

THE ROLE OF PUBLIC HEALTH LABORATORIES IN STD TESTING

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When public health laboratories (PHLs) were established around the turn of the 20th century, the need for gonorrhea and syphilis testing made them among the very first offered tests. Over a hundred years later, sexually transmitted diseases (STDs) remain an important public health problem, and PHLs continue to respond to this challenge.

However, changes in the healthcare system and in public policy (e.g., recommendations for broad screening programs) have led to a higher proportion of testing being conducted in private, clinical and commercial laboratory settings. The increase in automated assay availability has given private laboratories the ability to turn-around large volumes of tests at a relatively rapid rate, while keeping staffing costs low.

The increased competition from the private sector combined with fiscal challenges in state and local public health departments has led to the decrease or the elimination of STD services in some PHLs and has raised questions regarding the future role of STD testing in PHLs. This document aims to foster discussion among public health laboratorians and their partners on the current and future role of PHLs in STD testing.

UNIQUE CHALLENGES

PHLs are faced with distinct challenges in providing a laboratory response to STDs. PHLs must prioritize limited funding to support testing for a variety of infectious agents, as well as environmental and foodborne hazards. There is a significant workforce shortage of laboratory professionals, as public health must compete with private industry for highly qualified laboratory scientists, and PHL salaries lag behind those in clinical laboratories.¹ Other challenges include the increased burden of regulatory compliance, maintaining adequate infrastructure, and building awareness through advocacy of the important role PHLs have in the quality of laboratory practice and health outcomes.

Just as each PHL's mandates, priorities and funding differ, the extent of the role they play in STD testing response also differs. Of the eleven core functions of PHLs,² these may pertain to the PHL response to STDs:

- Disease Prevention, Control and Surveillance
- Integrated Data Management
- Reference and Specialized Testing
- Laboratory Improvement and Regulation
- Policy Development
- Public Health Related Research
- Training and Education

VARIED ROLES AND UNIQUE BENEFITS

The diverse nature, mission and funding structure of PHLs and public health departments has led to different paradigms for delivering STD laboratory services in public health settings. Descriptions of the different roles that PHLs may play in STD testing are provided below. Continued fiscal constraints at local, state and federal levels as well as rapidly retiring workforce have caused PHLs and STD programs to take a hard look at their ability to maintain some or all of the services described.

The PHL as a Diagnostic Lab:

In many jurisdictions, the PHL offers a full menu of laboratory services for diseases of "traditional" public health significance including diagnostic testing for chlamydia, gonorrhea and syphilis.

Although many private sector laboratories offer STD testing, many PHLs continue to provide state-of-the-art testing, utilizing the latest laboratory practice guidelines, so that high quality test results are reported for use both for patient management and in public health initiatives.

Performing this testing in-house provides seamless communication between laboratories and epidemiology and ease of access to STD surveillance data through integrated data management. In-house PHL testing may offer other benefits as well, including:

- Facilitation of surveillance activities, such as screening a representative sample of chlamydia specimens to determine whether chlamydia variants are circulating in the patient population.

- Maintenance of culture capacity (in the wake of a precipitous decrease in the number of laboratories performing culture of gonorrhea due to the increased use of non-culture screening tests) has significantly impacted surveillance for the emergence of antibiotic resistance in gonorrhea.
- Potential to play a critical role in state or local STD prevention and control efforts, by offering free and comprehensive services as well as excellent turnaround times and communication, enticing clinics to participate in initiatives led by STD control programs.

The PHL as a Reference Lab:

Another role PHLs may take in STD testing is the core function of reference and specialized testing. Although the majority of traditional diagnostic STD testing services are provided outside of the PHL, there may be times when specialized testing, not routinely performed in clinical or commercial laboratories, is needed. Supplemental or confirmatory testing may be necessary to accurately confirm a diagnosis. Examples of STD reference services that a PHL may offer include:

- Chlamydia positive rectal specimens may need to be evaluated for the presence of lymphogranuloma venereum (LGV), which could be performed in the PHL.
- Confirmation testing to resolve discrepancies between treponemal and non-treponemal syphilis tests, a potentially more common need in the future.
- Serving as surveillance centers to monitor the emergence of antimicrobial resistant strains of *Neisseria gonorrhoeae* in a particular state or local region, a topic of increasing concern with growing resistance.
- Testing for unusual conditions including chancroid or LGV.

The PHL as Subject Matter Expert:

To assure quality laboratory testing regardless of testing venue, some PHLs are developing statewide laboratory improvement initiatives, in collaboration with clinical and private laboratory partners, in a healthy and viable PHL system. This role in laboratory improvement may address sexually transmitted

disease testing, such as the administration of statewide surveys of laboratory practices, with reports and recommendations for best practices.

PHLs often play a role in consulting and providing technical assistance to epidemiologists or healthcare providers on the use and interpretation of test results obtained in STD response.

Public health laboratorians often develop and maintain specialized expertise in STD testing, making them uniquely qualified to assist clinicians in a consultative role to understand testing results. Outreach, training and education in the area of STD testing for all health care providers and laboratorians can be provided or facilitated by public health laboratories as a laboratory system improvement initiative.

The PHL as Applied Research Center:

PHLs are uniquely qualified to respond to real-time needs of their public health partners. As STD programs target ways to reach new populations or diagnose disease more accurately or rapidly, PHLs are often able to assist in the evaluation of the effectiveness or confirmation of the validity of those efforts. Examples of where PHLs have played a role in applied research include:

- Performance characteristics are verified so that vaginal swabs collected by the patient outside of a clinic setting can be tested for Chlamydia and gonorrhea to identify re-infections.
- Performing verification studies on rectal and pharyngeal specimens for amplified Chlamydia and gonorrhea testing of at-risk patients is another example of a PHL STD testing response to partner needs.

The PHL and Policy Development:

PHLs also play a role in policy development; shaping national health objectives; and promoting policies, programs and technologies in STD testing. This is evidenced by active involvement in regional CDC Infertility Prevention Projects, as an equal partner with STD and Family Planning Program Managers. Developing and maintaining a viable working relationship with STD and Family Planning Program partners benefits

both the PHL and public health overall, and the expertise of PHL managers is crucial to program planning to reduce the prevalence and sequelae of STDs in their state and region.

WHERE DO WE GO FROM HERE?

In this time of shrinking public health budgets, there are several important questions that all public health laboratories should be considering in order to shape their future role in STD testing and other similar service areas. Examples include:

- How do PHLs remain competitive with high-volume reference laboratories in an era of shrinking budgets?
- What unique benefits can PHLs offer to our public health program partners that reference laboratories cannot?
- Are their unique testing niches that make sense to pursue in my jurisdiction?

Although the landscape has changed, it is clear that PHLs can remain an important part of the public health system of STD testing and prevention. It is important that PHL professionals continue to advocate for and help shape their role in public health efforts to reduce the burden of STDs and other infectious diseases of public health significance.

REFERENCES

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2. *The Core Functions of State Public Health Laboratories*, White Paper, Association of Public Health Laboratories, 2010.

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