

## [case study]

# A Collaboration to Develop Laboratory Information Management System Requirements

One of a series of case studies on strategic application and management of health information systems.

**The critical need for public health laboratories (PHLs) to have efficient electronic laboratory information management systems (LIMS) came to the forefront after the bioterrorism events of fall 2001. In response, the Association for Public Health Laboratories (APHL) included in its strategic plan goals on development and use of effective LIMS and consensus on the essential elements of effective LIMS.**

APHL found a natural partner in the Public Health Informatics Institute. The Robert Wood Johnson Foundation funded the Institute in 2002 to develop collaborative approaches to advancing state and local public health agencies' capacity to efficiently use information tools to respond to bioterrorism and other public health threats.

## Challenge

Defining system requirements is the most important step in developing or acquiring any information system. Accurately defined LIMS requirements enable PHLs to acquire/develop a system that meets users' needs and match system requirements to vendors' software products. The challenge to APHL and the Institute was to develop common LIMS requirements for PHLs across the country.

PHLs vary greatly. Most PHLs perform microbiology testing, (i.e., bacteriology, mycobacteriology, serology, virology, and parasitology), but many also perform newborn screening, environmental testing, molecular diagnostic

testing, and food safety testing. Some PHLs employ basic instrumentation, while others also employ highly sophisticated technology. The number of employees, number of analytical areas, and volume of testing also vary greatly.

Could requirements be developed to meet the needs of this diverse user group?

## Solution

A formalized collaboration to address the need for effective LIMS brought together the experience of 16 designated PHLs, the strategic priorities and oversight of APHL and its Management Information Systems Committee, and the collaborative approach and public health informatics expertise of the Public Health Informatics Institute. Through a facilitated group process over six months, the PHLs, APHL and the Institute collectively developed a Requirements Document. The document includes:

- The conceptual framework for the work performed in a PHL, stated as 16 business processes and the relationships among them;
- A statement of over 500 LIMS requirements that span all 16 business processes;
- An explanation of the database interfaces between the LIMS and other relevant system databases; and
- A delineation of vendor-related requirements specifications commonly found in request for proposals.

The Requirements Document also describes the roles of the collaborative

partners, the methodology used for the project, and the lessons learned from the project.

## Impact

The fast track collaboration produced a comprehensive, accurate LIMS Requirements Document that enables PHLs to now speak to the LIMS vendor community with a single voice. PHLs can now make sound decisions about LIMS acquisition or development, including developing RFPs individually or collectively with other states, or individually developing or collaboratively building a LIMS. Almost 60 percent of state PHLs planned LIMS purchases in 2002; they are now able to use the Requirements Document to move forward with this process.

Vendors also have benefited. They now know exactly what a LIMS is required to do, which enables them to more accurately develop bids.

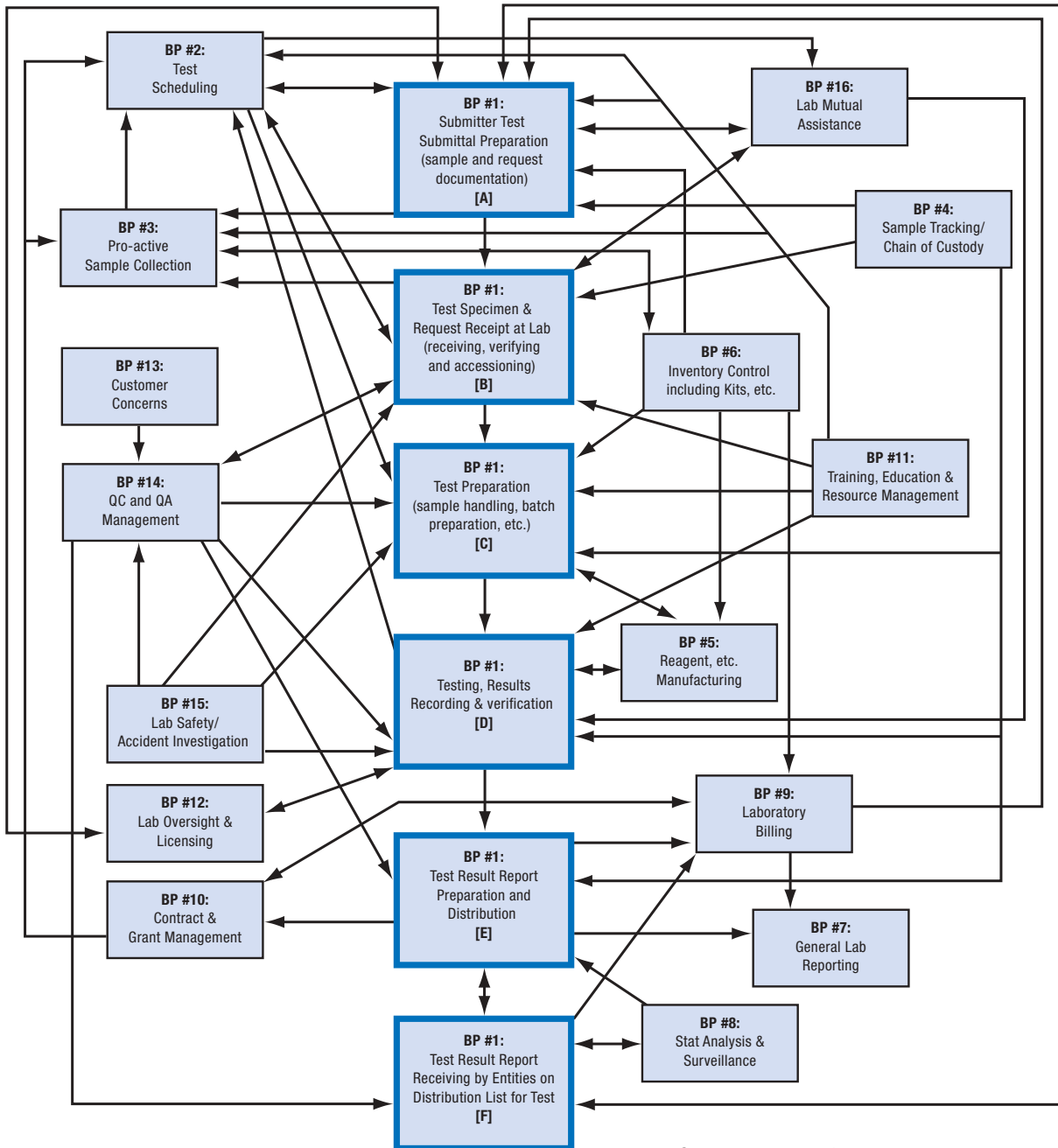
## Conclusion

The feasibility of successfully defining requirements through a collaborative process has been demonstrated. Other public health domains that traditionally develop information systems in isolation are watching closely to understand the savings that will accrue from the project.

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*Developing information system requirements collaboratively benefits public health projects and vendors.*

# LIMS Business Processes and Relationships



**Source:** Association of Public Health Laboratories and Public Health Informatics Institute (2003). Requirements Document for Public Health Laboratory Information (LIM) Systems. 2003. Washington, DC: Association of Public Health Laboratories.



*Advancing public health  
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\*The Institute is a component of The Task Force for Child Survival and Development, a 501(c)(3) nonprofit organization.

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May 2004