Business Case:

The Role of Public Health in National Health Information Technology Standardization

2009

Baltimore, Maryland
The **Public Health Data Standards Consortium** (PHDSC, The Consortium) is a national non-profit membership-based organization of federal, state and local health agencies; professional associations; academia; public and private sector organizations; international members; and individuals. Its goal is to empower the healthcare and public health communities with health information technology standards to improve individual and community health.

The Consortium is committed to bringing a common voice from the public health community to the national efforts of standardization of information for healthcare and population health. To fulfill this mission the Consortium:

- **Identifies priorities** for the new national standards for population health;

- **Promotes the integration** of health-related data systems to meet the health data needs of public and private organizations, agencies and individuals;

- **Participates** in national and international efforts on the standardization of health-related information;

- **Represents public health interests** in standards development organizations, data content communities & standards harmonization entities; and

- **Educates** the public health community about health information technology standards and the health information technology community about public health.

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# TABLE OF CONTENTS

**EXECUTIVE SUMMARY** .................................................................................................................. 6

**HEALTH INFORMATION TECHNOLOGY ADOPTION: CHALLENGES AND OPPORTUNITIES FOR PUBLIC HEALTH** .................................................................................................................. 8

- Health Information Technology Adoption in Public Health ......................................................... 8
- Toward a Nationwide Health Information Network ................................................................. 9
- Nationwide Health Information Network: New Opportunities for Public Health ...................... 10

**HEALTH INFORMATION TECHNOLOGY STANDARDS: CHALLENGES AND OPPORTUNITIES FOR PUBLIC HEALTH** .......................................................................................................... 12

- Health Information Technology Standards: Standardization Process, Entities and Standards Categories ................................................................................................................................. 12
- Health Information Technology Standards in Public Health: Challenges .............................. 14
- Health Information Technology Standards: Role of Public Health ........................................... 15
- Public Health in HIT Standardization: Barriers and Opportunities .......................................... 18
  - Why Participate in National HIT Standardization, or Risks of Non-Participation .................... 19
  - Where to Participate .................................................................................................................. 20
  - What Interests to Bring to the Standards Development Table ............................................. 20
  - Is Public Health Ready to Participate and Who Should Participate ......................................... 23
  - How Much Participation Will Cost and How to Fund Participation .................................... 25

**ASSURING PUBLIC HEALTH PARTICIPATION IN HIT STANDARDIZATION: BUSINESS STRATEGY** ......................................................................................................................................... 27

- What Needs to be Accomplished .................................................................................................. 27
- Who Needs to Participate .......................................................................................................... 27
- Enablers for Public Health Participation in HIT Standardization ............................................ 29
- Strategies to Increase Public Health Participation in HIT Standardization .......................... 30

**CALL TO ACTION: Coordinated Public Health Action on HIT Standards** ................................. 33

**REFERENCES:** .................................................................................................................................. 35
To date, health information technology (HIT) adoption in Public Health has been program-specific and jurisdictional-based. This has created and perpetuated fragmented, non-interoperable information systems across the public health enterprise. In order to reach optimal effectiveness, Public Health needs real-time meaningful data which these fragmented information systems cannot easily receive, generate or exchange. National HIT adoption strategies have created unprecedented interest in population-level data that Public Health needs to deliver. This population-level data can only be generated if public health information systems can successfully interoperate, i.e., receive and send data, with clinical information systems including Electronic Health Record Systems (EHR-S), and across public health information systems at all levels of government.

The Department of Health and Human Services (HHS) has adopted the process of HIT Standardization as central to its strategy to achieve health data integration, interchange, systems interoperability and HIT meaningful use. This creates a unique opportunity for Public Health to 1) enhance its data collection mechanisms via interoperable EHR-S; 2) make its information systems interoperable within and across agencies by standardizing existing stand-alone, fragmented public health systems; and 3) establish bi-directional, real-time exchanges of health information between public health information systems and clinical practice, and integration of public health knowledge into clinical care processes.

Today, public health participation in the national HIT standardization effort, especially from local and state public health agencies, has been limited, and the voice of state and local Public Health in that effort is weak and un-coordinated. To build an organized public health voice in the national HIT standardization process, there is a need for a common understanding and coordinated action within the public health community to define a process of how the interests of programs, agencies and jurisdictions can all be reflected in the resulting outcome.

The Public Health Data Standards Consortium (PHDSC) has been actively involved in the standards development, harmonization and certification efforts since its inception in 1999. Working with representatives from local, state and federal public health agencies and various professional associations, private sector organizations, and individuals, PHDSC leadership and members have been firm advocates for public health interests in HIT standards.1,2,3

PHDSC is proposing to work with local, state and Federal public health agencies, professional associations, academia, standards development, harmonization and certification organizations and others in the public and private sector to develop a process to assure that Public Health builds and maintains a strong, organized and educated voice in the national HIT standardization process.

This document presents the Business Case for public health participation in the HIT standardization process. The Business Case is targeted to public health leadership and decision makers at the local, state and federal levels; the national HIT leadership; and the leadership of HIT standardization entities and professionals involved in these entities. The purpose of the
The Business Case is to raise the awareness of HIT stakeholders of the critical role of federal, state and local Public Health in the national HIT standardization process.

The Business Case document describes the current state of HIT adoption and standards development in Public Health; the national HIT standardization process and the current level of public health involvement; the barriers for participation by state and local Public Health in this process; and the proposed business strategy to assure and maximize their participation. We anticipate that this strategy will serve to mobilize the public health community to engage in the HIT standardization processes; thus assuring the development and adoption of interoperable, standards-based HIT products in Public Health.
Public health agencies collect and use data to provide meaningful information to decision-makers; support public health programs that monitor the health of the public; coordinate and deliver healthcare, education and prevention services; administer Medicaid/Medicare programs and professional licensure programs; and disseminate information to the public. Since the 1980’s, various information systems have been in use to support the diverse data needs of public health agencies. This includes successful examples of information technology (IT) adoption in immunization, vital and health statistics registration, cancer programs, statewide patient discharge data systems, and communicable disease surveillance. The boost to improve public health information technology infrastructure after September 11, 2001 brought computers and internet connectivity into nearly every local public health agency. Public health information systems, electronic communication tools and specifically designed software products have streamlined the operation of agencies, enhanced analytic capabilities and improved the dissemination of health information.

Despite these successes, public health information systems face several key challenges. Developed to serve the needs of individual programs, often with program-specific funding from federal agencies, public health information systems frequently operate today as stand-alone “silos” using homegrown applications and non-standard data structures and content. These systems receive much of their data from hospitals, clinicians and other health care providers mostly via paper-based reports, or in some cases via program-specific web-based interfaces. In very limited cases, electronic information exchanges between providers and Public Health have been established, some utilizing proprietary data content and format ‘standards’, others using nationally-developed and sanctioned standards. Providers are thus asked to report the same data on multiple forms and through multiple interfaces of varying formats and contents to different systems, creating costly redundancies. Many of these systems capture redundant data, fueling poor provider relationships and compliance. These varying data formats, content and underlying standards usually limit (preclude) data linkages across systems without significant effort or re-work. According to national data, public health data systems currently suffer from limitations such as underreporting, lack of representativeness, lack of timeliness, inconsistency of case definitions across systems, and inability to integrate data across the systems. Fragmented public health data systems limit the ability of public health to respond to public health emergencies, effectively coordinate healthcare services and deliver community-based disease prevention interventions. Lack of integration leads to duplication of efforts and increased costs.

Recognizing the limitations of program-specific information systems, various states have attempted to integrate their systems. Desired outcomes from integrating public health information systems include improvements in the quality and timeliness of data collected and used by the agency; improvements in the comprehensiveness of data, both ‘horizontally’ (population-wide) and ‘vertically’ (about individuals and jurisdictions); increased efficiency of programs, processes, systems and services and reduction in agency and program operating and administrative costs; improvements in the effectiveness in the services delivered by the agency; and, therefore, improvements in the quality of care and the health of the public in the
community. However, various software products and, varying data formats and standards used by individual systems make integration projects costly and often unfeasible.¹⁵

*Today, public health information systems most often operate as “silos” that utilize various software products, data formats, content and standards in in-consistent and un-coordinated ways. Program-specific federal funding to state and local agencies that does not authorize expenditures for integration with related systems re-enforces the “siloed” adoption of health information technology in Public Health. Integration of public health information and information systems can support improvement in the effectiveness of public health programs, and the quality of care and the health of the public.*

**Toward a Nationwide Health Information Network**

In April 2004, President Bush’s Executive Order No.13335¹⁶ established the Office of National Coordinator for Health Information Technology (ONC) at the Department of Health and Human Services (HHS) to coordinate health information technology adoption.¹⁷ The vision is to develop a Nationwide Health Information Network (NHIN) of regional Health Information Exchanges (HIEs) connecting electronic health record systems deployed in clinical practices with each other and with other systems required to support the healthcare system.

The 2008-2012 ONC Coordinated Federal HIT Strategic Plan¹⁸ focuses on two goals: (1) *Patient-focused Healthcare* to enable the transformation to higher quality, more cost-efficient health care through electronic health information access and use by care providers, and by patients and their designees; and (2) *Population Health* to enable the appropriate, authorized, and timely access and use of electronic health information to benefit Public Health, biomedical research, quality improvement and emergency preparedness. The Plan is based on four objectives (Fig. 1): *Collaborative Governance; HIT Adoption, Privacy and Security and Interoperability*, i.e., the ability of different information systems to communicate (exchange) data accurately, effectively and consistently.¹⁹

![Fig.1. Coordinated Federal HIT Strategic Plan: Goals and Objectives](image-url)
The Health Information Technology for Economic and Clinical Health (HITECH) Act of the American Recovery and Reinvestment Act of 2009 (ARRA), is aimed at advancing HIT by supporting the adoption and “meaningful use” of certified electronic health record systems through incentive payments to eligible professionals (physicians and hospitals). Interactions of EHR-S with Public Health will play an important role in the definition of “meaningful use”. States will also play a critical role in determining how they will demonstrate “meaningful use” of HIT to ensure that populations with unique needs, such as children, are addressed. Recipients of these incentive payments may be required to report clinical, and quality measures to demonstrate accountability for achieving the meaningful use parameters promised. In addition, the EHR-S technology adopted under these provisions must be compatible with State or Federal administrative management systems.

The coordinated federal strategic plan for HIT adoption of electronic health record systems (EHR-S) is focused on patient healthcare and population health. States will play a critical role in determining “meaningful use” of EHR-S to ensure that populations with unique needs are addressed.

Nationwide Health Information Network: New Opportunities for Public Health

The Nationwide Health Information Network initiative has brought Public Health into the center of the national HIT adoption efforts. Local and state health agencies are participating in building regional and state-wide information exchanges in their jurisdictions, defining policies for electronic communication of information within and across jurisdictions, and working with EHR-S vendors on defining public health needs for interoperable clinical-public health information systems and in implementing NHIN demonstration projects.

Public health participation in the NHIN development initiatives has resulted in improved understanding for other stakeholders (e.g., clinicians, vendors) of public health activities, program diversity and its critical role in the larger healthcare community. This participation has also enabled Public Health to see itself as a critical partner of the healthcare enterprise whose infrastructure, knowledge and services are essential, complementary and irreplaceable in delivering quality care and protecting the nation’s health.

The NHIN development efforts have led to a new paradigm in health information use: the view of individual healthcare within a context of the health of the community, i.e., from population health perspectives, as implied by the dual goals of the HIT adoption (Fig. 1). This new paradigm is becoming an underlying principle (purpose) for interoperability of clinical and public health information systems that once functioned as stand-alone systems. The interoperability across public health and clinical systems is aimed at improving data collection and exchange mechanisms that in turn has a potential for “improving the efficiency, effectiveness and quality of care delivery and public health prevention interventions, reducing redundancy and inefficiencies in data gathering and management activities of public health programs thus improving the comprehensiveness and timeliness of data.”

NHIN development efforts have led to a new paradigm in health information use: to view individual healthcare within a context of the health of the community. This new paradigm is...
becoming an underlying principle (purpose) for interoperability of clinical and public health information systems that once functioned as stand-alone systems. Public Health has become a critical partner of the healthcare enterprise whose infrastructure, knowledge and services are essential and irreplaceable in delivering quality care and protecting the nation’s health.
Health Information Technology Standards: Standardization Process, Entities and Standards Categories

Standards are fundamental to health information systems interoperability. Standards are the rules which enable the NHIN and help define how EHR-S and public health information systems interact and communicate to support electronic exchanges of health information.

The HITECH Act calls for government leadership in developing standards that will allow a nationwide electronic exchange and use of health information to improve quality and coordination of care. HHS has adopted the process of HIT Standardization as central to its strategy of health data integration, interchange and systems interoperability. We define the HIT standardization process as a sequence of the following six phases:

1. HIT Interoperability Needs and Priorities Identification
2. Standards Development & Maintenance
3. Standards Selection & Harmonization for Interoperability
4. Standards Interoperability Testing and Trial Implementation
5. Interoperable HIT Products Certification, and
6. Interoperable HIT Products Deployment

Various public and private entities have been created to carry out HIT standardization efforts by each phase as follows:

<table>
<thead>
<tr>
<th>HIT Standardization Phase</th>
<th>HIT Standardization Entity Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needs Identification &amp; Priorities Setting</td>
<td>HIT Standards Committee(^{29}) and HIT Policy Committee(^{30})</td>
</tr>
<tr>
<td></td>
<td>(formerly AHIC, American Health Information Community(^{31}))</td>
</tr>
<tr>
<td>Standards Development &amp; Maintenance</td>
<td>Health Level Seven (HL7)(^{32}), SNOMED(^{33}), LOINC(^{34}), ASC X12(^{35})</td>
</tr>
<tr>
<td>Standards Selection &amp; Harmonization for Interoperability</td>
<td>Health Information Technology Standards Panel (HITSP)(^{36})</td>
</tr>
<tr>
<td>Standards Interoperability Testing &amp; Trial Implementation</td>
<td>Integrating the Healthcare Enterprise (IHE)(^{37})</td>
</tr>
<tr>
<td>Interoperable HIT Products Certification</td>
<td>Certification Commission for Health Information Technology (CCHIT)(^{38})</td>
</tr>
<tr>
<td>Interoperable HIT Products Deployment</td>
<td>Users: Clinical and Public Health Community at Large, NHIN</td>
</tr>
</tbody>
</table>

Each of these HIT standardization entities is working at various phases of the HIT standardization process to produce standards-related documents (e.g., use cases, profiles, interoperability specifications, HIT product certification criteria) that ensure the interoperability of systems. Table 1 presents HIT standardization phases, examples of standardization entities and their products.
<table>
<thead>
<tr>
<th>HIT Standardization Phases</th>
<th>Priorities &amp; Needs</th>
<th>Development &amp; Maintenance</th>
<th>Selection &amp; Harmonization</th>
<th>Trial Implementation</th>
<th>Certification</th>
<th>Deployment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goals</td>
<td>What to accomplish</td>
<td>What are the standards</td>
<td>What standards to use</td>
<td>Showcase what can be accomplished</td>
<td>Certify standards-based products</td>
<td>Deploy standards-based products</td>
</tr>
<tr>
<td>HIT Standardization Entities</td>
<td>HIT Standards Committee HIT Policy Committee (Formerly AHIC)</td>
<td>SDOs (e.g., HL7, SNOMED (IHTSDO), LOINC, ASC X12)</td>
<td>HITSP IHE</td>
<td>NHIN IHE</td>
<td>CCHIT</td>
<td>Proposed IHE &amp; PHDSC Deployment Workshops</td>
</tr>
<tr>
<td>Standards Documents</td>
<td>Use Cases (Description of the health information exchanges)</td>
<td>Standards</td>
<td>Interoperability Specifications Technical Frameworks Integration Profiles</td>
<td>Implementation Reports</td>
<td>Certification Criteria</td>
<td>Deployment Reports</td>
</tr>
</tbody>
</table>
The HIT standardization process is focused on the following standards categories:

1. Data Standards (vocabularies and terminologies)
2. Information Standards (reference information models)
3. Information Exchange Standards (message-based and structured document-based)
4. Identifier Standards (e.g., National Provider Identifier (NPI))
5. Privacy and Security Standards (e.g., access control, audit, electronic consent)
6. Functional Standards (e.g., work processes, workflow and dataflow models)
7. Other Standards (e.g., Internet standards, etc.)

Before the NHIN initiative, the main focus of HIT standardization was on data and messaging standards. This included defining data sets and vocabularies & terminologies to support these data sets, (e.g., clinical terminology (SNOMED), laboratory data (LOINC), administrative data (ASC X12)), and defining the ways of sending data from one information system to another (HL7). NHIN activities revealed the need for standardization of other critical elements of health information exchanges to achieve seamless interoperability between systems such as matching patients’ records (identifier standards), assuring confidentiality of health information (privacy & security standards) and understanding work processes of stakeholders involved in the information exchanges (functional standards).

The HITECH Act calls for government leadership to develop and adopt standards that will allow interoperable nationwide electronic exchange and use of health information to improve quality and coordination of care. HHS has adopted the process of HIT Standardization as central to its strategy of addressing the issue of data integration, interchange and systems interoperability.

Health Information Technology Standards in Public Health: Challenges

As early adopter of health information technology, Public Health has long been involved in HIT standardization efforts. Today, Public Health faces the following four challenges with regards to HIT standards:

1. Program-Specific Standards – Program-specific adoption of HIT has resulted in program-specific standards such as common datasets and messaging standards, e.g. immunization, cancer, maternal and child health, communicable diseases standards. Standardization efforts in these programs are often led by professional associations or expert groups, assuring that common standards would be used by similar programs in different jurisdictions;

2. Proprietary Standards – when coordinated standardization efforts were not available, some programs developed proprietary standards (data collection forms, vocabularies, etc.) for their information systems;

3. Jurisdiction-Specific Standards – due to the lack of national standards, various jurisdictions developed their own standards which are mandatory for public health programs in those jurisdictions;

4. Federal Agency-Focused Standards – many program-specific standardization efforts have been led by federal agencies, e.g., by Centers for Disease Control and Prevention (CDC) in immunization, cancer, communicable diseases, vital statistics; by the Health Resources and
Services Administration (HRSA) in maternal and child health; by Agency for Healthcare Research and Quality (AHRQ) in healthcare quality reporting. In addition to being program-specific, some of these standards focus on the aggregate-level data (population-level data) to be reported to the federal agency rather than on individual patient-level data needed by local and state health departments for case investigation and management, care coordination and health education.

Today, public health information systems use program-specific or proprietary or jurisdiction-specific data and messaging standards. Standards developed by federal agencies may not fully support the needs of local and state health departments in electronic health information exchanges with clinical settings in their jurisdictions. HIT standards used today in Public Health are not sufficient to support integration/interoperability of public health information systems within an agency, across agencies and with clinical information systems.

**Health Information Technology Standards: Role of Public Health**

To be interoperable, HIT applications need to utilize interoperable HIT standards. HIT standards must support the needs of all stakeholders participating in the information exchanges (clinicians, public health agencies, laboratories, pharmacies, others). There is a need for Public Health to look at its role and its HIT standards needs within the broader context of the continuum of care as well as within the context of broader public health functions and services across various programs and levels of governments. This is fundamental to “ensure that public health business and operating needs are taken into account when developing interoperable standards; and, therefore, to ensure that public health information systems can interoperate with other systems within Public Health and healthcare, in general.”

“Coordinated, collective action is required at almost every level of the healthcare system to realize the full benefits of HIT. This makes it unlikely that individual actors, pursuing their own self-interests, would be able to take the full advantage of HIT. The importance of collective action is most apparent in securing effective communication – so-called interoperability – across providers of care in the United States” – David Blumenthal, National Coordinator for HIT.

Public Health needs can be effectively communicated to standard developers and, in turn, built into standards only if those who know these needs (public health professionals) participate in the HIT standardization process (Table 1) to communicate, advocate for, and defend or negotiate for their needs in the consensus-based HIT standardization process. To date, public health professionals have achieved significant success in advocating inclusion of public health needs in the national HIT agenda. Specifically, participation of public health professional associations such as the Association of State & Territorial Health Officers (ASTHO), the National Association of City & County Health Officers (NACCHO), the American Public Health Laboratory Association (APHL), and the Council for State and Territorial Epidemiologists (CSTE) at the American Health Information Community (AHIC) during 2005-2008 helped develop several national public health Use Cases such as Bio-surveillance, Immunization and Emergency Response, Public Health Case Reporting, Newborn Screening, and Maternal and Child Health. These national Use Cases serve as a common description of health information
exchange needs across public health programs and clinical care and, therefore, lay the common ground for the development of interoperable, standardized HIT products.

The selection of interoperable HIT standards for these public health Use Cases at HITSP demonstrated that in addition to an advocacy role, there is a critical need for public health professionals, especially those from local and state agencies, to be directly involved in the downstream development of the Use Case-related HIT standards selection and harmonization documents, HIT products’ certification criteria, and standards trial implementation and deployment efforts (Table 1). While a number of public health professionals have consistently participated in HITSP activities, public health continues to be under-represented in these efforts especially at the state and local level.

*The selection, harmonization, and certification of HIT standards to be used in HIT products to support public health information exchanges cannot be successfully done without direct input and validation by public health experts, those who know routine public health activities, their goals and challenges.*

Table 2 and Figure 2 illustrate the current level of participation of public health organizations in the HIT standardization process. Today, the total number of public health organizations participating in the national HIT standardization efforts is 69, i.e., 4 % of all participating organizations (N= 1779). For example:

- One local public health representative participates in the *HIT Policy Committee* and there are no public health representatives in the *HIT Standards Committee* – national committees that set the policy and standards priorities for HIT;
- 12 state and 5 local public health agencies (24% of all state and 0.2% of all local public health agencies) have their representative in *HL7*, an organization that develops health information exchange standards (messaging standards and other) (Table 2). HL7 maintains 46 various committees. At best, the 17 participating state and local public health agencies delegate 1-2 persons per agency to attend the meetings. This means one public health professional per about 3 committees;
- Four state public health agencies (8% of state public health agencies) and 3 local public health agencies (0.1% of local public health agencies) participate in *HITSP* – the national HIT standards harmonization entity; and
- One state public health agency (2% of state public health agencies) and none of the local public health agencies participate in *CCHIT* – the national HIT product certification entity.

Those who participate in the HIT standardization process usually have detailed knowledge in a particular program (area) of Public Health and may not able to effectively represent the entire public health needs/interests.

Lack of participation of local and state public health representatives in the national HIT standardization efforts (Table 2) will ultimately mean that public health needs for interoperable clinical and public health information systems may not be met in the standards-based certified HIT products, because standards developers will not know about or consider these needs when developing and deploying their products.
Table 2. Public Health Participation in HIT Standardization*

<table>
<thead>
<tr>
<th>HIT Standardization Phase</th>
<th>HIT Standardization Entity</th>
<th>Public Health Participation</th>
<th>Number of Persons by Public Health Organization, N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Number of Organizations, N</td>
<td>Public Health Organizations, N (%)</td>
<td></td>
</tr>
<tr>
<td><strong>Needs Identification &amp; Priorities Setting</strong></td>
<td>HIT Standards Committee 23</td>
<td>0 (0)</td>
<td>Federal Agencies 0 State Public Health 0 Local Public Health 0 Prof. Associations 0 Academia** 0</td>
</tr>
<tr>
<td></td>
<td>HIT Policy Committee*** 20</td>
<td>2 (10)</td>
<td>Federal Agencies 1 State Public Health 0 Local Public Health 0 Prof. Associations 0 Academia 1</td>
</tr>
<tr>
<td><strong>Standards Development &amp; Maintenance</strong></td>
<td>Health Level Seven (HL7) 503</td>
<td>27 (5)</td>
<td>Federal Agencies 12 State Public Health 5 Local Public Health 3 Prof. Associations 7 Academia 6</td>
</tr>
<tr>
<td><strong>Standards Selection &amp; Harmonization</strong></td>
<td>Health Information Technology Standards Panel (HITSP) 641</td>
<td>30 (5)</td>
<td>Federal Agencies 10 State Public Health 4 Local Public Health 3 Prof. Associations 7 Academia 6</td>
</tr>
<tr>
<td><strong>Standards Trial Implementation</strong></td>
<td>Integrating the Healthcare Enterprise (IHE) 251</td>
<td>7 (3)</td>
<td>Federal Agencies 1 State Public Health 3 Local Public Health 3 Prof. Associations 0 Academia 0</td>
</tr>
<tr>
<td><strong>Standardized HIT Products Certification</strong></td>
<td>Certification Commission for Health Information Technology (CCHIT) 341</td>
<td>3 (1)</td>
<td>Federal Agencies 0 State Public Health 1 Local Public Health 0 Prof. Associations 2 Academia 0</td>
</tr>
<tr>
<td><strong>Total Number of Organizations</strong></td>
<td>1779</td>
<td>69 (4)</td>
<td>Federal Agencies 18 State Public Health 20 Local Public Health 9 Prof. Associations 15 Academia 7</td>
</tr>
</tbody>
</table>

* Based on the total number of participating organizations as of May 30, 2009.

** Academia refers to Schools of Public Health only.

*** In addition to two public health professionals (1-Local Public Health; 1- Academia) who are the members of the HIT Policy Committee, two more public health professionals (1- Local and 1- State Public Health) participate in the HIT Policy Committee Working Groups.
While Public Health has been succeeding in advocating for its needs/interests in the national HIT agenda (e.g., several public health use cases in the 2005-2009 AHIC agenda, public health reporting capabilities in the criteria for meaningful use of EHR-S), its voice in the national HIT standards development, harmonization and certification activities continues to be weak and un-coordinated, often representing only the needs of a particular program or organization. These needs sometimes conflict with other programs’ and organizations’ needs. The lack of broader representation and coordination of the public health participation causes delays in the development of interoperable standards, or development of standards that do not serve public health needs at large.

Coordinated participation of public health representatives, specifically from local and state public health agencies in the national HIT standardization entities is critical to assure that public health needs are met in the standardized interoperable HIT products.

Public Health in HIT Standardization: Barriers and Opportunities

To assure participation of public health representatives from local and state agencies in the national HIT Standardization efforts, it is important to address the barriers precluding their participation and the resulting risks of non-participation. We identified the following five barriers for state and local public health participation in HIT Standardization process:

- **Lack of awareness** of the benefits to Public Health of participating in the HIT standardization efforts/entities
- **Difficulty in identifying the standardization entities** that will provide the greatest returns in addressing the needs of local and state Public Health
- **Limited ability** for local and state Public Health to be involved in the national efforts as they serve particular jurisdictions and have limited knowledge of the needs in other jurisdictions, programs and levels of Public Health
• **Lack of technical knowledge** and **informatics skills** to participate in the technical dialogue and to effectively translate public health needs into technical HIT standards

• **Lack of funding** to support basic participation, such as travel to meetings

The world of HIT standards is complex (numerous standards developed by numerous standard development entities), technically-challenging (this is an advanced computer science field) and political (standards serve needs of those who develop them). Today, public health agencies have a number of important decisions to make on how to navigate in this non-public health world and decide,

1. Why participate?
2. Where should Public Health participate?
3. What interests should be brought to the HIT Standardization table(s)?
4. How should public health participation be coordinated?
5. Is Public Health prepared to participate and who should participate?
6. How much will participation cost and how should it be funded?

By answering these questions below we propose the ways of addressing the five barriers for state and local public health participation in HIT standardization process highlighted above, thus taking on the opportunity to harmonize HIT standards for public health information systems and to integrate our systems into regional and nationwide health information exchanges.

**Why Participate in National HIT Standardization, or Risks of Non-Participation**

As noted above, the non-participation or limited participation by local and state public health representatives in the national HIT standardization efforts will ultimately mean that public health needs for interoperable clinical and public health information systems will not be met in the standards-based certified HIT products. This, in turn, will,

1. **threaten public health data gathering activities** as fragmented public health information systems may not be able to receive data electronically in a standardized, interoperable manner from EHR systems;
2. **diminish effectiveness of public health interventions** because underreporting, caused by inability to receive/exchange data electronically, will reduce timeliness and effectiveness of public health services and interventions and negatively impact public safety;
3. **diminish efficiency** of public health operations because of continued redundancy of the data gathering activities across programs due to the use of non-interoperable outdated information technology;
4. **reduce ability to communicate public health information back to clinicians electronically** (e.g., population health status and disease surveillance reports; information about public health resources; public health guidelines and recommendations; educational materials) to inform clinical decisions;
5. **jeopardize adoption of modern interoperable HIT applications in Public Health**, as these applications will lack functionality needed to address public health needs;
6. **jeopardize achieving population-level goals of NHIN** as Public Health will lack capabilities needed to participate in electronic regional and nationwide health information
exchanges with clinicians and effectively provide the population health information that Public Health can offer.

(7) minimize the potential of state and local Public Health to receive funding from Federal and other sources that will likely mandate the use of interoperable HIT products.

**Where to Participate – Which HIT Standardization Entities will Serve Public Health Needs**

In the US, standards are developed by standards development organizations and data content committees through a consensus-based process. Each standard development organization maintains its own committees, workgroups, tiger teams, special interest groups, and processes to support a full array of standard development efforts. In addition to standards development organizations, there are national HIT standards harmonization and certification entities with their committees and working groups in which Public Health will also have to participate (Table 1).

**The following are the HIT standardization entities in which participation of public health representatives, specifically from local and state Public Health, is critical to assure that public health needs are addressed in the national HIT Standardization efforts:**

- **HIT Standards Committee** – defines national HIT standards priorities
- **HIT Policy Committee** – recommends policies to the Office of National Coordinator (ONC) for the development and adoption of NHIN
- **ASC X12, SNOMED (IHTSDO), LOINC and others** – define data standards
- **Health Level Seven (HL7)** – defines information exchange standards
- **Health Information Technology Standards Panel (HITSP)** – selects and harmonizes standards
- **Integrating the Healthcare Enterprise (IHE)** – harmonizes standards and demonstrates standard-based HIT solutions (trial implementation), and
- **Certification Commission for Health Information Technology (CCHIT) and other certification bodies as they emerge** – certify standard-based HIT products

**What Interests to Bring to the Standards Development Table – Addressing Limited Ability for Local and State Public Health to Be Involved in the National Efforts as They Serve Particular Jurisdictions**

Representing Jurisdictional Needs in the National HIT Standardization Process

Local and state public health agencies serve populations of particular jurisdictions. Jurisdictions create their own laws, regulations and policies. Variations in state and local laws, regulations and practices create barriers to electronic information exchanges between jurisdictions. They also impact the ways HIT is used within jurisdictions, including state-specific reporting requirements to public health agencies and levels of protection of health information privacy. These jurisdictional differences that may be barriers at the policy level are known at the standards level as variability in functional capabilities that HIT products need to be able to support. Only if standards developers are aware of the need to support jurisdiction-specific differences, can they develop suitable technical solutions to ensure interoperability. For example, standards developed
by Federal agencies may not work well at the local and state levels because standard developers were unaware of additional jurisdiction-specific needs.

Participation in the national HIT standardization efforts may be viewed as outside of the area of interest and authority of state and local governments. However, only through participation of local and state Public Health in the national HIT standardization efforts will standards developers be aware of and understand the needs of particular jurisdictions, and be able to build the capabilities to meet those needs into standards-based “meaningful” EHR-S. Then EHR-S can truly be interoperable with public health information systems, i.e., systems that will support needs of both clinicians and public health practitioners in local and state health information exchanges.

Only through participation of local and state public health professionals, who will communicate their jurisdictional needs to the various HIT standardization entities, will standards developers be able to develop standards that will support public health needs in interoperable HIT products.

Representing Agency’s Program-specific Needs in the National HIT Standardization Process

Local and state public health agencies serve populations through various programs, each with specific data needs supported by programmatic information systems. Today, when public health agencies are actively involved in planning/building regional health information exchanges, they are under pressure to decide how various programmatic information systems that use proprietary and/or program-specific standards can be interoperable with each other and regional health information exchanges.

National HIT standards harmonization efforts at HITSP and international efforts at IHE are aimed at addressing the same issues of lacking interoperability across healthcare information systems (e.g., clinical systems, laboratory systems, pharmacy systems). Learning about specific data needs from different public health programs, their interoperability challenges and the ways those challenges are being overcome may help Public Health prevent costly and ineffective implementations and help transition Public Health from proprietary, program-specific standards to interoperable HIT standards within their agencies.

Participation of state and local public health agencies in the HIT harmonization entities will also help inform these entities about agency-specific and program-specific challenges related to the use of national interoperability standards, thus helping the national process to become more robust and responsive to local and state needs and assuring broader adoption of interoperable HIT standards.

Participation of state and local public health agencies in the national HIT standardization entities will help them articulate program-specific needs and, therefore, help transition from proprietary, program-specific standards to interoperable HIT standards within their agencies. This participation will also help inform HIT standardization entities about agency-specific challenges related to use of national interoperability standards, thus helping the national process to become more robust and responsive to local and state needs and assuring broader adoption of interoperable standard-based HIT products.
Assuring Agency’s Programmatic Needs at the National HIT Standardization Process

Public health professional associations have been playing a critical role in facilitating HIT standardization efforts in their specific areas of interest. Some examples include:

- Immunization
  American Immunization Registry Association (AIRA)
- Laboratory
  Association of Public Health Laboratories (APHL)
- Epidemiology and Disease Reporting
  Council for State and Territorial Epidemiologists (CSTE)
- Cancer
  North-American Association of Central Cancer Registries (NAACCR)
- Vital Statistics
  National Association for Public Health Statistics and Information Systems (NAPHSIS)
- Healthcare Management
  National Association of Health Data Organization (NAHDO)
  American Health Information Management Association (AHIMA)

These organizations help state and local public health programs to develop common data sets and information exchange standards deployed in public health information systems across the United States. They also have been playing an important role in coordinating local and state needs in HIT standards with the needs of various federal agencies. As a way to further serve their constituents, several professional associations have embarked on the task of harmonizing program-specific standards with the nationally-adopted interoperability standards by participating in HITSP and IHE62 (Table 2).

The opportunity that exists is to take these program-specific needs and requirements and harmonize them across public health, within an agency, and between public health agencies across jurisdictions.

**Participation of public health professional organizations in national HIT standardization entities on behalf of their constituents brings programmatic expertise to the standardization efforts and strengthens the voice of Public Health. It is important for state and local public health agencies to continue their involvement in the standardization activities of various professional organizations to assure that public health’s programmatic interests are addressed in HIT standards and ultimately in standards based HIT products.**

**How Should Public Health Participation be Coordinated - Coordinate Agency/Jurisdictional Needs with Organized Public Health Voice at the National HIT Standardization Process**

Public health needs to speak with a strong, coordinated voice to HIT standardization entities. This voice has to reflect the needs/interests of local, state and Federal Public Health together because successful HIT adoption cannot not be achieved if HIT products do not support the needs of all those involved in electronic information exchanges. The voice also has to be coordinated across the various public health programs and activities.

**To build an organized public health voice at the HIT standardization table, there is a need for coordinated action within the public health community to define the process of how the interests of programs, agencies and jurisdictions can be all reflected in the resulting outcome.**
Public Health has succeeded, due to the advocacy efforts of several public health professional associations (e.g., ASTHO, NACCHO, CSTE and APHL at AHIC for public health use cases; PHDSC at HL7, ASC X-12, National Unified Billing Committee (NUBC) and National Unified Claim Committee (NUCC) for needed data content and information exchanges) in establishing its place at the “national HIT table”. This advocacy role was important to include Public Health into the national HIT agenda. The Joint Public Health Informatics Taskforce (JPHIT), formed by the above mentioned and several other public health professional associations, was aimed to coordinate public health advocacy effort on HIT adoption.

The challenge today is that, after succeeding in advocating for public health involvement, meaningful participation of public health representatives in the HIT standardization process (standards development, harmonization, certification), especially from the state and local public health agencies, does not occur at the extend needed. By not gaining input from the state and local public health communities into the technical decisions-making about HIT standards or not communicating back the implications of the technical decisions for public health information systems, all the hard upstream work of Public Health in advocacy and use-case development is going for naught. This problem is particularly poignant at a time when vendors are seeking public health input, because of the marketplace demands they expect.

The Public Health Data Standards Consortium has been involved in the standards development, harmonization and certification efforts under all national HIT initiatives. Working with representatives from local, state and Federal Public Health and various professional associations, PHDSC leadership and members have been firm advocates for public health interests in HIT standards and in helping Public Health find and develop a unified voice.

**PHDSC proposes to work with local, state and Federal public health agencies, and public health professional associations, to develop a process to assure that Public Health has a strong coordinated unified voice in the development, harmonization and certification of national HIT standards.**

**Is Public Health Ready to Participate and Who Should Participate – Addressing Lack of Technical Knowledge and Informatics Skills to Participate**

Standards are developed by highly-trained IT professionals, mostly HIT vendors. For example, 215 vendor organizations (43% of total) participate in developing standards at HL7 compared to 27 public health organizations (5%). Public health professionals involved in the national HIT standardization efforts are expected to fully participate in the development and review of highly technical standards documents, e.g., use cases, technical frameworks, technical specifications, integration profiles, and interoperability specifications, even though these public health professionals come from a non-IT background. They are expected to ensure that the documents reflect and meet their respective business needs. They are also expected to understand, speak and critique the IT “language” of these documents which is comprised of diagrams, models and acronyms often foreign to non-IT audiences. Public health professionals are expected to explain public health needs for interoperable information systems using this IT language as well.

During the last decade, public health professionals have become more active in developing the discipline of public health informatics – a newly emerging field that deals with the use of data,
information and knowledge in public health.\textsuperscript{67,68} Schools of public health have been developing public health informatics training courses and programs to expand that expertise.\textsuperscript{69} CDC Public Health Informatics Training\textsuperscript{70} and CDC Centers for Excellence in Public Health Informatics\textsuperscript{71} also have been advancing the public health informatics curriculum. Several state and local public health agencies – usually larger ones – have established divisions of/positions for public health informaticians who dedicate part of their duties to monitoring and direct participation in the national advisory bodies, such as the former American Health Information Community (AHIC), to help advance the public health agenda via national use cases. Some of these individuals also are now involved in the HIT Policy Committee, CCHIT and National Committee on Vital and Health Statistics (NCVHS).\textsuperscript{72}

However, in general, the number of trained informaticians working at local and state health departments is very low. Some local agencies are located in parts of the country where recruitment of informaticians and highly-skilled IT staff is difficult.

It should be noted that participation in HIT standardization entities requires a high level of understanding of public health practices, which may not be expected from new graduates of the public health informatics programs. They might also lack technical knowledge and skills on HIT standards. While HIT standards topics are included in the CDC Public Health Informatics Core Competencies\textsuperscript{73,74} and might be covered in some of the lectures under the courses offered by academic programs, today, only Johns Hopkins public health informatics program offers a course on HIT standards for a non-IT audience.

Several professional organizations offer educational webinars on HIT standards, e.g., CDC Vocabulary and Messaging Community of Practice,\textsuperscript{75} HITSP, PHDSC and others. However, educational webinars are infrequent and usually focus on a particular HIT standardization activity (e.g., standards development, harmonization or certification).

\textit{Today, when academic educational efforts on HIT standards are at the early stages of development and educational webinars organized by professional organizations are infrequent, public health professionals are left to embark on the difficult task of becoming HIT standards experts and to learn the IT language and needed skills through direct participation in the HIT standardization process.}

It is also important to emphasize that the complexity of HIT standardization efforts and the need for a senior-level expertise with deep knowledge of public health practices and required public health information exchanges require participation of senior public health program staff and public health informatics staff in the HIT standardization activities.

Public health IT professionals working in local and state Public Health at the program- and agency- levels (i.e., chief information officers, directors of information technology, and others), especially those with the deep understanding of public health practices, could be engaged in representing an agency’s interests at national HIT standardization entities. They could also collaborate with those from other programs and agencies to help develop a coordinated, unified public health voice in the HIT standardization process.
Professional associations engaged in HIT standardization efforts may also play a significant role in representing state and local public health interests at the national HIT standardization process, especially in the area of their programmatic interests. It is important to point out, however, that not all professional associations have dedicated professional staff with the level of expertise needed to participate in HIT standardization efforts. So, additional educational and recruitment efforts are needed to bring HIT standards-savvy staff to these organizations.

Senior public health program staff, senior public health informaticians and IT professionals working in local and state public health agencies could be engaged in representing agency’s interests at the national HIT standardization entities and collaborate with those from other programs and agencies to help develop a coordinated, unified public health voice in the HIT standardization process. Professional associations engaged in HIT standardization efforts may also play a significant role in representing state and local public health interests at the national HIT standardization process, especially in the area of their programmatic interests.

**How Much Will Participation Cost and How to Fund Participation – Raising Awareness of Addressing the Lack of Funding to Support Basic Participation**

Today, participation in HIT standardization efforts is overwhelming for many involved stakeholders (e.g., vendors and domain experts such as clinicians, public health professionals) in terms of time, resources, funding and technical expertise. Long hours are spent developing and reviewing standards documents. All HIT standardization entities rely heavily on volunteers to develop, harmonize and certify standards. Voluntary participation means that the standardization entities do not pay participants for their work in developing/harmonizing/certifying standards but expect that the participating organizations will bear the cost of work hours spent by their staff/employees at conference calls and meetings developing and reviewing documents, and travel costs. HIT vendors have been delegating/assigning their staff to work at the HIT standardization entities and covering the cost of participation often because it is in their interest to influence the development of standards in ways that enhance their products’ competitive advantage. Federal agencies also bear the cost of their representatives to participate in HIT standardization.

During the past several years, very limited resources have been provided by public health professional associations, Federal agencies and state and local public health agencies to support participation of public health professionals on behalf of state and local Public Health in national HIT standardization activities (Table 2). The current level of support available for public health representatives to participate in the HIT standardization process is not adequate to enable the necessary transition from non-standardized to interoperable HIT solutions in Public Health.

There is a need to allocate proper resources for participation of state and local Public Health in the national HIT standardization process. Based on participation in the HIT standardization entities such as HL7, ASC X12, HITSP and IHE, we estimated that voluntary participation in one entity requires up to 10 hours per week on average (about 25% FTE) to take part in the conference calls, conduct document review and attend 3-5-day-long quarterly face-to-face meetings. Taking into account that ongoing participation of an individual is needed for consistency and that a person capable of contributing in highly technical discussions at those
calls/meetings has to be at the senior level, we estimated the cost of participation at $25,000-
30,000 per person per entity per year. In addition to time allocations, resources are needed to
tavel to the meetings. These entities usually hold quarterly or trimester meetings. We estimated
that $7,000 is needed per person per year to attend meetings of one entity. Lastly, we estimated
that on average $1,000 per year per person is needed for continuing education in HIT standards-
related topics. According to these estimates, direct costs of participation for one individual in one
HIT standardization entity are $38,000 per year.

Not all state and local agencies will have the financial wherewithal nor sufficient individuals
with the appropriate knowledgebase to participate in each of the HIT standardization entities or
even to participate in one. Realizing this challenge we are proposing a business strategy for
“Assuring Public Health Participation in HIT Standardization” as described in the section that
follows.
National HIT standardization process requires collective input from Public Health on what public health issues need to be addressed in national interoperable HIT standards. This input needs to be collaboratively developed, put through the national HIT standardization process and uniformly implemented. Public Health’s “Organized Voice on HIT Standards” will have to take on a character reflective of this reality.

We define Public Health’s Organized Voice on HIT Standards as an open, transparent, participatory process of harmonizing program-specific and jurisdictional needs with national HIT interoperability standards by working with HIT standardization entities on various phases of HIT standardization.

Participation in the HIT standardization process is becoming a key for assuring that public health needs are met in national HIT standards.

We propose a business strategy which (a) maximizes the impact of those who can participate on behalf of Public Health in the national HIT standardization process, and (b) informs/educates and obtains input, as best as possible, from those who cannot. Through this joint public health effort, we could achieve meaningful interoperability across public health information systems as well as between public health and clinical information systems. Our model also describes funding strategies for assuring ongoing local and state public health participation in HIT standardization processes.

What Needs to be Accomplished

There is a need to increase participation of representatives from state and local Public Health in national HIT standardization activities, so that national interoperable HIT standards and certified standard-based HIT products will support data needs for public health decision support and services delivery.

Who Needs to Participate

Role of Local and State Agencies

Participation in HIT standardization on behalf of Public Health requires individuals who have both on-the-ground public health expertise as well as some degree of IT knowledge. Today, most public health agencies do not have individuals with sufficient level of IT and informatics knowledge. In addition, most local and state public health agencies do not have staff members whose duties relate to monitoring/participation in the HIT standardization process. For the future, Public Health will need to build a HIT-standards-savvy workforce through informatics training. Today we have to rely on involving senior public health program staff, senior public health informaticians and IT professionals currently employed by public health agencies.
To overcome the lack of trained public health workforce enabled to participate in HIT standardization, public health agencies can employ several strategies, including:

- Recognize HIT standardization efforts as a distinct role for senior program staff, senior informaticians and/or IT professionals in the agency and the need to incorporate this additional task into existing staff duties;
- For larger agencies, train and explicitly devote one or more staff members, e.g., informaticians, IT staff, especially if they are in a leadership position with respect to one or more programs, to carry out an agency’s HIT standardization activities;
- For smaller agencies, outsource HIT standardization efforts where possible to experts-consultants with extensive knowledge of public health, HIT standards and informatics to participate in the HIT standardization process on behalf of the agency;
- Recognize the need for continuing education in public health informatics and HIT standards for agency’s workforce;
- Band together within a region (i.e., various local public health agencies within a state) and share the costs associated with the deployment of one or more public health professionals to represent them on HIT standardization efforts;
- Participate in and leverage memberships in public health professional associations involved in standardization activities as a way of providing input into the HIT standardization process;
- Participate in coordination activities for building Public Health’s Organized Voice on HIT Standards.

**Role of Professional Associations**

Public health professional associations are in a strong position to provide leadership and coordination for HIT standardization, especially for particular public health programs, e.g., immunization, communicable diseases, vital statistics, newborn screening, cancer. Through various workgroups and committees, these organizations can channel specific standardization efforts towards national HIT standardization activities. Their experts, who participate in the program-specific standardization efforts, will have the program- and standard-related expertise needed to participate in the HIT standardization process. Through their broader membership, they would be able to disseminate information, facilitate discussion, and generate consensus and support for HIT standards. These associations could help coordinate the education process necessary for standards promulgation and adoption. It is important to note that while representing interests of a particular program, professional associations need to be involved in harmonization of their programmatic HIT standards with those from other programs, as represented by other associations, thus forming a Public Health’s Organized Voice on HIT Standards.

**Role of Coordinating Entity**

Due to the broad spectrum of public health interests (local, state, national) in HIT standardization activities and wide variety of HIT standardization efforts (development, harmonization, certification, deployment) in which to get involved there is a need for a coordinating entity that can facilitate coordination of public health activities in HIT standardization thus building the Public Health’s Organized Voice on HIT Standards.
The Coordinating Entity could

- Facilitate public health involvement in various HIT standardization entities.
- Coordinate activities of professional organizations and their constituents in the HIT standardization process;
- Assist local, state and federal agencies in identifying appropriate HIT standardization entities and professional organizations to communicate their needs for standards;
- Help identify new public health areas for developing new standards and carry out activities needed to initiate standards development efforts in these areas;
- Conduct outreach activities regarding public health participation in HIT standardization, and educate public health workforce on HIT standards via sessions at public health meetings, on-line resources and/or participation in the development and delivery of HIT standards courses for academic programs and continuing professional education; and
- Help identify and secure resources needed to support the participation of public health professionals in HIT standardization entities.

**Enablers for Public Health Participation in HIT Standardization**

State and federal governments, academia and private sector can help enable public health participation in the national HIT standardization process as each of these stakeholders can also benefit from this participation.

**Role of Federal Government**
The Federal government will benefit from state and local public health participation in the national HIT Standardization process because interoperable standards-based local and state public health information systems will ensure the successful and meaningful implementation of electronic health information exchanges under the NHIN. To foster public health participation in the HIT standardization process, the federal government could implement several options. First, the federal government could require and support participation in the HIT standardization process as a condition of being involved in and funded by federal programs. Second, the federal government could directly fund participation of state and local public health representatives to HIT standardization entities. Third, the federal government could fund (1) coordination of local, state and federal public health interests in HIT standardization process, and (2) professional education on HIT standards. Finally, the federal government could support the coordination of public health entities in developing a Public Health’s Organized Voice on HIT Standards and a common approach to the HIT standardization efforts in Public Health.

**Role of State Government**
The State government will benefit from state and local public health participation in the national HIT Standardization process because fragmented state and local public health information systems can become interoperable to ensure real-time collection and exchange of data for decision-making, provision of quality care and public health services in their jurisdictions. State governments can stimulate participation of their representatives in the national HIT standardization process by (1) funding involvement of representatives from local and state Public Health in the national HIT standardization process to advocate for state needs at the national level, (2) launching statewide HIT standardization awareness efforts, (3) supporting the
of public health workforce on HIT standards, and (4) leveraging any federal funding aimed at supporting such participation and training. Necessary funds could also be made available by leveraging additional resources provided by non-public health entities, e.g., foundations, hospital systems, federal government and private sector.\textsuperscript{78}

**Role of Academia**

Universities can stimulate public health participation in the national HIT Standardization by creating online courses on HIT standards and, through their partnership with public health agencies and professional associations, by delivering these courses to the public health workforce. These courses should be included in the public health informatics curriculum of schools of public health. The public health members of academia may involve faculty of other departments such as information systems, computer sciences, medicine and business in the development and delivery of these courses because broader expertise is needed in defining the content for those courses. Those courses also could be also offered to IT professionals thus assuring their understanding of public health needs in HIT.\textsuperscript{79} In addition, sponsored research conducted in academia may be useful to the HIT standardization process.

**Role of Private Sector**

While federal and state governments can play important roles in increasing public health participation in the standardization process, effective implementation of these standards lies predominantly with the private sector. Only the private sector can ensure that the products they develop address public health needs. Thus the private sector continues to seek public health involvement in the HIT standardization process to develop HIT products that can address public health needs and concerns. Close collaboration between the private sector and Public Health during the HIT standardization process itself would minimize the burden on the private sector that might be caused by addressing these issues at a later point in time after product development. The private sector can also encourage public health participation at the various standardization entities by sponsoring participation of local and state agency representatives in those entities viewing them as domain experts who will inform the development of “meaningful” HIT products.\textsuperscript{80}

**Strategies to Increase Public Health Participation in HIT Standardization**

The following are a series of proposed strategies to increase public health participation in HIT standardization:

- Develop and gain consensus on a clear, shared public health vision for HIT adoption and participation in the HIT standardization process;
- Ensure that every public health agency, i.e., about 3,000 local and 50 state agencies, has realized the need for participation in HIT standardization and has been working on identifying a way to get involved or at least stay informed;
- Identify sources of funding to create and maintain positions of staff members or experts-consultants to represent agencies’ interests in the national HIT standardization process; to fund travel expenses to attend meetings of HIT standardization entities; and to fund the cost of training of the public health workforce;
Establish fellowships for public health professionals from state and local public health agencies to allow them to be assigned to major HIT standardization efforts and entities to promote in-depth, hands-on experiences for a number of individuals each year;

Establish an open and transparent process for soliciting public health needs for HIT standards and assuring that these needs are met in the standards-based interoperable HIT products through collaboration of local, state and federal public health agencies, professional associations, academia and private sector;

Identify a core group of public health professionals that can begin to be actively engaged in the HIT standardization process; to complement them, develop a network of extended public health professionals who can be used as resources by the core group to send inquiries and receive input.

Develop web-based tools to support participation of public health representatives in the national HIT standardization process including web-sites, webinars, and educational programs aimed to continuously raise awareness about HIT standardization activities and outcomes, and to train public health professionals in HIT standardization issues.

Increase the number of attendees in formal public health informatics programs at colleges and universities, and ensure that HIT standardization is a part of the core curriculum.

Increase the number of HIT and HIT standardization-related sessions offered at public health conferences and meetings that are not primarily focused on IT or informatics. While there may be limited interest initially, over time HIT will become an expected presence at these events.

Conduct a pilot for implementation of these strategies with a representative number of the local and state public health agencies (municipal, county, state) to refine the proposed strategy on assuring public health participation in HIT standardization.

To implement these strategies we propose to launch a Coordinated Public Health Action Plan on HIT Standards – a joint HIT standardization awareness effort of local, state and federal agencies, professional associations, academia and private sector – as described in the section that follows.

Web-based Interactive Model on Public Health in HIT Standardization

To monitor implementation of the Coordinated Public Health Action Plan on HIT Standards the PHDSC has been developing a web-based Interactive Model on Public Health in HIT Standardization.

The goals of the Interactive Model are to

- Monitor and coordinate public health participation in the HIT standardization process,
- Assure that public health professionals involved in HIT standardization are equipped with proper knowledge and skills,
- Disseminate information to broader public health community about HIT standards developed by the national HIT standardization entities
- Disseminate information about adoption of standard-based HIT products in Public Health, and
- Solicit public health needs for new HIT standards.
The Interactive Model will serve as a web-based informational and educational resource and tool targeted to public health and HIT leadership and decision-makers, public health program leadership, public health practitioners and clinicians, and researchers.

The Interactive Model consists of four modules designed to address barriers for public health participation in HIT standardization as follows:

*Module 1: HIT Standards Resource Center* provides informational resources regarding HIT standards, standardization process and entities. This Module was launched in June 2009.

*Module 2: HIT Adoption Stories* conveys current experience with implementation of public health information systems. Anticipated release date is May 2010.

*Module 3: Public Health Needs for HIT Projects* is designed to collect functional requirements for new information exchange projects from public health and clinical professionals via on-line questionnaire. This will help identify and prioritize public health HIT needs and the needs for new standards. Anticipated release date is December 2010.

*Module 4: Public Health Participation in HIT Standardization Process* tracks public health involvement in the HIT standardization, participants’ experience and lessons learned during their participation, and HIT adoption in Public Health. This module will also entail the development of the cost-benefit comparison component that will include tracking of costs and funding sources for participation of public health professionals in HIT standardization as well as the costs and benefits of implementation of standard-based HIT products. Anticipated release date is May 2010.
CALL TO ACTION:

Coordinated Public Health Action Plan on HIT Standards

The PHDSC proposes to work with local, state and Federal public health agencies, public health professional associations, academia and public and private sector to set an open, transparent, participatory process assuring that Public Health has a strong, coordinated, unified voice in the national HIT standardization process.

The following are the steps needed to establish a Coordinated Public Health Action Plan on HIT Standards:

- **Work with senior leadership at the local and state public health agencies** (e.g., Health Commissioners or Secretaries) to assure their support for designating agency representatives to participate in the national HIT standardization process in collaboration with other public health organizations and identifying and securing funding for their participation and training needs.

- **Work with senior program and informatics staff and IT leadership at the local and state public health agencies** (e.g., directors of public health informatics, chief information officers (CIO)) to assure their support for agency representatives to participate in the national HIT standardization process, and to assure interoperable HIT standard adoption across the agency’s information systems. Coordinate CIOs’ efforts in HIT standard adoption and representation of public health IT interests in regional, state and nationwide health information exchanges through the National Association for Public Health Information Technology (NAPHIT).

- **Work with public health professional associations to coordinate cross-program interests and needs in identifying priorities and setting policies on HIT standards** for the local, state and nationwide health information exchanges through collaboration of appropriate public health professional associations:
  - Representing local interest – National Association of City and County Health Officers (NACCHO)
  - Representing state interest – Association of State and Territorial Health Officers (ASTHO)
  - Representing public health informatics interests – Joint Public Health Informatics Task Force (JPHIT)

- **Work with public health professional associations to coordinate program-specific efforts on HIT standardization** through collaboration of appropriate committees of public health professional associations and federal government agencies, for example:
  - Immunization American Immunization Registry Association (AIRA) and CDC National Center for Infectious Diseases
  - Laboratory Association of Public Health Laboratories (APHL) and CDC National Center for Public Health Informatics
- **Epidemiology & Disease Reporting**
  - Council for State and Territorial Epidemiologists (CSTE) and CDC National Center for Public Health Informatics

- **Cancer**
  - North-American Association of Central Cancer Registries (NAACCR) and CDC National Center for Chronic Disease Prevention and Health Promotion

- **Vital Statistics**
  - National Association of Public Health Statistics and Information Systems (NAPHSIS) and CDC National Center for Health Statistics

- **Newborn Screening**
  - Public Health Informatics Institute, Maternal and Child Health Bureau, HRSA and CDC National Center for Birth Defects and Developmental Disabilities

- **Healthcare Management**
  - National Association of Health Data Organization (NAHDO) and American Health Information Management Association (AHIMA)

- **Work with academia to develop educational programs and tools on HIT standards and HIT standardization** for public health professionals to assure that representatives from public health agencies and professional associations possess the necessary skills and expertise for participation in the technical discussions with vendors in the HIT standardization process. Collaborate with schools of public health to include HIT standards training in the public health informatics curriculum for academic and continuing education training of public health professionals.

- **Identify a public health organization to carry out a Coordinated Public Health Action Plan on HIT Standards including**
  - Facilitate coordination between public health agencies, professional associations, academia and private sector in meeting public health needs in the national HIT standardization process;
  - Help identify and secure funding for participation of state and local agencies representatives in HIT standardization;
  - Provide informational and educational resources to the public health workforce on the HIT standard and standardization process; and
  - Conduct outreach activities on the role of Public Health in HIT standardization for broad public health audience.

The Public Health Data Standards Consortium, with appropriate resources, is prepared to assume this role.
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