Second OIE Global Conference on Antimicrobial Resistance and Prudent Use of Antimicrobial Agents in Animals

Putting Standards into Practice

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Objectives of GLASS

Foster national AMR surveillance systems through harmonized global standards to:

• Monitor AMR trends
• Detect emerging resistance
• Inform estimates of AMR burden

Initial focus:
Bacterial infections in humans
Steps towards a global system

Focus: AMR relevant to human health
Countries enrolled in GLASS
As of 11 October 2018*

* Call for country enrolment issued on 21 March 2016
** African map modified. Only countries participating in GLASS are represented.
### GLASS AMR Indicators

**8 target pathogens**

**4 target sites**

**Rationale**

- Common community and hospital infections
- Emerging AMR for which there are few treatment options
- Common indicators used in foodborne AMR surveillance (**E. coli**, **Salmonella** spp)

<table>
<thead>
<tr>
<th>Pathogen</th>
<th>Antibacterial class</th>
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<tbody>
<tr>
<td><em>Escherichia coli</em></td>
<td>Sulfonamides and trimethoprim</td>
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<td>Penicillins</td>
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<td><em>Klebsiella pneumoniae</em></td>
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<td>Fluoroquinolones</td>
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<td><em>Acinetobacter baumannii</em></td>
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<td>Polymyxins</td>
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<td><em>Staphylococcus aureus</em></td>
<td>Penicillinase-stable beta-lactams</td>
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<td><em>Streptococcus pneumonia</em></td>
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<td><em>Salmonella spp.</em></td>
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<td><em>Neisseria gonorrhoeae</em></td>
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<td>Macrolides</td>
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<td>Aminocyclitols</td>
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<td>Fluoroquinolones</td>
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<td>Aminoglycosides</td>
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</table>
First GLASS report: 2016 data
Issued in January 2018

Number of sites
- Hospitals: 466
- Outpatients clinics: 139
- Other institutions: 124
- Total: 729

Number of patients with suspected infection
- Blood stream: 81,920
- Urinary tract: 415,679
- Gastro-intestinal: 7,477
- Sexually transmitted: 2,847
- Total: 507,923

AMR data reported by 22 countries
Emerging AMR reporting (EAR)

- EAR module launched in 2018
- Open to
  - people in charge of national AMR surveillance
  - all constituencies that might discover new types of AMR of potential relevance to public health
- Aims at
  - facilitating timely information sharing on the detection of emerging AMR
  - stimulating technical discussion for coordinated actions
Challenges: broadening the scope

Antimicrobial Consumption & Use

AM Consumption

- Information on antimicrobial consumption
  - To estimate the level and type of antimicrobials consumed by a population

AM Use

- Requires individual data on prescription
- To provide qualitative information on: prescription, prescriber, dispensation & patient

Coming up soon:
WHO Report on Antimicrobial Consumption
Challenges: Integration with existing surveillance initiatives & broadening the scope

One Health Approach

The role of new technologies (e.g., whole genome sequencing)
One Health AMR surveillance

1 single common microorganism and resistance mechanism as indicator
Ongoing development & Next steps

• Consolidation:
  • Better representativeness, more complete data, translation to policy
  • Early reporting of emerging AMR

• Development and incorporation of additional functions
  • Antimicrobial consumption monitoring
  • Enhanced surveillance of multi-resistant gonorrhoea
  • One Health: 1 indicator across human, animal & environment
  • AMR surveillance in invasive fungal infection

• Special studies to assess burden of AMR human disease
Time to hear from FAO...
Assessment Tool for Laboratories and AMR Surveillance Systems

ATLASS

in the food and agriculture sectors

Béatrice Mouillé
FAO – EMPRES Laboratory Unit
1. Improve **awareness** and advocacy on AMR, AMU and related threats

2. **Evidence.** Develop capacity for **surveillance** and monitoring of AMR and AMU in food and agriculture

3. Promote **good practices** in food and agricultural systems and the prudent use of antimicrobials

4. Strengthen **governance** including all the aspects
Rationale for ATLASS development

- Lack of **knowledge** of existing AMR surveillance networks in the agriculture sector, esp. in the low income countries

- Need for **strengthening** of national AMR surveillance systems

- Need for improved **coordination and harmonization** among actors of the AMR surveillance systems:
  - at national level under a One Health approach
  - across National surveillance systems to ensure a regional/global surveillance of AMR
Objectives of ATLASS

• **Map national AMR surveillance system** in food and agriculture sectors, including laboratory networks and analytical capacities

• Provide **evidence base for action and advocacy** to strengthen AMR surveillance systems, coordination between actors

• **Monitor AMR surveillance capacities** under the food and agriculture sectors at national, regional, and global levels

• Describe the **linkages** with AMR surveillance in public health and in environment
A national surveillance system of AMR must rely on

- Laboratories producing reliable/standardized data
- A unit for collection and analysis of AMR data
- National policy and surveillance procedures/ good governance
- Adapted communication to stakeholders (up and downstream)
- Sustainability
ATLASS - Structure

**ATLASS-Surveillance module**
- **Surveillance**
- **Surveillance Evaluation Tool (SET) - AMR**
  - Filled once for each country
  - Answers from several respondents

**ATLASS - Laboratory module**
- **Laboratory**
- **Laboratory Mapping Tool (LMT) - AMR**
  - Filled for each assessed laboratory
  - Collection qualitative information
  - LMT scores

**Country**

For each country:
- Description of national AMR Surveillance system, PIP stage
- Qualitative information and LMT scores compiled for all labs and for national AMR lab network, PIP stage
The proposed recommendations allow to prioritize actions and progress to the next stage.
Monitoring national capacities

**PIP Stage for each lab:**
- National Vet lab: 2
- Provincial Vet lab 1: 1
- Provincial Vet lab 2: 1
- Fisheries lab: 2
- Food safety lab: 3
- Environment lab: 1

**PIP Stage for each pillar:**
- Lab Network: 2
- Epi Unit: 2
- Governance: 2
- Communication: 3
- Sustainability: 1
### Monitoring Regional lab capacities for AMR

#### Visualize Lab testing capacities – Regional discussions: regional AMR ref lab?

#### Common gaps → Planning of regional interventions

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<tr>
<th>Category</th>
<th>N1*</th>
<th>G1</th>
<th>A1</th>
<th>L1*</th>
<th>E1</th>
<th>B1</th>
<th>Cl</th>
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<th>D1</th>
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#### AST Technique Used

- Automated methods
- Molecular methods
- Broth macrodilution method
- Broth microdilution method
- Agar gel dilution method
- Disk diffusion

#### Ability to determine resistance phenotypes

- Colistin resistance
- Macrolide resistance
- Fluoroquinolone resistance
- Methicillin resistance in coagulase + Staph
- Carbapenemases
- Extended spectrum beta-lactamases

### Grand Total 2014

<table>
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<th>Category</th>
<th>LMT Category</th>
<th>Geography</th>
<th>Assessment</th>
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**Regional average**

- LMT Category N1*: 78
- G1: 78
- A1: 78
- L1*: 78
- E1: 78
- B1: 78
- Cl: 78
- F1: 78
- D1: 78
- J1: 78

**Regional average**

- Grand Total: 78
Monitoring Regional AMR surveillance capacities

Discuss common gaps and put in place regional strategy for AMR surveillance:

- Build a regional AMR surveillance network?
- Build up a common regional sampling strategy for AMR surveillance?
- Harmonize regional AMR data collection and compilation
2016 - 2018: ATLASS assessments

As of 30 October 2018:
- 17 completed
- 4 countries planned

Food and Agriculture sectors Laboratories: Public, University and Private
Asia: 17 labs; Africa: 43 labs
Eg National and regional animal health labs, food safety/ food and drug labs, fisheries labs, environment labs…
ATLASS - FUTURE DEVELOPMENTS

- Tool: external review and Public release
- Continue National assessments, including follow up assessments. Measure national and regional progress.
- Follow up missions for countries to plan surveillance strategy based on ATLASS mission recommendations (“Post ATLASS”)
- Linkages, integration with other partners
- Use lab ATLASS PIP stage to validate AMR data collected in food and agriculture sectors?

AMR data reported: reliable above PIP 3
Challenges & Discussion points

- Lack of capacities, particularly in low resource settings
- Coordination with partners under One Health approach
- Integration with existing surveillance initiatives in all sectors
- AMR data collected from all sectors & linked with AMU
- Translation of data > information > policies
Thank you!