WHO experience on antimicrobial resistance data sharing and analysis for policy-making in the European region

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Regional Adviser

The 1st Regional Antimicrobial Resistance Data Sharing and Analysis (RADSA) Virtual Workshop – South Asia
European strategic action plan on antibiotic resistance (2011 – 2022)

WHO European action plan adopted by all 53 Member States

Recognizing

• AMR neglected in many countries of the region

• No systematic AMR surveillance in large part of the Region

• Need for intersectoral coordination

• International spread through travel and trade

• Need for international standards and data sharing
Surveillance in Europe

Antimicrobial Consumption

- 2001: ESAC
- 2011: ESAC-Net
- 2011: WHO AMC network
Surveillance in Europe

Antimicrobial Resistance

1998 → EARSS → 2010 → EARS-Net

2012 → World Health Organization Network → CAESAR
Expanding AMR surveillance throughout Europe

Central Asian and European Surveillance of AMR (CAESAR)

European Centre for Disease Prevention and Control

World Health Organization Regional Office for Europe

- Countries submitting data to CAESAR
- Countries building capacity for CAESAR participation
- Countries invited for CAESAR participation
- Countries participating in EARS-Net

European Antimicrobial Resistance Surveillance Network (EARS-Net)
Implementation activities

Training/capacity building

• Standardized laboratory methods
• Data management and analysis

Resources

• Protocols, templates, tools, videos
• Consultants/experts

Research/projects

Surveillance network activities
AMR surveillance data in the European region

Fig. 2.10 Percentage of invasive E. faecium isolates resistant to vancomycin in the WHO European region (EARS-Net and CAESAR), by country or area, 2017

Level B data: the data provide an indication of the resistance patterns present in clinical settings in the country or area, but the proportion of resistance should be interpreted with care. Improvements are needed to attain a more valid assessment of the magnitude and trends of AMR in the country or area. See section 6.2 for more information about levels of evidence, which are only provided for CAESAR countries and areas.

**EARS-Net countries:** Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom.

**CAESAR countries and areas:** Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Georgia, Kazakhstan, Kyrgyzstan, Montenegro, North Macedonia, the Republic of Moldova, the Russian Federation, Serbia, Switzerland, Tajikistan, Turkey, Turkmenistan, Ukraine, Uzbekistan and Kosovo.

1. All references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999).

Challenges

Sampling issues
• Low blood sampling frequency
• After repeated treatment failure
• Limited laboratory capacity for AST*
• Clinical microbiology not valued

Data issues
• Paper-based records
• No laboratory information system

Quality issues
• Experience and expertise
• Availability of materials

* Antimicrobial susceptibility testing
# Lessons learned

<table>
<thead>
<tr>
<th>Issues</th>
<th>Lessons</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMR surveillance of blood stream infections is challenging in low-and middle-income countries</td>
<td>AMR surveillance of urinary tract infections is easier, cheaper and can provide similar trends over time</td>
</tr>
<tr>
<td>No samples ► no data ► no surveillance</td>
<td>Start with increasing the sample flow</td>
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<tr>
<td>Limited laboratory capacity is preventing routine testing</td>
<td>Lab capacity-building is crucial to improve quality and turn-around time</td>
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<tr>
<td>Limited demand is hampering access to reasonably priced materials</td>
<td>Create demand by stimulating routine sampling</td>
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Proof-of-Principle (PoP) projects

Objectives:

To stimulate routine sampling of patients
  • Treatment decision-support

To improve quality of diagnostic support
  • Capacity building in hospital laboratories
  • Capacity building of National Reference Laboratory
  • Improve communication and turn-around time

To initiate AMR surveillance
# Lessons learned

<table>
<thead>
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<tbody>
<tr>
<td>• Quality of surveillance data may vary</td>
<td>• Important to indicate quality of surveillance data in publications</td>
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<tr>
<td></td>
<td>• Reader</td>
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<tr>
<td></td>
<td>• Policy-makers</td>
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<tr>
<td>• Coverage</td>
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<tr>
<td>• Sampling</td>
<td>• Data should be published with appropriate disclaimer … shortfalls ► focus areas</td>
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<tr>
<td>• Analysis</td>
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<tr>
<td>• Data only improves if used</td>
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**Important to indicate quality of surveillance data in publications**

- Reader
- Policy-makers

**Data should be published with appropriate disclaimer … shortfalls ► focus areas**
CAESAR data - Levels of evidence

Level A
- Data is representative of target population
- Laboratory results seem reliable

Level B
- Data is not representative of target population
- Laboratory results seem reliable

Level C
- Data is not representative of target population
- Laboratory results seem not entirely reliable
### CAESAR data - Levels of evidence

<table>
<thead>
<tr>
<th>Level of evidence</th>
<th>Armenia</th>
<th>Belarus</th>
<th>Bosnia and Herzegovina</th>
<th>Georgia</th>
<th>Montenegro</th>
<th>North Macedonia</th>
<th>Russian Federation</th>
<th>Serbia</th>
<th>Switzerland</th>
<th>Turkey</th>
<th>Ukraine</th>
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<tbody>
<tr>
<td>Surveillance system</td>
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<tr>
<td>Geographic coverage</td>
<td>+/-</td>
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*a In accordance with United Nations Security Council resolution 1244 (1999).*
## Lessons learned

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<tr>
<td>• Countries have different levels of AMR</td>
<td>• Capacity-building efforts should be tiered and tailored</td>
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<tr>
<td>surveillance capacity</td>
<td></td>
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<tr>
<td>• Priorities</td>
<td>• Awareness and policy dialogue</td>
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<tr>
<td>• Resources (financial, human, technical)</td>
<td>• First things first</td>
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07-Jun-21
Phase 1
Situation: Limited routine laboratory diagnostics/health system
Support: PoP project/Basic capacity building/Quality Assessment

Phase 2
Situation: No national AMR surveillance, but a basis to build on
Support: Reference Lab support, setting up national AMR network

Phase 3
Situation: National surveillance system in place
Support: Strengthen national AMR surveillance: CAESAR ► GLASS
Making progress

More countries in European region able to collect AMR surveillance data

More integration of European surveillance systems

• Strong coordination between ECDC and WHO/Europe
• Representation in each other’s coordination groups
• Joint ARHAI meeting(s)
• First full joint EARS-Net/CAESAR report in 2021

Tailored PoP projects to initiate and improve national AMR surveillance

More countries join GLASS to complete the global picture
Acknowledgments

WHO Country Offices

WHO Collaborating Centers

• AMR Epidemiology and Surveillance (NET)
• Capacity Building on AMR Surveillance and Research (RUS)
• Reference and Research on AMR and Healthcare Associated Infections (UNK)
• AMR Containment (SWE)

European Society for Clinical Microbiology and Infectious Diseases

Experts, consultants
Further reading

- European strategic action plan on antibiotic resistance (2011)


- Central Asian and European Surveillance of Antimicrobial Resistance. Annual report 2020

- Proof-of-principle antimicrobial resistance routine diagnostics surveillance project (PoP project)


- EUCAST instruction videos
Thank you!