



CSTE

INFORMATICS-SAVVY SURVEILLANCE

Building Health Department Capacity

This report is the product of a national workshop on April 1-2, 2014 in Atlanta, GA organized by the Council of State and Territorial Epidemiologists (CSTE), supported in part by Cooperative Agreement Number 5U38HM000414-05 awarded to CSTE from the Centers for Disease Control and Prevention. Seth Foldy, MD MPH (sethfoldy.com) provided workshop facilitation and report authorship.

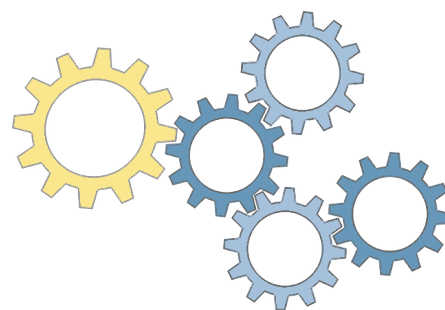
EXECUTIVE SUMMARY

Public health surveillance programs provide the foundation for public health action. These programs collect, manage, analyze, and interpret information necessary to detect and respond to public health threats, to monitor and assess the health of populations, and to evaluate public health interventions. Effective public health surveillance requires timely and accurate information from health care providers, laboratories, partners, and the public. Advances in health information technology (HIT) have profoundly influenced surveillance methodology and the management of surveillance data on which public health decisions are made. The rapidly changing HIT environment has posed numerous challenges for Health Departments. These challenges include:

- Laboratories and health care providers are adopting electronic health record systems (EHRs) and laboratory information management systems (LIMS) to replace paper-based document systems.
- Evolving federal regulations and data standards for EHRs change how clinical information is electronically captured, coded, structured and transmitted to public health.
- Rapid global transmission of diseases (both known and emerging) has increased the demand for near real-time data collection and analytics from multiple surveillance systems and jurisdictions for timely disease control.
- With the transition to near real-time electronic data exchange, unprecedented opportunities for disease control and health promotion exist for surveillance data to be used in the field, health care settings, and surveillance offices.
- Data exchange between health care and public health increases the need for system reliability, interoperability, scalability, and security.

¹Public health surveillance is has been defined as “ the ongoing, systematic collection, analysis, and interpretation of health data, essential to the planning, implementation and evaluation of public health practice, closely integrated with the dissemination of these data to those who need to know and linked to prevention and control.” (Thacker SB, Berkelman RL. History of public health surveillance. In: Public Health Surveillance, Halperin W, Baker EL (Eds.): New York; Van Norstrand Reinhold, 1992.) Thus it includes ongoing data collection to **detect** events of public health concern, to **monitor** their incidence, to describe the **distribution** of health, illness, injury, disability, and health risk factors; and to **support response** to health threats, like managing disease outbreaks or evaluating program effectiveness. Data provision may be mandated or voluntary, and data may originate with the public (as in surveys), health care providers, or environmental monitoring from many sources.

- High-stakes financial incentives for the health care sector to report to public health have increased the expectations of the capabilities and readiness of public health surveillance systems.
- The combination of interconnectivity and incentives expands the critical stakeholders of surveillance systems from a few epidemiologists and public health programs to large numbers of health care providers, their system vendors and their payers.



Managing these challenges requires the skills of **public health informatics**, which combines the use of information technology with an interdisciplinary understanding of information sciences and public health practice. These challenges must be addressed at the organizational level rather than the individual or program level, to achieve the transformation sometimes called the **informatics-savvy health department**.

This report summarizes the wisdom of many leaders in surveillance and public health informatics obtained during a two-day workshop held by CSTE in April 2014. The 32 workshop participants represented 20 state and city health departments, the CDC, the American Immunization Registry Association (AIRA), the Association of State and Territorial Health Officials (ASTHO), the International Society for Disease Surveillance (ISDS), the National Association of County and City Health Officials (NACCHO), the National Association of Public Health Statistics and Information Systems (NAPHSIS), and the Public Health Informatics Institute (PHII).

The report reviews how public health surveillance has evolved over the past ten years to a point where health department capabilities are being strained to manage rapid and significant environmental change. It describes emerging challenges and opportunities in the areas of the public health information supply chain, how information will be used, and the readiness of health departments to manage information. To address those challenges and opportunities, participants identified successful or promising practices, all of which were refined into recommendations: first to health departments that operate major surveillance and other information systems, and second to CSTE and other associations, agencies, and funders whose support is required to build informatics-savvy health departments across the nation. The primary focus of the discussions was on reportable disease, syndromic, and healthcare-associated infection surveillance, outbreak response, and interfaces for information sharing with other systems.

Recommendations are likely applicable to many other surveillance, assessment, and emergency response functions. Other functions such as health promotion, environmental enforcement, and patient care were not discussed. The recommendations may be most appropriate for state, territorial and larger local departments that independently manage major surveillance systems, and may not fit all circumstances. Other health departments might look to states to implement many of these recommendations; however local and tribal participation in state and territorial information strategic planning and system governance is critical.

This report concludes with a list of currently available resources that can assist both health departments and partner organizations to improve their capabilities, and two appendices that include reprints of recently produced tools to aid “informatics-savvy” planning by health departments.

These recommendations address three vital areas: leadership; workforce development; and funding and implementing effective information systems.

LEADERSHIP

Recommendation 1: Larger health departments need an executive-level informatics leader.

Recommendation 2: Executive officials should view information as mission-critical and informatics as fundamental infrastructure.

Recommendation 3: Develop Information strategic plans (at least initially for surveillance).

Recommendation 4: Establish ongoing information governance for surveillance systems that includes critical stakeholders.

Recommendation 5: Build relationships and ensure strong and frequent communication within the health department and with outside health departments doing similar work – a reorganization might not be required.

WORKFORCE DEVELOPMENT

Recommendation 6: Grow informaticians within the existing workforce.

Recommendation 7: Increase overall informatics expertise within the organization.

Recommendation 8: Leverage academic partners, students and federal assignees.

FUNDING AND IMPLEMENTING EFFECTIVE INFORMATION SYSTEMS

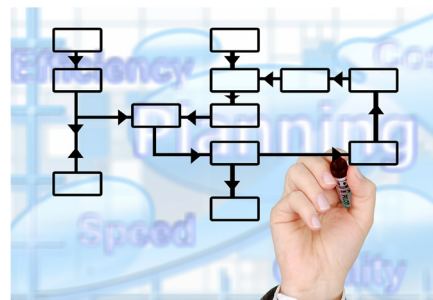
Recommendation 9: Begin grant writing with a review of the strategic information management plan. Begin project management during the grant writing.

Recommendation 10: Consider newer funding opportunities from state Medicaid programs, the US Centers for Medicare and Medicaid Services (particularly the CMS Innovation Center), and the Prevention and Public Health Fund.

Recommendation 11: Use industry best practices in planning and implementing projects.

Recommendation 12: Adopt health care industry standards in public health systems for interoperability and automation, where appropriate.

Recommendation 13: Share information exchange and transport capabilities across multiple programs.



RECOMMENDATIONS FOR ASSOCIATIONS, FEDERAL AGENCIES, AND FUNDERS

Recommendation 14: CDC, CSTE, and other JPHIT organizations should organize governance for national surveillance systems with a bottom-up, supply-chain perspective.

Recommendation 15: CDC and CSTE should collaborate to further standardize the required elements and business practices of notifiable disease reporting across jurisdictions.

Recommendation 16: CSTE and CDC should identify successful technology pilots for further development and adoption.

Recommendation 17: Federal funding from CDC should resume for innovation labs linking health departments with academic informatics programs.

Recommendation 18: CDC, CSTE, and other JPHIT associations should expand recruiting, deployment, and support of health department professionals to serve on relevant healthcare interoperability standards and policies workgroups.

Recommendation 19: CSTE, CDC, and other public health associations should collaborate on increasing educational & professional development opportunities in informatics.

*The full Informatics-Savvy Surveillance report will be
published on the CSTE website in Winter 2015.*