PUBLIC HEALTH DATA STANDARDS CONSORTIUM

PHDSC

Promoting Standards Through Partnerships

Board of Directors

# Towards Public Health Sector Transformation and Unity

# Strategic Plan 2012-2014

2012

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.

The Consortium is committed to bringing a coordinated voice from the public health community to national and international efforts in standardizing health information technology and population health data in order to improve individual and community health.

To fulfill its mission the Consortium:

***Identifies priorities for new national standards*** for population health data;

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

***Participates in national and international efforts*** to standardize health-related information;

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

***Educates*** the public health community about health information technology standards and the health information technology community about public health; and

***Advocates for, and participates in, the transformation of healthcare to a health-based model*** in collaboration with other stakeholders.

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## Section 1 Executive Summary

PHDSC envisions a transformation in the United States over the next 10 to 15 years, from today's disease-based model to a *health-based model* of care (HBM) committed to continuous learning from data generated in the course of practice, i.e. an integrated Learning Health System (LHS). PHDSC's vision is shared by a number of prestigious organizations, including the National Committee on Vital and Health Statistics (NCVHS) and the Institute of Medicine (IOM). Among the tenets of this shared vision are:

- Health promotion and disease prevention are a primary focus for every individual.
- Health and wellness are seen more *holistically*.
- All persons have access to care.
- The population's health is measured objectively.
- Privacy and security policies guide, support and facilitate data use and sharing.
- A digital infrastructure promotes healthy lifestyles and enables more efficient and effective care delivery.
- Health information is generated by a variety of reliable, secure, and reusable data sources.
- Operational work flows and information systems are fully aligned *within* Public Health and *among* Public Health, healthcare sectors, government agencies, and consumers.

Public Health can be a *leader* in the migration to the HBM/LHS. However, before Public Health can lead, Public Health needs to *act* and *advocate* in a unified manner to be credible in its leadership. Moreover, Public Health information systems must be better aligned with the practice of public health to support this transformation within its own sector before it can work effectively outside the sector to migrate to the HBM/LHS. PHDSC can be a *catalyst* in this transformation, as well as represent Public Health in standards development and HIT deployment.

PHDSC's Mission is to build a Coordinated Voice from Public Health for HIT Standards, and to bring this Voice to national and international HIT standardizations efforts to attain consensus within Public Health and to achieve full functionality and interoperability of information systems within the healthcare-public health-population health enterprise. Consistent with this mission, PHDSC has laid out three Strategic Goals:

- To help stimulate the migration of clinical and public health operations from a disease-based to a health-based model/learning health system by partnering with HBM/LHS stakeholders

- To enable seamless alignment of information systems functionality with the business needs of Public Health
- To enable interoperability of information systems within the healthcare-public health-population health enterprise via HIT standards to support the migration to the health-based model/learning health system

To achieve these goals, PHDSC's Business Strategy contains four strategic initiatives, each composed of a combination of crucial components (policy, business, standards, systems, enterprise, and health), objectives and activities, and guided by a set of principles.
The four strategic initiatives and their top objectives are:

- **Strategic Initiative 1. Unify Public Health in support of a health-based model/ learning health system**: Unifying Public Health as a sector—by aligning data gathering practices across various public health programs and levels of government using standards-based information systems—is necessary to effectively exchange health information within the sector and enable Public Health to help lead the transformation in healthcare. Objectives include advocating for the need for transformation of the sector and the migration to the HBM/LHS, and forming a Public Health Transformation Coalition to enable full utilization of health information technology (HIT) to support the migration to the HBM/LHS. The activities associated with these objectives will be conducted by the PHDSC Communication and Outreach Committee and the PHDSC Data Standards Committees.

- **Strategic Initiative 2. Unify Public Health Information Systems**: To accomplish the goals of HBM/LHS, current public health information systems must be transformed and aligned to support information exchanges across all public health entities and with other healthcare sectors, consumers, and other stakeholders. Objectives include building a *Coordinated Voice from Public Health on HIT Standards*, and bringing this *Voice* to the national and international HIT standardization efforts. The activities associated with these objectives will be conducted by the PHDSC Data Standards Committee, PHDSC NHIN Committee and the PHDSC Professional Development Committee.

- **Strategic Initiative 3. Align/Integrate Public Health with Other Sectors in Healthcare, Including Administrative Data Systems**: Based on Initiatives 1 and 2, interoperable public health, clinical information systems and administrative data systems will enable integration of healthcare and public health enterprises, and further integration with other health-related sectors (e.g., environmental protection) in the future. Objectives include monitoring and participation in existing national initiatives that strive to align/integrate public health, healthcare, and other sectors to the extent possible, and beginning to influence the direction of these activities according to the PHDSC vision. The activities associated with these objectives will be conducted by the PHDSC Data Standards Committee.

- **Strategic Initiative 4. Align/Integrate the Healthcare-Public Health-Population Health Enterprise with Consumers and Other Stakeholders According to the Vision of the HBM/LHS**: As the healthcare-public health-population health enterprise transformation progresses, that enterprise can better align and integrate its practices and interoperable HIT with that of consumers and other stakeholders. Together, all stakeholders can move in coordinated fashion to achieve the HBM/LHS. This strategic initiative will not need to be worked on over the 2012-2014 timeframe of this Plan. Therefore, no objectives for this initiative were specified.

This Strategic Plan specifies the execution of the first 3 strategic initiatives between 2012 and 2014. As time goes on, the strategic initiatives will be updated depending on the progress made within the initiatives and the changes in the environment that may require revisions to the initiatives.

All detailed activities and operational plans for these activities under the strategic objectives will be developed by the corresponding PHDSC Committees by March 31, 2012. These deliverables will form the basis for the annual tactical and operational plans (a separate document) that support this three year Strategic Plan.

## Section 2 Vision

**PHDSC's Vision**[a]

PHDSC envisions a transformation in healthcare over the next 10 to 15 years, in which there will be a migration from today's disease-based model to a *health-based model* of care.[1,2] As part of the health-based model, PHDSC envisions a future state in which:

- Health promotion and disease prevention are a primary focus for every individual.

  Treating persons *after* they have suffered from a disease, chronic illness, injury or trauma will certainly remain a necessity. However, focusing on health, wellness, and prevention will help individuals engage in healthier lifestyles and healthy behaviors; *avoid* disease, chronic illness, injury and trauma; maintain their health; and reduce their healthcare costs.

- There is a greater and more holistic understanding of the determinants of disease prevention, functional status, and well-being (see Figure 1 below) and the ecosystem-like manner in which the determinants interact. As a result:

  The population will be healthier because individuals better understand the ways in which the determinants affect their health and change their behaviors accordingly.

  A vast majority of government agencies, healthcare entities, employers, and other organizations promote health, wellness, and prevention through policy, laws, programs, and incentives.

  Care delivery is well coordinated among providers and between provider and public health settings.

  More resources are allocated for wellness and prevention programs than are allotted today. These resources are well coordinated across organizations and programs to increase their cost effectiveness and expand their reach into communities.

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[a] This is PHDSC's *vision* statement. As with any vision, some of the statements in this section may seem lofty, unrealistic or unattainable *today*. However, as a vision, this section describes what PHDSC would like to see as a *future state*. Though parts of the vision may not be attained ten to fifteen years from now, it is important that the vision sets the bar high so that, even if we fall short, we still will have achieved some major transformations within the healthcare industry, as well as within the public health sector. Thus, the statements in this vision are intentionally written as" stretch goals" which PHDSC should strive to achieve and collaborate with others to increase the likelihood that the vision will be attained.

The outcomes from such programs—i.e., their contributions to the population's health—can be measured objectively.

- All persons have access to care.

- Well-defined, clearly understood and widely accepted privacy and security policies are in place that guide, support and facilitate data use and sharing.

- Public Health plays a greater role in supporting the nation's healthcare system and assuring the public's health.

- Operational work flows and information systems are fully aligned *within* Public Health and *among* Public Health, healthcare sectors, government agencies, and consumers.

  There is consensus agreement within Public Health on *data utilization*—i.e., what data to collect, how to collect it, and how to use it to continuously improve business practices, care delivery, outcomes, and population health.

  Aligned information systems implement data, functional, and interoperability standards that support public health and population health, both for clinical and reporting purposes.

  Electronic health records in all healthcare sectors (e.g., acute care, long term and post acute care) capture clinical data to support public health programs and reporting across public health agencies.
  Information from healthcare and non-healthcare sources, such as data regarding occupational and environmental risks, in concert with other public health data sources are integrated to increase surveillance and care delivery capabilities.

  Innovations in personalization, as well as in mobile and web technology and applications, enable individuals to maintain healthier lifestyles, communicate with their providers, and exchange their health information with providers and Public Health in a secure and private manner.

**Support for PHDSC's Vision**

A number of prestigious organizations share compatible visions. In part, PHDSC's vision has been informed by their work. In other respects, their work advances PHDSC's vision and provides a means for PHDSC to extend its advocacy and coordinate its activities with other industry leading entities.

*Why is it important to migrate to the health-based model?*

*Why is the health-based model/learning health system important to public health?*

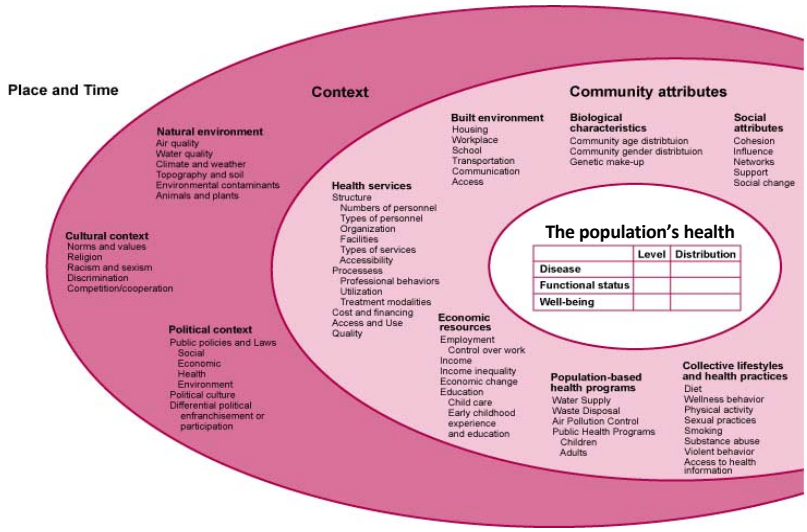
The National Committee for Vital and Health Statistics (NCVHS) and the Institute of Medicine (IOM), for example, have advocated for a similar transformation in health and healthcare, with a concomitant transformation in health and healthcare *information*, by the next decade. Integral to this transformation is the migration from the disease-based to a health-based model of care and a *learning health system*,[3] in which all persons have access to care;[4] the population's health can be measured objectively;[5] and a digital infrastructure promotes healthy lifestyles, communities, and workplaces; and enables more efficient and effective care delivery.[3]

*What problems does the HBM/LHS solve?*

The end point of this transformation, the health-based model[1]/learning health system[2], is important for public health because it emphasizes health promotion and disease prevention, and enables public health to play a greater role in supporting the healthcare system and assuring the public's health—the very tenets for which the sector stands—along with the provision of care in various healthcare settings.

In addition, there are other characteristics of the health-based model/learning health system (hereafter HBM/LHS) that are critical for public health, as depicted in Figure 1 and summarized below. Note the similarities between PHDSC's vision and HBM/LHS.

**Figure 1. Determinants of Population Health**
**NCVHS. *Shaping a Health Statistics Vision for the 21st Century – Final Report*. November, 2002.**




The following characteristics of the Health-Based Model[1,2]/Learning Health System of 2020[3] Are Important to Public Health and PHDSC:[b]

- Treatment and health maintenance through care delivery will continue to be important. However, health and wellness will be seen more *holistically*, as other determinants of disease prevention, functional status, and well-being are considered—e.g., the place an individual inhabits over a period of time, along with concomitant environmental, cultural, political, social-behavioral, and other community influences.

- Health information will be generated by a variety of reliable, secure, and reusable data sources both inside and outside of healthcare settings, and integrated to simultaneously form health records for individuals and databases for population-based analyses (see Figure 2).

  Electronic health records (EHRs) and personal health records (PHRs) will be more robust, widely adopted and integrated, with seamless exchange of health information between the two types of systems.

  Individual-based data generated outside of healthcare settings, based on accepted policies and people's individual preferences, will be linked to EHRs and PHRs and serve as indicators or proxy measures of a person's health behaviors (e.g., grocery store

[b] The characteristics in this section are directly summarized from NCVHS and IOM materials. These are their thoughts. As with PHDSC's vision statement, some of the characteristics may seem unrealistic or unattainable today. However, the statements in this section reflect NCVHS's and the IOM's vision of the future.

transactions as an indicator of dietary habits and nutrition, pharmacy transactions as an indicator of medication compliance).

Ambient environment population-based data, such as the air or water quality within a locale, will be linked with an individual's health information captured in healthcare settings and serve as factors affecting the health of the individual, as well as predictors of population health status.

Longitudinal data regarding occupation and potential workplace exposures will be available to assist evaluation of clinical conditions and to identify opportunities for prevention.

Data will be collected once in each of healthcare provider, personal health, and population health dimensions (non-overlapping part of the circles in Figure 2) and reused for multiple purposes (overlapping part of the circles).

*Mashups*[c] of the data will provide new and innovative services that promote healthy living.

*Rapid learning*[6] from federated databases will accelerate new knowledge about health and healthcare delivery

Individual and population health services are evidence based.

Best practices are used as the starting point every time.

In short, the holistic view of the HBM/LHS enables Public Health to achieve the goals for health and healthcare, as stated in the 2001 report from the National Committee for Vital and Health Statistics, *Information for Health, A Strategy for Building the National Health Information Infrastructure* .[2] (See Figure 2.)

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[c] Mashups are combinations of web- or mobile-based data resources and tools that are used to create (mashup) new applications. The application provides a valuable service to the user. At the same time, the owner of the application can use the data collected by the mashup for a useful purpose. When visiting a theater's website, for example, an individual can (a) purchase tickets for the play, (b) get directions to the theater, (c) see the location of the theater on a map, (d) get recommendations of nearby restaurants for dinner before the play, and (e) make a reservation at one of the restaurants. Each of (a) through (e) is an individual tool—e.g., Google Maps for (b) and (c)—that were combined to form a single application. The application provided a valuable service to the customer (the convenience of booking the play and the restaurant). The theater also gains business (the purchased ticket) and considerable business intelligence—i.e., which nearby restaurants their customers use most often, the information of which the theater can then use to create preferred business relationships with those restaurants and getting a percentage of restaurant revenue by channeling theater customers to those restaurants through restaurant discount offers.

**Figure 2. Nationwide Health Information Network Components Under the Health-based Model as adapted from NCVHS. *Information for Health, A Strategy for Building the National Health Information Infrastructure* November, 2001.**


## Challenges

Migrating to the HBM/LHS will bring a number of challenges with respect to policy, public health *practice* and healthcare delivery at the business and enterprise level, health information technology (HIT) standards, and information systems design and deployment, among other things. (See Table 1)

**Table 1. Comparison Between the Disease-based and the Health-Based Models And Their Accompanying Data Standards Challenges**

| | Disease-based Model | Health-based Model/Learning Health System |
|---|---|---|
| Determinants | While there may be recognition that prevention and wellness are important, and that there are other determinants of health, there is still a greater emphasis on healthcare—i.e., treating a patient after acquiring a disease. The population's health is improved one patient at a time. The majority of resources are allocated to healthcare. | There is greater recognition that place and time, contextual factors (e.g., social, environmental, behavioral, cultural, and political) and community attributes are equally as, if not more, important determinants of the population's health as the delivery of healthcare services. Resources are more appropriately allocated for health and healthcare. |
| Information | Health information is generated largely from healthcare settings (i.e., doctors' offices, hospitals, clinics, etc.) and represents a very high percentage of the health information recorded for an individual, as well as the total amount of health information collected on the population. Health information on the other determinants of health remains largely separate and often missing. | Health information from healthcare settings comprises an important subset of the total amount of health information collected on the population, as much of the data will come from non-healthcare settings—including environmental (e.g., air and water quality, hazardous waste), occupational, behavioral (e.g., purchases at grocery stores and pharmacies), and social data. Health information from both health and healthcare data sources are more integrated. |
| Standards | Technical standards, and resources for their development and maintenance, are largely focused on functional and interoperability requirements for information systems in healthcare settings. Standards for data reuse are emerging more and more. Development and maintenance of new and existing standards for healthcare is already a major challenge, as evidenced by the standards development initiatives going on today. Integration of systems across health and healthcare, and their accompanying standards, are given less attention and resources. | Technical standards require data, functionality, and interoperability standards to work in concert with each other both within and across the health and healthcare spaces. Collecting the data once in all the various data sources and reusing for multiple purposes is more important than ever. Standards development and maintenance is an even greater challenge as data must be managed across health and healthcare setting data sources. Integration of systems across health and healthcare, and their accompanying standards, are given greater attention and resources |

## The Role Public Health Must Play in Migrating to the Health-based Model/Learning Health System

For all of the challenges, Public Health can be a *leader* in the migration to the HBM/LHS as the health-based model emphasizes the tenets for which the sector stands.

However, before Public Health can lead, Public Health needs to *act* and *advocate* in a unified manner to be credible in its leadership. (This notion is the rationale for Strategic Initiative 1

below.) Moreover, Public Health information systems must be better aligned with the practice of public health to support this transformation within its own sector before it can work effectively outside the sector to migrate to the HBM/LHS. (This notion is the rationale for Strategic Initiative 2 below.)

**The Role PHDSC Can Play in Migrating to the Health-based Model/Learning Health System**

PHDSC well understands that there are currently no national initiatives to either unify Public Health as a sector around the health-based model, nor to unify its information systems. Yet, for all the rationale cited above, PHDSC supports the migration to the HBM/LHS. As noted in the 2011 Institute of Medicine study on the *Digital Infrastructure for the Learning Health System*,[3] HIT can support the transition to the HBM/LHS. Thus, within the collaborative role that PHDSC plays with its partners in public health, informatics, standards development and maintenance, and HIT deployment, PHDSC can be a *catalyst* for change within Public Health and other healthcare sectors, as well as represent Public Health in standards development and HIT deployment.

To fulfill its mission and be effective in its role, PHDSC needs a Strategic Plan wherein its strategies and tactics, business plan, and operations are aligned with its mission and shared PHDSC-HBM/LHS vision.

## Section 3 PHDSC Mission

***PHDSC's Mission is to build a Coordinated Voice from Public Health on HIT Standards, and bring this Voice to national and international HIT standards efforts to achieve both consensus within Public Health and full systems functionality and interoperability within the healthcare-public health-population health enterprise.***

Today, a programmatic, disease-specific approach to health and wellness is predominant in the United States and elsewhere around the world. To follow suit, the development and deployment of HIT standards and HIT itself is based on a similar approach. As a result, there are often competing objectives, as well as a competition for resources, in advancing health and healthcare.

A ***Coordinated Voice*** is needed on two levels:

- Within Public Health so that it can:
    - Galvanize and organize itself and gain consensus agreement on what transformation in the sector needs to occur and how it should occur, starting with its policy, workforce, practice, HIT, and resource needs
    - Present a unified front as it makes it voice heard and leads other healthcare sectors, consumers, and other stakeholders in the migration to the HBM/LHS
- Across the healthcare-public health-population health enterprise so that there are coordinated, rather than competing, policy, workforce, practice, HIT, and resource *objectives* across the enterprise, enabling a smooth migration to the HBM/LHS

Though it collaborates with other stakeholders in championing the Coordinated Voice above, PHDSC takes on a specific role of being the Coordinated Voice for HIT standards development and maintenance, as well as HIT deployment. The need for a coordinated voice for HIT has been well stated in PHDSC's 2009 *Business Case: The Role of Public Health in National Health Information Technology Standardization*[7] and excerpted in Table 2 below.

**Table 2. The Need for a Coordinated Voice for HIT Standards Development and Maintenance And HIT Deployment**

**PHDSC. *Business Case: The Role of Public Health in National Health Information Technology Standardization.* 2009**

"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 be achieved if HIT products fail to support the needs of all stakeholders. This voice must also be coordinated across the various public health programs and activities. To build a coordinated public health voice in HIT standardization, there must be ***coordinated action*** within the public health community to define how its various program, agency, and jurisdictional interests can all be reflected in the resulting outcome. This action should occur on two levels of efforts – the ***advocacy level*** and the ***technical level***." (pg. 25)

"The 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 "***Coordinated Voice on HIT Standards***" will have to take on a character reflective of this reality. We define public health's ***Coordinated 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." (pg. 27)

To serve in this role effectively, PHDSC must:

- Build *Public Health's Coordinated Voice on HIT Standards*, and
- Bring this *Voice* to national and international HIT standards efforts

To build *Public Health's Coordinated Voice on HIT Standards*, PHDSC will work collaboratively with public health stakeholders (local, state and federal agencies, professional associations, academia and HIT vendors) to:

- Advocate for the need for transformation of the sector and the migration to the HBM/LHS
- Harmonize and *operationalize* program- and jurisdiction-specific needs for HIT standards and standards-based HIT solutions
- Develop and deploy the HIT standards and standard-based HIT solutions needed to support sector transformation and the migration to the HBM/LHS

To bring this *Voice to national and international HIT standards efforts*, PHDSC will *represent* public health's needs in the various national and international standards activities.

## Section 4 Overall PHDSC Strategic Goal

***The overall goal of PHDSC's strategic efforts is two-fold. First is to help stimulate the migration of clinical and public health operations from a disease-based to a health-based model/learning health system by partnering with ALL stakeholders—including local, state and federal public health agencies, healthcare organizations, professional associations, academia, HIT vendors and consumers. Second is to enable seamless alignment of systems functionality and interoperability within the healthcare-public health-population health enterprise via HIT standards to support the migration to the health-based model/learning health system.***

HIT standards are critical to support multi-directional electronic communication between EHRs, PHRs and public health information systems (PH-IS) across the healthcare-public health-consumer health enterprise to help manage information on health-related events, disease prevention and environmental and social determinants of health, as well as information captured in healthcare settings. (See Figures 1 and 2)

To achieve the overall goal, PHDSC must collaborate with ALL stakeholders to:

I. Identify and develop the steps to achieve the migration to the HBM/LHS

II. Advocate for such change, especially in the area of policy

III. Modify or enhance public health practice, business operations, and workflow, as well as the data, functionality, and interoperability standards needed to implement the HBM/LHS in coordinated fashion

IV. Ensure that data, functionality, and interoperability standards are developed and maintained

V. Ensure that practice, data, functionality, and interoperability standards are deployed, which may include:
    a. Leading or participating in certification and other national initiatives (e.g., the current Standards & Interoperability Framework activities in the US)
    b. Assisting vendors as they implement such standards in electronic systems
    c. Helping entities (e.g., local, state and federal public health agencies, providers, health information organizations (HIOs), consumer organizations) implement practice and HIT-related standards through funded projects

## Section 5 PHDSC Business Strategy and Outcomes

To achieve the overall goal, PHDSC's Business Strategy will include the following four strategic initiatives, each of which has underneath it a set of activities complete with measurable goals, objectives, and timeframes (see Section 7). It is important to understand that these four strategic initiatives are *not* sequential (where one initiative must end before the next one can begin). Indeed, there is a fair amount of overlap among the initiatives from a time standpoint. For example, unifying Public Health (Initiative 1) will be a continuous and long term endeavor that will occur perhaps over the entire transformation process.

**PHDSC Strategic Initiatives**

**Strategic Initiative 1. Unify Public Health in Support of Health-based Model/ Learning Health System**

The first step in migrating to the HBM/LHS is to unify public health as a sector by breaking down its silos in data gathering activities across public health programs and levels of government using standards-based information systems (see Strategic Initiative 2) to effectively exchange health information within the sector.

Outcome: Unified Public Health in terms of data-gathering activities across public health programs and levels of government.

**Strategic Initiative 2. Unify public health information systems**

The current public health's information systems—replicas of the public health program silos—must be transformed and aligned to support information exchanges across all public health entities and with other healthcare sectors, consumers, and other stakeholders tomorrow.

Outcome: Unified Public Health Information Systems

**Strategic Initiative 3. Align/Integrate Public Health with Other Sectors in Healthcare, Including Administrative Data Systems**

Strategic Initiatives 1 and 2 must work in concert with each other to achieve the outcomes of Strategic Initiative 3. Based on Initiatives 1 and 2, interoperable public health, clinical and administrative information systems will enable integration of clinical, healthcare and public health enterprises, and further integration with other health-related sectors (e.g., environmental protection) in the future.

Though PHDSC's vision (see Section 1) has identified the challenges of integrating clinical and non-healthcare data, it is critical to maintain a focus on administrative data because these data

also represent an important source of information for public health (e.g., All Payer Claims Databases). To that end, PHDSC supports the harmonization between administrative and clinical data systems and interoperability with both.

Outcome: Unified Healthcare-Public Health-Population Health Enterprise.

**Strategic Initiative 4. Align/Integrate the Healthcare-Public Health-Population Health Enterprise with Consumers and Other Stakeholders According to the Vision of the HBM/LHS**

As the healthcare-public health-population health enterprise transformation progresses—again, it does not have to be complete—that enterprise can better align and integrate its practices and interoperable HIT with that of consumers and other stakeholders (e.g., the Environmental Protection Agency, Department of Housing and Urban Development , Department of Commerce, Department of Education, others). Together, all stakeholders can move in coordinated fashion to achieve the HBM/LHS.

Outcome: Integrated Public Health, Healthcare and Other Sectors.

**Six Components of the PHDSC Business Strategy**

Six components must be addressed in each of the Strategic Initiatives. They are:

**Policy** - Health and healthcare policy issues (e.g., privacy and confidentiality), their legal aspects (if pertinent), and how policy is/should be written into jurisdictional law, rules, and regulations

**Business** - Scope of practice and jurisdiction-specific programmatic and operational requirements/processes that may need to be aligned, or have a need for HIT standards

**Standards** - HIT specifications and other artifacts (e.g., domain analyses, implementation guides) that may need to be developed or enhanced to align/integrate business needs and the implementation of HIT

**Systems** - Information systems and other HIT to support jurisdiction-specific programmatic needs

**Enterprise** - Any combination of healthcare, public health, consumers and other stakeholders affected by the migration to the HBM/LHS

**Health** - Health outcomes of individuals and populations served by the healthcare and public health enterprise

Each component has a different level of strength depending on its relative importance within a specific initiative. For example, while all six components are important in the “unify public health” initiative, it is critical to identify health and healthcare policies that need to be developed or modified, and how they must be developed or modified in the early stages,

because such policies will drive public health's advocacy and standards development efforts. Thus, policy will be a large component in early strategic initiatives.

**Timeframe**

We anticipate that the process of the public health transformation towards the health-based model/ learning health system may take a few decades. During this time, PHDSC will use an incremental approach for building the HBM/LHS.

The focus for 2012 - 2014 is on unifying public health in support of a health-based and learning health system (Strategic Initiative 1) and unifying public health information systems (Strategic Initiative 2). Policy, Business, Standards, and Systems are the predominant components of these Initiatives.

The focus for 2015 - 2017 is on aligning and integrating public health practices and systems with other healthcare sectors. Policy, Business, Standards, Systems, Enterprise, and Health are the predominant components during this period, as it will be important to have policy that clearly articulates the coordination of practice and interoperability of systems based on health outcomes across the healthcare-public health enterprise.

The focus for 2018 – 2025 is on aligning and integrating the healthcare-public health enterprise with consumers and other stakeholders, getting deeper into the transition to the HBM/LHS. Policy, Enterprise, and Health are again the predominant components during this period for the same reasons as above.

Figure 3 presents the overall PHDSC Business Strategy of the four Strategic Initiatives, their components and timeframe. The Strategic Initiatives are graphically depicted in Figure 3 as separate circles to convey the notion that each initiative has an intact set of activities, and that there is a progression among the Initiatives. However, as previously stated, these four initiatives are not discrete. There is a tremendous amount of overlap among them, where an activity started in one initiative matures in subsequent Initiatives.

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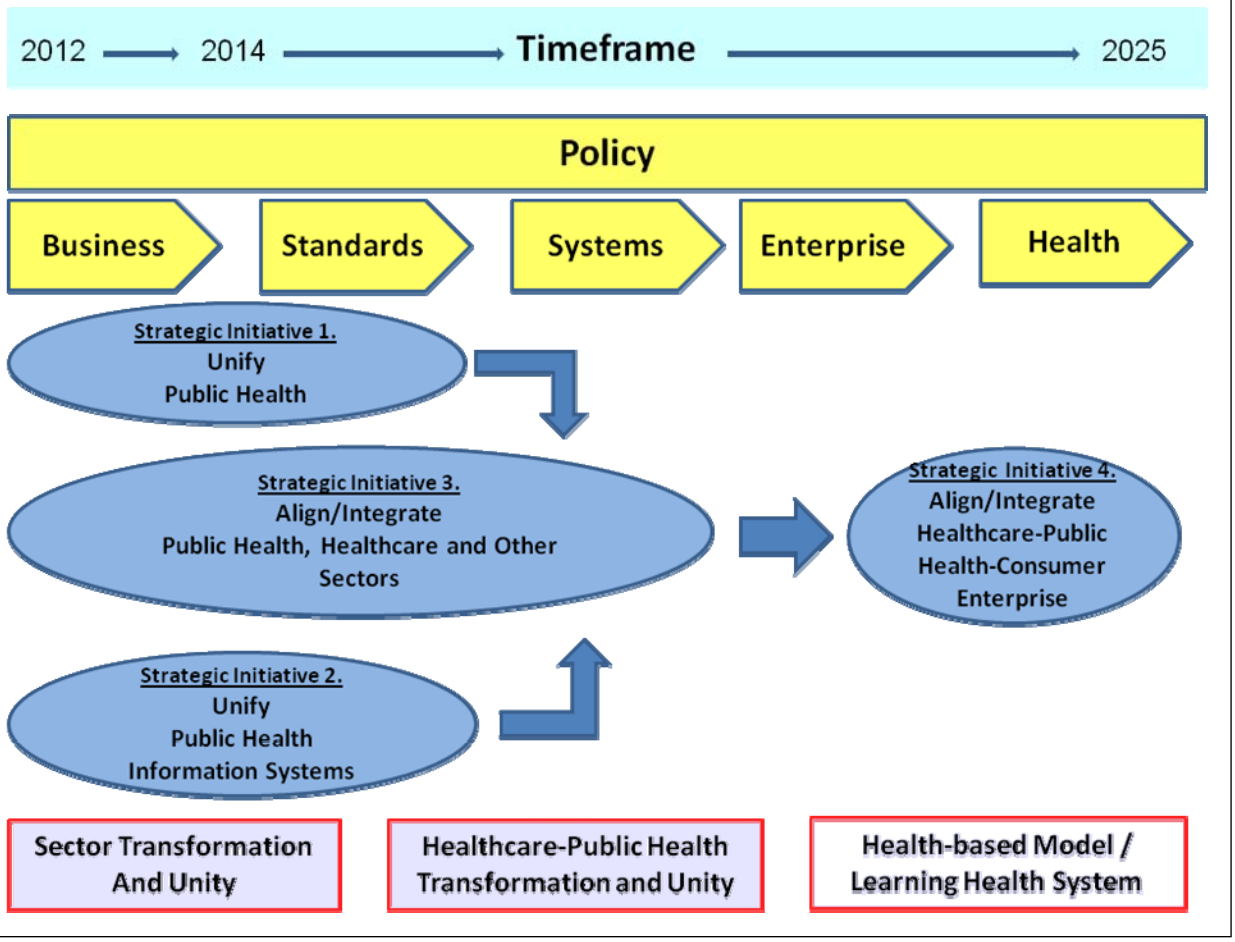
**Figure 3. PHDSC Business Strategy: Strategic Initiatives, Their Components and Timeframe**



## Section 6 Guiding Principles

The following guiding principles must be used to execute the strategies effectively:

- Practice openness, transparency and inclusion
- Maintain a broad definition of public health and its determinants
- Build/integrate incrementally for efficient use of resources and to increase return on investment
- Leverage existing partnerships, resources and activities
- Leverage existing trends in technology (e.g., social media, mashed up new services)
- Gain efficiencies in health information management by using the "collect data once, use many times" paradigm
- Recognize that well-defined, clearly understood and widely accepted privacy and security policies are needed to guide, support and facilitate data use and sharing; and address/develop these policies
- Utilize fully the continuum of PHDSC Health IT Standardization Framework (Appendix1); engage in organizational, enterprise, national, and international projects that advance the development and deployment of aligned practice-HIT standards in systems
- Emphasize approaches that increase and develop the workforce
- Increase PHDSC's visibility, credibility, leadership and impact (e.g., through engagement, thought leadership, image marketing)
- Build value for PHDSC members
- Grow and strengthen PHDSC (i.e., organizational, human, financial, and information capital/capacity)

## Section 7 Strategic Initiatives 2012-2014: Activities and Impact

The primary focus for 2012-2014 is on the first two Strategic Initiatives. We will also monitor and participate in national activities under Strategic Initiative 3 to begin influencing those activities, as well as align our efforts with the national HIT agenda. Each of the Strategic Initiatives is comprised of a set of activities, complete with objectives, measurable outcomes, timeframe and statements of impact as described.

### Strategic Initiative 1. Unify Public Health in Support of a Health-based Model and Learning Health System

The first step in migrating to the HBM/LHS is to unify public health as a sector by breaking down its silos in data gathering activities across public health programs and levels of government using standards-based information systems (see Strategic Initiative 2) to effectively exchange health information within the sector. As previously mentioned, a unified public health sector is needed if Public Health is to be seen as a credible leader in the migration to the HBM/LHS.

Outcome: Unified Public Health in terms of data-gathering activities across public health programs and levels of government.
PHDSC Focus: Policy and Business components (Figure 3)
PHDSC Role: Catalyst and Participant

Objectives:

- Advocate for the need for transformation of the sector and the migration to the HBM/LHS
- Form a Public Health Transformation Coalition to enable the migration to the HBM/LHS

Timeframe: 2012-2014

Specific activities by year include:

**2012 Activities**

- Identify partners to advocate for the need for transformation of the sector and the migration to the HBM/LHS
- Develop the Advocacy Plan, outreach instruments and communication strategy

- Develop the Metrics for measuring the Initiative's success
- Evaluate clinical, business, and data utilization requirements

**2013 Activities**

- Implement the Advocacy Plan
- Obtain consensus agreement on clinical, business, and data utilization requirements

**2014 Activities**

- Evaluate the Advocacy Plan and make improvements as needed to continue the unification of public health in succeeding years
- Begin migratory changes to practices surrounding clinical, business, and data utilization requirements

These activities will be conducted by the PHDSC Communication and Outreach and the PHDSC Data Standards Committees.

**Strategic Initiative 2. Unify Public Health Information Systems**

The current public health's information systems—replicas of the public health program silos—must be transformed and aligned to support information exchanges across all public health entities and with other healthcare sectors, consumers, and other stakeholders tomorrow.

Outcome: Unified Public Health Information Systems
PHDSC Focus: Policy, Business, Standards and Systems components (Figure 3)
PHDSC Role: Leader

Objectives:

- Build a *Coordinated Voice from Public Health on HIT Standards*
- Bring this *Voice* to the national and international HIT standardization efforts

Specific activities by year include:

**2012-2014 Activities**

- Continue implementation of the ***PHDSC Business Case: Role of Public Health in National HIT Standardization*** (Appendix) by focusing on harmonization and *operationalization* of program- and jurisdiction-specific needs for HIT standards. Specifically, this includes

    - Leading the ONC S&I Framework Initiative on Public Health Reporting

    - Continuing on-going PHDSC projects on HIT Standardization at Integrating the Healthcare Enterprise (IHE), Health Level Seven (HL7), National Uniform Billing Committee (NUBC), National Uniform Claim Committee (NUCC), Accredited Standards Committee (ASC) X12 as well as the Standards and Interoperability (S&I) Framework, National Information Exchange Model (NIEM) and Public Health Information Technology Architecture (PHITA) projects and other

- Contribute I the development of well-defined, clearly understood and widely accepted privacy and security policies are needed to guide, support and facilitate data use and sharing

- Utilize fully the continuum of PHDSC Health IT Standardization Framework (Appendix1); engage in organizational, enterprise, national, and international projects that advance the development and deployment of aligned practice-HIT standards in systems

- Educate public health professionals and clinicians about HIT standards and HIT standardization

- Develop the Metrics for measuring the Initiative's success based on data utilization requirements

These activities will be conducted by the PHDSC Data Standards Committee; PHDSC NHIN Committee; PHDSC Privacy, Security and Data Sharing Committee; and PHDSC Professional Development Committees.

**Strategic Initiative 3. Align/Integrate Public Health, Healthcare, and Other Sectors**

Significant progress in Strategic Initiatives 1 and 2 is necessary to achieve the outcomes of Strategic Initiative 3. Based on Initiatives 1 and 2, public health sector alignment and interoperable public health, administrative and clinical information systems will enable the integration of clinical, healthcare and public health enterprises, and further the integration with other health-related sectors (e.g., occupational health, environmental protection) in the future.

Though much of the work in Strategic Initiative 3 will take place in years following 2014, PHDSC acknowledges that there are national initiatives underway today (e.g., Meaningful Use of HIT, on-going PHDSC work on standards for administrative datasets, and others) that strive to integrate public health with other healthcare sectors. Thus, the focus of Strategic Initiative 3 is to monitor and participate in these national initiatives to the extent possible, and begin influencing their direction according to PHDSC's vision.

Outcome: Existing National Activities Will Understand PHDSC's Vision to Align/Integrate Public Health, Healthcare, and Other Sectors
PHDSC Focus: Policy, Business, Standards and Systems components (Figure 3)
PHDSC Role: Catalyst and Participant

Objectives:

- Monitor and participate in existing national initiatives that strive to align/integrate public health, healthcare, and other sectors to the extent possible

- Begin influencing the direction of these activities according to the PHDSC vision

Specific activities by year include:

**2012-2014 Activities**

- Identify critical national activities that should be monitored or have PHDSC participation

- Submit public comments as appropriate and where staff resources allow, to begin influencing the direction of these national initiatives

The activities in the scope of standardization of the administrative datasets will be conducted by the PHDSC Data Standards Committee.

All detailed activities and operational plans for these activities under the Strategic Objectives will be developed by the corresponding PHDSC Committees by March 2012.

## Appendix PHDSC Methodology: Engaging Stakeholders in HIT Standardization

To implement this Strategic Plan we will execute PHDSC methodology described in the Business Case: Role of Public Health in HIT Standardization[d] by working with the stakeholders in various HIT standardization phases and entities to develop, harmonize, test HIT interoperability standards; and certify and deploy standards-based HIT products. This methodology was successfully implemented in the on-going PHDSC projects for the following public health domains:

- Early Hearing Detection and Intervention (EHDI)
- Vital Records
- Laboratory Data Exchange and
- Administrative Data Reporting

The HIT standardization process focuses on the following categories of standards:

(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)[e]
(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., transport standards, etc.)

The Business Case defined the PHDSC HIT Standardization Framework of six standardization phases, entities and their deliverables (documents on standards) as follows:

I - Identify HIT Interoperability Needs and Priorities
II - Develop and Maintain Standards
III - Select and Harmonize Standards
IV -Test Standards Interoperability (Trial Implementations)
V - Certify Interoperable HIT Products
VI - Deploy Certified HIT Products

Various public and private entities fulfill HIT standardization activities (**Table A-1)**.

[d] Public Health Data Standards Consortium (PHDSC). Business Case: The Role of Public Health in National HIT Standardization. URL: http://www.phdsc.org/standards/business_case.asp
[e] Centers for Medicare and Medicaid Services, US Department of Health and Human Services; National Provider Identifier Standard. URL: http://www.cms.hhs.gov/NationalProvIdentstand/

**Table A-1.** HIT Standardization Phases and Entities

| HIT Standardization Phase | HIT Standardization Entity Examples |
|---|---|
| **I - Identify HIT Interoperability Needs and Priorities** *(Business Cases, Use Cases)* | HIT Policy Committee[f] and<br>HIT Standards Committee[g]<br>*Formerly American Health Information Community (AHIC)*[h]<br>National Committee on Vital and Health Statistics |
| **II - Develop and Maintain Standards** | Health Level Seven (HL7), SNOMED,[i] LOINC, ASC X12 |
| **III -Select and Harmonize Standards** *(Functional Requirements Assessment; Standards Gap Identification & Harmonization; Dataset & Value Set Development; Interoperability Specification Development)* | Integrating the Healthcare Enterprise (IHE),<br>ONC Standards and Interoperability Framework (S&I) Initiatives<br>*Formerly Health Information Technology Standards Panel (HITSP),* |
| **IV -Test Standards Interoperability** *(Software Instantiation, Conformance Testing)* | IHE, National Institute of Standards and Technology (NIST), PHIN |
| **V - Certify Standards-Based Products** *(Compliance Testing)* | ONC-Authorized Testing and Certification Bodies, IHE, PHIN |
| **VI- Deploy Certified HIT Products** | |

**Table A-2** presents the PHDSC HIT Standardization Framework of HIT standardization phases, examples of the standardization entities and products (standards) they develop.

[f] Health Information Technology Policy Committee. URL: http://healthit.hhs.gov/portal/server.pt?open=512&objID=1269&parentname=CommunityPage&parentid=0&mode=2&in_hi_userid=10741&cached=true

[g] Health Information Technology Standards Committee. URL: http://healthit.hhs.gov/portal/server.pt?open=512&objID=1271&parentname=CommunityPage&parentid=42&in_hi_userid=10741&cached=true

[h] American Health Information Community (AHIC). URL: http://www.phdsc.org/health_info/american-health-info.asp

[i] International Health Terminology Standards Development Organization (IHTSDO). URL: http://www.ihtsdo.org/ former Systematized Nomenclature of Medicine – Clinical Terms (SNOMED). URL: http://www.cap.org/apps/cap.portal?_nfpb=true&cntvwrPtlt_actionOverride=%2Fportlets%2FcontentViewer%2Fshow&_windowLabel=cntvwrPtlt&cntvwrPtlt{actionForm.contentReference}=snomed%2Fsnomed_ct.html&_state=maximized&_pageLabel=cntvwr

| Table A-2. Health Information Technology Standardization Phases, Products and Entities | | | | | | |
|---|---|---|---|---|---|---|
| **HIT Standardization Phases** | **Needs & Priorities[10]** | **Development & Maintenance** | **Selection & Harmonization** | **Testing (Reference Implementation)** | **Certification** | **Deployment** |
| ***Goals*** | *What should be accomplished?* | *What are the standards?* | *What standards to use?* | *Show what can be accomplished* | *Certify standards-based products* | *Deploy standards-based products* |
| **HIT Standards and Interoperability Framework Development Entities** | *Former AHIC*<br>HIT Policy Committee<br>HIT Standards Committee<br>National Committee on Vital and Health Statistics (NCVHS) | SDOs (e.g., HL7, SNOMED (IHTSDO), LOINC, ASC X12, NUBC, ISO TC215) | *Former HITSP*<br>ONC S&I Framework Initiatives<br>IHE | IHE<br>Testing Entities | Certification Entities (e.g., CCHIT,)<br>PHIN | ***Proposed***<br>IHE & PHDSC Deployment Workshops<br>PHIN? |
| **Standards Documents** | Use Cases (Description of the health information exchanges) | Standards | Interoperability Specifications<br>Implementation Guides<br>Integration Profiles | Test Reports | Certification Criteria | Deployment Reports |
| **On-going PHDSC Activities (2008-11)** | Developed methodology for public health participation in HIT standards development & harmonization, testing and certification. Support public health participation in HIT standardization | | | | | |
| **New PHDSC Activities (2011-12)** | Enable public health participation in HIT standards development & harmonization, testing and certification.<br>Develop methodology for technical assistance in deploying standard-based HIT products (HIT adoption) | | | | | |
| **Future PHDSC Activities (2013-15)** | Provide technical assistance in deploying standard-based HIT products to public health agencies | | | | | |

The PHDSC methodology enables ***operationalization*** of program-specific standards developed by stakeholder groups (e.g., professional associations) through representing the interest of this group in the standards harmonization, testing and certification processes.

**Figure A-1** presents the ongoing PHDSC projects on HIT standardization in the context of the PHDSC HIT Standardization Framework. Please note that Figure 1 also depicts the relationship between the ongoing PHDSC efforts with the Standards and Interoperability Framework (S&I Framework) developed by the Office of national Coordinator for HIT (ONC).[7]

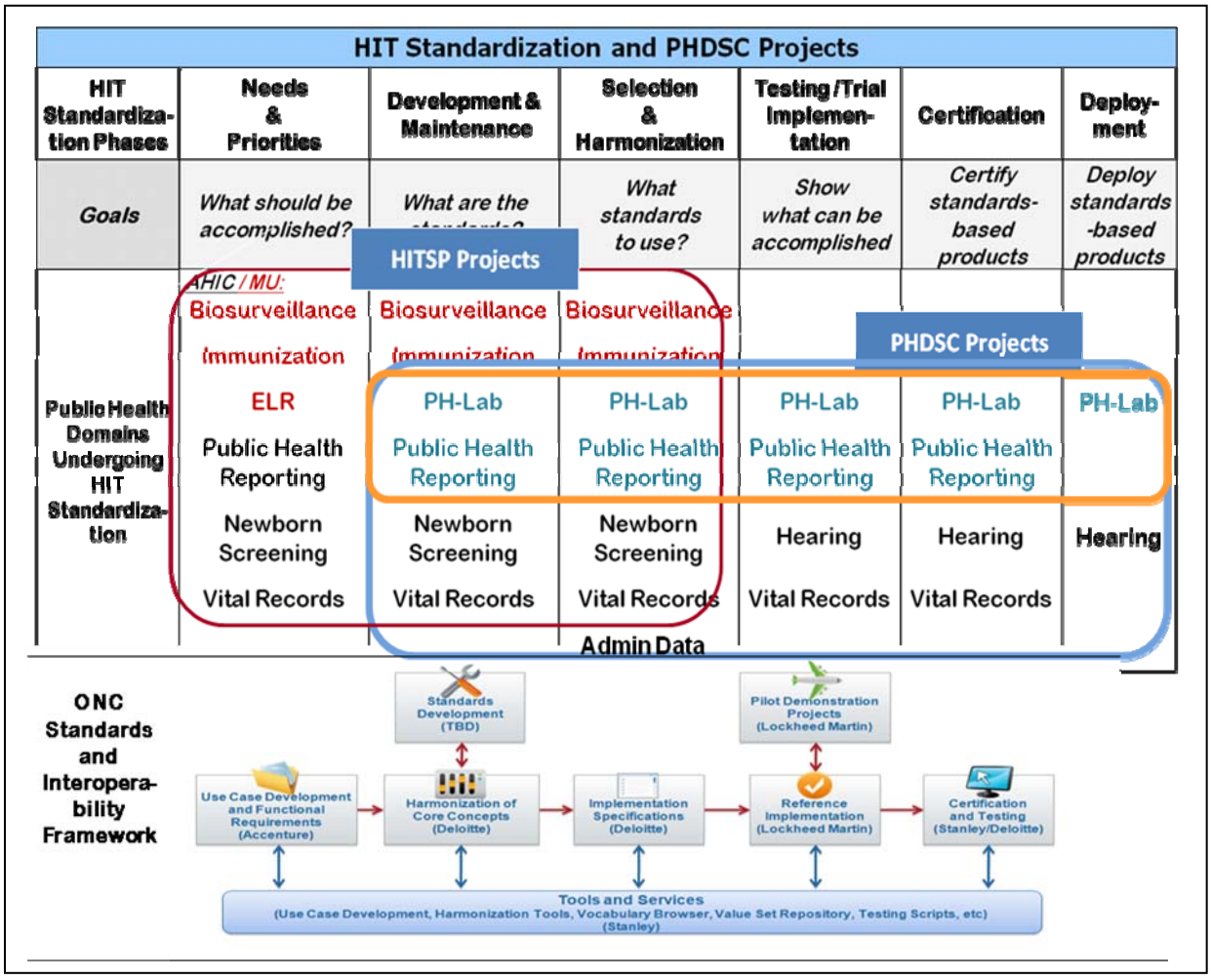



Fig. A-1. PHDSC HIT Standardization Framework, On-going Projects and ONC Standards and Interoperability Framework:

- PHDSC Projects at the Health Information Technology Standards Panel (HITSP), 2005-2009
- PHDSC Projects on HIT Standardization, 2008-2013
  - Early Hearing Detection and Intervention ()
  - Vital Records
  - Administrative Data Reporting
- PHDSC HL7 Public Health Laboratory Project, 2011-2013

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