Anti-Microbial Resistance (AMR) Update and Control Strategy in Egypt

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AMR National action plan (2016-2020)

- According to WHO recommendation (2015), The Preventive sector - Egyptian Ministry of Health (MOH) established AMR Task Force for updating the AMR national action Plan to be in line with WHO Global Action Plan.

- AMR National Action plan details specific steps and milestones for achieving the AMR Strategic goals and objectives with proper indicators for measuring progress.
1. Increasing Public **awareness** towards AMR.

2. Control Spread of Resistant pathogens and Slow the Emergence of new Resistant patterns.

3. Strengthen National **One-Health Surveillance** Efforts to Combat Resistance that can arise in humans, animals, and the environment.

4. Implementation of evidence-based **infection control** practices that can prevent the spread of resistant pathogens.

5. Improve national & international **Collaboration** and Capacities for AMR Prevention, Surveillance, Control, and Antibiotic Research and Development.
Stage I: surveillance of AMR Hospital Acquired infection (HAI) (Jan - 2016): lab based sentinel Surveillance System was implemented in 14 governmental hospitals for detection of Catheter associated Urinary tract infection, Pneumonia & VAP, Blood stream infection & Catheter associated blood stream infection and surgical site infection.

Stage II: Detection of AMR community acquired Infection (CAI) (Jan-2017)
• Implementation of AMR Detection in community acquired bacterial infections causing Pneumonia, Meningitis and Enteric fever in the sentinel surveillance sites.

Stage III: Implementation of AMR Lab-based surveillance in veterinary and environmental sectors (ongoing)
• Creation of AMR Steering committee including focal points from all involved sectors
National Achievements for combating AMR (1/2)

WHONET
- Integration of WHONET software in HAI sentinel sites aiming for Creation of a national laboratory electronic network (at least one microbiology lab from each sector / Governorate)

Global Antimicrobial Surveillance system
- Modify the national surveillance and monitoring projects to align with the Global Antimicrobial Resistance Surveillance System (GLASS)

Sentinel surveillance system
- Conducting National AMR-HAI & AMR-CAI sentinel surveillance system
National Achievements for combating AMR (2/2)

Training
- Holing Educational and Training sessions on AMR (technical and Awareness) In sentinel sites and other MOH hospitals about the urgent need sustainable use of antibiotics and AMR detection and managements

Infection prevention and control
- Promotion of infection prevention and control measures, Breaking chain of infection in early stages and Strengthen outbreak response capacity against AMR

Bacterial fingerprinting
- Genotyping (PFGE) of AMR bacteria causing HAI outbreaks for detecting source of infection
### The Way Forward (1/2)

<table>
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<tr>
<th>National One-Health Surveillance</th>
<th>Raising public health awareness</th>
<th>International Collaboration</th>
<th>Antibiotic use surveillance</th>
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<tr>
<td>Strengthen <strong>National One-Health Surveillance</strong> Efforts in AMR And AMU surveillances through Promotion of laboratory capabilities, <em>Creation of a national laboratories electronic network</em></td>
<td>Improving public health awareness about AMR and the proper use of antibiotics</td>
<td>Strengthened <strong>international Collaboration</strong> through Standardisation of AMR protocol and dissemination of needed AMR Information (GLASS-IT platform)</td>
<td>Monitoring the trend of antibiotic use and management practices in healthcare settings, environmental sectors and food production chain through antibiotic use surveillance.</td>
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# The Way Forward (2/2)

<table>
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<tr>
<th>Antibiotic Policy &amp; Stewardship</th>
<th>AMR researches</th>
<th>Molecular detection of resistant gens</th>
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<td>Strengthening and implementation of <strong>antibiotic policy &amp; stewardship</strong> to Control Spread of Resistant pathogens and slow the Emergence of new resistant patterns</td>
<td>Identification and prioritisation of <strong>AMR researches</strong> needs to identify alternative treatments as well as new or improved rapid AMR diagnostic tests</td>
<td>• Molecular detection of antimicrobial resistance genes (<strong>PCR</strong>)</td>
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Since 2014 **AMR awareness** sessions were included in CPHL microbiology lab training schedules

Identifying the **selection criteria** needed for assessment of microbiology labs according to the international guidelines (including human resources and infrastructures)

Setting up a **communication system** between the Lab teams, clinicians, clinical pharmacists and IC team inside each hospital.

**Training microbiology** labs on a Standardized lab protocol and SOPs for identification pathogenic bacterial, performing AST, phenotypic detection with annual guidelines updating.

Continuous monitoring and evaluation of microbiology labs performance
With Establishment of **EQAS** for all received bacterial isolates
Analysis of AMR data obtained from all sentinel sites
Laboratory detection of AMR bacterial outbreak with genotypic analysis

Application of WHONET software in AMR-HAI surveillance sentinel labs and integrating AMR data file in NEDDS for AMR-CAI surveillance

Participation in Emergency task force for Establishing a rapid response system and reporting techniques for early interventions and prevention of spread of outbreaks

Collaboration with WHO for International standardization of the AMR lab detection protocols for detection of WHO recommended pathogens and development of harmonized, laboratory-based AMR surveillance in human, animal and foodborne pathogens.
Role of north Africa RCC in AMR

- **Building up capacities** with Technical support.

- **Setting up an Electronic communication system (WHONET) in each country**, connecting the districts labs with central lab to national epidemiology department, that is finally connected to the RCC.

- **Supporting North African countries in outbreaks investigations** by rapid Response emergency team.
Challenges

- **Segmented** surveillance system (human, animal, environment and pharmaceutical)
- Time needed for **Changing behavior** of community and health care workers (against using antimicrobials) and continuous raising their awareness against AMR
- Lack of national **legislations** for antibiotics dissemination and prescriptions
- Involvement of **private sector and University hospitals**
- **Manufactural pressure** on Health care workers for marketing expensive broad spectrum antibiotics
- Insufficient **resources**
Thank You