

HITSP Maternal and Child Health Interoperability Specification

HITSP/IS91



Healthcare Information Technology Standards Panel

Submitted to:

Healthcare Information Technology Standards Panel

Submitted by:

Population Perspective Technical Committee



DOCUMENT CHANGE HISTORY

Version Number	Description of Change	Name of Author	Date Published
0.0.1	Review Copy	Population Perspective Technical Committee	January 31, 2010



TABLE OF CONTENTS

1.0 INTRODUCTION.....	5
1.1 Interoperability Specification Overview	6
1.2 Document Scope	6
1.3 Copyright Permissions	7
1.4 Reference Documents	7
1.5 Conformance	7
1.5.1 Conformance Criteria	7
1.5.2 Conformance Scoping, Subsetting and Options	7
1.5.3 Test Methods	8
2.0 REQUIREMENTS	9
2.1 Synopsis of Requirements	9
2.2 Maternal and Child Health.....	11
2.2.1 Information Exchange Requirements for Maternal and Child Health	11
2.3 System Description.....	17
3.0 DESIGN SPECIFICATION	19
3.1 Capabilities Used.....	19
3.2 Capability Orchestration.....	24
3.2.1 Constraints on Required Capabilities	30
4.0 CAPABILITY GAPS.....	32
5.0 APPENDIX	34
5.1 Data Requirements.....	44
5.2 Harmonization Request Traceability.....	52
6.0 DOCUMENT UPDATES.....	59
6.1 January 31, 2010.....	59



FIGURES AND TABLES

Figure 3-1 Diagram Showing Capabilities Used Between Systems.....	23
Table 1-1 Reader's Guide for Interoperability Specification	5
Table 1-2 Reference Documents	7
Table 2-1 Reader's Guide for Section 2.0.....	9
Table 2-2 Description of Information Exchange Requirements	9
Table 2-3 Description of Scenarios	11
Table 2-4 Maternal and Child Health Information Exchange Requirements	12
Table 2-5 System Names and Descriptions.....	17
Table 3-1 Reader's Guide for Section 3.0.....	19
Table 3-2 Capabilities Used.....	19
Table 3-3 Orchestration of Capabilities by System	24
Table 3-4 Conditions.....	28
Table 3-5 Orchestration Constraints.....	28
Table 3-6 Additional Constraints on Required Capabilities	30
Table 4-1 Reader's Guide for Section 4.0.....	32
Table 4-2 Capability Gaps	32
Table 5-1 Reader's Guide for Section 5.0.....	34
Table 5-2 Exchange Content Descriptions	34
Table 5-3 Data Requirements	44
Table 5-4 Harmonization Request Events and Actions Analysis Table	52



1.0 INTRODUCTION

This Healthcare Information Technology Standards Panel (HITSP) document is divided into Requirements, Design and Capabilities sections which may be used by analysts, architects and implementers. Analysts might use this document to refer to the requirements of a particular Harmonization Request. Architects and system implementers might refer to this document as the top level architectural specification for a system design while software developers will use the Interoperability Specification as a source of requirements for interoperable information exchange.

The following table details specific sections of this Interoperability Specification template and how specific sections of this document are targeted to specific readers. Each of the stakeholders listed in this table are more fully defined in a separate appendix. This table is provided as an aid to readers to assist with identifying specific areas of focus. Readers are encouraged to review all sections of this document to further their understanding of HITSP's work.

Table 1-1 Reader's Guide for Interoperability Specification

Document Section	Section Number	Intended Audience	Information Contained
Section 2.0 Requirements	2.1 Synopsis of Requirements	Policy Managers Policy Analysts Executive Leadership	Used to provide an overview (using a scenario-based approach) of the requirements applicable to this document. Readers should start here to learn more about what specific requirements this Interoperability Specification is intended to address
	2.2 Scenarios	Program Managers Policy Analysts Executive Leadership	Each of the scenarios specific to the Interoperability Specification are outlined and described using a HITSP concept known as an Information Exchange Requirement (IER). HITSP uses IER's to outline requirements for HITSP work products
	2.3 System Description	Architects Business Analysts Policy Analysts Program Managers	The systems assigned to the system roles (as defined in the HITSP Capabilities used by this Interoperability Specification) are identified and described here. Readers can learn which systems have been included as part of this HITSP Interoperability Specification
Section 3.0 Design Specification	3.1 Capabilities Used	Architects Business Analysts Development Team	For each Information Exchange Requirement (IER) identified in Section 2.0, a corresponding HITSP Capability is associated and mapped. A reader can review how specific HITSP Capabilities meet information exchange needs. A diagram is also provided to show the interchange of data among systems identified in this Interoperability Specification
	3.2 Capability Orchestration	Architects Development Team	The core of the design in the Interoperability Specification is documented here. This solution shows orchestration of Capabilities to meet the specific Information Exchange Requirements (IER) in Section 3.1. The design also identifies conditions and constraints, as well as any content subsets specific to the solution
Section 4.0 Capability Gaps	4.0 Capability Gaps	Business Analysts Development Team Architects	Gaps specific to Capabilities used as part of this Interoperability Specification are reviewed in this section to determine why specific information exchange requirements may not yet be met or defined. Readers should check this section to track the progress of gap resolution
Section 5.0 Appendix	0 Data Requirements	Architects Business Analysts	Data requirements which support the exchange of data between electronic health records and clinical research systems
	5.25.1 Harmonization Request Traceability	Architects Business Analysts	A complete mapping of information exchange requirements to functional requirements is provided in this section. Readers can trace IER's to underlying Harmonization Request events and actions (in those instances where a Use Case exists) or to functional requirements defined as part of an official standards Harmonization Request



1.1 INTEROPERABILITY SPECIFICATION OVERVIEW

This Interoperability Specification addresses the ability to exchange obstetric and pediatric patient information between Electronic Health Records (EHRs), the ability to incorporate pediatric assessment tools, guidelines and assessment schedules into EHRs, and the ability to exchange standardized patient assessments for antenatal care, pre-natal care, labor and delivery and post-partum care between EHRs. It also addresses the ability to incorporate assessment tools, guidelines and assessment schedules into EHRs for antenatal care, pre-natal care, labor and delivery and post-partum care, as well as the ability to exchange this information with appropriate Public Health programs.

Maternal and child health can be defined as multiple programs serving various populations of consumers. For the purposes of this Extension/Gap document, the period of time included in maternal and child health is from the determination of pregnancy for the mother-to-be continuing throughout early childhood.

Requirements for maternal and child health can be summarized as:

- The exchange of pregnancy, birth event, screening and immunization information between public or private healthcare facilities, EHRs, and information systems supporting public health programs and/or services
- The use of this information to aid in the integration of various public health programs and/or services in order to facilitate enrollment by consumers who would benefit from these services. While social or other services are not always appropriate, many maternal and child health public health programs serve broad catchments of at risk populations and must address the requisite information flows and screening. Similarly, related services and the populations they serve benefit from broad awareness and consideration

There are four key elements on this timeline which address important information exchanges which include:

- Determination of pregnancy
- The birth event and incorporation of antepartum information
- Referral to and coordination of health related programs and registries such as Vital Records, Newborn Screening, Immunizations and Lead, Vision, Hearing, and other Developmental Screenings. Note: Although, Newborn Screening occurs within this time period and is an integral part of maternal and child health, the complexity and specific needs of that process led to the creation of a separate Use Case, the 2009 Newborn Screening Use Case
- Referral to and enrollment in various public health programs and/or services

1.2 DOCUMENT SCOPE

This Interoperability Specification covers clinical care and eligibility aspects of maternal and child care. This includes the mother's antepartum care, the birthing event. It includes the child's birthing event, newborn care, and well child care for ages 0-3. There is overlap in the newborn and well child care aspects with other HITSP Interoperability Specifications. For these overlaps, this Interoperability Specifications refers to these constructs and does not replicate content:

- Immunization and Response Management
- Public Health Case Reporting
- Newborn Screening

While there is also overlap with the Consultations and Transfers of Care Use Case, the content is specialized to support the data required for pregnancy and newborn related care as distinguished by the exchange content in this Interoperability Specification. This new content will be added to the HITSP Capabilities used for sharing clinical information.

This Interoperability Specification makes reference to communications of clinical guidelines knowledge. The source of the guidelines content may be provided by appropriate specialty organizations such as the



American Academy of Pediatrics (AAP) or the American College of Obstetricians and Gynecologists (ACOG). Some of the guidelines may come directly from Public Health (e.g., CDC).

This Interoperability Specification also addresses eligibility requests for services for antepartum services and child care services. While there are multiple programs that are involved in the management of these services, this specification is scoped to focus on Early Periodic Screening, Diagnosis and Treatment (EPSDT) eligibility.

1.3 COPYRIGHT PERMISSIONS

COPYRIGHT NOTICE

© 2010 ANSI. This material may be copied without permission from ANSI only if and to the extent that the text is not altered in any fashion and ANSI's copyright is clearly noted.

1.4 REFERENCE DOCUMENTS

A list of key reference documents and background material is provided in the table below. HITSP-maintained reference documents can be retrieved from the [HITSP Web Site](#).

Table 1-2 Reference Documents

Reference Documents	Document Description
HITSP Acronyms List	Lists and defines the acronyms used in this document
HITSP Glossary	Provides definitions for relevant terms used by HITSP documents
TN900 – Security and Privacy	TN900 is a reference document that provides the overall context for use of the HITSP Security and Privacy constructs
TN901 - Clinical Documents	TN901 is a reference document that provides the overall context for use of the HITSP Care Management and Health Records constructs
TN903 – Data Architecture	TN903 is a reference document that provides the overall context for use of the HITSP Data Architecture constructs
TN904 – Harmonization Framework and Exchange Architecture	TN904 is a reference document that provides the overall context for use of the HITSP Harmonization Framework and Exchange Architecture constructs
National Center for Health Statistics	Provides information regarding Vital Health Statistics data requirements

1.5 CONFORMANCE

This section describes the conformance criteria, which are objective statements of requirements that can be used to determine if a specific behavior, function, interface, or code set has been implemented correctly.

1.5.1 CONFORMANCE CRITERIA

For an implementation to claim conformance to a HITSP Interoperability Specification, it must be implemented in its entirety or within a limited scope or subset as defined within the Interoperability Specification, its associated construct specifications, as well as conformance criteria from the selected base and composite standards. A conformant system must be constrained as specified in this Interoperability Specification, and implement all of the required interfaces within the scope, subset or implementation options as described.

1.5.2 CONFORMANCE SCOPING, SUBSETTING AND OPTIONS

HITSP may define the permissibility for system scoping, subsetting or implementation options by which the specification may be implemented in a limited manner. The selected scope, subset or options shall specifically be stated, and implementations must include all requirements within the selected scope, subset or options to claim conformance.



For this Interoperability Specification, conformance may be declared by a participating system for any Capability provided that all declared constraints, conditions and requirements imposed by the Capability and its referenced HITSP constructs are satisfied.

1.5.3 TEST METHODS

HITSP relies on the conformance test methods, test tools and other test-related material produced by, or under the auspices, of standards developers, profiling organizations and implementation guide producers as part of its collaborative implementation testing effort. Efforts to produce conformance test methods, tools, etc. may be internal to the organization or provided by an external organization.

An [HIT Implementation Testing and Support](#) Web Site has been developed in collaboration with HITSP, the National Institute of Standards and Testing (NIST), the Certification Commission for Healthcare Information Technology (CCHIT), and the Office of the National Coordinator for Health Information Technology (ONC) to advance conformance and interoperability testing capabilities. This Web Site provides HIT implementers with the necessary resources to support and test their implementation of standards-based health systems.



2.0 REQUIREMENTS

Section 2.0 identifies the requirements from the Harmonization Request for which information exchanges are necessary. The following table details how this section and other sections of the document are targeted to specific readers. Each of the stakeholders listed in this table are more fully defined in a separate appendix. This table is provided as an aid to readers to assist with identifying specific areas of focus. Readers are encouraged to review all sections of this document to further their understanding of HITSP's work.

Table 2-1 Reader's Guide for Section 2.0

Document Section	Section Number	Intended Audience	Information Contained
Section 2.0 Requirements	2.1 Synopsis of Requirements	Policy Managers Policy Analysts Executive Leadership	Used to provide an overview (using a scenario-based approach) of the requirements applicable to this document. Readers should start here to learn more about what specific requirements this Interoperability Specification is intended to address
	2.2 Scenarios	Program Managers Policy Analysts Executive Leadership	Each of the scenarios specific to the Interoperability Specification are outlined and described using a HITSP concept known as an Information Exchange Requirement (IER). HITSP uses IER's to outline requirements for HITSP work products
	2.3 System Description	Architects Business Analysts Policy Analysts Program Managers	The systems assigned to the system roles (as defined in the Capabilities used by this Interoperability Specification) are identified and described here. Readers can learn which systems have been included as part of this Interoperability Specification

2.1 SYNOPSIS OF REQUIREMENTS

This Use Case Extension/Gap is expressed as a single scenario. The Maternal and Child Health Extension/Gap addresses the ability to exchange obstetric and pediatric patient information between EHRs, the ability to incorporate pediatric assessment tools, guidelines and assessment schedules into EHRs, the ability to exchange standardized patient assessments for antenatal care, pre-natal care, labor and delivery and post-partum care between EHRs. It also addresses the ability to incorporate assessment tools, guidelines and assessment schedules into EHRs for antenatal care, pre-natal care, labor and delivery and post-partum care, as well as the ability to exchange this information with appropriate Public Health programs.

The scope of this Use Case is primarily focused on determining eligibility for services or programs that may be available to the mother during pregnancy and childbirth, as well as to the child from birth to age four. [NOTE: This Interoperability Specification is scoped to support the child from birth to age three]. Examples of such programs are WIC; SCHIP; and Early Periodic Screening, Diagnosis and Treatment (EPSDT). In addition, the focus of the pediatric component is limited to the delivery of routine care provided to children during this time frame. This Extension/Gap is not intended to encompass all information exchange that might be associated with the care of a seriously ill child. This document also addresses clinical care for the mother. Maternal care includes antepartum care as well as labor and delivery. The Use Case also covers communications to address vital records.

Table 2-2 Description of Information Exchange Requirements

Information Exchange Requirement Number (IER)	Description
IER1	Send PEC-MCH9 – Service Eligibility from EHR to Health Plan System
IER2	Send PEC-NBS7 – Antepartum Summary from EHR to EHR
IER3	Provide/Register PEC-NBS7 – Antepartum Summary from EHR to HIE
IER4	Provide/Register PEC-NBS7 - Antepartum Summary from PHR to HIE



Information Exchange Requirement Number (IER)	Description
IER5	Request & Response PEC-NBS7 – Antepartum Summary EHR to HIE
IER6	Send EC36 Lab Result from Lab to EHR
IER7	Provide/Register EC37 Lab Result (used when constraint is 'document') from Lab to HIE
IER8	Request & Response EC37 Lab Result (used when constraint is 'document') from EHR to HIE
IER9	Request & Response EC37 Lab Result (used when constraint is 'document') from PH to HIE
IER10	Send PEC-MCH5 – Lab Orders from EHR to Lab
IER11	Subscribe PEC-NBS7 – Antepartum Summary from EHR to HIE
IER12	Subscribe EC37 Lab Result (used when constraint is 'document') from EHR to HIE
IER13	Request & Response PEC-MCH4 Guidelines from EHR to Public Health
IER17	Pre-Populate PEC-MCH6 vital records- birth record from EHR to Public Health Electronic Birth Registration System (EBR-S) Jurisdictional- Vital Records Office
IER18	Pre-Populate PEC-MCH7 vital records- death record from EHR to Public Health Electronic Death Registration System (EDR-S) Jurisdictional- Vital Records Office
IER19	Pre-Populate PEC-MCH8 vital records- fetal death report from EHR to Public Health Electronic Fetal Death System (EFD-S) Jurisdictional- Vital Records Office
IER20	Send PEC-MCH1 PEC-MCH1 Vital Statistics: Birth from Public Health (Vital Records Jurisdiction) to Public Health Electronic Birth Registration System (EBR-S) Jurisdictional- Vital Records Office
IER21	Request & Response PEC-MCH3 Vital Records Pre-Populate from EHR to Public Health EBR-S, EDR-S, and EFD-S Jurisdictional- Vital Records Office
IER22	Send PEC-NBS9 – Newborn Record from EHR to EHR
IER23	Provide/Register PEC-NBS9 – Newborn Record from EHR to HIE
IER24	Query/Respond PEC-NBS9 – Newborn Record from EHR to HIE
IER25	Subscribe PEC-NBS9 – Newborn Record from EHR to HIE
IER26	Send PEC-MCH2 Hospital's Maternal Discharge Summary from EHR to EHR
IER27	Provide/Register PEC-MCH2 Hospital's Maternal Discharge Summary from EHR to HIE
IER28	Query/Respond PEC-MCH2 Hospital's Maternal Discharge Summary from EHR to HIE
IER29	Subscribe PEC-MCH2 Hospital's Maternal Discharge Summary from EHR to HIE
IER30	Send PEC-NBS4 – Birthing Summary from EHR to EHR
IER31	Provide/Register PEC-NBS4 – Birthing Summary from EHR to HIE
IER32	Query/Respond PEC-NBS4 – Birthing Summary from EHR to HIE
IER33	Subscribe PEC-NBS4 – Birthing Summary from EHR to HIE
IER34	Send EC68A Health Plan Request EHR Health Plan
IER35	Send EC68B Health Plan Response Health Plan to EHR
IER36	Provide/Register EC30 Consent Document Component EHR to HIE
IER37	Request & Response EC30 Consent Document Component EHR to HIE
IER38	Send EC32 Summary of Care EHR to EHR
IER39	Publish/Register EC32 Summary of Care EHR to HIE
IER40	Request & Response EC32 Summary of Care EHR to HIE
IER41	Subscribe EC32 Summary of Care EHR to HIE
IER42	Send EC48 Encounter Summary (used when constraint is 'document') EHR to HIE
IER43	Publish/Register EC48 Encounter Summary (used when constraint is 'document') EHR to HIE
IER44	Request & Response EC48 Encounter Summary (used when constraint is 'document') EHR to HIE
IER45	Subscribe EC48 Encounter Summary (used when constraint is 'document') EHR to HIE
IER46	Send EC49 Medical Imaging Results Diagnostic Imaging Information Systems to EHR
IER47	Provide/Register EC49 Medical Imaging Results Diagnostic Imaging Information Systems to HIE
IER48	Request & Response EC49 Medical Imaging Results EHR to HIE
IER49	Subscribe EC49 Medical Imaging Results EHR to HIE
IER53	Request & Response PEC-NBS7 - Antepartum Summary PHR to HIE
IER54	Send EC36 EHR Result from Lab to EHR
IER55	Provide/Register EC37 Lab Result (used when constraint is 'document') from EHR to HIE
IER56	Subscribe EC37 Lab Result (used when constraint is 'document') from PH to HIE
IER57	Pre-Populate PEC-MCH6A EBR - Birth Record from EHR to Public Health Electronic Birth Registration System (EBR-S) Jurisdictional- Vital Records Office



Information Exchange Requirement Number (IER)	Description
IER58	Form Filling/Data Entry PEC-MCH7A EDR – Death Record from EHR to Public Health Electronic Death Registration System (EDR-S) Jurisdictional- Vital Records Office
IER59	Form Filling/Data Entry PEC-MCH8a Vital Records – Fetal Death Report from EHR to Public Health Electronic Fetal Death System (EFD-S) Jurisdictional- Vital Records Office
IER60	Send PEC-MCH1A Vital Statistics: Death from Public Health (Vital Records Jurisdiction) to Public Health Electronic Death Registration System (EDR-S) Jurisdictional- Vital Records Office
IER61	Send PEC-MCH1 PEC-MCH1B Vital Statistics: Fetal Death from Public Health (Vital Records Jurisdiction) to Public Health Electronic Fetal Death Registration System (EFD-S) Jurisdictional- Vital Records Office
IER62	Send PEC-MCH4 Guidelines from EHR to Public Health
IER63	Send Referral/consult request PEC-NBS7 – Antepartum Summary from EHR to HIE
IER64	Send Referral/consult request PEC-NBS9 – Newborn Record from EHR to EHR
IER65	Send Referral/consult request Send PEC-MCH2 Hospital's Maternal Discharge Summary from EHR to EHR
IER66	Send PEC-NBS4 – Birthing Summary from EHR to EHR
IER67	Send Pseudonymization Request

Table 2-3 lists and describes the major subdivisions of a Harmonization Request, called Scenarios.

Table 2-3 Description of Scenarios

Scenario Name	Scenario Description
Maternal and Child Health	This document encompasses one scenario that is primarily focused on determining eligibility for services or programs that may be available to the mother during the period of time from the determination of pregnancy for the mother-to-be continuing through birth to age four of the child. NOTE: This Interoperability Specification is scoped to support the child from birth to age three. This document also covers communications for vital records

2.2 MATERNAL AND CHILD HEALTH

Maternal and child health can be defined as multiple programs serving various populations of consumers. For the purposes of this Extension/Gap document, the period of time included is from the determination of pregnancy for the mother-to-be continuing through birth to age four of the child. NOTE: This Interoperability Specification is scoped to support the child from birth to age three.

Requirements for maternal and child health can be summarized as:

- The exchange of pregnancy, birth event, screening and immunization information between public or private health facilities, EHRs, and information systems supporting public health programs and/or services. The use of this information is to aid in the integration of various public health programs and/or services in order to facilitate enrollment by consumers who would benefit from these services. While social or other services are not always appropriate, many maternal and child health public health programs serve broad catchments of at risk populations and need to support requisite information flows and screening. Similarly, related services and the populations they serve, both benefit from broad awareness and consideration

2.2.1 INFORMATION EXCHANGE REQUIREMENTS FOR MATERNAL AND CHILD HEALTH

Table 2-4 Maternal and Child Health Information Exchange Requirements summarizes the relationship between the Exchange Action, Exchange Content, and the Initiating and Responding System(s) along with Exchange Attributes.



Table 2-4 Maternal and Child Health Information Exchange Requirements

IER Number	Exchange Action	Exchange Content	Initiating System	Responding System(s)	Exchange Attribute
IER1	Send	PEC-MCH9 Service Eligibility (may require supportive clinical information) (other aspects – shelter, safety)	EHR	Health Plan System	
IER2	Send	PEC-NBS7 – Antepartum Summary	EHR	EHR PHR	
IER3	Provide/Register	PEC-NBS7 – Antepartum Summary	EHR	HIE	
IER3	Provide/Register	PEC-NBS7 – Antepartum Summary	PHR	HIE	
IER5	Request & Response	PEC-NBS7 – Antepartum Summary	EHR	HIE	
IER6	Send	EC36 Lab Result (used when constraint is 'message')	EHR	EHR Payor Public Health	Data Requirements: <ul style="list-style-type: none"> • DR04 Personal genetic/genomic data • DR05 Family genetic/genomic information
IER7	Provide/Register	EC37 Lab Result (used when constraint is 'document')	Lab	HIE	Data Requirements: <ul style="list-style-type: none"> • DR04 Personal genetic/genomic data • DR05 Family genetic/genomic information
IER8	Request & Response	EC37 Lab Result (used when constraint is 'document')	EHR	HIE	Data Requirements: <ul style="list-style-type: none"> • DR04 Personal genetic/genomic data • DR05 Family genetic/genomic information
IER9	Request & Response	EC37 Lab Result (used when constraint is 'document')	Public Health	HIE	Data Requirements: <ul style="list-style-type: none"> • DR04 Personal genetic/genomic data • DR05 Family genetic/genomic information
IER10	Send	PEC-MCH5 Lab Orders	EHR	Lab	
IER11	Subscribe	PEC-NBS7 – Antepartum Summary	EHR	HIE	
IER12	Subscribe	EC37 Lab Result (used when constraint is 'document')	EHR	HIE	
IER13	Request & Response	PEC-MCH4 Guidelines	EHR	Public Health	



IER Number	Exchange Action	Exchange Content	Initiating System	Responding System(s)	Exchange Attribute
IER17	Pre-Populate	PEC-MCH6 vital records- birth record	EHR	Public Health Electronic Birth Registration System (EBR-S) Jurisdictional- Vital Records Office	Mom/baby linkage Jurisdiction/policy may require mother's identity to be pseudonymized
IER18	Pre-Populate	PEC-MCH7 vital records- death record	EHR	Public Health Electronic Death Registration System (EDR-S) Jurisdictional- Vital Records Office	Mom/baby linkage Jurisdiction/policy may require mother's identity to be pseudonymized
IER19	Pre-Populate	PEC-MCH8 vital records- fetal death report	EHR	Public Health Electronic Fetal Death System (EFD-S) Jurisdictional- Vital Records Office	Mom/baby linkage Jurisdiction/policy may require mother's identity to be pseudonymized
IER20	Send	PEC-MCH1 Vital Statistics: Birth	Public Health Electronic Birth Registration System (EBR-S) Jurisdictional- Vital Records Office	Public Health (CDC/NCHS)	May need support for document sharing for vital records
IER21	Pre-Populate	PEC-MCH3 Vital records pre-populate	EHR	Public Health EBR-S, EDR-S, and EFD-S Jurisdictional- Vital Records Office	NOTE: A birth clerk provides the final review before VR data are sent to the jurisdiction
IER22	Send	PEC-NBS9 - Newborn Record	EHR	EHR	Jurisdiction/policy may require mother's identity to be pseudonymized
IER23	Provide/register	PEC-NBS9 - Newborn Record	EHR	HIE	Mom/baby linkage Jurisdiction/policy may require mother's identity to be pseudonymized
IER24	Query/respond	PEC-NBS9 - Newborn Record	EHR	HIE	Mom/baby linkage Jurisdiction/policy may require mother's identity to be pseudonymized
IER25	Subscribe	PEC-NBS9 - Newborn Record	EHR	HIE	Mom/baby linkage Jurisdiction/policy may require mother's identity to be pseudonymized
IER26	Send	PEC-MCH2 Hospital's Maternal Discharge Summary	EHR	EHR	Mom/baby linkage Jurisdiction/policy may require baby's identity to be pseudonymized



IER Number	Exchange Action	Exchange Content	Initiating System	Responding System(s)	Exchange Attribute
IER27	Provide/register	PEC-MCH2 Hospital's Maternal Discharge Summary	EHR	HIE	Mom/baby linkage Jurisdiction/policy may require baby's identity to be pseudonymized
IER28	Query/respond	PEC-MCH2 Hospital's Maternal Discharge Summary	EHR	HIE	Mom/baby linkage Jurisdiction/policy may require baby's identity to be pseudonymized
IER29	Subscribe	PEC-MCH2 Hospital's Maternal Discharge Summary	EHR	HIE	Mom/baby linkage Jurisdiction/policy may require baby's identity to be pseudonymized
IER30	Send	PEC-NBS4 - Birthing Summary	EHR	EHR	Mom/baby linkage Jurisdiction/policy may require mother's and baby's identity to be pseudonymized on the respective summaries
IER31	Provide/register	PEC-NBS4 - Birthing Summary	EHR	HIE	Mom/baby linkage Jurisdiction/policy may require mother's and baby's identity to be pseudonymized on the respective summaries
IER32	Query/respond	PEC-NBS4 - Birthing Summary	EHR	HIE	Mom/baby linkage Jurisdiction/policy may require mother's and baby's identity to be pseudonymized on the respective summaries
IER33	Subscribe	PEC-NBS4 - Birthing Summary	EHR	HIE	Mom/baby linkage Jurisdiction/policy may require mother's and baby's identity to be pseudonymized on the respective summaries
IER34	Send	EC68A Health Plan Request	EHR	Health Plan	
IER35	Send	EC68B Health Plan Response	Health Plan	EHR	
IER36	Provide/Register	EC30 Consent Document Component	EHR	HIE	Mom/baby Consent for information sharing NOTE overlap to Newborn Screening
IER37	Request & Response	EC30 Consent Document Component	EHR	HIE	Mom/baby Consent for information sharing NOTE overlap to Newborn Screening



IER Number	Exchange Action	Exchange Content	Initiating System	Responding System(s)	Exchange Attribute
IER38	Send	EC32 Summary of Care	EHR	EHR	Include support for Vision screening Results Developmental screening Mental health screening PDR-MCH5 Pediatric Demographics
IER39	Publish/Register	EC32 Summary of Care	EHR	HIE	Include support for Vision screening Results Developmental screening Mental health screening PDR-MCH5 Pediatric Demographics
IER40	Request & Response	EC32 Summary of Care	EHR	HIE	Include support for Vision screening Results Developmental screening Mental health screening PDR-MCH5 Pediatric Demographics
IER41	Subscribe	EC32 Summary of Care	EHR	HIE	Include support for Vision screening Results Developmental screening Mental health screening PDR-MCH5 Pediatric Demographics
IER42	Send	EC48 Encounter Summary (used when constraint is 'document')	EHR	EHR	Include support for Vision screening Results Developmental screening Mental health screening PDR-MCH5 Pediatric Demographics
IER43	Publish/Register	EC48 Encounter Summary (used when constraint is 'document')	EHR	HIE	Include support for Vision screening Results Developmental screening Mental health screening PDR-MCH5 Pediatric Demographics
IER44	Request & Response	EC48 Encounter Summary (used when constraint is 'document')	EHR	HIE	Include support for Vision screening Results Developmental screening Mental health screening PDR-MCH5 Pediatric Demographics
IER45	Subscribe	EC48 Encounter Summary (used when constraint is 'document')	EHR	HIE	Include support for Vision screening Results Developmental screening Mental health screening PDR-MCH5 Pediatric Demographics
IER46	Send	EC49 Medical Imaging Results	Diagnostic Imaging Information Systems	EHR	
IER47	Provide/Register	EC49 Medical Imaging Results	Diagnostic Imaging Information Systems	HIE	



IER Number	Exchange Action	Exchange Content	Initiating System	Responding System(s)	Exchange Attribute
IER48	Request & Response	EC49 Medical Imaging Results	EHR	HIE	
IER49	Subscribe	EC49 Medical Imaging Results	EHR	HIE	
IER54	Send	EC36 Lab Result (used when constraint is 'message')	Lab	EHR Payor Public Health	Data Requirements: <ul style="list-style-type: none"> • DR04 Personal genetic/genomic data • DR05 Family genetic/genomic information
IER55	Provide/Register	EC37 Lab Result (used when constraint is 'document')	EHR	HIE	Data Requirements: <ul style="list-style-type: none"> • DR04 Personal genetic/genomic data • DR05 Family genetic/genomic information
IER56	Subscribe	EC37 Lab Result (used when constraint is 'document')	Public Health	HIE	
IER57	Form Filling/Data Entry	PEC-MCH6A EBR - Birth Record	EHR	Public Health Electronic Birth Registration System (EBR-S) Jurisdictional- Vital Records Office	Mom/baby linkage Jurisdiction/policy may require mother's identity to be pseudonymized
IER58	Form Filling/Data Entry	PEC-MCH7A EDR - Death Record	EHR	Public Health Electronic Death Registration System (EDR-S) Jurisdictional- Vital Records Office	Mom/baby linkage Jurisdiction/policy may require mother's identity to be pseudonymized
IER59	Form Filling/Data Entry	PEC-MCH8a Vital Records - Fetal Death Report	EHR	Public Health Electronic Fetal Death System (EFD-S) Jurisdictional- Vital Records Office	Mom/baby linkage Jurisdiction/policy may require mother's identity to be pseudonymized
IER60	Send	PEC-MCH1A Vital Statistics: Death	Public Health Electronic Death Registration System (EDR-S) Jurisdictional- Vital Records Office	Public Health (CDC/NCHS)	May need support for document sharing for vital records
IER61	Send	PEC-MCH1B Vital Statistics: Fetal Death	Public Health Electronic Fetal Death Registration System (EFD-S) Jurisdictional- Vital Records Office	Public Health (CDC/NCHS)	May need support for document sharing for vital records



IER Number	Exchange Action	Exchange Content	Initiating System	Responding System(s)	Exchange Attribute
IER62	Receive	PEC-MCH4 Guidelines	EHR	Public Health	
IER63	Send Referral/consult request	PEC-NBS7 – Antepartum Summary	EHR	HIE	
IER64	Send Referral/consult request	PEC-NBS9 - Newborn Record	EHR	EHR	Jurisdiction/policy may require mother's identity to be pseudonymized
IER65	Send	PEC-MCH2 Hospital's Maternal Discharge Summary	EHR	EHR	Mom/baby linkage Jurisdiction/policy may require baby's identity to be pseudonymized
IER66	Send	PEC-NBS4 - Birthing Summary	EHR	EHR	Mom/baby linkage Jurisdiction/policy may require mother's and baby's identity to be pseudonymized on the respective summaries
IER67	Send	Pseudonymization Request	EHR	EHR	Jurisdiction/policy may require mother's identity to be pseudonymized

2.3 SYSTEM DESCRIPTION

The following table lists systems involved in the above listed scenarios, and identifies the stakeholders served by those involved systems.

Table 2-5 System Names and Descriptions

System Name	System Description	Stakeholders
Electronic Health Record (EHR) System	The Electronic Health Record (EHR) System is a secure, real-time, point-of-care, patient-centric information resource for clinicians	Clinicians (Mother's Clinician, Child's Clinician) Allied Health Providers Education EHR System Suppliers Emergency Medical Systems Health Record Bank System Suppliers
Laboratory Information Systems	Laboratory Information Systems supporting the testing, analysis, and information management for laboratory organizations. Medical laboratories, in either in a hospital or ambulatory environment, which analyze specimens as ordered by clinicians to assess the health status of patients. Laboratories, depending on how they are affiliated with hospitals, can be part of either Individual Healthcare Facilities or Integrated Healthcare Data Suppliers. These systems are responsible for updating interface engine rules and triggers in response to Harmonization Request modifications of requested data feeds	Testing Laboratories Laboratory System Suppliers Laboratory Organizations
Personal Health Record (PHR) Systems	A personal health record (PHR) system used to create, review, annotate and maintain records by the patient or the caregiver for a patient. The PHR may include any aspect(s) of the health condition, medications, medical problems, allergies, vaccination history, visit history or communications with healthcare providers	Health Record Bank System Suppliers Patients, Consumers



System Name	System Description	Stakeholders
Health Information Exchange (HIE)	A Health Information Exchange (HIE) is a multi-stakeholder system that enables the exchange and use of health information, in a secure manner, for the purpose of promoting the improvement of health quality, safety and efficiency	Information Exchange Health Record Bank System Suppliers
Public Health Information System	A Public Health Information Systems is an automated and integrated system used to document and address information of interest to public health. Local, state, and federal government organizations and personnel use these systems to help protect and improve the health of their respective constituents. A critical effort under this charge is collecting health information to monitor for the existence of emerging health threats appearing in the population and manage these threats once manifested. Staff of these agencies interacts with the public health information system to verify and validate system indications of public health threats, and to assert acknowledgements that may be required by system processes	Public Health Knowledge Suppliers Government Agencies Public Health System Suppliers Public Health - Vital Records (Vital Statistics)- Federal Public Health -Vital Records (Vital Statistics)- State <ul style="list-style-type: none"> • Electronic Birth Registration System (EBR-s) • Electronic Fetal Death System (EFD-s) • Electronic Death Registration System (EDR-s) Public Health -Other ACOG
Health Plan System	Systems used by health plans that include administrative and financial functions associated with the coverage and financing of healthcare for the health plan's enrolled members. These functions include information regarding the individual's enrollment, eligibility, coverage and benefits, authorizations, claims, care coordination and other information related to the member	Healthcare Payors Government Agencies (SCHIP, WIC, Medicaid Management Information System (MMIS)) Services Insurance Employers
Diagnostic Imaging Information Systems	A computerized system used by organizations that provide radiology and diagnostic imaging services to patients in various settings. The organizations perform and analyze the study as ordered by clinicians to assess the health status of patients. E.g.: Radiology Information Systems (RIS), or picture archiving and Picture Archiving and Communications Systems (PACS)	Clinicians (Mother's Clinician, Child's Clinician)



3.0 DESIGN SPECIFICATION

Section 3.0 identifies the Capabilities used to meet the requirements identified in Section 2.0 Requirements and describes how to orchestrate this set of Capabilities to meet those requirements. The following table details how this section of the document is targeted to specific readers. Each of the stakeholders listed in this table are more fully defined in a separate appendix. This table is provided as an aid to readers to assist with identifying specific areas of focus. Readers are encouraged to review all sections of this document to further their understanding of HITSP's work.

Table 3-1 Reader's Guide for Section 3.0

Document Section	Section Number	Intended Audience	Information Contained
Section 3.0 Design Specification	3.1 Capabilities Used	Architects Business Analysts Development Team	For each Information Exchange Requirement (IER) identified in Section 2.0, a corresponding Capability is associated and mapped. A reader can review how specific Capabilities meet information exchange needs. A diagram is also provided to show the interchange of data among systems identified in this Interoperability Specification
	3.2 Capability Orchestration	Architects Development Team	The core of the design in the Interoperability Specification is documented here. This solution shows orchestration of Capabilities to meet the specific Information Exchange Requirements (IER) in Section 3.1. The design also identifies conditions and constraints, as well as any content subsets specific to the solution

3.1 CAPABILITIES USED

The table below lists the Capabilities used in this Interoperability Specification, and relates them to the information exchange requirements from Table 2-2 that the Capability satisfies. The information exchanges listed are the relevant information exchanges from the underlying Capability.

Table 3-2 Capabilities Used

Capability	Capability Summary	Capability IE Used	IERs Satisfied
HITSP/CAP119 - Communicate Structured Document	<p>This Capability addresses interoperability requirements that support the communication of structured health data related to a patient in a context set by the source of the document who is attesting to its content. Several document content subsets, structured according to the HL7 CDA standard, are supported by this Capability. The following are examples of the type of structured data that may be used:</p> <ol style="list-style-type: none"> 1. Continuity of Care Document (CCD) 2. Emergency Department Encounter Summary 3. Discharge Summary (In-patient encounter and/or episodes of care) 4. Referral Summary Ambulatory (encounter and/or episodes of care) 5. Consultation Notes 6. History and Physical 7. Personal Health Device Monitoring Document 8. Healthcare Associated Infection (HAI) Report Document <p>Document creators shall support a number of the HITSP specified coded terminologies as defined by specific content subsets specified in this Capability.</p>	1- Send and Receive Documents	IER2, IER3, IER4, IER5, IER53, IER11, IER22, IER23, IER24, IER25, IER26, IER27, IER28, IER29, IER30, IER31, IER32, IER33, IER39, IER40, IER41, IER43, IER44, IER45



Capability	Capability Summary	Capability IE Used	IEs Satisfied
HITSP/CAP120 - Communicate Unstructured Document	This Capability addresses interoperability requirements that support the communication of a set of unstructured health data related to a patient in a context set by the source of the document who is attesting to its content. Two types of specific unstructured content are supported, both with a structured CDA header: 1. PDF-A supporting long-term archival 2. UTF-8 text	Send and Receive Documents	IER62
HITSP/CAP121 - Communicate Clinical Referral Request	This Capability addresses interoperability requirements that support provider-to-provider (clinical) referral request interaction. It allows the bundling of the referral request document with other relevant clinical documents of interest by referencing such documents as shared by other Capabilities such as: HITSP/CAP119 Communicate Structured Document; or HITSP/CAP120 Communicate Unstructured Document	Send and Receive Clinical Referral Request	IER63, IER64, IER65, IER66, IER38, IER42
HITSP/CAP122 - Retrieve Medical Knowledge	This Capability addresses the requirements to retrieve medical knowledge that is not patient-specific based on context parameters. The actual content delivered is not constrained by this Capability; this Capability focuses on providing the mechanism to ask for (query) and receive the medical knowledge	Respond Medical Knowledge	IER13
		Request Medical Knowledge	
		Respond Value Set	
		Request Value Set	
HITSP/CAP126 - Communicate Lab Results Message	This Capability addresses interoperability requirements that support the sending of a set of laboratory test results. Ordering Providers of Care receive results as a laboratory results message. The communication of the order is out of scope for this Capability. The content of these test results may be either or both: General Laboratory Test Results; Microbiology Test Results This Capability may use content anonymization	Send and Receive Lab Result Message	IER6 , IER54
HITSP/CAP127 - Communicate Lab Results Document	This Capability addresses interoperability requirements that support the communication of a set of structured laboratory results related to a patient in a context set by the source of the document who is attesting to its content. Non-ordering Providers of Care access historical laboratory results as documents and "copy-to" Providers of Care may receive document availability notifications to retrieve such lab report documents. Lab Report content creators shall support HITSP specified coded terminologies as defined by specific content subsets specified in this Capability for: General Laboratory Test Results; Microbiology Test Results This Capability may use content anonymization	Send and Receive Laboratory Report Document	IER7, IER55, IER8, IER9, IER12, IER56,
HITSP/CAP128 - Communicate Imaging Information	This Capability addresses interoperability requirements that support the communication of a set of imaging results (i.e., reports, image series from imaging studies) related to a patient in a context set. This is done by an Imaging System acting as the information source attesting to its content. This Capability may use content anonymization	Send and Receive Imaging Document	IER46, IER47, IER48, IER49



Capability	Capability Summary	Capability IE Used	IEs Satisfied
HITSP/CAP135 - Retrieve and Populate Form	<p>This Capability addresses interoperability requirements to support the upload of specific captured data (e.g. public health surveillance reportable conditions, healthcare associated infection reporting) to Public Health Monitoring Systems and Quality Organizations Systems. The forms presented may be pre-populated by information provided by the clinical or laboratory information systems to avoid manual re-entry. A number of supplemental information variables may be captured from within the user's clinical information system to improve the workflow and timeliness of required reporting. One or more types of form content may be supported:</p> <ol style="list-style-type: none"> 1. Pre-population for Public Health Case Reports from Structured Documents using CDA 2. Pre-population for Quality Data from Structured Documents using CDA 3. No pre-population content <p>Systems may optionally support the means to retrieve request for clarifications</p>	Send Pre-population data	IER21, IER17, IER57, IER18, IER58, IER19, IER59, IER20, IER60, IER61
		Receive Pre-population data	IER21, IER17, IER57, IER18, IER58, IER19, IER59, IER20, IER60, IER61
		Send Pre-populated form	IER21, IER17, IER57, IER18, IER58, IER19, IER59, IER20, IER60, IER61
		Receive Pre-populated form	IER21, IER17, IER57, IER18, IER58, IER19, IER59, IER20, IER60, IER61
HITSP/CAP138 - Retrieve Pseudonym	<p>This Capability addresses interoperability requirements to support a particular type of anonymization that both removes the association with a data subject, and adds an association between a particular set of characteristics relating to the data subject and one or more pseudonyms. This enables a process of supplying an alternative identifier, which permits a patient to be referred to by a key that suppresses his/her actual identification information. The purpose of this Capability is to offer a pseudonymization framework for situations that require the use of specific data without disclosing the specific identity of patients or providers. Pseudo-identifiers are intended to allow accessibility to clinical information, while safeguarding any information that may compromise the privacy of the individual patient or provider. However, unlike anonymization, the alternative identifier key can be used to re-identify the individuals whose data was used</p>	Request and Respond to Pseudonym Request	IER67, IER23, IER27, IER31

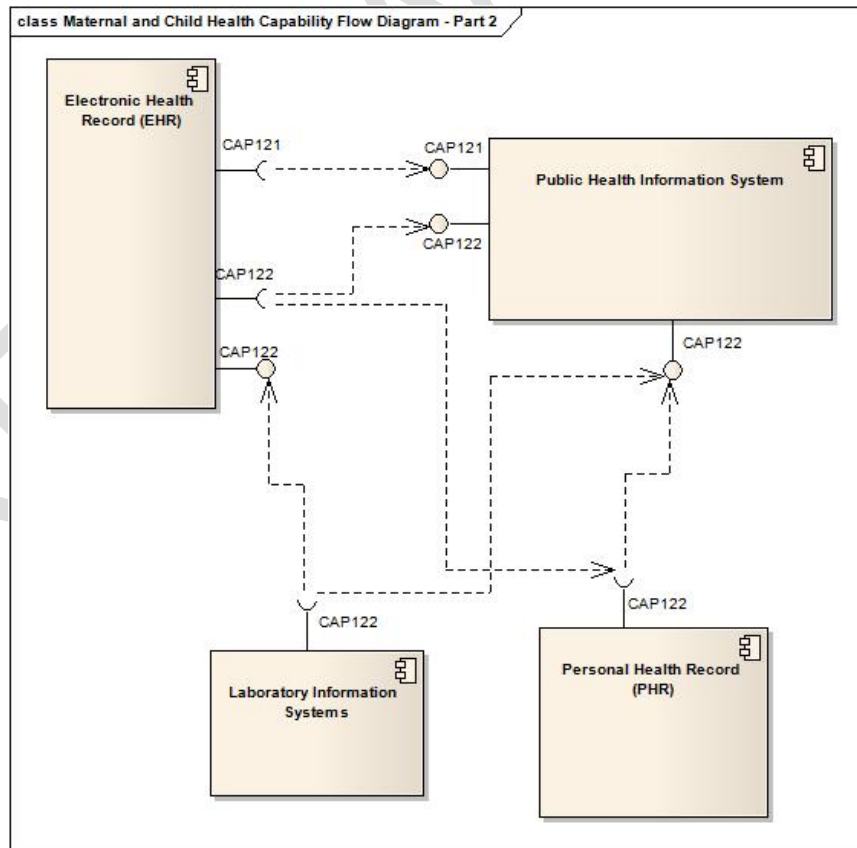
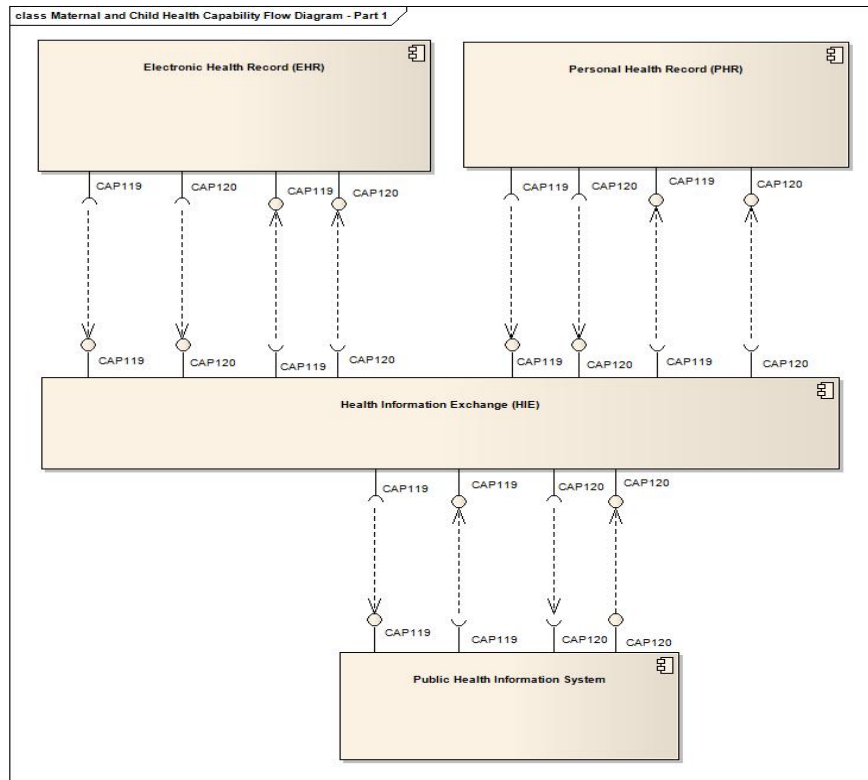


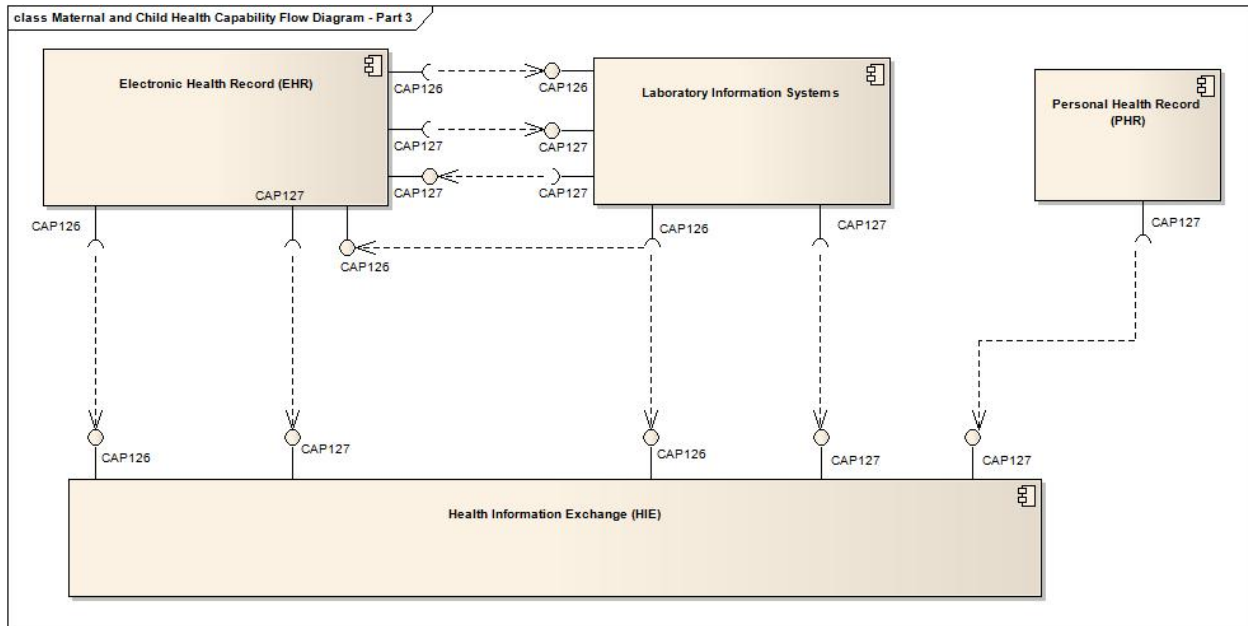
Capability	Capability Summary	Capability IE Used	IEs Satisfied
HITSP/CAP140 - Communicate Benefits and Eligibility	<p>This Capability addresses interoperability requirements that support electronic inquiry and response from a patient's eligibility for health insurance benefits. The information exchanged includes the following:</p> <ol style="list-style-type: none"> 1. A patient's identification (i.e., name, date of birth, and the health plan's member identification number) 2. Communication of a member's status of coverage and benefit information and financial liability 3. Access to information about types of services, benefits and coverage for various medical care and medications <p>It provides clinicians with information about each member's health insurance coverage and benefits</p>	<p>Request and Respond Eligibility Request</p> <p>NOTE GAP</p>	IER1
HITSP/CAP141 - Communicate Referral Authorization	<p>This Capability addresses interoperability requirements that support electronic inquiry and response to authorizing a patient (health plan member) to be referred for service by another provider or to receive a type of service or medication under the patient's health insurance benefits. The Capability supports the transmittal of a patient's name and insurance identification number with the request for the type of service. It also includes the following optional requirements:</p> <ol style="list-style-type: none"> 1. Identification of the type of service or medication requested for benefit coverage (does not guarantee payment by insurance provider) 2. Communication of a referral notification number or authorization number from the Payer System to the Provider System <p>It provides clinicians and pharmacists with information about each patient's medical insurance coverage and benefits. It may include information on referral or authorization permission</p>	Request/Respond Health Plan Authorization Information	IER34, IER35
HITSP/CAP143 - Manage Consumer Preference and Consents	<p>This Capability addresses management of consumer preferences and consents as an acknowledgement of a privacy policy. This Capability is used to capture a patient or consumer agreement to one or more privacy policies; where examples of a privacy policy may represent a consent, dissent, authorization for data use, authorization for organizational access, or authorization for a specific clinical trial. This Capability also supports the recording of changes to prior privacy policies such as when a patient changes their level of participation or requests that data no-longer be made available because they have left the region</p>	Request & Response Consent Directives	IER36, IER37
HITSP/CAP99- Communicate Lab Order Message	<p>This Capability satisfies the information exchange requirements for the sending and receiving of a set of laboratory order, control and status messages. Laboratory orders may be from an inpatient or outpatient (e.g., Clinic, ER, office, etc) environment</p>	Send Laboratory Order	IER10

The following diagram shows how systems use Capabilities to complete the full Interoperability Specification. The diagram is purposely created to be architecturally neutral. In some settings a given system role within a Capability will be filled by more than one system in the Interoperability Specification. In many settings, one system may implement multiple Capabilities as shown in the diagram. There are many potential combinations of systems using these Capabilities in different architectures. The diagram therefore uses one example that includes all systems.



Figure 3-1 Diagram Showing Capabilities Used Between Systems





3.2 CAPABILITY ORCHESTRATION

This section describes how the Capabilities identified above are orchestrated to achieve the aims of the Harmonization Request (such as a Use Case) addressed by this Interoperability Specification. The orchestration identifies systems that fill the system roles in the Capabilities to achieve the desired data flows.

Table 3-3 lists the Orchestration of Capabilities by System to meet the information exchange requirements described in Section 2.0. Subsets of these systems perform information exchanges according to one or more of the Capabilities identified in this specification. The Capabilities are annotated on the diagrams. The in-scope requirements are supported by Capabilities either previously specified by HITSP or new Capabilities introduced in this section. Optionality is expressed as Required (R), Optional (O) or Conditional (C). If the optionality is Conditional, the applicable conditions are given in Table 3-4 below.

Table 3-3 Orchestration of Capabilities by System

System	Capability	System Role	System Role Option	Condition
Electronic Health Record (EHR) System	HITSP/CAP119 - Communicate Structured Document	Document Source	R	R
	HITSP/CAP119 - Communicate Structured Document	Document Consumer	R	R
	HITSP/CAP120 - Communicate Unstructured Document	Document Source	O	R
	HITSP/CAP120 - Communicate Unstructured Document	Document Consumer	R	R
	HITSP/CAP121 - Communicate Clinical Referral Request	Referral Dispatcher	O	C[105]
	HITSP/CAP121 - Communicate Clinical Referral Request	Referral Requestor	O	C[105]
	HITSP/CAP122 - Retrieve Medical Knowledge	Knowledge Requestor	O	C[101]
	HITSP/CAP122 - Retrieve Medical Knowledge	Value Set Consumer	O	



System	Capability	System Role	System Role Option	Condition
	HITSP/CAP126 – Communicate Lab Results Message	Result Receiver	O	C[102]
	HITSP/CAP126 – Communicate Lab Results Message	Result Sender	O	
	HITSP/CAP127 – Communicate Lab Results Document	Document Sender	O	
	HITSP/CAP127 – Communicate Lab Results Document	Document Receiver	O	C[102]
	HITSP/CAP128 – Communicate Imaging Information	Send Documents Directly	O	
	HITSP/CAP128 – Communicate Imaging Information	Send Document through e-mail	O	
	HITSP/CAP128 – Communicate Imaging Information	Publish Document Through Media	O	
	HITSP/CAP128 – Communicate Imaging Information	Send Document Through Share	O	
	HITSP/CAP128 – Communicate Imaging Information	Publish Document Through Share	O	
	HITSP/CAP128 – Communicate Imaging Information	Imaging Document Source	O	
	HITSP/CAP135 – Retrieve and Populate Form	Form Filler	R	C[103]
	HITSP/CAP138 – Retrieve Pseudonym	Patient Identity Source	O	C[104]
	HITSP/CAP140 – Communicate Benefits and Eligibility	Medication Formulary and Benefits Retriever	R	
	HITSP/CAP140 – Communicate Benefits and Eligibility	Request Administrative Transport to Health Plan	R	
	HITSP/CAP140 – Communicate Benefits and Eligibility	Eligibility Information Receiver	R	
	HITSP/CAP141 – Communicate Referral Authorization	Health Plan Authorization Receiver	R	
	HITSP/CAP143 – Manage Consumer Preference and Consents	Document Sender	R	
	HITSP/CAP143 – Manage Consumer Preference and Consents	Document Receiver	R	
	HITSP/CAP 99- Communicate Lab Order Message	Order Placer	O	
Laboratory Information Systems	HITSP/CAP122 – Retrieve Medical Knowledge	Value Set Consumer	O	
	HITSP/CAP126 – Communicate Lab Results Message	Result Receiver	O	
	HITSP/CAP126 – Communicate Lab Results Message	Result Sender	O	C[102]
	HITSP/CAP127 – Communicate Lab Results Document	Document Sender	O	C[102] C[111]
	HITSP/CAP127 – Communicate Lab Results Document	Document Receiver	O	



System	Capability	System Role	System Role Option	Condition
	HITSP/CAP 99 – Communicate Lab Order Message	Order Filler	O	
Personal Health Record (PHR) Systems	HITSP/CAP119 – Communicate Structured Document	Document Source	R	
	HITSP/CAP119 – Communicate Structured Document	Document Consumer	R	
	HITSP/CAP120 – Communicate Unstructured Document	Document Source	O	
	HITSP/CAP122 – Retrieve Medical Knowledge	Knowledge Requestor	O	C[108]
	HITSP/CAP127 – Communicate Lab Results Document	Document Receiver	O	
	HITSP/CAP128 – Communicate Imaging Information	Send Documents Directly	O	
	HITSP/CAP128 – Communicate Imaging Information	Send Document through e-mail	O	
	HITSP/CAP128 – Communicate Imaging Information	Publish Document Through Media	O	
	HITSP/CAP128 – Communicate Imaging Information	Send Document Through Share	O	
	HITSP/CAP128 – Communicate Imaging Information	Publish Document Through Share	O	
	HITSP/CAP128 – Communicate Imaging Information	Imaging Document Source	O	
	HITSP/CAP135 – Retrieve and Populate Form	Form Filler	O	C[103]
	HITSP/CAP138 – Retrieve Pseudonym	Patient Identity Source	O	C[104]
	HITSP/CAP140 – Communicate Benefits and Eligibility	Medication Formulary and Benefits Retriever	O	
	HITSP/CAP140 – Communicate Benefits and Eligibility	Request Administrative Transport to Health Plan	O	
	HITSP/CAP140 – Communicate Benefits and Eligibility	Eligibility Information Receiver	O	
	HITSP/CAP141 – Communicate Referral Authorization	Health Plan Authorization Receiver	O	
	HITSP/CAP143 – Manage Consumer Preference and Consents	Document Sender	R	
	HITSP/CAP143 – Manage Consumer Preference and Consents	Document Receiver	R	
Health Information Exchange (HIE)	HITSP/CAP119 – Communicate Structured Document	Document Registry	O	C[109]
	HITSP/CAP119 – Communicate Structured Document	Document Repository	O	C[101]
	HITSP/CAP120 – Communicate Unstructured Document	Document Registry	O	C[109]
	HITSP/CAP120 – Communicate Unstructured Document	Document Repository	O	C[101]



System	Capability	System Role	System Role Option	Condition
	HITSP/CAP126 – Communicate Lab Results Message	Message Receiver	O	
	HITSP/CAP127 – Communicate Lab Results Document	Document Registry	O	C[109]
	HITSP/CAP127 – Communicate Lab Results Document	Document Repository	O	C[101]
	HITSP/CAP128 – Communicate Imaging Information	Receive Document Through Share	O	
	HITSP/CAP128 – Communicate Imaging Information	Consume Document Through Share	O	
	HITSP/CAP128 – Communicate Imaging Information	Imaging Document Consumer	O	
	HITSP/CAP128 – Communicate Imaging Information	Send Document Through Share	O	
	HITSP/CAP128 – Communicate Imaging Information	Publish Document Through Share	O	
	HITSP/CAP128 – Communicate Imaging Information	Imaging Document Source	O	
	HITSP/CAP135 – Retrieve and Populate Form	Form Manager	O	
	HITSP/CAP135 – Retrieve and Populate Form	Form Receiver	O	
	HITSP/CAP135 – Retrieve and Populate Form	Form Archiver	O	
	HITSP/CAP138 – Retrieve Pseudonym	Patient Identity Source	O	C[104]
	HITSP/CAP143 – Manage Consumer Preference and Consents	Document Registry	O	C[109]
	HITSP/CAP143 – Manage Consumer Preference and Consents	Document Repository	O	C[101]
Public Health Information System	HITSP/CAP119 – Communicate Structured Document	Document Source	O	C[102]
	HITSP/CAP119 – Communicate Structured Document	Document Consumer	O	C[102]
	HITSP/CAP120 – Communicate Unstructured Document	Document Source	O	C[102]
	HITSP/CAP120 – Communicate Unstructured Document	Document Consumer	O	C[102]
	HITSP/CAP122 – Retrieve Medical Knowledge	Knowledge Resource	O	
	HITSP/CAP122 – Retrieve Medical Knowledge	Value Set Repository	O	
	HITSP/CAP135 – Retrieve and Populate Form	Form Manager	O	
	HITSP/CAP135 – Retrieve and Populate Form	Form Receiver	O	
	HITSP/CAP135 – Retrieve and Populate Form	Form Archiver	O	
Health Plan System	HITSP/CAP140 – Communicate Benefits and Eligibility	Request Administrative Transport to Health Plan	R	



System	Capability	System Role	System Role Option	Condition
	HITSP/CAP140 – Communicate Benefits and Eligibility	Eligibility Information Receiver	R	
	HITSP/CAP141 – Communicate Referral Authorization	Request Administrative Transport to Health Plan	R	
	HITSP/CAP141 – Communicate Referral Authorization	Information Receiver for Medical Health Plan Authorization	R	
	HITSP/CAP141 – Communicate Referral Authorization	Information Receiver for Pharmacy Health Plan Authorization	R	
	HITSP/CAP141 – Communicate Referral Authorization	Respond to Administrative Request to Health Plan	R	
Diagnostic Imaging Information Systems	HITSP/CAP128 – Communicate Imaging Information	Document Source	R	
	HITSP/CAP128 – Communicate Imaging Information	Document Consumer	R	

Optionality Legend: “R” for Required, “O” for Optional, or “C” for Conditional

Table 3-4 below lists the conditions applicable to the orchestration (see above table) of the Capabilities engaged in this Interoperability Specification.

Table 3-4 Conditions

Condition Code	Condition Description
C[101]	Knowledge Consumer MAY be used to retrieve guideline and educational material. Email or Web-based retrieval alternatives may be use. At least one of these methods must be supported. Jurisdiction implementations MAY require the use of one or more methods
C[102]	SHALL support at least one of these capabilities
C[103]	Implementation environment MAY require support the pre-population of Vital Records
C[104]	SHALL be required where pseudonymization is required by the jurisdiction or information sharing agreements
C[105]	Implementation environment MAY require support for HITSP/CAP121 - Communicate Clinical Referral Request
C[108]	Knowledge Consumer may be used to retrieve guideline and educational material. Email or Web-based retrieval alternatives may be use. At least one of these methods must be supported. Jurisdiction implementations may require the use of one or more methods
C[109]	For document sharing, at least one Registry Shall exist
C[111]	Should Support Publish Document Through Share or Notification of Document Availability Document Sharing Environment

Table 3-5 lists a number of general constraints applicable to this specification. They include assumptions, a number of pre-conditions and post-conditions as well as external trigger events that play a critical role in implementing this specification.

Table 3-5 Orchestration Constraints

Constraint ID	Constraint	Type of Constraint
1	Elective and spontaneous terminations are not 'births': assumption these events are not captured in the same way and are not considered birth events	Assumption
2	Birthing Summary, Mother's Record, and Child's Record are all produced within the first 48 hours of birth	Assumption



Constraint ID	Constraint	Type of Constraint
3	Assumption: Determination of pregnancy through early childhood – early childhood the age range is pre-kindergarten 0-3 years	Assumption
4	HITSP can define the process for interoperability for information to enable exchange of information and integration of services or programs. This can include dealing with (a) Newborn screening, (b) Immunizations, (c) Lead, (c) Vision, (d) Hearing, (e) Developmental screenings, (f) Vital Records. (Each could be a separate Use Case)	Assumption
5	If the information gets into an EHR System, then communication of the information can use existing methods for communication	Assumption
6	Clinical information systems may include "incorporate the clinical guideline" similar to that of Newborn Screening. Clinical guidelines for appropriate screening, management and testing. E.g., pre-natal screening guidelines, timing for testing, possibly guidelines for management of pregnancy complications? This step requires (similar to Newborn Screening and IRM and Quality) clinical decision support. AAP and ACOG are appropriate specialty organizations for such guidelines. Some may come directly from Public Health (E.g., CDC)	Assumption
7	Includes "other" elements, (e.g. vision, etc. may be part of Newborn Screening Use Case). Other elements may be specified by guidelines	Assumption
8	Includes communications of clinical notes and birth event back to the mother's physician	Assumption
9	Stillbirth events are not captured in the same way and are not considered birth. Elective and spontaneous terminations are not 'births': events	Assumption
10	Clinical notes are communicated back to the mother's physician; even if mother's physician practices at hospital, the physician does not necessarily have access to the birth event record from the clinic	Assumption
11	For NICU, newborn record discharge summary may be long after the 48 hour window	Assumption
12	Practical workflow considerations at birthing facilities	Assumption
13	Data requirements for newborn record may be different from the medical summary	Assumption
14	Transfer of care is not applicable to the generation of the new record from fetus to newborn	Assumption
15	Assumes this is hospital clinician - nurses and NICU care team and staff to have team take on care until the selected pediatrician or pediatrician on staff	Assumption
16	There is Medical Home impact after discharge - establish the medical home by naming the pediatrician of choice for post-hospital visit	Assumption
17	Payload should be of interest for communication to Public Health	Assumption
18	Includes communication of birth event record to mother's clinician	Assumption
19	The birthing information would be returned to the mother's clinician's EHR (see previous comment)	Assumption
20	Clinical referrals are out of scope	Assumption
21	Additional data requirements for supplying clinical data are provided through other Use Cases	Assumption
22	Constrained to EPSDT	Assumption
23	Pertains to clinical information – Education topics will be assumed out of scope: may need further clarification from ONC	Assumption
24	Case reporting is for positive results. Lab reporting is for positive and negative results	Assumption
25	Any pre-population of the form may be highly restrictive because some of the detail is required to be derived from a specified source (e.g. from the mother)	Assumption
26	Practical workflow considerations at birthing facilities	Assumption
27	For title 5, Medicaid - this is not a lab result or clinical result	Assumption
28	Due to IS constraints, that this event and associated action communication will be re-directed to the services perspective	Assumption
29	This is constrained to the context of Eligibility for government programs	Assumption
30	Some eligibility applications may not be initiated from a clinical system	Assumption



Constraint ID	Constraint	Type of Constraint
31	This should state: The mother's clinician confirms a pregnancy for eligibility of a service	Assumption
32	Many of the application will not initiate from clinical systems	Assumption
33	This Use Case is constrained to communications initiating from the clinical information systems	Assumption
34	Should reference instead before and/or after birth for mother's clinician involvement	Assumption
35	That these exchanges are constrained to social services communications and that this IS will not leverage the resulting constructs	Assumption
36	This IS will be constrained to these listed programs	Assumption
37	If constrained to these services, then the services component is public health	Assumption
38	Support the technical measures to ensure Security and Privacy of consumer/patient health information	Pre-conditions
39	Authentication service to authenticate requestors and/or data submissions from various locations	Pre-conditions
40	Security and Privacy policies, procedures and practices are commonly implemented to support acceptable levels of consumer/patient security and privacy.	Pre-conditions
41	Legal and governance issues regarding data access authorizations, data ownership, and data use are in effect	Pre-conditions
42	Support the following HITSP Security and Privacy constructs: <ul style="list-style-type: none"> • HITSP/C19 – Entity Identity Assertion • HITSP/T16 – Consistent Time • HITSP/T17 – Secured Communication Channel • HITSP/T15 – Collect and Communicate Security Audit Trail • HITSP/TP30 – Manage Consent Directives • HITSP/TP20 – Access Control 	Pre-conditions

3.2.1 CONSTRAINTS ON REQUIRED CAPABILITIES

This section describes the constraints that further limit the Capabilities that are used by this Interoperability Specification.

Table 3-6 Additional Constraints on Required Capabilities

Constraint ID	Data Element	Capability	Constraint	Constraint Type	Purpose (Reason for this constraint)
	Visit Summary Data	HITSP/CAP119 - Communicate Structured Document	SHALL Require support for Publish/Subscribe	General	Enable clinicians to subscribe to Maternal health related data
	Demographics	HITSP/CAP119 - Communicate Structured Document	SHALL Require Pediatric Option for Patient Identification (HITSP/TP22, HITSP/TP23, HITSP/T24)	General	Enable support for newborn identity resolution
	Guidelines	HITSP/CAP122 - Retrieve Medical Knowledge	SHALL Support Maternal and Child Health Guidelines	General	Enable support for communication of clinical and administrative guidelines for maternal and child care
	Lab Results	HITSP/CAP126 - Communicate Lab Results Message	SHALL Support Maternal and Child health related lab results value sets	General	Enable appropriate common list of values for Maternal Health results



Constraint ID	Data Element	Capability	Constraint	Constraint Type	Purpose (Reason for this constraint)
	Lab Results	HITSP/CAP127 - Communicate Lab Results Document	SHALL Support Maternal and Child health I related lab results value sets	General	Enable common list of values for Maternal Health results
	Vital Records	HITSP/CAP135 - Retrieve and Populate Form	SHALL Support Vital Records Pre-Populate	General	Enable pre-population of Vital Records data from the clinical record
	Request for Services Eligibility	HITSP/CAP140 - Communicate Benefits and Eligibility	SHALL Support EPSDT, SCHIP, and WIC NOTE: GAP	General	Enable application for Maternal and Child health support services
	Request for Services Eligibility	HITSP/CAP141 - Communicate Referral Authorization	SHALL Support EPSDT, SCHIP, and WIC NOTE: GAP	General	Enable application for Maternal and Child health support services
	Consent	HITSP/CAP143 - Manage Consumer Preference and Consents	SHALL Support Mother/Baby Consent	General	Enable support for consent to share records to be provided by subject of care agent (parent/guardian)
	Lab Orders	HITSP/CAP 99- Communicate Laboratory Orders	SHALL Support Maternal and Child Health lab order value sets	General	Enable appropriate semantic expression for Maternal Health orders



4.0 CAPABILITY GAPS

Section 4.0 identifies gaps not met by existing Capabilities but needed to achieve the aims of the Harmonization Request for which this Interoperability Specification is written. This includes overlaps in Capabilities as well. The following table details how this section of the document is targeted to specific readers. Each of the stakeholders listed in this table are more fully defined in a separate appendix. This table is provided as an aid to readers to assist with identifying specific areas of focus. Readers are encouraged to review all sections of this document to further their understanding of HITSP's work.

Table 4-1 Reader's Guide for Section 4.0

Document Section	Section Number	Intended Audience	Information Contained
Section 4.0	4.0 Capability Gaps	Business Analysts Development Team Architects	Gaps specific to Capabilities used as part of this Interoperability Specification are reviewed in this section to determine why specific information exchange requirements may not yet be met or defined. Readers should check this section to track the progress of gap resolution

The following table identifies gaps not met by or overlapping with existing Capabilities as described above.

Table 4-2 Capability Gaps

IER Gap Description	Responsible HITSP TC	Design Approach	Required Standards Now Unavailable for Constructs	SDO Working on Unavailable Standards	Expected Availability
Enrollment/Eligibility for EPSDT, SCHIP, and WIC For services pertaining to prenatal services for the Mother, there is a gap. Eligibility is to determine whether the mother or child could be eligible - need to then enroll into the Medicaid program	Administrative and Financial Domain Technical Committee	Refer work to HL7 for new standardization to fill the gap Monitor: MIDA – new Medicaid system being created – working with this for some time – messaging constructs using V3 Suite using the attachment booklet possible modification to x.12 standards to accommodate the 2 requirements.	Specification, Terminology	HL7, X12	Pending SDO Availability
Vital registration Specification	Administrative and Financial Domain Technical Committee; Population Perspective Technical Committee	Follow activities in HL7 under way to develop these specifications : HL7 Vital Records Domain Analysis Model (VR DAM)	Specification, Terminology	HL7	Pending SDO Availability – 2010 estimate
State Recognized terminology for Social Services data capture	Administrative and Financial Domain Technical Committee	Omaha system has standardized terminology for capture of social service data. There is not a specific state determined set of data elements, and there is no standard. Each state has invented its own.	Terminology	HL7	Pending SDO Availability
Newborn Record GAP: Not currently profiled as a	Care Management	Anticipate a construct to be delivered in 2010 from IHE	Specification	IHE	August 2010



standard CDA document	and Health Records Domain Technical Committee	PCC – Newborn Discharge Summary			
Vital Records No NCHS specific format for transmission from EHR to Vital Records CDC/NCHS – Statistical analysis – NCHS uses a format, but national standard pending GAP	Administrative and Financial Domain Technical Committee; Population Perspective Technical Committee	Work with HL7 EHR developing the functional requirements; PH and Emergency response group – domain model for mid 2009 to use in developing a standard for capturing vital record information from the EHR Interjurisdiction exchange – IJE – for state-to-state communications	Specification, Terminology	HL7	Pending SDO Availability – 2010 estimate



5.0 APPENDIX

The following section includes relevant materials referenced throughout this document. The following table details how this section of the document is targeted to specific readers. Each of the stakeholders listed in this table are more fully defined in a separate appendix. This table is provided as an aid to readers to assist with identifying specific areas of focus. Readers are encouraged to review all sections of this document to further their understanding of HITSP's work.

Table 5-1 Reader's Guide for Section 5.0

Document Section	Section Number	Intended Audience	Information Contained
Section 5.0	5.1 Data Requirements	Architects Business Analysts	Data requirements which support the exchange of data between electronic health records and clinical research systems
	5.2 Harmonization Request Traceability	Architects Business Analysts	A complete mapping of information exchange requirements to functional requirements is provided in this section. Readers can trace IER's to underlying Harmonization Request events and actions (in those instances where a Use Case exists) or to functional requirements defined as part of an official standards Harmonization Request

Table 5-2 Exchange Content Descriptions

Exchange Content Identifier	Exchange Content Name	Exchange Content Definition	Data Requirements
PEC-MCH1	Vital Statistics – Birth	<p>Vital Records birth data are provided to CDC/NCHS/Division of Vital Statistics from fifty-seven registration areas: 50 states, two cities (New York and Washington DC), and 5 U.S. Territories (American Samoa, Guam, the Northern Mariana Islands, Puerto Rico, and the U.S. Virgin Islands).</p> <p>NOTE:</p> <ul style="list-style-type: none"> • The data must adhere to the data requirements of EBR-S. • The data requirements contain the birth data captured through direct data entry in the EBR-S. The requirements also include the birth data captured in the EHR and sent to the EBR-S. Most of the birth data captured is provided by the jurisdictions to the CDC/NCHS/DVS which collects and disseminates the Nation's official vital statistics 	<ul style="list-style-type: none"> • PDR-NBS7 Antepartum VR Data *only the following two data items apply: <ul style="list-style-type: none"> – Date of First Prenatal Care Visit – Total Number of Prenatal Care Visits this Pregnancy • PDR-NBS7A Antepartum VR Data • PDR-NBS7B Antepartum EBR/EFD-S Data • PDR-MCH6 Vital Records – Father • PDR-MCH6A EBR-S Father *only the following data items apply: <ul style="list-style-type: none"> – Paternity Acknowledgement Signed – Father's DOB – Father's Education • PDR-MCH7 Vital Records – Mother *only the following data items apply: <ul style="list-style-type: none"> – Mother's Race – Mother's Ethnicity - Hispanic • PDR-MCH7A EBR/EFD-S Mother • *only the following data items apply: <ul style="list-style-type: none"> – Mother DOB



Exchange Content Identifier	Exchange Content Name	Exchange Content Definition	Data Requirements
			<ul style="list-style-type: none"> – Birthplace State, Territory or Foreign Country – Mother Married – Ever – Mother Married – At conception, at birth, or any time in between – Mother's Education • PDR-MCH8 Vital Records <ul style="list-style-type: none"> – Delivery Details *only the following data items apply: <ul style="list-style-type: none"> – Obstetric Procedures – Onset of Labor – Characteristics of Labor and Delivery – Method of Delivery – Mother's Weight at Delivery – Maternal Morbidity – Attendant 's Title – Mother Transferred for Maternal/Medical/ Fetal Indications for Delivery – Source of payment for delivery
(Continue)PEC-MCH1	Vital Statistics – Birth	Continue - Vital Statistics – Birth	<ul style="list-style-type: none"> • PDR-MCH10 Vital Records <ul style="list-style-type: none"> – Newborn Details • *only the following data items apply: <ul style="list-style-type: none"> – Apgar Score (5 min, 10 min) – Abnormal Conditions of the Newborn – Infant Transferred within 24 hrs of Delivery – Infant Living at time of Report – Infant Breastfed at Discharge – Congenital Anomalies of Newborn – Newborn Birth weight – Date of Birth – Time of Birth – Sex of Infant – Obstetric Estimate of Gestation – Plurality – If not single birth, number of infants born live-in delivery – Set Order • PDR-MCH11 Vital Records <ul style="list-style-type: none"> – Demographics • *only the following data items apply:



Exchange Content Identifier	Exchange Content Name	Exchange Content Definition	Data Requirements
			<ul style="list-style-type: none"> – Facility ID (NPI, State-Assigned) – County of Birth/Delivery – Place Where Birth/Delivery Occurred • PDR-MCH11A EBR-S Demographics • *only the following data items apply: <ul style="list-style-type: none"> – Mother's Residence (Inside City Limits, City, County, State, Country) • PDR-MCH14 Vital Statistics - Birth
PEC-MCH1A	Vital Statistics – Infant Death	<p>Vital Records infant death data are provided to CDC/NCHS/Division of Vital Statistics from fifty-seven registration areas: 50 states, two cities (New York and Washington DC), and 5 U.S. Territories (American Samoa, Guam, the Northern Mariana Islands, Puerto Rico, and the U.S. Virgin Islands).</p> <p>NOTE:</p> <ul style="list-style-type: none"> • The data must adhere to the data requirements of EDR-S • The data requirements contain the infant death data captured through direct data entry in the EDR-S. The requirements also include the infant death data captured in the EHR and sent to the EDR-S. Most of the infant death data captured is provided by the jurisdictions to the CDC/NCHS/DVS which collects and disseminates the Nation's official vital statistics 	<ul style="list-style-type: none"> • PDR-MCH13 Vital Records – Infant Death • *only the following data items apply: <ul style="list-style-type: none"> – Decedent's (Infant's) Sex – Decedent's (Infant's) Date of Birth – Actual or Presumed Date of Decedent's (Infant's) Death – Actual or Presumed Time of Decedent's (Infant's) Death – Decedent's (Infant's) Ethnicity – Hispanic Origin – Decedent's (Infant's) Race • PDR-MCH13A EDR-S Infant Death • *only the following data items apply: <ul style="list-style-type: none"> – Decedent's (Infant's) Legal Name – Decedent's (Infant's) Birthplace (State, Country) – Decedent's (Infant's) Age – Decedent's (Infant's) Social Security Number (if assigned) – Mother's Residence (City, State, Inside City Limits, Country, County) – Father's Surname – Place of Death – Facility of Death Demographics (State and County) – Method of Disposition – Cause of Death (COD)



Exchange Content Identifier	Exchange Content Name	Exchange Content Definition	Data Requirements
			<ul style="list-style-type: none"> Chain of Events <ul style="list-style-type: none"> – Cause of Death – Other Significant Conditions – Autopsy Performed? – Autopsy Findings Available to Complete the COD? – Manner of Death – Date, Time, Place, Location and Description of Injury (if applicable) – Certifier Role • PDR-MCH14A Vital Statistics - Infant Death
PEC-MCH1B	Vital Statistics – Fetal Death	<p>Vital Records fetal death data are provided to CDC/NCHS/Division of Vital Statistics from fifty-seven registration areas: 50 states, two cities (New York and Washington DC), and 5 U.S. Territories (American Samoa, Guam, the Northern Mariana Islands, Puerto Rico, and the U.S. Virgin Islands).</p> <p>NOTE:</p> <ul style="list-style-type: none"> • The data must adhere to the data requirements of EFD-S • The data requirements contain the fetal death data captured through direct data entry in the EFD-S. The requirements include the fetal death data captured in the EHR and sent to the EFD-S. Most of the fetal death data captured is provided by the jurisdictions to the CDC/NCHS/DVS which collects and disseminates the Nation's official vital statistics 	<ul style="list-style-type: none"> • PDR-NBS7 Antepartum VR Data <ul style="list-style-type: none"> *only the following two data items apply: <ul style="list-style-type: none"> – Date of First Prenatal Care Visit – Total Number of Prenatal Care Visits this Pregnancy • PDR-NBS7A Antepartum VR Data • PDR-NBS7B Antepartum EBR/EFD-S Data • PDR-MCH6B EFD-S Father <ul style="list-style-type: none"> *only the following data items apply: <ul style="list-style-type: none"> – Father's DOB • PDR-MCH7 Vital Records – Mother <ul style="list-style-type: none"> *only the following data items apply: <ul style="list-style-type: none"> – Mother's Race – Mother's Ethnicity - Hispanic • PDR-MCH7A EBR/EFD-S Mother • *only the following data items apply: <ul style="list-style-type: none"> – Mother DOB – Birthplace State, Territory or Foreign Country – Mother Married – Ever – Mother Married – At conception, at birth, or any time in between – Mother's Education • PDR-MCH8A Vital Records – Fetal Death Delivery Details <ul style="list-style-type: none"> *only the following data items apply: <ul style="list-style-type: none"> – Method of Delivery



Exchange Content Identifier	Exchange Content Name	Exchange Content Definition	Data Requirements
			<ul style="list-style-type: none"> – Mother's Weight at Delivery – Maternal Morbidity – Attendant 's Title – Mother Transferred for Maternal/Medical/ Fetal Indications for Delivery – Date of Delivery – Time of Delivery • PDR-MCH12 Vital Records – Fetal Death Details <ul style="list-style-type: none"> *only the following data items apply: <ul style="list-style-type: none"> – Congenital Anomalies of Fetus – Weight of Fetus – Estimated Time of Fetal Death – Sex of Fetus – Obstetric Estimate of Gestation – Plurality – Set Order – Autopsy Performed? – Histological Placental Examination Performed? – Autopsy/Histological Placental Examination Results Used in Determining Cause of Fetal Death?
(Continue)PEC-MCH1B	Vital Statistics – Fetal Death		<ul style="list-style-type: none"> • PDR-MCH12A EFD-S Fetal Death Details • *only the following data items apply: <ul style="list-style-type: none"> – Initiating Cause/Condition – Other Significant Causes or Conditions • PDR-MCH11 Vital Records - Demographics • *only the following data items apply: <ul style="list-style-type: none"> – Facility ID (NPI, State-Assigned) – County of Delivery – Place Where Delivery Occurred • PDR-MCH11B EFD-S Demographics • *only the following data items apply: <ul style="list-style-type: none"> – Mother's Residence (Inside City Limits, City, County, State, Country) • PDR-MCH14B Vital



Exchange Content Identifier	Exchange Content Name	Exchange Content Definition	Data Requirements
PEC-MCH2	Hospital's Maternal Discharge Summary	This Component specifies the format and content for communication the Hospital's Maternal Discharge clinical record	Statistics – Fetal Death PDR-MCH1 Maternal Clinical Data DR31 Problem List DR01 Admission Medications History DR15 Hospital Admission Diagnosis DR02 Advance Directives DR03 Allergies and Other Adverse Reactions DR08 Discharge Diagnosis DR38 Discharge Diet DR17 Hospital Discharge Medications DR07 Diagnostic Results DR11 Functional Status DR14 History of Present Illness DR16 Hospital Course DR22 Medical Equipment DR27 Personal Information DR28 Physical Examination DR29 Plan of Care DR13 History of Past Illness DR34 Review of Systems DR24 Medications Administered DR37 Vital Signs
PEC-MCH3	Vital records pre-populate	Supports pre-population of vital records birth, death and fetal death information from the clinical records (e.g. antepartum information, birthing summary, newborn record)	<ul style="list-style-type: none"> • PDR-NBS7 Antepartum VR Data *only the following two data items apply: <ul style="list-style-type: none"> – Date of First Prenatal Care Visit – Total Number of Prenatal Care Visits this Pregnancy • PDR-NBS7A Antepartum VR Data • PDR-MCH6 Vital Records – Father • PDR-MCH7 Vital Records – Mother • PDR-MCH8 Vital Records – Delivery Details • PDR-MCH8A Vital Records – Fetal Death Delivery Details • PDR-MCH10 Vital Records – Newborn Details • PDR-MCH11 Vital Records – Demographics • PDR-MCH12 Vital Records – Fetal Death Details • PDR-MCH13 VR Infant Death
PEC-MCH4	Guidelines	Supports the representation of care guidelines for Maternal and Child Health	PDR58 PDR-MCH2 Structured



Exchange Content Identifier	Exchange Content Name	Exchange Content Definition	Data Requirements
		Data are provided, including (but not limited to):	Guideline Data
PEC-MCH5	Lab Orders	Laboratory Orders for Maternal and Child Care	DR25 PDR-MCH3 Maternal Lab Orders
PEC-MCH6	VR Birth Record	<p>Vital Records birth data that may be captured in an EHR and shared among providers, jurisdictional vital records offices and Federal agencies.</p> <p>NOTES:</p> <ul style="list-style-type: none"> • The data must adhere to the data requirements of EBR-S • Requirement that some of the birth record information must be captured from the mother as defined by the CDC/NCHS ES. This information will be captured directly in an EBR-S. • Additional discussion and collaboration is needed with the VR state partners to explore the potential for future use of PHRs as a source for VR information. A primary concern is the need to adhere to VR standards that require capturing the information from the mother at the time of delivery • Requirements may vary slightly by state for vital records • Only birth mother information is captured on the standard certificate. Surrogate and donor details are not captured on the standard <p>VR gets information on the birth mother info and seals the record in the case of adoption or other reasons through legal process</p>	<ul style="list-style-type: none"> • PDR-NBS7A Antepartum VR Data • PDR-MCH6 Vital Records – Father • PDR-MCH7 Vital Records – Mother • PDR-MCH8 Vital Records – Delivery Details • PDR-MCH10 Vital Records – Newborn Details • PDR-MCH11 Vital Records - Demographics
PEC-MCH6A	EBR-S Birth Record	<p>Vital Records birth data that is captured through direct data entry in an EBR-S and shared among jurisdictional vital records offices and Federal agencies.</p> <p>NOTES:</p> <ul style="list-style-type: none"> • The data must adhere to the data requirements of EBR-S • Requirement that some of the birth record information must be captured from the mother as defined by the CDC/NCHS ES. This information will be captured directly in an EBR-S <p>Requirements may vary slightly by state for vital records</p>	<ul style="list-style-type: none"> • PDR-NBS7B Antepartum EBR/EFD-S Data • PDR-MCH6A EBR-S Father • PDR-MCH7A EBR/EFD-S Mother • PDR-MCH10A EBR-S Newborn Detail • PDR-MCH11A EBR-S Demographics
PEC-MCH7	VR – Infant Death Record	<p>Vital Records death data that may be captured in an EHR and shared among providers, jurisdictional vital records offices and Federal agencies.</p> <p>NOTES:</p> <ul style="list-style-type: none"> • The data must adhere to the data requirements of EDR-S • Most of the death record information needs to be captured by the funeral director and medical certifier as 	PDR-MCH13 VR Infant Death



Exchange Content Identifier	Exchange Content Name	Exchange Content Definition	Data Requirements
		defined by the CDC/NCHS ES. This information will be captured directly in an EDR-S Requirements may vary slightly by state for vital records	
PEC-MCH7A	EDR-S Infant Death Record	Vital Records infant death data that is captured through direct data entry in an EDR-S and shared among jurisdictional vital records offices and Federal agencies. NOTES: <ul style="list-style-type: none"> The data must adhere to the data requirements of EDR-S Most of the death record information needs to be captured by the funeral director and medical certifier as defined by the CDC/NCHS ES. This information will be captured directly in an EDR-S Requirements may vary slightly by state for vital records	PDR-MCH13A EDR-S Infant Death
PEC-MCH8	Vital Records – Fetal Death Record	Vital Records fetal death data that may be captured in an EHR and shared among providers, jurisdictional vital records offices and Federal agencies. NOTES: <ul style="list-style-type: none"> The data must adhere to the data requirements of EFD-S Requirement that some of the fetal death information must be captured from the mother/patient as defined by the CDC/NCHS ES. This information will be captured directly in an EFD-S Requirements may vary slightly by state for vital records	<ul style="list-style-type: none"> PDR-NBS7 Antepartum Data *only the following two data items apply: <ul style="list-style-type: none"> – Date of First Prenatal Care Visit – Total Number of Prenatal Care Visits for this Pregnancy PDR-NBS7A Antepartum VR Data PDR-MCH7 Vital Records – Mother PDR-MCH8A Vital Records – Fetal Death Delivery Details PDR-MCH11 Vital Records – Demographics PDR-MCH12 Vital Records – Fetal Death Details
PEC-MCH8A	EFD-S – Fetal Death Record	Vital Records fetal death data that are captured through direct data entry in an EFD-S and shared among jurisdictional vital records offices and Federal agencies. NOTES: <ul style="list-style-type: none"> The data must adhere to the data requirements of EFD-S Requirement that some of the fetal death information must be captured from the mother/patient as defined by the CDC/NCHS ES. This information will be captured directly in an EFD-S Requirements may vary slightly by state for vital records	<ul style="list-style-type: none"> PDR-NBS7B Antepartum EBR/EFD-S Data PDR-MCH6B EFD-S – Father PDR-MCH7A EBR/EFD-S – Mother PDR-MCH11B EFD-S Demographics PDR-MCH12A EFD-S – Fetal Death Details
EC 36	Lab Result (used when constraint is 'message')	Defines the data necessary for transmission of 'message'-based	Message Header Content PDR 50 Fully Coded Lab



Exchange Content Identifier	Exchange Content Name	Exchange Content Definition	Data Requirements
		complete, preliminary, final and updated laboratory results	Result Content DR04 Personal genetic/genomic data DR05 Family genetic/genomic information PDR-MCH4 Maternal Lab Results
EC 37	Lab Result (used when constraint is 'document')	Defines the data necessary for transmission of 'document'-based complete, preliminary, final and updated laboratory results	Document Metadata PDR 50 Fully Coded Lab Result Content DR04 Personal genetic/genomic data DR05 Family genetic/genomic information PDR-MCH4 Maternal Lab Results
PEC-NBS4	Birthing Summary	Provides information regarding the labor and delivery supporting post-partum care for both mother and newborn	PDR-NBS4 Birthing Data PDR-MCH5 Pediatric Demographics
PEC-NBS7	Antepartum Summary	Provides a summary of pregnancy care	PDR-NBS7 Antepartum Data
PEC-NBS9	Newborn Record	Newborn's Discharge Summary	PDR-MCH5 Pediatric Demographics PDR-NBS9 Newborn Clinical Data DR31 Problem List DR01 Admission Medications History DR15 Hospital Admission Diagnosis DR02 Advance Directives DR03 Allergies and Other Adverse Reactions DR08 Discharge Diagnosis DR38 Discharge Diet DR17 Hospital Discharge Medications DR07 Diagnostic Results DR11 Functional Status DR14 History of Present Illness DR16 Hospital Course DR22 Medical Equipment DR27 Personal Information DR28 Physical Examination DR29 Plan of Care DR13 History of Past Illness DR34 Review of Systems DR24 Medications Administered DR37 Vital Signs
PEC-MCH8	Service Eligibility	Enrollment Information: Authorization for services request information needed for enrollment in services program (e.g. Early Periodic Screening, Diagnosis and Treatment (EPSDT) Program) , including (but not limited to):	PUBLIC COMMENT INPUT WELCOME
EC68A	Health Plan Request	Data to support a request for approval from a health plan to authorize certain healthcare services, when required by	PDR63 Health Plan Request for Authorization of Service Content



Exchange Content Identifier	Exchange Content Name	Exchange Content Definition	Data Requirements
		the patient's health plan contract	
EC68B	Health Plan Response	Data to support response to request for approval. The response from the health plan indicates that the health plan has determined that the particular service(s) will or will not be covered, and what is the level of coverage if that information is available from the health plan	PDR64 Health Plan Response to Request for Authorization of Service Content
EC30	Consent Document Component		
EC 32	Summary of Care	Describes the document content summarizing a consumer's registration, medication and health data information	DR02 Advance Directives DR03 Allergies and Other Adverse Reactions DR06 Comment DR31 Problem List DR09 Encounters DR12 Healthcare Providers DR18 Immunizations DR19 Information Source DR26 Payers DR20 Language Spoken DR23 Medications DR27 Personal Information DR29 Plan of Care DR30 Pregnancy DR32 Procedure DR36 Support DR37 Vital Signs
EC 48	Encounter Summary (used when constraint is 'document')	Document'-based patient encounter data (excluding laboratory, radiology)	DR05 Chief Complaint DR29 Plan of Care DR31 Problem List DR37 Vital Signs DR02 Advance Directive DR03 Allergy/. Drug Sensitivity DR09 Encounter DR12 Healthcare Provider DR18 Immunization DR19 Information Source DR26 Insurance Provider DR20 Language Spoken DR23 Medication – Prescription and Non-Prescription DR27 Person Information DR30 Pregnancy DR32 Procedure DR36 Support DR37 Vital Sign DR24 Medications Administered DR04 Assessment and Plan
EC 49	Medical Imaging Results (constraint is 'document'; Also constrained on 'radiology result')	Medical imaging radiology result data in "document" form captured as part of the normal process of care performed by healthcare providers	Document Metadata Radiology image link and/or report result



5.1 DATA REQUIREMENTS

The following data requirements support the exchange of data between electronic health records and clinical research systems.

Table 5-3 Data Requirements

Data Requirement Number (DR)	Description	Data
PDR-NBS4	Birth Data	<ul style="list-style-type: none"> • Labor and Delivery Admission History and Physical • Labor and Delivery Summary • Maternal Discharge Summary • Antepartum Information • Delivery event information • Pediatric clinician • Encounter Date • Patient Information (DOB, age, gender, resident zip code, state of residence) • Date/time of last record update • Linkage between Mom/Baby records
PDR-MCH2	Structured Guideline Data	GAP <ul style="list-style-type: none"> • Presentation Preserving format • Management and testing guidelines (e.g. prenatal screening guidelines, timing for testing, possibly guidelines for management of pregnancy complications)
PDR-NBS7	Antepartum Data	<ul style="list-style-type: none"> • Antepartum History and Physical • Antepartum Laboratory • Antepartum Education • Pediatric clinician • Maternal age • Maternal occupation • Medical history • Menstrual history • Pregnancy history • Genetic screenings • Risk factors • Office visits • Physical Exams • General Medical History • Infection History • Antepartum Radiology VITAL RECORDS PRE-POP REQUIREMENTS <ul style="list-style-type: none"> • Date of first visit • Pre-pregnancy weight, and other attributes • Number of visits
PDR-NBS9	Newborn Clinical Data	<ul style="list-style-type: none"> • Newborn Birth Attributes • NICU Attributes • Prenatal Attributes • Pediatric clinician • Encounter Date • Patient Information (DOB, age, gender, resident zip code, state of residence) • Date/time of last record update • Linkage between Mom/Baby records
PDR-MCH6	Vital Records – Father: contains data that may be captured in an EHR; however, that data must adhere to the data requirements of Electronic Birth Record Systems	<ul style="list-style-type: none"> • Father's Ethnicity – Hispanic • Father's Race



Data Requirement Number (DR)	Description	Data
PDR-MCH6A	EBR System (EBR-S) – Father: contains data that adheres to the data requirements of Electronic Birth Record Systems. The data must be captured directly in an EBR-S	<ul style="list-style-type: none"> • Father's Current Legal Name • Father DOB • Father's Birthplace • Paternity Acknowledgement Signed • Father's Education • Father's Social Security Number
PDR-MCH6B	EFD System (EFD-S) – Father: contains data that adheres to the data requirements of Electronic Fetal Death Record Systems. The data must be captured directly in an EFD-S	<ul style="list-style-type: none"> • Father's Current Legal Name • Father DOB • Father's Birthplace
PDR-MCH7	Vital Records – Mother: contains data that may be captured in an EHR; however, that data must adhere to the data requirements of Electronic Birth Record Systems and Electronic Fetal Death Systems	<ul style="list-style-type: none"> • Mother's Current Legal Name • Mother Ethnicity – Hispanic • Mother Race • Mother's Medical Record Number
PDR-MCH7A	EBR/EFD-S – Mother: contains data that adheres to the data requirements of Electronic Birth Record Systems and Electronic Fetal Death Systems. The data must be captured directly in an EBR-S/EFD-S	<ul style="list-style-type: none"> • Mother DOB • Mother's Name Prior to First Marriage • Birthplace State, Territory or Foreign Country • Mother Married – Ever • Mother Married – At conception, at birth, or any time in between • Mother's Education
PDR-MCH8	Vital Records- Delivery Details: contains data that may be captured in an EHR for the birth certificate; however, that data must adhere to the data requirements of Electronic Birth Record Systems	<ul style="list-style-type: none"> • Obstetric Procedures • Onset of Labor • Characteristics of Labor and Delivery • Method of Delivery • Mother's Weight at Delivery • Maternal Morbidity • Attendant 's Name/Title/NPI • Certifier's Name/Title • Date Certified • Mother Transferred for Maternal/Medical/Fetal Indications for Delivery • If Transferred, Facility Transferred From • Source of payment for delivery
PDR-MCH8A	Vital Records- Fetal Death Delivery Details: contains data that may be captured in an EHR for the Fetal Death Report; however, that data must adhere to the data requirements of Electronic Fetal Death Record Systems	<ul style="list-style-type: none"> • Method of Delivery • Mother's Weight at Delivery • Maternal Morbidity • Attendant 's Name/Title/NPI • Name/Title Person Completing Report • Date Report Completed • Mother Transferred for Maternal/Medical/Fetal Indications for Delivery • Date of Delivery • Time of Delivery



Data Requirement Number (DR)	Description	Data
PDR-MCH10	Vital Records Newborn Detail: contains data that may be captured in an EHR; however, that data must adhere to the data requirements of Electronic Birth Record Systems	<ul style="list-style-type: none"> • Apgar Score (5 Min, 10 Min) • Abnormal Conditions of the Newborn • Infant Transferred within 24 hrs of Delivery • If Transferred within 24 hrs of Delivery, Facility Transferred From • Infant Living at time of Report • Infant Breastfed at Discharge • Congenital Anomalies of Newborn • Newborn Medical Record Number • Newborn Birth weight • Date of Birth • Time of Birth • Sex of Infant • Obstetric Estimate of Gestation • Plurality • If not single birth, number of infants born live in delivery • Set Order • Name of Person Providing Information for the Mother's Worksheet (in lieu of mother) • Relationship to Mother for Person Completing the Mother's Worksheet
PDR-MCH10A	EBR System (EBR-S) – Newborn Detail: contains data that adheres to the data requirements of Electronic Birth Record Systems. The data must be captured directly in an EBR-S	<ul style="list-style-type: none"> • Child's Name/Infant's Name Chosen
PDR-MCH11	Vital Records – Demographics: contains data that may be captured in an EHR for the birth certificate and Fetal Death Report. The data must adhere to the data requirements of Electronic Birth Record System and the Electronic Fetal Death Record System	<ul style="list-style-type: none"> • Facility Name (Birth/Delivery Facility) • Facility ID (NPI, State-Assigned) • Delivery Location (City, Town or Location and Zip Code of Birth/Delivery) • County of Birth/Delivery • Place Where Birth/Delivery Occurred
PDR-MCH11A	EBR-S – Demographics: contains data that adheres to the data requirements of Electronic Birth Record Systems and Electronic Fetal Death Systems. The data must be captured directly in an EBR-S	<ul style="list-style-type: none"> • Mother's Residence (Street and Number, Apartment Number, Inside City Limits, City/Town/Location, County, State, Zip Code) • Mother's Mailing Address (Street and Number, Apartment Number, City/Town/Location, State, Zip Code) • Mother's Social Security Number • Date Mother Signed Request for Child's SSN • Signature of Person Requesting Child's SSN
PDR-MCH11B	EFD-S – Demographics: contains data that adheres to the data requirements of Electronic Birth Record Systems and Electronic Fetal Death Systems. The data must be captured directly in an EFD-S	<ul style="list-style-type: none"> • Mother's Residence (Street and Number, Apartment Number, Inside City Limits, City/Town/Location, County, State, Zip Code) • Mother's Mailing Address (Street and Number, Apartment Number, City/Town/Location, State, Zip Code)
PDR-MCH12	Vital Records Fetal Death Details: contains fetal death data that may be captured in an EHR; however, that data must adhere to the data requirements of Electronic Fetal Death Record Systems	<ul style="list-style-type: none"> • Congenital Anomalies of Fetus • Weight of Fetus • Estimated Time of Fetal Death • Sex of Fetus • Obstetric Estimate of Gestation • Plurality • If not single delivery, number of infants born live in delivery • Set Order • Method of Disposition • Autopsy Performed? • Histological Placental Examination Performed? • Autopsy/Histological Placental Examination Results Used in Determining Cause of Fetal Death?



Data Requirement Number (DR)	Description	Data
PDR-MCH12A	EFD-S –Fetal Death Details: contains data that adheres to the data requirements of Electronic Fetal Death Record Systems. The data must be captured directly in an EFD-S. Provides support for inter-jurisdictional VR data exchange for fetal deaths occurring outside of the jurisdiction of occurrence	<ul style="list-style-type: none"> • Name of Fetus • Date Received by Registrar • Name of Person Providing Information for the Mother's Worksheet (in lieu of mother) • Relationship to Mother for Person Completing the Mother's Worksheet • Initiating Cause/Condition • Other Significant Causes or Conditions
PDR-MCH13	Vital Records – Infant Death: contains infant death data that may be captured in an EHR; however, that data must adhere to the data requirements for the Electronic Death Registration Systems	<ul style="list-style-type: none"> • Decedent's (Infant's) Name Known by Certifier • Decedent's (Infant's) Sex • Decedent's (Infant's) Date of Birth • Actual or Presumed Date of Decedent's (Infant's) Death • Actual or Presumed Time of Decedent's (Infant's) Death • Decedent's (Infant's) Ethnicity – Hispanic Origin • Decedent's (Infant's) Race • Facility Name (where death occurred)
PDR-MCH13A	EDR-S (Electronic Death Registration System) Infant Death: contains infant death data that adheres to the data requirements of the Electronic Death Registration Systems. This data must be captured directly in an EDR-S	<ul style="list-style-type: none"> • Decedent's (Infant's) Legal Name • Decedent's (Infant's) Birthplace (City, State, Country) • Decedent's (Infant's) Age • Decedent's (Infant's) Social Security Number (if assigned) • Mother's Residence (Street and Number, Apt. Number, City, State, Zip Code, Inside City Limits, Country, County) • Father's Name • Mother's Name Prior to First Marriage • Informant's Name • Informant's Relationship to Decedent • Informant's Mailing Address • Place of Death • Facility of Death (City or Town, State, Zip Code, County) • Method of Disposition • Place of Disposition (cemetery, crematory, other) • Location Where Disposed (City, Town, State) • Funeral Facility Name • Funeral Facility Address • Signature and License Number of Funeral Service Licensee or other agent • Date/Time Pronounced Dead • Signature/License Number of Person Pronouncing Death/Date Signed • Was Medical Examiner or Coroner Contacted? • Cause of Death (COD) Chain of Events • Cause of Death – Other Significant Conditions • Autopsy Performed? • Autopsy Findings Available to Complete the COD? • Did tobacco use contribute to death? • Manner of Death • Additional items included on next page
(Continue) PDR-MCH13A	EDR-S (Electronic Death Registration System) Infant Death: contains infant death data that adheres to the data requirements of the Electronic Death Registration Systems. This data must be captured directly in an EDR-S	<ul style="list-style-type: none"> • Date, Time, Place, Location and Description of Injury (if applicable) • Certifier Signature/Role/Title/License Number • Date Certified • Name/Address Person Completing COD
PDR-MCH14	Vital Statistics – Birth: contains additional birth data items provided by the jurisdictions to the CDC/NCHS/DVS after a birth has been certified	<ul style="list-style-type: none"> • State of Birth • Certificate Number • Auxiliary State File Number



Data Requirement Number (DR)	Description	Data
PDR-MCH14A	Vital Statistics – Infant Death: contains additional infant death data items provided by the jurisdictions to the CDC/NCHS/DVS after an infant death has been certified	Certificate Number Auxiliary State File Number Infant Death/Birth Linking – birth certificate number Infant Death/Birth Linking – year of birth Infant Death/Birth Linking – state of birth
PDR-MCH14B	Vital Statistics – Fetal Death: contains additional fetal death data items provided by the jurisdictions to the CDC/NCHS/DVS after a fetal death has been reported	<ul style="list-style-type: none"> • State of Delivery • Certificate Number • Auxiliary State File Number • Number of Fetal Deaths
PDR-MCH3	Maternal Lab Orders: supports the communication of laboratory test orders. Test order data are provided, including (but not limited to):	Maternal care related value sets <ul style="list-style-type: none"> • Pregnancy testing • Hormonal assays • Transabdominal or transvaginal ultrasound ... • Tuberculin test • Blood/lead test referral • Hgb/Hct (HRisk/WIC)
PDR-MCH4	Maternal Lab Results: supports the communication of laboratory test orders. data are provided, including (but not limited to):	Maternal care related value sets <ul style="list-style-type: none"> • Pregnancy testing • Hormonal assays • Transabdominal or transvaginal ultrasound... • Tuberculin test • Blood/lead test referral • Hgb/Hct (HRisk/WIC)
PDR-MCH5	Demographic Data with Pediatric and Maternal Linkage Support: The demographic data content to be exchanged to appropriately associate the patient data with clinical data maintained in another system and between mother and baby records. Data requirements include (but are not limited to):	<ul style="list-style-type: none"> • Patient Name: First, Middle, Last • Patient Alias Name: First, Middle, Last • Patient Address • Patient Phone Number • Patient Identifier • Patient Birth Date • Patient Sex • Patient Race • Patient Ethnicity • Patient Primary Language • Patient Multiple Birth Indicator • Patient Multiple Birth Order • Patient Birth Registration Number • Patient Birth State/Country • Patient Birthing Facility • Mother's Name: First, Middle, Last • Mother's Maiden Name • Mother's SSN • Father's Name: First, Middle, Last • Father's SSN • Insurance Plan • Insurance Company • Immunization Services Funding Eligibility • Next of Kin Relationship • Next of Kin Address • Next of Kin Telephone • Next of Kin DOB • Last Update Time/Date • Last Update Facility



Data Requirement Number (DR)	Description	Data
DRMCH4	<p>Enrollment Information: Authorization for services request information needed for enrollment in services program (e.g. Early Periodic Screening, Diagnosis and Treatment (EPSDT) Program) , including (but not limited to):</p> <p>NOTE: Outstanding question - EPSDT – is this the same requirement? Can SCHIP leverage the same transaction</p>	<ul style="list-style-type: none"> • Nutritional risk requirement • Verification of pregnancy • Housing authentication • Proof of income • Proof of citizenship/residency status • Patient demographics (First name, last name, date of birth, health plan member ID) • Limits, and exclusions • Procedure or services coded values
DR17	Pediatric Well-Care Summary: Secure patient data are provided, including (but not limited to):	<ul style="list-style-type: none"> • Nutritional screening • Developmental screening • Dental screening • Physical exam • Weight, height, head circumference measurements • Percentile • Immunizations provided
PDR63	Health Plan Request for Authorization of Service Content	<ul style="list-style-type: none"> • Functional Identifier Code • Version/Release/Industry Identifier Code • Transaction Set Purpose Code • Code List Qualifier Code • Procedures • Procedure Code • Entity Type Qualifier • Information Source Name • Identification Code Qualifier • Information Source Name • Identification Code Qualifier • Requester Name • Date Time Period • Format Qualifier • Date Time Period • Subscriber Birth Date • Name Last • Subscriber Name • Name First • Identification Code Qualifier Description • Identification Code Qualifier • Service Provider Name



Data Requirement Number (DR)	Description	Data
PDR64	Health Plan Response to Request for Authorization of Service Content	<ul style="list-style-type: none"> • Functional Identifier Code • Version/Release/Industry Identifier Code • Transaction Set Purpose Code • Procedures • Code List Qualifier Code • Procedures • Procedure Code • Entity Type Qualifier • Information Source Name • Identification Code Qualifier • Information Source Name • Identification Code Qualifier • Requester Name • Name Last • Subscriber Name • Name First • Identification Code Qualifier Description • Date Time Period • Format Qualifier • Date Time Period • Subscriber Birth Date • Identification Code Qualifier • Service Provider Name
DR01	Admission Medications History: Contains information about the relevant medications of a patient prior to admission to a facility	2.2.1.13 Admission Medications Section
DR02	Advance Directives: Contains information that defines the patient's expectations and requests for care along with the locations of the documents	2.2.1.16 Advance Directives Section
DR03	Allergies and Other Adverse Reactions: Contains data on the substance intolerances and the associated adverse reactions suffered by the patient	2.2.1.2 Allergies and Other Adverse Reactions Section
DR06	Comment: Contains a comment to be supplied for any other data requirement	2.2.2.11 Comment
DR07	Diagnostic Results: Contains information about the results from diagnostic procedures the patient received	2.2.1.22 Diagnostic Results Section
DR08	Discharge Diagnosis: Contains information about the conditions identified during the hospital stay that either need to be monitored after discharge from the hospital and/or where resolved during the hospital course	2.2.1.11 Discharge Diagnosis Section
DR09	Encounters: Contains information describing the patient history of encounters. At a minimum, includes current and pertinent historical encounters, and may include a full encounter history	2.2.1.27 Encounters Section
DR10	Family History: Contains information about the genetic family members, to the extent that they are known, the diseases they suffered from, their ages at death, and other relevant genetic information	2.2.1.25 Family History
DR11	Functional Status: Provides information about the capability of the patient to perform acts of daily living	2.2.1.9 Functional Status Section
DR12	Healthcare Providers: Contains the healthcare providers involved in the current or pertinent historical care of the patient	2.2.2.4 Healthcare Provider
DR13	History of Past Illness: Contains data about problems the patient suffered in the past	2.2.1.4 History of Past Illness Section



Data Requirement Number (DR)	Description	Data
DR14	History of Present Illness: Contains information about the sequence of events preceding the patient's current complaints	2.2.1.7 History of Present Illness Section
DR15	Hospital Admission Diagnosis: Contains information about the primary reason for admission to a hospital facility	2.2.1.10 Hospital Admission Diagnosis Section
DR16	Hospital Course: Contains information about of the sequence of events from admission to discharge in a hospital facility	2.2.1.21 Hospital Course Section
DR17	Hospital Discharge Medications: Contains information about the relevant medications of the medications ordered for the patient for use after discharge from the hospital	2.2.1.14 Hospital Discharge Medications Section
DR18	Immunizations: Contains information describing the immunizations administered to the patient	2.2.1.17 Immunizations Section
DR19	Information Source: Contains information about the original author to be supplied and for a reference to the original document to be provided	2.2.2.10 Information Source
DR20	Language Spoken: Contains the primary and secondary languages of communication for the patient	2.2.2.2 Language Spoken
DR21	List of Surgeries: Provides a list of surgeries the patient has received	2.2.1.8 List of Surgeries Section
DR22	Medical Equipment: Contains information describing a patient's implanted and external medical devices and equipment that their health status depends on, as well as any pertinent equipment or device history	2.2.1.28 Medical Equipment Section
DR23	Medications: Description of the relevant medications for the patient, e.g., An ambulatory prescription list	2.2.1.12 Medications Section
DR24	Medications Administered: Contains information about the relevant medications administered to a patient during the course of an encounter	2.2.1.15 Medications Administered Section
DR25	Orders	
DR26	Payers: The Payers Section contains data on the patient's payers, whether a 'third party' insurance, self-pay, other payer or guarantor, or some combination - At a minimum, the patient's pertinent current payment sources should be listed	2.2.1.1 Payers Section
DR27	Personal Information: Contains the name, address, contact information, personal identification information, ethnic and racial affiliation and marital status of the subject person	2.2.2.1 Personal Information
DR28	Physical Examination: Contains information describing the physical findings	2.2.1.18 Physical Examination Section
DR29	Plan of Care: Contains information about the expectations for care to be provided including proposed interventions and goals for improving the condition of the patient. A plan of care section varies from the assessment and plan data requirements in that it does not include a physician assessment of the patient condition	2.2.1.24 Plan of Care Section
DR30	Pregnancy: Contains a coded entry indicating whether the patient is currently pregnant	2.2.2.9 Pregnancy



Data Requirement Number (DR)	Description	Data
DR31	Problem List: Contains data on the problems currently being monitored for the patient	2.2.1.3 Problem List Section? 2.2.2.7 Condition
DR32	Procedure: Contains a coded entry indicating a procedure performed on a patient	2.2.2.17 Procedure
DR33	Reason for Referral: Contains information about the reason that the patient is being referred	2.2.1.6 Reason for Referral Section
DR34	Review of Systems: Contains information describing patient responses to questions about the function of various body systems	2.2.1.20 Review of Systems Section
DR35	Social History: Contains information about the person's beliefs, home life, community life, work life, hobbies, and risky habits	2.2.1.26 Social History Section
DR36	Support: Contains the patient's sources of support, such as immediate family, relatives and guardian at the time as the summarization is generated. Support information also includes next of kin, caregivers and support organizations. At a minimum, key support contacts relative to healthcare decisions, including next of kin, should be included. Support providers may include providers of healthcare related services, such as a personally controlled health record, or registry of emergency contacts	2.2.2.3 Support
DR37	Vital Signs: Contains information documenting the patient vital signs	2.2.2.14 Vital Sign
DR38	Discharge Diet:	
DR58	Unstructured Data Content	
	Message Header Content	
PDR 50	Fully Coded Lab Result Content	

5.2 HARMONIZATION REQUEST TRACEABILITY

This section describes the traceability to the Harmonization Request for which this Interoperability Specification is written. The traceability may be described in terms of events and actions, or in terms of functional requirements.

This table relates the events of a Harmonization Request to the actions taken and information exchanges required.

Table 5-4 Harmonization Request Events and Actions Analysis Table

Event	Action	Information Exchange Requirement(s) (includes security requirements)
7.1.1 Determination of Pregnancy	7.1.1.1 Clinician determines pregnancy	IER1 Send PEC-MCH9 Service Eligibility from EHR to Health Plan System
7.1.2 Pregnancy Management and Testing	7.1.2.1 Mother's clinician manages the pregnancy	IER2 Send PEC-NBS7 - Antepartum Summary from EHR to EHR
		IER3 Provide/Register PEC-NBS7 - Antepartum Summary from EHR to HIE



Event	Action	Information Exchange Requirement(s) (includes security requirements)
		IER63 Send Referral/consult request PEC-NBS7 – Antepartum Summary from EHR to HIE
		IER5 Request & Response PEC-NBS7 - Antepartum Summary EHR to HIE
		IER6 Send EC36 Lab Result from Lab to EHR
		IER54 Send EC36 EHR Result from Lab to EHR
		IER7 Provide/Register EC37 Lab Result (used when constraint is 'document') from Lab to HIE
		IER55 Provide/Register EC37 Lab Result (used when constraint is 'document') from EHR to HIE
		IER8 Request & Response EC37 Lab Result (used when constraint is 'document') from EHR to HIE
		IER9 Request & Response EC37 Lab Result (used when constraint is 'document') from PH to HIE
		IER10 Send PEC-MCH5 Lab Orders from EHR to Lab
		IER11 Subscribe PEC-NBS7 - Antepartum Summary from EHR to HIE
		IER12 Subscribe EC37 Lab Result (used when constraint is 'document') from EHR to HIE
		IER56 Subscribe EC37 Lab Result (used when constraint is 'document') from PH to HIE
		IER13 Request & Response PEC-MCH4 Guidelines from EHR to Public Health
		IER62 Receive PEC-MCH4 Guidelines from EHR to Public Health
		IER34 Send EC68A Health Plan Request EHR to Health Plan
		IER35 Send EC68B Health Plan Response Health Plan to EHR
		IER46 Send EC49 Medical Imaging Results Diagnostic Imaging Information Systems to EHR
		IER47 Provide/Register EC49 Medical Imaging Results Diagnostic Imaging Information Systems to HIE
		IER48 Request & Response EC49 Medical Imaging Results EHR to HIE
		IER49 Subscribe EC49 Medical Imaging Results EHR to HIE
	7.1.2.2 Assessment of risks	IER2 Send PEC-NBS7 - Antepartum Summary from EHR to EHR
		IER3 Provide/Register PEC-NBS7 - Antepartum Summary from EHR to HIE
		IER63 Send Referral/consult request PEC-NBS7 – Antepartum Summary from EHR to HIE
		IER5 Request & Response PEC-NBS7 - Antepartum Summary EHR to HIE
		IER6 Send EC36 Lab Result from Lab to EHR
		IER54 Send EC36 EHR Result from Lab to EHR
		IER7 Provide/Register EC37 Lab Result (used when constraint is 'document') from Lab to HIE



Event	Action	Information Exchange Requirement(s) (includes security requirements)
		IER55 Provide/Register EC37 Lab Result (used when constraint is 'document') from EHR to HIE
		IER8 Request & Response EC37 Lab Result (used when constraint is 'document') from EHR to HIE
		IER9 Request & Response EC37 Lab Result (used when constraint is 'document') from PH to HIE
		IER12 Subscribe EC37 Lab Result (used when constraint is 'document') from EHR to HIE
	7.1.2.3 Documentation of antepartum information	IER2 Send PEC-NBS7 - Antepartum Summary from EHR to EHR
		IER3 Provide/Register PEC-NBS7 - Antepartum Summary from EHR to HIE
		IER63 Send Referral/consult request PEC-NBS7 - Antepartum Summary from EHR to HIE
		IER4 Provide/Register PEC-NBS7 - Antepartum Summary from PHR to HIE
		IER5 Request & Response PEC-NBS7 - Antepartum Summary EHR to HIE
		IER53 Request & Response PEC-NBS7 - Antepartum Summary PHR to HIE
		IER11 Subscribe PEC-NBS7 - Antepartum Summary from EHR to HIE
	7.1.2.4 Antepartum information shared with birthing facility	IER2 Send PEC-NBS7 - Antepartum Summary from EHR to EHR
		IER3 Provide/Register PEC-NBS7 - Antepartum Summary from EHR to HIE
		IER63 Send Referral/consult request PEC-NBS7 - Antepartum Summary from EHR to HIE
		IER4 Provide/Register PEC-NBS7 - Antepartum Summary from PHR to HIE
		IER5 Request & Response PEC-NBS7 - Antepartum Summary EHR to HIE
		IER53 Request & Response PEC-NBS7 - Antepartum Summary PHR to HIE
		IER11 Subscribe PEC-NBS7 - Antepartum Summary from EHR to HIE
7.1.3 Consideration of Services	7.1.3.1 Mother's clinician makes recommendations for social or other services, if appropriate	IER1 Send PEC-MCH9 Service Eligibility from EHR to Health Plan System
7.1.4 Birth Event	7.1.4.1 Birth information is communicated to Vital Records/Vital Statistics	IER17 Pre-Populate PEC-MCH6 vital records- birth record from EHR to Public Health Electronic Birth Registration System (EBR-S) Jurisdictional- Vital Records Office
		IER57 Pre-Populate PEC-MCH6A EBR - Birth Record from EHR to Public Health Electronic Birth Registration System (EBR-S) Jurisdictional- Vital Records Office
		IER18 Pre-Populate PEC-MCH7 vital records- death record from EHR to Public Health Electronic Death Registration System (EDR-S) Jurisdictional- Vital Records Office



Event	Action	Information Exchange Requirement(s) (includes security requirements)
		IER58 Form Filling/Data Entry PEC-MCH7A EDR – Death Record from EHR to Public Health Electronic Death Registration System (EDR-S) Jurisdictional- Vital Records Office
		IER19 Pre-Populate PEC-MCH8 vital records- fetal death report from EHR to Public Health Electronic Fetal Death System (EFD-S) Jurisdictional- Vital Records Office
		IER59 Form Filling/Data Entry PEC-MCH8a Vital Records – Fetal Death Report from EHR to Public Health Electronic Fetal Death System (EFD-S) Jurisdictional- Vital Records Office
		IER20 Send PEC-MCH1 PEC-MCH1 Vital Statistics: Birth from Public Health (Vital Records Jurisdiction) to Public Health Electronic Birth Registration System (EBR-S) Jurisdictional- Vital Records Office
		IER67 Send Pseudonymization Request
		IER60 Send PEC-MCH1A Vital Statistics: Death from Public Health (Vital Records Jurisdiction) to Public Health Electronic Death Registration System (EDR-S) Jurisdictional- Vital Records Office
		IER61 Send PEC-MCH1 PEC-MCH1B Vital Statistics: Fetal Death from Public Health (Vital Records Jurisdiction) to Public Health Electronic Fetal Death Registration System (EFD-S) Jurisdictional- Vital Records Office
		IER21 Request & Response PEC-MCH3 Vital records pre-populate from EHR to Public Health EBR-S, EDR-S, and EFD-S Jurisdictional- Vital Records Office
7.1.5 Document Newborn Information	7.1.5.1 Mother's clinician documents birth and newborn information	IER22 Send PEC-NBS9 - Newborn Record from EHR to EHR
		IER64 Send Referral/consult request PEC-NBS9 – Newborn Record from EHR to EHR
		IER23 Provide/register PEC-NBS9 - Newborn Record from EHR to HIE
		IER24 Query/respond PEC-NBS9 - Newborn Record from EHR to HIE
		IER25 Subscribe PEC-NBS9 - Newborn Record from EHR to HIE
		IER26 Send PEC-MCH2 Hospital's Maternal Discharge Summary from EHR to EHR
		IER65 Send Referral/consult request Send PEC-MCH2 Hospital's Maternal Discharge Summary from EHR to EHR
		IER27 Provide/register PEC-MCH2 Hospital's Maternal Discharge Summary from EHR to HIE
		IER28 Query/respond PEC-MCH2 Hospital's Maternal Discharge Summary from EHR to HIE
		IER29 Subscribe PEC-MCH2 Hospital's Maternal Discharge Summary from EHR to HIE
		IER30 Send PEC-NBS4 - Birthing Summary from EHR to EHR



Event	Action	Information Exchange Requirement(s) (includes security requirements)
		IER66 Send PEC-NBS4 – Birthing Summary from EHR to EHR
		IER31 Provide/register PEC-NBS4 - Birthing Summary from EHR to HIE
		IER32 Query/respond PEC-NBS4 - Birthing Summary from EHR to HIE
		IER33 Subscribe PEC-NBS4 - Birthing Summary from EHR to HIE
7.2.1 Receive and Manage Newborn	7.2.1.1 Child's clinician begins to handle medical management of infant.	IER34 Send EC68A Health Plan Request EHR to Health Plan
		IER35 Send EC68B Health Plan Response Health Plan to EHR
		IER22 Send PEC-NBS9 - Newborn Record from EHR to EHR
		IER64 Send Referral/consult request PEC-NBS9 – Newborn Record from EHR to EHR
		IER23 Provide/register PEC-NBS9 - Newborn Record from EHR to HIE
		IER24 Query/respond PEC-NBS9 - Newborn Record from EHR to HIE
		IER25 Subscribe PEC-NBS9 - Newborn Record from EHR to HIE
		IER26 Send PEC-MCH2 Hospital's Maternal Discharge Summary from EHR to EHR
		IER65 Send Referral/consult request Send PEC-MCH2 Hospital's Maternal Discharge Summary from EHR to EHR
		IER27 Provide/register PEC-MCH2 Hospital's Maternal Discharge Summary from EHR to HIE
		IER28 Query/respond PEC-MCH2 Hospital's Maternal Discharge Summary from EHR to HIE
		IER29 Subscribe PEC-MCH2 Hospital's Maternal Discharge Summary from EHR to HIE
		IER30 Send PEC-NBS4 - Birthing Summary from EHR to EHR
		IER66 Send PEC-NBS4 – Birthing Summary from EHR to EHR
		IER31 Provide/register PEC-NBS4 - Birthing Summary from EHR to HIE
		IER32 Query/respond PEC-NBS4 - Birthing Summary from EHR to HIE
		IER33 Subscribe PEC-NBS4 - Birthing Summary from EHR to HIE
		IER36 Provide/Register EC30 Consent Document Component EHR to HIE
		IER37 Request & Response EC30 Consent Document Component EHR to HIE
		IER13 Request & Response PEC-MCH4 Guidelines from EHR to Public Health
		IER62 Receive PEC-MCH4 Guidelines from EHR to Public Health



Event	Action	Information Exchange Requirement(s) (includes security requirements)
7.2.2 Consideration of Services	7.2.2.1 Child's clinician makes additional recommendations for social or other services, if appropriate	IER1 Send PEC-MCH9 Service Eligibility from EHR to Health Plan System
7.2.3 Complete & Communicate Newborn Screening	7.2.3.1 The child's clinician manages newborn screening and the results are communicated	All requirements should refer to the NBS IS
7.2.4 Complete & Communicate Immunizations	7.2.4.1 The child's clinician manages the immunization process	All requirements should refer to HITSP/IS10
7.2.5 Complete & Communicate Well Child Visits	7.2.5.1 Child's clinician manages well visits through childhood	IER1 Send PEC-MCH9 Service Eligibility from EHR to Health Plan System
		IER38 Send EC32 Summary of Care EHR to EHR
		IER39 Publish/Register EC32 Summary of Care EHR to HIE
		IER40 Request & Response EC32 Summary of Care EHR to HIE
		IER41 Subscribe EC32 Summary of Care EHR to HIE
		IER42 Send EC48 Encounter Summary (used when constraint is 'document') EHR to EHR
		IER43 Publish/Register EC48 Encounter Summary (used when constraint is 'document') EHR to HIE
		IER44 Request & Response EC48 Encounter Summary (used when constraint is 'document') EHR to HIE
		IER45 Subscribe EC48 Encounter Summary (used when constraint is 'document') EHR to HIE
7.2.6 Complete & Communicate Lead Screening	7.2.6.1 Child's clinician carries out blood lead screening during early childhood	Case reporting requirements should refer to HITSP/IS11
		IER6 Send EC36 Lab Result from Lab to EHR
		IER54 Send EC36 EHR Result from Lab to EHR
		IER7 Provide/Register EC37 Lab Result (used when constraint is 'document') from Lab to HIE
		IER55 Provide/Register EC37 Lab Result (used when constraint is 'document') from EHR to HIE
		IER8 Request & Response EC37 Lab Result (used when constraint is 'document') from EHR to HIE
		IER9 Request & Response EC37 Lab Result (used when constraint is 'document') from PH to HIE
		IER12 Subscribe EC37 Lab Result (used when constraint is 'document') from EHR to HIE
		IER56 Subscribe EC37 Lab Result (used when constraint is 'document') from PH to HIE
7.3.1 Receive Birth Communications	7.3.1.1 Vital Records receives information about the birth	IER17 Pre-Populate PEC-MCH6 vital records- birth record from EHR to Public Health Electronic Birth Registration System (EBR-S) Jurisdictional- Vital Records Office
		IER57 Pre-Populate PEC-MCH6A EBR - Birth Record from EHR to Public Health Electronic Birth Registration System (EBR-S) Jurisdictional- Vital Records Office



Event	Action	Information Exchange Requirement(s) (includes security requirements)
		IER18 Pre-Populate PEC-MCH7 vital records- death record from EHR to Public Health Electronic Death Registration System (EDR-S) Jurisdictional- Vital Records Office
		IER58 Form Filling/Data Entry PEC-MCH7A EDR – Death Record from EHR to Public Health Electronic Death Registration System (EDR-S) Jurisdictional- Vital Records Office
		IER19 Pre-Populate PEC-MCH8 vital records- fetal death report from EHR to Public Health Electronic Fetal Death System (EFD-S) Jurisdictional- Vital Records Office
		IER59 Form Filling/Data Entry PEC-MCH8a Vital Records – Fetal Death Report from EHR to Public Health Electronic Fetal Death System (EFD-S) Jurisdictional- Vital Records Office
		IER20 Send PEC-MCH1 PEC-MCH1 Vital Statistics: Birth from Public Health (Vital Records Jurisdiction) to Public Health Electronic Birth Registration System (EBR-S) Jurisdictional- Vital Records Office
		IER67 Send Pseudonymization Request
		IER60 Send PEC-MCH1A Vital Statistics: Death from Public Health (Vital Records Jurisdiction) to Public Health Electronic Death Registration System (EDR-S) Jurisdictional- Vital Records Office
		IER61 Send PEC-MCH1 PEC-MCH1B Vital Statistics: Fetal Death from Public Health (Vital Records Jurisdiction) to Public Health Electronic Fetal Death Registration System (EFD-S) Jurisdictional- Vital Records Office
		IER21 Request & Response PEC-MCH3 Vital records pre-populate from EHR to Public Health EBR-S, EDR-S, and EFD-S Jurisdictional- Vital Records Office
7.4.1 Receive Notification of Pregnancy	7.4.1.1 Pregnancy information is sent to public health	IER1 Send PEC-MCH9 Service Eligibility from EHR to Health Plan System
7.5.1 Receive Information Supporting Enrollment in Services	7.5.1.1 Services receive information regarding enrollment into services	IER1 Send PEC-MCH9 Service Eligibility from EHR to Health Plan System
7.5.2 Receive Child Wellness Information	7.5.2.1 Services receive wellness information via EPSDT	IER1 Send PEC-MCH9 Service Eligibility from EHR to Health Plan System



6.0 DOCUMENT UPDATES

The following sections provide the details of updates made to this document.

6.1 JANUARY 31, 2010

No changes. This is the first published version of the document.

