Building Cross-Country Networks for Laboratory Capacity and Improvement

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KEYWORDS

• Laboratory networks • Epidemiologic surveillance • Disease outbreak response • Global health security

KEY POINTS

- Cross-country networks require well-defined governance structures, clear mandates, and concrete deliverables.
- Cross-country networks are effective in supporting peer-to-peer learning, and have the potential to generate efficiencies in responding to disease outbreaks and in conducting joint research and training.
- Networks have the potential to strengthen regional cooperation and foster mutual accountability.
- Drawing lessons from subregional networks can potentially be useful in informing the design of broader continent-wide disease control and surveillance initiatives.
- Consolidating and sustaining achievements of cross-country networks remains a key challenge going forward.

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BACKGROUND

Cross-country laboratory networks have historically played a critical role in supporting epidemiologic surveillance, accelerating disease outbreak response, and tracking drug resistance. Laboratory networks and enhanced diagnostic capacity are essential components of national and regional efforts to comply with the International Health Regulations and to build strong International Disease Surveillance and Response (IDSR) systems.[1] In the modern interconnected world with the increased risk of the spread of infectious diseases, having strong capacity to rapidly identify emerging pathogens, to contain the spread of diseases, and to notify others of outbreaks of international public health importance has taken on a new importance.[2]

In low-income and middle-income countries in sub-Sahara Africa, several cross-country networks have been established to facilitate timely sharing of epidemiologic information, build capacity, and introduce quality assurance systems to improve standards across participating sites.[3] Many of the networks have built on a historical record of collaboration among different stakeholders, with well-defined governance structures, common goals, and external support. The increase in funding for global health over the past decade[4,5] from the US President's Emergency Plan for AIDS Relief, President Obama's Global Health Initiative, and other bilateral donors offered an important opportunity to end the historical neglect of laboratory systems and services.

Laboratory networks are vital to well-functioning public health systems and to the global health security agenda, with innovative proposals to promote better integration of laboratory networks, surveillance systems, and public health institutes.[6] The recently launched Africa Centres for Disease Control and Prevention is expected to play a key role in this regard by strengthening disease intelligence and improving outbreak response and prevention capacity through surveillance and laboratory networks. Africa Centres for Disease Control and Prevention established 5 regional integrated surveillance and laboratory networks (RISLNET) that will offer a platform to better coordinate public health responses around the rescue coordinating centers (RCCs) in Egypt, Nigeria, Gabon, Zambia, and Kenya. RISLNET and the RCCs will provide opportunities for early detection and response to outbreaks, enhance disease intelligence, and combat antimicrobial resistance. The Africa RISLNET will ensure that public health assets in each geographic region are better leveraged to contribute to the broader agenda of disease management on the continent. Drawing lessons from subregional networks can potentially be useful in informing the design of broader continent-wide initiatives. One of the nascent laboratory networks, led by policy makers in East Africa, and supported by the World Bank, is the East Africa Public Health Laboratory Network.

INTRODUCTION

In 2010, policy makers in East Africa came together to establish a network of high-quality, accessible public health laboratories to combat the spread of communicable diseases in cross-border areas. All countries faced similar challenges, including emergence of multidrug-resistant tuberculosis (MDR-TB), frequent disease outbreaks, and limited laboratory confirmation of causative agents. Less than 1% of public sector laboratories on the continent were accredited, reflecting the poor state of facilities, lack of trained personnel, and weak quality management systems. Peripheral facilities had limited capacity to diagnose suspected MDR-TB cases, and needed to send sputum samples to the national reference laboratories for culture, which resulted in lengthy delays and risk of patient default. The continent had only 1 tuberculosis (TB) supranational reference laboratory (SRL), which could not respond to the growing demand from countries for technical support. Officials recognized that lack of access to quality

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