Global Action Plan on Antimicrobial Resistance

DRIVE AB Presentation - Setting the Scene
Marc Sprenger, Director
Antimicrobial Resistance Secretariat
Overview

1. Global Impact of AMR
2. WHO’s Role
4. AMR Stewardship
5. Moving Forward
AMR is the Greatest Threat to Modern Medicine

Profound worldwide adverse health consequences
   Individuals, health systems and practice of medicine
   Will affect every aspect of medicine from child birth to cancer treatments

Economic and other intersectoral implications
   Development, agriculture, food security, business, etc.
AMR Over Time

Antibiotic discovery and resistance timeline

- **Date of resistance identified**:
  - 1940
  - 1953
  - 1985
  - 1993

- **Date of discovery**:
  - 1928
  - 1948
  - 1985

- **Year**:

**Antibiotic class**
- PENICILLINS
- MACROLIDES
- TETRACYCLINES
- FLUOROQUINOLONES
- CARBAPENEMS

- **30 years since a new class of antibiotics was last introduced**
The More We Use Antibiotics, The More We Lose

From Albrich et al EID 2004
Use of Antimicrobials Is On The Rise

Total global antibiotic consumption increased 30% between 2000-10: from 50 to 70 billion standard units.

In 2010, 63,200 tons of antibiotics were consumed by livestock.

Van Boeckel et al. The Lancet Infectious Diseases 2014 14, 742-750 DOI: (10.1016/S1473-3099(14)70780-7)
WB Projects the Global Implications of AMR

**Figure ES2.** Economic Costs of AMR May Be as Severe as During the Financial Crisis

AMR could reduce GDP substantially—but unlike in the recent financial crisis, the damage could last longer and affect low-income countries the most (annual costs as % of GDP).


- "Low-AMR" scenario, 2050
- "High-AMR" scenario, 2050

Country group: Low-income, Lower middle-income, Upper middle-income, High-income, World
AMR and SDGs

AMR strikes hardest on the poor
- Rate of resistance is high
- Lack of affordable treatment
- Poor infection prevention

Untreatable infections in animals threaten sustainable food production for our population

Antimicrobials are fundamental components of all health systems

Antibiotic residues from hospitals, pharmaceutical companies and agriculture contaminate the water

*Cumulative costs of AMR is predicted to be US $120 trillion by 2050

It is crucial to balance access, innovation and conservation of antimicrobials to contain AMR

All of which require multi-stakeholder partnerships

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AMR Secretariat

**GAP Implementation**
- Work streams for the 5 strategic objectives
- Assist countries to develop and implement National Action Plans

**Coordination**
- Partner across WHO on AMR related areas
- Coordinate with tripartite, CSOs, UN agencies, and more
High Level Political Attention to AMR

World Health Assembly 2015

UNGA (September 2016)

National Action Plans

Global Monitoring Questionnaire

Guidelines on Antimicrobial Use

IACG

Global Action Plan on AMR

AMR Secretariat
AMR Inter-Agency Coordination Group

Chaired by UN Deputy Secretary-General and WHO DG
  – Secretariat housed at WHO

Composed of individual experts/representatives of agencies
  – Responsible for global coordination of AMR activities; determining commitments and gaps of activity

Upcoming: Teleconference in Sep; Meeting in Oct in Paris
Overview

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Global Action Plan's 5 Strategic Objectives

1. Improve awareness and understanding (WAAW & behaviour change)
2. Strengthen knowledge through surveillance & research (GLASS)
3. Reduce the incidence of infection (IPC)
4. Optimize the use of antimicrobial medicines (stewardship)
5. Ensure sustainable investment (R&D)
Global Action Plan is the Model for NAPs

Within the GAP, countries committed to developing National Action Plans

Currently 82 countries have NAPs

An additional 52 countries are in the process of developing their NAPs
Country Progress with NAP Development

- No response
- No activity
- Partial/patchy progress
  - Systems Established + Functional
  - Well established systems
- Full coverage. Sustainable systems.
Multisectoral/One Health NAPs

- No response
- No activity
- Partial/patchy progress
  - Systems
  - Established + Functional
- Well established systems
- Full coverage, Sustainable systems
Objective 1: “Improve awareness and understanding of AMR through effective communication, education and training.”

A) World Antibiotic Awareness Week

B) Behaviour Change Group

C) Health Workforce Education
World Antibiotic Awareness Week

Annual campaign to educate the public and health professionals on AMR

13-19 November 2017
Behaviour Change Expert Group

Will provide guidance to WHO on best practices within behavior change

COLD? FLU?
TAKE CARE
NOT ANTIBIOTICS
Health Workforce Education & AMR

Consultation on health workforce education in March 2017

Defined tools/resources needed to ensure health workers are educated and trained on AMR
GAP Implementation

Objective 2: Strengthen the knowledge and evidence base through surveillance & research
Surveillance of Human Pathogens

Global Antimicrobial Surveillance System (GLASS) - 43 countries
  - IT platform: aggregated & individual data
  - WHONET adapted for GLASS

Implementation package developed (with focus on LMICs)

WHO AMR Surveillance Collaborating Centres Network

Rapid alert portal being developed
Countries enrolled in GLASS

As of 20 June 2017*

* Call for country enrollment issued on 21 March 2016

[Map showing countries enrolled in GLASS with colors indicating completed and in progress enrollments]

- Enrolment completed (n=40)
- Enrolment in progress (n=11)
## GLASS Future Directions

<table>
<thead>
<tr>
<th>Integrated foodborne AMR surveillance</th>
<th>Monitoring of antimicrobial use or consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Food-animals</td>
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<td>• Food</td>
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<tr>
<td>• Humans</td>
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</tr>
</tbody>
</table>

- **Surveillance of bacterial resistance in humans**

<table>
<thead>
<tr>
<th>Environmental AMR surveillance</th>
<th>… other types of AMR surveillance</th>
</tr>
</thead>
</table>

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Global Action Plan AMR

World Health Organization
Antibiotics Consumption (JIACRA ECDC/EFSA/EMA, 2017)

In humans mg/kg biomass 2014
GAP Implementation

Objective 3: Reduce incidence of infection through effective sanitation, hygiene and infection prevention measures
Preventing Infections

Infection Prevention and Control
- Guidelines
- Core Components implementation manuals and assessment framework
- Hand Hygiene Day

Vaccines
- AMR in new vaccine development

Application of good human IPC measures to animal husbandry is important for the reduction of environmental antimicrobial residues
National Progress on IPC Programs

- No response
- No activity
- Partial/patchy progress
  - Systems
  - Established + Functional
- Well established systems
- Full coverage. Sustainable systems.
Hand Hygiene Day- 5 May 2017

"Fight antibiotic resistance: it's in your hands"

– The “5 Moments for Hand Hygiene” guidelines

<table>
<thead>
<tr>
<th>Your 5 moments for HAND HYGIENE</th>
<th>1 BEFORE PATIENT CONTACT</th>
<th>2 BEFORE AN ASEPTIC TASK</th>
<th>3 AFTER BODY FLUID EXPOSURE RISK</th>
<th>4 AFTER PATIENT CONTACT</th>
<th>5 AFTER CONTACT WITH PATIENT SURROUNDINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHEN? Clean your hands before touching a patient when approaching him or her</td>
<td>WHEN? Clean your hands immediately before any aseptic task</td>
<td>WHEN? Clean your hands immediately after an exposure risk to body fluids (and after glove removal)</td>
<td>WHEN? Clean your hands after touching a patient and his or her immediate surroundings when leaving</td>
<td>WHEN? Clean your hands after touching any object or furniture in the patient’s immediate surroundings, when leaving - even without touching the patient</td>
<td>WHY? To protect the patient against harmful germs carried on your hands</td>
</tr>
</tbody>
</table>
Vaccines and AMR

WHO consultation on the value of vaccines in avoidance of AMR was held at Chatham House, March 2017

- First step towards raising awareness of the role vaccines could play in global efforts against AMR

WHO will launch an exercise to prioritize vaccines and lead the development of a roadmap for a global strategy on vaccines against AMR
Objective 4: Optimize the use of antimicrobials in human and animal health
"One Health" Approach

AMR affects humans, animals, and the environment

Partnering with FAO and OIE on a comprehensive approach
AMR Impact on Livestock Production

Decline in Livestock Production Could Be Substantial and Most Pronounced in Low-Income Countries

“High-AMR” Scenario

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<tr>
<th>Year</th>
<th>Base</th>
<th>Low-income</th>
<th>Middle-income</th>
<th>High-income</th>
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Antibiotics Consumption (JIACRA ECDC/EFSA/EMA, 2017)

In food prod animals & humans mg/kg biomass

- Human (mg/kg)
- Animals (mg/kg)
Monitoring of Antimicrobials in Agriculture

- No response
- No activity
- Partial/patchy progress
  - Systems
    - Established + Functional
- Well established systems
- Full coverage, Sustainable systems.
British Poultry Council

BPC reduced antibiotic use by weight by 71%

Poultry meat production increased by 11%
Increasing Consumer Demand…

### Antibiotics Policies and Sourcing Practices*

<table>
<thead>
<tr>
<th>Restaurant</th>
<th>Good Policy (20)</th>
<th>Policy Applies to All Types of Meat (8)</th>
<th>Availability of Meat Processed without Routine Antibiotics (3)</th>
<th>Third Party Audit (4)</th>
<th>Policy Online (3)</th>
<th>Responded to Survey (2)</th>
<th>Total Points</th>
<th>Total Possible Points</th>
<th>Percent Total</th>
<th>Grade</th>
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*Public Interest Research Group, 2015

### Detailed Scorecard of Antibiotics Policies and Sourcing Practices*

<table>
<thead>
<tr>
<th>Company</th>
<th>Good Policy Access</th>
<th>Timebound Commitment</th>
<th>Availability of Meat Processed without Routine Antibiotics</th>
<th>Transparency</th>
<th>Total Points</th>
<th>Total Possible Points</th>
<th>Grade</th>
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*Public Interest Research Group, 2016

*Note: A comprehensive description of scoring methodology is provided in Appendix 2.
GAP Implementation

Objective 5: Develop the economic case for sustainable investment that takes account of the needs of all countries, and increase investment in new medicines, diagnostic tools, vaccines, and other interventions.
WHO Guidelines and Resources

**WHO Model List of Essential Medicines**

- Updated in 2017
- Added 30 medicines for adult and 25 for children
- Antibiotics are now grouped to 3 categories:
  - **ACCESS** Antibiotics that should be available at all times
  - **WATCH** Antibiotics recommended as first- or second-choice treatments for a small number of infections
  - **RESERVE** Antibiotics that are last-resort options

WHO is creating an analysis of the antibiotic pipeline
- Will be released September 2017
WHO Priority Pathogens List for R&D

**Priority 1: CRITICAL**
- *Acinetobacter baumannii* carbapenem-resistant
- *Pseudomonas aeruginosa* carbapenem-resistant
- *Enterobacteriaceae* carbapenem-resistant, ESBL-producing

**Priority 2: HIGH**
- *Enterococcus faecium* vancomycin-resistant
- *Staphylococcus aureus* methicillin-resistant, vancomycin-intermediate and resistant
- *Helicobacter pylori* clarithromycin-resistant
- *Campylobacter spp.* fluoroquinolone-resistant
- *Salmonellae* fluoroquinolone-resistant
- *Neisseria gonorrhoeae* cephalosporin-resistant, fluoroquinolone-resistant

**Priority 3: MEDIUM**
- *Streptococcus pneumoniae* penicillin-non-susceptible
- *Haemophilus influenzae* ampicillin-resistant
- *Shigella spp.* fluoroquinolone-resistant

*Source: WHO* ebolaalert.org
More than EUR 56 million raised to fund initiative to fight antibiotic resistance

[Berlin – 4 September 2017]

Germany hosts pledging event for GARDP, a new initiative to develop new antibiotic treatments

Germany together with a number of countries and foundations today pledged EUR 56.5 million to help develop new treatments to fight against antibiotic resistance, during a fundraising event for the Global Antibiotic Research and Development Partnership (GARDP), hosted in Berlin by the German Federal Ministry of Health and the German Federal Ministry of Education and Research.
GARD-P

Partnership to Develop New Antibiotics
  – WHO and DNDi collaboration; May 2016
  – Assist with drug approval process, manufacturing, and stewardship

Programme Areas:

1. Sexually Transmitted Infection
2. Antimicrobial Memory Recovery and Exploratory Programme
3. Neonatal Sepsis
4. Paediatric Antibiotic Platform
Point of Care Diagnostics

Point-of-care diagnostics are essential for appropriate treatment and surveillance

WHO is working on target product profiles for diagnostics and developing guidelines
Overview

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Global Antibiotic Stewardship Programs (Human Health)

- No response
- No activity
- Partial/patchy progress
  - Systems Established + Functional
- Well established systems
- Full coverage. Sustainable systems.
Global Antibiotic Stewardship (Agriculture)

- No response
- No activity
- Partial/patchy progress
  - Systems
  - Established + Functional
- Well established systems
- Full coverage, Sustainable systems.
Development and Stewardship Framework

Draft roadmap published May 2017

A joint collaboration of WHO, FAO and OIE

Stakeholder consultation: Nov 9-10
Overview

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Thank you Drive AB for convening diverse stakeholders!

Multisectoral collaboration is key to reducing this crisis

• Take this opportunity to meet with experts from other sectors

Context matters!

• What works for one country may not work for all, particularly for R&D

Political commitment is required to keep the momentum
Prudent/Sustainable Use and Equitable Access

All countries will be impacted by AMR

It is essential for

- New medicines and technologies to be affordable and accessible
- All to steward new and old antimicrobials
After Drive AB

1. We must continue to bring diverse stakeholders representing all those impacted by AMR to the table.

2. We reinforce the importance of the 5 pillars particularly actions that ensure prudent/sustainable use and equitable access. *Action taken without strong consideration of how it would impact these two components is incomplete.*

3. Real consensus requires time; The work needs to be continued.
For More Information

Please visit: http://www.who.int/antimicrobial-resistance/en/

On Twitter: @Marcsprenger4PH