Judith Sparrow
United States Department of Health & Human Services
Office of the National Coordinator for Health IT
330 C Street, SW, Suite 1104
Washington, DC 20201

Email: judy.sparrow@hhs.gov

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Meaningful Use Workgroup
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Panel 1: Achieving Population Health Through Meaningful Use: How Do Governmental Public Health (PH) Agencies View the Current Process ?

Biography

Peter Briss, MD, MPH, has been with the Centers for Disease Control and Prevention (CDC) and the Commissioned Corps of the US Public Health Service for 20 years. He brings a depth of knowledge and experience in disease prevention and health promotion, including program evaluation, research translation, and prevention in both the health care and community settings. He has a keen understanding of evidence-based disease prevention and control strategies, gleaned from his extensive work with the Community Guide and the US Preventive Services Task Force, his years of service at CDC, and his participation with outside groups such as the Population Health Working Group convened by the National Quality Forum. He has participated in public health teaching, practice, and research at state and federal levels in the U.S. and internationally.

Dr. Briss received his medical degree and training in internal medicine and pediatrics at the Ohio State University and holds an MPH in Health Management and Policy from the University of Michigan. He completed training in epidemiology and preventive medicine at CDC, is board certified in internal medicine and preventive medicine, and is an active clinician at Grady Memorial Hospital in Atlanta. He has authored or coauthored approximately 80 scholarly publications and co edited the Guide to Community Preventive Services. He has received numerous Commissioned Corps awards including the Outstanding Service Medal.

Background

Healthcare data are critically important for public health surveillance and prevention. They allow:

- Better (faster and with more geographic and population specificity) monitoring of community health
- More complete and rapid disease and injury reporting
- Better informed public health action (e.g., health care data were rapidly collected, analyzed, and used to inform many parts of the public health response to the 2009 H1N1 influenza pandemic).
- Support for peoples' informed decisions about health care and disease self management
- Improved health care quality efforts (including improving care coordination across health care, public health, and social service sectors)

Meeting several of the goals of Electronic Health Records (EHRs)—especially related to improving population health—will require strengthening connections between the health care and public health systems.

People who are responsible for preventing and controlling diseases and other adverse health events need ongoing, timely, and accurate information about the status of those conditions. They also need their antecedents and consequences among the populations they serve. Depending on the disease or condition in question, local health departments might use this information to follow-back to individual people who are affected by diseases of public health concern; to assure access to and quality of health care for individuals and populations; and to coordinate health care, public health, and social service provision. More broadly, these data are summarized to track population-level trends in order to inform public health programs and policies at local, state, or national levels across multiple health care systems and providers. This process is called "public health surveillance," and virtually every program at CDC conducts surveillance in partnership with state, local, and territorial health departments. Over the past 50 years, many surveillance systems have evolved to meet the specific needs of individual programs. These systems employ a mix of approaches that draw upon information arising from healthcare encounters and surveys (The appendix names and describes several examples of these systems). Surveillance systems operate on varying time frames (daily to annually) and with widely varying levels of detail and specificity in order to meet the information needs of individual programs, within logistic and financial constraints.

1. What are the current electronic data systems, are they interoperable, and do they connect to any EHRs for mandated electronic reporting?

CDC houses many electronic data systems. This document's appendix lists several selected prominent examples. As public health surveillance systems have become increasingly automated, CDC and states have invested in efforts to develop data systems and standards. However, given the variability of these multiple systems in terms of the sources, funding streams, nature, time frames, and purposes, multiple CDC systems are generally not "inter-operable."

The flow of surveillance information is from healthcare providers to local/state health departments and then to CDC. So, connections between EHR systems and public health surveillance grow from relationships between healthcare providers and local or state health departments. In fact, these —relationships have often developed around particular topical areas and with separate funding streams. Local and state health departments vary substantially in their capacity to work with health care issues, conduct public health surveillance, and to accommodate innovations in automation of surveillance methods. A recent survey of state health departments has identified funding constraints, workforce needs, the lack of system support, and the absence of best practices as significant barriers to accepting data from EHRs and using it for public health purposes[1]

For these reasons, connections between health departments and EHR systems are still largely developmental. CDC is working together with many partners to enhance these connections in several ways.

The Section 317 program is a discretionary federal grant program and is the primary source of funding for most jurisdictional vaccine program operations. This includes many immunization information systems, or vaccine registries, which are confidential, computerized information systems that collect and consolidate vaccination data from multiple health-care providers, generate reminder and recall notifications, and assess vaccination coverage within a defined geographic area. They can have positive effects on quality by improving immunization coverage for individuals and populations, as well as cost (by reducing unnecessary immunization of people seen by multiple providers). These systems are excellent examples of the need to reach across health care providers and bridge health care and public health services to improve health care and population health outcomes. As of the end of 2009, more than 18 million children < 6 years of age (77%) were participating in an IIS.

Presently most IIS data are received electronically from EHRs, billing systems, or via direct data entry to an IIS. Electronic data received by IISs are received in flat file format (42%) more often than via HL7 (17%). In addition, as of 2009, approximately half of states cannot receive IIS data in HL7-compatible format. Additional development of EHRs and incorporation of the HL7 national standard as an optional meaningful use

[1] Association of State and Territorial Health Officials (ASTHO) 2010: Survey of State Health Agencies on Meaningful Use Readiness and Public Health Informatics Resources

measure has significant potential for improvement in health care quality, public health program quality and efficiency, and public health outcomes.

Considerable work is currently ongoing to assist states to be able to receive HL7 compatible data. HITECH state cooperative agreements are helping to support these efforts and we expect that by the end of 2011, only about eight states will still be unable to receive immunization data using HL7. The state cooperative agreements are also supporting work between IISs and high volume providers to help assure that providers will be able to send data and that they will be able to meet their MU requirements. After this year, Section 317 funds will be used to bring the remaining few states online. This is a nice example of leveraging HITECH and ongoing public health investments to reach public health objectives.

In addition, CDC is supporting public health links to health information exchanges (HIEs) in three areas (Eastern Washington/Idaho, New York, and Indiana), and CDC's Centers of Excellence (CoE) in Public Health Informatics support investigators who are developing new tools to support automation of public health surveillance.

Finally, CDC has also launched a new cooperative agreement program for "Strengthening Public Health Infrastructure for Improved Health Outcomes" that may be used by states to address some of these infrastructure and workforce needs.

Work like this is essential because many of the leading causes of morbidity and mortality in the US will not be addressed entirely within the walls of the health care system. Without involving broader community and public health efforts, we will not optimally improve care coordination, reduce health disparities, or meet population health goals.

Automated connections between health departments and hospitals are increasingly widespread in syndromic surveillance. A growing number of state and local health departments tap hospital emergency department record systems to obtain daily feeds of information about patients seeking ED care. These automated transactions typically involve a limited number of variables and are used to track trends in various disease syndromes to support timely detection, characterization, and ongoing tracking of emergent health threats in order to trigger clinical and public health interventions. These systems were developed in response to concerns about bioterrorism but are also used for other purposes; recently they were very useful for tracking seasonal and H1N1 influenza. Through its BioSense program, CDC receives detailed clinical data directly from approximately 90 hospitals, based on automated taps into hospital record systems. This program has allowed CDC to develop capacity in the domain of automated disease surveillance and connections to automated record systems. Although the system has had growing pains, it was very useful in the context of H1N1 efforts, and we are working to assure that it more effectively uses and builds on syndromic surveillance capacity in

states and localities, fully uses the tremendous volume of data it generates, and continues to meet its aim to provide timely data for event detection/characterization and ongoing "situational awareness."

An area where linkages between public health surveillance and EHRs need to be strengthened is chronic disease prevention and control. Chronic diseases and the environments and behaviors and environments that cause them are the leading causes of morbidity, mortality, and reductions in quality of life in the United States.

Cancer is a nationally reportable disease, supported by PL 102-515 (Cancer Registries Amendment Act) and PL 106-310 (Benign Brain Tumor Cancer Registries Amendment Act). CDC's National Program of Cancer Registries (NPCR) supports central cancer registries (CCRs) in 45 states, the District of Columbia, Puerto Rico, and the U.S. Pacific Island Jurisdictions, which represents 96% of the U.S. population. All states have legal requirements for reporting of cancer cases from hospitals to CCRs, and many require reporting from ambulatory providers (clinics/physician offices) as well.

Cancer surveillance provides information on the temporal, geographic, and demographic occurrence of cancer to facilitate its prevention and control. Data collected by cancer registries are essential for public health professionals, health advocacy groups, researchers, and others to understand and address the cancer burden. Complete, timely and accurate cancer surveillance data provide the basis for comprehensive cancer control programs, health care planning and interventions, and health decision making.

Obtaining data from clinical settings is a major challenge for cancer registries. The current processes used to collect this information are resource-intensive, time-consuming, and error-prone often leading to incomplete or inaccurate reporting for cancers diagnosed in non-hospital settings. An automated reporting system based on electronic health records would fundamentally change the accuracy and completeness of data collected by central cancer registries.

The CDC-NPCR is actively engaged in the following projects that facilitate and speed the adoption of electronic reporting to cancer registries using electronic health records:

- Developed a standard using HL7 Clinical Document Architecture (CDA) for the EHR reporting of cancer cases to public health cancer registries.
- Developing the functional requirements needed to implement this cancer reporting mechanism.
- Assisting public health cancer registries to receive the HL7 data from EHRs through the creation of a freely-available software tool. The Electronic Mapping,

Reporting, and Coding (eMaRC) Plus tool will enable public health cancer registries to receive and process the cancer case reports submitted to them from EHRs.

- Supporting a special project focused on electronic reporting through the American Recovery and Reinvestment Act (ARRA) dollars. The goal is for selected registries to work with high-volume providers and EHR vendors on implementing the electronic reporting of cancer cases from EHRs to the registries.

CDC-NPCR is well positioned to begin implementation of cancer case reporting from provider EHRs to cancer registries. The incorporation of cancer case reporting to public health cancer registries has significant potential to improve cancer surveillance, cancer prevention and control efforts, health care quality, and public health outcomes.

Efforts to promote high quality care should continue to identify a set of services that have the potential to substantially reduce avoidable public health burden. This could be addressed by EHRs and the interventions they can trigger, and would benefit from focused attention and intervention. Measurement of smoking status, BMI, and hypertension were important stage 1 starting points—but more is needed.

Americans receive only about half of recommended medical care and improving meaningful use of EHRs could drive quality improvement, care coordination (within the health care sector and among healthcare, public health, and social service providers), patient and provider communication, and public health surveillance. This provides the opportunity to reduce medical errors, improve attention to risk factors, and reduce inappropriate management of acute and chronic conditions, and thus could help to prevent thousands of avoidable premature deaths, disabilities, and urgent events every year.

Cardiovascular disease is the leading cause of death in the United States, and a number of clearly cost-effective preventive services are available that could substantially reduce its burden, but these services are underutilized. Some of the highest-value preventive services are the "ABCS."
A. aspirin therapy for people at high risk of heart attacks or strokes
B. improved diagnosis and treatment of high blood pressure
C. improved diagnosis and treatment of high cholesterol
S. improved smoking cessation treatment

Current use of these services remains low (generally 30-50% for each) but improvements in health care systems to improve their delivery including incorporation of relevant measures in EHRs and use of EHRs to trigger interventions could result in significant health benefits.

Similar efforts should also be undertaken to measure and address the behavioral risks that are the leading causes of preventable deaths in the United States. This includes tobacco use, poor nutrition, and physical inactivity. EHRs could be used to measure status (for individuals and for populations), to trigger individual interventions (e.g., counseling, smoking cessation therapy), to encourage links to community resources (e.g., community outreach or programs related to diet and physical activity), to trigger informational efforts for individuals or groups or to promote population interventions and policies.

2. From your unique jurisdictional view, does your PH agency have the capacity to use the 3 types of data to be sent under Stage 1 meaningful use (MU) criteria in a way that impacts population health?

CDC has the capacity to receive and use Immunization, Syndromic Surveillance and Electronic Laboratory data. For example, the Biosense program introduced above accepts de-identified ELR (HL7 v2.5.1) from hospitals and commercial laboratories in the US.

However, as also noted above, there is considerable variability in states' capacity, upon which CDC systems depend.

CDC is actively engaged with many partners and stakeholders to define public health data content for meaningful use of Health IT and to have a positive impact on public health. CDC is also working on improving and extending electronic public health information exchange (national, state and local level) by developing message specifications, vocabulary standards, and privacy and security criteria.

We also recognize that capacity is an issue for many states and localities and as noted above, many CDC offices are working to enhance PH system capacity.

3. What do you perceive as barriers to MU of PH data and information to achieve desired population health outcomes?

1. Population health meaningful use efforts should be enhanced and extended.

Although Prevention is a "best buy" and many prevention programs help us achieve healthier longer lives at good value and can sometimes reduce costs, prevention is inadequately represented in current meaningful use efforts.

As noted above, in order to achieve the population health objectives of Meaningful Use, and to maximize health return on Meaningful Use investments, it is important to assure that meaningful use incorporates the conditions and interventions that will impact the

leading causes of illness and death and that meaningful use includes but also extends beyond the walls of the health care system.

The major intent of all existing meaningful use incentives and a certification process is around data providers that generate EHR. The population health–centered Stage 1 objectives (syndromic surveillance, laboratory reporting, immunization reporting) should be assessed in terms of public health capabilities for data exchange and for enhancing national capacities for population health assessment, emergency response, and biosurveillance. Over time additional population health functionalities need to be added.

2. As noted above, interoperability among public health surveillance systems and between health care and public health systems needs enhancement
3. As noted above, public health capacity in terms of funding, systems, workforce, and best practices needs to be extended.

4 How are governmental public health agencies planning to leverage increasing access to community HIT assets (e.g., EHR data, chronic disease registries and MU criteria) or other ONC efforts (e.g., HIE, REC, NHIN, Beacon, SHARP) to support improved population and public health outcomes?

CDC is a strong supporter of the coming revolution in health care and public health data systems and we believe that this revolution has the potential to improve health care and public health systems.

As noted above, on issues including IISs, cancer registries, and many others, CDC is working to coordinate ARRA investments with ongoing public health efforts to improve clinical and population health outcomes.

The community side of the equation still suffers from lack of attention and underinvestment, especially in light of current state and local budget shortfalls. CDC is actively working to support needed infrastructure development by:

a. Engaging with ONC and CMS on relevant public health measures and information technology issues;
b. Contributing to Stages 2 and 3 Objectives for population health, preventive care and health promotion;
c. Conducting and hosting trainings on Meaningful Use;
d. Working with relevant public and community health stakeholders to ensure that data are available, useful, and used for public health purposes;

e. Fostering access to and analysis of healthcare data at CDC and in states/localities; and
f. Investing in workforce and infrastructure.

5. **Based on your experience, how is PH working toward a more integrated enterprise approach to data and information sharing and interoperable infrastructure promoted through MU criteria and measures to support improved population health outcomes?**

CDC works with partners towards developing of a more integrated enterprise approach for better utilization of interoperable public health data by

- engaging clinical care partners in a dialogue;
- developing interoperable public health use cases;
- identifying public health business needs, benchmarks and measures for Stages 1-3;
- promoting utilization of interoperable standards and interoperable technology;

Appendix: Selected CDC Data Systems

CDC's data systems use interoperable Public Health Information Network (PHIN) messaging standards. Examples of CDC interoperable public health IT systems are the National Electronic Disease Surveillance System (NEDSS), BioSense, Health Alert Network (HAN), PHIN Messaging System (PHINMS), National Healthcare Safety Network (NHSN) and PH Lab Interoperability Pilot (PHLIP).

- **NEDSS** is an Internet-based infrastructure for public health surveillance data exchange through a system of interoperable subsystems, components and modules that include software applications developed and implemented by the CDC.
- **BioSense** is a program that supports a national surveillance network through which healthcare organizations, public health, HIEs, and other national health data sources are able to contribute to analysis of the nation's health.
- **HAN** is the PHIN Health Alert component that ensures ensure that each community has rapid and timely access to emergent health information; a cadre of highly-trained professional personnel; and evidence-based practices and procedures for effective public health preparedness, response, and service on a 24/7 basis.
- **NHSN** is the voluntary, secure, internet-based surveillance system that integrates and expands legacy patient and healthcare personnel safety surveillance systems.
- **PHINMS** is the messaging system for securely exchange sensitive data between varieties of different public health information systems.
- **PHLIP** is the CDC/APHL initiative to enable electronic laboratory results reporting, with a focus on harmonization of vocabularies, from state public health labs to CDC. Influenza test results are currently being sent from 11 state public health laboratories to the CDC influenza group.

Most CDC HIT systems are working in public health environment, which was developed by PHIN (CDC, state and local departments of health). For making connections with health care providers and systems, CDC/PHIN and NHIN are working together towards unified standards.