WHO Conference on Health Aspects of Tsunami Disaster in Asia

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National Laboratory Networks
Early Warning and Surveillance

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WHO Programme for
Laboratory Capacity Development
Lyon, France
Laboratories in crisis and emergencies

Ensure specimen collection and transport

- Preposition of transport media
- Sample reception, preparation and packaging
- First rapid diagnostic
- Immediate report to surveillance system
- Send sample to reference laboratories
Laboratories in surveillance
confirmation, identification and typing

- First rapid diagnostic
- Report to surveillance system
- Treat sample in national reference laboratories
- Serotyping, antimicrobial sensitivity tests
- Forward to international reference laboratories
Laboratories in surveillance

Attributes of Surveillance systems relevant to laboratories

• Rapidity/Timeliness
• Reliability
• Link to national list of priority diseases
• Preparedness to investigation
• Link with international reference laboratories
Laboratory Capacities in Sri Lanka
January 2005

Laboratory Assessment

Assess capacities and needs of laboratories at central and periphery level

Reference level: MRI
Teaching hospitals: Galle Jaffna
Base hospitals: Matara Hambantota Point Pedro
District hospitals: Kilinochchi
Laboratory Assessment Tool

1. Building conditions
2. Biosafety
3. Sampling
4. Equipment
5. Reagents & supply
6. Tests details
7. Staff & working conditions
8. Total quality
9. Reporting, recording & referring
10. Involvement during outbreaks
Assessment of Laboratories: general results from Sri Lanka

- Diagnostic tests
- Building facilities
- Reagents & supplies
- Staff & working time
- Equipment
- Report
- Specimen collection
- Total quality
- Biosafety & hygiene
- Outbreak investigation

[Bar chart showing the percentage of central and periphery performance for each category]
Laboratory Capacity Development

Rapidity

• Specimen sampling and transport:
  • Implementation of sampling units at District hospital laboratory level
    • transport media,
    • sampling material
  • Preposition of rapid diagnostic tests at District level
  • Implementation of a regular specimen transportation system
    • inside each district
    • from each district to central reference laboratory
Laboratory Capacity Development
Reliability

Quality Strategy:

Re-equip/refurbish of reagents in order to cover the pack of activities defined for priority diseases
- Peripheral level
- Central level

Implementation of a quality assurance programme

Continuous education program:
- training of technicians microbiologist from each laboratory level
Laboratory Capacity Development
Priority diseases

Paquets of activities:

Define Standard Operating Procedures to diagnose the priority diseases
  Peripheral level: rapid tests, simple tests
  Central level: identification, typing and ART

Select and Provide to different laboratories corresponding equipment and reagents

Continuous education program:
  training of technicians microbiologist from each laboratory level
Laboratory Capacity Development
Integration / Coordination / Investigation

Permanent Dialog with Epidemiologists:

Continuous education program for surveillance:
training of technicians to their role in surveillance

Continuous education program for epidemiology:
training of senior microbiologists to investigation epidemiology

Develop in the laboratories network analysis capacities
Laboratory Capacity Development
Link to international networks

Communication:

Develop communication skills and hardware within laboratories

Develop communication bridges between epidemiological services for surveillance and laboratories

Develop communication bridges between Public Health Laboratories and International networks
Varied roles, functions, goals, physical set-up, equipment used, need for common SOPs, QA/QC strategy, Biosafety regulations.

Laboratories in Surveillance: Interrelationship and Networking

Varied roles, functions, goals, physical set-up, equipment used,

need for common SOPs, QA/QC strategy, Biosafety regulations.

National Network

World Health Organization

Diagnostic Hospital Lab.

Medical Research Lab.

Vaccine Lab.

Private Diagnostic Lab.

Diagnostic Veterinary Lab.

Diagnostic Public Health Lab.
Attributes of National Laboratory Network

- Organize National External Quality Assurance
- Provide National Standard Operating Procedures
- Provide National Biosafety regulations
- Organize National Continuous Training
- Organize the flows of specimens and data
- Permanent Laboratory part of Surveillance system
- Link with International Reference laboratories and Surveillance Networks
Laboratory Capacity Development Strategy for implementation 1

- Assessment of capacities and needs
  - Laboratory Assessment Tool: Assess capacities of each laboratory
  - National Capacities assessment Tool: Assess functions of laboratories within Surveillance systems
  - Costing tool: Provide an evaluation of annual costs of laboratory-based surveillance
Laboratory Capacity Development

Strategy for implementation 2

1. Create and implement National Laboratory Network

2. Organize national prioritization of communicable diseases, and compliance with the revised International Health Regulations

3. Organize National External Quality Assurance

4. Organize training and mentoring programs for senior biologists
   1. Total Quality Strategy
   2. Management
   3. Epidemiology
   4. New diagnostic techniques

World Health Organization
5. Link with International partners and NGOs to organize communications within and outside National network

6. Link with international partners and Institution for long term sustainability of National networks: twinning programs, funding agencies

7. Organize countinuous mentoring and distance follow-up strategy to get help and assistance from other national networks and International Institutions
Strengthening Labs

- Training and Partnerships
- Biosafety
- Management
- Advocacy
- Follow-up and distance learning
- Sustainable National Diagnostic Capacities
- Internal and external QA/QC
Thank you