



Supply Chain Strengthening as a Pathway to Improving Laboratory Services

In Kenya, the standardization of laboratory equipment and testing procedures resulted in a *ninety percent decrease* in the overall number of supplies required by the national program.

If the Millennium Development Goals are to be achieved, many more people living in resource-limited settings must have access to high quality health services, including high quality laboratory services. Quality laboratory services can be offered when the appropriate commodities, infrastructure (facilities and equipment), and laboratory personnel are present where and when needed to perform a laboratory test. Commodities play a crucial role in the provision of laboratory services; pursuing a strategy to ensure their availability can also drive improvements in laboratory infrastructure and human resource capacity

For years, public sector laboratory networks in developing countries have been severely neglected in terms of human and financial resources and infrastructure. This has resulted in limited diagnostic capacity, weak management systems and supply chains, and disempowered leadership. With the scale up of efforts globally to reduce the burden of HIV, TB and Malaria, the need to strengthen and expand laboratory services to diagnose and monitor both individual patients and the epidemic are essential. Improving commodity availability is a key component of such an effort.

Given the multitude of challenges that laboratories face, undertaking a comprehensive, multisectoral and multi-stakeholder approach to improve laboratory services is imperative. Investing in laboratory supply chains provides a practical approach to improving overall laboratory services. Well-functioning supply chains will enhance availability of the commodities required to provide needed laboratory services. They can serve as a catalyst for implementing improvements in laboratory services in the short term and as a cornerstone of a longer term health system strengthening strategy.

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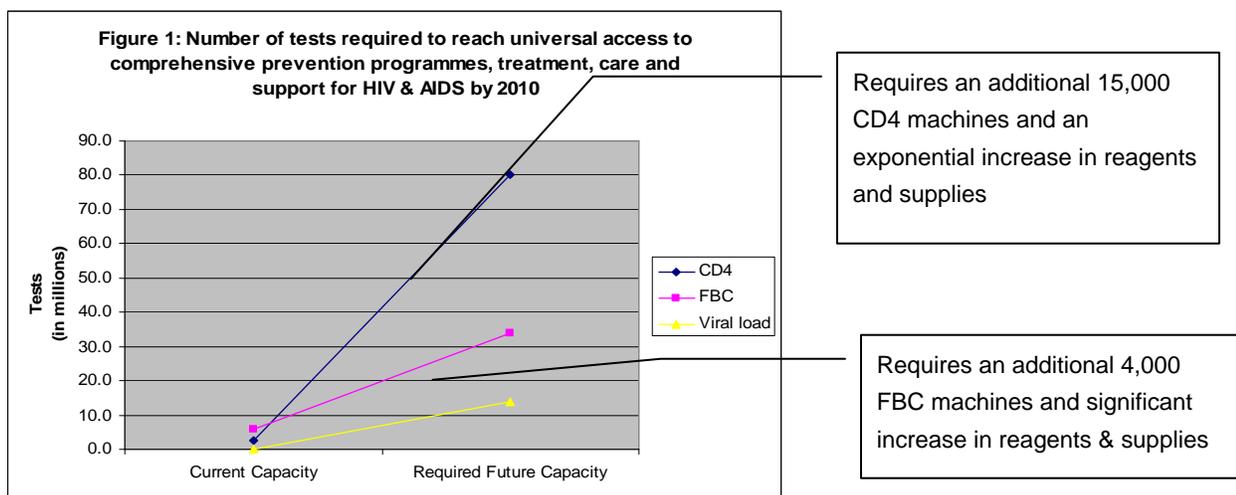


Global Need for Improved Laboratory Services

Scaling up laboratory services to support initiatives that target the infectious diseases that constitute much of the global burden of disease, including HIV & AIDS, TB and Malaria, poses a significant challenge for developing countries. In order to achieve the targets, laboratory capacity will have to increase substantially. Management practices and supply chains will have to improve by magnitudes to accommodate the dramatic increases in volumes of tests to be provided.

Figures 1 and 2 use a selection of tests as an example to demonstrate the large gap between current laboratory capacity and the capacity that would be required to achieve the MDG goal 6 of combating HIV, Malaria and other diseases by 2010 (ref. UN; <http://www.un.org/millenniumgoals/>).

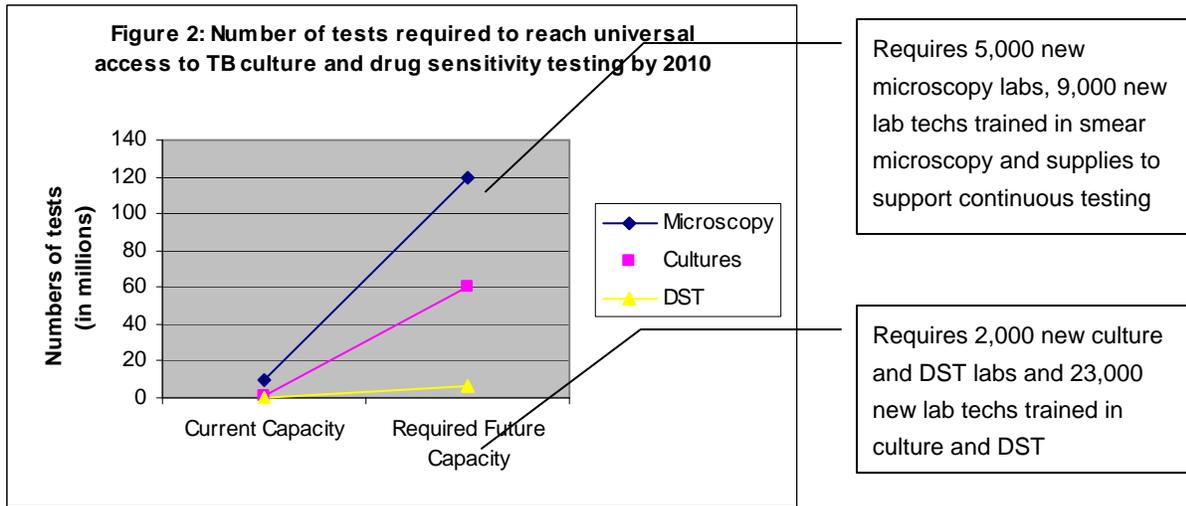
Figure 1: Number of Tests Required to Reach Universal Access to Comprehensive Prevention Programmes, Treatment, Care and Support for HIV & AIDS by 2010



Ref: UNAIDS: *Towards Universal Access "Scaling up priority HIV/AIDS interventions in the health sector Progress Report 2008."*

- Using CD4 tests as an example from Figure 1, WHO recommends that all people who are HIV positive receive at least two CD4 tests per year (ref. WHO) to monitor the progress of their disease. Currently, only 2.4 million CD4 tests per year are conducted—mostly as a result of insufficient reagents, supplies, and capacity. If as projected, there are 39 million HIV positive people by 2010, 80 million CD4 tests will be needed each year.
- Currently only 5 percent of the estimated global burden of MDR TB patients are being detected due to a lack of TB laboratory capacity to perform drug sensitivity testing. Looking at Figure 2, to achieve universal access to culture and drug sensitivity testing (DST) the current capacity will need to increase 6 fold.

Figure 2. Number of Tests Required to Reach Universal Access to TB Culture and Drug Sensitivity Testing by 2010



Ref: WHO, Stop TB Partnership, "Moving tuberculosis (TB) laboratory capacity strengthening forward: A Global Laboratory Initiative".

This need for increased lab capacity not only requires significant improvements in lab capacity— more trained staff, better management practices, and more equipment—but also requires a dramatic increase in quantities of reagents and supplies to conduct the tests. Providing equipment and infrastructure without also ensuring a continuous supply of commodities to perform the tests inhibits effective public health responses, decreases the confidence of clients in laboratory services, and discourages laboratory staff. Investing in developing stronger supply chains will be a key strategy to narrow the gap and ensure the continuous availability of these supplies.

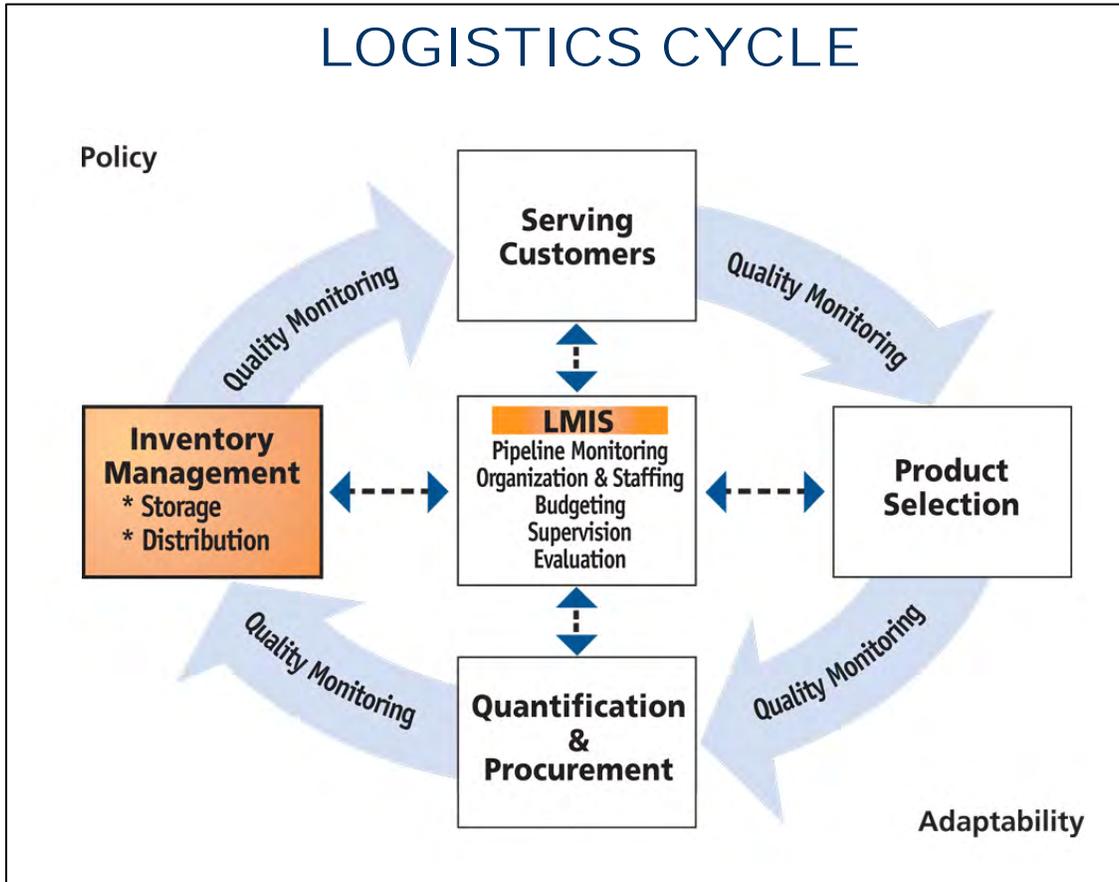
The Importance of Supply Chains

Supply chain management consists of a series of functions that are interdependent and must be routinely performed, as depicted by the cyclical nature of the diagram in Figure 3 above. A good supply chain is customer driven and all logistics functions within the supply chain must work effectively to ensure commodity availability. Logistics information available through the Logistics Management Information System drives all decisions in the supply chain, and enables managers to operate supply chain functions including forecasting, quantification, and inventory management.

However, supply chains and health systems are interdependent, especially for laboratory services. When strengthening supply chains, the approach must expand beyond funding, procuring, and distributing laboratory supplies. Building capacity for staff, rationalizing policies and protocols, coordinating responses between the public and private sectors and strengthening management practices are also essential components to improving commodity availability and strengthening laboratory systems.

Supply chain strengthening and ensuring commodity availability are essential and often overlooked interventions necessary to strengthening laboratory services. Experience shows that strengthening the supply chain leads to improvements in other aspects of the health system.

Figure 3: The Logistics Cycle



Commodity Security Strategy

Supply chain strengthening is best undertaken as part of a commodity security strategy that aims to assure the long-term, continuous, and reliable availability of laboratory supplies to the people who need them while also identifying interdependent factors that need to be addressed to strengthen the whole system.

Commodity security exists when a program is able to—

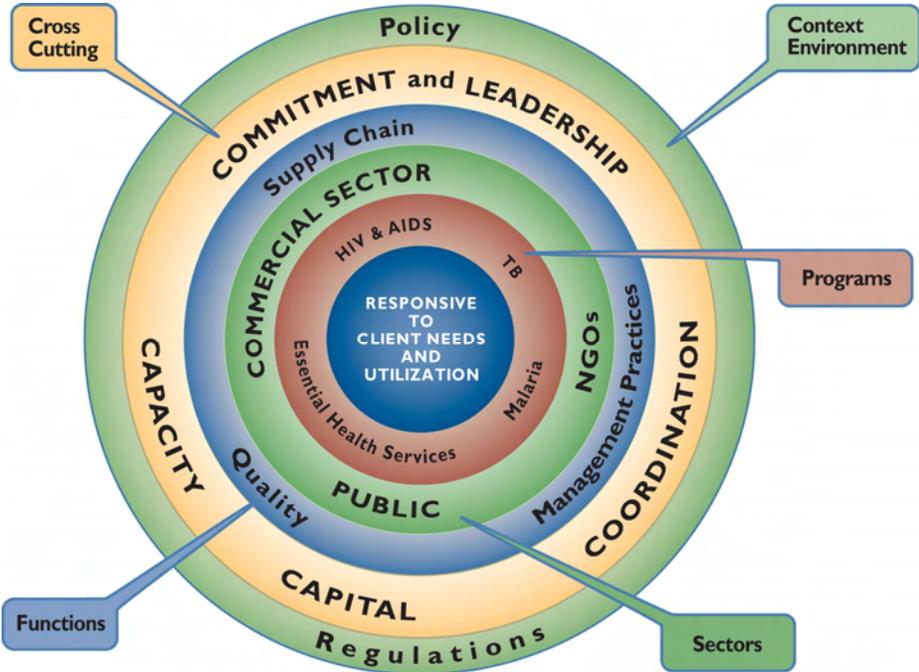
- Create a policy environment that supports the long-term availability of laboratory supplies
- Coordinate long-term commitments to improved commodity availability
- Forecast its commodity needs
- Finance its commodity needs
- Procure or arrange for the procurement of its commodity needs, and
- Deliver those commodities to customers where and when needed.

In Zambia a national operational planning workshop for the provision of laboratory services produced the *Zambia National Operational Plan* with key interventions, activities required, roles and responsibilities with timelines, and a resource mobilization strategy to close funding gaps.

A *Commodity Security Strategy* provides the conceptual approach and defines the practical steps required to achieve commodity security. Figure 4 depicts the framework to guide the development of a *Commodity*

Security Strategy for Strengthening Laboratory Supply Chains. The framework depicts key components, activities and players required to achieve commodity security and ensure availability of laboratory supplies.

Figure 4: Commodity Security Framework for Strengthening Laboratory Supply Chains



Three steps to establishing a CS strategy for laboratories:

1. Identify challenges and opportunities for CS through a comprehensive assessment, using an assessment tool such as the ATLAS¹, which is then used to raise awareness and commitment between stakeholders for the development of a CS Strategy.
2. Develop a CS Strategy to demonstrate government, donor, and partner commitment to strengthening laboratory supply chains and services and to ensure broad stakeholder participation in developing and implementing changes.
3. Prioritize and implement activities identified in the CS strategy using a model of continuous improvement.

As part of the strategy, there are various interventions in each of the contextual, cross cutting, sectoral, and functional areas. Examples of activities that may arise as the result of developing a commodity security strategy include—

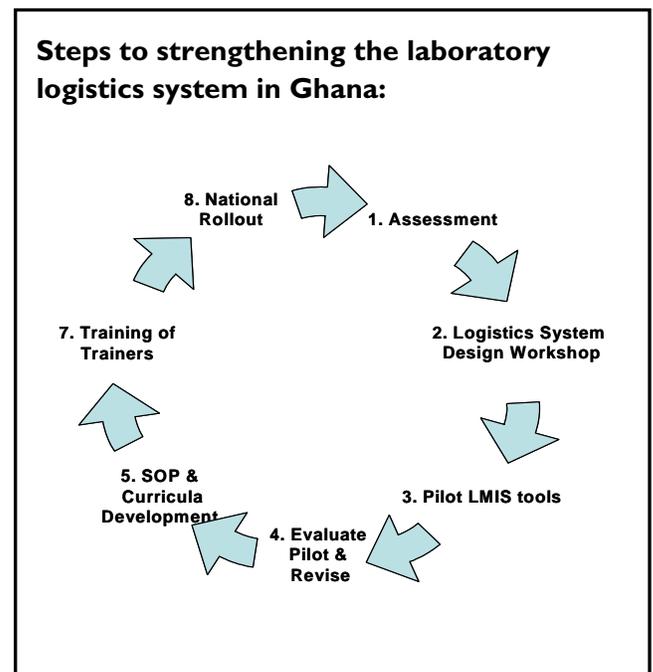
¹ The *Assessment Tool for Laboratory Services (ATLAS) 2006* is a data gathering tool developed by the USAID | DELIVER PROJECT to assess laboratory services and logistics. The ATLAS is a diagnostic and monitoring tool that can be used as a baseline survey to complete an annual assessment or as an integral part of the work planning process.

Cross cutting activities to develop coordination, capital, and capacity

- Establish a *Central Coordinating Body for Laboratory Services* that brings together key players in the provision of laboratory services from the public, NGO, and commercial sectors and that determines the priorities for lab service provision. Include the establishment of a Logistics Subcommittee that specifically focuses on coordinating and harmonizing funding for and procurement of lab supplies with a view to minimizing gaps and duplication of commodity related procurement.
- Secure funding for the long-term, uninterrupted procurement of laboratory supplies by planning and coordinating with stakeholders to estimate funding requirements, identify funding sources and verify the amounts and timing of the funding commitments over the long-term.
- Utilize a multi-dimensional approach to capacity building that uses different media to reach implementers and customers at all levels of the system, e.g. classroom training, on the job training, and distance learning.

Strengthen laboratory services by focusing on management practices, supply chains, and improved quality assurance.

- Undertake a *national laboratory standardization* process. Begin by identifying the essential tests necessary to support the basic health package for the country. Then standardize the test menu, technique, equipment, and operating procedures for each level in the health system, based on the basic tests that should be available. Standardization is a critical early intervention that provides immense benefits across supply chain, management, and quality assurance functions.
- Implement a *continuous improvement strategy* for the lab systems to enable responsiveness to client needs and utilization.
- *Design a logistics system* through a participatory workshop whereby users of the system design the system and develop local solutions for challenges in supply chain functions.
- *Build capacity* in quantification, procurement, and distribution centrally through the implementation of a logistics management information system, including the establishment of a logistics management unit.
- Establish a *national quality assurance program* for all laboratory service providers that is standardized across sectors and programs.
- Find innovative ways to provide laboratory services that are affordable to the clients through efficient use of resources and appropriate partnerships.



The authors' views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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