Improving Surveillance Systems through Peer Assistance

A report prepared by the North Carolina Preparedness and Emergency Response Research Center (NCPERRC) at the University of North Carolina at Chapel Hill’s Gillings School of Global Public Health.

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Background, Introduction, and Key Findings

This report explores the needs for and benefits of peer assistance in improving public health biosurveillance efforts. Our conclusions and recommendations are derived from a yearlong research effort conducted by the North Carolina Preparedness and Emergency Response Research Center (NCPERRC) at the University of North Carolina at Chapel Hill's Gillings School of Global Public Health. Funding was provided by the Centers for Disease Control and Prevention, Office of Public Health Preparedness and Response.

This report builds on our 2013 report (http://sph.unc.edu/files/2013/11/nciph-BiosurvReport.pdf) that summarized the state of biosurveillance systems and made recommendations for system improvement. In addition, we conducted a webinar series (archive available at http://nciph.sph.unc.edu/tws/webinars.php) to disseminate findings of that report.

Much biosurveillance activity is conducted at state and local levels, with a variety of systems, strategies, data collection, analysis, and information dissemination occurring in different jurisdictions. Although there is considerable sharing of expertise and practices, this report addresses the question of whether more formal “peer assistance” across jurisdictions is needed to enhance progress in biosurveillance, and if needed, what form of peer assistance would be most beneficial.

The terms “biosurveillance” and “peer assistance” are used very broadly and inclusively in this report. “Biosurveillance,” as defined in CDC’s National Strategy for Biosurveillance (http://www.cdc.gov/surveillancepractice/reports/nbs.html), refers to any public health surveillance activity “related to all-hazards threats or disease activity affecting human, animal, or plant health...”. “Peer Assistance” is a process where public health surveillance professionals share advice, best practices, relevant expertise, and resources among their peers working across organizations or jurisdictions. The goal of peer assistance is to improve organizational effectiveness in improving surveillance systems that are designed to enhance all aspects of public health preparedness.

Key findings of this report include:

- Although there is some ongoing peer assistance, there is a consensus among surveillance experts that additional assistance would be beneficial;
- The most important need is in the area of informatics expertise as it relates to public health surveillance systems;
- The goals of peer assistance should be focused on specific informatics challenges with defined time-tables for completion;
- Active personal interaction with peers is preferable to more passive types of support such as websites, list-serves, or message boards;
- Peer assistance goals should be closely aligned with other ongoing efforts, such as priority initiatives funded by CDC cooperative agreements; and
- Peer assistance should align very tightly with the February 2014 CDC report “Surveillance Strategy. A strategy for improving the Centers for Disease Control and Prevention’s activities in public health surveillance.” (http://www.cdc.gov/ophss/docs/CDC-Surveillance-Strategy-Final.pdf), which emphasizes the need to enhance workforce knowledge and skills as they relate to the design and management of surveillance systems.
Methods

To inform the development of our recommendations, a systematic review of current, web-based, public health peer assistance networks was performed. Search terms included “Peer Assistance Network, Public Health” and “Peer Assistance Network”. These terms yielded minimal results; so the search was broadened to “Public Health Network, technical assistance”. This search yielded many results; we focused on the first 100 findings that focused on providing public health technical assistance to jurisdictions at the local and state levels.

We also conducted key informant interviews with the networks’ staff and with leading public health associations, federal agencies and other organizations currently providing some type of peer-to-peer assistance. Interviews focused on how the assistance is offered and on whether the assistance appears to meet the identified needs of its recipients. A survey of participants in previous NCPERRC webinars was also conducted (see appendix).

The Current Peer Assistance Landscape

Some peer assistance needs are being met through ongoing activities. The following are examples of public health organizations that provide surveillance peer assistance, especially for state and large metropolitan public health surveillance staff:

Council of State and Territorial Epidemiologists (CSTE)

Key audience: State/local/territorial/tribal epidemiology staff

- Surveillance and Informatics Steering Committee (1.5 hour conference calls every 2 months)
- Surveillance Policy Subcommittee (1 hour conference calls every 2 months)
- Surveillance Practice and Implementation Subcommittee (1.5 hour conference calls every month)
- Electronic Laboratory and Disease Reporting Subcommittee (1 hour conference calls every month, plus 1 hour ELR Workgroup webinar-call every month)
- Funding for short-term assignments of state experts from one state to another to assist in implementing the enhanced HIV/AIDS Reporting System (eHARS)
- Other CSTE committees conduct calls in various specific fields of epidemiology (chronic disease, injury, etc.) which often include surveillance issues
- Annual conference, webinars and a workforce training catalog

International Society for Disease Surveillance (ISDS)

Key audience: State and local health department surveillance staff and others

- Public Health Practice Community (monthly 1 hour conference calls and occasional webinars)
- Meaningful Use Community (monthly 1 hour conference calls) and a newly formed Business Process Mapping Subgroup
- BioSense User Group (monthly 1.5 hour conference calls)
- Technical Conventions Committee (periodic meetings and resources)
- Research Committee (quarterly 1.5 hour conference calls)
- Frequent ISDS-sponsored webinars (with archives posted on website)
- Annual conference with pre-conference trainings
Association of State and Territorial Health Officials (ASTHO)
*Key audience*: State and Territorial Public Health Preparedness Directors
- Preparedness Directors—Conference calls, webinars and annual meeting

Public Health Informatics Institute (PHII)
*Key audience*: State epidemiology staff and many others
- Peer assistance facilitated in workshops

Association of Public Health Laboratories (APHL)
*Key audience*: Staff of public health laboratories
- Several APHL informaticians, hired with CDC funding, provide direct support to state public health laboratories in such areas as vocabulary, messaging, and test result coding.

Centers for Disease Control and Prevention (CDC)
*Key audience*: State and large metropolitan area epidemiology staff and others
- The CDC-built NEDSS Base System (NBS) has an ongoing user group of state/local surveillance NBS users who have met by conference/webinar calls every 2 weeks for the past nine years. NBS users share ideas and solutions to problems as they arise.
- Previously, CDC organized an Electronic Laboratory Reporting (ELR) Taskforce providing staff and funding to support states and large metropolitan areas in implementing ELR. This was a cooperative effort among staff at CDC, APHL, and public health jurisdictions to make progress with many of the challenges posed by ELR.

With so much existing peer assistance activity, we focused on answering the following question: “What additional peer assistance is most likely to support the greatest progress in public health surveillance?” The subject matter experts consistently reported one area of peer assistance that is not optimally supported: *the application of informatics expertise in surveillance system development and support*. This need is especially great at the state and large metropolitan level where state and local surveillance systems are most often developed and maintained. Expert informants advised that the greatest benefit from peer assistance could be derived from concentrating on assisting state and large metropolitan public health surveillance staff (“the key audience”) with developing greater skills in good surveillance system management and in application of informatics principles and knowledge.

**Guiding Principles and Promising Practices**

The systematic review, key informant interviews, and survey of webinar participants provided several principles for guiding recommendations for improving peer assistance, as well as descriptions of promising practices. The recommendations in this report were guided by the following **Principles**:

- There was strong, consistent consensus that the primary type of needed assistance is in the area of informatics as it applies to the specific needs of public health surveillance.
  - Examples include help in improving public health information system development techniques, implementation of HL7 or Clinical Data Architecture formats for communicating with health partners (e.g., laboratories, medical providers’ electronic health records, and/or health information exchanges), and implementing and maintaining LOINC and SNOMED vocabulary;
• To be most successful, any new peer assistance effort should have specific objectives and a well-defined time-line for completion. These will help to ensure fruitful results and accountability. As objectives are met, peer assistance may need to continue if new objectives are identified and prioritized.
• The peer experts in informatics should have experience and knowledge of public health surveillance practice. This familiarity should increase their understanding of surveillance work processes and communication with public health surveillance staff.

The key informants recommended several **Promising Practices**:
- Train surveillance staff in informatics (e.g., online courses from PHII);
- Establish a governance structure for peer assistance;
- Provide support and infrastructure using an existing organization outside CDC (e.g. PHII, CSTE, etc.);
- Support a coordinator with skills to broker expertise and evaluate the impact of peer assistance;
- Hire informatics consultants through an organization outside of CDC;
- Ensure that the operational procedures of peer assistance are clear;
- Avoid simply creating a message board or list-serve;
- Coordinate CDC cooperative agreement guidance with specific surveillance efforts in areas where peer assistance is available; and
- Have an organization (e.g., CSTE, PHII, ASTHO, or CDC) maintain an on-line list of organizations and their committees that are working in specific areas of current surveillance/informatics effort; include contact information if possible.

**Goals of Peer Assistance Recommendations**

Based on our findings, this report presents several recommendations for peer assistance. These recommendations are offered with the following primary goals:

• Improve public health surveillance at all jurisdictional levels through peer assistance especially for staff at state, territorial and large metro areas responsible for surveillance system design, implementation and use;
• Promote more rapid integration of advances in information technology;
• Support across-jurisdictional standardization of surveillance practices to promote efficient surveillance; and
• Promote the wisest use of public health surveillance resources.

**Operational Considerations**

We propose that the preferred operational plan for peer assistance is what a PHII report (“Peer Assistance Network Operational Plan,” May 31, 2012) calls a “hosted project” model, in which the activities are viewed as “projects” with definite start and completion dates, and with specific deliverables, versus an on-going program. Major decisions would typically fall to the primary funder(s) (e.g., the Centers for Disease Control and Prevention) and/or recipients of CDC cooperative agreement funding (e.g., the Council of State and Territorial Epidemiologists), with assistance provided to state and large metropolitan public health surveillance offices via a competitive process, sub-contract, or direct staff assistance. This model has the advantages of
avoiding establishing an expensive new administrative mechanism and of tailoring specific projects to the needs of the audience, as well as flexibility over time as needs change.

Two examples of approaches that may be well-suited to supporting peer assistance are 1) providing goal-directed, time-limited funding to CDC grantees through the Epidemiology and Laboratory Capacity Cooperative Agreement, and 2) providing CDC funding to non-government public health organizations such as CSTE and PHII to hire appropriately trained informaticians to provide peer assistance to state and local health departments.

**Content Areas for Peer Assistance**

Key informants identified several informatics efforts in need of peer assistance at the state and local levels. The following list is not meant to be comprehensive, but rather to provide examples of leading topics for assistance.

- **Business practices and the information system design process**
  - For example, PHII’s informatics academy
- **Technical informatician support**
  - Informaticians hired by CSTE or PHII to consult with states (similar to the APHL model mentioned above)
  - Fund additional informatics fellows for states
- **Current specific goals in need of assistance (or focus areas currently in most need of support)**
  - Using electronic health records for public health reporting
  - Tying public health into health information exchanges
  - Implementing electronic lab reporting
  - Implementing electronic death record reporting
  - Implementing Meaningful Use Stage 2
  - Immunization registries
  - Cancer registries
  - Emergency department syndromic surveillance

**Conclusion**

In summary, we conclude that an additional form of peer assistance focusing on application of informatics principles and best practices to design and manage public health surveillance systems can be of real benefit. Areas of need include use of electronic medical records in surveillance, electronic death record reporting, and emergency department syndromic surveillance information. Engagement of an outside partner in a “hosted project” model is a promising approach to manage service delivery and monitor the benefits of peer assistance.

This report was prepared by Edward L. Baker, MD, MPH (ed_baker@unc.edu) and the NCPERRC team at the University of North Carolina at Chapel Hill in December 2014.
Appendix: Peer Assistance Survey Results Summary

In July 2014 a brief online survey was administered to individuals who registered for the webinar series, "Improving Biosurveillance for Enhanced Situational Awareness". The four-part webinar series was hosted by the NCPERRC project between February and June 2014. Just over half (52%) of the 58 survey respondents worked in local health departments, while 30% worked in state/territorial health departments and 4% worked for federal public health agencies. The remainder were affiliated with universities and a research institute.

The vast majority (83%) of respondents reported seeking help for their job duties, either inside or outside of their place of work. Common assistance topics included:

- Syndromic surveillance and informatics
- Disaster preparedness and training
- Data management and analysis
- Health care policy

The most frequently used resources for finding answers to questions were:

- Subject matter experts (SMEs) from other agencies (89%)
- Co-workers (86%)
- Associates from other agencies (68%)
- Web-based user groups (61%)
- Professional conferences (57%)
- Other (18%), including webinars, university resources, published literature, and the CDC

Email was the most popular form of communication for asking questions, reported by 95% of respondents. Also important were in-person interactions (84%); phone conversations (80%); web conferences (55%); and other web-based tools, such as forums and message boards (52%). Social media was used by only 18% of respondents. No respondents reported being unable to find answers to their questions using any of these resources or communications means.

Nearly all respondents (94%) reported that being part of a peer assistance community would enhance their abilities to perform their jobs. Respondents were interested in further assistance primarily with technical support for:

- Biosurveillance and informatics
- Data sharing, management, and analysis
- Preparedness training
- Skills and capacity enhancement

There was little difference among responses for staff in the different places of employment, although the proportion of respondents who did not rely on peer assistance was greatest among local health department employees.