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Quality Improvement Forum

Post-L-SIP Quality Improvements Activities: the Louisville and South Dakota Experiences

Thursday, August 10, 2017 @ 2-3 PM EST

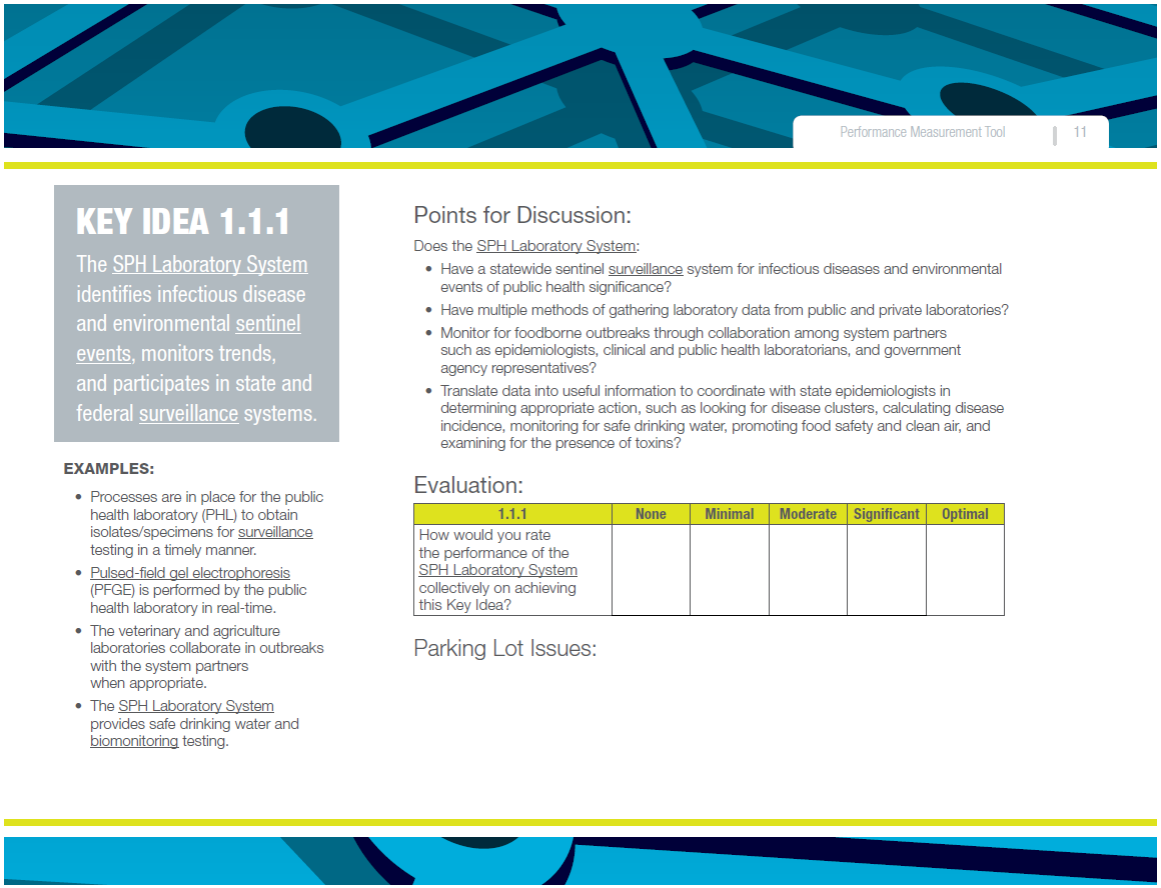
Tina Su, APHL
Dr. Tim Southern, Director, South Dakota Public Health Laboratory
Dr. Leslie Wolf, Laboratory Technical Director, Louisville Metro Public Health and Wellness

Laboratory System Improvement Program (L-SIP) Overview

- An opportunity for PHL system members to identify system strengths and opportunities for improvement.
- One day assessment

Laboratory System Improvement Program (L-SIP) Overview

Participants have a guided discussion, using the L-SIP assessment tool.



KEY IDEA 1.1.1

The SPH Laboratory System identifies infectious disease and environmental sentinel events, monitors trends, and participates in state and federal surveillance systems.

EXAMPLES:

- Processes are in place for the public health laboratory (PHL) to obtain isolates/specimens for surveillance testing in a timely manner.
- Pulsed-field gel electrophoresis (PFGE) is performed by the public health laboratory in real-time.
- The veterinary and agriculture laboratories collaborate in outbreaks with the system partners when appropriate.
- The SPH Laboratory System provides safe drinking water and biomonitoring testing.

Points for Discussion:

Does the SPH Laboratory System:

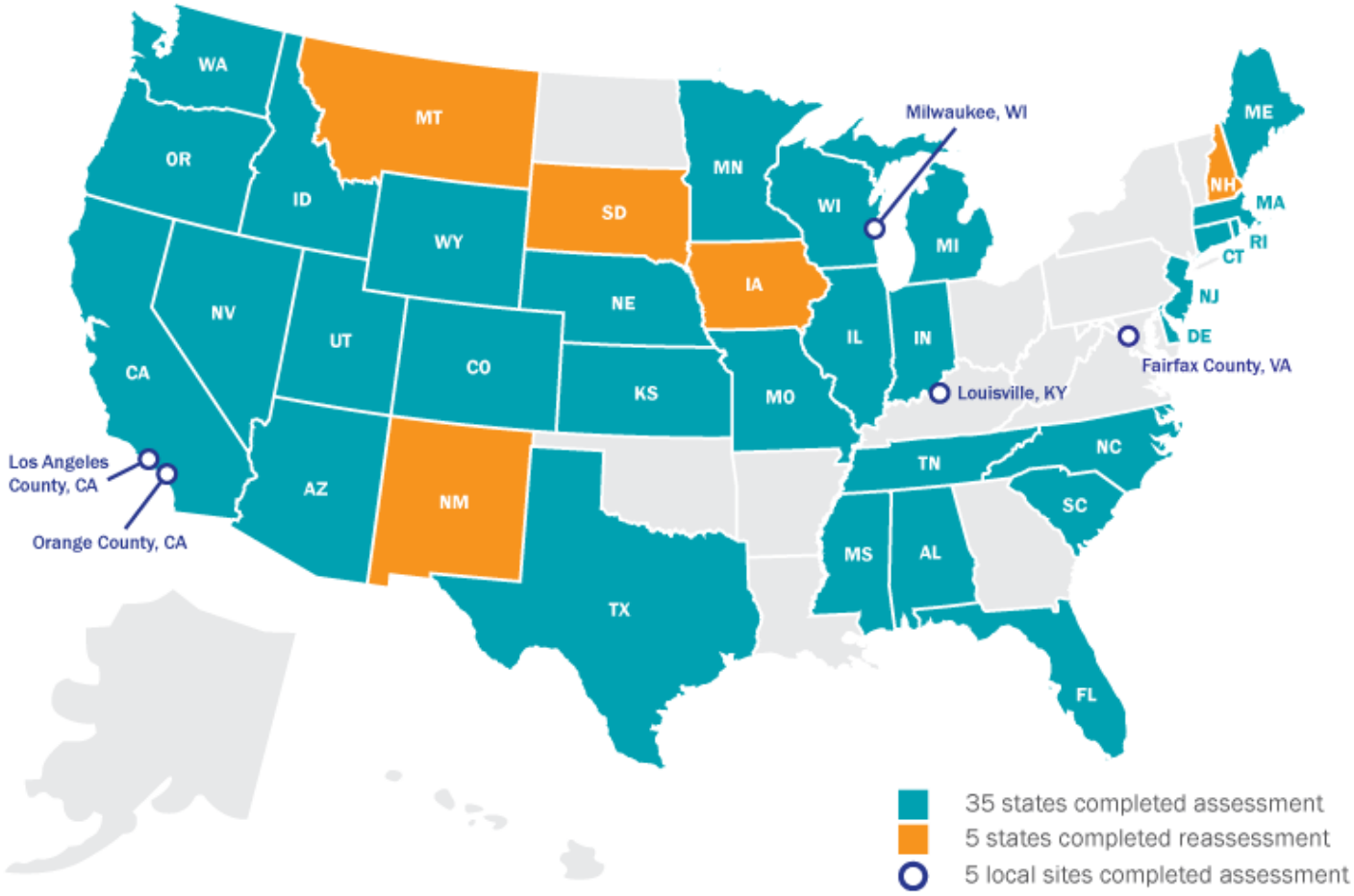
- Have a statewide sentinel surveillance system for infectious diseases and environmental events of public health significance?
- Have multiple methods of gathering laboratory data from public and private laboratories?
- Monitor for foodborne outbreaks through collaboration among system partners such as epidemiologists, clinical and public health laboratorians, and government agency representatives?
- Translate data into useful information to coordinate with state epidemiologists in determining appropriate action, such as looking for disease clusters, calculating disease incidence, monitoring for safe drinking water, promoting food safety and clean air, and examining for the presence of toxins?

Evaluation:

1.1.1	None	Minimal	Moderate	Significant	Optimal
How would you rate the performance of the SPH Laboratory System collectively on achieving this Key Idea?					

Parking Lot Issues:

L-SIP Participants



For More Information on L-SIP

L-SIP Site on APHL.org

South Dakota Public Health Laboratory System Quality Improvement Update

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Goals

- Brief overview of our 2016 L-SIP reassessment including recommendations and “next steps” for quality improvement.

- Summary of the strategies and tools used to help ensure sustainability and accountability for quality improvement initiatives.

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South Dakota Public Health Laboratory

- Fee-for-service laboratory
- Located in Pierre, SD
- 29 FTE
- Testing services:
  - Medical Microbiology
  - Environmental Chemistry
  - Forensic Chemistry
- Serve 860,000 residents

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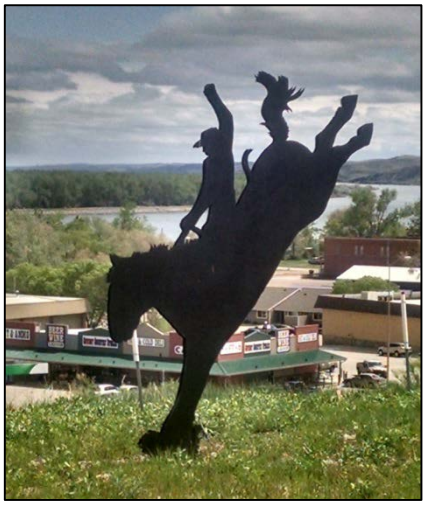
L-SIP in South Dakota

- 2010: initial L-SIP assessment
- 2016: L-SIP reassessment
  - 42 public health laboratory system partners and clients
  - Over 60% of attendees in 2016 also participated in 2010



- 2020: third L-SIP assessment

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2016 L-SIP Recommendations

- Participants in the 2016 L-SIP reassessment identified numerous opportunities for PHL System improvement.
- The highest priority opportunities for quality improvement fell into three principle areas:
  - Improve communication
  - Build and strengthen partnerships
  - Implement electronic systems

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Next Steps

Recommendations	Next Steps (examples)
Communication	Consolidate listserv registration
	Publish quarterly newsletter
	Increase transparency of statewide courier
Partnerships	Develop Mission/Vision statements for SDPHL/SDPHLS
	Collaboration between SDPHL and state veterinary lab
	Attend annual meetings hosted by partner agencies
Electronic systems	Fully implement LabWare LIMS at the SDPHL
	Implement electronic test ordering/result reporting – ETOR
	Build LIMS administration team at the SDPHL

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How do you set yourself up for quality improvement success?

1. Clearly defined project including scope
2. Clearly defined project leadership/management
3. Time-based implementation with milestones/outcomes
4. Promote continuous or regularly occurring activities
5. Secure buy-in at all levels of the organization

Be
S.M.A.R.T

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Define your project(s) and who will lead

- L-SIP was instrumental in defining quality improvement projects for the SDPHL and the larger laboratory system.
- Before participants left for the day we defined next steps, project priority, and project leadership.

Essential Services #7 Next Steps	Rating	Lead(s)
1. Promote PHL capabilities	High	Laurie Gregg
2. Earlier result reporting; send out results earlier in the day	Med	Rachel Sundstrom
3. Improve awareness of courier system routes and stops	High	Garth Gonseth
4. Build relationships with sentinel sites	High	Whitney Lutkemeier

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Communication and Buy-in

- L-SIP: gave us recommendations, next steps, and buy-in from public health system partners.

- Deep Dive: gave us the opportunity to share laboratory and laboratory system needs with the Governor and his staff including the Secretary of Health.

- Quarterly All-Hands Meetings: allow laboratory staff to come together to discuss all aspects of quality improvement initiatives

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Time-based implementation with milestones

- The public health laboratory system aligned its L-SIP calendar with the Department of Health Strategic Planning calendar. Both are now on the same 5 year rotation.

- Milestones were defined for each project.
- All projects are time-based with reporting requirements.

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How do we maintain organization of quality improvement initiatives?

1. 2016 South Dakota Public Health Laboratory System Reassessment Report
2. Laboratory Support Plan
3. 2015-2020 Department of Health Strategic Plan

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Laboratory Support Plan

What is a Laboratory Support Plan?

- A plan to address funding, workforce, and infrastructure needs of the public health laboratory and laboratory system

Who was involved in building the LSP?

- Over 20 contributors from the public health laboratory system
- Kick-off → workgroups → wrap-up
- 16 meetings over 9 months

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Laboratory Support Plan

What is in the LSP?

- Infrastructure, Workforce, and Finances Workgroup Reports
  - Needs statements
  - Recommendations
  - Current progress
  - Future activities
- Current recommendations:
  - Personnel
  - Equipment
  - Organization
  - Facilities and safety
  - Laboratory Improvement
  - Information management
  - Competency and workflows

5.1 Needs Statement: With modernization of laboratory diagnostics and expansion of testing services comes a greater need for SDPHL scientists to participate in continuing education and cross-training. Unfortunately, SDPHL scientists lack these opportunities due to their rigorous testing schedules.

5.2 Recommendations: Significant changes in laboratory diagnostics at the SDPHL require scientists to participate in continuing education and cross-training to maintain subject-matter expertise and to ensure continuity of testing services. To ensure participation in continuing education and cross-training, laboratory organization, distribution of duties, and workflow efficiency should be evaluated and improved.

5.3 Progress Report: All sections of the laboratory are operating at or near capacity with the current staff. Addition of a fifth chemist in the Forensic Chemistry Section would allow more cross-training among forensic chemists; an FTE request has been submitted for expansion of the Forensic Chemistry Section in FY18. The pending implementation of next generation sequencing (NGS) in the Medical Microbiology Section will require reorganization of current duties of one scientist and addition of duties to two scientists to accommodate the new technology. Finally, there is a demonstrated need for cross-training in organic chemistry in the Environmental Chemistry Section.

5.4 Future Activities: The SDPHL contract with Becton-Dickinson will be renewed in FY18 to expand LEAN efficiency measures at the SDPHL. Becton-Dickinson will also provide LEAN Leader Training and Certification for selected members of each laboratory section. Upon completion of training, SDPHL staff will perform a comprehensive review of laboratory policies, protocols, and processes using LEAN methodologies. LEAN strategies will then be implemented to improve workflows, eliminate waste, increase capacity and productivity, minimize errors, reduce costs, and enhance services. The quoted cost of this service will be $85,000 which includes $22,000 for the LEAN laboratory review and $63,000 for LEAN Leader Training and Certification. Following implementation of LEAN efficiency measures, the SDPHL will participate in a BHR-sponsored cross-training pilot program. The workgroup will continue to work with representatives of BHR to plan and conduct the pilot cross-training program.

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Laboratory Support Plan

How has the LSP contributed to quality improvement?

- Efficiency improvement through LEAN and other resources
- Equipment acquisition and maintenance
- Information management and sharing
- Use of limited laboratory resources
- Implementation of cross-training
- Improved partner/client services
- Improved facilities management

Additional LSP-driven quality improvement projects:

- Selection and implementation of electronic systems
- LRN-B and LRN-C support and readiness
- Utilization of the statewide courier

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Quality Improvement: Accountability and Sustainability?

Sustainability: Quality improvement initiatives are written into Laboratory Support Plan.

Accountability: The LSP was sanctioned by the Governor's Office and the Secretary of Health; requests for one-time, year-end funds are considered based on LSP recommendations.

Examples:

Biosafety and chemical safety infrastructure improvement
LEAN implementation and efficiency improvement
Waste management infrastructure improvement
Strategic equipment purchases
Information management

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Quality Improvement: Accountability and Sustainability?

Sustainability: Quality improvement initiatives are written into our federal cooperative agreements.

Accountability: Funding is now tied to our quality improvement initiatives which include quarterly or semi-annual performance measure updates.

Examples:

Electronic test ordering and result reporting (ETOR): **PHEP Ebola**
Reconfiguration of our Special Pathogens Program: **ELC/PHEP**
Strategic equipment purchases: **PHEP/ELC/ELC Ebola**
Laboratory-wide LIMS implementation: **ELC/PHEP**
Infrastructure improvement: **PHEP**

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Quality Improvement: Accountability and Sustainability?

Sustainability: Quality improvement initiatives are written into the 2015-2020 Dept. of Health Strategic Plan.

Accountability: Quarterly updates are published on the DOH website.

Build and maintain State Public Health Laboratory (SPHL) capacity and ensure a culture of biosafety

- Strengthen the SPHL capacity through employee education, training, testing methods, updated equipment, and enhancement of the Laboratory Information Management System *(Tim Southern)*
- Ensure a culture of biosafety in the SPHL and in clinical laboratories *(Whitney Lutkemeier)*

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Quality Improvement Forum

Post L-SIP Assessment Activities at LMPHW Laboratory

Leslie A Wolf, PhD, HCLD(ABB)

August 10, 2017

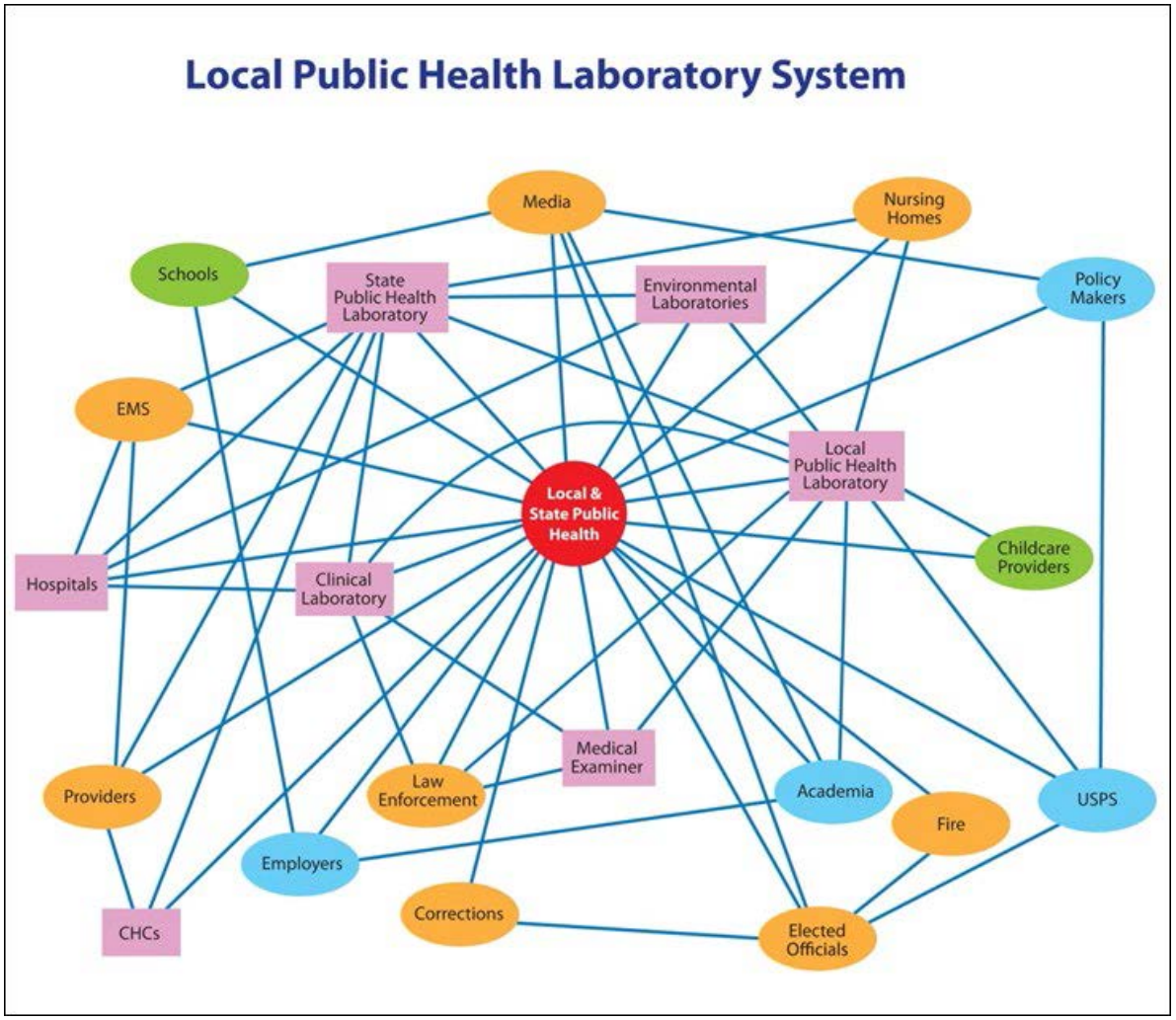
Definition of a Public Health Laboratory System*

- A public health laboratory system is an alliance of laboratories and other partners within a state or locality that supports the ten essential public health services.
- System members and stakeholders operate in an interconnected and interdependent way to facilitate the exchange of information, optimize laboratory services, and help control and prevent disease and public health threats.

*https://www.aphl.org/MRC/Documents/LSS_2013Jun_Definition-of-a-Local-Public-Health-Laboratory-System.pdf

10 Essential Public Health Services

Source: http://www.health.gov/phfunctions/public.htm


Local Public Health Laboratory System
Media
Nursing Homes
Schools
State Public Health Laboratory
Environmental Laboratories
Policy Makers
EMS
Local Public Health Laboratory
Local & State Public Health
Childcare Providers
Hospitals
Clinical Laboratory
Medical Examiner
Providers
Law Enforcement
Academia
USPS
Fire
Employers
Corrections
CHCs
Elected Officials

Communication

- Share critical information from APHL relevant to clinical laboratories (Select Agent shipping, Zika testing updates, *Legionella* testing in water, CDC HAN alerts)
- Ask questions about current practices in the clinical laboratories (specific methods)
- Newsletters http://mymetro.lou/sites/mymetro.lou/files/shared%20files/newsletters/Public%20Health%20&%20Wellness/Healthy%20Happenings%20JULY%202017.pdf
- Customer survey April-May 2017

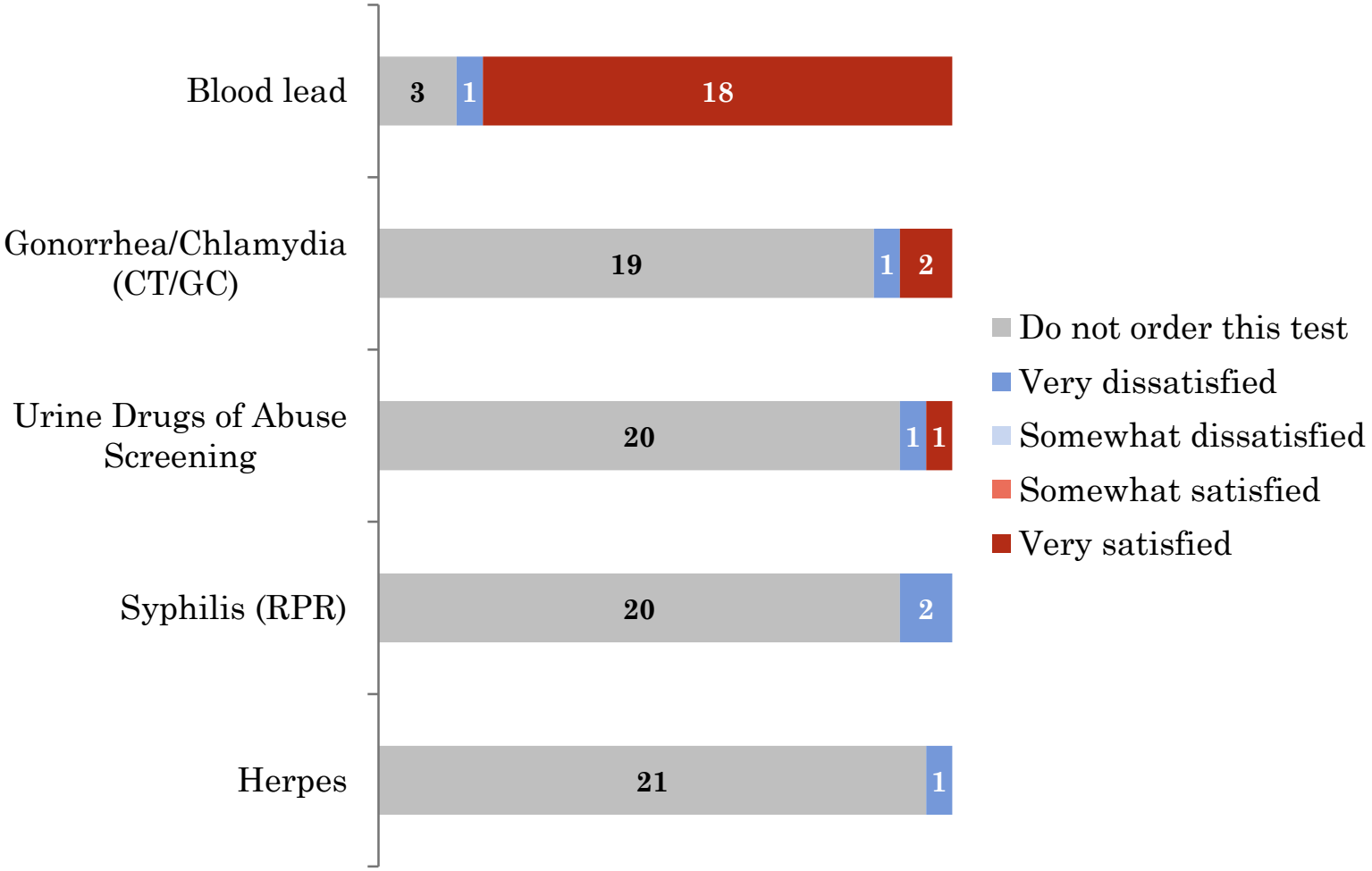
Customer Service Survey 2017

- The customer service survey was developed and distributed by the LMPHW laboratory to all customers (internal and external to LMPHW).
- Individuals had an option to complete a pen-and-paper survey and return in a self-addressed stamped envelope or to use a link online to complete the survey via Survey Monkey.
- Surveys were mailed on April 11, 2017 and data collection ended on May 12, 2017.
- The survey had a participation rate of 44% (23 completed of 52 mailed). Seven completed the survey online and 16 completed by pen-and-paper.

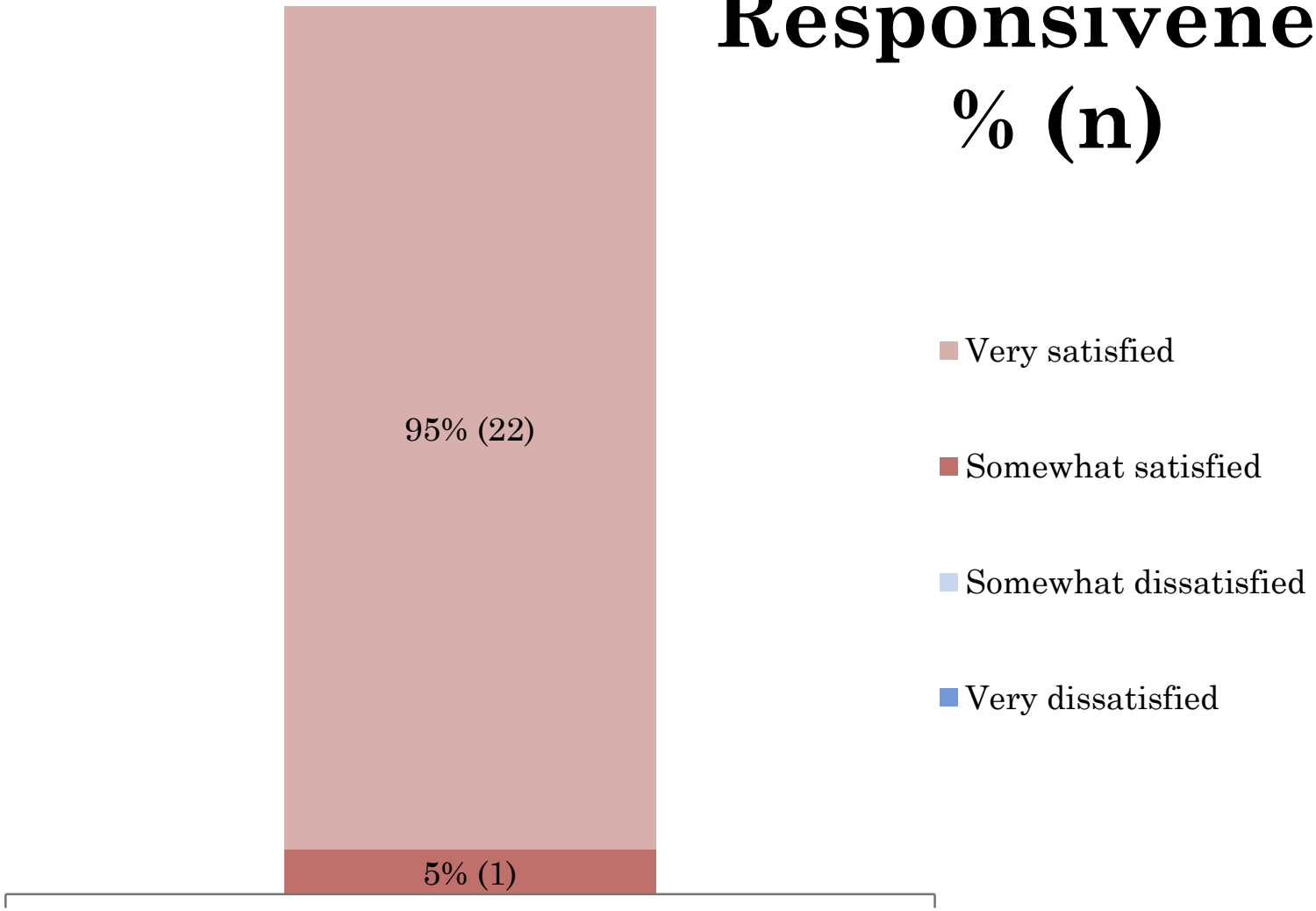
Survey Results

- Ninety-five percent (n=22) of respondents were very satisfied with the responsiveness to the LMPHW lab with respect to questions and concerns.
- Most respondents (83%, n=19) mentioned that the LMPHW lab performs blood lead screening test for their facility. Of those who rely on the lab for blood lead testing, most (89%, n=17) were very satisfied with the turnaround time of lab results.
- Likewise, most (95%, n=18) were very satisfied with the turnaround time of lab supply orders for blood lead testing.
- A few respondents reported dissatisfaction with the turnaround time of lab supply orders (1 to 2 respondents per test).

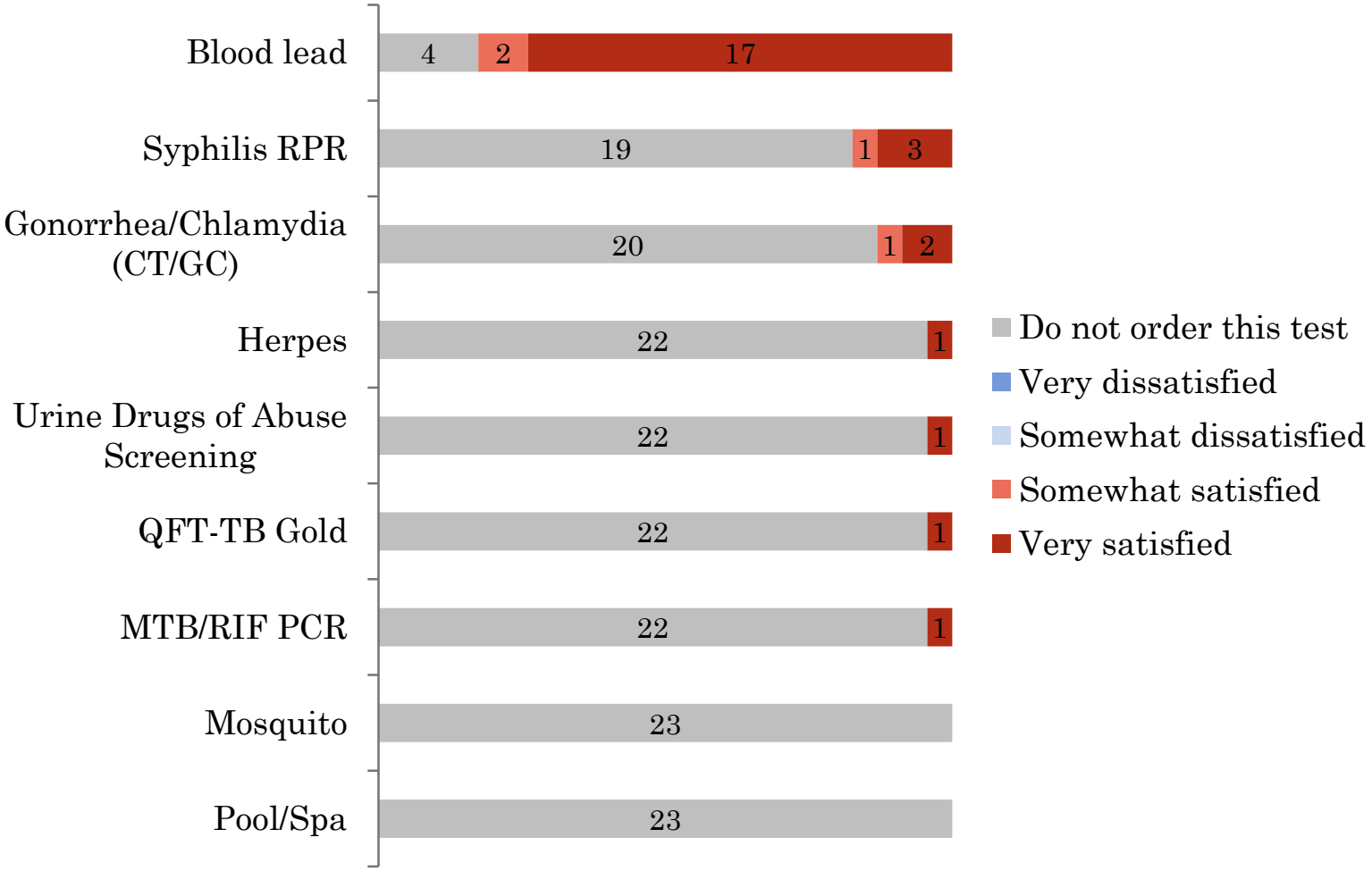
Satisfaction with Turnaround Time of Lab Supply Orders (n)



Satisfaction With Responsiveness % (n)



Satisfaction with Turnaround Time of Lab Results (n)



Survey Outcomes

- Based on these survey results, LMPHW Laboratory will look into courier issues related to supply ordering and consider adding tests to meet customer needs for *Trichomonas* testing in males and additional tests for syphilis.
- Those respondents who provided email addresses will receive communications from the LMPHW laboratory, such as monthly newsletters and notifications of any changes in services.

Clinical Collaborations

- Collaborations
  - STD Testing
  - Blood Lead Screening
  - Method Validations or Verifications
  - Proficiency Testing for Unregulated Analytes
- Partners
  - LMPHW Clinics
  - Private Providers
  - KY DLS
  - UofL Infectious Diseases Laboratory

Specific Examples of Collaborations

- **Local and State PHL:** Demonstrated through pilot project that use of rapid oral fluid HIV test in clinic setting, followed by 4th generation blood test was a beneficial process and was adopted as standard practice as a result.
- **Local and State PHL:** Evaluating the performance of a one-minute blood test for HIV vs. a 20-minute oral fluid HIV rapid test in a clinic setting.
- **Local PHL and Academic Clinical Laboratory**: Provided archived non-reactive and reactive RPR serum specimens for method verification.

Research Collaborations

- Collaborations
  - Student Practicum projects
  - Pilot Projects
  - New Instrument or Assay Evaluations
- Partners
  - KY DLS
  - Academia (UofL, UK)
  - Vendors
  - APHL
  - CDC

Specific Examples of Research Collaborations

- MPH Practicum Project on risk factors for active cases of TB in Jefferson County, KY over a three year period
  - Benefit to student was to apply Epidemiology course work to real-life public health problem
  - Benefit to LMPHW was to define clinical and non-clinical risk factors specific to our local population, and use information to improve patient diagnosis and contact investigation practices
- University of Louisville School of Public Health and LMPHW evaluating blood lead data quality over a multi-year period to potentially assess long term effects on child development via JCPS
- LMPHW worked with vendor for RPR kits on automated card reader and more recently, a fully automated RPR system by providing over 300 archived specimens

Contact Information

- Tina Su, bertina.su@aphl.org
- Tim Southern, Tim.Southern@state.sd.us
- Leslie Wolf, Leslie.Wolf@louisvilleky.gov

New QMS Resources

- How to Write a Laboratory Quality Manual
- Laboratory Internal Audit Plan
- Crosswalk of Regulations and Guidance Affecting Laboratories - Sorted by QSE