



Laboratory Data Exchange



Sharing information on laboratory test results and testing demographics is essential for effective disease tracking and emergency response in public health. Laboratory Information Management Systems (LIMS) and Electronic Laboratory Reporting (ELR) play pivotal roles in facilitating this information exchange. Both private and public laboratories use LIMS to manage samples and associated data, enabling the identification of reportable diseases, and generating ELRs for transmission to relevant public health agencies.

NATIONAL PICTURE

On a national scale, the Centers for Disease Control and Prevention (CDC) encourages the maintenance and enhancement of LIMS in public health laboratories. With an understanding of current barriers, the CDC supports the implementation of Electronic Test Orders and Result Reporting (ETOR), as part of its Public Health Data Strategy to improve data completeness and accuracy compared to traditional paper requisition forms.

The CDC's 2024 goals include achieving 100% ETOR usage in state public health labs, ensuring 75% of received lab reports are ELRs, and connecting almost all Epidemiology and Laboratory Capacity recipients to multiple intermediaries for lab data.

The COVID-19 pandemic accelerated the onboarding of ELR reporters, significantly increasing ELR volume from 30 million reports a year to nearly 50 million a month. Despite some challenges, these initiatives contribute to a more robust and efficient public health data infrastructure.

LABORATORY DATA EXCHANGE IN ACTION



NYC Health Department's Automated Analysis Quickly Detects Unsent Lab Reports

The New York City Department of Health and Mental Hygiene (NYC Health Department) successfully addressed the challenge of identifying when laboratories fail to send disease reports. Recognizing the impact of missed reports on disease tracking and timely outbreak response, NYC Health Department staff developed automated analyses to detect lab reporting drop-offs. The tool facilitates collaboration among epidemiologists, analysts, IT specialists, and lab workers, ensuring comprehensive and timely disease information.

During the evaluation period, 63% of the 62 signals were confirmed as actual drop-offs, caused by programming errors, file creation failures, and other issues. When COVID-19 testing rates were high, these analyses identified labs neglecting to report results for other diseases. Quickly fixing the reporting errors identified by these analyses was vital for accurately tracking trends in all reportable diseases.

SUBMITTED BY: *New York City Department of Health and Mental Hygiene*



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Wisconsin Deploys Next-Gen Sequencing for Streamlined Infectious Disease Response

The Wisconsin State Laboratory of Hygiene significantly enhanced its infectious disease response capabilities by leveraging next-generation sequencing (NGS) technology. Upgrades included acquiring automated instruments to streamline and scale NGS processes, resulting in reduced manual labor, decreased errors, and the establishment of a standardized workflow for diverse pathogen sequencing. Wisconsin plans to transition the majority of NGS testing to this automated workflow, spanning pathogens such as influenza, Salmonella, E. coli, and antibiotic-resistant bacteria. NGS serves multiple purposes, including tracking strains for vaccine accuracy, monitoring pathogen mutations to ensure test precision, identifying and responding to outbreaks, and guiding antimicrobial treatments. The instruments and tracking system forms

NGS upgrades include:

- ✓ Reduced manual labor
- ✓ Decreased errors
- ✓ Standardized workflow for diverse pathogen sequencing

the foundation of state's infectious disease NGS approach, enabling swift data-driven public health responses.

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Alaska Uses Innovative, Creative Solutions to Boost ELR and Increase Reporting Sites

Alaska exhibited a remarkable transformation in ELR, increasing the number of COVID-19 reporting sites from 20 to 2,000 and boosting the percent of electronic lab reports received from 75% to 99.5%. Focused on safeguarding remote communities and essential services, the Alaska Division of Public Health implemented innovative and creative solutions to ensure accessible testing. Electronic reporting was implemented with schools, mining, oil and gas, tourism and seafood industries, tribal corporations and village clinics, clinical care sites, city/ borough governments, and first responders. Despite the challenging locations, results were routed electronically from locations that included the Denali backcountry, Bering Sea, Aleutian Islands, and Glacier Bay. This resulted in a substantial reduction in manual data entry from

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faxed reports to less than 1%. This streamlined data influx facilitated efficient disease surveillance, aiding prompt incorporation of positive results into state case tracking and daily counts.

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