

APHL GLOBAL HEALTH INFORMATICS

SUPPORTING LABORATORY INFORMATICS WORLDWIDE



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APHL Global Health Informatics focuses on the many different data needs of laboratories, from clinical to public health, from small district laboratories to national health laboratories. Since 2005, APHL has worked with more than 15 countries to provide services to support the core needs of laboratories, which range from specimen collection to reporting, data integration, and clinical and surveillance decision making.



THE APHL APPROACH

1 Laboratory Information Management System (LIMS) Implementation & Management Services

- Collaborate with Ministries of Health (MOHs) to develop LIMS requirements to support the data needs of laboratories ranging from district level laboratories to provincial and national laboratories
- Build capacity in-country to evaluate, design and implement commercial and open source LIMS
- Development and use of standardized workflows critical to verification and validation
- Optimize workflows through incorporation of work lists, separation of validation and verification tasks and prioritization of testing
- Use of barcode labels and barcode scanners to easily and uniquely identify specimens and enable a laboratory to track a specimen
- Establish centralized help desk in-country for all laboratory informatics support needs

2 Electronic Sample Referral Network

- Electronic capture of test orders at point of specimen collection such as district health centers
- Secure submission of electronic test orders to testing laboratories
- Secure return of electronic test results

3 Centralized Laboratory Data Storage

- Create an open laboratory data repository (OpenLDR)
- Design and develop OpenLDR for data that is not LIMS-specific (i.e., any LIMS can send data)
- Aggregate laboratory test requests and results from multiple data sources
- Make accessible to Ministries of Health and other partners as needed
- Support national epidemiological surveillance activities
- Monitor performance of programs at individual laboratories
- Improve understanding of laboratory capacity and testing workload distribution
- Demonstrate use of OpenLDR to capture and store data from multiple LIMS using standard protocol and technology

Informatics challenges identified by laboratories include:

- Gathering specimen and patient data from point-of-care sites
- Managing data within testing laboratories to minimize turnaround time and ensure accuracy
- Reporting test results to care providers and patients
- Utilizing longitudinal results tracking for patients
- Reporting aggregate data
- Managing distribution and results reporting of proficiency testing samples
- Effectively applying laboratory data for decision making

By utilizing APHL's approach, laboratories aim to:

- Implement cost-efficient laboratory informatics solutions
- Increase data utilization
- Improve data quality
- Minimize manual entry errors
- Provide rapid sample accessioning for high volume laboratories
- Reduce overall turnaround time
- Assure better continuity of care and health outcomes

4 Reporting and Data Visualization

- Build data visualization frameworks for use at district, provincial, regional and national levels to view laboratory data using key indicators for specific tests such as viral load, antimicrobial resistance and tuberculosis
- Enable ad hoc queries using tools such as Crystal Reports

5 Data Integration

- Initiate exchange of data between
 - Hospital information systems and LIMS
 - Collection facility and testing laboratory via electronic sample referral network and LIMS integration
 - LIMS and DHIS2
- Instrument interfacing including development of open source interfacing tool that is not LIMS-specific

6 Data Standardization

- Map tests in LIMS to corresponding LOINC codes

7 Mapping Laboratory Capacity

- Develop questionnaire on laboratory capacity
- Identify capability for data capture, analysis and reporting
- Determine existing capacity relative to gold standard

Data Management for Proficiency Testing

- 8 • Enhance data management tools for proficiency testing

Workforce Development

- 9 • Regional workshop and training on data integration and data sharing
- In-country training on LIMS selection, evaluation, implementation
- Mentoring of MOH laboratory informatics staff

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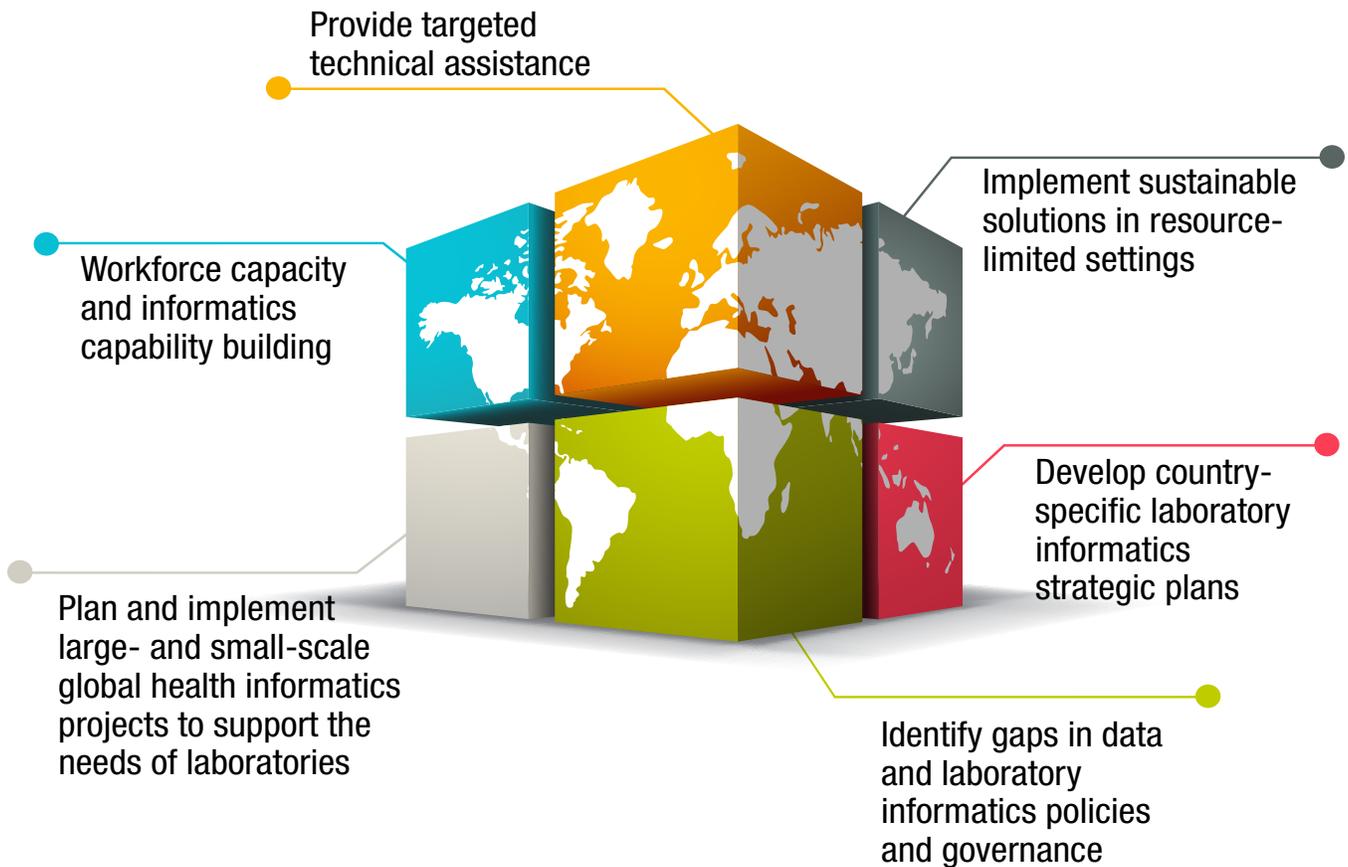
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GLOBAL HEALTH INFORMATICS CORE COMPETENCIES

APHL recognizes that informatics needs change based on each country's requirements. We collaborate with stakeholders to build robust solutions, identify improvements, provide technical insight based on decades of experience and ensure laboratories are empowered to navigate the constantly changing world of laboratory informatics.



Association of Public Health Laboratories

The Association of Public Health Laboratories (APHL) works to strengthen laboratory systems serving the public's health in the US and globally. APHL's member laboratories protect the public's health by monitoring and detecting infectious and foodborne diseases, environmental contaminants, terrorist agents, genetic disorders in newborns and other diverse health threats.

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