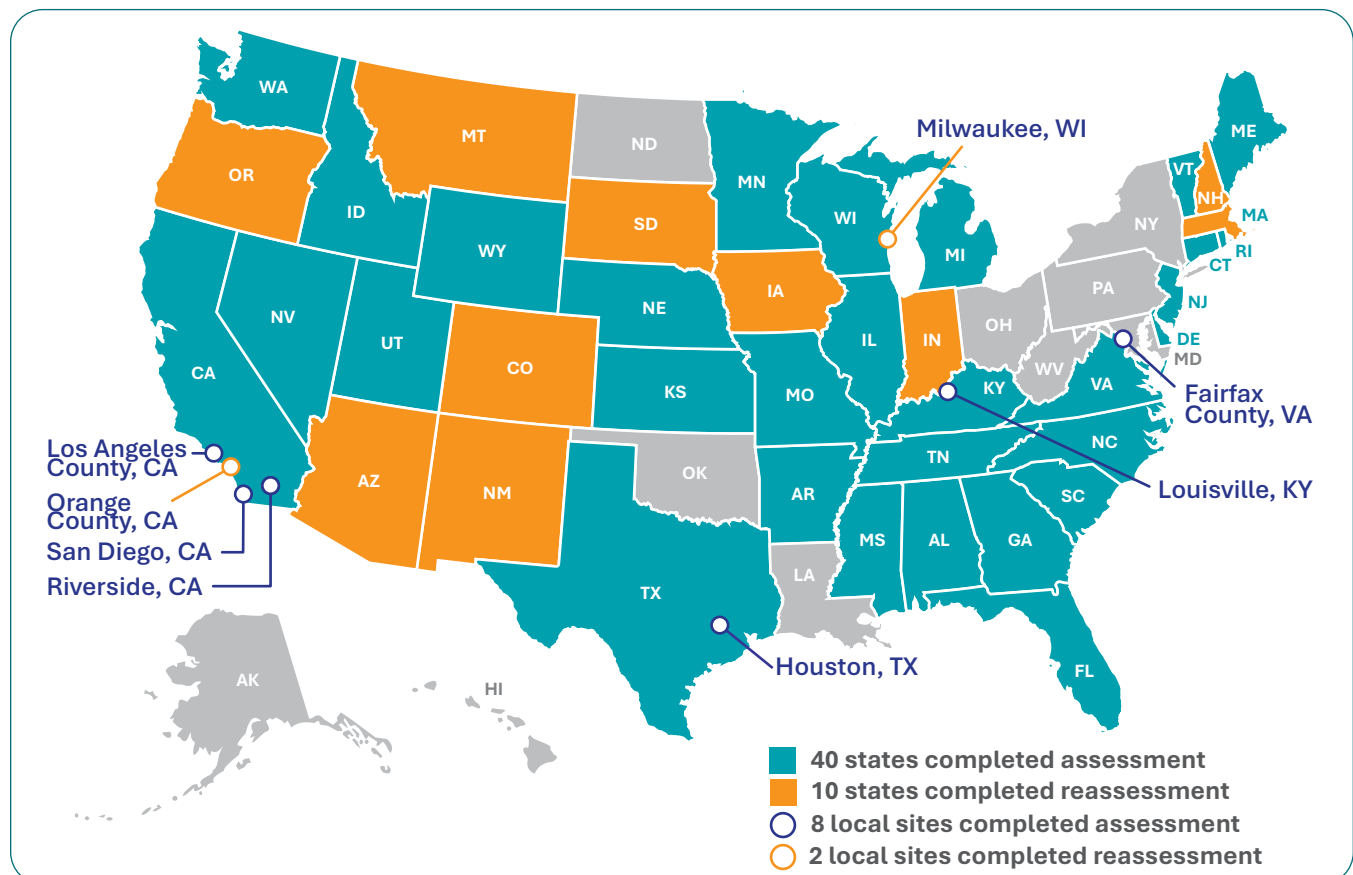


Strengthening Public Health Laboratory Systems Through the Laboratory System Improvement Program (L-SIP)

From 2007-2026, the [Laboratory System Improvement Program](#) (L-SIP), developed by APHL in collaboration with the US Centers for Disease Control and Prevention (CDC), aimed to promote and support high-performing state and local public health laboratory systems through continuous quality improvement. This is done by a performance standard assessment process that brings together state or local partners to assess and refine the public health laboratory system through a one-day event. Using a framework grounded in the [10 Essential Public Health Services](#) and facilitated using break-out sessions, the assessment helps public health laboratories and their partners identify opportunities to strengthen its systems and implement improvements that enhance overall effectiveness. The essential services framework guides fundamental activities that public health laboratory systems should perform to effectively protect and improve health outcomes. During an assessment, participants discuss key ideas and model standards, and then in consensus rate their level of performance on each essential service.

Figure 1: L-SIP Participants as of Winter 2026



Since the program's inception, 48 state and local public health laboratories have hosted an L-SIP assessment, and 12 of these have completed a reassessment. From 2020-2026, L-SIP has engaged over 520 partner representatives including state and federal agencies; hospitals and clinics; environmental, agricultural and veterinary services; academia; policy makers; associations and first responders.

An analysis of historical documents, program records and a 2026 Impact Survey distributed to all participating public health laboratories identified multiple benefits of the program. This included establishing gold standards to drive improvements in the public health laboratory system and support the Public Health Accreditation Board (PHAB); enhancing communication and collaboration among laboratory emergency response partners; and strengthening federal, state and local partnerships to improve coordination and resource use.

As a result of completing an L-SIP assessment, survey respondents also described concrete outcomes, including:

- New or expanded courier services
- Implementation of laboratory information management systems (LIMS), electronic test ordering and reporting (ETOR), and electronic submission platforms
- Development of service catalogs and centralized information hubs
- Creation of forums, workgroups and partner networks
- Policy and/or process changes such as outbreak roles, fee structures and administrative processes

Ranking of Performance for the 10 Essential Public Health Services

During an assessment or reassessment, performance of each Essential Service is rated based on quartile levels of development, with one ranking for each Essential Service within each system:

- **None:** 0% or none of the performance described is met within the system.
- **Minimal:** Greater than 0% but no more than 25% of the performance described is met within the system.
- **Moderate:** Greater than 25% but no more than 50% of the performance described is met within the system.
- **Significant:** Greater than 50% but no more than 75% of the performance described is met within the system.
- **Optimal:** Greater than 75% of the performance described is met within the system.

Of the 60 assessments or reassessments held, 36 provided details on the rankings of their system. Figure 2 shows the average percentage of rankings across each Essential Service (ES); system performance was the strongest in the areas of assessing and monitoring population health (ES #1), addressing health problems and hazards (ES #2), and utilizing legal and regulatory pathways (ES #6), while the areas that have the greatest opportunity for improvement were workforce development (ES #8), evaluation, research and continuous quality improvement (ES #9), and organizational infrastructure (ES #10).

“[As a result of participating in an L-SIP assessment], we identified a gap in preparedness for foodborne outbreak investigations, so we wrote an internal policy to identify lab roles and environmental health roles.”

~ L-SIP Participant

Figure 2. Average Percentage of Rankings Across the 10 Essential Public Health Services (N=36).

Note that the essential services were updated in 2020, as reflected in the table.

10 Essential Public Health Services	Level of Performance				
	None	Minimal	Moderate	Significant	Optimal
#1: Assess and monitor population health status, factors that influence health, and community needs and assets.	0%	3%	25%	42%	31%
#2: Investigate, diagnose, and address health problems and hazards affecting the population.	0%	0%	11%	42%	47%
#3: Communicate effectively to inform and educate people about health, factors that influence it, and how to improve it.	0%	8%	22%	39%	31%
#4: Strengthen, support, and mobilize communities and partnerships to improve health.	0%	22%	19%	44%	14%
#5: Create, champion, and implement policies, plans, and laws that impact health.	0%	11%	25%	50%	14%
#6: Utilize legal and regulatory actions designed to improve and protect the public's health.	0%	3%	22%	47%	28%
#7: Assure an effective system that enables equitable access to the individual services and care needed to be healthy.	3%	3%	28%	33%	33%
#8: Build and support a diverse and skilled public health workforce.	0%	3%	53%	42%	3%
#9: Improve and innovate public health functions through ongoing evaluation, research, and continuous quality improvement.	3%	22%	56%	17%	3%
#10: Build and maintain a strong organizational infrastructure for public health.	0%	36%	42%	19%	3%

From Assessment to Enhancement: Strengthening Laboratory Systems

As part of the 2026 Impact Survey, participating public health laboratories were asked about post-L-SIP assessment improvement projects. Nearly all respondents reported movement from assessment to action, with 91% of laboratories implementing a quality improvement initiative/project after completing an L-SIP assessment or reassessment, of which:

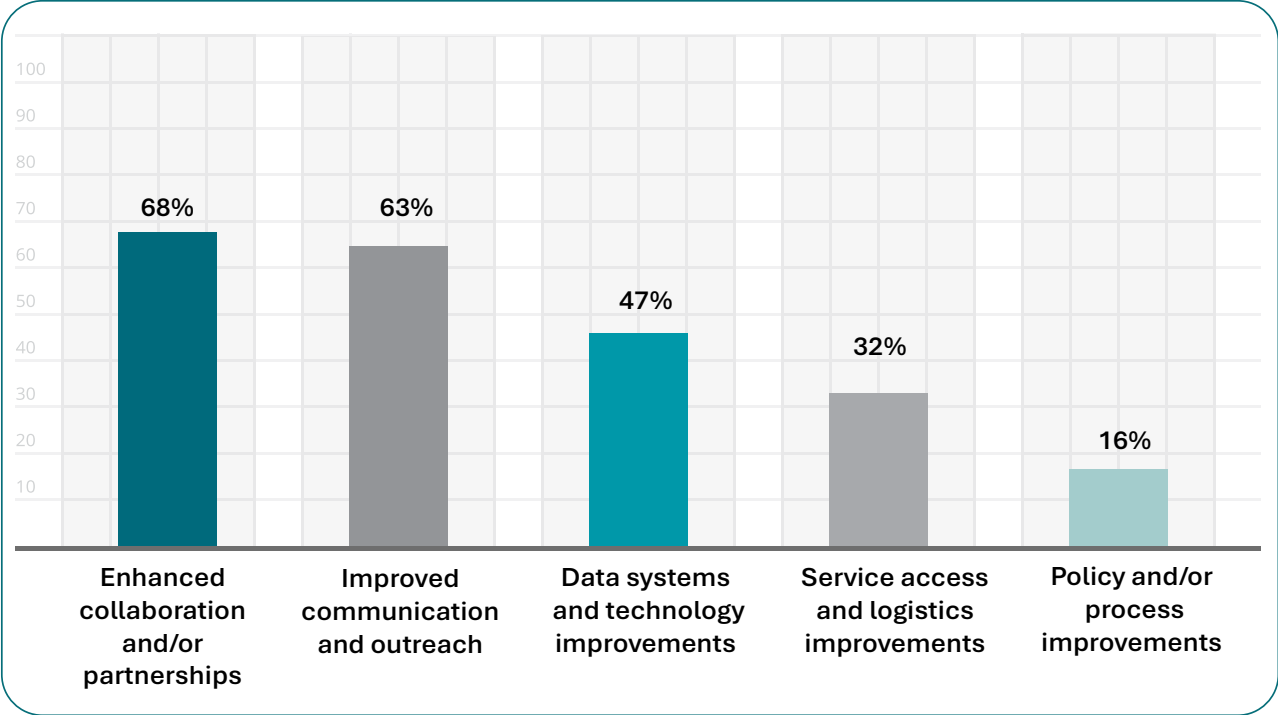
- 81% completed 1-3 projects
- 14% completed between 4-6 projects
- 5% completed 7-10 projects.

Themes from the most impactful projects were also identified from survey data and depicted in Figure 3, with these projects emphasizing strengthening and supporting collaboration, communication, and outreach with system partners.

“These conversations and making these direct introductions/partnerships are invaluable and have proven to be one of the most critical aspects of the L-SIP results.”

~ L-SIP Participant

Figure 3: Themes on Most Impactful L-SIP Projects (N=35)



A Lasting Foundation for Partnership, Readiness and System Improvement

Findings from assessments, program records and survey results suggest that the program’s most consistent contribution was its ability to bring public health laboratory system partners together, create shared awareness of system gaps and, in most cases, lead to quality improvement actions. Historical data and survey findings point to an important legacy of the program: creating a trusted forum for public health laboratories to connect and identify opportunities to improve the system and support delivery of essential public health services. As laboratories face evolving public health challenges, programs such as L-SIP remain critical for identifying gaps, building stronger partnerships, and improving readiness and response. Future investments could build on this foundation to support sustained system improvement.

“While the effort requires a meaningful investment of time and resources, the impact is undeniable. The value generated far exceeds the coordination required.”

~ L-SIP Participant

Using Evidence to Strengthen and Improve L-SIP

Findings from this brief inform APHL's ongoing continuous quality improvement approach. Participant feedback, survey results and historical assessment data are routinely used to refine program content, delivery formats, and support structures. This iterative learning approach helps ensure that APHL remains responsive to evolving public health laboratory needs.

How This Brief Was Assessed

This brief was systematically assessed and produced by the APHL Monitoring and Evaluation (M&E) team. This snapshot assesses the key outcomes and impacts of L-SIP using a mixed-method approach. The findings are informed by multiple sources, including program records (e.g., existing program surveys, reports, L-SIP assessment reports from public health laboratories and publications), an L-SIP Impact Survey distributed to all laboratories that have participated in L-SIP and key informant interviews with subject matter expert(s). Interviews, survey results and program records were analyzed to understand the major benefits and outcomes of completing an assessment or reassessment and the common themes.



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, biological and chemical agents, genetic disorders in newborns and other health threats.

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