

Using the Public Health Information Technology Maturity Index

April 20, 2016

I. Introduction

The promise of information technologies to inform and catalyze fundamental changes and improvements in the public health system is significant. There is ongoing significant national attention regarding the opportunities that public health information technology, notably electronic health records (EHRs), in conjunction with analytics, surveillance systems, registries, administrative systems, health information exchange, consumer digital resources and related information systems offer to improve the health of individuals, communities and populations. However, limited guidance exists for how technology strategies in support of public health objectives may be developed and desired outcomes achieved.

In response to these issues, extensive research was conducted to develop the Public Health IT Maturity Index, which is a new tool designed to help public health departments (HDs), systems and stakeholders gauge their position in relation to a set of stages that progressively and incrementally detail better use of information technologies to effectively and efficiently achieve public health objectives. The Index may be used to assess the current status of IT development, set specific goals for progress, and foster a cycle of continuous improvement. Over time, as additional benchmark data become available, the Index can enable a comparative assessment of PHIT maturity in relation to other HDs and public health systems, allowing one to longitudinally link outcomes to better understand which PHIT configurations and services may offer the most value for individual public health system types across different regions, structures and scenarios.

This guide provides detail on the composition of the PHIT Maturity Index and its applicability as a tool for public health assessment, decision support and improvement aims. Even though there are many differences that exist across health departments (HDs) such as size, organizational structure, scope of authority, resources, population served, governance, and geographic region, there are common elements regarding HD mission, services, strategies, and target capabilities that provide opportunities to apply the Index in a meaningful and value-producing way.

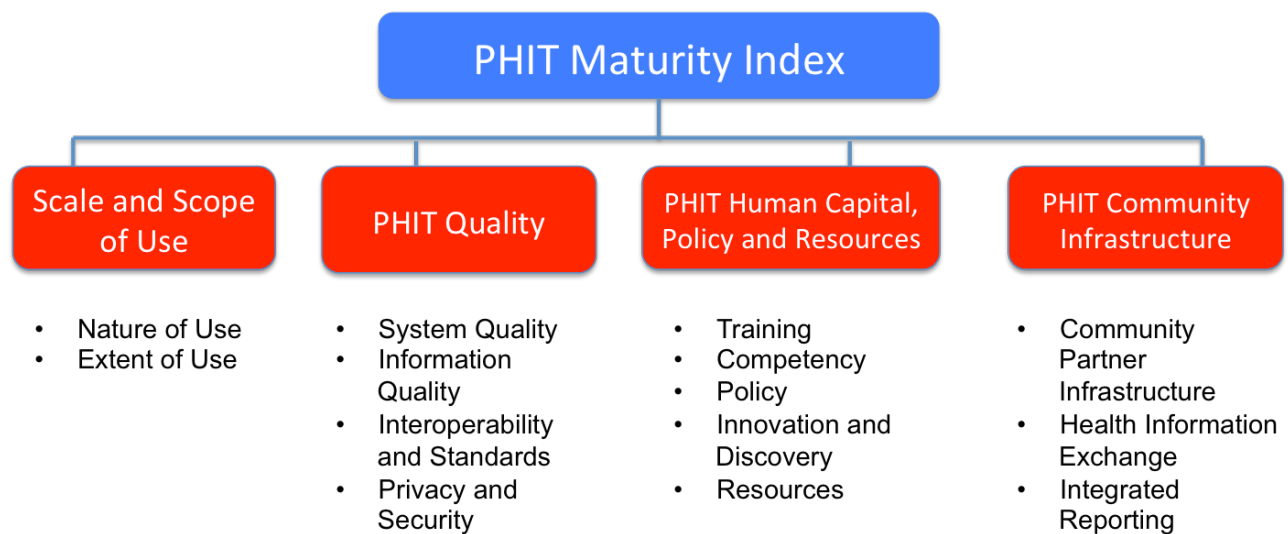
II. Index Categories and PHIT Questionnaire

The PHIT Maturity Index includes the following four measurement categories as the primary dimensions:

- 1) Scale and Scope of Use
- 2) PHIT Quality
- 3) PHIT Human Capital, Policy and Resources
- 4) PHIT Community Infrastructure

The Index categories and 14 subdimensions along with the associated survey questions are described below. Section III provides additional guidance on the measurement process.

Figure 1. PHIT Maturity Index



Scale and Scope of Use

The Scale and Scope category of PHIT Use captures the types of systems being used, the activities to which they are being applied, and the breadth of system use. The sub-dimensions include the “*Nature of Use*” and “*Extent of Use*”.

The *Nature of Use* refers to the types of systems used and how the information systems are used. There are generally seven categories of information systems currently used (and in the future to be increasingly used) in public health. Survey questions related to Nature of Use include:

1. How would you best describe the administrative systems?
 - a. Administrative systems are inconsistent across HD
 - b. Administrative systems are mostly consistent across departments and services sites
 - c. Administrative systems are coordinated across internal somatic, behavioral, and social services sites
 - d. Administrative systems are coordinated across both internal and external partner somatic, behavioral, and social services sites
2. Which response best describes surveillance activity within your HD?
 - a. Little automated surveillance activity
 - b. Surveillance is leveraging PHIT data collection systems for analysis
 - c. Surveillance programs are digital and integrated, but not real-time
 - d. Real-time integrated surveillance systems with HD
3. Which response best describes the use of EHR and Practice Management Systems (PMS) within your HD?
 - a. Some sites use EHR and PMS
 - b. All somatic care sites use EHR and PMS
 - c. All somatic care and behavioral health sites use EHR and PMS
 - d. All somatic, behavioral, and social services sites use EHR and PMS
4. Which response best describes the use of registries across the HD?
 - a. Some sites use registries
 - b. All somatic care sites use registries
 - c. All somatic care and behavioral health sites use registries
 - d. All somatic, behavioral, and social services sites use registries

5. What level of digital consumer resources is available?
 - a. Little to no use of digital consumer resources
 - b. Digital consumer resources are provided by somatic care sites
 - c. Digital consumer resources are provided by all somatic care and behavioral health sites
 - d. Digital consumer resources are provided by all somatic care, behavioral health and social services sites

6. Which of the following best describes the availability of clients to access to their data?
 - a. Clients have little to no access to their own data in electronic form
 - b. Clients are able to access their data through portals
 - c. Clients are able to access their data through portals and have access to mobile apps using their data, but in limited service areas
 - d. Clients are able to access their data through portals and have access to mobile apps using their data, across several service areas

7. Which of the following best describes your use of data analytics / business intelligence systems?
 - a. Limited use of business intelligence systems
 - b. Utilize business intelligence tools for reporting of past activities in some service areas
 - c. Utilize business intelligence tools for reporting of past activities across services areas
 - d. Use sophisticated analytics such as predictive modeling to improve decision-making and forecasting

8. Which of the following best describes your HD's use of health information exchange (HIE)?
 - a. No health information exchange use
 - b. Some access of HIE data, though limited
 - c. HIE is widely used by HD staff, and some data is pushed to the HIE from the health department EHR or other systems
 - d. HIE is widely used by HD staff, and there is real-time bidirectional data flow with HIE and health department EHRs

The *Extent of Use* subdimension refers to how much use of IT is occurring within the public health services areas of an HD. The extent of use considers both the breadth and depth of IT system usage. Extent of usage is assessed by measuring the degree to which systems are effectively being used to support the public health mission, leveraging the categories described by the 10 essential services of a public health department as the basis. Survey questions related to extent of use:

9. How well do the PHIT systems enable tracking of program policy changes and outcome assessments?
 - a. IT systems do not support tracking of program policy changes and outcome assessments
 - b. IT systems support some tracking of program policy changes and outcome assessments
 - c. IT systems are moderately effective at tracking of program policy changes and outcome assessments
 - d. IT systems are very effective for tracking of program policy changes and outcome assessments

10. How well do PHIT systems support rapid multi-channel communications (i.e. phone, web, social media)?
 - a. No support of rapid multi-channel communications
 - b. Some support of rapid multi-channel communications
 - c. Well developed program for support of rapid multi-channel communications, but not well-utilized
 - d. Well developed program for support of rapid multi-channel communications, with high utilization

11. How well do the PHIT systems support information exchange across community partners representing the social determinants of health (housing, nutrition, wellness)?
 - a. No support of information exchange across services areas and partners representing social determinants
 - b. Some support of information exchange across services areas and partners representing social determinants, but limited
 - c. Support of information exchange across majority of services areas and partners representing social determinants
 - d. Support of information exchange across virtually all of services areas and partners representing social determinants

12. How well do IT systems support accountability/performance management?
 - a. IT system support for performance management objectives is limited
 - b. IT systems support some performance management objectives, but using for performance management is not easy or dynamic
 - c. IT systems support most performance management objectives, but systems are not all integrated
 - d. IT systems support on-demand performance management of program status dashboards

13. How well do EHRs and surveillance systems support communicable disease control? (i.e. ability to promptly identify, prevent and control infectious diseases)
 - a. Communicable disease control is ad-hoc and not well supported by health records, surveillance is labor intensive
 - b. Processes for EHR and surveillance system use are well-defined and requirements for systems is documented, but capabilities are marginally implemented
 - c. Processes for EHR and surveillance system use are well-defined and requirements for systems is documented, but capabilities are generally implemented
 - d. EHRs and surveillance systems are tailored to communicable disease control needs, such as TB and HIV clinics, with well-defined policies and use of PHIT

14. How well do IT systems support chronic disease and injury prevention programs?
 - a. Chronic disease prevention programs are not able to leverage EHRs and population health analytical systems
 - b. Systems meet some support needs for chronic disease prevention
 - c. Systems support reporting needs and patient targeting and intervention implementation needs
 - d. Systems support program innovation, flexibility and reporting for chronic disease prevention

15. How well do EHRs and other data exchange systems support environmental health programs?
 - a. Environmental health programs are not able to apply EHR and ancillary system data
 - b. Some data flows from EHRs to enable environmental health programming needs
 - c. Substantial data flows from EHRs to enable environmental health program goals, but in a non real-time capacity
 - d. Real-time robust data flow enables environmental health program innovation, reporting and action

16. How well do EHRs and other IT systems support maternal, child and family health?
 - a. No use of EHRs to support Maternal and Child programs
 - b. Some use of EHRs and IT to support Maternal and Child programs
 - c. All HD maternal and child and family health sites use EHR and communicate digitally
 - d. Real-time robust information flow across units and community partners supporting maternal and child health programs and automated registry reporting

17. How well do IT systems support surveillance and epidemiology activities in the HD?
 - a. Epidemiology and surveillance is fragmented, resource-intensive and manual
 - b. Epidemiology and surveillance is enabled through EHR integrations
 - c. Epidemiology and surveillance is active across multiple use cases through EHR integration and state system integration, and is highly automated
 - d. Real-time epidemiology and surveillance is active through seamless systems

18. How well do IT systems generate complete, rapid high quality data collection to identify emerging issues (such as infant mortality, cancer clusters, opioid overdoses)?
 - a. Little to no proficiency in generating complete, high quality data collection for emerging issue identification
 - b. Some emerging proficiency in generating complete, high quality data collection for emerging issue identification
 - c. Generally proficient in generating complete, high quality data collection for emerging issue identification
 - d. Highly proficient in generating complete, high quality data collection for emerging issue identification, with examples of success

19. What is the level of integration between IT and the hazard preparedness/response processes within your HD?
 - a. Little IT planning and testing for disaster response
 - b. An IT plan is in place for use in disaster response
 - c. IT systems have sufficient functionality and integration to meet disaster response objectives
 - d. Systems have been fully tested and are ready to support the disaster response plan

20. How would you describe the generating of most reports within the HD?
 - a. Reporting requires significant manual effort and time to complete
 - b. Automated generation of some reports, but most reporting is not automated
 - c. Automated generation of most reports, but requires significant time and resources
 - d. Automated generation of most reports, produced in efficient fashion

21. How much sharing of data is there across information systems inside the department?
 - a. Little to no data sharing of data across HD service areas and systems
 - b. Some sharing of data across HD service areas and systems
 - c. The majority of systems that need to communicate electronically within HD service areas and systems are sharing data
 - d. All systems needing to exchange data within HD service areas and systems are actively sharing data

22. Which of the following best describes how connected PH departments are with clinical care?
 - a. Little to no connectivity with clinical care community care partners
 - b. PH department can electronically send digital health information to clinical partners in the community
 - c. PH departments can electronically receive digital information directly into health records
 - d. Full bi-directional flow of information across internal and external systems that support clinical care

23. What percentage of the HD somatic, behavioral, and social services workforce are using EHRs and related PHIT systems?
 - a. Less than 25% of these staff use EHRs
 - b. 25.1% - 50% of these staff use EHRs
 - c. 50.1% - 75% of these staff use EHRs
 - d. Over 75% of these staff use EHRs

24. What is the level of EHR and related systems (PHIT) diffusion across your HD?
 - a. PHIT systems use is sporadic and not well diffused across agency
 - b. Department has central data processing, only administrators and operators have access to PHIT systems
 - c. Most users have access to PHIT systems, but there is no role specific interface
 - d. Most users have access to PHIT systems, and there is role specific interface.

PHIT Quality

The *Quality of PHIT* category seeks to capture the degree of “excellence” embedded in the PHIT. The four sub-dimensions that collectively contribute to PHIT Quality measurement include:

- System Quality
- Information Quality
- Interoperability and Standards
- Privacy and Security

System Quality in the PHIT maturity index is measured in terms of ease of use, system usefulness, learnability, user satisfaction, reliability, and support services. Survey questions related to System Quality include:

25. How would you rate the reliability of your EHR and related IT systems?
 - a. Systems frequently experiences outages
 - b. System outages are experienced occasionally (more than 3x per year)
 - c. Systems outages are rare events (1-2x per year)
 - d. High performing systems with 99.9995 percent uptime, consistency of performance and dependability is high
26. How easy to use are your EHR and related IT systems?
 - a. Systems are very difficult to use, or have no EHR
 - b. Systems are moderately difficult to use
 - c. Systems are mostly easy to use
 - d. Systems are very intuitive and easy to use
27. How easy to learn are your EHR and related IT systems?
 - a. Systems are very difficult to learn
 - b. Systems are moderately difficult to learn
 - c. Systems are mostly easy to use and learn
 - d. Systems are very intuitive and easy to learn
28. How would you describe the usefulness of your EHR and related IT systems?
 - a. The systems fail to support many of the tasks needed to complete the public health mission
 - b. Tasks may be accomplished, but significant workarounds are needed
 - c. Most tasks can be accomplished effectively using the existing systems without workarounds
 - d. Systems support all necessary tasks very effectively

29. How satisfied are staff with the EHR and related IT systems?
- Most users are very dissatisfied
 - Most users are somewhat dissatisfied
 - Most users are somewhat satisfied
 - Most users are very satisfied
30. How would you describe the IT support services (e.g. help desk) for your EHR and related IT systems?
- Support services provide a marginal level of service, with slow response times
 - Support services provide an adequate level of service, but with response times are highly variable
 - Support services provide an adequate level of service with mostly efficient response times
 - Support services provide a superior level of service with rapid response times

Information Quality in the PHIT maturity index is measured by availability of relevant information, information accuracy, information usefulness and timeliness. Survey question related to Information Quality:

31. How available is desired information in the EHR and related IT systems?
- Desired information is rarely available
 - Some desired information may be available, but most information is not readily available on a regular basis
 - Desired information is usually available in the system, but there are some types of information unavailable electronically
 - Desired information is almost always readily available in the systems
32. How accurate is the information in the EHR and related IT systems?
- Information is rarely accurate and reconciles across units, or there is no EHR
 - Information may or may not be accurate and reconciles across units
 - Information is usually accurate and reconciles across units, but some information is inaccurate at times
 - Information is almost always accurate and reconciles across units
33. On average, how long does it take to acquire information from the EHR and related IT systems?
- It takes a long time to get needed information, or there is no EHR
 - Needed information is available within days
 - Needed information is usually available within hours
 - Needed information is generally available on-demand

34. How useful are the reports the EHR and related systems are able to directly provide
- Reporting is not very useful, and decision-making support is limited
 - Reporting is somewhat useful and supports decision-making in some areas
 - Reporting is useful and supports decision-making in several areas
 - Reporting very useful and supports decision-making in most key areas

The *Interoperability and Standards* sub-dimension measures the extent to which technical standards are available, implemented and adhered to, and the extent of multi-system interoperability. System interoperability is the ability of different information technology systems and software applications to communicate, exchange data, and use the information that has been exchanged. Survey questions:

35. How would you describe the level of interoperability across your EHR and related IT systems?
- There is little use of formal standards, ad hoc use, little inter-system communication
 - Foundational: allows data exchange from one information technology system to be received by another and does not require the ability for the receiving information technology system to interpret the data
 - Structural: intermediate level that defines the structure or format of data exchange (i.e., the message format standards) where there is uniform movement of health data from one system to another such that the clinical or operational purpose and meaning of the data is preserved and unaltered.
 - Semantic: interoperability at the highest level, which is the ability of two or more systems or elements to exchange information and to use the information that has been exchanged
36. How well do systems share data inside the department?
- Little to no data sharing of data across systems
 - Some systems exchange data, but most systems do not share data
 - The majority of systems that need to communicate electronically have the capability to do so
 - All systems needing to exchange data within an HD are sharing data
37. In general, do the PHIT systems adhere to industry wide technical standards?
- Standards are not adhered to or do not exist
 - Standards exist, but inconsistent use and application across systems
 - Consistent use of standards across most systems, but lacking in some areas
 - Consistent adoption and use of industry accepted standards across virtually all systems

38. Which of the following describes the standardization of processes in using the EHR and related systems
- There is not an EHR in use
 - Some processes are standardized, but significant variation exists across service areas in use of EHR for similar tasks
 - Most processes are standardized, but some variation across service areas in use of EHR for similar tasks
 - Processes are standardized and well followed across service areas

The *Privacy and Security* sub-dimension assesses a HDs development and use of privacy and security practices. Security of a computer-based information system should, by design, protect the confidentiality, integrity, and availability of the system. This PHIT Maturity Index dimension evaluates the development and implementation of privacy and security practices, and in the case of privacy, relates to the ability an HD has to determine what data in a computer system can be shared with third parties and being able to consistently share or not share appropriately. Survey questions:

39. Which of the following statements best describe the privacy policies related to IT system use?
- Privacy policies are not well defined or understood
 - Privacy policies exist, but they are not fully implemented in IT systems nor understood by all staff consistently
 - Privacy policies exist, and are fully implemented in IT systems, are consistently understood, but they have not been audited and found satisfactory
 - Privacy policies exist, and is fully implemented in IT systems, are consistently understood, and are periodically audited and found satisfactory
40. Which of the following statements best describes the guidelines for data sharing at the HD?
- Service areas have inconsistent guidelines for data sharing
 - Service areas have consistent guidelines for data sharing, but systems may not fully support consistent sharing protocols or tracking of data shared
 - Service areas have consistent guidelines for data sharing, and most systems support consistent and appropriate sharing, tracking of data shared is adequate, but auditing is infrequent and/or limited
 - Service areas have consistent guidelines for data sharing, and most systems support consistent and appropriate sharing, with periodic auditing and review of protocols

41. What level of security protocols / policies are in place for IT systems?
- Security controls are ad-hoc
 - Security controls are implemented covering access to authorized users (prevention), logging application access (detection) and tracking application changes (recovery) and implemented across most IT systems
 - Security controls are implemented covering access to authorized users (prevention), logging application access (detection) and tracking application changes (recovery), and implemented across all IT systems
 - There is a comprehensive security awareness program including prevention, detection and recovery processes and ongoing training, auditing and monitoring of risks

PHIT Human Capital, Policy and Resources

It is widely acknowledged that the realization of value from ICT is critically dependent on the skills and capabilities of users. The human capital sub-dimension refers to the set of skills and knowledge that are essential for the public health workforce to have productive interactions with technology-based tools. This subdimension also captures the existence and effectiveness of courses, curriculum or other training to prepare for PHIT implementation and improve the PHIT competency of the workforce on an ongoing basis.

The Index measures the degree to which these policy mechanisms have been defined and implemented. This subcategory also measures the extent to which policies and corresponding technology and processes have been instituted to support open data innovation and public health research using HD data. Community engagement, policy development and evaluation, informing and educating, are public health goals closely tied to open data and research support mechanisms with PHIT.

The third and final subcomponent of PHIT Human Capital, Policy and Resources category is the Resources, and this measures the extent to which adequate financial support is available to support the PHIT needs of the HD.

Survey questions related to PHIT Human Capital, Policy and Resources:

42. What level of initial training in the use of the EHR and related IT systems (PHIT) is provided to the workforce?
- Little to no initial training being provided for PHIT use, or not widely used training
 - Some initial training being provided for PHIT use (week or more) and used by majority of the public health workforce
 - Well-defined and extensive PHIT initial training programs available and used by majority of the public health workforce
 - Well-defined and extensive PHIT initial training programs available and used across virtually all service areas

43. What level of ongoing training in the use of the EHR and related IT systems (PHIT) is provided to the workforce?
- Little to no continuing training being provided for PHIT use (couple days), or not widely used training
 - Some continuing training being provided for PHIT use (week or more) and used by majority of the public health workforce
 - Well-defined and extensive PHIT continuing training programs available and used by majority of the public health workforce
 - Well-defined and extensive PHIT continuing training programs available and used across virtually all service areas
44. How skilled is the public health workforce in the use of information technology?
- Workforce is not very skilled at using PHIT
 - Minority of public health workforce skilled at making use of PHIT
 - Majority of public health workforce skilled at making use of PHIT
 - Public health workforce broadly adept at leveraging range of PHIT tools to achieve desired outcomes
45. How skilled is the agency partners' workforce in the use of information technology?
- Agency partners' workforce are not very skilled at using PHIT
 - Minority of agency partners' workforce skilled at making use of PHIT
 - Majority of agency partners' workforce skilled at making use of PHIT
 - Agency partners' workforce broadly adept at leveraging range of PHIT tools to achieve desired outcomes
46. Have policies been vetted and approved for the following PHIT related activities?
- Policies have not been approved for these cases
 - 1-3 of these policies have been vetted and approved
 - 4-6 of these policies have been vetted and approved
 - All of these policies have been approved for each of the above cases

Policy for activities including:

1. Defining the legal health record and standards for maintaining the integrity of the record content
2. Transition to electronic health records
3. Business continuity planning
4. Down time procedures
5. Electronic sharing of clinical information with other organizations
6. Ownership of the electronic record
7. Records/information from others facilities and providers
8. Amendments to the electronic record
9. Use of community Health Information Exchange

47. What level of policies/initiatives is in place to support open data innovation?
- Limited to no open data initiatives
 - Policies for open data innovation exist, but systems to support are not deployed
 - Policies for open data are approved and information systems to support have been implemented, but uptake is marginal
 - Robust open data programs are in place that support timely release of data via public channels
48. What level of policy support is in place for public health research using agency data
- No policy in place
 - Some policies are in place, but process is difficult to navigate and not generally well supported with resources
 - Policies are in place, with clear navigation and guidelines, but is not generally well supported with resources
 - Robust policies, systems and processes in place to support public health research with agency data and corresponding resources
49. How would you describe the budget for your HD that is applied towards IT?
- IT spending is marginal and under-funded for the strategic needs of HD
 - IT spending provides for adequate maintenance of most systems but most needed expansions and upgrades are unfunded
 - IT spending provides for adequate maintenance and expansion of most systems but some needed upgrades are unfunded
 - IT funding is sufficient and steady to meet HD IT needs

Community Digital Infrastructure

The fourth and final PHIT Maturity Index measurement category is PHIT Community Infrastructure, which refers to how “wired” a community is. The Community Digital Infrastructure category evaluates *Community Partner Infrastructure*, which refers to the IT capabilities of partners in the public health ecosystem, notably the hospitals, that are complementary to the HD and the partners’ ability to exchange information electronically with the HDs. Survey questions related to Community Partner Infrastructure:

50. With what proportion of the labs within your community are you able to exchange data?
- None
 - Some, but not most
 - Most
 - All

51. With what proportion of the pharmacies within your community are you able to exchange data?
- None
 - Some, but not most
 - Most
 - All
52. With what proportion of the outpatient health clinics within your community are you able to exchange data?
- None
 - Some, but not most
 - Most
 - All
53. With what proportion of the acute care hospitals within your community are you able to exchange data?
- None
 - Some, but not most
 - Most
 - All

The level of *Health Information Exchange Use* with the HD and the ability for *Integrated Reporting* by state systems is also assessed in this category. Survey questions:

54. Rate the level of HIE connectivity within your community
- No health information exchange is operating
 - An HIE operates, with a minority of hospitals and labs in the community sharing data with the HIE
 - The majority of hospitals and labs in your community are sharing data with the HIE
 - Virtually all hospitals, labs, pharmacies, imaging centers in your community are sharing data with the HIE
55. To what extent is the HIE(s) in your community leveraged for surveillance activities?
- No health information exchange surveillance activity
 - 1-2 of the following surveillance activities are provided by the HIE: electronic lab reporting, specialized cancer case reporting, other specialized registry, emergency department chief complaints or discharge diagnoses, geolocated event analysis
 - 3-4 of the following surveillance activities are provided by the HIE: electric lab reporting, specialized cancer case reporting, other specialized registry, emergency department chief complaints or discharge diagnoses, geolocated event analysis

- d. All of the following surveillance activities are provided by the HIE: electric lab reporting, specialized cancer case reporting, other specialized registry, emergency department chief complaints or discharge diagnoses, geolocated event analysis

56. How is immunization registry data reported?

- a. Data is manually entered and updated
- b. Some immunization registry data is automatically reported from EHRs or HIE, but not the majority of immunization data
- c. The majority of immunization registry data is automatically reported from EHRs or HIE
- d. Successful ongoing submission of electronic immunization data from EHR to an immunization registry or immunization information system of all immunization data

57. What is the capability of your state reporting systems to accept data directly from HD PHIT systems

- a. No capability of state health department to receive data directly from EHRs
- b. Some limited capability of state health department to receive data directly from EHRs and related IT
- c. A majority of data reporting can be done directly from the EHRs and related IT, e.g. immunization reporting
- d. Substantially all state-level required data reporting may be done directly from HD EHRs and related IT

The questionnaire online at <http://go.umd.edu/PHITquestionnaire> also seeks to capture characteristics about the respondent to aid in benchmarking and research. Individual respondent's data is confidential and data will only be reported in aggregate. Respondent characteristic data requested includes:

58. What is the size of the population served by your organization?

- a. <50,000
- b. 50,000-499,999
- c. 500,000+

59. What geographic jurisdiction is served by your organization?

- a. City or Town
- b. County
- c. Multi-County
- d. Other

60. What type of governance does the health department have?

- a. Local (HD is a unit of local government)
- b. State (HD is a unit of state government)
- c. Shared (HD governed by both state and local authorities)

61. Contact details

62. Organization name

63. Headquarters location zip code

III. Completing & Scoring the PHIT Maturity Index

Completion of the index questionnaire is situated within the HD, but may require the input of multiple groups depending on a HD's composition. It is recommended the director of the HD act as the primary authority for completing the questionnaire, but necessarily may require input from IT management, human capital management, legal / compliance authority, and service area management, for example. Portions of the questionnaire require an understanding of staff competency and IT system perceptions, such as staff satisfaction with the IT systems.

The questionnaire consists of 57 scored questions across the 4 categories and collection of some respondent details. Further detail regarding the scoring methods is provided below and Appendix A provides a scoring template.

Scoring methods for the Index:

Each of the 57 scored questions consists of four multiple choice answers corresponding to each stage of maturity and scored at 1 point at level 1, 2 points at level 2, 3 points at level 3, and 4 points at level 4. The points for each category are totaled then divided by the number of questions in the category to produce the average score in each category ranging from 1 to 4. The average category score is multiplied by the weight of that category to produce a total weighted category score, and the four weighted category scores are summed for a total score. Category weights are as follows:

Scale and Scope of Use: 3.5
Quality of PHIT: 3.0
PHIT Human Capital, Policy and Resources: 2.0
PHIT Community Infrastructure: 1.5

The ultimate score total generated by summing the weighted average scores of the categories results in a number from 10-40. The scoring bands to approximate the PHIT Maturity Index level are:

Level 1: 10-14 points
Level 2: 15-24 points
Level 3: 25-34 points
Level 4: 35-40 points

While a total score may be an instructive approximation, each category and each question should be reviewed independently to understand positioning of the health department (HD) along the specific subdimension elements as a way to assess the current status of IT development, benchmark with peers, set specific goals for progress, and foster a cycle of continuous improvement.

IV. Additional Resources

The following links provide additional information regarding the role of Information Technology within the Public Health Systems and certain initiatives underway to improve Public Health Systems.

PHIT Maturity Index Project Resources Website:

<http://go.umd.edu/phitmaturityindex>

Public Health PBRN Research-In-Progress Webinar:

<http://www.publichealthsystems.org/phssr-research-progress-webinar-archives-2014-2015>

The Public Health System and the 10 Essential Public Health Services:

<http://www.cdc.gov/nphpsp/essentialservices.html>

Public Health Informatics Institute, Informatics-Savvy Health Department Resources:

<http://phii.org/informatics-savvy-health-department-resources>

Quintegra (2008). The Quintegra eHealthcare Maturity Model. Accessed at

<http://www.quintegrasolutions.com/eHMM%20White%20Paper.pdf>

IOM (2015) Collaboration between Health Care and Public Health: Workshop Summary.

Accessed August 2015 at: <http://iom.nationalacademies.org/Reports/2015/Collaboration-between-Health-Care-and-Public-Health.aspx#sthash.9pXCgsaW.dpuf>

Appendix A. PHIT Maturity Index Scoring Template

*An Excel template is available at <http://go.umd.edu/PHITscoretemplate>

Section 1 - Scale & Scope of Use				Total
Number of questions: 24				
	Count	Multiplier	Score	
Number of (a) responses		x1	0	
Number of (b) responses		x2	0	
Number of (c) responses		x3	0	
Number of (d) responses		x4	0	
Total Score			0	
Average (total score / number of questions)			0	
Weight			3.5	
Total Weighted Score (average * weight)			0	
Section 2 - PHIT Quality				
Number of questions: 17				
	Count	Multiplier	Score	
Number of (a) responses		x1	0	
Number of (b) responses		x2	0	
Number of (c) responses		x3	0	
Number of (d) responses		x4	0	
Total Score			0	
Average (total score / number of questions)			0	
Weight			3.0	
Total Weighted Score (average * weight)			0	
Section 3 - PHIT Human Capital, Policy and Resources				
Number of questions: 8				
	Count	Multiplier	Score	
Number of (a) responses		x1	0	
Number of (b) responses		x2	0	
Number of (c) responses		x3	0	
Number of (d) responses		x4	0	
Total Score			0	
Average (total score / number of questions)			0	
Weight			2.0	
Total Weighted Score (average * weight)			0	
Section 4 - PHIT Community Infrastructure				
Number of questions: 8				
	Count	Multiplier	Score	
Number of (a) responses		x1	0	
Number of (b) responses		x2	0	
Number of (c) responses		x3	0	
Number of (d) responses		x4	0	
Total Score			0	
Average (total score / number of questions)			0	
Weight			1.5	
Total Weighted Score (average * weight)			0	
TOTAL SCORE				0