

Strengthening Laboratory Systems - Foundational to Implementing the Global Health Security Agenda Action

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Association of Public Health Laboratories (APHL)

- NGO, non-profit organization
- Manages the public health laboratory network of US state & local public health labs, state environmental and agricultural labs

Vision:

A healthier world through quality laboratory systems

Mission:

Shape national and global health outcomes by promoting the value and contribution of public health laboratories and continuously improving the public health laboratory system and practice



National Laboratory System Action Package

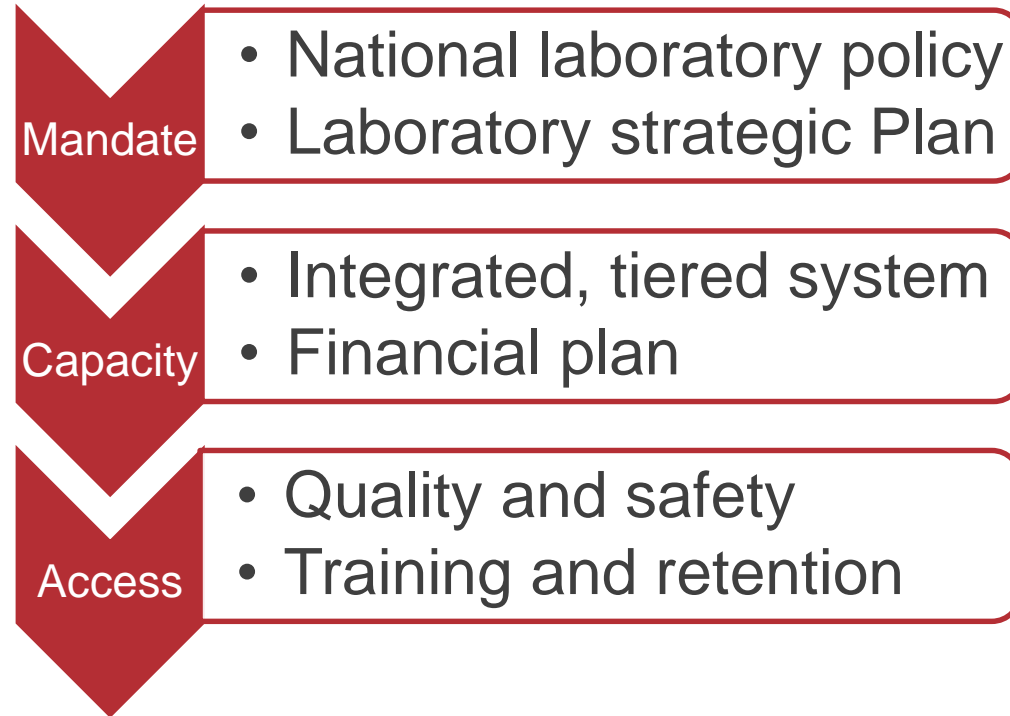
- **Five-Year Target:** Real-time biosurveillance with a national laboratory system and effective modern point-of-care and laboratory-based diagnostics.
- **As Measured by:** A nationwide laboratory system able to reliably conduct³ at least five of the 10 core tests⁴ on appropriately identified and collected outbreak specimens transported safely and securely to accredited laboratories⁵ from at least 80 percent of districts in the country.
- **Desired National Impact:** Effective use of a nationwide laboratory system capable of safely and accurately detecting and characterizing pathogens causing epidemic disease, including both known and novel threats, from all parts of the country. Expanded deployment, utilization, and sustainment of modern, safe, secure, affordable and appropriate diagnostic tests or devices.



Addressing the Objectives: 11 Action Packages

- Prevent 1: Antimicrobial Resistance
- Prevent 2: Zoonotic Disease
- Prevent 3: Biosafety and Biosecurity
- Prevent 4: Immunization
- **Detect 1: National Laboratory System**
 - USA committed to leading this along with Thailand and South Africa
- Detect 2 & 3: Real-Time Surveillance
- Detect 4: GHSA Reporting
- Detect 5: Workforce Development
- Respond 1: Emergency Operations Centers
- Respond 2: Linking Public Health with Law and Multi-sectoral Rapid Response
- Respond 3: Medical Countermeasures and Personnel Deployment Action Package

Development and Review of National Laboratory Strategic Plans and Policy Documents



GHSA Action Package(s)

Laboratory System, Real-Time Surveillance, EOC, Workforce Biosafety/Biosecurity

Laboratory Twinning Model

- Established through a formal agreement between labs in different countries
- Ongoing, multi-year partnership with specific goals and objectives
- Provides a dedicated training venue for strengthening diagnostic capacity
- Allows for mentorship across technical lanes

Uganda Central Public Health Laboratory with New Mexico State Public Health Laboratory

- Assist with design of organogram of new national public health reference laboratory
- Provide leadership, management and business processes training
- Assist with development of quality management system, including policies and protocols
- Review WHO IHR requirements

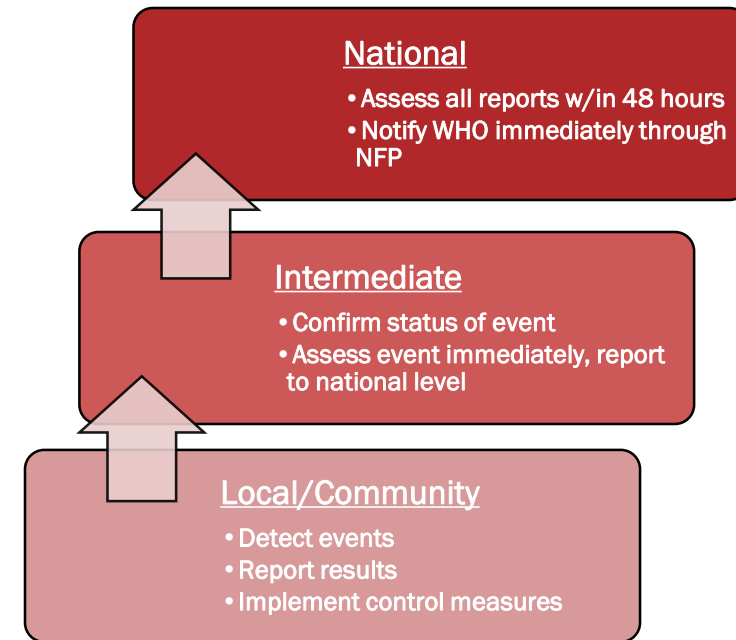
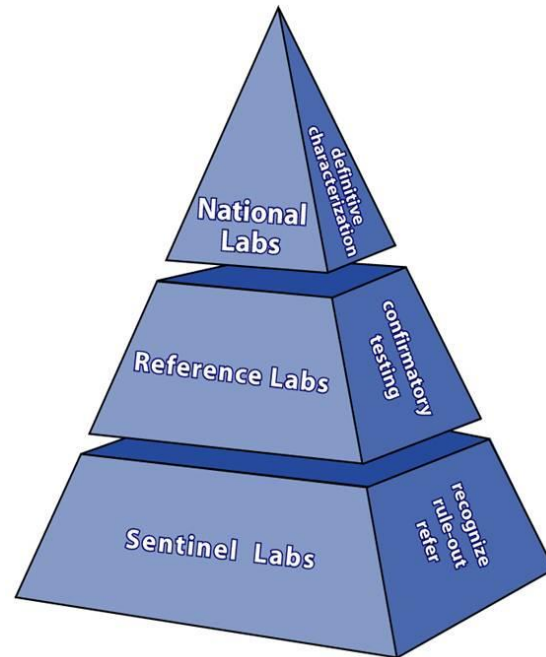
**GHSA Action
Package(s)**

Laboratory System, Real-Time Surveillance, EOC, Workforce
Biosafety/Biosecurity



Developing Resilient Laboratory Networks

- Standardized diagnostics
- Secure communication, alert, reporting system
- Training and instrumentation standards
- Quality standards testing
- Assurance of biosafety and biosecurity
- Connected to EOC



GHSA Action Package(s)

Laboratory System, Real-Time Surveillance, EOC, Workforce Biosafety/Biosecurity

Workforce

- Emerging Leader Program
- Development of Public Health Laboratory Service Fellowship (PHLSF) curriculum and implementation framework
 - Program to address the regional or country's public health laboratory workforce gaps.
 - Inclusive of mentoring and field projects
 - Framework for implementation of fellowship based on curriculum.
 - Collaboration with public health institutes and other stakeholders

**GHSA Action
Package(s)**

Laboratory System, Real-Time Surveillance, EOC, Workforce
Biosafety/Biosecurity



Challenges and Lessons Learned

Challenges

- Multilateral coordination
- Resistance to assessments
- Resistance to share country specific reports
- Integration of GHSA activities in to on-going activities

Lessons Learned

- Importance of system strengthening
- Importance of strategic plans, policy documents and M&E
- Develop long term twinning partnerships for mentorship
- Develop resilient laboratory networks
- Leverage partnerships e.g. ASLM
- Leverage other investments e.g. PEPFAR
- Develop sustainable training solutions

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CDC Global Health Security Agenda/Ebola Grantee Meeting

Accountability. Results. Sustainability.

CDC & GLOBAL HEALTH SECURITY AGENDA



Laboratory Strengthening for Global Health Security

African Society for Laboratory Medicine

Trevor Peter

Chair, ASLM

CDC, Atlanta – Feb 10-12, 2016



Core Principles:

- Incisiveness
- Collaboration
- Advocacy
- Ownership
- Coordination
- Sustainability



Collaborations

- WHO
- OIE
- AU/ACDC
- MOHS
- CDC & Partners

ASLM GHSA Activities

“Regional GHSA Consultation on Laboratory Strengthening in Africa”

- 15-16 October 2015, Freetown, Sierra Leone
- Co-convened with WHO AFRO
- 100+ senior-level public health officials; 20 MDHs present



ASLM GHSA Activities

- “Freetown Declaration”
 - Developed by WHO AFRO, ASLM, and ZM MOH
 - Calls for:
 - New framework for functional tiered laboratory network
 - Implementation of a score card to assess readiness of networks
 - Integration of networks with public health institutes and surveillance systems



The Freetown Declaration

The Freetown Declaration on Developing Resilient Laboratory Networks for the Global Health Security Agenda in Africa

We, country delegates, multilateral agencies, development partners, public health institutions, professional associations, and academic institutions, are gathering for the Regional Global Health Security Consultation for Laboratory Strengthening in Freetown, Sierra Leone, on 15-16 October 2015, and:

- **Appreciate** that this first-of-its-kind Consultation has brought partners together at the doorstep of the deadliest and costliest Ebola outbreak in history in order to develop strategies to establish the political, legal, and practical frameworks for resilient laboratory networks to address the global health security agenda in Africa.
- **Acknowledge** that >11,300 lives have been lost in West Africa because of the Ebola Virus Disease outbreak, and that >\$2.2 billion in economic growth has been lost in 2015 for Guinea, Liberia, and Sierra Leone as a result of the epidemic.^{1,2}
- **Acknowledge** only 1.3% of the world's healthcare workers are found in Africa, and they care for 25% of the global disease burden.³
- **Acknowledge** the increase of antimicrobial resistance (AMR) in Africa due to inappropriate use of antibiotics and inadequate capacity to detect resistance. Drug resistant infections may cause 10 million deaths a year and cost up to \$100 trillion a year globally by 2050.⁴

Collectively, we:

- **Recognise** the need for multi-sectoral, multi-country, and pan-African strategies for prevention, control, and response to disease outbreaks.
- **Recognise** the risks posed by the emergence and spread of new and existing microbes; the globalisation of travel and commerce; the rise of drug resistance; and the potential for accidental or deliberate release, theft, or illicit use of biological agents requires the strengthening of public health laboratory networks and surveillance systems.
- **Recognise** that integrated tiered laboratory networks and surveillance systems are the cornerstone of effective healthcare, and essential to the robust detection and early response to public health threats.
- **Recognise** the significant progress made in strengthening laboratory networks since the adoption of the 2008 Maputo Declaration for Strengthening Laboratory Systems and Resolution AFR/RC58/R2 at the 58th session of the World Health Organization Regional Committee for Africa (WHO AFRO), both resulting in the scale-up of diagnostic services for HIV, tuberculosis, and malaria.

¹ United States Centers for Disease Control and Prevention (CDC), 2014 Ebola Outbreak in West Africa - Case Counts. Accessed at <http://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/case-counts.html> on 5 October 2015.

² World Bank Group Ebola Response Fact Sheet, 1 September 2015 briefing.

Accessed at <http://www.worldbank.org/en/top/health/brief/world-bank-group-ebola-fact-sheet> on 5 October 2015.

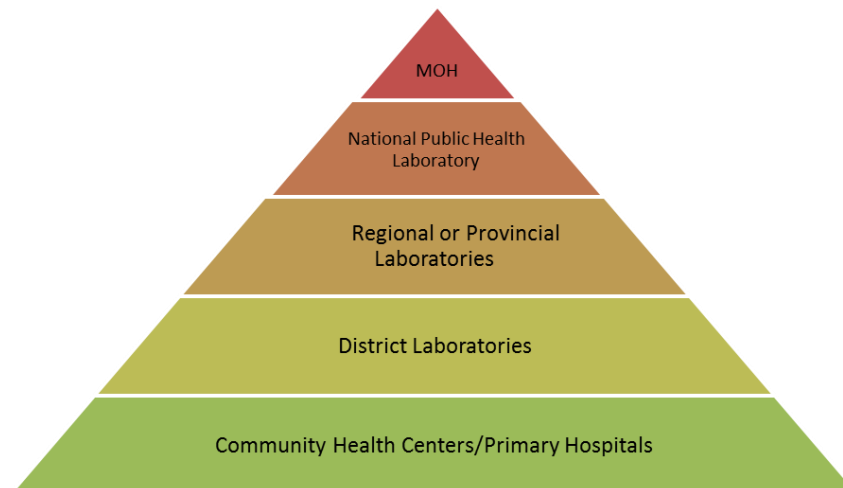
³ Shortage of healthcare workers in developing countries—Africa. Naicker S et al. *BmJ* 2009; Spring; 19(11 Suppl 1), S1-60-4. Accessed at <http://www.ncbi.nlm.nih.gov/pubmed/19484878> on 5 October 2015.

⁴ Review on Antimicrobial Resistance: UK Government, Wellcome Trust: 14 May 2015 report. Access at <http://amr-review.org/> on 5 October 2015.

ASLM GHSA Activities

Framework 1

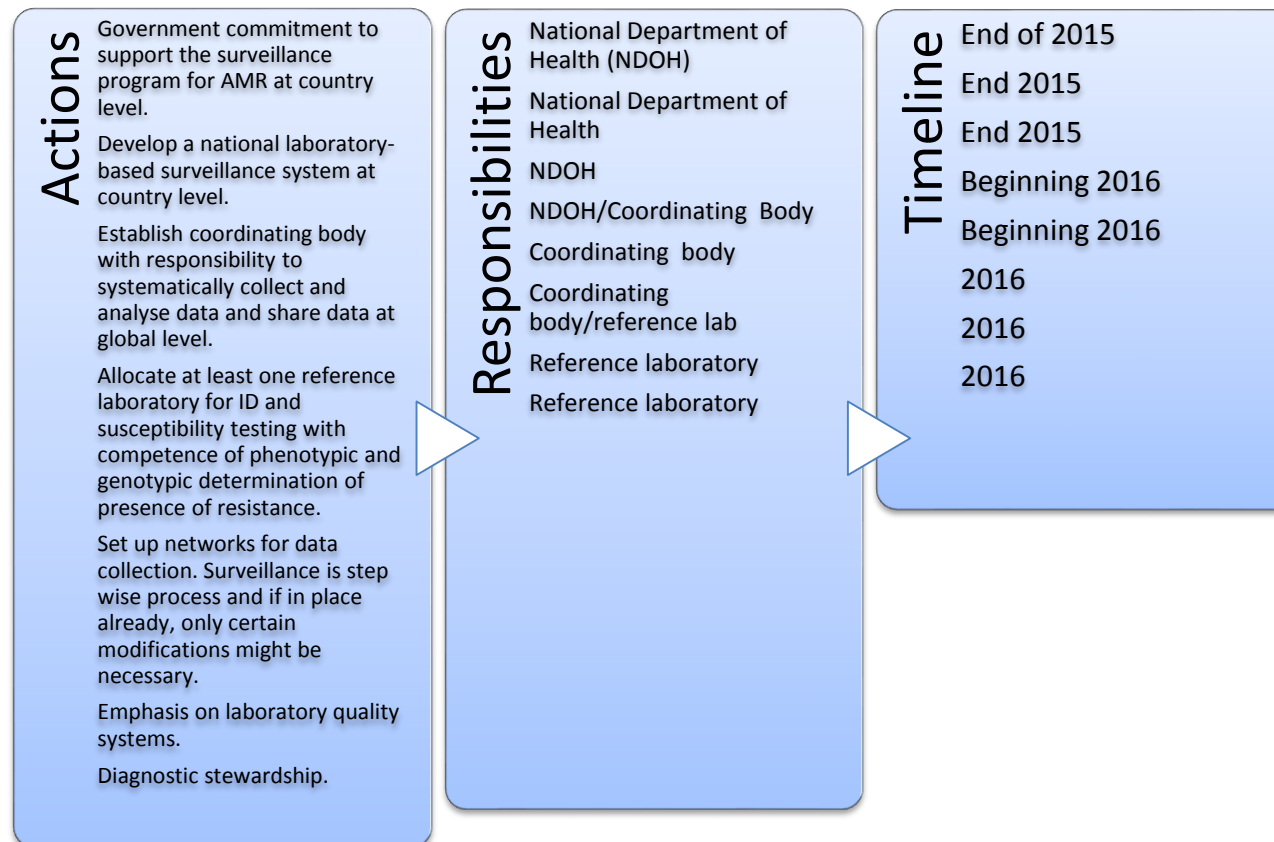
- Framework for functional tiered public health laboratory networks
 - Provides practical, innovative strategies to connect individual labs into integrated networks
 - Connecting a tiered system with public health institutes to ensure early disease detection and effective response



ASLM GHSA Activities

Framework 2

- Conducting laboratory-based surveillance for monitoring AMR
 - Provides guidance for establishing laboratory capacity for antimicrobial resistance (AMR) surveillance

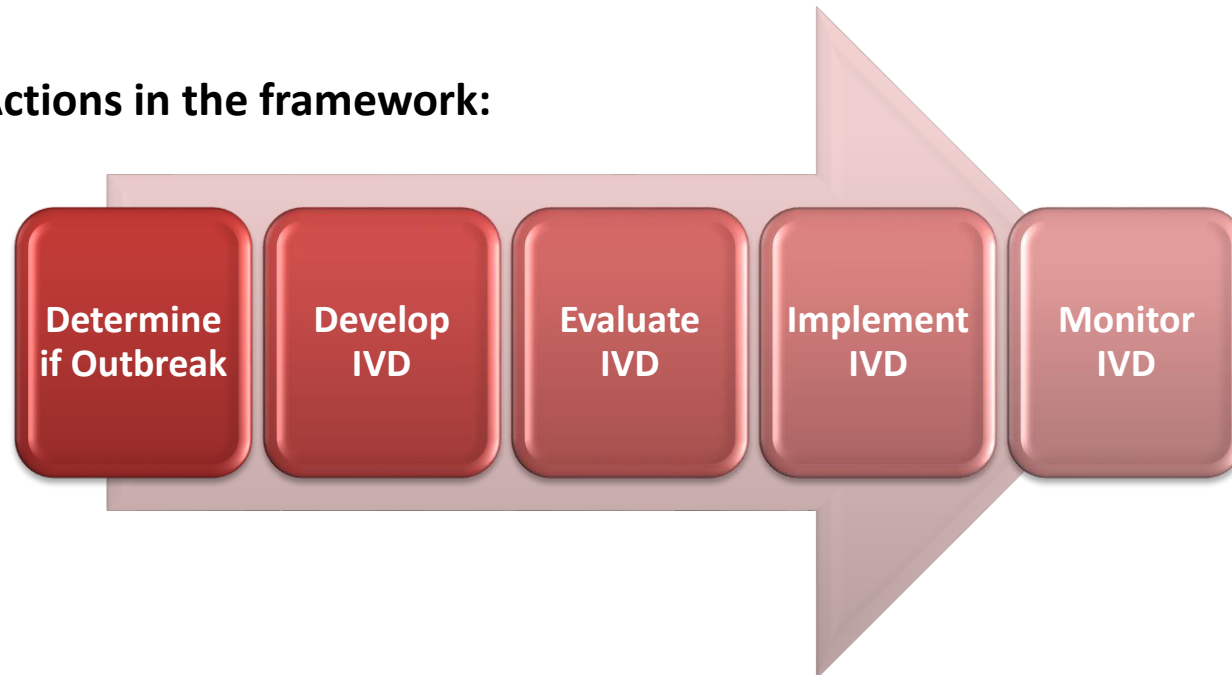


ASLM GHSA Activities

Framework 3

- Guidelines on regulation of diagnostics use during outbreaks
 - A framework for regulating and implementing IVDs for use in an outbreak situation

Actions in the framework:

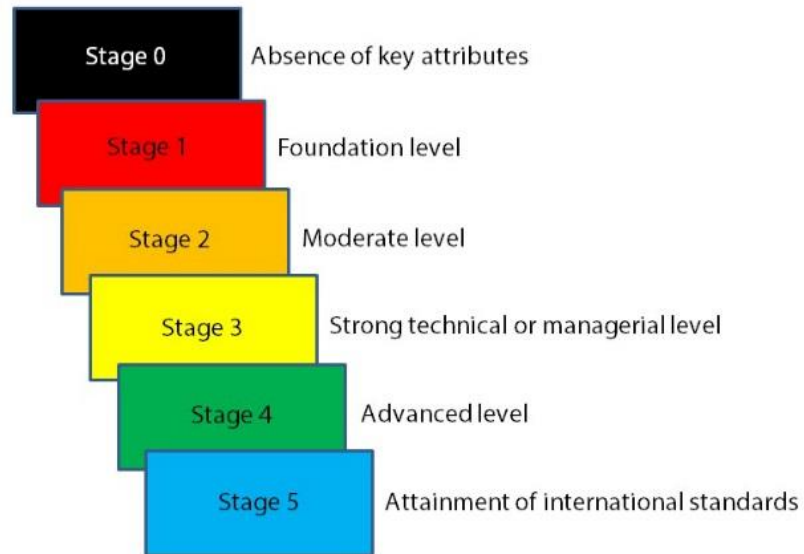


ASLM GHSA Activities

Framework 4

- Stepwise score card: assessing readiness of laboratory networks
 - “What gets measured, gets done”
 - Clear indicators for routinely measuring laboratory progress
 - Combines and elaborates on pre-existing laboratory assessment tools

Score Card Maturation Stages



ASLM: GHSA Activities – 17 Countries

Benin
Burkina Faso*
Cameroon
Cote d'Ivoire*
DRC
Ethiopia
The Gambia*
Ghana
Guinea Bissau
Kenya*
Mali*
Mauritania*
Nigeria*
Senegal*
Tanzania
Togo*
Uganda*



* Indicates countries visited by ASLM for GHSA

ASLM GHSA Activities in 17 countries

- **Laboratory Systems Strengthening**
 - Assessing GHSA Laboratory Network Functionality with new scorecard
 - Designing specimen referral networks
 - Training program on lab sample collection and shipping for community health workers
 - Support for adaptation of laboratory strategic plans to GHSA
 - Biosafety cabinet certification and mapping of certification services in Africa
 - Assessment of proficiency testing capacity and mapping of EQA services in Africa
 - Identifying laboratory surge capacity and knowledge sharing
- ASLM works with networks of partners, e.g. APHL on lab strengthening programs

ASLM GHSA Activities – Lessons Learned

MOH Leadership

- All GHSA-funded entities should be aligned with government priorities with defined the workplans and specific activities

Country engagement

- Before implementation, appropriate program introduction is needed at the country level with all key stakeholders.
- Include local entities and NGOs from planning phase onwards to ensure cultural appropriateness, to capitalize on prior work and ensure knowledge transfer
- In-country visits are key for gaining trust and smoother program implementation.

Coordination

- Forums should be held between multiple funders so that resources can be better mapped and leveraged



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