Vigilancia de la resistencia a los antimicrobianos en otras regiones de la OMS

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WHO Collaborating Centre for Surveillance of Antimicrobial Resistance, Boston
WHO Headquarters

- Quality assurance and surveillance
  - Development of manuals, surveillance standards, assessment tools
  - Research projects
  - Ongoing organism-specific QA and surveillance activities
    - Tuberculosis
    - GASP
    - Global Salm Surv
    - Respiratory
    - Malaria
    - etc.
Network coordinators in Antwerp and WHO/H20 Supranational Reference Laboratories
Countries where GSS institutions submitted *Salmonella* serotype data at any time between 1998 and 2003 (as of Feb 2004)
Global Salm Surv

- External Quality Assurance System
- Country databank
- Electronic Discussion Group messages
- Antisera and reference testing services
- Training courses
- Research Projects
Gonococcal Antimicrobial Susceptibility Programme (GASP)

Penicillin resistance in South East Asia and the Western Pacific
EDM Pilot Projects

India
BYL Nair Medical College, Mumbai
- Commensal *E. coli* from stool in patients/outpatients, antimicrobial use

CMC Vellore, Tamil Nadu
- Commensal and pathogenic *E. coli* in urine of pregnant women, antimicrobial use

Mulana Azad & Gangaram, New Delhi
- Pathogenic *E. coli* in urinary tract infections in women, antimicrobial use

South Africa
Durban Westville, S.Africa
- Commensal and pathogenic *S. pneumoniae* in outpatient sputum, antimicrobial use

MEDUNSA, S.Africa
- Pathogenic *E. coli* in urinary tract infections in women, antimicrobial use

Discussions with Ghana, Kenya, Viet Nam, Sri Lanka, Iran
...but IMCI population coverage within these countries varies widely.
Multi-Country Evaluation (MCE) of IMCI Effectiveness, Cost and Impact
The introduction of IMCI leads to significant improvements.

Percentage of children not needing antibiotics who left the facility without an antibiotic, in IMCI and non-IMCI facilities.
WHO/Lyon - Activities

- Quality assurance
  - WHO/NHLS EQA Programme to Africa
  - WHO EQA Programme to EMRO (to be established)

- Training
  - 4 Training cohorts to date
  - Training materials

- Country support
  - Laboratory standards and assessment tools
  - Softwares
  - Assistance in acquiring reagents
  - Follow-up on country-specific needs

- Distance learning
WHO/Lyon: Training, the cohort approach
8 weeks Lyon + 1-3 weeks x 2 Lyon
In country visits and follow-up, some materials
African Regional Office

- Quality assurance
  - Launched two years ago, coordinated by NHLS, South Africa and WHO/Lyon

- Surveillance
  - National Public Health Bacteriology Laboratory (NPHBL) Network
    - Collection and confirmation of important isolates
    - Data exchange on pathogens of meningitis, diarrhea, plague
  - Other programs
    - Tuberculosis, gonorrhoea (WAGASP), malaria
  - Developing a plan for regular data collection on antimicrobial resistance and antimicrobial use
  - Establishment of an AMR Surveillance Expert Group with representation from WHO/Africa and countries
    - Guide surveillance, interventions, treatment guidelines
WHO/NHLS Bacteriology EQA Programme to Africa

55 labs in 44 countries

3 programs

• plague
• enterics
• bact. Meningitis

3 languages

3 shipments/year with simulated specimens
Is performance linked to interventions?

<table>
<thead>
<tr>
<th>Enteric surveys</th>
<th>Mean score</th>
<th>p value</th>
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<tbody>
<tr>
<td></td>
<td>Yes</td>
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<tr>
<td>PBM vs Non-PBM labs</td>
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<td>Anglophone vs non-Anglophone labs</td>
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<td>Present at 2003 training course</td>
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<td>Reporting to WHO</td>
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<td>Member of Lyon cohort</td>
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<tr>
<td>Networking with NHLS</td>
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</table>
Quality assurance

- At irregular intervals, some countries participate in EQAS programs, but support for these programs is limited
  - EMR/EQAS Clinical chemistry
  - EMR/EQAS Hematology
  - EMR/EQAS – INSTAND, CSCQ
- A few countries do have national EQAS programs

Plan

- Launch a new regional EQAS with Lyon and 1 or 2 coordinating laboratories from the region
- All countries should initiate national EQAS programs

Surveillance

- A few countries conduct national surveillance

Plan

- All countries will aim to initiate national surveillance
Examples of national surveillance and QA programmes in EMRO

There are many institutions in EMRO with the expertise and resources to conduct surveillance, but so far little national coordination in most countries.

Morocco

Egypt

Oman
Antimicrobial Resistance in the Mediterranean (ARMed)

The ARMed project was launched two years ago as a collaboration among several countries in EMRO, using European programs as a model.

The network coordinator is in Malta, with close collaboration with European colleagues and WHO.

ARMed – EARSS: Antimicrobial resistance
ARMed – ESAC: Antimicrobial use
ARMed – HARMONY: Infection control
Streptococcus pneumoniae
Penicillin
From the WHO/EURO office
- some projects in Central Asia, Caucasus, and Eastern Europe

From the European Union
- EARSS – antimicrobial resistance
- ESAC – antimicrobial use

Many others
WHO European Region

- Aprox. 800,000,000 people
- In 51 countries
- Per capita from less than 500 US$ to over 25,000 US$
- Spending on health between 2-10%
European Antimicrobial Resistance Surveillance System (EARSS)

- 28 Countries, 642 Laboratories representing approximately 90 million people
- **Surveillance**
  - Blood and CSF isolates of *S. aureus, S. pneumoniae, E. coli*, and *E. faecium/faecalis*
  - Data are managed nationally, then forwarded to RIVM in the Netherlands for European-wide analyses
  - Detailed questionnaires on each institution
  - Pilot projects, questionnaires, molecular research
- **Meetings**
  - Annual plenary meeting, more frequent meetings of Technical Advisory Board
  - Biannual meeting of national data managers
  - Symposia
- **NEQAS – Colindale, UK**
Penicillin non-susceptible S. pneumoniae (PNSP) in EU
Hospital level within countries

% MRSA per hospital, 1999-2002
European Surveillance of Antimicrobial Consumption (ESAC)

1. Country-level data at the present time
2. Aggregated at the substance level (not the product)
3. Separated for Ambulatory and Hospital Care
4. Classified with ATC (WHO Drug Classification)
5. Expressed in Defined Daily Doses

ESAC began with easily available data, and is now proceeding to standardize definitions and data collection protocols across Europe, for maximum comparability.
Collaboration between EARSS and ESAC
Beta lactam usage vs. logodds of PNSP resistance

S. Bronzwaer et al., Emerg Inf Dis 2002;8(3):278-82
Quality assurance and training
- There are no region-wide surveillance or QA programs. 5 countries have national programs.
- Several labs participate in QA programs coordinated from Australia: Australasian QA, GASP
- A QA bulletin is bulletin
- Training in AST and WHONET has been provided

Surveillance
- There are many research studies from individual laboratories in the region.
- Only one country (Thailand) has a national database of antimicrobial resistance data
Labs using WHONET in SEAR, 2002 (59)
Quality assurance

- There is no regional QA program. Most of the continental countries have a national QA program. There is little activity in the Pacific Islands.

Surveillance

- Most of the continental countries in the region have national surveillance programs and reports.
- From 1991-1999, WHO/WPRO collated statistics on resistance from each member country on an annual basis.
- A review of the surveillance strategy was undertaken in 2001 with plans for major revisions in the surveillance protocol, which was to include a regional meeting of the national programs.
- Unfortunately, as a result of SARS, avian influenza, and other outbreaks in the region, the surveillance activities were put on hold.
- A new staff member has recently started, who will work to move the activities ahead.
WHO/WPRO
Future Plan for Surveillance

• Developing and strengthening national systems
  ü Country supports

• Establishing new regional monitoring system
  ü Surveillance workshop in Feb 2002
  ü Collaborating Centre
  ü Quality assurance
  ü Laboratory training
Quality assurance and surveillance

There are training activities and laboratory visits, but no ongoing regional QA or surveillance program for the region. Some laboratories participate in the PAHO regional enteric network, and, in the past, GASP.

The central laboratory in Port-of-Spain uses the LABIS computer system, which has successfully been used for regional laboratory-based surveillance, for example of dengue and meningitis.

There are plans to develop LABIS for use throughout the region. This would then be utilized as a core of regional laboratory-based surveillance activities.
WHO Collaborating Centres

- WHO Collaborating Centre for Surveillance of Antimicrobial Resistance
  - Brigham and Women’s Hospital, United States

- WHO Collaborating Centre for International Monitoring of Bacterial Resistance to Antimicrobial Agents
  - Centers for Disease Control and Prevention, United States

- WHO Collaborating Centre for Antimicrobial Resistance in Foodborne Pathogens
  - Danish Institute for Food and Veterinary Research (DFVF), Denmark

- WHO Collaborating Center for Quality Assurance and Standardization in Laboratory Medicine
  - Institute for Standardization and Documentation in Medical Laboratories (INSTAND), Germany

- WHO Collaborating Centre for Quality Assurance
  - Swiss Centre for Quality Control (CSCQ), Switzerland

- WHO Collaborating Centre in Quality Control and Clinical Biochemistry
  - Reference Laboratories of Iran, Research Center
WHO Collaborating Centre for International Monitoring of Bacterial Resistance to Antimicrobial Agents

- Centers for Disease Control and Prevention, Fred Tenover

- WHO/CDC External Quality Assurance Scheme in Antimicrobial Susceptibility Testing

- 150 labs, 33 countries
WHO Collaborating Center for Quality Assurance and Standardization in Laboratory Medicine

Institute for Standardization and Documentation in Medical Laboratories (INSTAND), Düsseldorf

Coordinates the WHO International External Quality Assessment Schemes in Immunology, along with the Charité Hospital, Berlin and the Collaborating Centers of International Consortium for Blood Safety (ICBS), New York
EQASs in Virology since 1988

As of 27.12.2001

for WHO regions AMRO, AFRO, EMRO, EURO, SEARO, WPRO (42 countries)

for Germany and 17 cooperating countries

As of 27.12.2001
CSCQ - Surveys

Programs

- 200 surveys each year
- Frequency of 2, 4, 6 or 12 times per year

Fields

- Clinical chemistry
- Haematology (qn, differential, parasitology)
- Coagulation
- Toxicology, hormonology, markers, alcohol, DAU, etc.
- Sterilisation
- Microbiology (partly in collaboration)
- POCT
- etc.

Cost

- Non Profit Association
<table>
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<tr>
<th>Department</th>
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<td>Serology</td>
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<td>Drug abuse</td>
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<td>Endocrinology</td>
<td>10 Parameters</td>
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<tr>
<td>Tuberculosis</td>
<td>6 Smears</td>
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<tr>
<td>Parasitology</td>
<td>2 smear</td>
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Software tools

- **Surveillance**
  - WHONET – general bacteriology and AST, microbiology
  - EpilInfo – general public health database
  - SDRTB – tuberculosis
  - WHO CARE – infection control (not in use?)
  - ABC Calc – antimicrobial use
  - PHLIS, NNIS - CDC

- **QA Databases**
  - Latin America
  - Africa
  - South Africa
  - WHO/Lyon – to be developed

- **Laboratory Information Systems**
  - CAREC - LABIS
  - CAREC - CLAB
  - WHO/Lyon – to be developed

- **Others:** WHO/Lyon: Laboratory assessment tool