

## ***Suggestions for Laboratory Evaluation***

### **Develop a logic model**

Once initial questions about laboratory capacity within a country are known, it may be useful to begin planning for a more in-depth evaluation. Following CDC's "Framework for Evaluation of Public Health Programs," a logic model describing the laboratory portion of the program can be developed. The logic model can serve two purposes: 1) describe expected outcomes and impacts in measurable terms, and 2) work backwards from the outputs, processes, and inputs to assess the feasibility of attaining the outcomes, given the resources available. The latter can also be used to recommend the resources needed to achieve the goals of the program.

### **Assess the laboratory capacity at each level of the health system**

Identify laboratory capacity and needs from the perspective of the following:

- Clinical management
- Internal laboratory services (e.g., number of specimens received/month)
- Quality assurance
- Personnel competency
- Equipment available, maintained and sustainable
- Biosafety issues
- Surveillance capability

Then, assess laboratory capacity using qualitative, quantitative, and anecdotal methods. Questions to consider include the following:

- Are the correct specimens collected for the suspected outbreak?
- Are specimens kept in the appropriate preservative for the potential organism involved?
- Is transportation of specimens to laboratories available and timely?
- Is the quality of procedures and tests acceptable?
- Is there a national, accredited quality control program (is there proficiency testing, standards)?
- Are there a sufficient number of skilled personnel?
- How are results disseminated and to whom?
- Are there sufficient equipment and supplies for basic confirmation of high priority problems?
- Can the laboratory track its own work?
- Are laboratory safety procedures available and enforced?
- Is there a waste disposal plan?

Also, assess the availability of laboratories. Questions to consider include the following:

- What diagnostic or supportive laboratory services are available to clinicians and epidemiologists and for which reportable diseases?
- Can outbreaks be confirmed? If not, what will be done?
- How are clinicians informed of the availability of these services, indicators for use, how to use services, and how to interpret the results?
- What arrangements are made for specimen transport and notification of results when tests are not available at the clinic site? Is transportation a problem?
- What are the most important health conditions for which laboratory testing is not typically available at clinical sites?
- Are the steps for laboratory disease surveillance and emergency response planned for and supported?

### ***Strategies for improving laboratory capacity***

Recommendations for improving laboratory capacity within a country will, of course, depend on the assessment findings. The following are examples of short-term and long-term strategies that FELTP staff might consider in collaboration with partners based on their assessment findings and needs.

*NOTE: Strategies should be developed in collaboration with partners.*

#### **Short-term strategies**

- Increase the ability to confirm specified number of outbreaks per year,
- Obtain reference manuals that describe appropriate specimen collection and handling - there are many good materials for laboratorians available at no cost from CDC and WHO as well as other partners. Providing these to lab programs may develop good will.
- Identify a few top “priorities” and ensure laboratories are ready to handle them
- Develop team building between epidemiology and laboratory by holding joint training and, at times with clinicians
- Link with existing programs that already have relatively good lab capacity, such as polio campaigns. An AFRO polio eradication program offered an excellent model of epidemiologists, laboratory personnel, and data managers working together for a common surveillance goal. An essential program goal continues to be the identification of where links must exist between epidemiological activities and laboratory activities.

#### **Long-term strategies**

- Improve national laboratory capacity and quality.
- Improve communications systems for surveillance and epidemiology including the link to the laboratory. This can increase timeliness significantly.
- Improve communications and give a voice to the MOH and donors.