

HITSP Interoperability Specifications:
Electronic Health Records Laboratory Results Reporting HITSP/IS01
Biosurveillance HITSP/IS02
Consumer Empowerment HITSP/IS03

Executive Summary



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FOREWORD

This document introduces the first set of Interoperability Specifications developed as an artifact of the Healthcare Information Technology Standards Panel (HITSP) standards harmonization process. An Interoperability Specification is a suite of documents that provides implementation level guidance that will:

- Identify standards and specific implementation context for those standards
- Describe specific value sets for unambiguous data exchange and system to system interaction
- Provide the necessary instruction to implement the specific standards in commercial and self-developed systems

The American Health Information Community charged the HITSP with harmonizing health interoperability standards for three specific Use Cases:

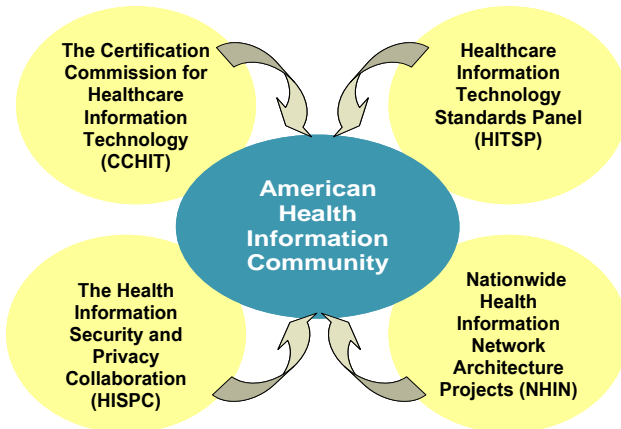
- **Electronic Health Records:** Allow ordering clinicians to electronically access laboratory results, and allow non-ordering authorized clinicians to electronically access historical and other laboratory results for clinical care
- **Biosurveillance:** Transmit essential ambulatory care and emergency department visit, utilization, and lab result data from electronically enabled health care delivery and public health systems in standardized and anonymized format to authorized Public Health Agencies with less than one day lag time
- **Consumer Empowerment:** Allow consumers to establish and manage permissions access rights and informed consent for authorized and secure exchange, viewing, and querying of their linked patient registration summaries and medication histories between designated caregivers and other health professionals

The following paragraphs provide background information about the HITSP and its role in the overall U.S. efforts to realize large scale interoperability of health information. It also describes the HITSP process for health standards harmonization. If you are familiar with HITSP, please proceed to the next major section titled – Executive Summary.

U.S. Nationwide Health Information Interoperability

Studies published by the Institute of Medicine and others have raised awareness of the extent to which the fragmented nature of clinical information adversely impacts the quality of care across the U.S. Health Information Technology (IT) can be used to enable better integration of clinical information. However, as of 2007, only a small number of U.S. healthcare providers have fully adopted health IT due, in part, to technical barriers associated with a lack of unambiguous and nationally recognized interoperability standards.





The American Health Information Community¹ (AHIC), a 2005 federally-chartered commission made up of leaders from public and private health sectors, was formed to provide recommendations on how to make health records digital and interoperable, and assure that the privacy and security of those records are protected, in a smooth, market-led way. At the same time, the Department of Health and Human Services, through the Office of the National Coordinator for Health IT (ONC) awarded contracts to 1) identify Interoperability Standards to facilitate the exchange of patient data

(HITSP), 2) define a process for certifying that health IT products comply with appropriate standards through the Certification Commission for Healthcare Information Technology (CCHIT), and 3) develop a series of prototypes to establish the requirements of a Nationwide Health Information Network (NHIN). Under a renewed second year contract, HITSP scheduled activities will include identifying and constraining the standards needed for a standards-based security framework that provides the mechanisms needed to protect patient privacy and maintain confidentiality of information about the patient, as well as further work in additional Use Case priority areas recommended by AHIC. This year, CCHIT is expanding its certification efforts to inpatient, or hospital, electronic health record products. In January 2007, four NHIN prototypes were delivered based on the requirements for health information exchange. The next phase will be to connect the prototypes and state and regional health information exchange efforts in trial implementations. These activities share the goal of widespread adoption of interoperable electronic health records within 10 years through public-private collaboration.

HITSP's Role within Nationwide Interoperability Efforts

The HITSP² is a multi-stakeholder coordinating body designed to provide the process within which affected parties can identify, select, and harmonize standards for communicating healthcare information throughout the healthcare spectrum. As used by HITSP, the term “standard” refers, but is not limited to Specifications, Implementation Guides, Code Sets, Terminologies, and Integration Profiles. A standard should be produced through a well defined approach that supports a business process and

1. has been agreed upon by a group of experts
2. has been publicly vetted
3. provides rules, guidelines, or characteristics
4. helps to ensure that materials, products, processes, and services are fit for their intended purpose
5. is available in an accessible format

¹ <http://www.hhs.gov/healthit/ahic.html>

² www.hitsp.org



6. is subject to an ongoing review and revision process

HITSP functions as a partnership of the public and private sectors and operates with a neutral and inclusive governance model administered by the American National Standards Institute. The goal of the Panel is to:

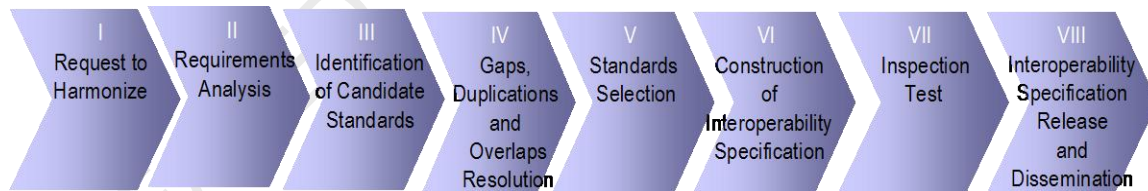
- Facilitate the development of harmonized Interoperability Specifications (IS) and information policies, including Standards Development Organization (SDO) work products (e.g. standards, technical reports). These policies, profiles and work products are essential for establishing privacy, security and interoperability among healthcare software applications
- Coordinate, as appropriate, with other national, regional and international groups addressing healthcare information to ensure that the resulting standards are globally relevant
- Be Use Case driven, using information from stakeholders and basing decisions on industry needs

The work of HITSP is conducted through formally chartered Technical Committees and Work Groups. The artifact of the Technical Committee and Work Group activities is an Interoperability Specification (IS) and related constructs referred to as Transaction Packages, Transactions, or Components. For additional information on these constructs, please refer to the [HITSP Harmonization Framework](#).

How Use Cases and HITSP Interoperability Specifications are Developed

The American Health Information Community (AHIC), as the representative of public and private health sector stakeholders, identified the three Use Cases (available at www.hitsp.org) that drove the initial efforts of the HITSP. Nationwide public and private health sector priorities continue to focus the efforts of the HITSP. The Use Case driven HITSP harmonization process is implemented by formally chartered Technical Committees. The volunteers that comprise a Technical Committee followed an 8 step process, depicted in the Figure below.

Figure: HITSP Harmonization Process Steps



How to Read the Interoperability Specification

Each Interoperability Specification (IS) is actually a suite of documents that, taken as a whole, provide a detailed map to existing standards and specifications that will satisfy the requirements imposed by a given Use Case. It identifies and constrains standards where necessary, and creates groupings of specific actions and actors to further describe the relevant contexts. Where gaps and overlaps are identified, the Interoperability Specification provides recommendations and a roadmap for corrections to be made.



EXECUTIVE SUMMARY

Each Interoperability Specification (IS) is actually a set of documents that, taken as a whole, meet the requirements imposed by a given Use Case. It identifies and constrains standards where necessary, and creates groupings of specific actions and actors to further describe the relevant contexts. Where gaps and overlaps are identified, the Interoperability Specification provides recommendations and a roadmap for corrections to be made. Each Interoperability Specification includes Transaction Packages, Transactions, and Components relevant to a specific Use Case. In all there are 23 documents that make up the three Interoperability Specifications. Of the 23 documents, eight are referenced by multiple Interoperability Specifications. This modular approach will support future re-use of HITSP artifacts.

The Interoperability Specifications summarized in this document can be retrieved from the HITSP website using the following links:

[Electronic Health Records Laboratory Results Reporting HITSP/IS01](#)

[Biosurveillance HITSP/IS02](#)

[Consumer Empowerment HITSP/IS03](#)

This Executive Summary provides for each of the initial Use Cases, the business problem to be addressed, highlights the prominent challenges encountered, describes how they were resolved, lists the standards selected and constrained to meet the Use Case requirements.

ELECTRONIC HEALTH RECORDS (EHR) LABORATORY RESULTS REPORTING

This Interoperability Specification is designed to meet the specific requirements of the electronic health record (EHR) sending laboratory results to clinicians for patient care. Lack of harmonization among data interoperability standards including vocabulary, laboratory and other messaging standards, contributes to duplication and unnecessary laboratory testing; both of which impact the quality and cost of healthcare.

The HITSP EHR Interoperability Specification is relevant to clinical care providers who wish to have laboratory test results and laboratory interpretations electronically available for patients for whom they are providing care. Laboratory test results and interpretations are available for integration into an electronic health record (EHR), local or remote, or other clinical systems. The Use Case includes two scenarios that cover typical interfaces involving an EHR system (or equivalent) and laboratory results.

The HITSP EHR Interoperability Specification describes both a laboratory message transaction and a document sharing paradigm. Ordering providers of care either receive results as a laboratory message, non-ordering providers of care access historical laboratory result documentation, and "copy-to" providers



of care may receive either messages or document availability notifications. The dual path of message and document provides a greater degree of implementation flexibility.

Challenges

The Care Delivery Technical Committee has identified gaps in terminology standards for reporting laboratory results. These gaps are minimized by the selection of standards that give the widest coverage, but vocabulary domains with clinical content are very large and encompass many specialties. The innovation in healthcare information is fast-paced, resulting in gaps as the standards attempt to catch up. In addition to gaps, there is a significant overlap. This overlap is well understood and monitored by the sponsoring SDO. A mapping from the Health Level Seven (HL7) Version 2.5.1 ORU^R01 message to the Integrating the Healthcare Enterprise (IHE) Laboratory Technical Framework XD*-LAB constrained HL7 Clinical Document Architecture Release 2 (CDA R2) document is a necessary accessory to this specification. This mapping will be the basis for interoperability between messages and documents.

Transactions

The core transactions that comprise this Interoperability Specification include the following:

- **Send Laboratory Result:** This includes all the data definitions and interactions for the HL7 V2.5.1 Laboratory Result Message. It relies on two components:
 - The Laboratory Result Message Component (HITSP/C36)³ specifies constraints on the HL7 V2.5.1 message
 - The Laboratory Result Terminology Component (HITSP/C35) describes the vocabulary constraints
- **Manage Sharing of Documents:** This is a generic document-sharing paradigm that can be used for any electronic document. For this specification, the specific document of interest is the HL7 CDA R2 specification based on the IHE Laboratory Technical Framework XD*-LAB.
 - The HITSP Laboratory Report Document Structure Component Specification (HITSP/C37) describes the Laboratory CDA document and
 - The Laboratory Result Terminology Component (HITSP/C35) describes the vocabulary constraints

Ancillary transactions address Web Services, Notification of Document Availability, Patient Demographics Query (PDQ) and Patient ID Cross-Referencing (PIX).

³ The HITSP/ISC-36 Laboratory Message component is included in this release as a **Review Copy** which outlines the use case and the direction for development of a profile of the HL7 2.5.1 message specification. The Technical Committees are currently completing the detailed guidance information with an expected version **Released for Implementation** in the third quarter of 2007. The HITSP encourages interested parties to become involved and participate in this activity. For information on becoming a member of the HITSP, please contact Jessica Kant for further information at jkant@himss.org.



Recommended Standards

The Interoperability Specification is the result of an assessment of the current practices in electronic laboratory results reporting and the requirements of the EHR Laboratory Results Reporting Use Case. The Care Delivery Technical Committee chose this combination of standards because they meet the requirements of the Use Case and reflect both current practice and future directions for healthcare information sharing.

The following table lists the standards selected to implement the entire ONC harmonized Use Case for EHR Laboratory Results Reporting. It is important to note that the industry use of HL7 v3.0 and HL7 2.5/2.5.1 standards⁴ is evolving, and the expectation is that these standards will become more broadly used. The HL7 Clinical Document Architecture (CDA R2) is a document markup standard that specifies the structure and semantics of "clinical documents" for the purpose of exchange. The CDA Release 2.0 distribution includes a prose document in HTML, XML schemas, data dictionary, and sample CDA documents. The HL7 CDA Release 2.0 is a limited subset of HL7 V3. It builds upon other HL7 standards, including the HL7 Reference Information Model (RIM), Data Structures, Vocabulary, and the XML Implementation Technology Specifications for Data Types and V3 Structures. This Implementation Specification does not imply a full adoption of HL7 V3, but just refers to HL7 CDA R2 and the limited subset of HL7 V3 artifacts used by HL7 CDA R2.

Recommended Standards
Clinical Laboratory Improvement Amendments (CLIA) of 1988
College of American Pathologists Systematized Nomenclature of Medicine – Clinical Terms (SNOMED CT®)
Health Insurance Portability and Accountability Act (HIPAA) -- Administrative Simplification
Health Level Seven (HL7) Version 2.5/2.5.1
Health Level Seven (HL7) Version 3.0
Health Level Seven (HL7) Version 3.0 Clinical Document Architecture (CDA/CDA R2)
Hypertext Transfer Protocol Secure (HTTPS) 443/tcp
Integrating the Healthcare Enterprise (IHE) Laboratory Technical Framework Supplement 2006-2007 Revision 1.0
Integrating the Healthcare Enterprise (IHE) IT Infrastructure Technical Framework (ITI-TF) Revision 3.0
Integrating the Healthcare Enterprise (IHE) IT Infrastructure Technical Framework (TF) Supplement
International Organization for Standardization (ISO) electronic business eXtensible Markup Language (eXML), Technical Specification # 15000 – Part 4: electronic business Registry Services specification (ebRS), May, 2004
Logical Observation Identifiers Names and Codes (LOINC®)
Unified Code for Units of Measure (UCUM)

⁴ HITSP references HL7 2.5.1 messaging for lab results reporting and HL7 2.5 for other messages. Future maintenance work will move toward referencing a single HL7 version across HITSP documents.



BIOSURVEILLANCE

This Interoperability Specification is designed to meet the specific requirements of the Biosurveillance Use Case, defined as implementation of near real-time, nationwide public health event monitoring to support early detection, situational awareness, and rapid response management across care delivery, public health, and other authorized Government agencies.

The scope addressed in the Interoperability Specification is the transmission of essential data from ambulatory care and emergency department visits, utilization, and lab result data from electronically enabled healthcare delivery and public health systems in a standardized and anonymized format, to authorized Public Health Agencies with less than one day lag time. While the system and processes ultimately must also support the ability for authorized public health personnel to go back to the data source to seek to re-link the anonymized biosurveillance data to the data source as part of an appropriate public health investigation, such re-linking has been deferred for future effort and is not addressed in this Interoperability Specification.

The management of data to ensure proper routing, security, privacy, and timely reporting is critical to enabling Biosurveillance activities. Potential architectural solutions to data flow issues include using individual facility data sources (e.g., single hospitals or ambulatory care sites) or a networked system such as a multi-facility system or supporting organization that uses data in the course of providing other services and sends data to all appropriate Public Health Agencies. Other permutations of these two models can also be considered. The role of the data or network system can be accomplished by several different stakeholders, including hospital systems, health plans, independent laboratories, and other possibilities. However, this Interoperability Specification was defined to be independent of architecture choice and is intended to support any variant of the architectural choices identified above.

Challenges

The Population Health TC has developed this Interoperability Specification in conformance with the AHIC Harmonized Biosurveillance Use Case to the extent that there are current standards and options with which to accomplish the requirements set forth in that Use Case. The TC has further worked in parallel with the AHIC Biosurveillance Data Steering Committee to adopt the initial work from the newly formed group to inform the work of this Interoperability Specification. Even so, an implementer of this Interoperability Specification must provide the technical infrastructure and security framework necessary to support operations in accordance with law, regulation, best practices and business agreements.

The TC worked with USHIK to evaluate the metadata and repository for use in standards selection using demographic and encounter data as a test case. Note that the United States Health Information Knowledgebase (USHIK) provides and maintains a metadata registry of health information data element definitions, values, and information models (www.ushik.org). The results and the resource will be used to extend this Interoperability Specification to additional domains and clinical data information exchange standards.



The Population Health TC has selected standards with more options than might otherwise be defined between communication partners. As the Biosurveillance Use Case is based upon secondary use of clinical data, the processes and data capture options are somewhat opportunistic, and associated data mining processes have more latitude in translation and data preparation processes. Since it is important to maximize the data sources to contribute data to the biosurveillance information system, information exchange selections include options for data capture from both legacy environments and emerging environments. Vocabulary, message, and content standards have been selected in consideration of providing the most comprehensive, machine processable fulfillment of the data requirements provided by the AHIC Biosurveillance Data Steering Group.

Transactions

The core transactions that comprise this Interoperability Specification include the following:

- **Pseudonymize Data (T24):** Apply a common standard to Codify Document Content, Anonymize or Pseudonymize patient data to protect patient identity from undesired disclosure when communicating care data to and from external parties
- **Anonymize Data (C25):** Apply a common standard to Codify Document Content, Anonymize or Pseudonymize patient data to protect patient identity from undesired disclosure when communicating care data to and from external parties

Ancillary transactions address Manage Sharing of Documents, Retrieve Form from Data Capture, Notification of Document Availability, Acknowledgements, Patent ID Cross-Referencing and Sharing Radiology Results.

Recommended Standards
American Medical Association (AMA) Current Procedural Terminology (CPT®) Fourth Edition (CPT-4)
Clinical Care Classification (CCC) Version 2.0 [formerly known as the Home Healthcare Classification (HHCC) System]
Clinical Laboratory Improvement Amendments (CLIA) of 1988
College of American Pathologists Systematized Nomenclature of Medicine Clinical Terms (SNOMED CT®)
Digital Imaging and Communications in Medicine (DICOM) Attribute Level Confidentiality Supplement: # 55
Federal Information Processing Standards (FIPS) Codes for the Identification of the States, the District of Columbia and the Outlying Areas of the United States, and Associated Areas Publication # 5-2, May, 1987
Healthcare Common Procedure Coding System (HCPCS) Level II Code Set
Health Insurance Portability and Accountability Act (HIPAA) -- Administrative Simplification
Health Level Seven (HL7) Version 2.5/2.5.1 ⁵
Health Level Seven (HL7) Version 3.0 Clinical Document Architecture (CDA/CDA R2)

⁵ HITSP references HL7 2.5.1 messaging for lab results reporting and HL7 2.5 for other messages. Future maintenance work will move toward referencing a single HL7 version across HITSP documents.



Recommended Standards
Integrating the Healthcare Enterprise (IHE) Laboratory Technical Framework Supplement 2006-2007 Revision 1.0
Integrating the Healthcare Enterprise (IHE) IT Infrastructure Technical Framework (ITI-TF) Revision 3.0
Integrating the Healthcare Enterprise (IHE) IT Infrastructure Technical Framework (TF) Supplement
Integrating the Healthcare Enterprise (IHE) Patient Care Coordination (PCC) Technical Framework Revision 1.0 ⁶
Integrating the Healthcare Enterprise (IHE) Radiology Technical Framework Revision 7.0
International Classification of Diseases, 9th Revision, Clinical Modifications (ICD-9-CM)
International Classification of Diseases, 10th Revision, Procedure Coding System (ICD-10-PCS)
International Classification of Diseases, 10th Revision, Related Health Problems (ICD-10-CM)
International Organization for Standardization (ISO) Health Information -- Pseudonymization, Unpublished Technical Specification # 25237
Logical Observation Identifiers Names and Codes (LOINC®)
National Library of Medicine (NLM) Unified Medical Language System (UMLS) RxNorm
National Uniform Billing Committee (NUBC) Uniform Bill Version 1992 (UB-92) Current UB Data Specification Manual Field 22, Patient Discharge Status, Codes
Organization for the Advancement of Structured Information Standards (OASIS) Emergency Data Exchange Language (EDXL) Hospital Availability Exchange (HAVE) ⁷
Organization for the Advancement of Structured Information Standards (OASIS) Emergency Data Exchange Language (EDXL) Distribution Element (DE)
Unified Code for Units of Measure (UCUM)

CONSUMER EMPOWERMENT

Consumer Empowerment Use Case is the active involvement of consumers (i.e., individuals) in managing their healthcare and gaining the benefits of having their health information in a format easily accessible to them. This includes having a personal health record (PHR) to track patient information, insurance, family history, medications, and other special conditions.

As part of a personal health record, this Interoperability Specification addresses two key areas: the patient's registration data and medication history.

A vital part of a personal health record is registration information. Going to the doctor or hospital frequently requires filling out multiple forms. These forms collect information such as name, address,

⁶ Note: IHE PCC Technical Framework Release 2.0 is scheduled to be release in July 2007 with an update of all related PCC profiles to reflect alignment with CCD. This reference will be updated once this Release 2.0 is published.

⁷ The HITSP/C47 Resource Utilization Message Component is included in this release as a **Review Copy** which outlines the Use Case and the direction for development of a profile of the Organization for the Advancement of Structured Information Standards (OASIS) Emergency Data Exchange Language (EDXL) Hospital Availability Exchange (HAVE) specification. The Technical Committees are currently completing the detailed guidance information with an expected version **Released for Implementation** in the third quarter of 2007. The HITSP encourages interested parties to become involved and participate in this activity. For information on becoming a member of the HITSP, please contact Jessica Kant for further information at jkant@himss.org.



insurance, medications, allergies, etc. Often times, when an individual requires laboratory work or other testing, the same information has to be collected again. A single electronic registration will make it easier for individuals to give their information and for clinicians to use it. Additionally, the consumer could update the information once and share it with all healthcare providers.

An electronic medication history provides the consumer with an updated list of all pertinent medications and allergies in an easily accessible format. Most individuals do not know the specific medications and exact dosages that have been prescribed to them, and often do not know their allergies. In addition, clinicians do not always have consistent prescription information about the same individual nor do they have easy access to medication information directly from the patient. Too often, this results in errors or unnecessary treatments. An electronic medication history would have all the current data available to the individual and to each authorized healthcare provider. The need for an electronic medication history was highlighted by the high interest in the KatrinaHealth.org web tool. Having a complete electronic medication list would also prevent drug-to-drug or allergic reactions when subsequent prescriptions are written.

Based on the charge from the American Health Information Community, the Consumer Empowerment Use Case presumes some level of linkage between consumer's registration summary and their medication history. This linkage is an important consideration for identifying and locating individual consumers and their available medication information across network systems. For the purposes of this Use Case, the linking of a consumer's registration summary to the medication history includes: (1) identity matching, (2) linkages between the data, (3) and the ability to incorporate both types of data simultaneously into a system (although they may come from different systems themselves).

The Consumer Empowerment Interoperability Specification addresses three scenarios to satisfy the harmonized Use Cases defined by ONC. They are:

- Consumer creates account to host registration summary & medication history
- Consumer visits healthcare provider and provides registration summary information
- Authorized healthcare provider reviews medication history

This Interoperability Specification defines an interoperable registration and medication history document; one means of which to share this type of document is by registering them in a record locator and retrieving them from the referenced document repository. Some of the other HITSP Use Cases define other types of documents (e.g. a laboratory report in the EHR Use Case) which may also be used as part of information exchange to and from a consumer PHR. Other types of interoperable documents may be defined by HITSP in the future for radiology reports, images, electrocardiogram (ECG) reports, etc. These other types of documents are out of scope of the current Use Case.



Challenges

The Consumer Empowerment Technical Committee has been charged with introducing the consumer, and the PHR, as an integral partner of the healthcare information flow representing a new paradigm in healthcare interoperability. This paradigm establishes the consumer as the active participant in health information exchange that touches all segments of the industry; providers/care facilities, health plans, pharmacies/prescription benefit managers, and others. This challenge is exacerbated by the current information technology situation wherein providers, health plans, and pharmacies, and Pharmacy Benefit Managers (PBMs) industry segments each have created different standards based on differing business needs and timing, with shared and overlapping data elements via three different standards developers: HL7, ASC X12, and NCPDP.

In addition to these aforementioned standards, a fourth standard initiative from ASTM targeting the provider-provider and provider-consumer interoperability space, entitled the Continuity of Care (CCR), passed favorable ballot in October 2005. In the latter phase of the successful CCR balloting process, ASTM and HL7 initiated a formal harmonization effort regarding their respective efforts addressing the same interoperability space. This harmonization initiative resulted in the joint development of the Continuity of Care Document (CCD) which was approved by HL7 ballot in January 2007.

The Consumer Empowerment TC has determined that it is in the best interest of HITSP harmonization efforts to wholeheartedly support this HL7-ASTM harmonization initiative and leverage its deliverables to the highest degree possible. To this end, the approach taken by the Consumer Empowerment TC is to align its Interoperability Specification to the harmonized HL7-ASTM CCD and require its sole use for provider-consumer information exchange. This Consumer Empowerment Interoperability Specification artifact is therefore intended to facilitate the transition from the current disparate standards environment to a harmonized state.

Transactions

The Consumer Empowerment Use Case includes:

- Enabling consumers to establish permissions and access rights for viewing their data
- Authenticating consumers, designated caregivers, and health professionals
- Querying other organizations for data and matching to the consumer
- Accepting “batch” data from other organizations and matching to the appropriate consumers
- Accessing, viewing, and sharing registration summaries and medication histories
- Recording of interactions to enable access and viewing tracking and generation of system logs

Recommended Standards
Accredited Standards Committee (ASC) X12 Insurance Subcommittee (X12N) Implementation Guides Version 004010 plus Addenda 004010A1
Accredited Standards Committee (ASC) X12 Standards Release 004010



Recommended Standards
American Society for Testing and Materials (ASTM) Standard Specification for Continuity of Care Record (CCR): # E2369-05
CDC Race and Ethnicity Code Sets
Council for Affordable Quality Health Care (CAQH) Committee on Operating Rules for Information Exchange (CORE) Phase I Operating Rules
Federal Medication Terminologies
Healthcare Provider Taxonomy
Health Level Seven (HL7) Version 2.5
Health Level Seven (HL7) Version 3.0
Health Level Seven (HL7) Version 3.0 Continuity of Care Document (CCD)
Health Level Seven (HL7) Version 3.0 Clinical Document Architecture (CDA/CDA R2)
Health Level Seven (HL7) EHR System Functional Model Draft Standard for Trial Use (DSTU)
Integrating the Healthcare Enterprise (IHE) IT Infrastructure Technical Framework (ITI-TF) Revision 3.0
Integrating the Healthcare Enterprise (IHE) Patient Care Coordination (PCC) Technical Framework Revision 1.0 ⁸
National Council for Prescription Drug Programs (NCPDP) SCRIPT Standard Version 8.1
Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity

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Refer to hitsp.org for additional information about the HITSP, its charter, membership, and work products. You can contact the Panel Secretariat, Ms. Michelle Maas Deane, by email using mmaasdeane@ansi.org.

⁸ Note: IHE PCC Technical Framework Release 2.0 is scheduled to be release in July 2007 with an update of all related PCC profiles to reflect alignment with CCD. This reference will be updated once this Release 2.0 is published.



APPENDIX – COMPLETE LISTS OF STANDARDS

It is important to understand that the standards selected here are within the context of the specific Use Case requirements and do not necessarily reflect selection in other contexts.

EHR LABORATORY RESULTS REPORTING LIST OF STANDARDS

Standard	Description
Clinical Laboratory Improvement Amendments (CLIA) of 1988	Establishes quality standards for all laboratory testing to ensure the accuracy, reliability, and timeliness of patient test results regardless of where the test is performed. The Centers for Medicare and Medicaid Services (CMS) regulates all laboratory testing (except research) performed on humans in the U.S. based on CLIA. Visit www.fda.gov and www.cms.hhs.gov for more information.
College of American Pathologists Systematized Nomenclature of Medicine Clinical Terms (SNOMED CT®)	SNOMED CT consists of a technical design, core content architecture, and Core content. SNOMED CT Core content includes the technical specification of SNOMED CT and fully integrated multi-specialty clinical content. The Core content also includes a concepts table, description table, relationships table, history table, ICD-9-CM mapping, and Technical Reference Guide. Additionally, SNOMED CT provides a framework to manage language dialects, clinically relevant subsets, qualifiers and extensions, as well as concepts and terms unique to particular organizations or localities. Visit www.snomed.org for more information.
Health Insurance Portability and Accountability Act (HIPAA) -- Administrative Simplification	A listing of national standards plus rules adopted by federal regulation for electronically communicating specified administrative and financial healthcare transactions, and protecting the security and privacy of healthcare information, as applied to the three types of defined covered entities: health plans, healthcare clearinghouses, and healthcare providers who conduct any of the specified healthcare transactions. See the Code of Federal Regulations, Title 45, Parts 160, et. seq. for more information.
Health Level Seven (HL7) Version 2.5/2.5.1 ⁹	The HL7 Version 2.5 and 2.5.1 Messaging Standard is an application protocol for electronic data exchange in healthcare. It and prior versions have widespread use in the U.S. and internationally. Both message formats and value sets / code tables (e.g., diagnosis type, gender, patient class, result status, specimen collection method, abnormal flags, observation result status codes interpretation, timestamp format) are contained in the standard. Of particular focus for HITSP Interoperability Specifications are message formats described in Chapters 2, 3, 5, and 7 including patient demographic (ADT) and lab result reporting. These are also used within composite standards from IHE for Patient Identity Cross-Referencing and Feed (PIX), Patient Demographics Query (PDQ), and Acknowledgements. Visit www.hl7.org for more information.
Health Level Seven (HL7) Version 3.0	The HL7 Version 3.0 Messaging Standard is an application protocol for electronic data exchange in healthcare. Version 3.0 is based on a Reference Information Model (RIM); which is used to instantiate various message formats. Value sets / code tables are contained in the standard. Visit www.hl7.org for more information.

⁹ HITSP references both HL7 2.5.1 messaging for lab results reporting and HL7 2.5 for other messages. Future maintenance work will move toward referencing a single HL7 version across HITSP.



Standard	Description
Health Level Seven (HL7) Version 3.0 Clinical Document Architecture (CDA/CDA R2)	The HL7 Clinical Document Architecture is an XML-based document markup standard that specifies the structure and semantics of clinical documents for the purpose of exchange. CDA is one instantiation of HL7's Version 3.0 Reference Information Model (RIM) into a specific message format. Of particular focus for HITSP Interoperability Specifications are message formats for Laboratory Results and Continuity of Care (CCD) documents. Release 2 of the HL7 Clinical Document Architecture (CDA) is an extension to the original CDA document markup standard that specifies the structure and semantics of clinical documents for the purpose of exchange. CDA R2 includes a prose document in HTML, XML schemas, data dictionary, and sample CDA documents. CDA R2 further builds upon other HL7 standards beyond just the Version 3.0 Reference Information Model (RIM) and incorporates Version 3.0 Data Structures, Vocabulary, and the XML Implementation Technology Specifications for Data Types and Structures. Visit www.hl7.org for more information.
Hypertext Transfer Protocol Secure (HTTPS) 443/tcp	http protocol over TLS/SSL
Integrating the Healthcare Enterprise (IHE) Laboratory Technical Framework Supplement 2006-2007 Revision 1.0	The IHE Laboratory Technical Framework introduces a content Integration Profile Sharing Laboratory Reports (XD*-LAB) that describes a clinical laboratory report as a human-readable electronic document. This document, which may also contain data in a machine-readable format and contains the complete set of final results produced by a clinical laboratory in fulfillment of one or more test orders for a patient. This document is focused on the sharing of sets of laboratory results in the form of a laboratory report structured document, and is not intended to address ordering or return of laboratory results to the ordering provider. Visit www.ihe.net for more information.
Integrating the Healthcare Enterprise (IHE) IT Infrastructure Technical Framework (ITI-TF) Revision 3.0	The IHE IT Infrastructure Technical Framework defines specific implementations of established standards to achieve integration goals that promote appropriate sharing of health information to support optimal patient care. IHE Integration Profiles, offer a common language that healthcare professionals and vendors may use in communicating requirements for the integration of products. The current version of the ITI-TF, rev. 3.0 for Final Text, specifies the IHE transactions defined and implemented as of December 9, 2006. The latest version of the IHE Technical Framework is available at www.ihe.net .
Integrating the Healthcare Enterprise (IHE) IT Infrastructure Technical Framework (TF) Supplement	Supplement (ITI TF-Supplement) ITI-25 Notification of Document Availability (NAV), IHE TF Jun 28, 2005
International Organization for Standardization (ISO) Electronic business eXtensible Markup Language (ebXML), Technical Specification # 15000 -- Part 4: Registry services specification (ebRS), May, 2004	Describes eXtensible Markup Language (XML) and its usage characteristics. Consists of 4 parts: ebCPP, ebMS, ebRIM, and ebRS. Part 4 ebRS defines the interface between the registry and the registry clients, as well as the interaction protocols, message definitions and XML schema. Visit www.iso.org for more information.
Logical Observation Identifiers Names and Codes (LOINC®)	A database of universal identifiers for laboratory and other clinical observations. The laboratory portion of the LOINC database contains the usual categories of chemistry, hematology, serology, microbiology (including parasitology and virology), and toxicology; as well as categories for drugs and the cell counts typically reported on a complete blood count or a cerebrospinal fluid cell count. Antibiotic susceptibilities are a separate category. The clinical portion of the LOINC database includes entries for vital signs, hemodynamics, intake/output, EKG, obstetric ultrasound, cardiac echo, urologic imaging, gastroendoscopic procedures, pulmonary ventilator management, selected survey instruments, and other clinical observations. Visit www.loinc.org for more information.



Standard	Description
Unified Code for Units of Measure (UCUM)	A code system intended to include all units of measures being contemporarily used in international science, engineering, and business. The purpose is to facilitate unambiguous electronic communication of quantities together with their units. The focus is on electronic communication, as opposed to communication between humans. Visit aurora.regenstrief.org for more information.

BIOSURVEILLANCE LIST OF STANDARDS

Standard	Description
American Medical Association (AMA) Current Procedural Terminology (CPT®) Fourth Edition (CPT-4)	A uniform coding system used primarily to identify medical services and procedures furnished by physicians and other healthcare professionals. Visit www.ama-assn.org for more information.
Clinical Care Classification (CCC) Version 2.0 [formerly known as the Home Healthcare Classification (HHCC) System]	Provides a standardized framework and unique coding structure for assessing, documenting, and classifying patient care in all health care settings. CCC consists of two interrelated terminologies: CCC of Nursing Diagnoses and outcomes and CCC of Nursing Interventions and Actions classified by 21 Care Components that represent the Functional, Health Behavioral, Physiological, and Psychological Patterns of patient care. The 21 Care components serve as the framework for mapping and linking the two interrelated terminologies to each other and to other health-related classifications. It was designed for computer processing and is free with permission. Visit www.sabacare.com for more information.
Clinical Laboratory Improvement Amendments (CLIA) of 1988	Establishes quality standards for all laboratory testing to ensure the accuracy, reliability, and timeliness of patient test results regardless of where the test is performed. The Centers for Medicare and Medicaid Services (CMS) regulates all laboratory testing (except research) performed on humans in the U.S. based on CLIA. Visit www.fda.gov and www.cms.hhs.gov for more information.
College of American Pathologists Systematized Nomenclature of Medicine Clinical Terms (SNOMED CT®)	SNOMED CT consists of a technical design, core content architecture, and Core content. SNOMED CT Core content includes the technical specification of SNOMED CT and fully integrated multi-specialty clinical content. The Core content also includes a concepts table, description table, relationships table, history table, ICD-9-CM mapping, and Technical Reference Guide. Additionally, SNOMED CT provides a framework to manage language dialects, clinically relevant subsets, qualifiers and extensions, as well as concepts and terms unique to particular organizations or localities. Visit www.snomed.org for more information.
Digital Imaging and Communications in Medicine (DICOM) Attribute Level Confidentiality Supplement: # 55	Adds a mechanism for selective protection of individual attributes within arbitrary DICOM service-object pair (SOP) instances. It may be used to achieve protection of identifying information, e.g., a reversible anonymization or pseudonymization of DICOM SOP instances while continuing to use unmodified lower level message and protocol services for network transfer, storage, and media exchange of composite image information objects. Visit medical.nema.org for more information.



Standard	Description
Federal Information Processing Standards (FIPS) Codes for the Identification of the States, the District of Columbia and the Outlying Areas of the United States, and Associated Areas Publication # 5-2, May, 1987	A set of two-digit numeric codes and a set of two-letter alphabetic codes for representing the 50 states, the District of Columbia and the outlying areas of the United States, and associated areas. The standard covers all land areas under the sovereignty of the United States, the freely associated states of Federated States of Micronesia and Marshall Islands, and the trust territory of Palau. Visit www.itl.nist.gov for more information. NOTE: ASC X12 transactions and ASC X12N Implementation Guides do not allow use of this standard; instead they require use of the U.S. Postal Service's National Zip Code and Post Office Directory -- which provides similar alphabetic code values.
Healthcare Common Procedure Coding System (HCPCS) Level II Code Set	Level II of the HCPCS is a standardized coding system that is used primarily to identify products, supplies, and services not included in the CPT codes (Level I of HCPCS) for billing purposes. In some cases a HCPCS code may be used to identify a unusual ordered service mapped to the AHIC -data set. CMS maintains HCPCS codes. Visit www.cms.hhs.gov for more information.
Health Insurance Portability and Accountability Act (HIPAA) -- Administrative Simplification	A listing of national standards plus rules adopted by federal regulation for electronically communicating specified administrative and financial healthcare transactions, and protecting the security and privacy of healthcare information, as applied to the three types of defined covered entities: health plans, healthcare clearinghouses, and healthcare providers who conduct any of the specified healthcare transactions. See the Code of Federal Regulations, Title 45, Parts 160, et. seq. for more information.
Health Level Seven (HL7) Version 2.5 ¹⁰	The HL7 Version 2.5 Messaging Standard is an application protocol for electronic data exchange in healthcare. It and prior versions have widespread use in the U.S. and internationally. Both message formats and value sets / code tables (e.g., diagnosis type, gender, patient class, result status, specimen collection method, abnormal flags, observation result status codes interpretation, timestamp format) are contained in the standard. Of particular focus for HITSP Interoperability Specifications are message formats described in Chapters 2, 3, 5, and 7 including patient demographic (ADT) and laboratory result reporting. These are also used within composite standards from IHE for Patient Identity Cross-Referencing and Feed (PIX), Patient Demographics Query (PDQ), and Acknowledgements. Visit www.hl7.org for more information.
Health Level Seven (HL7) Version 2.5/2.5.1	The HL7 Version 2.5 and 2.5.1 Messaging Standard is an application protocol for electronic data exchange in healthcare. It and prior versions have widespread use in the U.S. and internationally. Both message formats and value sets / code tables (e.g., diagnosis type, gender, patient class, result status, specimen collection method, abnormal flags, observation result status codes interpretation, timestamp format) are contained in the standard. Of particular focus for HITSP Interoperability Specifications are message formats described in Chapters 2, 3, 5, and 7 including patient demographic (ADT) and lab result reporting. These are also used within composite standards from IHE for Patient Identity Cross-Referencing and Feed (PIX), Patient Demographics Query (PDQ), and Acknowledgements. Visit www.hl7.org for more information.

¹⁰ HITSP references HL7 2.5.1 messaging for lab results reporting and HL7 2.5 for other messages. Future maintenance work will move toward referencing a single HL7 version across HITSP documents.



Standard	Description
Health Level Seven (HL7) Version 3.0 Clinical Document Architecture (CDA/CDA R2)	The HL7 Clinical Document Architecture is an XML-based document markup standard that specifies the structure and semantics of clinical documents for the purpose of exchange. CDA is one instantiation of HL7's Version 3.0 Reference Information Model (RIM) into a specific message format. Of particular focus for HITSP Interoperability Specifications are message formats for Laboratory Results and Continuity of Care (CCD) documents. Release 2 of the HL7 Clinical Document Architecture (CDA) is an extension to the original CDA document markup standard that specifies the structure and semantics of clinical documents for the purpose of exchange. CDA R2 includes a prose document in HTML, XML schemas, data dictionary, and sample CDA documents. CDA R2 further builds upon other HL7 standards beyond just the Version 3.0 Reference Information Model (RIM) and incorporates Version 3.0 Data Structures, Vocabulary, and the XML Implementation Technology Specifications for Data Types and Structures. Visit www.hl7.org for more information.
Health Level Seven (HL7) Version 3.0	The HL7 Version 3.0 Messaging Standard is an application protocol for electronic data exchange in healthcare. Version 3.0 is based on a Reference Information Model (RIM); which is used to instantiate various message formats. Value sets / code tables are contained in the standard. Visit www.hl7.org for more information.
Integrating the Healthcare Enterprise (IHE) Laboratory Technical Framework Supplement 2006-2007 Revision 1.0	The IHE Laboratory Technical Framework introduces a content Integration Profile Sharing Laboratory Reports (XD*-LAB) that describes a clinical laboratory report as a human-readable electronic document. This document, which may also contain data in a machine-readable format and contains the complete set of final results produced by a clinical laboratory in fulfillment of one or more test orders for a patient. This document is focused on the sharing of sets of laboratory results in the form of a laboratory report structured document, and is not intended to address ordering or return of laboratory results to the ordering provider. Visit www.ihe.net for more information.
Integrating the Healthcare Enterprise (IHE) IT Infrastructure Technical Framework (ITI-TF) Revision 3.0	The IHE IT Infrastructure Technical Framework defines specific implementations of established standards to achieve integration goals that promote appropriate sharing of health information to support optimal patient care. IHE Integration Profiles, offer a common language that healthcare professionals and vendors may use in communicating requirements for the integration of products. The current version of the ITI-TF, rev. 3.0 for Final Text, specifies the IHE transactions defined and implemented as of December 9, 2006. The latest version of the IHE Technical Framework is available at www.ihe.net .
Integrating the Healthcare Enterprise (IHE) IT Infrastructure Technical Framework (TF) Supplement	Supplement (ITI TF-Supplement) ITI-25 Notification of Document Availability (NAV), IHE TF Jun 28, 2005
Integrating the Healthcare Enterprise (IHE) IT Infrastructure Technical Framework (TF) Supplement	Supplement (ITI TF-Supplement) Retrieve Form for Data Capture (RFD), IHE TF Sep 25, 2006
Integrating the Healthcare Enterprise (IHE) Patient Care Coordination (PCC) Technical Framework Revision 1.0 ¹¹	The IHE Patient Care Coordination Technical Framework (PCC TF) defines specific implementations (called Integration Profiles) of established standards to deal with integration issues that cross providers, patient problems or time. The Cross Enterprise Document Sharing of Medical Summaries (XDS-MS) Integration Profile enables sharing of health information between enterprises of a regional health network, and further describes how to map content in a CDA medical document into registry metadata. In the registry, healthcare providers publish pointers to documents stored in distributed repositories. Other healthcare providers may search and retrieve these and other documents. Visit www.ihe.net for more information.

¹¹ Note: IHE PCC Technical Framework Release 2.0 is scheduled to be release in July 2007 with an update of all related PCC profiles to reflect alignment with CCD. This reference will be updated once this Release 2.0 is published.



Standard	Description
Integrating the Healthcare Enterprise (IHE) Radiology Technical Framework Revision 7.0	The IHE Radiology Technical Framework specifies the Cross Enterprise Document Sharing for Imaging (XDS-I) Integration Profile which enables sharing of imaging documents such as radiology images and reports across healthcare enterprises. XDS-I extends XDS by sharing, locating and accessing DICOM instances from its original local sources, e.g. for radiologists or oncologists. Visit www.ihe.net for more information.
International Classification of Diseases, 9th Revision, Clinical Modifications (ICD-9-CM)	The International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM), Volumes I, II (diagnoses) and III (procedures) describes the classification of morbidity information for statistical purposes and for the indexing of healthcare records by diseases and procedures. Visit www.cdc.gov/nchs for more information.
International Classification of Diseases, 10th Revision, Procedure Coding System (ICD-10-PCS)	The International Classification of Diseases, 10th Revision, Procedure Coding System (ICD-10-PCS), describes the classification of inpatient procedures for statistical purposes and for the indexing of healthcare records by procedures. ICD-10-PCS is a procedural coding system managed by the Centers for Medicare and Medicaid Services (CMS). Visit www.cms.hhs.gov for more information.
International Classification of Diseases, 10th Revision, Related Health Problems (ICD-10-CM)	The International Classification of Diseases, 10th Revision, Clinical Modification (ICD-10-CM), describes the classification of morbidity information for statistical purposes and for the indexing of healthcare records by diseases. The National Center for Health Statistics (NCHS), the Federal agency responsible for use of the International Statistical Classification of Diseases and Related Health Problems, 10th revision (ICD-10) in the United States, developed a clinical modification of the classification for morbidity purposes. Visit www.cdc.gov/nchs for more information.
International Organization for Standardization (ISO) Health informatics -- Pseudonymization, Unpublished Technical Specification # 25237	Health Informatics – Pseudonymization. Approved as a Technical Specification March, 2007. Visit www.iso.org for more information.
Logical Observation Identifiers Names and Codes (LOINC®)	A database of universal identifiers for laboratory and other clinical observations. The laboratory portion of the LOINC database contains the usual categories of chemistry, hematology, serology, microbiology (including parasitology and virology), and toxicology; as well as categories for drugs and the cell counts typically reported on a complete blood count or a cerebrospinal fluid cell count. Antibiotic susceptibilities are a separate category. The clinical portion of the LOINC database includes entries for vital signs, hemodynamics, intake/output, EKG, obstetric ultrasound, cardiac echo, urologic imaging, gastroendoscopic procedures, pulmonary ventilator management, selected survey instruments, and other clinical observations. Visit www.loinc.org for more information.
National Library of Medicine (NLM) Unified Medical Language System (UMLS) RxNorm	Provides standard names for (1) clinical drugs and (2) drug dose forms as administered to a patient. Also provides links from clinical drugs, both branded and generic, to their active ingredients, drug components (active ingredient + strength), and related brand names. Food and Drug Administration (FDA) National Drug Codes (NDCs) for specific drug products and many of the drug vocabularies commonly used in pharmacy management and drug interaction software are additionally linked to RxNorm. Visit www.nlm.nih.gov for more information.
National Uniform Billing Committee (NUBC) Uniform Bill Version 1992 (UB-92) Current UB Data Specification Manual Field 22, Patient Discharge Status, Codes	A code set identifying status of patient discharge on an institutional claim (e.g., inpatient, outpatient, hospice, home care). Visit www.nubc.org for more information.



Standard	Description
Organization for the Advancement of Structured Information Standards (OASIS) Emergency Data Exchange Language (EDXL) Hospital Availability Exchange (HAVE) ¹²	Specifies an XML-formatted document that allows healthcare provider organizations to communicate specific utilization information and status of a facility (e.g., hospital, trauma center, nursing home) and its resources; including bed capacity and availability, emergency department status, the available service coverage, and the status of a hospital's facility and operations. HAVE is initially intended for use in disaster or emergency situations. Visit www.oasis-open.org for more information.
Organization for the Advancement of Structured Information Standards (OASIS) Emergency Data Exchange Language (EDXL) Distribution Element (DE)	Describes a standard message distribution framework for data sharing among emergency information systems using the XML-based EDXL. This format may be used over any data transmission system. DE is initially intended for use in disaster or emergency situations. Visit www.oasis-open.org for more information.

The Population Health TC has identified the Hospital Availability Exchange (HAVE) dataset as being closely aligned with the data elements identified by the Biosurveillance Data Steering Committee. The HAVE specification is being proposed as an Organization for the Advancement of Structure Information Standards (OASIS), but it has not yet been fully reviewed and adopted. HAVE is derived from the results of the HAVBed project sponsored by the Agency for Health Research and Quality. While it is anticipated that the HAVE specification will soon be approved by OASIS, and is likely to meet the requirements for reporting the data elements for hospitals and health resource availability identified by the BDSG, pending this formal approval the choice of a specific standard to represent these data elements remains a gap as defined in the HITSP policies. HAVE specification contains terminology specific to utilization information and allows communication of the status of a hospital and its resources to other emergency agencies, including bed capacity and availability, emergency department status, the available service coverage, and the status of a hospital's facility and operations.

The Emergency Data Exchange Language (EDXL) is a suite of specific XML based standards intended as a suite of emergency data message types including resource queries and requests, situation status, message routing instructions and the like, needed in the context of cross-disciplinary, cross-jurisdictional communications related to emergency response. It is the result of a project of the Disaster Management eGov Initiative of the Department of Homeland Security (DHS) as a means to enhance XML based inter-agency emergency data communications. DHS partnered with industry members of the Emergency Interoperability Consortium (EIC) to bring the work to OASIS for advancement and standardization.

CONSUMER EMPOWERMENT LIST OF STANDARDS

¹² The HITSP/C47 Resource Utilization Message Component is included in this release as a **Review Copy** which outlines the Use Case and the direction for development of a profile of the Organization for the Advancement of Structured Information Standards (OASIS) Emergency Data Exchange Language (EDXL) Hospital Availability Exchange (HAVE) specification. The Technical Committees are currently completing the detailed guidance information with an expected version **Released for Implementation** in the third quarter of 2007. The HITSP encourages interested parties to become involved and participate in this activity. For information on becoming a member of the HITSP, please contact Jessica Kant for further information at jkant@himss.org.



Standard	Description
Accredited Standards Committee (ASC) X12 Insurance Subcommittee (X12N) Implementation Guides Version 004010 plus Addenda 004010A1	Detailed Implementation Guides based on release 004010 of the X12 standards. These Implementation Guides provide details on the use of X12 standards to accomplish specific transaction functions. Some of the version 004010 Implementation Guides, but not all, have been adopted as Implementation Specifications under HIPAA. Many of the version 004010 Implementation Guides, including all of those adopted under HIPAA, have Addenda that contain updates -- only -- to the original Implementation Guides. These Addenda are identified as version 004010A1. Implementation Guides 004010X092 and 004010X092A1 describe transactions for Health Care Eligibility Benefit Inquiry and Response. Implementation Guides are published by Washington Publishing Company. Visit www.wpc-edi.com for more information.
Accredited Standards Committee (ASC) X12 Standards Release 004010	Release (version) 004010 of the Accredited Standards Committee (ASC) X12 standards including the X12.5 Interchange Control, X12.6 Application Control Structure, 270 Eligibility, Coverage or Benefit Inquiry, 271 Eligibility, Coverage or Benefit Information and other control standards for the uniform electronic interchange of business transactions. Published by the Data Interchange Standards Association (DISA). Visit www.x12.org for more information.
American Society for Testing and Materials (ASTM) Standard Specification for Continuity of Care Record (CCR): # E2369-05	A core data set of the most relevant and timely facts about a patient's healthcare. It is to be prepared by a practitioner at the conclusion of a healthcare encounter in order to enable the next practitioner to readily access such information. It includes a summary of the patient's health status (e.g., problems, medications, allergies) and basic information about insurance, advance directives, care documentation, and care plan recommendations. An XML version of the CCR, known as the Continuity of Care Document (CCD), prepared by Health Level Seven (HL7) in collaboration with ASTM, also exists and described under Health Level Seven standards. Visit www.astm.org for more information.
CDC Race and Ethnicity Code Sets	The U.S. Centers for Disease Control and Prevention (CDC) has prepared a code set for use in coding race and ethnicity data. This code set is based on current federal standards for classifying data on race and ethnicity, specifically the minimum race and ethnicity categories defined by the U.S. Office of Management and Budget (OMB) and a more detailed set of race and ethnicity categories maintained by the U.S. Bureau of the Census (BC). The main purpose of the code set is to facilitate use of federal standards for classifying data on race and ethnicity when these data are exchanged, stored, retrieved, or analyzed in electronic form. At the same time, the code set can be applied to paper-based record systems to the extent that these systems are used to collect, maintain, and report data on race and ethnicity in accordance with current federal standards. More information is available from www.cdc.gov/nedss/DataModels
Council for Affordable Quality Health Care (CAQH) Committee on Operating Rules for Information Exchange (CORE) Phase I Operating Rules	Provide agreed-upon business rules and guidelines for using and processing eligibility inquiry and response transactions between providers and health plans; in particular those that have been adopted under HIPAA. Visit www.caqh.org for more information.



Standard	Description
Federal Medication Terminologies	<p>A set of controlled terminologies and code sets developed and maintained as part of a collaboration between the Food and Drug Administration, National Library of Medicine, Veterans Health Administration, National Cancer Institute and Agency for Healthcare Research and Quality related to medications, including medication proprietary and nonproprietary names, clinical drug code (RxNorm); ingredient names and Unique Ingredient Identifiers (UNII); routes of administration, dosage forms, and units of presentation from the NCI Thesaurus (NCIt); and certain pharmacological drug classes from the National Drug File Reference Terminology (NDF-RT) .</p> <p>The Federal Medication Terminology leverages medication models maintained by the Food and Drug Administration (ex. UNII, NDC Codes), National Library of Medicine (RxNorm), the Veterans Health Administration (NDF-RT), and the National Cancer Institute (NCIt).</p> <p>Information on the Federal Medication Terminologies may be found and downloaded from the NCI Web portal terminology resources page at www.cancer.gov/cancertopics/terminologyresources/FMT</p>
Healthcare Provider Taxonomy	<p>The Health Care Provider Taxonomy code set is a collection of unique alphanumeric codes, ten characters in length. The Health Care Provider Taxonomy code set includes specialty categories for individuals, Groups of individuals, and non-individuals. The National Uniform Claims Committee maintains this code set. The complete code set is available from the Washington Publishing Company at www.wpc-edi.com/taxonomy/more_information</p>
Health Level Seven (HL7) EHR System Functional Model Draft Standard for Trial Use (DSTU)	<p>The HL7 EHR System Functional Model and Standard documents key functions of Electronic Health Record Systems (EHR-S) to enable consistent expression of system functionality. The functions are organized in two ways: as a hierarchy within the broad headings of care delivery and infrastructure functions; and as a list of functions that are deemed essential or desirable within four common care settings. Visit www.hl7.org for more information</p>
Health Level Seven (HL7) Version 2.5 ¹³	<p>The HL7 Version 2.5 Messaging Standard is an application protocol for electronic data exchange in healthcare. It and prior versions have widespread use in the U.S. and internationally. Both message formats and value sets / code tables (e.g., diagnosis type, gender, patient class, result status, specimen collection method, abnormal flags, observation result status codes interpretation, timestamp format) are contained in the standard. Of particular focus for HITSP Interoperability Specifications are message formats described in Chapters 2, 3, 5, and 7 including patient demographic (ADT) and lab result reporting. These are also used within composite standards from IHE for Patient Identity Cross-Referencing and Feed (PIX), Patient Demographics Query (PDQ), and Acknowledgements. Visit www.hl7.org for more information.</p>
Health Level Seven (HL7) Version 3.0	<p>The HL7 Version 3.0 Messaging Standard is an application protocol for electronic data exchange in healthcare. Version 3.0 is based on a Reference Information Model (RIM); which is used to instantiate various message formats. Value sets / code tables are contained in the standard. Visit www.hl7.org for more information.</p>

¹³ HITSP references HL7 2.5.1 messaging for lab results reporting and HL7 2.5 for other messages. Future maintenance work will move toward referencing a single HL7 version across HITSP documents.



Standard	Description
Health Level Seven (HL7) Version 3.0 Clinical Document Architecture (CDA/CDA R2)	The HL7 Clinical Document Architecture is an XML-based document markup standard that specifies the structure and semantics of clinical documents for the purpose of exchange. CDA is one instantiation of HL7's Version 3.0 Reference Information Model (RIM) into a specific message format. Of particular focus for HITSP Interoperability Specifications are message formats for Laboratory Results and Continuity of Care (CCD) documents. Release 2 of the HL7 Clinical Document Architecture (CDA) is an extension to the original CDA document markup standard that specifies the structure and semantics of clinical documents for the purpose of exchange. CDA R2 includes a prose document in HTML, XML schemas, data dictionary, and sample CDA documents. CDA R2 further builds upon other HL7 standards beyond just the Version 3.0 Reference Information Model (RIM) and incorporates Version 3.0 Data Structures, Vocabulary, and the XML Implementation Technology Specifications for Data Types and Structures. Visit www.hl7.org for more information.
Health Level Seven (HL7) Version 3.0 Continuity of Care Document (CCD)	The Continuity of Care Document (CCD) constrains the HL7 Clinical Document Architecture Release 2 (CDA R2) in accordance with requirements specified in American Society for Testing and Materials (ASTM) standard E 2369-05, "Standard Specification for Continuity of Care Record (CCR)." The resulting CCD specification is developed as a collaborative effort between ASTM and HL7, and is intended as an alternate implementation to the one specified in ASTM E 2369-05 for those organizations preferring to use HL7 Clinical Document Architecture (CDA) to communicate this information. Visit www.hl7.org for more information.
Integrating the Healthcare Enterprise (IHE) IT Infrastructure Technical Framework (ITI-TF) Revision 3.0	The IHE IT Infrastructure Technical Framework defines specific implementations of established standards to achieve integration goals that promote appropriate sharing of health information to support optimal patient care. IHE Integration Profiles, offer a common language that healthcare professionals and vendors may use in communicating requirements for the integration of products. The current version of the ITI-TF, rev. 3.0 for Final Text, specifies the IHE transactions defined and implemented as of December 9, 2006. The latest version of the IHE Technical Framework is available at www.ihe.net .
Integrating the Healthcare Enterprise (IHE) Patient Care Coordination (PCC) Technical Framework Revision 1.0 ¹⁴	The IHE Patient Care Coordination Technical Framework (PCC TF) defines specific implementations (called Integration Profiles) of established standards to deal with integration issues that cross providers, patient problems or time. The Cross Enterprise Document Sharing of Medical Summaries (XDS-MS) Integration Profile enables sharing of health information between enterprises of a regional health network, and further describes how to map content in a CDA medical document into registry metadata. In the registry, healthcare providers publish pointers to documents stored in distributed repositories. Other healthcare providers may search and retrieve these and other documents. Visit www.ihe.net for more information.
National Council for Prescription Drug Programs (NCPDP) SCRIPT Standard Version 8.1	Provides for the realtime electronic transfer of prescription data between pharmacies and providers. Functions supported include communication of new prescriptions, prescription changes, refill requests, prescription fill status notifications, and prescription cancellations. Visit www.ncdp.org for more information.

¹⁴ Note: IHE PCC Technical Framework Release 2.0 is scheduled to be release in July 2007 with an update of all related PCC profiles to reflect alignment with CCD. This reference will be updated once this Release 2.0 is published.



Standard	Description
Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity	This classification provides a minimum standard for maintaining, collecting, and presenting data on race and ethnicity for all Federal-reporting purposes. The categories in this classification are social-political constructs and should not be interpreted as being scientific or anthropological in nature. The standards have been developed to provide a common language for uniformity and comparability in the collection and use of data on race and ethnicity by Federal agencies.

RELEASED FOR IMPLEMENTATION

