



Increasing Capability for EHDI-EHR Interoperability

A Self-Assessment Tool

Photo credit: Dawn Arlotta

Introduction

The National Center on Birth Defects and Developmental Disabilities at the Centers for Disease Control and Prevention (CDC) has partnered with the Public Health Informatics Institute (PHII) to develop a self-assessment activity designed to increase the EHDl program's capability to exchange electronic health information with clinical electronic health record systems (EHRs).

This self-assessment tool can help facilitate strategic planning in state/territorial EHDl programs. It provides a forum for EHDl coordinators to discuss their information system needs with their partners in the agency's leadership, information technology or eHealth units.

Participating in this self-assessment activity will give EHDl coordinators a clearer understanding of success factors and the agency's current capabilities. It also provides guidance on what characteristics the program and agency can adopt for greater interoperability with clinical partners.

The self-assessment format and process

Interoperability between EHDl information systems and EHRs refers to the ability of these systems to exchange information effectively and to use the information that has been exchanged.

During the self-assessment, participants will discuss and answer questions organized by the following aspects of interoperability:

- Workflow – The processes the EHDl program uses to achieve its objectives (e.g., sending care plans, receiving screening results).
- Policies – The agency's health information strategy and support for procedures enabling information exchange.
- Infrastructure – Resources (including technology and workforce) the agency provides to the EHDl program supporting data use and exchange.
- Data & Standards – The data formats and technical specifications that enable information exchange.

Ideally, the EHDl coordinator will form a team to collaboratively complete the self-assessment. Collectively, the team should be knowledgeable of the agency's information technology resources, data use and exchange policies, and EHDl program. Team members could be staff, external partners, or contractors. Example participants include: EHDl managers, agency IT staff, solution providers, state eHealth coordinators, and agency leaders tasked with information systems strategy development.

For each question in the self-assessment tool, you will see response options based on four levels of capability maturity (see Table 1). These levels are adapted from the Capability Maturity Model (CMM) developed by the Software Engineering Institute at Carnegie Mellon University¹. The model describes the progressive stages an organization advances through as it adopts a new process or practice. It is not uncommon for organizations, even successful ones, to be at relatively low levels of this model. This reflects the organizational challenges that are inevitable with formally establishing new ways of working and then rigorously evaluating that work.

Table 1. Capability Levels

Level Name	Description
0 - None	No capability is evident; “starting from scratch.”
1 - Emergent	Capability is limited to isolated, ad hoc efforts or attempts at repeating successes from earlier initiatives.
2 - Defined	Capability is demonstrated by systematic, ongoing efforts that have been formally adopted, institutionalized, or routinely practiced (e.g., standard operating procedures).
3 - Optimized	Capability is demonstrated by efforts to formally evaluate and improve established processes, procedures, or practices.

The capability levels are stages of growth, with each level serving as a prerequisite for higher levels. For each question, please select the one response option that reflects your current capability level. Do not choose a given response option if you have not yet achieved all the prerequisite levels. For example, if a question relates to an activity you have piloted and evaluated but not yet formally adopted, then Level 3 would not be an appropriate response because Level 2 has not yet been reached.

For any particular question that seems inapplicable to your EHDl program or public health agency, you may select the “Not Applicable” response and move on to the next question.

Many questions will likely require conversation and consensus-building to reach agreement on one response option. One important advantage of having these specific responses is that it enables more objective responses that can be compared from year to year. So repeating this self-assessment periodically is a good way to measure and document your growing capabilities.

The self-assessment tool is designed to indicate capabilities for interoperability between EHDl systems and EHRs while not being too prescriptive in how that interoperability is achieved. As a result, detailed and jurisdiction-specific technical issues are outside the scope of the CMM-based questions. For those jurisdictions that wish to share such details, some open-ended questions are provided as an appendix to this self-assessment tool. Discussing these questions may help your team prepare for the self-assessment activity.

How PHII will facilitate the self-assessment

PHII staff is available before, during, and after the self-assessment activity to provide guidance and recommendations. Two options are offered:

Option 1: PHII hosts a webinar for the EHDl coordinator and the self-assessment team she or he has enlisted. The self-assessment team should include 2-4 participants with subject matter expertise for the topics in the self-assessment tool. During the webinar, PHII will facilitate the participants' discussion and completion of the tool. PHII will work with the EHDl coordinator on scheduling a 2-hour time period for the webinar.

Option 2: The EHDl coordinator will be responsible for 1) locating participants with subject matter expertise for the topics in the self-assessment tool, 2) consulting with and seeking opinions from them, and 3) taking responsibility for completing the tool as she or he believes appropriate. PHII will work with the EHDl coordinator to reach agreement on a timeline for returning the completed self-assessment.

After receiving an EHDl program's self-assessment results, PHII will aggregate those results with others and prepare feedback, including recommendations. This feedback will be shared privately via a separate conference call with the EHDl coordinator and any colleagues he or she chooses. This feedback may include comparisons of the EHDl program's results to aggregated results from other EHDl programs that have completed the self-assessment. Individual program results will not be shared without the program's consent (see below).

Please contact Jim Jellison (jjellison@taskforce.org) or Trish Miller (tmiller@taskforce.org) at PHII to coordinate the self-assessment activity.

Informed consent

Participation in this activity is voluntary. The activity is designed to benefit public health agencies and their EHDl programs by providing a depiction of their current capability for electronic information exchange with clinical partners and guidance on increasing that capability.

The activity is not intended to make judgments on the performance of specific EHDl programs or public health agencies. Findings from this effort will be generalized to highlight issues impacting EHDl and public health nationally and guide future EHDl capacity building efforts. Findings specific to any individual agency will not be included in any future presentations or publications without the consent of that agency.

Part 1: Workflow

Question 1.1

Has the EHDl program completed an assessment that identifies existing or potential data exchange partners?

- Level 0 The EHDl program has not undertaken this assessment.

- Level 1 The EHDl program has made isolated, ad hoc or periodic efforts to conduct this assessment.

- Level 2 The EHDl program has completed such an assessment.

- Level 3 EHDl program evaluates how it conducts these assessments to improve how it identifies and engages data exchange partners.

- N/A This capability or activity is not applicable to our EHDl program.

Key concepts

Data exchange partner refers to an entity that sends data to or receives data from the agency in the course of conducting business or meeting reporting requirements. For the purpose of this assessment, consider both data exchange partners that the EHDl program has existing relationships with (e.g., birthing centers) as well as potential data exchange partners (e.g., pediatricians, audiologists).

Part 1: Workflow

Question 1.2

Has the EHDl program established data sharing agreements with other entities (e.g., health care providers, vital records) it would like to exchange data with?

<input type="checkbox"/>	Level 0	The EHDl program has not established data sharing agreements.
<input type="checkbox"/>	Level 1	The EHDl program has discussed data sharing with other entities; these discussions may or may not have resulted in data sharing agreements.
<input type="checkbox"/>	Level 2	The EHDl program has a process it uses to routinely establish data sharing agreements and keep them up-to-date.
<input type="checkbox"/>	Level 3	The EHDl program evaluates its process for data sharing agreements and uses findings to improve data sharing.
<input type="checkbox"/>	N/A	This capability or activity is not applicable to our EHDl program.

Key concepts

Data sharing agreements are used to establish clear parameters for exchange between organizations or operational units within an agency. These are written agreements that may include:

- Descriptions of allowable use of data.
- Responsibilities of the parties to the agreement.
- Description of the legal authority or business reason to share data.
- Description of the frequency of data exchange.
- Provisions for reporting violations of agreements, including breeches of privacy or security.
- Privacy provisions that describe the circumstances when personally identifiable information may be exchanged.
- Security provisions describing who is able to view data, access data, or make modifications to data and how the organization ensures only authorized individuals perform those functions.
- Descriptions of the purpose for the data exchange and agreement on specific data elements to be exchanged.

Part 1: Workflow

Question 1.3

How does the EHDI program typically receive reporting information from birthing/screening facilities?

- Level 0 By phone or paper-based forms received via mail, fax, or email.
- Level 1 Primarily by phone or paper-based forms received via mail, fax, or email with some pilot efforts to receive electronic reports.
- Level 2 Primarily via electronic reports with some by phone or paper-based forms received via mail, fax, or email.
- Level 3 Primarily via electronic reports that are evaluated to improve volume, accuracy, or timeliness of data reception.
- N/A This capability or activity is not applicable to our EHDI program.

Key concepts

Examples of **information** include case or patient level reports, aggregate reports, or reports used to monitor process quality.

Birthing/screening facilities are the clinical locations where a newborn receives initial newborn hearing screening, often a hospital or birthing center.

Paper-based forms via email can include free-form or semi-structured text intended for human readability. This text could be in the email itself or in a document attached to the email.

Electronic reports include messages generated with the aid of computer systems and intended to be received and processed by computer systems. Electronic reports could be created by manually entering information into an electronic form (e.g., Web-based portals for data entry) or generated automatically by the sending system (e.g., HL7 message).

Public health agencies typically send and receive both paper-based forms and electronic reports. Select the response that represents the agency’s highest level of capability.

Part 1: Workflow

Question 1.4

How does the EHDl program typically send information to birthing/screening facilities?

- Level 0 By phone or paper-based forms sent via mail, fax, or email.

- Level 1 Primarily by phone or paper-based forms sent via mail, fax, or email with some pilot efforts to send or display electronic reports.

- Level 2 Primarily via electronic reports with some by phone or paper-based forms sent via mail, fax, or email.

- Level 3 Primarily via electronic reports that are evaluated to improve volume, accuracy, and timeliness of data transmission.

- N/A This capability or activity is not applicable to our EHDl program.

Key concepts

Examples of **information** include case or patient level reports, aggregate reports, or reports used to monitor process quality.

Birthing/screening facilities are the clinical locations where a newborn receives initial newborn hearing screening, often a hospital or birthing center.

Paper-based forms via email can include free-form or semi-structured text intended for human readability. This text could be in the email itself or in a document attached to the email.

Electronic reports include messages generated with the aid of computer systems and intended to be received and processed by computer systems. Electronic reports could be created by manually entering information into an electronic form (e.g., Web-based portals for data entry) or generated automatically by the sending system (e.g., HL7 message).

Public health agencies typically send and receive both paper-based forms and electronic reports. Select the response that represents the agency’s highest level of capability.

Part 1: Workflow

Question 1.5

How does the EHDl program typically receive reporting information from diagnostic facilities?

- Level 0 By phone or paper-based forms received via mail, fax, or email.

- Level 1 Primarily by phone or paper-based forms received via mail, fax, or email with some pilot efforts to receive electronic reports.

- Level 2 Primarily via electronic reports with some by phone or paper-based forms received via mail, fax, or email.

- Level 3 Primarily via electronic reports that are evaluated to improve volume, accuracy, or timeliness of data reception.

- N/A This capability or activity is not applicable to our EHDl program.

Key concepts

Examples of **information** include case or patient level reports, aggregate reports, or reports used to monitor process quality.

Diagnostic facilities are the clinical locations, typically outpatient, where a newborn receives an audiologic diagnosis. The purpose of the diagnosis may be to confirm an initial hearing screening, prescribe interventions, and monitor results.

Paper-based forms via email can include free-form or semi-structured text intended for human readability. This text could be in the email itself or in a document attached to the email.

Electronic reports include messages generated with the aid of computer systems and intended to be received and processed by computer systems. Electronic reports could be created by manually entering information into an electronic form (e.g., Web-based portals for data entry) or generated automatically by the sending system (e.g., HL7 message).

Public health agencies typically send and receive both paper-based forms and electronic reports. Select the response that represents the agency’s highest level of capability.

Part 1: Workflow

Question 1.6

How does the EHDl program typically send information to diagnostic facilities?

- | | | |
|--------------------------|---------|---|
| <input type="checkbox"/> | Level 0 | By phone or paper-based forms sent via mail, fax, or email. |
| <input type="checkbox"/> | Level 1 | Primarily by phone or paper-based forms sent via mail, fax, or email with some pilot efforts to send or display electronic reports. |
| <input type="checkbox"/> | Level 2 | Primarily via electronic reports with some by phone or paper-based forms sent via mail, fax, or email. |
| <input type="checkbox"/> | Level 3 | Primarily via electronic reports that are evaluated to improve volume, accuracy, and timeliness of data transmission. |
| <input type="checkbox"/> | N/A | This capability or activity is not applicable to our EHDl program. |

Key concepts

Examples of **information** include case or patient level reports, aggregate reports, or reports used to monitor process quality.

Diagnostic facilities are the clinical locations, typically outpatient, where a newborn receives an audiologic diagnosis. The purpose of the diagnosis may be to confirm an initial hearing screening, prescribe interventions, and monitor results.

Paper-based forms via email can include free-form or semi-structured text intended for human readability. This text could be in the email itself or in a document attached to the email.

Electronic reports include messages generated with the aid of computer systems and intended to be received and processed by computer systems. Electronic reports could be created by manually entering information into an electronic form (e.g., Web-based portals for data entry) or generated automatically by the sending system (e.g., HL7 message).

Public health agencies typically send and receive both paper-based forms and electronic reports. Select the response that represents the agency’s highest level of capability.

Part 1: Workflow

Question 1.7

How does the EHDl program typically receive reporting information from primary care providers/pediatricians?

- Level 0 By phone or paper-based forms received via mail, fax, or email.

- Level 1 Primarily by phone or paper-based forms received via mail, fax, or email with some pilot efforts to receive electronic reports.

- Level 2 Primarily via electronic reports with some by phone or paper-based forms received via mail, fax, or email.

- Level 3 Primarily via electronic reports that are evaluated to improve volume, accuracy, or timeliness of data reception.

- N/A This capability or activity is not applicable to our EHDl program.

Key concepts

Examples of **information** include case or patient level reports, aggregate reports, or reports used to monitor process quality.

A **primary care provider** (PCP) is a health care practitioner who sees people that have common medical problems. This person is usually a doctor, but may be a physician assistant or a nurse practitioner. A **pediatrician** specializes in children and their diseases.

Paper-based forms via email can include free-form or semi-structured text intended for human readability. This text could be in the email itself or in a document attached to the email.

Electronic reports include messages generated with the aid of computer systems and intended to be received and processed by computer systems. Electronic reports could be created by manually entering information into an electronic form (e.g., Web-based portals for data entry) or generated automatically by the sending system (e.g., HL7 message).

Public health agencies typically send and receive both paper-based forms and electronic reports. Select the response that represents the agency’s highest level of capability.

Part 1: Workflow

Question 1.8

How does the EHDl program typically send information to primary care providers/pediatricians?

- Level 0 By phone or paper-based forms sent via mail, fax, or email.

- Level 1 Primarily by phone or paper-based forms sent via mail, fax, or email with some pilot efforts to send or display electronic reports.

- Level 2 Primarily via electronic reports with some by phone or paper-based forms sent via mail, fax, or email.

- Level 3 Primarily via electronic reports that are evaluated to improve volume, accuracy, and timeliness of data transmission.

- N/A This capability or activity is not applicable to our EHDl program.

Key concepts

Examples of **information** include case or patient level reports, aggregate reports, or reports used to monitor process quality.

A **primary care provider** (PCP) is a health care practitioner who sees people that have common medical problems. This person is usually a doctor, but may be a physician assistant or a nurse practitioner. A **pediatrician** specializes in children and their diseases.

Paper-based forms via email can include free-form or semi-structured text intended for human readability. This text could be in the email itself or in a document attached to the email.

Electronic reports include messages generated with the aid of computer systems and intended to be received and processed by computer systems. Electronic reports could be created by manually entering information into an electronic form (e.g., Web-based portals for data entry) or generated automatically by the sending system (e.g., HL7 message).

Public health agencies typically send and receive both paper-based forms and electronic reports. Select the response that represents the agency’s highest level of capability.

Part 1: Workflow

Question 1.9

How does the EHDI program typically receive reporting information from early intervention services?

- Level 0 By phone or paper-based forms received via mail, fax, or email.
- Level 1 Primarily by phone or paper-based forms received via mail, fax, or email with some pilot efforts to receive electronic reports.
- Level 2 Primarily via electronic reports with some by phone or paper-based forms received via mail, fax, or email.
- Level 3 Primarily via electronic reports that are evaluated to improve volume, accuracy, or timeliness of data reception.
- N/A This capability or activity is not applicable to our EHDI program.

Key concepts

Examples of **information** include case or patient level reports, aggregate reports, or reports used to monitor process quality.

Early intervention services are intended to enhance language, communication, cognitive, and social skill development, with the goal of increasing the likelihood of success in school and other aspects of life. Specific services may include (but are not limited to) medical services, speech-language pathologists, and family support.

Paper-based forms via email can include free-form or semi-structured text intended for human readability. This text could be in the email itself or in a document attached to the email.

Electronic reports include messages generated with the aid of computer systems and intended to be received and processed by computer systems. Electronic reports could be created by manually entering information into an electronic form (e.g., Web-based portals for data entry) or generated automatically by the sending system (e.g., HL7 message).

Public health agencies typically send and receive both paper-based forms and electronic reports. Select the response that represents the agency’s highest level of capability.

Part 1: Workflow

Question 1.10

How does the EHDl program typically send information to early intervention services?

- Level 0 By phone or paper-based forms sent via mail, fax, or email.

- Level 1 Primarily by phone or paper-based forms sent via mail, fax, or email with some pilot efforts to send or display electronic reports.

- Level 2 Primarily via electronic reports with some by phone or paper-based forms sent via mail, fax, or email.

- Level 3 Primarily via electronic reports that are evaluated to improve volume, accuracy, and timeliness of data transmission.

- N/A This capability or activity is not applicable to our EHDl program.

Key concepts

Examples of **information** include case or patient level reports, aggregate reports, or reports used to monitor process quality.

Early intervention services are intended to enhance language, communication, cognitive, and social skill development, with the goal of increasing the likelihood of success in school and other aspects of life. Specific services may include (but are not limited to) medical services, speech-language pathologists, and family support.

Paper-based forms via email can include free-form or semi-structured text intended for human readability. This text could be in the email itself or in a document attached to the email.

Electronic reports include messages generated with the aid of computer systems and intended to be received and processed by computer systems. Electronic reports could be created by manually entering information into an electronic form (e.g., Web-based portals for data entry) or generated automatically by the sending system (e.g., HL7 message).

Public health agencies typically send and receive both paper-based forms and electronic reports. Select the response that represents the agency’s highest level of capability.

Part 1: Workflow

Question 1.11

How does the EHDl program identify live birth events in its jurisdiction?

- Level 0 The EHDl program is unable to conduct these activities.

- Level 1 The EHDl program is able to manually conduct these activities with inconsistent results and many unresolved duplicate birth events.

- Level 2 The EHDl program is able to conduct these activities using manual or automated approaches with consistently good results and few unresolved duplicate birth events.

- Level 3 The EHDl program evaluates how it receives and processes information to improve identification of live birth events.

- N/A This capability or activity is not applicable to our EHDl program.

Key concepts

Even the best public health surveillance or vital registration system may not capture 100 percent of live births. For the purpose of this assessment, consider how well the EHDl program can identify all live births compared to the agency or jurisdictional vital registration system.

Part 1: Workflow

Question 1.12

Can the EHDI program identify infants that need hearing screening and/or follow-up services?

- Level 0 The EHDI program is unable to conduct these activities.

- Level 1 The EHDI program is able to manually conduct these activities with inconsistent results.

- Level 2 The EHDI program is able to conduct these activities using manual or automated approaches with consistently good results.

- Level 3 The EHDI program evaluates how it receives and processes information to improve identification of children needing hearing screening and/or follow-up services.

- N/A This capability or activity is not applicable to our EHDI program.

Key concepts

For the purpose of this assessment, consider the children that are within scope of the EHDI program's mission. This may exclude children that were born in a neighboring jurisdiction but receive care in your jurisdiction.

Part 2: Policies

Question 2.1

Has your agency developed a strategic plan that addresses information systems and information management for the organization?

- Level 0 Agency has not attempted to develop such a strategic plan.

- Level 1 Agency has made isolated, ad hoc, or periodic efforts to develop such a strategic plan.

- Level 2 Agency has completed such a strategic plan and updates it routinely.

- Level 3 Agency evaluates how it develops strategic plans to improve its information systems management.

- N/A This capability or activity is not applicable to our agency.

Key concepts

Here **strategic plan** refers to a written “plan of action” for achieving specific goals or outcomes related to the agency’s established information capability. This includes information systems and information management.

Information systems are a combination of hardware, software, infrastructure, and trained personnel organized to facilitate planning, control, coordination, and decision making in an organization.

Information management refers to the collection of information from one or more sources and the distribution of that information to one or more audiences. Here information management means a more strategic approach to the structure, processing, and delivery of information, compared to data management, i.e., technical tasks related to database operations and data quality assurance.

Part 2: Policies

Question 2.2

Has your agency completed an assessment intended to describe its information assets and information needs?

- Level 0 Agency has not undertaken such an assessment.

- Level 1 Agency has made isolated, ad hoc, or periodic efforts to conduct such an assessment.

- Level 2 Agency has completed such an assessment and updates it routinely.

- Level 3 Agency evaluates its assessments to improve how the agency utilizes its information assets to meet its information needs.

- N/A This capability or activity is not applicable to our agency.

Key concepts

Information assets refer to any definable piece or grouping of information which is managed and used to bring value to the organization. Typically, information assets are not easily replaceable without significant costs, skills, time and/or other resources. Examples include data sets from surveillance systems and registries, or from surveys or health statistics.

Information needs refer to the data and information that are required for public health practitioners to accomplish work goals and objectives.

For this assessment, consider how well the agency understands its information assets and information needs. Given the dynamic nature of public health and information availability, it might be unreasonable to expect that an agency always have information assets that meet all of its information needs.

Part 2: Policies

Question 2.3

Does your agency have a governance process that guides information systems projects towards agency objectives?

- Level 0 Agency has no such governance structure.

- Level 1 Agency has made isolated, ad hoc, or periodic efforts to govern information systems projects.

- Level 2 Agency has established such a governance process and exercises it routinely.

- Level 3 Agency evaluates how well its governance process guides IT projects towards agency objectives.

- N/A This capability or activity is not applicable to our agency.

Key concepts

Governance process refers to a formal process for decision making. This may include a written plan which describes who participates in decision making, an organized structure, such as a committee or coalition, and how decisions are made. Information system governance processes are intended to ensure that projects align with agency strategy, values, constraints, and culture.

Part 2: Policies

Question 2.4

Has your agency developed a funding plan for long-term support of its information technology systems?

- Level 0 Agency has not developed such a funding plan.

- Level 1 Agency has made isolated, ad hoc, or periodic efforts to plan for IT systems funding; funding shortfalls frequently limit sustainability of systems.

- Level 2 Agency routinely plans for IT systems funding and can generally sustain critical systems over time.

- Level 3 Agency evaluates its long-term IT funding plans to improve IT systems sustainability.

- N/A This capability or activity is not applicable to our agency.

Key concepts

A **funding plan** is a written document that describes the potential sources of revenue (where money will come from) and how the organization will seek the funds (legislative strategy, grants, partnerships, monetized services, etc.) to support informatics activities. The plan may include revenue goals, measurable objectives or benchmarks, and action steps related to funding strategy.

Part 2: Policies

Question 2.5

Has your agency completed an agency-wide assessment to identify and engage stakeholders in efforts related to data exchange and interoperability?

- Level 0 Agency has not undertaken this assessment.

- Level 1 Agency has made isolated, ad hoc, or periodic efforts to conduct this assessment.

- Level 2 Agency has completed this assessment and updates it routinely.

- Level 3 Agency evaluates this assessment process to improve stakeholder engagement for data exchange and interoperability.

- N/A This capability or activity is not applicable to our agency.

Key concepts

Stakeholder refers to any individual, group or organization that may be affected by decisions or actions of the agency. **Stakeholder engagement** refers to the process by which those individuals and organizations are identified and invited to participate.

Interoperability refers to the extent to which systems and devices can exchange data, and interpret that shared data. For two systems to be interoperable, they must be able to exchange data and subsequently present that data such that it can be understood by a user.

Part 2: Policies

Question 2.6

Has your agency adopted a procedure for establishing data sharing agreements?

- Level 0 Agency has not adopted such a procedure.

- Level 1 Agency has made isolated, ad hoc, or periodic efforts to adopt a procedure for establishing data sharing agreements.

- Level 2 Agency has adopted a procedure for establishing data sharing agreements and exercises it routinely.

- Level 3 Agency evaluates its process for data sharing agreements and uses findings to improve data sharing.

- N/A This capability or activity is not applicable to our agency.

Key concepts

Data sharing agreements are used to establish clear parameters for exchange between organizations or operational units within an agency. These are written agreements that may include:

- Descriptions of allowable use of data.
- Responsibilities of the parties to the agreement.
- Description of the legal authority or business reason to share data.
- Description of the frequency of data exchange.
- Provisions for reporting violations of agreements, including breeches of privacy or security.
- Privacy provisions that describe the circumstances when personally identifiable information may be exchanged.
- Security provisions describing who is able to view data, access data, or make modifications to data and how the organization ensures only authorized individuals perform those functions.
- Descriptions of the purpose for the data exchange and agreement on specific data elements to be exchanged.

Part 2: Policies

Question 2.7

Has your agency established procedures to ensure privacy and confidentiality?

- Level 0 Agency has not adopted such procedures.

- Level 1 Agency has made isolated, ad hoc, or periodic efforts to adopt a procedure for privacy and confidentiality.

- Level 2 Agency has adopted privacy and confidentiality procedures and exercises them routinely.

- Level 3 Agency evaluates its procedures to improve privacy and confidentiality.

- N/A This capability or activity is not applicable to our agency.

Key concepts

Privacy refers to an individual’s right to selectively release their personal or health information; **confidentiality** is the treatment of information that an individual has disclosed and ensuring that information is accessible only to those authorized to have access.

Part 2: Policies

Question 2.8

Has your agency adopted project management procedures for information technology projects?

- Level 0 Agency has not adopted such procedures.

- Level 1 Agency has made isolated, ad hoc, or periodic efforts to use project management procedures.

- Level 2 Agency has adopted project management procedures and exercises them routinely.

- Level 3 Agency evaluates its procedures to improve project management.

- N/A This capability or activity is not applicable to our agency.

Key concepts

Project management refers to practices designed to ensure a project is completed satisfactorily with respect to its budget, time line, and scope. Project management techniques can also help an organization oversee work provided by information technology consultants and vendors.

Part 3: Infrastructure

Question 3.1

Does the EHDl program have access to information technology (IT) professionals?

- Level 0 The EHDl program has no access to IT professionals.

- Level 1 The EHDl program has limited access to an IT professional(s).

- Level 2 The EHDl program has routine access to IT professionals.

- Level 3 The EHDl program evaluates its access to IT professionals to improve its support for information technology.

- N/A This capability or activity is not applicable to our EHDl program.

Key concepts

Information technology professionals are those tasked with developing or maintaining information systems. Competencies include programming, database management, and network administration. These individuals could be program staff, agency staff, state/territorial government staff, full or part time contractors, vendors, or partners from clinical or academic settings.

Part 3: Infrastructure

Question 3.2

Does the EHDl program have access to data analysts?

- Level 0 The EHDl program has no access to data analysts.

- Level 1 The EHDl program has limited access to a data analyst(s).

- Level 2 The EHDl program has routine access to data analysts.

- Level 3 The EHDl program evaluates its access to data analysts to improve its support for data analysis.

- N/A This capability or activity is not applicable to our EHDl program.

Key concepts

Here the terms **data analysts** refer to those tasked with making assessments on disease incidence/prevalence and effectiveness of interventions. Competencies can include epidemiology, statistics, research, data management, and evaluation. These individuals could be program staff, agency staff, state/territorial government staff, full or part time contractors, vendors, or clinical/academic partners.

Part 3: Infrastructure

Question 3.3

Does the EHDl program staff have opportunities for training on public health informatics or health information technology?

- Level 0 The EHDl program has no access to such training.

- Level 1 Such training is ad hoc and rarely based on a formal plan.

- Level 2 The EHDl program routinely plans and budgets for such training.

- Level 3 The EHDl program evaluates how it trains staff on public health informatics or health information technology.

- N/A This capability or activity is not applicable to our EHDl program.

Key concepts

Public health informatics facilitates the effective use of information and information technology to support public health practice, services and research for the purpose of achieving improved health outcomes.

Health information technology (health IT) makes it possible for health care providers to better manage patient care through secure use and sharing of health information. Health IT includes the use of electronic health records (EHRs) instead of paper medical records to maintain people's health information.

Part 3: Infrastructure

Question 3.4

Does the EHDl program have access to an IT testing environment?

- Level 0 The program has no access to an IT testing environment.

- Level 1 The program is in the process of accessing an IT testing environment.

- Level 2 The program is using an IT testing environment to test electronic messages incoming from or outgoing to clinical trading partners.

- Level 3 The program evaluates its IT testing environment's ability to test incoming or outgoing electronic messages.

- N/A This capability or activity is not applicable to our EHDl program.

Key concepts

IT testing environment is a combination of software and/or hardware on which new tools or products are tested prior to adoption and implementation.

Part 3: Infrastructure

Question 3.5

Does the EHDl program integrate with a master patient index?

- Level 0 The program is not integrated with a master patient index.
- Level 1 The program is in the process of integrating with a master patient index.
- Level 2 The program is using a master patient index to deduplicate EHDl records and link to other programmatic data.
- Level 3 The program evaluates its integration with a master patient index to improve its data deduplication and integration with other programmatic data.
- N/A This capability or activity is not applicable to our EHDl program.

Key concepts

A **master patient index** is a database that is used across a health care or public health organization to maintain consistent, accurate and current demographic and essential medical data on the patients seen or managed within its various departments. The patient is assigned a unique identifier that is used to refer to this patient across the enterprise. In a public health context, a patient might be a case that has been reported in accordance with public health regulations.

Part 3: Infrastructure

Question 3.6

Does the EHDl program integrate with a registry or master list of providers relevant to EHDl (e.g., birthing centers, pediatricians)?

- Level 0 The program is not integrated with such a registry or list.
- Level 1 The program is in the process of integrating with such a registry or list.
- Level 2 The program is using such a registry or list to identify all possible clinical trading partners.
- Level 3 The program evaluates its integration with such a registry or list to improve its data capture from and exchange with clinical trading partners.
- N/A This capability or activity is not applicable to our EHDl program.

Key concepts

A **provider registry** or **master facility list** is a directory of health care providers. Public health agencies may use one to identify and authenticate providers reporting conditions and events of public health significance. Accessing a shared provider registry can help reduce burdens associated with maintaining separate provider lists in individual programs across the agency.

Part 3: Infrastructure

Question 3.7

Does the EHDl program have access to an electronic message integration engine?

- Level 0 The program has no access to an integration engine.
- Level 1 The program is in the process of acquiring an integration engine or connecting to one used by an HIE or other external partner.
- Level 2 The program is using an integration engine, either its own or one used by an HIE or other partner, that validates and translates incoming EHR messages.
- Level 3 The program evaluates the performance of its integration engine to improve validation and translation of incoming EHR messages.
- N/A This capability or activity is not applicable to our EHDl program.

Key concepts

An **interface engine** is a software (sometimes combined with hardware) solution for translating and validating messages representing electronic health records. They are used to standardize messages received from a variety of clinical trading partners that may or may not be using standard message formats or coding systems.

Health information exchange (HIE) allows providers and other health care stakeholders to appropriately access and securely share a patient’s vital medical information electronically. Here, HIE refers to an organizational entity that serves as a "hub" for electronic health record exchange between clinical and public health trading partners. Such an HIE might offer services like those provided by an integration engine.

Part 3: Infrastructure

Question 3.8

Does the EHDl program have the capability to securely exchange electronic health information with clinical partners?

- Level 0 The program has no such capability.

- Level 1 The program is in the process of implementing or accessing tools that would provide this capability.

- Level 2 The program has implemented or is accessing tools that provide this capability.

- Level 3 The program evaluates its capability to securely exchange electronic health information to improve its security practices and build trust with its clinical trading partners.

- N/A This capability or activity is not applicable to our EHDl program.

Key concepts

Here, **secure exchange** refers to the ability to send and receive electronic health information while ensuring it is protected from unauthorized access or alteration. Some entities partner with a third party, such as a Health Information Services Provider (HISP), to provide the technical infrastructure for secure health information exchange.

Part 4: Data & Standards

Question 4.1

Has the EHDl program adopted standard vocabularies for clinical terms or classifications (e.g., LOINC, SNOMED-CT)?

- Level 0 The EHDl program has not adopted any vocabulary standards.

- Level 1 The EHDl program is designing or implementing a pilot project that uses at least one vocabulary standard.

- Level 2 The EHDl program uses at least one vocabulary standard with its production EHDl-IS.

- Level 3 The EHDl program evaluates how well its use of vocabulary standards supports programmatic objectives.

- N/A This capability or activity is not applicable to our EHDl program.

Key concepts

Vocabulary standards refer to the commonly accepted terminologies and code systems used by systems developers for the clear and efficient transmission of information between information systems. LOINC and SNOMED-CT are two commonly used vocabulary standards for laboratory observations and clinical terminology, respectively.

Part 4: Data & Standards

Question 4.2

Has the EHDl program adopted message (or content) standards for health information (e.g., HL7 version 2, Clinical Document Architecture, etc.)?

- Level 0 The EHDl program has not adopted any message/content standards.

- Level 1 The EHDl program is designing or implementing a pilot project that uses at least one message/content standard.

- Level 2 The EHDl program uses at least one message/content standard with its production EHDl-IS.

- Level 3 The EHDl program evaluates how well its use of message/content standards supports programmatic objectives.

- N/A This capability or activity is not applicable to our EHDl program.

Key concepts

Message (or content) standards refer to commonly accepted structures for electronic messages used to exchange information between systems. Message standards specify how data elements (typically represented with standard vocabularies) should be arranged. Health Level Seven (HL7) is an organization that specifies message standards for health care. In public health contexts, most HL7 messages conform to Version 2 or the newer Version 3, which is based on HL7’s Clinical Document Architecture (CDA).

Part 4: Data & Standards

Question 4.3

Has the EHDl program adopted standard transport methods for electronic health information (e.g., Secure FTP, Direct, web services, PHIN MS)?

- Level 0 The EHDl program has not adopted any transport standards.

- Level 1 The EHDl program is designing or implementing a pilot project that uses at least one transport standard.

- Level 2 The EHDl program uses at least one transport standard with its production EHDl-IS.

- Level 3 The EHDl program evaluates how well its use of transport standards supports programmatic objectives.

- N/A This capability or activity is not applicable to our EHDl program.

Key concepts

Transport standards refer to the methods and approaches used by organizations to send and receive electronic messages. Transport standards are distinct from the actual content of the message and can vary in degrees of technological sophistication and approaches to security and encryption. Transport standards used in public health include, but are not limited to, Secure File Transport Protocol (SFTP), Direct (based on secure email), Public Health Information Network Messaging System (PHIN MS, which is provided by CDC and based on ebXML), and Web services used in service-oriented architectures.

Part 4: Data & Standards

Question 4.4

Has the EHDl program adopted Integrating the Healthcare Enterprise (IHE) Profiles?

- Level 0 The EHDl program has not adopted any IHE Profiles.

- Level 1 The EHDl program is designing or implementing a pilot project that uses at least one IHE Profile.

- Level 2 The EHDl program uses at least one IHE Profile with its production EHDl-IS.

- Level 3 The EHDl program evaluates how well its use of IHE Profiles supports programmatic objectives.

- N/A This capability or activity is not applicable to our EHDl program.

Key concepts

The Integrating Healthcare Enterprise website states, “IHE is an initiative by healthcare professionals and industry to improve the way computer systems in healthcare share information. IHE promotes the coordinated use of established standards...to address specific clinical needs in support of optimal patient care.” IHE profiles describe a clinical information need or workflow scenario and document how to use established standards to accomplish it. The following EHDl-related profiles are of interest to the EHDl community:

Newborn Admission Notification Information (NANI) profile describes the content needed to communicate a timely newborn admission notification electronically from a birthing facility to public health to be used by newborn screening programs.

The Early Hearing Care Plan (EHCP) profile describes the content needed to communicate care plan instructions to properly manage hearing loss in newborns and young children. EHCP is being superseded by the new Early Hearing Detection and Intervention (EHDl) profile that addresses both care plans and results from screening devices.

Quality Measure Execution-Early Hearing (QME-EH) profile describes the content needed to communicate clinical quality measures for monitoring newborn hearing screening.

Appendix – Technical Questions

1. Does the EHDl program use an electronic EHDl tracking and surveillance system? If so please describe the system (e.g., vendor/product names or internally developed).
2. If the EHDl program uses an EHDl-IS, please describe the message types received from clinical trading partners and the transport mechanisms used to deliver the messages (e.g., via HIE, Direct, Web services; batched vs. individual messages).
3. Does the EHDl program use an electronic EHDl Tracking and Surveillance system to generate information for the annual CDC EHDl Hearing Screening and Follow-Up Survey (also known as the CDC Data Survey, <http://www.cdc.gov/ncbddd/hearingloss/ehdi-data.html>)?
4. Please describe where the EHDl program is located in the agency's organizational structure (e.g., the EHDl program resides within the MCH Branch, which resides within the Community Health Division, which reports to the Director of Public Health).

9. PHll is planning on creating an online community where EHDl program staff can share challenges, questions and best practices. What platform preferences, if any, do you have for such a community? Please check all that apply.

- LinkedIn group

- Facebook group

- Google+ group

- Public health-specific platform, such as PHConnect

- No preference

- Other (please describe):

PHI Contact

Jim Jellison, MPH
Senior Informatics Analyst
jjellison@taskforce.org
Office: 404.687.5637

References

1. Mark Paulk, William Curtis, Mary Beth Chrissis, & Charles Weber. Capability Maturity Model for Software (Version 1.1) (CMU/SEI-93-TR-024). Pittsburgh, PA: Software Engineering Institute, Carnegie Mellon University, 1993. <http://resources.sei.cmu.edu/library/asset-view.cfm?AssetID=11955>

CMM is a registered service mark of Carnegie Mellon University.