

**National Committee on Vital Statistics: Hearing on Meaningful Use of Electronic Health Records Systems**

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This testimony is from the National Center for Public Health Informatics (NCPHI), one of 11 Centers at the Centers for Disease Control and Prevention in Atlanta. NCPHI protects the public's health, promotes health equity, and transforms public health practice through the advancement of the science of biomedical informatics in public health practice and through collaborative development of information systems for public health. Our vision is to promote innovation and provide leadership on a national and global level to transform the public health system through informatics.

NCPHI is heavily engaged in the design, development and testing of systems that use National Health Information Network standards and infrastructure to promote collaboration between the clinical care system and public health. Programs funded by NCPHI that are focused on this collaboration include BioSense, the Nationally Notifiable Diseases System, and Public Health Information Network.

BioSense is a program designed to provide real time health situational awareness for the national through monitoring of health data generated in emergency rooms throughout the United States. Approximately 12 percent of emergency room visits to non government hospitals and 100% of those in government hospitals in the United States are monitored through BioSense. The BioSense program has a network of three health information exchanges that are part of the NHIN demonstration project. The program has successfully demonstrated transmission of the Bioterrorism Use case using NHIN protocols and worked to enhance this use case through the development of tools for summary data exchange. A critical area of current work, described in detail below, is the development of two-way communications between the public health and clinical care systems that foster collaboration on care of infectious diseases and earlier recognition of disease.

The Nationally Notifiable Diseases System (NNDS) provides support to states for linkage public health reporting for notifiable conditions to clinical care. Notifiable conditions are diseases where there is a statutory requirement for reporting within a state from healthcare providers or laboratories for purposes of prevention of spread of disease and enhancement of public health. Notifiable diseases are typically infectious diseases. Each state has its own list of notifiable conditions and diagnostic criteria and there are active efforts to harmonize this list. CDC is informed by states of cases that have been investigated and confirmed by state health departments. These are gathered into an annual report published in the *Mortality and Morbidity Weekly Report*. The NNDS program supports state health departments through direct adjunct funding, through development of software systems for managing notifiable conditions, and through software programs that link clinical care sites and laboratory systems to public health for

electronic reporting of disease. Electronic reporting of disease through automated data exchange to state public health is far more efficient in capturing cases of notifiable conditions in the community than manual reporting methods—up to 10 times more efficient. Electronic reporting also radically speeds up the case investigation process.

The Public Health Information Network (PHIN) is a set of programs designed to produce interoperability between public health departments at the local, state, and national levels for case investigation and notification. The PHIN program promotes best practices for interoperability in this setting and provides support to enhance informatics capabilities through Communities of Practice in selected issues.

NCPHI is highly involved in the standards process for the NHIN, participating in AHIC Subcommittees, in HITSP, in standards development with HL7, and in promulgation of standards through PHIN. Our philosophy is that standards development is essential but not sufficient for the development of public health capabilities. Standards are the link between clinical and public health infrastructure. Without investments in public health infrastructure, there is no capability for collaboration.

An example of the type of collaboration between the clinical care system is work on the design of a public health alerting and decision support system for EHRs performed in collaboration with our Centers of Excellence within the Integrating the Healthcare Enterprise (IHE) organization. Working with participants in the IHE, we developed a standards-based approach to public health alerts to clinicians' desktops. Each year local health departments notify up to 50 or more outbreaks going on in their communities but the results largely go unheeded by the clinical care system, as notification takes place outside of the workflows of clinical care. This new approach notifies clinicians when a patient they are seeing resides in a zip code with an ongoing public health alert and has demographics and symptoms potentially consistent with the alert. It also informs clinicians of the types of actions that they should take (advising restricting food handling, culturing, etc.) that are infrequently performed in clinical practice. This type of system demonstrates the degree of collaboration between the clinical care system and public health systems that is inherent in the term "meaningful use" of electronic health records.

Responses to the committee's specific questions follow.

***What is your vision of population/public health practice in an era when the health care of all Americans is supported by EHRs?***

***What high priority population/public health data needs can be advanced by EHR functions and health information exchange?***

NCPHI's vision for population/public health practice is an era when the healthcare of all Americans is supported by EHRs focuses on two broad areas: Public health—clinical care collaboration and on public health empowerment through access to clinical data. Broadly speaking the goals of clinical care system public health collaboration fall into five areas:

1. Systems insure that every clinician in the community is an “astute clinician” that recognizes public health notifiable conditions, reports unexplained illness, and follows public health recommendations for outbreak control, assisted by public health decision support at the point of care.
2. The infrastructure is in place for rapid two-way communications to public health about notifiable diseases. All diagnostic laboratories can report notifiable conditions to public health departments in states. All EHRs support reporting of public health notifiable conditions to state health departments, helping providers perform their statutory obligations. Public health investigation is automated by drawing upon data in the clinical care system to improve the completeness, speed and accuracy of reports.
3. Public health works with the clinical care system to help insure appropriate care for all. Registries monitor all patients with serious illnesses receive appropriate care and that no one with serious illness, especially an infectious illness, is lost to follow up. Registries insure that all children are appropriately vaccinated based on schedules that including parent preferences. Alerts notify clinicians when an individual with an untreated contagious illness comes into casual contact with the healthcare system, so that appropriate action can be taken.
4. Public health can work with clinicians to manage the growing problem of anti microbial resistance in communities. Our vision is for resistance to be actively managed through surveillance of resistance patterns and improved prescribing through deliver of the advice at the point of care based on the local anti effective ecology, evolving genomics, and phenotype.
5. Public health also works with clinicians to promote health in the community. Public health systems insure that tailored health promotion and prevention programs are available to all persons in the community regardless of insurance and social economic status. Clinicians can monitor patients’ performance in healthy behavior adoption with patients’ permission, through linking back to public health infrastructure for health promotion.

Population health activities in public health departments will be transformed through enhanced access to data from the clinical care system. Routine activities that are slow and inefficient are automated. Public health officials have health situational awareness of events in the community to plan responses. These activities include:

1. Integration of vital registration tasks with clinical care. Using data from the clinical care system, public health officials will know who is born in their communities and track new members with special risks. Officials know the rates with which people die in their communities and the causes of death in a timely way.
2. Public health officials also will have 100% health situational awareness with information sharing at appropriate levels of detail across the government, creating an infrastructure that allows the nation to rapidly characterize outbreaks and precisely target control efforts in pandemics with national resources.

3. Data automatically acquired from the clinical care system will automate public health practice. Disease control programs will spend the vast majority of their efforts on management of cases rather than data collection.
4. The clinical care system also will generate data on the health of communities at a highly detailed level that is not practical to obtain with survey methods. This allows public health officials to identify health needs and target health disparities. Communities will have the capability to know where their deficiencies in health resources are and plan interventions to improve health based on data.
5. Communities also will have the capabilities to assess the risks of local environment threats to health through monitoring of health system data. The health effects of potential environmental hazards will be closely monitored based on exposure data.
6. There will be wide spread automatic active surveillance for adverse effects of pharmaceuticals and other therapies. Systems will insure that the first one-million patients receiving a drug have special monitoring and active surveillance to insure its safety and overall efficacy.
7. Support for monitoring of the rates of hospital infections will insure that infections are accurately measured and the data widely will be available to the public to allow choice of healthcare providers based on cost and quality

***What specific requirements for meaningful EHR use, including information exchange, will most significantly benefit population health?***

Meaningful use includes use of an EHR so that it would generate meaningful data about the health of a population. A clinician's entire practice of active patients should be entered into the system. Records should be maintained in the EHR system and not in separate charts. Clinicians should use the for care documentation and for routine information exchange including exchange of summary data, pharmacy prescribing and electronic laboratory orders and reports.

Further, we believe that meaningful use includes participation in a collaborative exchange for information for patient and population care. Information delivered through links to the clinical care system and public health systems should impact individual patients' care. Therefore, meaningful use should include a requirement for the clinician to respond to patient specific notifications or requests for information coming into the EHR through information exchange including:

1. Medication issues and errors
2. Abnormal laboratory results
3. Public health alerts
4. Requests for medical records information coming from authorized institutions including requests for public health information

Meaningful use should include the sharing of health information in the EHR required for collaboration on patients' care, particularly information that is mandated by statute (public

health notifiable condition reporting and other types of statutory reporting). If a clinician using an EHR and has disabled or not implemented features that allow sharing of information for collaboration on care of patients at an individual or population, he or she cannot be using that EHR in a meaningful way.

***How can public and population health needs/requirements translate into meaningful use criteria that are practical to implement for 2011? How might they affect or be affected by the path to 2016 and beyond?***

Population health features need to be designed into EHRs starting now. Standards are not enough. We have to create functional systems for collaboration on care at individual and population health levels. This requires investments in public health infrastructure and sustainable funding for public health informatics capabilities. Novel approaches such as open source implementations of population health functions for EHRs should be considered. Manufacturers will work public health departments to enable features for collaboration on population health, as evidenced by our recent work within the IHE on public alerting and decision support. While they will not design public health systems, they will implement standards based approaches to population health, if the design of such systems minimizes costs to the manufacturer. This may require new architectures and specific public health infrastructure for interactions with EHRs. Principally, it requires investments in public health infrastructure concurrent with EHR infrastructure to create these systems. Investments of five percent of EHR system costs in population health infrastructure could achieve the ends described above, along with sustainable models for public health funding for use of such infrastructure.

Simple requirements can have large impacts on the road to 2011. A requirement for electronic laboratory order entry and results reporting for patients for meaningful use will promote electronic laboratory reporting to public health. Exchange of information for collaboration on care with immunization registries is easily implemented by manufacturers. Response to public health alerts and decision support is easily achieved using existing standards such as T81 (Infobutton) and Request for Documents (RFD). Many hospital systems already forward emergency room data to state systems and to BioSense. Standards and protocols already exist for this type of reporting. All three of these areas could easily be implemented by manufacturers in time for the 2011 rollout but both *would require concurrent investment in local, state and federal public health infrastructure* to achieve the ends desired.

Concurrent investment in NHIN architecture for clinical care is anticipated on the road to 2011—why not current investment for population/public health? The ARRA authors clearly anticipated the need for investments in population health infrastructure and provides authority for such investments in Section 3011 of the HITECH Act . The primary question is whether there are sufficient resources in the ARRA to develop this public health infrastructure needed. Do population health issues have sufficient priority? Events evolving in Mexico and around the world in relation to the Swine Origin Influenza A outbreak illustrate the hazards of ignoring population approach to health.

The path to 2016 and beyond is a path toward health transformation. It requires systems that work to support collaborative care at an individual and population health levels. Research and investment in population health functions is necessary now for the road to 2016, to create the types of systems described. Systems that work collaboratively with public health on individual level care providing alerts and decision support, helping clinicians fulfill long ignored statutory requirements for case reporting, enrollment and maintenance of clinical registries, on education and behavior change, provide population health situational awareness, assess regional health needs and risks and support health planning, and active surveillance for adverse effects of pharmaceuticals, as well as capabilities for management of antibiotic resistance. The upshot is that meaningful use should include capabilities for exchange of information collaboration on care with public health and for exchange to support the level of health protection that Americans deserve.