An integrated approach to antimicrobial stewardship

South-East Asia Regional 2022 antimicrobial stewardship webinar series

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Outline

- WHO Policy Guidance on Integrated Antimicrobial Stewardship Activities
- Periodic assessment of national AMS core elements
- AMS governance and coordination mechanisms
- Periodic assessment of facility AMS core elements
- WHO AMS practical toolkit
- Key health-care facility AMS interventions
- AWaRe classification
- Monitoring and evaluation
WHO Policy Guidance on Integrated AMS Activities

- **WHO Policy Guidance on Integrated Antimicrobial Stewardship Activities** published in 2021

- **Programmatic approach** to antimicrobial stewardship through a set of integrated activities across the prevention, diagnosis and treatment spectrum

- Broadens focus of antimicrobial stewardship programmes **beyond actions at the health-care facility** to include essential supporting health systems, structures and processes

- Supports countries to:
  - Ensure appropriate oversight and coordination
  - Identify gaps in capacity and resources through systematic assessments
  - Approach antimicrobial stewardship in a step-wise, sustainable manner

- **Online training course** available
WHO Policy Guidance on Integrated AMS Activities

Pillar 1: Coordination/guidelines
Pillar 2: Access/regulation
Pillar 3: Awareness/education
Pillar 4: WASH/IPC
Pillar 5: Surveillance/M&E
1. Establish and maintain a national coordinating mechanism for AMS that is functional at national, subnational and district levels.
2. Develop national treatment and stewardship guidelines, standards and implementation tools.
3. Improve access to essential, quality-assured, safe, effective and affordable antimicrobials.
4. Regulate social triggers and remuneration policies that promote responsible antimicrobial prescription and dispensing behaviours.
5. Legislate and regulate responsible and appropriate use and disposal of antimicrobials.
6. Improve awareness and engagement to support behavioural change of antimicrobials use.
7. Strengthen health worker capacity through the provision of tailored education and training packages according to health worker roles and functions.
8. Enhance WASH in health facilities and communities.
9. Implement IPC core components in health facilities.
10. Surveillance of antimicrobial use and consumption.
11. Surveillance of AMR.
12. Monitoring and evaluation of AMS activities.
# Periodic assessment of national AMS core elements

## National Assessment Tool

<table>
<thead>
<tr>
<th>Components for assessment</th>
<th>Baseline</th>
<th>Period 1</th>
<th>Period 2</th>
<th>Period 3</th>
<th>Period 4</th>
<th>Verifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>● No</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>● No, but a priority</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Planned but not started</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Partially implemented</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Fully implemented</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

### PILLAR 1: Establish and develop national coordination mechanisms for antimicrobial stewardship and develop guidelines

<table>
<thead>
<tr>
<th></th>
<th>Establish and maintain a national coordinating mechanism for antimicrobial stewardship (AMS) that is functional at national, subnational and district levels.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Is there a national policy on integrated AMS activities?</td>
</tr>
<tr>
<td>1.2</td>
<td>Is there a central national coordination unit at the ministry of health or designated agency or institution focused on AMS?</td>
</tr>
<tr>
<td>1.3</td>
<td>Has the central national coordination unit established a national coordination mechanism for integrated AMS activities with diverse membership, including civil society and the private sector?</td>
</tr>
</tbody>
</table>
Assessment of AMS core elements – what next?

- Stakeholder mapping
- Develop AMS policy
- Establish or strengthen governance and coordination mechanism
- Develop costed implementation plan which prioritises ‘low-hanging fruit’
- Identify and secure human and financial resources
- Develop monitoring and evaluation framework
AMS governance and coordination mechanisms

A central national coordination unit within the ministry of health or equivalent is needed to:

- Establish and sustain an **enabling environment** for AMS at all levels
- Ensure sustainable and adequate **funding** and technically competent **human resources**
- Provide **oversight** and ensure **accountability**
- **Coordinate** between and among stakeholders

Examples:

- AMS technical working group
- AMS sub-committee to national AMR committee
- Task force for optimizing antimicrobial use
AMS governance and coordination mechanisms

Membership should include representatives from:

• Relevant national programs and departments
• Private, for-profit sector
• Professional societies
• NGOs
• Regulatory bodies
• Academia and researchers
• Community groups and patients/consumers
• Other relevant One Health sectors
AMS governance and coordination mechanisms

The terms of reference could include:

- Provide **strategic and programmatic leadership** on activities in the AMR national action plan relating to optimizing antimicrobial use
- Provide **guidance on gap analysis and prioritization** to help define a starting point based on available capacities and resources
- **Enhance integration** of AMS activities across different levels of the health sector
- **Mobilize resources** dedicated to AMS activities, including through integration into national health sector plans and budgets at all levels
- Develop and implement a **monitoring and evaluation framework** and national targets
# Periodic assessment of facility AMS core elements

## Health-Care Facility Assessment Tool

<table>
<thead>
<tr>
<th>Components for assessment</th>
<th>Baseline</th>
<th>Period 1</th>
<th>Period 2</th>
<th>Period 3</th>
<th>Period 4</th>
<th>Verifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>● No</td>
<td>Choose an item</td>
<td>Choose an item</td>
<td>Choose an item</td>
<td>Choose an item</td>
<td>Choose an item</td>
<td>interviews with health-care facility leadership</td>
</tr>
<tr>
<td>● No, but a priority</td>
<td>Choose an item</td>
<td>Choose an item</td>
<td>Choose an item</td>
<td>Choose an item</td>
<td>Choose an item</td>
<td>Annual plans of health-care facility with AMS performance indicators</td>
</tr>
<tr>
<td>● Planned but not started</td>
<td>Choose an item</td>
<td>Choose an item</td>
<td>Choose an item</td>
<td>Choose an item</td>
<td>Choose an item</td>
<td>Availability of personnel with AMS role in their job description</td>
</tr>
<tr>
<td>● Partially implemented</td>
<td>Choose an item</td>
<td>Choose an item</td>
<td>Choose an item</td>
<td>Choose an item</td>
<td>Choose an item</td>
<td></td>
</tr>
<tr>
<td>● Fully implemented</td>
<td>Choose an item</td>
<td>Choose an item</td>
<td>Choose an item</td>
<td>Choose an item</td>
<td>Choose an item</td>
<td></td>
</tr>
</tbody>
</table>

1. Is AMS identified as a priority by the health-care facility management/leadership?  
   - Choose an item  
   - Choose an item  
   - Choose an item  
   - Choose an item  
   - Choose an item  
   - interviews with health-care facility leadership

1.a Are AMS activities included in health-care facility annual plans with key performance indicators?  
   - Choose an item  
   - Choose an item  
   - Choose an item  
   - Choose an item  
   - Choose an item  
   - Annual plans of health-care facility with AMS performance indicators

1.b Has the health-care facility management allocated human and financial resources to initiate AMS activities?  
   - Choose an item  
   - Choose an item  
   - Choose an item  
   - Choose an item  
   - Choose an item  
   - Availability of personnel with AMS role in their job description

2. Is there a health-care facility action plan in place that prioritizes AMS activities?  
   - Choose an item  
   - Choose an item  
   - Choose an item  
   - Choose an item  
   - Choose an item  
   - Health-care facility action plan and AMS progress report
Periodic assessment of facility AMS core elements

- Intended to be completed at baseline and periodically (e.g. annually)
- 28 questions (some sub-questions) over 6 domains:
  - Leadership commitment
  - Accountability and responsibility
  - AMS actions
  - Education and training
  - Monitoring and surveillance
  - Reporting feedback

- A response to each question is given based on the following options:
  - No
  - No, but a priority
  - Planned but not started
  - Partially implemented
  - Fully implemented
WHO AMS practical toolkit

• **AMS in health-care facilities in LMICs: a WHO practical toolkit** published in 2019

• Provides guidance on implementation of activities at facility level

• **Online training course** available
### Key health-care facility AMS interventions

<table>
<thead>
<tr>
<th>Leadership commitment</th>
<th>Accountability &amp; responsibility</th>
<th>AMS actions</th>
<th>Education &amp; training</th>
<th>Monitoring &amp; surveillance</th>
<th>Reporting feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prioritisation of AMS by management</td>
<td>Functioning AMS committee</td>
<td>Antibiotic guidelines</td>
<td>Continuous in-service training for facility staff</td>
<td>AMR surveillance</td>
<td>Analysis &amp; reporting of AMR, AMC and AMU</td>
</tr>
<tr>
<td>Allocation of human/financial resources</td>
<td>AMS champion</td>
<td>Audit &amp; feedback</td>
<td>AMS rounds</td>
<td>AMC/AMU surveillance</td>
<td>Antibiograms</td>
</tr>
<tr>
<td></td>
<td>Multidisciplinary AMS team</td>
<td>Formulary restrictions</td>
<td>Decision support tools</td>
<td>Stockouts</td>
<td>Feedback of antimicrobial prescribing appropriateness</td>
</tr>
<tr>
<td></td>
<td>AMS activity reporting</td>
<td>Standardised medication charts</td>
<td>Continuous professional development for AMS team</td>
<td>Quality of medical products</td>
<td>AMS interventions</td>
</tr>
</tbody>
</table>
# AWARe classification

## WHO Access, Watch, Reserve (AWaRe) classification of antibiotics for evaluation and monitoring of use, 2021

To assist in the development of tools for antibiotic stewardship at local, national and global levels and to reduce antimicrobial resistance, the Access, Watch, Reserve (AWaRe) classification of antibiotics was developed – where antibiotics are classified into different groups to emphasize the importance of their appropriate use.

This classification is intended to be used as a tool for countries to better support antibiotic monitoring and stewardship activities. It is not intended as model for the inclusion of antibiotics on national essential medicine lists. Antibiotics classified under AWARe and also included on the WHO Model Lists of Essential Medicines are indicated in the worksheets.

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>Class</th>
<th>ATC code</th>
<th>Category</th>
<th>Listed on EML/EMLc 2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amikacin</td>
<td>Aminoglycosides</td>
<td>J01GB06</td>
<td>Access</td>
<td>Yes</td>
</tr>
<tr>
<td>Amoxicillin</td>
<td>Penicillins</td>
<td>J01CA04</td>
<td>Access</td>
<td>Yes</td>
</tr>
<tr>
<td>Amoxicillin/clavulanic-acid</td>
<td>Beta-lactam/beta-lactamase-inhibitor</td>
<td>J01CR02</td>
<td>Access</td>
<td>Yes</td>
</tr>
<tr>
<td>Ampicillin</td>
<td>Penicillins</td>
<td>J01CA01</td>
<td>Access</td>
<td>Yes</td>
</tr>
<tr>
<td>Ampicillin/sulbactam</td>
<td>Beta-lactam/beta-lactamase-inhibitor</td>
<td>J01CR01</td>
<td>Access</td>
<td>No</td>
</tr>
<tr>
<td>Arbekacin</td>
<td>Aminoglycosides</td>
<td>J01GB12</td>
<td>Watch</td>
<td>No</td>
</tr>
<tr>
<td>Azpoxicillin</td>
<td>Penicillins</td>
<td>J01CA19</td>
<td>Watch</td>
<td>No</td>
</tr>
<tr>
<td>Azidocillin</td>
<td>Penicillins</td>
<td>J01CE04</td>
<td>Access</td>
<td>No</td>
</tr>
<tr>
<td>Azithromycin</td>
<td>Macrolides</td>
<td>J01FA10</td>
<td>Watch</td>
<td>Yes</td>
</tr>
<tr>
<td>Azlocillin</td>
<td>Penicillins</td>
<td>J01CA09</td>
<td>Watch</td>
<td>No</td>
</tr>
<tr>
<td>Aztreonam</td>
<td>Monobactams</td>
<td>J01DF01</td>
<td>Reserve</td>
<td>No</td>
</tr>
</tbody>
</table>
Monitoring and evaluation

• AMS programmes should follow a continuous quality improvement cycle
## Monitoring and evaluation – examples of indicators

<table>
<thead>
<tr>
<th>Structural indicators</th>
<th>Process indicators</th>
<th>Outcome indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Leadership commitment</td>
<td>• Documented indication for antimicrobial use</td>
<td>• Patient outcomes:</td>
</tr>
<tr>
<td>• Accountability and responsibility</td>
<td>• Stop/review date</td>
<td>• In-hospital mortality</td>
</tr>
<tr>
<td>• AMS actions</td>
<td>• Compliance with guidelines</td>
<td>• Length of stay</td>
</tr>
<tr>
<td>• Education and training</td>
<td>• De-escalation</td>
<td>• Readmission within 30 days after discharge</td>
</tr>
<tr>
<td>• Monitoring and surveillance</td>
<td>• IV to oral switch</td>
<td>• Microbiology outcomes</td>
</tr>
<tr>
<td>• Reporting feedback</td>
<td>• Surgical prophylaxis stopped within 24 hours of surgery</td>
<td>• <em>Clostridiodes difficile</em> infection</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Healthcare-associated infections caused by MROs</td>
</tr>
</tbody>
</table>
Thank you