cars, ReAct, “A silent tsunami threatening global sustainable development”
2016 UN General Assembly
Political Declaration on AMR

- Resolution in support of AMR Global Action Plan implementation with creating an AMR Inter-Agency Coordination Group (IACG)

IACG
- Chaired by the UN Deputy Secretary-General and WHO Director-General
- Composed of individual experts and representatives of agencies

“AMR is a multisectoral problem as it impacts clean water, sustainable food production and elimination of poverty, among other issues. The creation of the group shows how seriously UN Member States are taking the threat, …many UN agencies, international organizations, NGOs, civil society groups and the general public will need to engage in the fight against AMR.”

Amina Mohammed, UN Deputy Secretary-General, 2017
HEALTH IN THE SDG ERA

1. No Poverty
2. Zero Hunger
3. Good Health and Well-Being
4. Quality Education
5. Gender Equality
6. Clean Water and Sanitation
7. Affordable and Clean Energy
8. Decent Work and Economic Growth
9. Industry, Innovation and Infrastructure
10. Reduced Inequalities
11. Sustainable Cities and Communities
12. Responsible Consumption and Production
13. Climate Action
14. Life Below Water
15. Life on Land
16. Peace and Justice
17. Partnerships for the Goals

ENSURE HEALTHY LIVES AND PROMOTE WELL-BEING FOR ALL AT ALL AGES

World Health Organization
WWW.WHO.INT/SDGS
AMR and implications for the SDG3 targets

3.1 - By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births

3.2 - By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births

3.3 - By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases

3.4 - By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being

3.7 - By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes

3.8 - Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all

AMR and implications for the SDG1 targets

1. **NO POVERTY**

   AMR strikes hardest on the poor

   Rates of resistant bacteria are high and affordable treatment often not available and affordable

   The spread of diseases is enabled by weak sanitary systems

   Treating is costlier, takes more time and has lower chances of success than treating drug-susceptible infections

   AMR negatively impacts on national economic performance, and slows down progress towards SDG1

There is a projected increase in consumption of anti-microbials in the food animal sector by two-thirds between 2010 and 2030.

Need to develop new sustainable animal production practices and reach high productivity without inappropriate use of antibiotics.

Good animal husbandry practices that prevent disease, combined with economic disincentives and a legal framework that regulates the use of antibiotics in the animal sector.

Waste products from hospitals, antibiotic manufacturing plants and agriculture contribute to increased amount of antibiotic residues and resistant bacteria in aquatic ecosystems.

Lack of access to clean water and sanitation also facilitates the spread of microbial diseases leading to increased mortality and morbidity, especially in children.

AMR and implications for the SDG8 targets

Losing effective antibiotics for the treatment of infectious diseases adds an additional burden to country's health expenditure.

Losses can lower productivity, household income and tax revenues and lead to losses in GDP.

Costs can undermine efforts for sustainable economic growth, making AMR a critical global development issue.

AMR and implications for the SDG12 targets

1. Antibiotics must be looked as a scarce and potentially non-renewable global resource
2. Access to effective antibiotics could be considered an integral part of the fulfillment of the human right to health
3. Constructing a sustainable and accessible model of antibiotic distribution and consumption
4. Evidence-based rational use programmes and strong surveillance schemes, with a responsive international framework with means of implementation
5. Greater efforts to promote the innovation of new antimicrobials and diagnostics are needed

AMR and implications for the SDG17 targets

Global sustainability efforts require partnerships between governments, civil society and private sector

Framing AMR as a sustainability issue requires policy and institutional coherence at all policy levels

The responsibility of governments and their international cooperation constitutes the primary Global Partnership as reaffirmed in the SDG17

ABR as a global threat to development and sustainability

- "Transforming our world: the 2030 Agenda for Sustainable Development Goals (SDGs)"¹

- ABR is arguably the most complex threat to global public health, potentially leading to millions of deaths a year and hundreds of billions in annual economic damages by 2050²

- It is a true intersectoral issue³

SDGs and AMR

AMR puts the achievement of SDGs related to health, agriculture, animals, the environment and food directly at risk. In addition, actions and objectives related to these SDGs are closely related to individual AMR content areas.

In addition, AMR puts the achievement of some SDGs indirectly at risk, due to cascading impacts on economic wellbeing and inequality.

Further SDGs minimize the negative impact of AMR and have implications for the implementation of global and national action plans.

AMR requires unprecedented levels of global coordination.