

## USAID'S INFECTIOUS DISEASE DETECTION AND SURVEILLANCE (IDDS)

# Diagnostic Network Vision

### Overview

The requirement for timely reporting of infectious diseases has been highlighted on many occasions. A poignant reminder of the impact of poor data quality and timeliness in the management of disease outbreaks is the Ebola outbreak in 2014–2016 – an outbreak that resulted in the loss of \$2.2 billion US dollars gross domestic product in Guinea, Sierra Leone and Liberia as well as 11,325 lives. Monitoring of infectious diseases and antimicrobial resistance (AMR) through surveillance systems is the cornerstone of any outbreak and response network. The availability of a robust and timely diagnostic network can ensure a country's ability to manage and promptly contain an outbreak. Time, more than anything, determines the success of a response.

Diagnostic networks serve as the first line to detect existing and emerging microbial threats, thus enabling an appropriate national response. A robust diagnostic network, features reliable, accurate, and rapid testing and reporting, and effective communication between patients, clinicians and veterinarians, laboratories, and public health officials that spans the tiered levels from point-of-care to national and supranational sites.

The United States Agency for International Development (USAID) Infectious Disease Detection and Surveillance (IDDS) project recognizes that access to reliable, accurate, and timely diagnostics and results is essential to allow countries to detect and monitor emerging and re-emerging infectious diseases. IDDS therefore places improving diagnostic access as a critical component and main outcome of our diagnostic network

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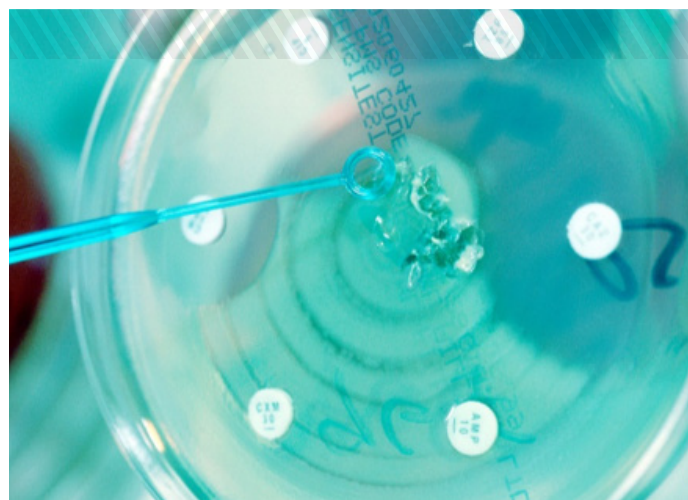


Figure 1. IDDS Diagnostic Networks Vision

Diagnostic and surveillance data supports evidence-based clinical guidelines, resource allocations, and public health interventions, including animal and environmental health. Although disease-specific efforts have improved diagnostic network capabilities related to key diseases such as Human Immune-deficiency Virus (HIV), tuberculosis (TB), malaria, and polio, as new microbial threats continue to emerge, the global community has recognized the value of a One Health and systems strengthening approach to support diagnostic networks, as seen in crosscutting initiatives such as the Global Health Security Agenda.

IDDS supports countries' efforts to take a sustainable One Health systems strengthening approach for improving diagnostic networks to detect priority pathogens and AMR. The IDDS suite of approaches aims to strengthen national health systems through networks and adaptable collaborative efforts to improve infectious disease detection and AMR surveillance. To achieve this, IDDS works with partner countries to support enhancements in several linked core components that contribute to a comprehensive diagnostic network (see Figure 1 on page 1).

IDDS focuses on ensuring that crosscutting requirements are also addressed in each of these areas (as appropriate) by working with stakeholders and partners to identify high-impact opportunities for improvement and developing evidence-based solutions tailored to these needs (Figure 2).



## Technical Approach

### Diagnostic Access

Diagnostic network capabilities and capacities vary between countries, within a country, and across the various tiers of the diagnostic network. IDDS takes a flexible and adaptable approach to our support. Starting with discussing diagnostic needs and priorities with local stakeholders and partners, IDDS identifies diagnostic strengthening activities to include in IDDS country workplans. Where partners are already engaged in diagnostic strengthening efforts, IDDS will collaborate with them to maximize coverage, impact, and shared resources.

To achieve improved diagnostic access, IDDS will assist countries to strengthen the following core elements:

- Collection and referral of quality clinical specimens to a suitable diagnostic facility (refer to IDDS Specimen Referral Systems Technical Approach)
- Availability of functioning and suitable testing equipment at the diagnostic facility (refer to IDDS Functional Equipment Technical Approach)
- Availability of quality diagnostic commodities to test specimens received (refer to IDDS Supply Chain Technical Approach)
- Rapid systems for reporting of diagnostic results to patients, clinicians and veterinarians, laboratories, and public health officials (refer to IDDS Health Informatics and Surveillance Technical Approaches)

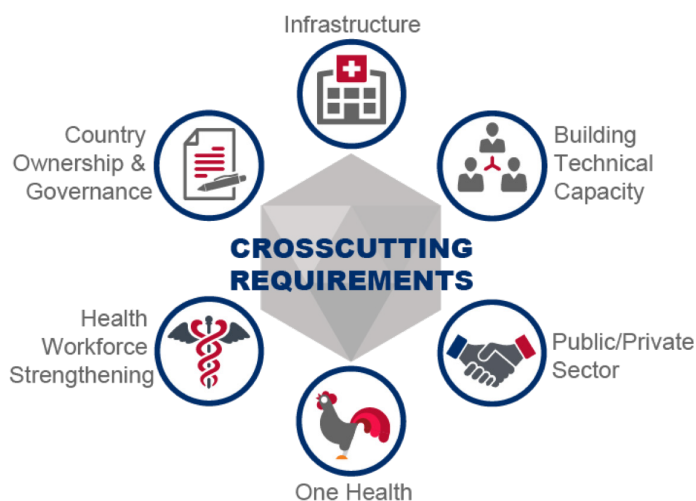


Figure 2. Crosscutting Requirements



## Health Workforce Strengthening

Proficient diagnostic access requires an adequate number of experienced diagnostic professionals available at the locations where diagnostic services are provided and when specimens are received. This includes more than just the technicians that perform the tests and extends to engineers who maintain equipment, healthcare workers that collect specimens, ancillary workers that handle diagnostic waste, and others. IDDS will use proven diagnostic workforce capacity building strategies to build the capacity of diagnostic technicians and leaders through trainings, mentorship, knowledge exchange opportunities (national and regional), and continuous learning approaches. Building technical capacity on an individual and national level is a key pillar of the IDDS approach to ensuring diagnostic access.

## Governance and Financing

Strong diagnostic networks require appropriate national and sub-national governance structures, national strategic plans, comprehensive diagnostic policies and procedures, national quality management systems (QMS) all supported by sufficient and sustained financial resources. While significant progress has been made in many countries linked to global initiatives to combat HIV and TB, efforts to integrate the detection of priority

diseases and AMR lags far behind. IDDS can support countries to integrate the detection of priority pathogens and AMR into national governance structures and strategic plans, expand national QMS efforts, and standardize diagnostic policies and procedures in line with latest technologies and best practices. IDDS Health Economists can help countries to determine the cost of diagnostic service provision for priority infectious diseases and AMR and develop alternate costed models for outbreaks and epidemics as well as seasonal and geographic variations. Armed with this information, country leaders and financial planners will be better placed to understand the true costs of diagnostic service provision, particularly as it relates to costs averted through earlier and more accurate detection of infectious diseases and AMR.

## One Health

IDDS takes a One Health systems approach that considers human, animal, and environmental health to support countries' diagnostic network strengthening efforts. The technical approaches that IDDS utilizes for human health are equally applicable to animal health because of the use of common testing platforms. While countries' may choose to focus the technical support that IDDS provides in the initial years to human health, IDDS will seek to be integrated and inclusive where possible and feasible. Where funds allow, technical trainings will be offered to staff from human and animal health sectors. When considering diagnostic network optimization, equipment location, and supply chain solutions, IDDS will consider solutions that share or combine resources to strengthen and increase linkages between sectors. Through the IDDS integrated and comprehensive approach, countries will gain enhanced abilities to detect priority pathogens, AMR, and emerging infectious threats, thereby helping avert their spread and informing interventions to reduce associated mortality and morbidity.