Networking for surveillance of Anthrax
Need for Networking

- Provide accurate information on occurrence of anthrax among humans and animals
- Strengthen laboratory facility for identification and confirmation of \textit{B.\textit{anthracis}}
- Collation of regional, national and international data
- Dissemination of information
- Provide regulation and guidelines for surveillance and control of anthrax
Networking contd..

• Essential to link disease surveillance (human and animal) at the field level with laboratory surveillance
• Collation of disease and laboratory surveillance data essential for effective implementation of control measures
• Possible link up with other networks avoids duplication of data
Networking contd..

Types of Networking - Global disease specific networks of
1. Experts
2. Laboratories
Networking contd..

Levels of networking
- National
- Regional
- Global

Will consist of experts and response team for control of deliberate outbreaks
WHO mission statement on networking

“To establish global disease specific networks of experts and laboratories able to provide technical support to response activities in developing countries related to the deliberate use of microbiological agents to cause harm”
Classification of Laboratories for Surveillance of Anthrax

Based on available facilities national networking laboratories can be classified as:

- Peripheral-District level or equivalent
- Intermediate or middle level-State level
- Central or reference laboratories-National level
Peripheral Laboratory (District level): Human Anthrax

- Can receive clinical samples from suspected cases of anthrax

- Perform Gram stain and other appropriate staining procedures

- Trained microbiologist to give preliminary report based on smear examination

- If facility for culture does not exist, specimen be plated on recommended media and sent to intermediate level laboratory with recommended precautions
Peripheral Laboratory (District level): Animal Anthrax

- Can receive clinical samples from suspected cases of animal anthrax
- Perform Gram stain and other appropriate staining procedures
- Send the sample with recommended precaution to state level veterinary laboratory
Intermediate or Middle Level Laboratory (State level)-Human Anthrax

- Should receive plated cultures from peripheral laboratory, identify and confirm pathogen.

- Should be equipped with biosafety cabinet level III for carrying out culture procedures

- Should forward culture isolate and remaining sample if any to reference laboratory for further procedures
Intermediate or Middle Level Veterinary Laboratory (State level)-
Animal Anthrax

• State level veterinary laboratory should be able to confirm identity of *B.anthracis*

• Will conduct surveillance of all animal outbreaks of anthrax

• Should coordinate with national level laboratory
Central or Reference laboratory (National Level)

- Laboratory to serve as reference center for human and animal anthrax
- Should have facility to reconfirm identification of isolate
- Perform special tests such as PCR
- Susceptibility test to be performed and isolate to be further characterized by genotyping techniques
Central laboratory contd..

- Serve as quality assurance and data management center with restricted access

- Analyze and forward surveillance data to nodal agency (WHO), investigate phenomena such as drug resistance

- Provide technical and infrastructural support to peripheral and middle level laboratory

- Strengthen regional networks
Role of Regional Laboratory

- Serve as data collation center
- Provide technical support to response activities
- Improve public health preparedness in deliberate epidemics
- Coordinate with global networks
Networking for Surveillance of Anthrax

Network

Disease Surveillance

Field (Human & Animal)-Health care workers, Veterinarian

Hospital (Human)

Laboratory Surveillance

Intermediate/middle level-State level

Central or Reference - National

Primary Level (District or equivalent)

WHO

CDC

Regional Laboratory

National agency
Distribution of Data on Surveillance

Disease Surveillance-Data

→ Central or Reference laboratory-Data base*

→ National Agency-Repository*

→ WHO-Data base*

← Laboratory surveillance-Data

*Restricted access
?? that need to be addressed

- Usefulness and relevance of surveillance networks for anthrax
- Feasibility of networks in terms of cost, personnel, technical expertise etc