AHCCCS

CLINICAL DATA REPOSITORIES PROJECT

Requirements Document

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Table of Contents

Table of Figures

Document Revision History

Name	Date	Reason For Changes	Version
Marc Morin	2/14/2009	Baseline Requirements Document	1.0

Requirements Naming Convention

The individual requirements are serialized (See Appendix D) in order to track them through the implementation and evaluation process. The following is the coding used:

XXXxxx-000 where :

XXX refers to the component/services to which the requirement applies and can be one of the following:	**xxx** refers to the specific function within the component/service that are addressed by the requirement:
SYS – Overall System ESB – Enterprise Service Bus MPI – Master Person Index Services MTS – Model and Terminology Services CDS – Clinical Decision Support CDW – Clinical Data Warehouse CDR – Clinical Data Repository PHY – Physician Portal	GR – General Requirements PR – Policy Requirements TS – Transaction Support SR – Security Requirements PrR – Privacy Requirement CR – Confidentiality Requirements CoR – Consent Requirements AR – Audit Requirements DPR – Defense Protection Requirements PCR – Partner Connection Requirements CMS – Consent Module Service Requirements AMS – Audit Module Service Requirements TMS – Transaction Module Service Requirements IMM – Instrumentation and Monitoring Module Service Requirements AAM – Authorization and Authentication Module Service Requirements ANM – Alerting and Notification Module Service Requirements CS – Content and Structure Requirements REP – Reporting Requirements FUN – Functionalities Requirements DS – Data Security Requirements QRY – Querying Requirements EF – Extended Functionalities

EXECUTIVE SUMMARY

"Where performance is measured, performance improves. Where performance is measured and reported, the rate of improvement accelerates." Thomas S. Monson

We live in an unprecedented time when addressing the challenges associated with the distribution of healthcare in a manner that is effective both by quality and cost measures is becoming increasingly urgent. As we seek new ways to approach these challenges, it is critical to be able to measure the performance of our efforts. Fundamental to the task of measuring performance is the availability of timely and accurate data. Traditionally data related to healthcare delivery has resided in multiple silos in proprietary formats, managed by a large and diverse set of healthcare related entities including payers and providers.

The ultimate goal of this project is to improve the performance of those organizations and individuals involved in healthcare delivery. This goal will be realized as these organizations are able to capture the necessary clinical information for and then use appropriate analytic and decision support tools on this information to make informed decisions about how they can deliver higher quality healthcare at lower costs.

This document is focused on the most immediate objectives needed to make progress toward the ultimate goal. Specifically the focus is on a robust repository for clinical information, and all of the supporting components necessary for such a repository.

Although this is currently an AHCCCS project, the plans and requirements in this document are not specific to AHCCCS. They have been designed in a manner that would allow AHCCCS to implement them directly, or allow a third party to implement them and provide the resulting services to AHCCCS and other healthcare organizations.

Currently AHCCCS, and several other large health care organizations in the State of Arizona, have undertaken several key initiatives in the Healthcare Information Technology domain – chief among them are a health information exchange (AMIE), an ePrescribing effort, an EMR/EHR adoption effort, and an Analytical Tools acquisition effort. These are considered to be high value components with opportunities to develop significant cost savings within AHCCCS as well as within the healthcare community and industry and increase information timeliness and access and thereby increase the quality of care.

To maximize the effectiveness of these efforts, as well as the repository efforts presented here, several key infrastructure components that underlie their implementation as concurrent functionalities need to be in place. These components are:

1. an Enterprise Service Bus based routing system that publishes full message content (including such elements as store and forward, intelligent routing algorithms, security and privacy filters, etc),;

2. an AzMPI (Master Person Index) that accumulates and manages all healthcare individual demographics information; and
3. model and terminology service that supports verification and validation of message content and drives the goal of achieving healthcare standardization of all nomenclatures.

This document provides requirements for the core repository functionality and the necessary supporting components. It also provides requirements for related components that can provide additional value once the foundation is in place.

BACKGROUND

The AHCCCS Clinical Data Project will offer integrated and normalized clinical data stored in a standards-based repository available to clinicians at the point of care for search and viewing. It will include valuable information in patient identification, demographics, diagnosis list, medication history, lab results, image reports, discharge summary, and public health information that will be collected from AHCCCS business partners. It has the capability of integrating financial encounter information (from the claims) with clinical encounter information (from the providers) to provide a more complete set of information for each patient.

The comprehensive repositories of the AHCCCS Clinical Data Project will provide a source of information which will enhance the ability of AHCCCS for clinical and financial analysis by leveraging the existing data warehouse information. In addition, it will complement the other transformation grants, as well as provide the ability to independently query the data in its own database for analytical and research purposes.

The database will be used to populate various data marts as needed for analytical and public health reporting. The specific reports and queries will be defined by the project as it progresses with the input of the applicable stakeholders.

Project Value Proposition

MEDICAID TRANSFORMATION GRANT

The project aims to meet the objectives set by the Medicaid Transformation Grant;

1. The project will lay the foundational work for integrating a broad range of participants leading to statewide integrated health information architecture;
2. The project aims at a production level health information system that builds on Phase I of the transformation grant;
3. The project will create value at a social level rather than an individual provider level and will produce benefit to the entire health industry overall;

OTHER ARIZONA STATE INITIATIVES

In addition to meeting the strategic goals established by the Medicaid Transformation Grant implementing this phase of the project will also support and lay the foundational infrastructure for other State initiatives that will further the integration of HealthCare IT in the state of Arizona. We can view this effect as the railroads impacted far more than simply the transfer of goods from one locality to the next but spurred the growth and evolution of the budding American economy as a whole. In the case of the Clinical Data Project, this broad reaching infrastructure can serve as the integrating and enabling infrastructure for many other

healthcare initiatives. In particular, we see this project bringing together and expanding the following efforts:

1. ePrescribing
2. AMIE improvement, sustainability and augmentation
3. Laboratory result distribution
4. EHR provider adoption and integration

General Scope / Assumptions

1. All efforts should leverage existing standards to the extent that they exist, are applicable, and are implementable;
2. Where possible, leveraging existing solutions is preferable to de novo development;
3. Where possible, open source solutions will be considered;
4. All technical efforts will be conducted in coordination with relevant IT departments;
5. All efforts will identify and work with business champions and other stakeholders;
6. All efforts will have defined sustainability plans;
7. All efforts will have defined success criteria and endpoints.

OVERVIEW

Project Deliverables

The overall goal of this project is to create and implement the requisite organizational and healthcare partnership elements, as well as the technological components, needed to facilitate an integration of healthcare information at the level of the state. The focus of this document is on the requirements for technical aspects of the project, however we recognize that the technology component is only one part necessary to the success of the project and that the development of the human factors in terms of stakeholder engagement is also critical for success. Creating a cooperative environment between the diverse, and sometimes competing, needs and resources of all the participants such that each finds and obtains value from the technological deployment is a crucial success factor of this project.

The measurable outcome of this project is to create a Clinical Data Warehouse, Clinical Data Repository, as well as the infrastructure required to maximize the value proposition of this effort. The infrastructure services are a key component of this solution since they will support and enable an extensive array of other health information related services.

1. Infrastructure services offer configurable and subscription based services that will facilitate the distribution of clinical information to data consumers using an Enterprise Service Bus (ESB) as its core infrastructure component. Data consumers may include, but are not limited to the following health information systems, EHRs/EMRs/PHRs, Clinical Document Viewer, ePrescribing and lab CPOE applications. Data providers will push data through a centralized enterprise service bus (ESB). The centralized ESB may (as allowed by data provider contractual/legal requirements) store a subset of the data and forward the data to authorized data consumers using distribution rules. This service infrastructure will include the following components:

    a) AzMPI (Master Person Index) service that accumulates and manages all statewide healthcare individual demographics information; and

    b) Model and terminology services support verification and validation of message content and drive the goal of achieving and driving healthcare standardization of all nomenclatures.

    c) Configurable Data distribution rules engine routes data only to authorized data consumers that have subscribed to this service. The rules engine may enforce only non-competitive data routing as specified in data provider contracts.

    d) Consent management component (optional) may be required in the future for manage patient's consent to share their data.

2. Clinical Data Repository services will offer integrated and normalized clinical data stored in a standards-based repository available to the clinician at the point of care for search and viewing. It will have the ability to store both structured and unstructured data for viewing purposes. It will include valuable information for patient identification, demographics, diagnosis list, medication history, lab results, image reports, discharge summary, and public health information that will be collected from data providers. This repository may be the foundation for an EHR or viewer application.

3. Clinical Data Warehouse/Analytic Data Repository services will receive requests for data/reports from subscribers' analytic applications. These repositories will be populated from a subset of the data pushed for distribution by the data providers. In addition, the data repository may be configured to push quality and performance reports on a scheduled basis for distribution to subscriber organizations. The data distributed will consist of standardized care quality reports for subscribers in a non-competitive environment. Potential subscribers for quality and performance reporting may be CMS, Hospitals, ad Health Plans. The data repository may de-identify data as specified by contractual/legal requirements for research purposes.

Combined, these services require funding and expert knowledge investment in order to be realized and develop their own sustainability. Once the infrastructure is deployed it is proposed that these services be funded through revenue sustained by the data consumers that will utilize the infrastructure and other beneficiaries; however the complete business plan identifies revenue opportunities for each service as stand-alone services capable of sustainability in their own right to the degree possible. An intended benefit and direct goal of implementing this capability is that from the information stream that is routed AHCCCS will be able to extract its member clinical information and populate a clinical data repository more effectively.

Other Enabled Functionalities Resulting From Project

The following services and functionalities are considered as potential next generation candidates for deployment once this project phase is completed. Although beyond the scope of implementation during this project proposal, each of the functionalities is readily deployable and supportable as a result of the proposed architecture. Each service and functionality can be cost justified as being financially self sustainable in its own right when integrated into the Clinical Data Project. Thus, these form an added value proposition that cost justifies this proposed project.

1. Analytic Tools and Services & Predictive Modeling
2. Consumer Portal
3. ePrescribing
4. EHR-Lite
5. Clinical Deicision Support
6. Telemedecine
7. Specimen Repository

8. Lab Result Distribution
9. Consulting

BUSINESS MODEL

Model Approach

This section presents the business model proposed from which the architecture, presented in the next section, is based on. The intent is to implement a social/organizational architecture that supports the business value model such that the implementation of the HIE specific functions is based on a financially sustainable approach. We use Osterwalder synthesis of different conceptualizations into a single reference model based on the similarities of a large range of models, and which constitutes a business model design which allows us to describe our HIE business model. The following is the diagrammatic summary of Osterwalder's model:

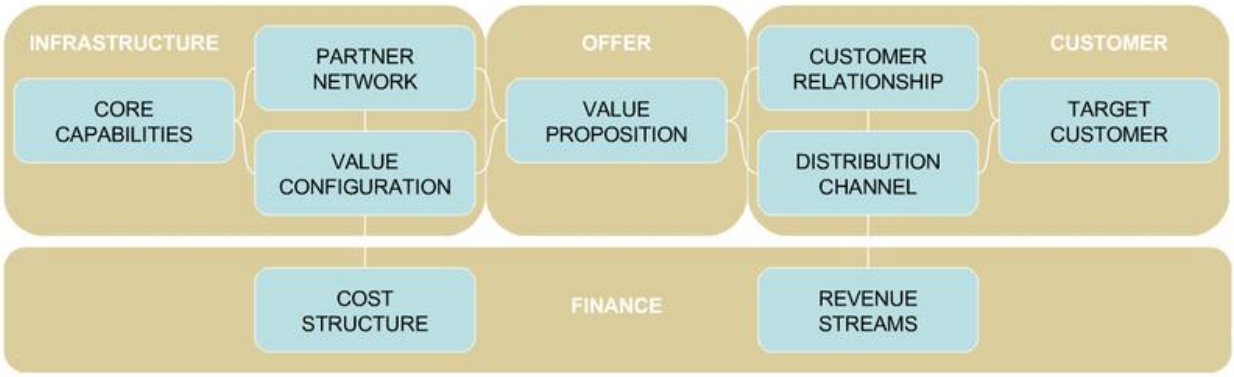

Figure 1 - Business Model Framework

Clinical Data Repositories Business Model

From this model we draw on the lesson learned from Phase I of the Medicaid Transformation Grant as well as the overall goals proposed for the Phase II effort centered on 2 central clinical data repositories and propose the following business model:

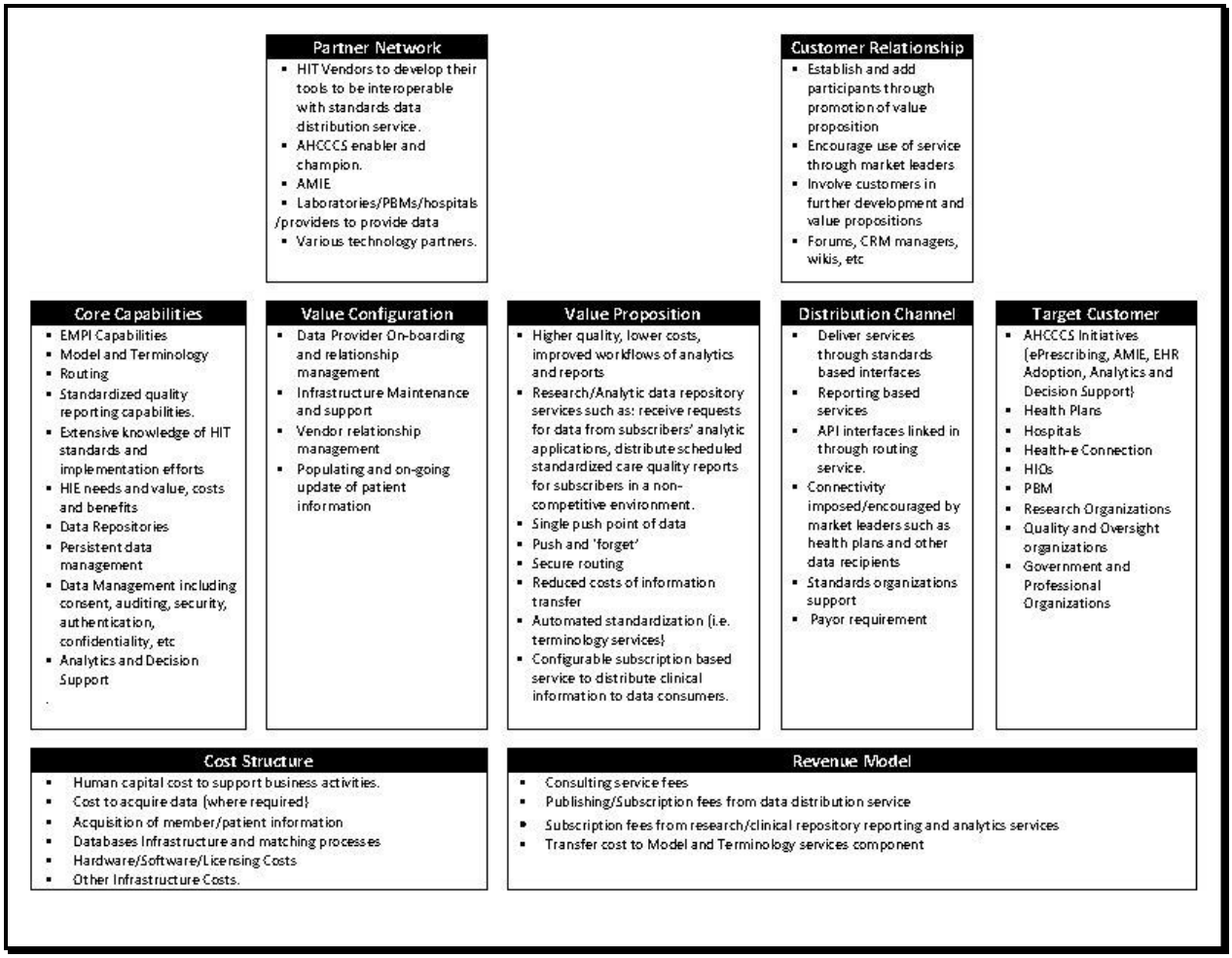

Figure 2 - Clinical Repositories Project Business Model

SYSTEM ARCHITECTURE

Architecture Description

Within the scope of the definition of an EHR we define the architecture of the AHCCCS Clinical Data Project to be the elements that, combined, will enable the creation, implementation and maintenance of the clinical data warehouse as well as the clinical data repository. These technology tools also encompass an Enterprise Service Bus (with such services as Master Person Indices, Model and Terminology Services, etc). The overall architecture is intended to create an infrastructure that will enable information flows to and from data providers and users into the repository and warehouse facilities.

The next 2 sections describe the overall data flows and process and services needed and proposed to meet the overall scope of this project. Each section presents a conceptual perspective of the HIE system elements that are proposed and how each fits into an integrated functional system.

Conceptual Data Flows

The following diagram depicts the conceptual data flows through the architecture to be implemented. Each line represents the direction(s) of the flow of information across the architecture and summarizes at a high level the intended transactional perspective of system. In effect, each connection also represents a contractual engagement by data providers into the overall system.

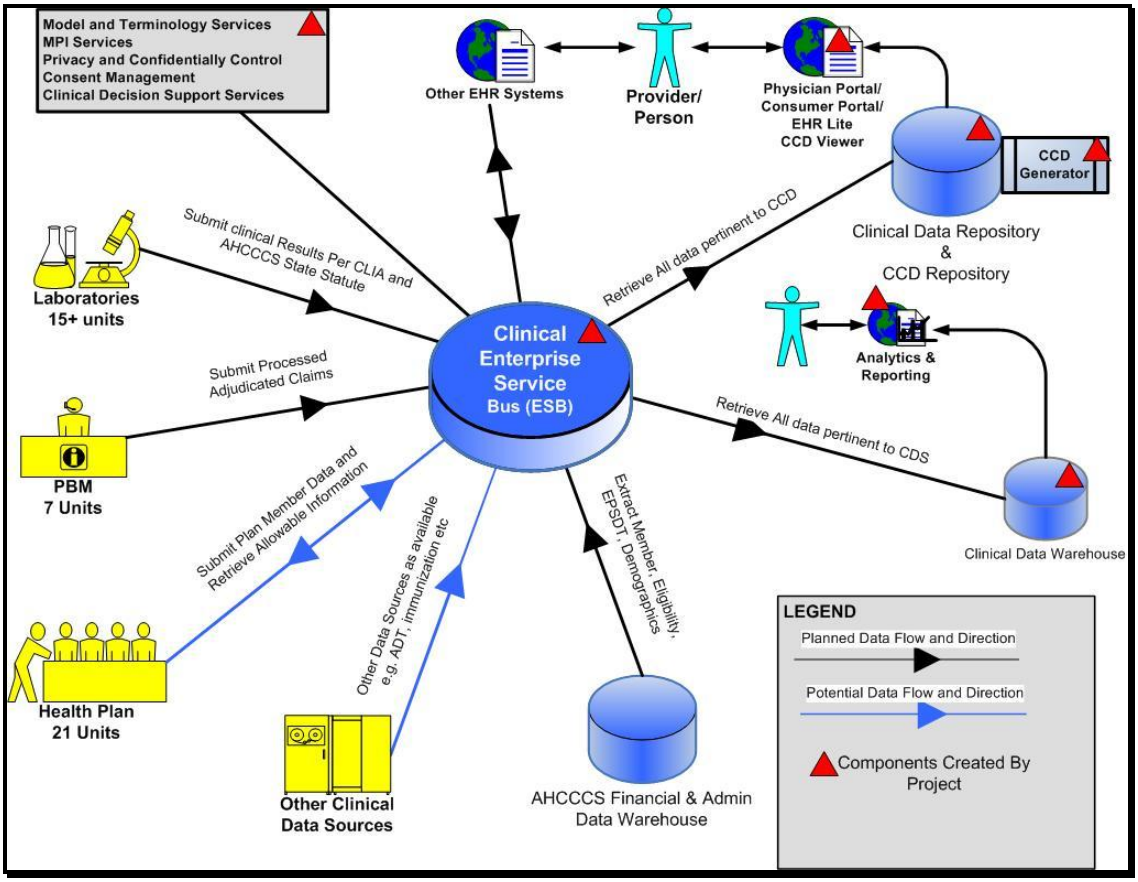

Figure 3 - System Data Flows

Conceptual Processes and Services

The following diagram depicts the data once received from providers and details the services applied to the data in transforming it for storage and/or retransmission. The diagram highlights the component aspect of the services as well as the intended outputs that form the value proposition to the data users. Each service described forms an independent but integrated component of the overall architecture.

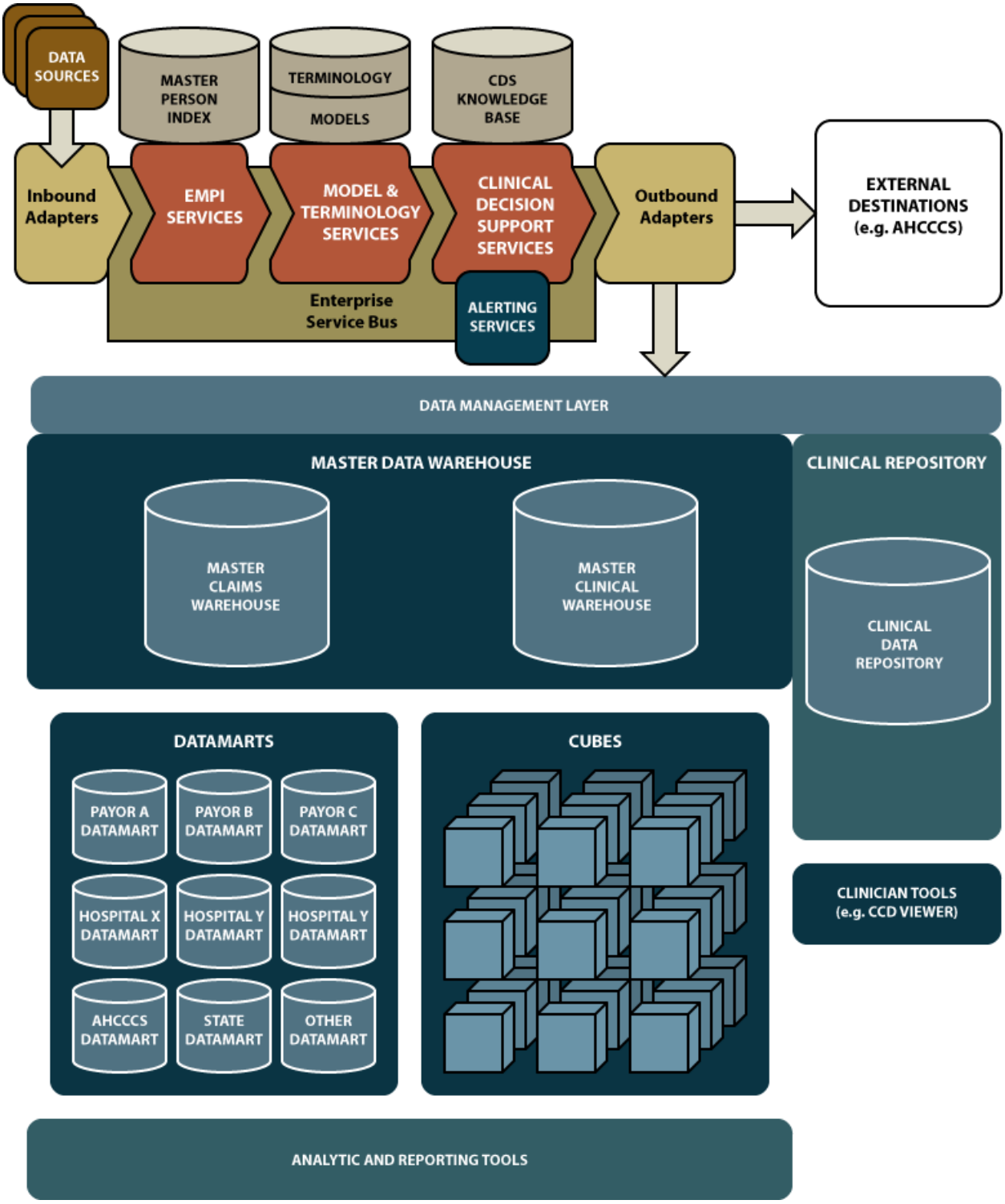

Figure 4 - System Services and Processes

USE CASES

Use Cases Supported

TO ► FROM ▼	Physicians	Hospitals	Health Plans	Public Health	Pharmacies	Laboratories	Consumers
Physicians	Referrals and consultations CCR	Admissions information; pre-natal reports; CCR	Medical necessity; Workers Comp notes; pay-for-performance Claims; claim status; eligibility, prior auths Current drugs ; dosage adjustments	Case reporting; Queries to Controlled Substance Data Base	refills, renewals, Prior auth notice; dosage adjustments	Questions about tests and results	Lab results, treatment full medical history, disease mgt
Hospitals	Results, results reporting; Discharge notes; lab results, ED admissions; ED labs and prescriptions transcriptions; dictation; CCR*	Patient transfers; CCR	Claims, claim status, eligibility, prior auths; attachments Rx history Formulary	Case reporting; RODS Vital records Tumor registries	Drugs reconciliation	Questions about tests and results	Admit information requests
Health Plans	Pharmacy eligibility, formularies, current drugs ; pharmacy benefits; remits; claim status; eligibility, prior auth responses	Medical necessity; remits; claim status; eligibility, prior authorizations responses	Subrogation, coordination of benefits	Case reporting	Eligibility resp; medication history; medical history remits;	Questions about tests and results	Benefits information; Disease management information;
Public Health	Notices of disease outbreaks; Notices of changes in reportable diseases	Notices of disease outbreaks; Notices of changes in reportable diseases	Notices of disease outbreaks	Reports of disease outbreaks & (to bioterrorism	Response to controlled substances data base queries	Notices of changes in reportable diseases	Outbreak alerts
Pharmacies	E-prescriptions; refills, renewals, Prior auth requests; questions about prescriptions; fill status	Drug reconciliation; fill status?	Pharmacy eligibility; claims; medication history; medical history	Reporting and queries to Controlled Substance Data Base	Prescription transfers	Questions about tests and results	History of Rx, costs, etc
Laboratories	Results, responses to queries, test status updates	Results, responses to queries, test status updates	Answers about tests and results	Reportable diseases reporting	Results, responses to queries, test status updates	Q/A re: tests and results; test status updates	Results?
Consumers	eVisits, appointment scheduling, refills & renewals	Admission/ appointment scheduling	Benefits questions, complaints	Quality data tracking. Public health reports	Refills & renewals	Scheduling appointments	

Use Case Business Actors

Provider (e.g. Physician)
Healthcare Entities (Includes Hospitals)
Healthcare Payors (Including Health Plans)
Public Health Organizations
Pharmacy Benefit Managers (PBMs)
Pharmacies
Pharmacist
Laboratories

Consumers
Physician Portal Service Provider
Manufacturers/Distributors

Use Case Technical Actors

Enterprise Service Bus
- Business Partner Relationship Management Module that will be named something else
- Consent Module
- Audit Module
- Transaction Module
- Instrumentation and Monitoring Module
- Authorization and Authentication Module
- Alerting and Notification Module

Master Person Index (MPI) Services
De-identification Service
Model and Terminology Services (MTS)
Clinical Decision Support (CDS)
Clinical Data Warehouse (CDW) {OLAP}
- Public Health Reporting
- Quality Reporting

Clinical Data Repository (CDR) {OLTP}
Physician Portal (including CCD viewer)

Use Case Scenarios

These use case scenarios were selected and adapted from the American Health Information Community (AHIC) use cases and are part of the supported use cases for our project. Initially, our project would like to focus on implementing only a subset of all supported used cases listed in the use case matrix above. In particular, the scenarios described below are of interest for initial implementation.

AMBULATORY MEDICATION MANAGEMENT

This scenario addresses access to current medication and allergy information and support for electronic prescribing in the ambulatory environment and includes:

- Gathering and documenting information on current medications, allergies, and medication intolerances;

- Performing eligibility and benefits checking; and

- Communicating the current medication list, prescriptions, allergy information, medication information, and care instructions to the patient.

It also focuses on prescription management, prescription writing, and prescription transmittal to a pharmacy, and consumer-generated requests for prescription refills and renewals.

This scenario provides clinicians and pharmacists with information about each patient's medications and allergies not just from local documentation, but also from:

- Other ambulatory clinicians;

- Hospitals, long-term care facilities, or other care settings from which the patient has been previously discharged;

- Organizations that manage prescription- or insurance- related information.

Flow:

1. Drug knowledge suppliers supply data for decision support.
2. Data providers transmit medication and allergy information to clinical data repository.
3. ESB routes data to Clinical Data Repository
4. Clinical Data Repository stores allergy information to patient record.
5. Clinician queries for patient's eligibility and benefits
6. PBMs respond with patient's eligibility and benefits data
7. Clinician reviews patient's eligibility and benefits data
8. Clinician reviews allergy and medication information in physician portal.
9. Clinician asks patient if there is any gap in the current medication list(optional).
10. Clinician enters new medication information reported by patient (optional).
11. Clinician writes an electronic or paper prescription taking into consideration eligibility, benefits, medication and allergy information.
12. Physician portal automatically updates medication history or Clinician updates medication history record based with new prescription.
13. Patient may requests a copy of medication history.
14. Clinician prints a copy of medication history and provides it to patient.
15. ESB transmits prescription to pharmacist (optional).
16. Pharmacist verifies and processes prescription
17. Pharmacist reviews allergy and medication information in physician portal.
18. Pharmacist performs a eligibility and benefits checking
19. Pharmacist dispenses prescription.

LABORATORY RESULTS REPORTING

This scenario 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 another clinical system.

An ordering clinician receives lab test results as a result of the order. The specifics of the ordering process are outside the scope of this scenario. The test results are sent directly to the clinician's EHR system (local or remote) or another clinical data system in support of the provisioning of historical results and results for non-ordering, other providers of care.

"Other providers of care" are clinicians who have a clinician/patient relationship with respect to a specific patient (and did not order the specified test result). Providers of care may receive test results (that they did not order) in the EHR system (local or remote) or another clinical data system or receive notification of the results (for later retrieval).

A clinician accesses historical test results related to a specific patient by first discovering the data and then retrieving or receiving the data. This scenario does not prescribe whether the data is automatically sent to the clinician's EHR system (local or remote) upon selection, or whether the clinician must separately request the test results perhaps from the clinical data repository.

Flow:

1. Laboratory processes order and performs lab test.
2. Laboratory system pushes lab result to clinical data repository.
3. ESB routes related lab results to clinical data repository.
4. Clinical data repository receives lab results, stores, and relates it to a patient record using MPI services.
5. ESB routes lab results to providers' EMR systems (optional).
6. Provider accepts and integrates lab result into the applicable patient record in their EMR system. (optional)
7. Clinical data repository notifies RLS of availability lab results. (optional)
8. ESB publishes availability of lab results.
9. ESB notifies providers of care of new results through email. (optional)
10. Provider logs into physician portal.
11. Provider searches for and views lab result in physician portal.

CONSULTATIONS (TRANSFER OF CARE)

This scenario is focused on the sharing of information to support a request for a consultation, the consultation itself, and the sharing of information back to the requesting clinician and patient upon completion of the consultation. This scenario includes the communication of a request for consultation and a core set of clinical and administrative information between clinicians, as well as additional context specific information which may be provided to and/or requested by the consulting clinician.

Requesting clinicians can transmit a core set of patient information, which can include (but is not limited to) reason for the consult request, patient summary information, diagnostic images, procedure reports, laboratory results, etc. Consulting clinicians may also seek access to additional clinical information via an information exchange as necessary and relevant to develop a comprehensive clinical picture. Depending upon patient care needs, consultation requests at times may become patient referrals where the consulting clinician assumes responsibility for managing the patient and providing care.

Flow:

1. Requesting provider evaluates patient and determines need for consult.
2. Requesting provider discusses consent directive options and collects signed consent directive from patient.
3. Requesting provider enters consent directive information in physician portal.
4. Requesting provider discusses with patient and selects consulting physician.
5. Requesting provider initiates consult request with consulting provider.
6. Requesting provider reviews patient eligibility to see consulting provider and services.
7. ESB notifies consulting provider of consult request.
8. Consulting provider receives and reviews request and determines ability to accept patient.
9. Consulting provider checks eligibility using physician portal and requests any payer authorizations, if required.
10. Consulting provider accepts patient.
11. Patient schedules a visit with consulting provider.
12. Consulting provider reviews relevant patient's electronic health information in physician portal. Only information released by patient through the consent directive is available to consulting provider or other providers.
13. Consulting provider evaluates patient.
14. Consulting provider completes consult report.
15. ESB notifies requesting provider of availability of consult report.

16. Requesting provider reviews consult report in physician portal.

PUBLIC HEALTH CASE AND ADVERSE EVENT REPORTING FROM PHYSICIAN PORTAL

This scenario is focused on identifying and incorporating reporting criteria such as case criteria, including trigger data and events into a physician portal for the reporting of possible PH Cases. To support the reporting of AEs, criteria, including available trigger data and reporting specifications could also be incorporated into a physician portal. Managing standardized questions and forms within physician portal and the ability to pre-populate existing

Physician portal information as well as augment existing electronic health record information will assist providers in reporting possible PH Cases and AEs.

Flow:

1. Public Health organizations determine and communicate reporting criteria including trigger data and reporting specifications to Physician portal service provider. Reporting criteria includes public health (PH) cases and adverse events (AEs).
2. Physician portal service provider incorporates trigger and adverse event data and reporting specifications into a clinical decision support module.
3. Clinical decision support module monitors for possible adverse events and public health cases based on clinical data repository data updates. (e.g. a lab result may be received with a test out of range that triggers a possible health case alert)
4. Clinical decision support tracks and notifies provider of possible adverse events. Mechanisms may include alerts, reports, inbox entries, etc.
5. Clinical decision support may automatically sends PH reports which meet all criteria. AEs reports usually need clinical judgement before reporting them. (optional)
6. Provider identifies and evaluates possible AEs and PH cases.
7. Provider may submit an initial notification for some of the AE or PH cases, if required by public health organization. This may be done through fax and phone.
8. Provider selects and sends all AEs reports that meet all reporting criteria to public health organization and/or product manufacturers (e.g. pharmaceutical manufacturers, drug wholesalers, medical device suppliers).
9. Provider sends all AEs and PH reports to a completion queue. Some reports may not meet all the reporting criteria and may have missing information.
10. Provider may augment physician portal information and update AEs and PH reports by manually abstracting data from patient or consumer reports, paper-based records, and information acquired during interviews.
11. Provider confirms and sends AEs and PH case reports to Public Health and/or product manufacturers.
12. ESB may de-identify or pseudonymize reports based on legal requirements.

13. ESB routes reports to their destination based on content of public health and AE reports.
14. Public Health and/or Manufacturer organization receives report and determines further action.

HOSPITAL-BASED CARE QUALITY INFORMATION COLLECTION AND REPORTING

This scenario covers the documentation, collection, transmission and feedback of patient information relevant to the calculation of an established quality measure, when care is provided to a patient within a hospital setting. The events and actions within this scenario relate to the measurement, feedback and reporting of quality information related to hospital performance, and may include care provided in hospital-based outpatient departments, Emergency Departments and hospital-based clinics.

Flow:

1. Hospital receives listing of measures and abstraction guidelines and incorporate measures into hospital system, if possible.
2. Clinicians perform and document patient care.
3. Hospital EHR filters data for information matching inclusion/exclusion factors based on defined measure specifications or documentation entered by clinician.
4. Clinician discharges patient.
5. Clinician augments data in hospital EHR with manual extraction of patient data (e.g. from paper record).
6. Hospital System aggregates and validates patient information required for quality measures, this may include EHR data, manually extracted data, and administrative data and /or claims information.
7. Hospital system calculates quality measure, validates and corrects if necessary.
8. Hospital system transmits patient-level quality information to repository.
9. ESB using the MPI service matches information from multiple sources (Hospitals) to create a longitudinal view for a specific patient.
10. ESB pseudonimizes or de-identifies the patient level data which are being readied for transmission. Pseudonimization allows data to be re-linked if requested by an authorized entity.
11. Repository receives quality data from the hospital or hospital vendor.
12. Analytic and reporting tool calculates quality measures for each hospital
13. Analytic and reporting tool transmits preview report of hospital-level quality measurement for validation/correction.
14. Hospital receives and validates preview report of quality measures and provides corrections if required.
15. Analytic and reporting tool re-calculates quality measures as needed.
16. Analytic and reporting tool performs audit for accuracy of quality measurement.
17. Analytic and reporting tool formats and distributes quality information.
18. Users view hospital-level quality measurement report.

19. Users may download hospital level quality measurement reports.
20. Hospital reviews data and identifies areas for improvement.
21. Hospital informs electronic work processes to prompt quality improvement at point of care and support efficient quality reporting.
22. Hospital implements quality improvement initiatives.

REQUIREMENTS

Overall System Requirements

DESCRIPTION

The architectural section of this document presented the details and interconnectedness of the proposed service based system. Effectively the proposal is to create a series of self contained and integrated services that not only support, at a minimum, the overall functionalities needed to create and sustain the clinical data repository and clinical data warehouse but also implementing those functionalities, initially, that prove to be self sustaining. This section of the document details the requirements for the overall System as well as each service component of the proposed system. It is noted that the System proposed is in fact an instantiation of selected services under the HIE concept of the transfer, use and storage of clinical data and as such incorporates the overall features of security and control developed by the multiple specialized organization in this field (e.g. CMS, CCHIT, etc).

REQUIREMENTS

1.2.1 General Requirements
1.2.2 Policy Requirements
1.2.3 Transaction Support
1.2.4 Security, Privacy, Confidentiality, Consent, Audit Requirements
1.2.4.1 Security Requirements
1.2.4.2 Privacy Requirements
1.2.4.3 Confidentiality Requirements
1.2.4.4 Consent Requirements
1.2.4.5 Audit Requirements
1.2.4.6 Defense Protection

Enterprise Service Bus (ESB)

DESCRIPTION

The architecture of an ESB as its name suggests is centered on a bus. Message delivery services are provided by the ESB based on standards like SOAP, HTTP and Java™ Messaging Service (JMS). Typically designed for high throughput, an ESB promises guaranteed message delivery to a variety of service providers and consumers. Support of both synchronous and asynchronous protocols aids in performing transformations and in routing of service requests. Supporting different standards such as SOAP, XML, WSDL, JMS, J2EE, JAX-RPC etc, the ESB enables services to interact with each other.

The component types that can connect to an ESB are:

1. Custom applications, based on standards like J2EE and Struts, which plug into the ESB to provide a user interface to enterprise services
2. Service orchestration engine, which hosts long running business processes, based on standards like Business Process Execution Language (BPEL).
3. Adapters, typically built to the Java Connector Architecture (JCA) specification, enable integration with a wide variety of enterprise applications.
4. Presentation components and portals enable the creation of personalized portals that aggregate services from multiple sources.
5. Data services which provides real time view of data from heterogeneous data sources.
6. Web Services provides a standard means of connectivity to legacy and proprietary integration technologies.

Within the context of the Clinical Data Project the ESB will have at its core functions such services as : MPI, Model and Terminology, Consent, HL7 messaging, etc. Some of the key connectors will include connections to relational (OLAP) data warehouses and the clinical data repository.

The following diagram depicts the ESB at a system architectural level:

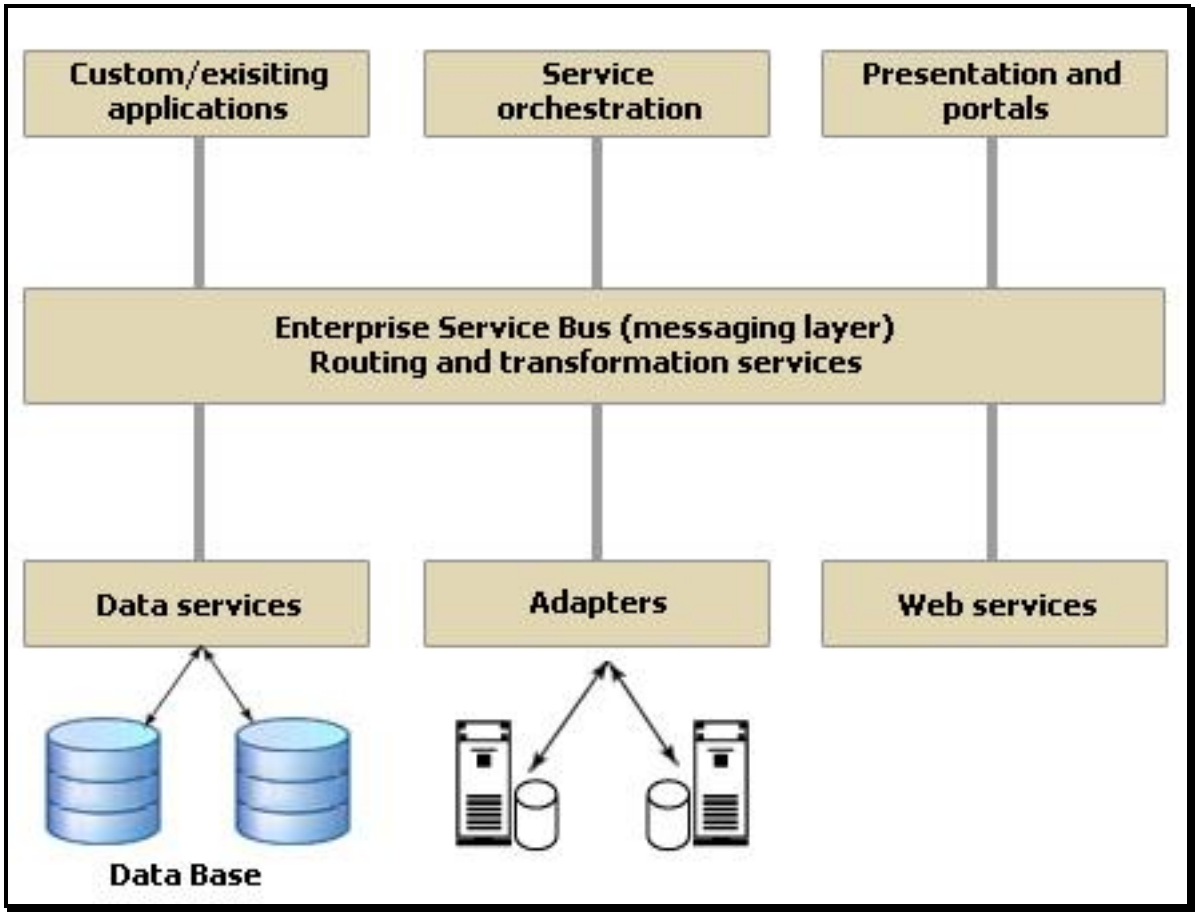

Figure 5 - ESB Architecture

The following diagram depicts the ESB at a functional component level:

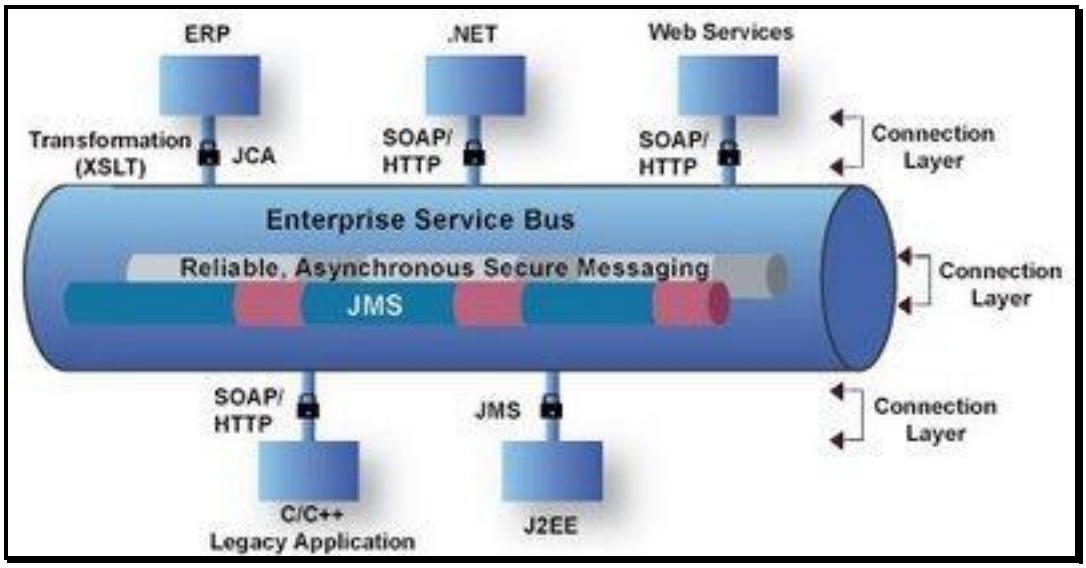

Figure 6 - ESB Component Level

REQUIREMENTS

2.2.1 Business Partner Relationship Management Module that will be named something else
2.2.2 Consent Module
2.2.3 Audit Module
2.2.4 Transaction Module
2.2.5 Instrumentation and Monitoring Module
2.2.6 Authorization and Authentication Module
2.2.7 Alerting and Notification Module

Master Person Index (MPI) Services

DESCRIPTION

A Master Person Index (MPI) is generally used to manage person identification and cross-reference across disparate systems. Healthcare organizations may have several systems handling various different data processing needs, from laboratory to billing, each with its own database of persons and person identifier numbering schemes. Each of these can be called an ID Domain. An MPI can function as a Correlation Manager between these domains, providing a cross-reference of a person's identifiers across each of the domains. Typically an MPI will also have one universal or enterprise identifier that uniquely identifies the person in the MPI itself. The domain for this identifier may or may not be the domain for clients of the MPI. MPI functionality also typically includes methods to provide an identifier for a person, given a set of traits or demographics for that person. An example of the use of this is for a client system to

query the MPI for a person given a set of demographics. The MPI uses matching algorithms to find possible matching persons, and returns to the client system the identifiers for those persons (as defined in HL7 2.5 standard documentation).

In order to accomplish health information exchange (HIE), particularly when all person information is scattered amongst a large number of locations, places, institutions, providers, etc., it is necessary to have an uniform list of persons, and the list has to provide us with a means of tracking patients across their continuum-of-care; meaning, knowing how's provided each patient health care products or served, and what unique identifiers (if any) that provider or entity assigned the patient while providing its products or services. Another way of looking at it is, "we need an electronic equivalent of index-cards with information about who has served each patient, and what ID the patient was given while being served". These indexes have existed for many years in healthcare and have been termed Master Patient (or Person) Indexes (MPI).

The following diagram depicts the MPI service and process:

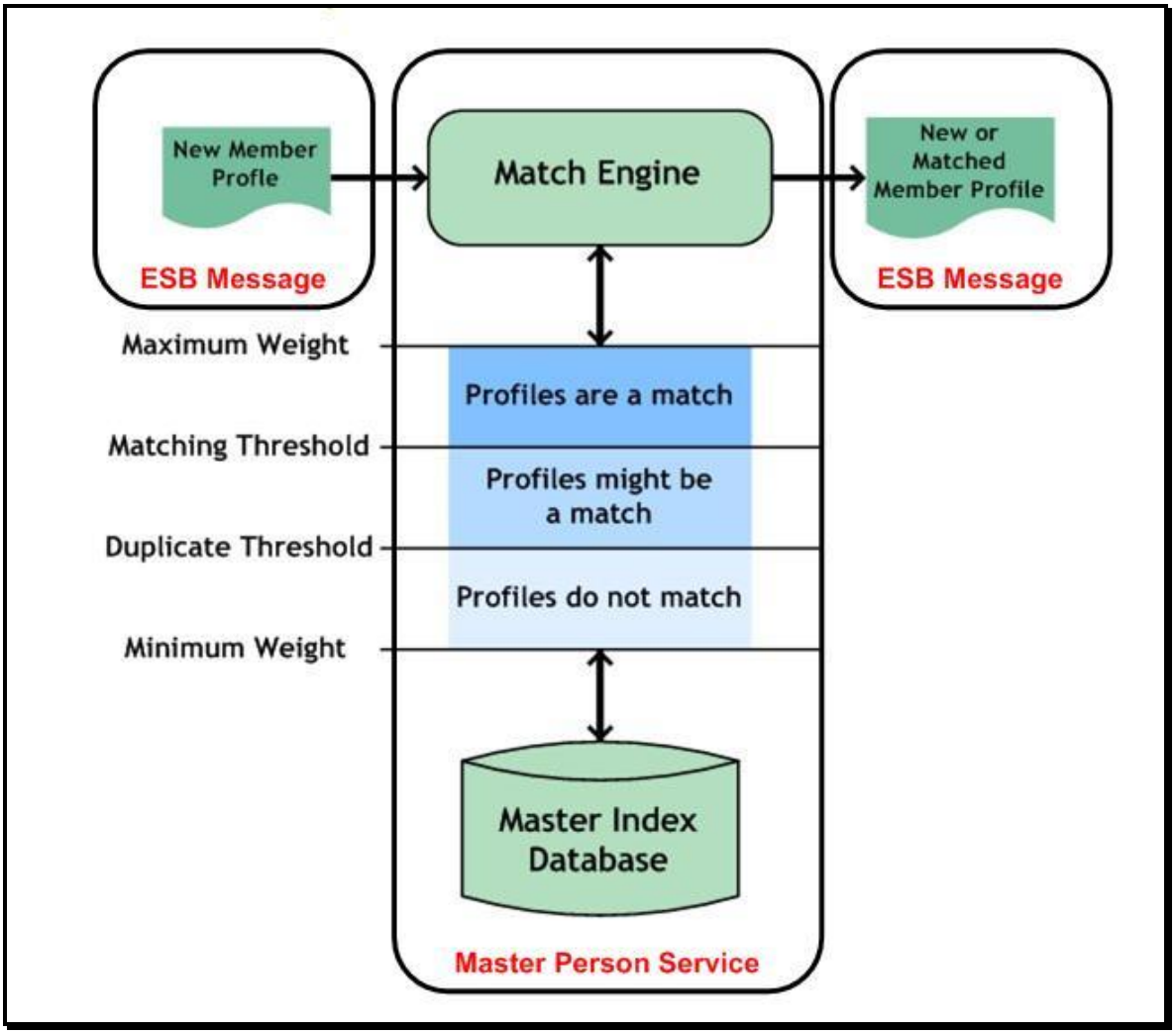

Figure 7 - EMPI Functional Diagram

REQUIREMENTS

3.3 De-identification Service

Model and Terminology Services (MTS)

DESCRIPTION

The effort will specify a set of data models and associated terminologies for use in the system. These data models and terminologies will be based on the appropriate accredited or de facto national or industry standards.

Terminology services include the following elements:

1. Structural Vocabulary
2. Coded Data Types
3. Vocabulary Domains
4. Vocabulary Specific Standards
5. Vocabulary Localization Rules

Model services include the following elements:

1. Data structures
2. Data model domains
3. Data model standards
4. Metadata Repositories
5. Metadata Standardization

REQUIREMENTS

Clinical Decision Support (CDS)

DESCRIPTION

CDS provides clinicians, staff, patients, and other individuals with knowledge and patient-specific information to enhance health and health care. It encompasses a variety of tools and interventions, such as computerized alerts and reminders, clinical guidelines, order sets, patient data reports and dashboards, documentation templates, diagnostic support, and clinical workflow tool. The CDS is comprised of a set of knowledge-based tools that is integrated with both clinician workflow and a repository of patient-specific clinical data (CDR). But when making healthcare decisions, clinicians should consider not only the health problems and clinical status of specific patients, but also the expected outcomes of a population of patients with similar health problems and clinical status (CDW). The clinical data warehouse is the bridge between patient-centered decision-making and population-based healthcare decision-making.

Best practice is that which is effective for a population of similar patients. To further best practice, clinical decision support must be about information from both patient-specific and population-based perspectives. This means the clinical decision support system must provide two levels of information analysis:

1. Clinical Data Repository (CDR - OLTP), which typically covers patient data at the point of care;

2. Clinical Data Warehouse (CDW - OLAP), or retrospective crunching of population-based data.

Within the context of the Clinical Data Project, the CDS will implement functionality that is most needed and will provide the best value proposition for all participants.

REQUIREMENTS

Clinical Data Warehouse {OLAP}

DESCRIPTION

A clinical data warehouse is a database that has been optimized for data analysis using aggregated clinical information; it is a subject-oriented, integrated, time-variant, nonvolatile collection of data in support of clinical management and decision-making. A clinical data warehouse generally receives its data from the clinical data repository but can also be instantiated directly from messaged or transferred information. What differentiates the clinical data warehouse from the repository is that it is not patient centric but rather the data is combined and architected in such a way to answer specific questions or to provide performance/quality feedback within the organization. The warehouse is generally designed for long term archival of clinical data and aggregation across institution, provider, cost center, payor, function, health codes, etc. The selection of the aggregation schemes is driven by the determination of what is needed to be monitored and fed back to the organization in order to improve quality of care, cost of service delivery or identify trends and patterns.

The overall goals of a data warehouse are identified as:

1. The data warehouse provides access to clinical or organizational data.
2. The data in the warehouse is consistent with data from source systems.
3. The data in the warehouse can be separated and combined by means of every possible measure in the business.
4. A complete data warehouse is not just data, but also a set of tools to query, manage, analyze, and present information.
5. The quality of the data in the data warehouse is a driver of business reengineering.

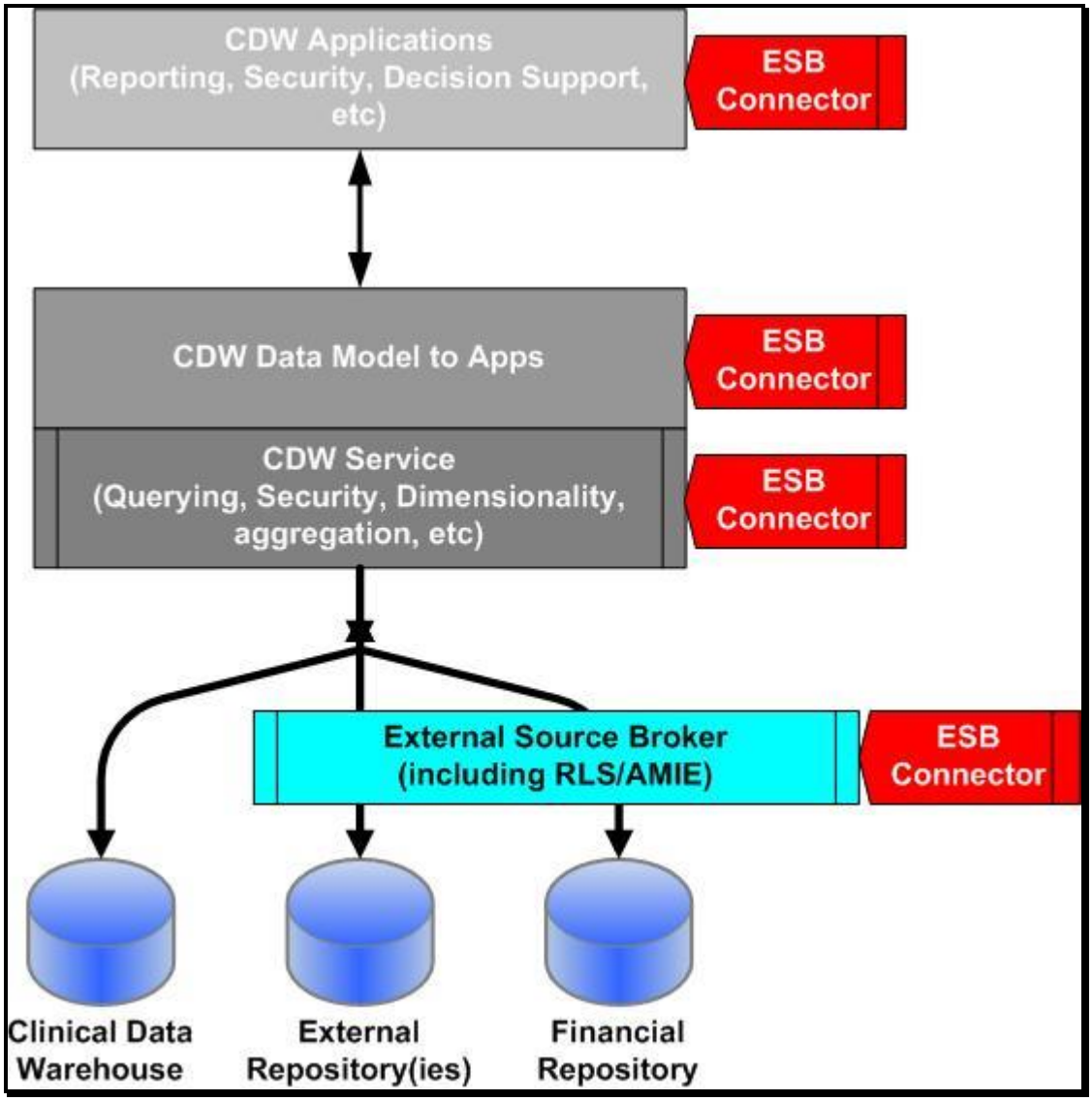

Figure 8 - Clinical Data Warehouse System Architecture

REQUIREMENTS

6.2.1 CDW Content and Structure
6.2.2 CDW Reporting
6.2.3 CDW Functionalities
6.2.4 Data Security

Clinical Data Repository (CDR) {OLTP}

DESCRIPTION

Clinical data repositories are databases that have been specifically designed to support clinical transactions. They integrate data entered by clinicians via the presentation layer with data from other source systems, such as laboratory information systems, radiology information systems, and pharmacy information systems, or from medical devices such as EKG machines, automated

blood pressure cuffs, and IV pumps. They also may receive data from external sources, such as disease management data from a health plan, a current medication list from a referring provider (possibly through a provider portal or a continuity of care record transaction), a health history from a patient (possibly through a patient portal or personal health record system), or formulary information from a drug knowledge base vendor. Software applications then provide the instructions for processing these data in the repository, such as providing an alert about a potential drug-drug interaction or supplying a template populated with patient data to serve as the baseline for updating a patient assessment (rather than reentering the assessment with every admission).

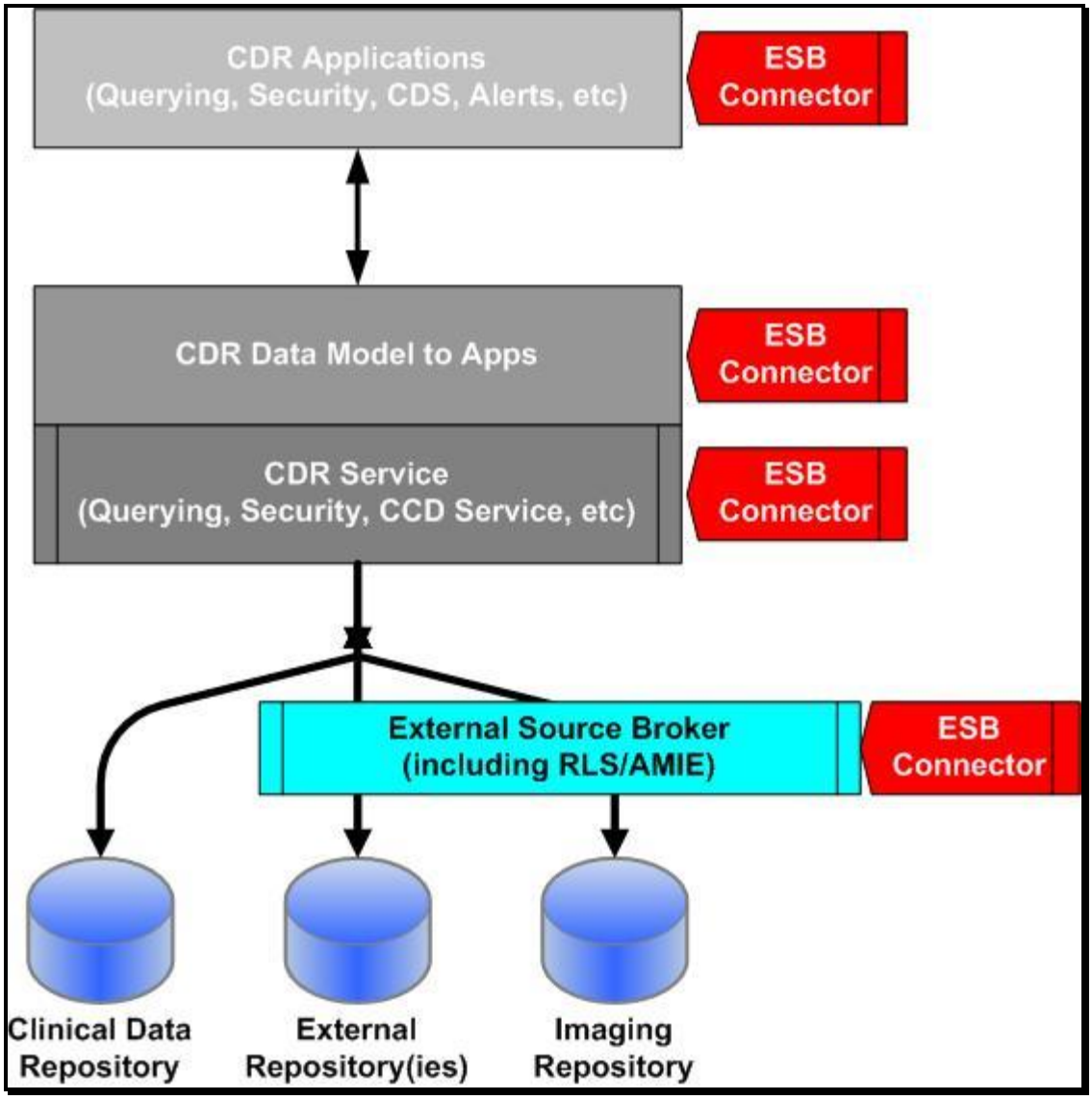

Figure 9 - Clinical Data Repository System Architecture

REQUIREMENTS

7.2.1 CDR Content and Structure

7.2.2 CDR Querying

7.2.3 CDR Functionalities
7.2.4 CDR Security

Physician Portal (including CCD viewer)

DESCRIPTION

The physician portal will provide access to an integrated patient centric view of all data available in the clinical data repository. The physician portal will enable providers to search for and retrieve unstructured/unstructured and structured clinical data stored in the clinical data repository. As part of the physician portal, a CCD viewer may support the communication of information for the discharge and/or transfer of a patient from one care setting to another.

Below is a conceptual representation of a physician portal and how the information may be organized.

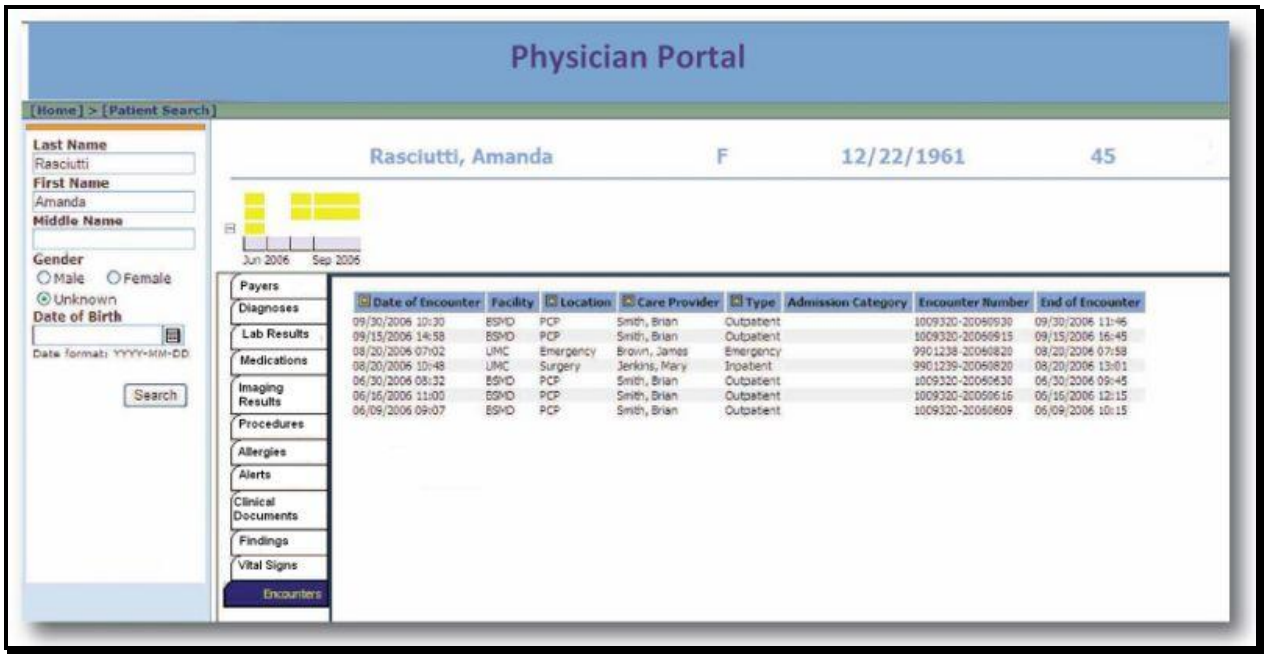

Figure 10 - Physician Portal Example

Appendix A – Potential data Sources

Below is a list of preferred data providers for the project. Data providers may include hospitals, laboratories, pharmacy benefit managers, and government agencies, such as AHCCCS. The list of preferred data providers was constructed using the following criteria:

1. The top 15 AHCCCS healthcare providers ranked by laboratory procedure count and dollar value in a period of 6 months.
2. The top 15 AHCCCS healthcare providers ranked by imaging procedure count and dollar value in a period of 6 months.
3. All PBM's servicing current AHCCCS Health Plans were added to the preferred list.
4. All AHCCCS Health Plans were added to the preferred list.
5. AHCCCS was added to preferred list, since it can supply clinical information through their claim data.

The providers on this list may be able to deliver a data set that is large enough to be significant for increased quality of care and cost savings. This data set includes,

1. Approximately 70% of all laboratory procedures for AHCCCS patients.
2. A large percent of all medication data related to AHCCCS paid claims.
3. A large percent of all diagnoses/problems/finding/procedures reported through claim data.

Data Provider	Data Provider Type	Systems
AHCCCS	Government Agency	PMMIS
AHCCCS Health Plans	Health Plans	
Banner Alzheimer's Institute	Hospital	Cerner Millenium
Banner Baywood Medical Center	Hospital	Cerner Millenium
Banner Behavioral Health Hospital	Hospital	Cerner Millenium
Banner Boswell Medical Center	Hospital	Cerner Millenium
Banner Children's Hospital at Banner Desert M	Hospital	Cerner Millenium
Banner Del E. Webb Medical Center	Hospital	Cerner Millenium
Banner Desert Medical Center	Hospital	Cerner Millenium
Banner Estrella Medical Center, Phoenix	Hospital	Cerner Millenium
Banner Gateway Medical Center	Hospital	Cerner Millenium
Banner Good Samaritan Medical Center	Hospital	Cerner Millenium
Banner Heart Hospital	Hospital	Cerner Millenium
Banner Ironwood Medical Center	Hospital	Cerner Millenium
Banner Thunderbird Medical Center	Hospital	Cerner Millenium
Bradshaw Mtn Dia Lab	Laboratory	Homegrown
Carondelet St. Mary's Hospital	Hospital	Cerner Millenium
Casa Grande Regional Medical Center	Hospital	Cerner
Chandler Regional Hospital	Hospital	
ExpressScripts,	PBM	
Flagstaff Medical center	Hospital	Cerner
John C Lincoln Deer Valley	Hospital	Meditech
Kingman Regional Medical Center	Hospital	
Laboratory Corp	Laboratory	
Maricopa Medical Center	Hospital	Cerner Basic
Maryvale Hospital Medical Center	Hospital	McKesson
Medco	PBM	
Navapache Hospitals	Hospital	CPSI
Northwest Medical Center	Hospital	Meditech
Phoenix Baptist Hospital	Hospital	
Phoenix Children's Hospital	Hospital	
PrescriptionSolutions	PBM	
RxAmerica	PBM	
SonoraQuest Laboratories	Laboratory	Lab Quest, Novovision Novopath
St. Joseph's Hospital	Hospital	Cerner Millenium
Tucson Medical Center	Hospital	Sunquest, Epic Systems
United Drugs	PBM	
University Medical Center - AZ	Hospital	Sunquest
US Scripts	PBM	
WHI	PBM	
Yuma Regional Medical Center	Hospital	Sunquest, Cerner

Appendix B – Supported Data Standards

Data providers may push data in the following standard formats based on the data types. HL7 2.X is more ubiquitous than HL7 V3, so it is more likely that we will receive data in HL7 2.X.

Data Type	Data Standard
Patient/Provider Demographics	HL7 ADT
Payer and Benefits Info	HIPAA EDI 271 Eligibility Response HIPAA EDI 834 Benefit Enrollment and Maintenance Set
Problems and Diagnoses	HIPAA EDI 837 Health Care Claim Transaction set
Lab Results	HL7 2.X ORU
Medications	NCPCP
Imaging Results	DICOM
Procedures	HIPAA EDI 837 Health Care Claim Transaction set
Allergies	HL7 ADT
Alerts	OASIS Common Alerting Protocol V1.1, OASIS Emergency Data Exchange Language (EDXL) Distribution Element (DE) Version
Clinical Documents - History and Physical exam, Progress Notes, Procedure notes, Radiology Notes, Pathology Notes, Discharge Summary/Transfer Notes, SOAP Notes, Continuity of Care Document.	HL7 MDM
Findings	HIPAA EDI 837 Health Care Claim Transaction set
Vital Signs	HL7 ORU
Encounters	HL7 ADT
Order Information	All of this standards have order information data (HL7 ORU, NCPDP, DICOM, HL7 MDM)

Appendix C – Stakeholders

Stakeholder	Working Definition
Administrators	Administrators, broadly speaking, engage in a common set of functions to meet the health care organization's goals. These may include planning, staffing, data collection, etc.
Ancillary Entities	Organizations that perform auxiliary roles in delivering healthcare services. They may include diagnostic and support services such as laboratories, imaging and radiology services, and pharmacies that support the delivery of healthcare services. These services may be delivered through hospitals or through freestanding entities.
Clinicians	Healthcare providers with patient care responsibilities, including physicians, advanced practice nurses, physician assistants, nurses, and other credentialed personnel involved in treating patients.
Consumers	Members of the public who may, or may not, be actively receiving healthcare services. These individuals may include: caregivers, patient advocates, surrogates, family members, and other parties who may be acting for, or in support of, a patient in the activities of receiving healthcare.
Data Providers	Systems or networks that provide laboratory data or associated patient information (e.g., maintains master patient index).
Drug Knowledge Suppliers	Organizations that maintain and provide reference information on drugs that is used to provide clinical content in pharmacy systems and EHRs. Drug reference information provides the clinical content for medication screening for possible contraindications such as drug-drug, drug-allergy, or drug-diagnosis interactions and inappropriate dosing. It also can provide assistance in selecting appropriate medications and quick access to monographs and other reference information. Drug Knowledge Suppliers can also provide new warnings, prescribing limitations, similar communications, and patient education information.
Government Health Care Agencies	Agencies that have programs at the local, state or federal level that are involved with the delivery and/or regulation of healthcare.
Healthcare Delivery Organizations	Organizations such as hospitals and physician practices that manage the delivery of care. They may also include institutional providers of healthcare such as ambulatory surgical centers and public health department immunization clinics.
Health Information Exchange (HIE)	A multi-stakeholder entity that enables the movement of health-related data within state, regional, or non-jurisdictional participant groups.
Health Information Management (HIM) Personnel	Personnel who manage healthcare data and information resources, encompassing services in planning, collecting, aggregating, analyzing, and disseminating individual patient and aggregate clinical data
Health Information Technology	Organizations, or parts of organizations, that provide HIT solutions such as HER applications, data repositories, web services, etc.

System Developers	
Healthcare Payers	Insurers, including health plans, self-insured employer plans, and third party administrators, providing healthcare benefits to enrolled members and reimbursing provider organizations. As part of this role, they provide information on eligibility and coverage for individual consumers. Case management or disease management may also be supported.
Healthcare Purchasers	Entities, such as employers, that purchase healthcare for the beneficiaries for which they are responsible.
Health Researchers	Those performing research using healthcare information.
Knowledge Engineers	Knowledge engineers capture clinical knowledge in a structured form and incorporate it into tools supporting clinical practice. The knowledge can be represented in different ways such as rule sets, knowledge bases, guidelines, and other content to assist with a variety of different kinds of decision support.
Medication Network Intermediaries (MNIs)	These entities support the healthcare process by accomplishing communication among providers, pharmacies, and pharmacy benefits managers or payers as needed for medication dispensing and reimbursement. In this role, they are both a conduit for communication and a source of information on aspects of medication management such as medication prescription history, dispensing status, and pharmacy benefits. This stakeholder group includes Pharmacy Network Intermediaries, ePrescribing Network Intermediaries, clearinghouses, and similar organizations.
Patients	Members of the public who receive health care services.
Personal Health Record (PHR) System Suppliers	Organizations which provide specific PHR solutions to clinicians and patients such as software applications and software services. These suppliers may include developers, providers, resellers, operators, and others who may provide these or similar capabilities.
Pharmacists	Health professionals and clinicians who are licensed to prepare and dispense medication pursuant to the request of authorized prescribers. The practice of pharmacy includes, but is not limited to, the assessment, monitoring, and modification of medication and the compounding or dispensing of medication. Direct care activities that pharmacists can perform at times include patient education, patient assessment, consultation, and support for medication use.
Pharmacy Benefit Managers (PBMs)	These entities manage pharmacy benefits on behalf of payers, interacting with pharmacies and providers via a medication network intermediary. As part of this role, they can provide information on pharmacy benefits available to an individual consumer and an individual consumer's medication history.
Processing Entities	Organizations which collect, aggregate, and process healthcare information for primary or secondary use. In this use case, processing entities deal with quality information. Examples include but are not limited to clearinghouses, Joint Commission-contracted Performance Measurement System vendors, and regional health information exchange organizations.
Public Health	Federal, state, local organizations and personnel that exist to help protect and

Agencies (local/state/federal)	improve the health of their respective constituents.
Quality Organizations	Public/private organizations active in the healthcare quality measurement enterprise. These organizations include entities which set priorities, endorse measure sets, harmonize quality measures across settings, establish guidelines for collection and reporting, and support quality improvement. Examples of various quality organizations include the National Quality Forum (NQF), Hospital Quality Alliance (HQA), AQA, The Joint Commission, Centers for Medicare and Medicaid Services (CMS), the National Committee for Quality Assurance (NCQA), Quality Improvement Organizations (QIOs) and specialty medical boards.
Registries	Organized systems for the collection, storage, retrieval, analysis, and dissemination of information to support health needs. This also includes government agencies and professional associations which define, develop, and support registries. These may include registries of phenotypic and genotypic information. E.g. the ASIIS registry for immunization, CDC for disease control, etc.
System Vendors	Organizations that develop and provide health information technology solutions. These solutions may include applications, data repositories, web services, etc., that contain or support the organization of genetic/genomic information.
Terminology and interface experts	Perform data mapping and technical activities to support the overall functioning of the system.
Testing Laboratories	Medical testing laboratories, either within a hospital, ambulatory, or clinician office environment and/or operating as a free-standing entity, which meet regulatory standards for clinical laboratories and analyze specimens as ordered by providers to assess the health status of patients. Specifically, testing laboratories perform genetic/genomic and other laboratory tests ordered by genetic specialists and clinicians to assess the genetic status of patients.

Appendix D – Full Detailed Requirements

System/ Service	Function	Serial	Requirements	Comments	Source
	Overall System				
Overall System	General Requirements	SYSGR-001	The System shall be compliant with HIPAA and all other applicable legal requirements.		
Overall System	General Requirements	SYSGR-002	The System shall be compliant with the strategic direction set out by the appropriate organization(s) acting on behalf of the State of Arizona.		
Overall System	General Requirements	SYSGR-003	The System shall be compliant with HL7 where applicable.		
Overall System	General Requirements	SYSGR-004	The System shall be compliant with SOAP/Secure Web Services		
Overall System	General Requirements	SYSGR-005	The System shall be compliant with CCD		
Overall System	General Requirements	SYSGR-006	The System shall be compliant with WS-I (Web Services Interoperability)		
Overall System	General Requirements	SYSGR-007	The System shall be compliant with WS-Security		
Overall System	General Requirements	SYSGR-008	The System shall be compliant with HITSP specifications where applicable		
Overall System	General Requirements	SYSGR-009	HITSP_vX.X_200X_TN900 - Security and Privacy.pdf		

Overall System	General Requirements	SYSGR-010	HITSP_vX.X_200X_C19 - Entity Identity Assertion.pdf		
Overall System	General Requirements	SYSGR-011	HITSP_vX.X_200X_C26 - Nonrepudiation of Origin.pdf		
Overall System	General Requirements	SYSGR-012	HITSP_vX.X_200X_T15 - Collect and Communicate Security Audit Trail.pdf		
Overall System	General Requirements	SYSGR-013	HITSP_vX.X_200X_T16 - Consistent Time.pdf		
Overall System	General Requirements	SYSGR-014	HITSP_vX.X_200X_T17 - Secured Communication Channel.pdf		
Overall System	General Requirements	SYSGR-015	HITSP_vX.X_200X_TP20 - Access Control.pdf		
Overall System	General Requirements	SYSGR-016	HITSP_vX.X_200X_TP30 - Manage Consent Directives.pdf		
Overall System	General Requirements	SYSGR-017	HITSP_vX.X_200X_TP13 - Manage Sharing of Documents.pdf		
Overall System	General Requirements	SYSGR-018	The System shall have a mechanism to identify and forward records for public health reporting (as specified in HITSP IS 02)		
Overall System	General Requirements	SYSGR-019	Systems shall be able to receive requests for data correction and forward them to the data owner		

Overall System	General Requirements	SYSGR-020	For every participating organization (a business entity that participates in the System) that provides or obtains protected health information enabled by the System, the System shall ensure that there is a unique ID that identifies that organization. (As specified in HITSP constructs, unique entity identification is done by locally unique identifier and a globally unique entity identifier, i.e., ISO OID)		
Overall System	General Requirements	SYSGR-021	The System shall support ensuring the authenticity of remote nodes (mutual node authentication) when communicating Protected Health Information (PHI) over the Internet or other known open networks using an open protocol (e.g. TLS, SSL, IPSec, XML sig, S/MIME).		
Overall System	General Requirements	SYSGR-022	The System shall provide a means to add a system and its associated certificate to the list of authorized systems that may access information through the System (consistent with HITSP C19)		
Overall System	General Requirements	SYSGR-023	The System shall provide a means to suspend a system's authorization to access information through the System		
Overall System	General Requirements	SYSGR-024	The System shall provide a means to establish an effective date and an expiration date for a system's authorization to access information through the System.		
Overall System	General Requirements	SYSGR-025	Every transaction that requests or contains protected health information, and is imputed directly to a specific user shall contain an unambiguous ID of the user and any organization IDs that are necessary to ensure that the combination of the IDs identifies a unique user within a System		
Overall System	General Requirements	SYSGR-026	Transactions imputable to a user will contain the role of the user in a standard representation		

Overall System	General Requirements	SYSGR-027	Systems shall obtain a unique identifier for/from the System. (As specified in HITSP constructs, unique entity identification is done by locally unique identifier and a globally unique entity identifier, i.e., ISO OID)		
Overall System	General Requirements	SYSGR-028	When sending user identity information between Systems, both the System identifier and the unique user identity within the sending System must be used to ensure uniqueness between Systems.		
Overall System	General Requirements	SYSGR-029	The System shall maintain a directory of entities that participate in the System. The directory shall include: entity name, address, OID, principal contact name and phone number, modes of participation in the NHIN, message types supported		
Overall System	Policy Requirements	SYSPR-001	Policies for who has access to what type of documents within the System		
Overall System	Policy Requirements	SYSPR-002	Policies for who is allowed to publish documents into the System		
Overall System	Policy Requirements	SYSPR-003	Policies on the acceptable types of documents in the System		
Overall System	Policy Requirements	SYSPR-004	Policies that indicate acceptable levels of risk within System		
Overall System	Policy Requirements	SYSPR-005	Policies that indicate what sanctions will be imposed on individuals that violate the System policies		
Overall System	Policy Requirements	SYSPR-006	Policies on training and awareness		
Overall System	Policy Requirements	SYSPR-007	Policies on user provisioning and de-provisioning within affinities (and local operations policy)		

Overall System	Policy Requirements	SYSPR-008	Policies on emergency mode operations		
Overall System	Policy Requirements	SYSPR-009	Policies on acceptable network use and protections		
Overall System	Policy Requirements	SYSPR-010	Policies on authentication methods that are acceptable		
Overall System	Policy Requirements	SYSPR-011	Policies on backup and recovery planning		
Overall System	Policy Requirements	SYSPR-012	Policies on acceptable third party access		
Overall System	Policy Requirements	SYSPR-013	Policies on secondary use of the information in the System		
Overall System	Policy Requirements	SYSPR-014	Policies on the availability of the System (is the System considered life critical, 115 normal, or low priority)		
Overall System	Policy Requirements	SYSPR-015	Policies for maintenance		
Overall System	Policy Requirements	SYSPR-016	Policies for length of time that information will be maintained in the System		
Overall System	Transaction Support	SYSTS-001	The System SHALL have the ability to perform the roles of Sender and Receiver of clinical laboratory results using HL7 v.2.5.1 as specified in the HITSP Component 36 Lab Message and Component 35 EHR Lab Terminology.		

Overall System	Transaction Support	SYSTS-002	The System SHALL have the ability to perform the roles of Sender and Receiver of clinical laboratory results using HL7 CDA r2 as specified in the HITSP Component 37 Lab Report Document Structure with the contents and terminology specified in HITSP Component 35 EHR Lab Terminology.		
Overall System	Transaction Support	SYSTS-003	The System SHALL have the ability to perform the role of Patient Identifier Cross Reference Consumer and Patient Identifier Cross Reference Manager as documented in HITSP Transaction Package 22 Patient ID Cross Referencing.		
Overall System	Transaction Support	SYSTS-004	The System SHALL have the ability to perform the roles of Document Consumer, Document Source, Document Repository, Document Registry and Patient Identity Source as documented in HITSP Transaction Package 13 Manage Sharing of Documents, as updated in 2007 IHE XDS-b and IHE XCA. The document repository may be in the System itself, or in an edge system participant in the network.E27		
Overall System	Transaction Support	SYSTS-005	The System SHALL have the ability to perform the roles of Patient Demographics Supplier as documented in HITSP Transaction 23 Patient Demographics Query. IF transmitting, transporting, translating or mapping lab result terminology THEN the System SHALL have the ability to support SNOMED-CT VA Problem List Subset (FDA Structured Product Labeling Problem List Subset), SNOMED-CT Lab Test Findings Table, SNOMED-CT Organisms, Laboratory LOINC, and Universal Codes for Units of Measure (UCUM), as documented in HITSP C35 Lab Result Terminology.		
Overall System	Transaction Support	SYSTS-006	The System SHALL have the ability to perform the role of Patient Identifier Cross Reference Consumer and Patient Identifier Cross Reference Manager as documented in HITSP Transaction Package 22 Patient ID Cross Referencing.		

Overall System	Transaction Support	SYSTS-007	The System SHALL have the ability to perform the roles of Document Consumer, Document Source, Document Repository, Document Registry and Patient Identity Source as documented in HITSP Transaction Package 13 Manage Sharing of Documents, and in HITSP Transaction Package 49 Sharing Radiology Results, as updated in 2007 IHE XDS-b and IHE XCA, and using IHE XDS-I for Radiology results. The document repository may be in the System entity itself, or in an edge system participant in the network.E13		
Overall System	Transaction Support	SYSTS-008	The System SHALL perform the roles of Patient Identity Cross-Reference Manager and Pseudonymization Service as documented in "HITSP_v2.0_2007_T24 - Notification of Document Availability." Patient Identifier Cross-Reference Manager invokes Pseudonymization Service via a remote procedure call (RPC) to which it passes patient demographic information that is mapped using a cryptographic algorithm by Pseudonymization Service to the pseudo-identifying information that is returned to the caller.		
Overall System	Transaction Support	SYSTS-009	The System SHALL have the ability to perform the roles of Sender and Receiver of HL7 v2 resource utilization messages as documented in the HITSP Component 47 Resource Utilization Message.		
Overall System	Transaction Support	SYSTS-010	The System SHALL have the ability to perform the roles of Sender and Receiver of HL7 v2 encounter messages as documented in the HITSP Component 39 Encounter Message.		
Overall System	Transaction Support	SYSTS-011	The System SHALL have the ability to perform the roles of Sender and Receiver of HL7 CDAr2 encounter documents as documented in the HITSP Component 48 Encounter Document.		

Overall System	Transaction Support	SYSTS-012	The System SHALL have the ability to perform the roles of Sender and Receiver of HL7 v2 radiology messages as documented in the HITSP Component 41 Radiology Message.		
Overall System	Transaction Support	SYSTS-013	The System SHALL have the ability to perform the roles of Sender and Receiver of clinical laboratory results using HL7 v.2.5.1 as specified in the HITSP Component 36 Lab Message and Component 35 EHR Lab Terminology.		
Overall System	Transaction Support	SYSTS-014	The System SHALL have the ability to perform the roles of Sender and Receiver of clinical laboratory results using HL7 CDA r2 as specified in the HITSP Component 37 Lab Report Document Structure with the contents and terminology specified in HITSP Component 36 Lab Message and Component 35 EHR Lab Terminology. IF transmitting, transporting, translating or mapping lab result terminology THEN the System SHALL have the ability to support SNOMED-CT VA Problem List Subset (FDA Structured Product Labeling Problem List Subset), SNOMED-CT Lab Test Findings Table, SNOMED-CT Organisms, Laboratory LOINC, and Universal Codes for Units of Measure (UCUM), as documented in HITSP C35 Lab Result Terminology.		
Overall System	Transaction Support	SYSTS-015	The System SHALL have the ability to perform Acknowledgements as documented in HITSP Component 45 Acknowledgements.		
Overall System	Transaction Support	SYSTS-016	The System SHALL have the ability to perform the roles of Form Manager, Form Receiver and Form Archiver as documented in HITSP Transaction Package 50 Retrieve Form For Data Capture.		

Overall System	Transaction Support	SYSTS-017	The System SHALL have the ability to perform the roles of Document Consumer, Document Source, Document Repository, Document Registry and Patient Identity Source as documented in HITSP Transaction Package 13 Manage Sharing of Documents, as updated in 2007 IHE XDS-b and IHE XCA. The document repository may be in the System entity itself, or in an edge system participant in the System.		
Overall System	Transaction Support	SYSTS-018	The System SHALL have the ability to perform the role of Patient Identifier Cross Reference Consumer and Patient Identifier Cross Reference Manager as documented in HITSP Transaction Package 22 Patient ID Cross Referencing.		
Overall System	Transaction Support	SYSTS-019	The System SHALL have the ability to perform the roles of Patient Demographics Supplier as documented in HITSP Transaction 23 Patient Demographics Query.		
Overall System	Transaction Support	SYSTS-020	The System SHALL have the ability to perform the roles of Document Consumer, Document Source, Document Repository, Document Registry and Patient Identity Source as documented in HITSP Transaction Package 13 Manage Sharing of Documents, as updated in 2007 IHE XDS-b and IHE XCA, and using HITSP Component 32 Registration Summary and Medication History for the specification of the HL7/ASTM Continuity of Care Document (CCD) healthcare summary document, as updated by HITSP in 2007.		
Overall System	Transaction Support	SYSTS-021	The System SHALL have the ability to send and receive the HL7/ASTM Continuity of Care Document (CCD) healthcare summary document, as updated by HITSP in 2007.		

Overall System	Transaction Support	SYSTS-022	The System SHALL have the ability to perform the roles of Document Consumer, Document Source, Document Repository, Document Registry and Patient Identity Source as documented in HITSP Transaction Package 13 Manage Sharing of Documents, as updated in 2007 IHE XDS-b and IHE XCA.		
Overall System	Transaction Support	SYSTS-023	The System SHALL have the ability to perform the roles of Document Consumer, Document Source, Document Repository, Document Registry and Patient Identity Source as documented in HITSP Transaction Package 13 Manage Sharing of Documents, as updated in 2007 IHE XDS-b and IHE XCA.		
Overall System	Transaction Support	SYSTS-024	The System SHALL have the ability to perform the roles of Document Consumer, Document Source, Document Repository, Document Registry and Patient Identity Source as documented in HITSP Transaction Package 13 Manage Sharing of Documents, as updated in 2007 IHE XDS-b and IHE XCA.		
Overall System	Transaction Support	SYSTS-025	The System SHALL have the ability to perform the role of Patient Identifier Cross Reference Consumer and Patient Identifier Cross Reference Manager as documented in HITSP Transaction Package 22 Patient ID Cross Referencing.		
Overall System	Transaction Support	SYSTS-026	The System shall perform the role of Document Consumer as specified in the HITSP C32 Document		

Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Security Requirements**		Communications between entities must be strongly secured with technologies to protect against several potential threats. A secure communication infrastructure built on X.509 Public Key Infrastructure must provide: Message Level Protection Identity verification of both the sending and receiving entities Message encryption to ensure data confidentiality. Message signing verifies data origin. Protection against malformed or malicious messages. Service level protection Protection from malformed or malicious Shielding exceptions from revealing sensitive implementation details Replay protection Audit logging		
Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Security Requirements**	SYSSR-001	The System shall require that sending systems provide evidence of the origin of the information. This evidence must be verifiable by the System.		
Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Security Requirements**	SYSSR-002	The System shall provide to senders of data to the System evidence of a receipt of information		

Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Security Requirements**	SYSSR-003	The System shall be able to support time synchronization using NTP/SNTP, and use this synchronized time in all security records of time.		
Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Security Requirements**	SYSSR-004	The System shall be able to forward responses to legally authorized health agency or other authorized recipient (as specified in HITSP IS 02 and IS 06)		
Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Security Requirements**	SYSSR-005	The system shall not allow access to data or functions that exceed the System specified access for the user type or role		
Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Security Requirements**	SYSSR-006	The System shall provide the ability for authorized administrators to assign restrictions or privileges to users/groups.		
Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Security Requirements**	SYSSR-007	The System must be able to associate permissions with a user using one or more of the following access controls: 1) user-based (access rights assigned to each user); 2) role-based (users are grouped and access rights assigned to these groups); or 3) context-based (role-based with additional access rights assigned or restricted based on the context of the transaction such as time-of-day, workstation-location, emergency-mode, etc.)		
Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Security Requirements**	SYSSR-008	The System shall support removal of a user's privileges without deleting the user from the system. The purpose of the criteria is to provide the ability to remove a user's privileges, but maintain a history of the user in the system.		

Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Security Requirements**	SYSSR-009	The System shall authenticate the user before any access to Protected Resources (e.g. PHI) is allowed, including when not connected to a network e.g. mobile devices.		
Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Security Requirements**	SYSSR-010	The System upon detection of inactivity of an interactive session shall prevent further viewing and access to the system by that session by terminating the session, or by initiating a session lock that remains in effect until the user reestablishes access using appropriate identification and authentication procedures. The inactivity timeout shall be configurable.		
Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Privacy Requirements**	SYSPrR-001	The System must account for special restrictions on specific class of healthcare data such as genetic test results, mental health information, AIDS/HIV related information, sexual abuse and STD information over and above HIPAA. (note : State laws supersede HIPAA in these matters).		
Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Privacy Requirements**	SYSPrR-002	The system should provide a high level of privacy to the patient by way of ensuring that the information pertaining to the patients shall not be accessed or distributed to parties not authorized by the patient or his provider		
Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Confidentiality Requirements**	SYSCR-001	The System shall be able to pseudo-anonymize as defined in HITSP T24. The pseudo identifier will be unique to the patient and the data source, i.e., it will not be unique to the patient		

Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Confidentiality Requirements**	SYSCR-002	The System shall be able to re-identify a pseudo-anonymized record upon request from an authorized authority and with appropriate controls		
Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Confidentiality Requirements**	SYSCR-003	The System shall support protection of integrity and confidentiality of all Protected Health Information (PHI) delivered over the Internet or other known open networks via an open protocol such as TLS, SSL, IPSec, XML digital signature, or S/MIME or their successors		
Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Confidentiality Requirements**	SYSCR-004	For Systems with a repository, the System "break the glass" function must be capable of requiring the clinician requesting access to information to document and record the reason(s) for requesting access.		
Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Consent Requirements**	SYSCoR-001	The System shall be able to register patient preferences to participate or not participate in the System for uses other than direct delivery of information in fulfillment of an order. This criteria is not intended to prohibit Systems from meeting any legal or regulatory requirements that a System may be subject to. A System can meet this criteria by implementing these preferences centrally or by ensuring that the Edge systems implement these preferences.		
Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Audit Requirements**	SYSAR-001	The System shall maintain an audit for Transmission, storage, editing or viewing of Protected Health Information (PHI)		

Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Audit Requirements**	SYSAR-002	The System shall maintain an audit for Creation deletion and modification of users and roles		
Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Audit Requirements**	SYSAR-003	The System shall maintain an audit for Changes made to security access permissions for any user		
Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Audit Requirements**	SYSAR-004	The System shall maintain an audit for Changes made to patient or provider level information sharing policies		
Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Audit Requirements**	SYSAR-005	The System shall maintain an audit for Searches that are performed for patients who are enrolled at other providers		
Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Audit Requirements**	SYSAR-006	The System shall record within each audit record the following information when it is available: (1) date and time of the event; (2) the component of the system (e.g. software component, hardware component) where the event occurred; (3) type of event (including: data description and patient identifier when relevant); (4) subject identity (e.g., document source, document consumer); and (5) the outcome (success or failure) of the event.		
Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Audit Requirements**	SYSAR-007	The System shall support logging to a common audit engine using the schema and transports specified in the Audit Log specification of IHE Audit Trails and Node Authentication (ATNA) Profile		

Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Audit Requirements**		When interconnecting with other systems, the System shall support auditing and logging of activities that occur between the interconnected systems.		
Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Audit Requirements**	SYSAR-008	The System shall be able to detect security-relevant events that it mediates and generate audit records for them. At a minimum the events shall include: start/stop, user login/logout, session timeout, account lockout, patient record created/viewed/updated/deleted, scheduling, query, order, node-authentication failure, signature created/validated, PHI export (e.g. print), PHI import, and security administration events. Note: The system is only responsible for auditing security events that it mediates. A mediated event is an event that the system has some active role in allowing or causing to happen or has opportunity to detect. The system is not expected to create audit logs entries for security events that it does not mediate. This criterion is intended to apply to system administrative functions performed by the System.		
Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Defense Protection Requirements**	SYSDPR-001	The System shall implement firewall protections to prevent unauthorized access		
Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Defense Protection Requirements**	SYSDPR-002	The System shall monitor network traffic to detect intrusions and block illegitimate activities.		

Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Defense Protection Requirements**	SYSDPR-003	The System shall monitor computer and network activities to detect intrusions		
Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Defense Protection Requirements**	SYSDPR-004	The System shall have protection against viruses, spyware, and other malicious intrusions that can originate with Web browsing		
Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Defense Protection Requirements**	SYSDPR-005	The System shall conduct internal and external scanning to identify system vulnerabilities to unauthorized access		
Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Defense Protection Requirements**	SYSDPR-006	The System shall have tools to enable remote assessment of system failures		
Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Defense Protection Requirements**	SYSDPR-007	The System shall implement tools to monitor its websites for failures or outages		

Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Defense Protection Requirements**	SYSDPR-008	The System shall implement measures to prevent phishing and pharming		
Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Defense Protection Requirements**	SYSDPR-009	The System shall implement measures to prevent rogue network access		
Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Defense Protection Requirements**	SYSDPR-010	The System shall have in place anti virus protections consistent with the Systems technical environment		
Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Defense Protection Requirements**	SYSDPR-011	The System shall conduct regular system audits		
Overall System	Security, Privacy, Confidentiality, Consent, Audit Requirements : **Defense Protection Requirements**	SYSDPR-012	The System shall have mechanisms to detect and document perimeter violations The System restore functionality shall result in a fully operational and secure state. This state shall include the restoration of the application data, security credentials, and log/audit files to their previous state.		
	Enterprise Service Bus				

Enterprise Service Bus	Partner Connection Requirements	ESBPCR-001	ESB shall restrict data partners to share their data on the network only within the limits of their data partner contracts within the System.		
Enterprise Service Bus	Partner Connection Requirements	ESBPCR-002	ESB shall support a subscription model in which a data partner subscribes to another data partner to automatically receive updates from its systems.		
Enterprise Service Bus	Partner Connection Requirements	ESBPCR-003	ESB contract management utility shall maintain a record of all data partners contracted to share data with details of their contractual rights and obligations.		
Enterprise Service Bus	Partner Connection Requirements	ESBPCR-004	ESB contract management utility shall enforce data partners contractual rights and obligations.		
Enterprise Service Bus	Partner Connection Requirements	ESBPCR-005	ESB contract management utility shall provide the ability to print a report of data partners contractual rights and obligations.		
Enterprise Service Bus	Partner Connection Requirements	ESBPCR-006	ESB contract management utility shall provide the ability to disable data partner temporarily for data sharing.		
Enterprise Service Bus	Partner Connection Requirements	ESBPCR-007	ESB must verify that the systems that send and receive information are the systems they claim to be.		
Enterprise Service Bus	Partner Connection Requirements	ESBPCR-008	The system must afford data sources the ability to control how their data is used.		
Enterprise Service Bus	Partner Connection Requirements	ESBPCR-009	A data source may restrict the use of their data.		
Enterprise Service Bus	Partner Connection Requirements	ESBPCR-010	A data source may specify that certain “data sets” are available through either “push” or “pull” mechanisms or both.		

Enterprise Service Bus	Partner Connection Requirements	ESBPCR-011	If a data partner does not want data available via either mechanism, it is their responsibility to filter this out and not send either the clinical data, or the "notification of the availability of data", to the exchange.		
Enterprise Service Bus	Partner Connection Requirements	ESBPCR-012	A data source may retract a "notification of the availability of data".		
Enterprise Service Bus	Partner Connection Requirements	ESBPCR-013	A data source may publish a "data modification request". These shall include updates, merges, and retractions.		
Enterprise Service Bus	Partner Connection Requirements	ESBPCR-014	A data source may send a message requesting systems to retract clinical data that it had previously distributed. The request should include a reason (e.g. erroneous data, confidentiality concern, patient request, etc.)		
Enterprise Service Bus	Partner Connection Requirements	ESBPCR-015	Data recipients must respond appropriately to "data modification requests" from data sources.		
Enterprise Service Bus	Consent Module Service	ESBCMS-001	ESB will deploy technology to detect or verify patient consent directives.		
Enterprise Service Bus	Consent Module Service	ESBCMS-002	The consent management system must not impose a consent model, but rather must be general enough to support the consent requirements of all participating organizations as well as the consent requirements of other exchanges that may eventually connect to this system.		
Enterprise Service Bus	Consent Module Service	ESBCMS-003	The consent management system must be able to keep track of "programs" and whether an individual has opted-in to a program, or opted-out of a program. A program may be as narrow as a specific clinical trial, or as broad as an enterprise-wide policy or national registry.		

Enterprise Service Bus	Audit Module Service	ESBAMS-001	ESB shall create audit logs of actions taken by the System in response to queries and in managing exchanged data.		
Enterprise Service Bus	Audit Module Service	ESBAMS-002	ESB must prohibit all users read access to the audit records, except those users that have been granted explicit read-access.		
Enterprise Service Bus	Audit Module Service	ESBAMS-003	ESB should protect the stored audit records from unauthorized deletion.		
Enterprise Service Bus	Audit Module Service	ESBAMS-004	ESB must be able to prevent modifications to the audit records.		
Enterprise Service Bus	Audit Module Service	ESBAMS-005	ESB must ensure that once a data partner system has received a message it cannot reasonably deny that it has received the message. Also, System shall ensure that ensure that a sender of a message cannot reasonably deny that it was the source of the message.		
Enterprise Service Bus	Transaction Module Service	ESBTMS-001	ESB shall be able to search and share data among other Systems		
Enterprise Service Bus	Transaction Module Service	ESBTMS-002	ESB must support the following messaging standards HL7 2.X, HL7 V3, X12 EDI, CDA, CCD, DICOM, NCPDP for interfacing with external systems.		
Enterprise Service Bus	Transaction Module Service	ESBTMS-003	ESB must support the exchange of unstructured data(e.g. electronic files .doc, .pdf, .xls, and graphic files)		
Enterprise Service Bus	Transaction Module Service	ESBTMS-004	ESB must support standard clinical terminologies, such as SNOMED, LOINC and RXNORM.		

Enterprise Service Bus	Transaction Module Service	ESBTMS-005	ESB architecture shall be modeled around an SOA		
Enterprise Service Bus	Transaction Module Service	ESBTMS-006	ESB must be based on open standards and not be dependent on any proprietary technologies.		
Enterprise Service Bus	Transaction Module Service	ESBTMS-007	ESB must be scalable and responsive.		
Enterprise Service Bus	Transaction Module Service	ESBTMS-008	ESB must be built to support a high throughput. An initial goal should be to support at least 2 million transactions per day with a peak throughput of at least 300,000 transactions per hour.		
Enterprise Service Bus	Transaction Module Service	ESBTMS-009	ESB hardware and software architecture should support growth well beyond 2 million transactions per day.		
Enterprise Service Bus	Transaction Module Service	ESBTMS-010	ESB must be highly available and should require minimal downtime for maintenance or management.		
Enterprise Service Bus	Transaction Module Service	ESBTMS-011	ESB may cache data to improve system performance, but cache must be kept secured from unauthorized access.		
Enterprise Service Bus	Transaction Module Service	ESBTMS-012	ESB must support both synchronous and asynchronous messaging. System shall not have to wait for a response from the recipient, because it can rely on the messaging infrastructure to ensure delivery. System must allow participants to communicate reliably even if one of the systems is temporarily offline, busy, or unobtainable.		
Enterprise Service Bus	Transaction Module Service	ESBTMS-013	ESB shall ensure sufficient information is available within the message so that it can be unambiguously traced to the user by the participating organization.		

Enterprise Service Bus	Transaction Module Service	ESBTMS-014	ESB must be able to support the exchange of patient records for a minimum of 10,000,000 patients.		
Enterprise Service Bus	Transaction Module Service	ESBTMS-015	ESB must be scalable to support an increasing size statewide network of providers consisting of hundreds/thousands of data partners.		
Enterprise Service Bus	Transaction Module Service	ESBTMS-016	ESB shall ensure that transmissions between systems are delivered reliably and intact.		
Enterprise Service Bus	Transaction Module Service	ESBTMS-017	ESB must support appropriate communication mechanisms such as the WS-I basic profile for web service communications.		
Enterprise Service Bus	Transaction Module Service	ESBTMS-018	ESB must support secure communications through mechanisms such as WS-Security for secure communications between nodes in the system.		
Enterprise Service Bus	Transaction Module Service	ESBTMS-019	ESB must support data integrity mechanisms (e.g. CRC, secure hashing, etc.).		
Enterprise Service Bus	Transaction Module Service	ESBTMS-020	ESB must ensure that robust and informative information is available in the event of errors.		
Enterprise Service Bus	Transaction Module Service	ESBTMS-021	ESB must prevent the reuse of administrator passwords within a configurable timeframe.		
Enterprise Service Bus	Transaction Module Service	ESBTMS-022	ESB error messages shall be specific and descriptive and should be limited to one and only one triggering condition where possible.		
Enterprise Service Bus	Transaction Module Service	ESBTMS-023	ESB must provide a fail-over environment to support a geographic disaster recovery plan (not an immediate requirement)		
Enterprise Service Bus	Transaction Module Service	ESBTMS-024	ESB must update the cache with real time data based on events triggered on the data partner system		

Enterprise Service Bus	Transaction Module Service	ESBTMS-025	ESB must generate a backup copy of the system data, security credentials, and log/audit files on a scheduled basis.		
Enterprise Service Bus	Transaction Module Service	ESBTMS-026	ESB will support publishing of clinical data ("pushing" data from sources to targets).		
Enterprise Service Bus	Transaction Module Service	ESBTMS-027	ESB will support publishing of a "notification of the availability of data" which may then be requested (a "pull" mechanism; the actual clinical data is only transmitted upon request).		
Enterprise Service Bus	Instrumentation and Monitoring Module Service	ESBIMM-001	ESB must provide logs and other reporting mechanisms for application management.		
Enterprise Service Bus	Instrumentation and Monitoring Module Service	ESBIMM-002	ESB must provide system event and alert management.		
Enterprise Service Bus	Instrumentation and Monitoring Module Service	ESBIMM-003	ESB must provide the ability to monitor system availability, response time, and errors.		
Enterprise Service Bus	Instrumentation and Monitoring Module Service	ESBIMM-004	ESB must provide Infrastructure management utility - Servers, Network (LAN/WAN), Disk (SAN)		
Enterprise Service Bus	Authorization and Authentication Module Service	ESBAAM-001	ESB will authenticate data partner system users (e.g. individual providers).		
Enterprise Service Bus	Alerting and Notification Module Service	ESBANM-001	ESB must alert/notify an administrator when preset queue thresholds have been reached.		

Enterprise Service Bus	Alerting and Notification Module Service	ESBANM-002	ESB must alert/notify an administrator when an error condition occurs (either with a specific message or with systems components).		
Enterprise Service Bus	Alerting and Notification Module Service	ESBANM-003	ESB must alert/notify an administrator in the event that it is no longer receiving messages from a source system.		
	Master Person Index Services				
Master Person Index (MPI) Services	General Requirements	MPIGR-001	MPI Service shall be able to receive patient demographics and cross-reference this information with any exisiting person records available.		
Master Person Index (MPI) Services	General Requirements	MPIGR-002	MPI Service shall provide an operation to query for a corresponding list of person ids given a set of parameters (e.g. first name, last name, date of birth, and gender).		
Master Person Index (MPI) Services	General Requirements	MPIGR-003	MPI Service shall provide an operation to update person demographics to resolve data quality issues.		
Master Person Index (MPI) Services	General Requirements	MPIGR-004	MPI Service shall provide an operation to inactivate/deactivate a person record for logical or partial deletion.		
Master Person Index (MPI) Services	General Requirements	MPIGR-005	MPI Service shall provide the ability to export person records.		
Master Person Index (MPI) Services	General Requirements	MPIGR-006	MPI Service may provide the ability to assign a publicity code to a person record.		

Master Person Index (MPI) Services	General Requirements	MPIGR-007	MPI Service may provide the ability to mark person record as protected/restricted.		
Master Person Index (MPI) Services	General Requirements	MPIGR-008	MPI Service may provide the ability to relate a person record to consent directive rules.		
Master Person Index (MPI) Services	General Requirements	MPIGR-009	MPI Service shall implement commercial grade matching algorithms (likely probabilistic).		
Master Person Index (MPI) Services	General Requirements	MPIGR-010	MPI Service matching algorithm's specificity may be configurable to achieve a desired level of false positives.		
Master Person Index (MPI) Services	General Requirements	MPIGR-011	MPI Service shall have the ability to cross-reference person records from multiple identity assigning authorities (organizations/disparate systems) to a single identity.		
Master Person Index (MPI) Services	General Requirements	MPIGR-012	MPI Service shall communicate via established standards such as HL7 (e.g.HL7 ADT messages, HL7/OMG EIM service, etc.).		
Master Person Index (MPI) Services	General Requirements	MPIGR-013	MPI Service shall support real-time transactions.		
Master Person Index (MPI) Services	General Requirements	MPIGR-014	MPI Service shall support merging (and unmerging) of persons or accounts.		

Master Person Index (MPI) Services	General Requirements	MPIGR-015	MPI Service shall be able to broadcast update notifications (including merges) to other systems and/or MPIs.		
Master Person Index (MPI) Services	General Requirements	MPIGR-016	MPI Service shall be able to capture multiple names, addressess, phone numbers, email addresses, ids, etc.		
Master Person Index (MPI) Services	General Requirements	MPIGR-017	MPI Service shall be able to manage records for a person as an employee separate from their records as a person.		
Master Person Index (MPI) Services	General Requirements	MPIGR-018	MPI Service shall include as part of demographic information last name, first name, middle name, sex, date of birth, place of birth, race, ethnicity, language, SSN, medical record number, state drivers license number, Medicaid number, Medicare number, state case number, county case number, bi-national card number, family identification number, professional designator codes (e.g. DEA number, NPI number, AMA number, etc), etc.		
Master Person Index (MPI) Services	General Requirements	MPIGR-019	MPI Service shall be able to create/retain family tree information		
Master Person Index (MPI) Services	General Requirements	MPIGR-020	MPI Service shall retain historical changes made to person record		
Master Person Index (MPI) Services	General Requirements	MPIGR-021	MPI Service shall retain source of any and all patient information		

Master Person Index (MPI) Services	General Requirements	MPIGR-022	MPI Service shall be enabled to interact with other services within the HIE architecture to provide its services as required		
Master Person Index (MPI) Services	General Requirements	MPIGR-023	MPI Service will have built-in error checking e.g. validating date values, etc		
	Model and Terminology Services				
Model and Terminology Services	General Requirements	MPIGR-024	MTS must provide the ability to translate data partner information models into the specified formats.		
Model and Terminology Services	General Requirements	MTSGR-002	MTS must provide the ability to translate data partner terminologies into the specified formats.		
Model and Terminology Services	General Requirements	MTSGR-003	MTS must be able to manage multiple releases of a given information model.		
Model and Terminology Services	General Requirements	MTSGR-004	MTS must be able to manage multiple releases of a given terminology.		
Model and Terminology Services	General Requirements	MTSGR-005	MTS must be implemented in compliance with the HL7 Common Terminology Services (CTS) specification, or the HL7 CTS-2 specification.		
Model and Terminology Services	General Requirements	MTSGR-006	MTS must provide real-time services.		

Model and Terminology Services	General Requirements	MTSGR-007	MTS must be able to support external users (e.g. we can provide terminology services for client hospitals).		
Model and Terminology Services	General Requirements	MTSGR-008	MTS may support external organizations through an ASP model.		
Model and Terminology Services	General Requirements	MTSGR-009	MTS may support external organizations by deploying software within the firewall of a client organization.		
Model and Terminology Services	General Requirements	MTSGR-010	MTS must support institution specific terminologies.		
	Clinical Decision Support				
Clinical Decision Support	Clinical Decision Support	CDS-001	The system will support the integration on clinical decisions support services.		
	Clinical Data Warehouse				
Clinical Data Warehouse	CDW Content and Structure	CDWCS-001	The CDW shall be architected to handle multiple representations of any type of data using various schemas (most likely, but not exclusively, relational schemas).		
Clinical Data Warehouse	CDW Content and Structure	CDWCS-002	The CDW shall be architected on the basis of dimensional data following industry accepted data warehousing practices		

Clinical Data Warehouse	CDW Content and Structure	CDWCS-003	The CDW data shall support aggregation at a minimum by: institution, provider, cost center, payor, function, health codes and other dimensions to be incorporated as identified.		
Clinical Data Warehouse	CDW Content and Structure	CDWCS-004	The CDW shall maintain information on reportable diseases and immunizations in both hospital and ambulatory care environments.		
Clinical Data Warehouse	CDW Content and Structure	CDWCS-005	The CDW shall be able to store all relevant clinical information including: Demographics Diagnoses and Problems Findings (e.g. physical exam findings, EKG results, etc.) Laboratory Results Medications (including immunizations) Allergies Orders Documents: History and Physical Exam Progress Notes Procedure Notes Radiology Notes Pathology Notes Discharge Summaries Transfer Notes SOAP Notes		
Clinical Data Warehouse	CDW Content and Structure	CDWCS-006	The CDW will support a distributed architecture as not all necessary/used data will be housed in its single location.		
Clinical Data Warehouse	CDW Content and Structure	CDWCS-007	The CDW shall house not only its own metadata store but also external (source) data stores metadata		

Clinical Data Warehouse	CDW Content and Structure	CDWCS-008	The CDW shall contain metadata, current details data, old detail data, lightly aggregated data and highly aggregated data.		
Clinical Data Warehouse	CDW Content and Structure	CDWCS-009	The CDW shall not be the original source for any information (i.e. all data in the data warehouse will originate from external systems).		
Clinical Data Warehouse	CDW Reporting	CDWREP-001	The CDW shall have the ability to produce patient outcome of care by population, facility, provider or community.		
Clinical Data Warehouse	CDW Reporting	CDWREP-002	The CDW shall have the ability to provide quality, performance, and accountability measurements which providers, facilities, delivery systems and communities are held accountable.		
Clinical Data Warehouse	CDW Reporting	CDWREP-003	The CDW shall have the ability to view and print reports on demand.		
Clinical Data Warehouse	CDW Reporting	CDWREP-004	The CDW shall have the ability to sort a report (including but not limited to: alphabetically, numerically, or by date).		
Clinical Data Warehouse	CDW Reporting	CDWREP-005	The CDW shall have the ability to accept a default date range for all reports.		
Clinical Data Warehouse	CDW Reporting	CDWREP-006	The CDW shall have the ability to accept a default date range for individual reports.		
Clinical Data Warehouse	CDW Reporting	CDWREP-007	The CDW shall have the ability to specify the output of query/report results. Output examples include but are not limited to: MS Excel, CSV, XML, etc.		
Clinical Data Warehouse	CDW Reporting	CDWREP-008	The CDW shall provide statistical health info by Provider Type		
Clinical Data Warehouse	CDW Reporting	CDWREP-009	The CDW shall provide statistical health info by Provider zip code		

Clinical Data Warehouse	CDW Reporting	CDWREP-010	The CDW shall provide statistical health info by Gender		
Clinical Data Warehouse	CDW Reporting	CDWREP-011	The CDW shall provide statistical health info by Age		
Clinical Data Warehouse	CDW Reporting	CDWREP-012	The CDW shall provide statistical health info by Race		
Clinical Data Warehouse	CDW Reporting	CDWREP-013	The CDW shall provide statistical health info by Patient zip code		
Clinical Data Warehouse	CDW Reporting	CDWREP-014	The CDW shall provide statistical health info by month of service		
Clinical Data Warehouse	CDW Reporting	CDWREP-015	The CDW shall provide statistical health info by selected ICD codes		
Clinical Data Warehouse	CDW Reporting	CDWREP-016	The CDW shall provide usage reports for selected drugs, categorized by demographic info, and date		
Clinical Data Warehouse	CDW Reporting	CDWREP-017	The CDW shall provide cost analysis reports by Provider		
Clinical Data Warehouse	CDW Reporting	CDWREP-018	The CDW shall provide financial reports		
Clinical Data Warehouse	CDW Reporting	CDWREP-019	The CDW shall support the following public health reports, including but not limited to: Cancer registry reporting, birth defects registry reporting, and chronic diseases registry reporting.		
Clinical Data Warehouse	CDW Reporting	CDWREP-020	The CDW shall provide reports on visits to emergency rooms		

Clinical Data Warehouse	CDW Reporting	CDWREP-021	The CDW shall provide reports of screening (cholesterol, colon cancer, mammography, etc.), by gender, age, etc		
Clinical Data Warehouse	CDW Reporting	CDWREP-022	The CDW shall provide statistical health conditions by age group (i.e. diabetes, asthma, smoking, obesity)		
Clinical Data Warehouse	CDW Reporting	CDWREP-023	The CDW shall provide statistical info of Psychological distress by age group		
Clinical Data Warehouse	CDW Reporting	CDWREP-024	The CDW shall provide the ability to capture, update and export clinical data to public health agency for public health surveillance.		
Clinical Data Warehouse	CDW Reporting	CDWREP-025	The CDW shall provide statistical health info of infectious disease summary, by year, county, etc.		
Clinical Data Warehouse	CDW Reporting	CDWREP-026	The CDW shall provide the ability to export immunization, EPSDT and disease reports to appropriate registries and agencies in near real time.		
Clinical Data Warehouse	CDW Functionalities	CDWFUN-001	The CDW shall have the ability to use tools internal or external to the system, for the generation of standard reports.		
Clinical Data Warehouse	CDW Functionalities	CDWFUN-002	The CDW shall have the ability to use tools internal or external to the system, for the generation of custom reports.		
Clinical Data Warehouse	CDW Functionalities	CDWFUN-003	The CDW shall have the ability to provide support for ad hoc query and report generation tools internal or external to the system.		
Clinical Data Warehouse	CDW Functionalities	CDWFUN-004	The CDW shall have registry notification: Enable the automated transfer of formatted demographic & clinical information to and from local disease specific registries for patient monitoring and subsequent epidemiological analysis.		

Clinical Data Warehouse	CDW Functionalities	CDWFUN-005	The CDW shall have the ability to provide patient data in a manner that meets local requirements for de-identification.		
Clinical Data Warehouse	CDW Functionalities	CDWFUN-006	The CDW shall have the ability to re-identify data which has been de-identified.		
Clinical Data Warehouse	CDW Functionalities	CDWFUN-007	The CDW shall have the ability to alert the provider of services that the encounter should be reported for HEDIS performance measures.		
Clinical Data Warehouse	CDW Functionalities	CDWFUN-008	The CDW shall have the ability to support internal and external epidemiological investigations of clinical health of aggregate patient data for use in identifying health risks from the environment and/or population in accordance with jurisdictional law.		
Clinical Data Warehouse	CDW Functionalities	CDWFUN-009	The CDW shall have the ability to provide support for reporting acuity and severity outcomes using data such as diagnosis codes from the case management notes.		
Clinical Data Warehouse	CDW Functionalities	CDWFUN-010	The CDW shall have the ability to receive HL7 based data		
Clinical Data Warehouse	CDW Functionalities	CDWFUN-011	Accept merging of multiple id's into one person's record		
Clinical Data Warehouse	CDW Functionalities	CDWFUN-013	Organization management functionality		
Clinical Data Warehouse	CDW Functionalities	CDWFUN-014	The CDW shall have the ability to hold clinical documentation, i.e. physical exam, discharge summary		
Clinical Data Warehouse	CDW Functionalities	CDWFUN-015	The CDW shall have the ability to receive public health info, - received from external health care systems via HL7 messages		

Clinical Data Warehouse	CDW Functionalities	CDWFUN-016	The CDW shall have the ability to load and maintain terminology - ICD9 - 10, 1500, NCPDP, LOINC, CPT4, HCPCS, SNOMED		
Clinical Data Warehouse	CDW Functionalities	CDWFUN-017	The CDW will have time as a pre-aggregated dimension and this dimension will be dynamic allowing analysts to select time spans such as 0-30 days, 30-90 days, etc		
Clinical Data Warehouse	CDW Functionalities	CDWFUN-018	The CDW shall be capable of using outside data sources 'on the fly' to create aggregate facts (distributed database).		
Clinical Data Warehouse	CDW Functionalities	CDWFUN-019	The CDW shall support data cleansing, integration, selection, transformation, mining, evaluation and knowledge presentation.		
Clinical Data Warehouse	CDW Functionalities	CDWFUN-020	The repository system will log all database transactions in a manner that will enable them to be played back at a later date.		
Clinical Data Warehouse	CDW Functionalities	CDWFUN-021	Provide ability to generate ad hoc queries and reports of ANY stored data without programming.		
Clinical Data Warehouse	CDW Data Security	CDWDS-001	The CDW shall maintain audit logs of all data access, read and writes		
Clinical Data Warehouse	CDW Data Security	CDWDS-002	The CDW shall enforce all privacy, confidentiality and consent rules pertaining to its data		
	Clinical Data Repository				

Clinical Data Repository (CDR) {OLTP}	CDR Content and Structure	CDRCS-001	The clinical data repository shall able to store all relevant clinical information including: Demographics Diagnoses and Problems Findings (e.g. physical exam findings, EKG results, etc.) Laboratory Results Images (including radiology images) Medications (including immunizations) Allergies Orders Documents: History and Physical Exam Progress Notes Procedure Notes Radiology Notes Pathology Notes Discharge Summaries/Transfer Notes SOAP Notes ASTM Continuity of Care Record (CCR) and HL7 Continuity of Care Document (CCD), see Appendix E for a list of CCR data elements as defined by ASTM.		
Clinical Data Repository (CDR) {OLTP}	CDR Content and Structure	CDRCS-002	The clinical data repository may be a relational database or may use other database technology as appropriate (e.g. object oriented database).		
Clinical Data Repository (CDR) {OLTP}	CDR Content and Structure	CDRCS-003	Access to patient records shall be available in both patient-oriented, and encounter-oriented views.		

Clinical Data Repository (CDR) {OLTP}	CDR Content and Structure	CDRCS-004	The CDR shall be able to capture information about the physical location (e.g. Room W238 at Good Health Hospital) as well as the logical location (e.g. a telemetry bed in the Cardiac Care Unit of Good Health Hospital) for all information as applicable.		
Clinical Data Repository (CDR) {OLTP}	CDR Content and Structure	CDRCS-005	The CDR will provide a strategy for working with multi-media and radiologic images. This strategy may or may not involve inclusion of these types of information directly in the CDR.		
Clinical Data Repository (CDR) {OLTP}	CDR Content and Structure	CDRCS-006	The CDR will provide a strategy for working with scanned documents from sources outside system such as transfer documents, transport records, EKG strips from other facilities, etc. This strategy may or may not involve inclusion of these types of information directly in the CDR.		
Clinical Data Repository (CDR) {OLTP}	CDR Querying	CDRQRY-001	The clinical data repository shall provide an API for querying the database. Programmatic information retrieval from the database will be mediated by a set of data management services. Programs will not have direct database access (including SQL access).		
Clinical Data Repository (CDR) {OLTP}	CDR Querying	CDRQRY-002	The clinical data repository shall provide the ability to query both structured and non-structured data.		
Clinical Data Repository (CDR) {OLTP}	CDR Querying	CDRQRY-003	Allow patients selected for inquiry to be filtered by various criteria such as age, gender, diagnosis, location, confidentiality, etc.		
Clinical Data Repository (CDR) {OLTP}	CDR Querying	CDRQRY-004	The CDR will be able to retrieve clinical information by name, type, date range, abnormal status, provider, confidentiality, encounter, etc.		

Clinical Data Repository (CDR) {OLTP}	CDR Querying	CDRQRY-005	Support searching of patient record (e.g. results and transcribed reports) using key words or phrases for non-coded information.		
Clinical Data Repository (CDR) {OLTP}	CDR Querying	CDRQRY-006	Allow data extracted by one query to be accessed and manipulated with other queries.		
Clinical Data Repository (CDR) {OLTP}	CDR Functionalities	CDRFUN-001	Provide data management system features that allow for integration and sharing of data among all applications.		
Clinical Data Repository (CDR) {OLTP}	CDR Functionalities	CDRFUN-002	Provide data management features that eliminate the redundant maintenance of duplicate data.		
Clinical Data Repository (CDR) {OLTP}	CDR Functionalities	CDRFUN-003	Support access to patient records by patient alias name.		
Clinical Data Repository (CDR) {OLTP}	CDR Functionalities	CDRFUN-004	Support access to patient records by master person index identifier.		
Clinical Data Repository (CDR) {OLTP}	CDR Functionalities	CDRFUN-005	Provide ability to display consolidated patient results from all medical facilities.		
Clinical Data Repository (CDR) {OLTP}	CDR Functionalities	CDRFUN-006	Indicate incomplete procedures as pending.		

Clinical Data Repository (CDR) {OLTP}	CDR Functionalities	CDRFUN-007	Support automatic alerts when life threatening or unusual results are identified (e.g. panic results). '''CDS Function'''		
Clinical Data Repository (CDR) {OLTP}	CDR Functionalities	CDRFUN-008	Allow users to interactively define which data elements can be graphed. '''Reporting or Portal Function'''		
Clinical Data Repository (CDR) {OLTP}	CDR Functionalities	CDRFUN-009	Provide on-line, real-time data transfer between CDR and other Hospital Information Systems.		
Clinical Data Repository (CDR) {OLTP}	CDR Functionalities	CDRFUN-010	Provide on-line, real-time data transfer between CDR and other Lab Information System.		
Clinical Data Repository (CDR) {OLTP}	CDR Functionalities	CDRFUN-011	Be able to provide immediate access to and keep patient records intact when patient is transferred from one level of care to another.		
Clinical Data Repository (CDR) {OLTP}	CDR Functionalities	CDRFUN-012	Support inclusion (or link to) one patients record to another's (e.g. mother's labor and delivery record becomes part of newborn record). This must be done in a way that such links can easily be removed or de-identified (e.g. for adoptions).		
Clinical Data Repository (CDR) {OLTP}	CDR Functionalities	CDRFUN-013	Support the concurrent display of multiple types of data (e.g. radiology images, reports, lab results and graphical displays). '''Portal Function'''		
Clinical Data Repository (CDR) {OLTP}	CDR Functionalities	CDRFUN-014	Support ability to use web browser (e.g. Netscape Communicator, Internet Explorer) to access system functions over Internet or internal intranet. '''Display Function'''		

Clinical Data Repository (CDR) {OLTP}	CDR Functionalities	CDRFUN-015	Provide data management design that supports integration and sharing of data among all applications.		
Clinical Data Repository (CDR) {OLTP}	CDR Functionalities	CDRFUN-016	The repository system will log all database transactions in a manner that will enable them to be played back at a later date.		
Clinical Data Repository (CDR) {OLTP}	CDR Functionalities	CDRFUN-017	Automatically print selected types of reports based on pre-defined "time triggers."		
Clinical Data Repository (CDR) {OLTP}	CDR Functionalities	CDRFUN-018	Support retrieval of information to enable medically related test results to be grouped together on reports.		
Clinical Data Repository (CDR) {OLTP}	CDR Functionalities	CDRFUN-019	Support output of queries and reports to HTML format for intranet or intranet web (e.g. WWW, World Wide Web) publishing.		
Clinical Data Repository (CDR) {OLTP}	CDR Functionalities	CDRFUN-020	Provide standard surveillance reports (e.g. infection control, CQI, QA, risk management, workload management).		
Clinical Data Repository (CDR) {OLTP}	CDR Security	CDRSR-001	Provide security checks to control user access to patient information based on: user ID, pass-down security, confidentiality rules, etc.		
Clinical Data Repository (CDR) {OLTP}	CDR Security	CDRSR-002	Maintain security audit trail of all unsuccessful system logons including user ID, date and time.		

Clinical Data Repository (CDR) {OLTP}	CDR Security	CDRSR-003	Provide ability to prohibit unauthorized downloading of data to intelligent workstations and PC's.		
Clinical Data Repository (CDR) {OLTP}	CDR Security	CDRSR-004	Support controlled external access from remote sites.		
	Physician Portal				
Physician Portal (including CCD viewer)	General Requirements	PHYGR-001	Physician portal shall provide a single point access to all data available in the clinical data repository.		
Physician Portal (including CCD viewer)	General Requirements	PHYGR-002	Physician portal shall provide a mechanism to search and select patient records.		
Physician Portal (including CCD viewer)	General Requirements	PHYGR-003	Physician portal shall provide a mechanism to search for and browse structured and unstructured data for viewing purposes.		
Physician Portal (including CCD viewer)	General Requirements	PHYGR-004	Physician portal may comply with CCHIT 2007 and 2008 criteria.		

Physician Portal (including CCD viewer)	General Requirements	PHYGR-005	Physician portal may include the following application modules		
Physician Portal (including CCD viewer)	General Requirements	PHYGR-006	E-Prescribing (medication list, allergies, interactions, formularies, refills)		
Physician Portal (including CCD viewer)	General Requirements	PHYGR-007	E-Referrals (Continuity of Care Record [CCR], attachments)		
Physician Portal (including CCD viewer)	General Requirements	PHYGR-008	Reporting module for standard reports, including quality measures (e.g., JCAHO, CMS PQRI, EPSDT, Medical Home, HEDIS)and ad-hoc reporting tools that provide the ability to generate reports meeting Health Plan Employer Data and Information Set guidelines.		
Physician Portal (including CCD viewer)	General Requirements	PHYGR-009	Eligibility verification (AHCCCS, health plans)		
Physician Portal (including CCD viewer)	General Requirements	PHYGR-010	Secure patient messaging system		

Physician Portal (including CCD viewer)	General Requirements	PHYGR-011	Secure patient portal		
Physician Portal (including CCD viewer)	General Requirements	PHYGR-012	Physician portal shall be able to display scanned documents.		
Physician Portal (including CCD viewer)	General Requirements	PHYGR-013	Physician portal shall be interoperable with MPI service to track patients across an integrated or disparate group of health providers and clinics.		
Physician Portal (including CCD viewer)	General Requirements	PHYGR-014	Physician portal shall provide the ability to capture and update patient information, through the ESB, easily and support standard demographic information as well as user-defined fields.		
Physician Portal (including CCD viewer)	General Requirements	PHYGR-015	Physician portal shall allow laboratory results, vital signs, and growth parameters, and such to be tracked online. Information may be viewed over selected date ranges or filtered by user-selected criteria (e.g. test type, test name, data source, result normal/abnormal, ordering provider, hospital encounter, and other criteria).		
Physician Portal (including CCD viewer)	General Requirements	PHYGR-016	Physician portal shall support display of reference ranges/values for clinical information.		

Physician Portal (including CCD viewer)	General Requirements	PHYGR-017	Referral ordering and tracking		
Physician Portal (including CCD viewer)	General Requirements	PHYGR-018	Physician portal may provide the ability to verify the status of referrals.		
Physician Portal (including CCD viewer)	General Requirements	PHYGR-019	For managed care patients, Physician portal may provide the ability to obtain and attach authorization information to the referral.		
Physician Portal (including CCD viewer)	General Requirements	PHYGR-020	Physician portal may provide the ability to track authorized visits by patient.		
Physician Portal (including CCD viewer)	General Requirements	PHYGR-021	Physician portal shall support clinical decision support functionalities such as abnormal value notifications, follow up reminders, and alerts are generated automatically and routed appropriately. Practice-specific alerts can be created. Alerts can be sent via email, printer, fax, or pager.		
Physician Portal (including CCD viewer)	General Requirements	PHYGR-022	Physician portal shall provide an online medical chart including problem lists, medication lists, vital signs, health maintenance goals, and integrate notes, images, test results and related information from other sources.		

Physician Portal (including CCD viewer)	General Requirements	PHYGR-023	Physician portal shall provide the ability to display health plan eligibility obtained from patient's insurance carrier.		
Physician Portal (including CCD viewer)	General Requirements	PHYGR-024	Physician portal shall provide the ability to add hyperlinks to websites for eligibility/benefits information (e.g. Medicaid, Medicare, and other health plans).		
Physician Portal (including CCD viewer)	General Requirements	PHYGR-025	Physician portal shall provide the ability for authorized users to electronically request eligibility information from a patient's health plan/payer.		
Physician Portal (including CCD viewer)	General Requirements	PHYGR-026	Physician portal shall provide the ability to transfer electronic eligibility information from internal and external systems.		
Physician Portal (including CCD viewer)	General Requirements	PHYGR-027	Physician portal shall provide the ability to check for inconsistencies in the information recorded.		
Physician Portal (including CCD viewer)	General Requirements	PHYGR-028	Physician portal shall be capable of receiving and displaying prescription benefits eligibility information.		

Physician Portal (including CCD viewer)	General Requirements	PHYGR-029	Physician portal shall allow an authorized user to print the eligibility verification data received.		
Physician Portal (including CCD viewer)	General Requirements	PHYGR-030	Physician portal shall able to exchange data reliably and securely with outside entities, including labs, hospitals and other practices.		
Physician Portal (including CCD viewer)	General Requirements	PHYGR-031	Physician portal shall be able to print.		
Physician Portal (including CCD viewer)	General Requirements	PHYGR-032	Physician portal shall be able to measure and report on health outcomes by patient, practice and enterprise.		
Physician Portal (including CCD viewer)	General Requirements	PHYGR-033	Physician portal shall be able to generate a simple patient summary report for printing, faxing or distribution electronically while conforming to HIPAA and other security and privacy requirements.		
Physician Portal (including CCD viewer)	General Requirements	PHYGR-034	Physician portal may provide a customized task list to assist users in tracking and managing priorities, communications, and clinical events.		

Physician Portal (including CCD viewer)	General Requirements	PHYGR-035	Physician portal shall provide flexible reporting tools, including standard reports and the ability to create and store customized reports. This may include that ability to build queries using dropdown lists or other automated tools, as well as the ability to analyze patient populations, quality of care and resource utilization.		
Physician Portal (including CCD viewer)	General Requirements	PHYGR-036	Physician portal shall provide the ability to view order status, and other information about orders such has pre-requisites, applicability rules etc.		
Physician Portal (including CCD viewer)	Extended Functionalities	PHYEF-001	Physician portal MAY provide multiple options (e.g., templates, free text, macros, dictation, voice recognition, handwriting recognition) for documenting patient encounters.		
Physician Portal (including CCD viewer)	Extended Functionalities	PHYEF-002	Physician portal MAY provide configurable user interface controls that allows fast data input (e.g. pick lists to speed the entry of common items).		
Physician Portal (including CCD viewer)	Extended Functionalities	PHYEF-003	Physician portal MAY automatically update documentation as other processes occur by accepting input from ancillary devices using standard telecommunications protocols or interfaces.		
Physician Portal (including CCD viewer)	Extended Functionalities	PHYEF-004	Physician portal MAY provide data input capibility.		

Physician Portal (including CCD viewer)	Extended Functionalities	PHYEF-005	Physician portal shall provide document management functionality, including scanned information and possibly small sized images such as photos taken by a dermatologist(but specifically excludes radiological imaging), available online and integrated with the patient record.		
Physician Portal (including CCD viewer)	Extended Functionalities	PHYEF-006	Physician portal MAY support nationally accepted standards for viewing images and digital film depending on user demand.		
Physician Portal (including CCD viewer)	Extended Functionalities	PHYEF-007	Physician portal shall support an integrated, rules-based scheduling process, including patient visits, room utilization, and equipment. At the clinic's option, allows automatic blocking of "double booking." Ability to establish practice-specific rules governing scheduling.		

Physician Portal (including CCD viewer)	Extended Functionalities	PHYEF-008	Physician portal MAY provide predefined content and templates for the following, Documentation Entry Forms Order sets Clinical paths – evidence-based "intelligence" Predefined Performance/quality measures Terminology/vocabulary code sets Decision support knowledge base Physician portal MAY provide the ability to input patient health plan eligibility information for dates of service. Data elements captured include, but are not limited to, the following: Effective Date Term Date Payer Group Subgroup Class Plan Product Subscriber/Guardian Detail Name Subscriber ID Relationship to Patient PCP Detail PCP Last Name PCP First Name PCP Provider ID PCP Phone Medicare Coverage (Y/N) Medicare Type Effective Date Term Date Medicare ID Other Coverage (Y/N) Other Coverage Type Coverage ID Date Eligibility Received		

Appendix E – Data Requirements

Person Demographics

Data Element Name	Optional, Required
Person Identifier List	R
Person Name as defined by HL7	R
Mother's Maiden Name	O
Date/Time of Birth	O
Administrative Sex	O
Race	O
Person Address	O
Phone Number - Home	O
Phone Number - Business	O
Primary Language	O
Marital Status	O
Religion	O
Patient Account Number - Patient	O
Driver's License Number - Patient	O
Mother's Identifier	O
Ethnic Group	O
Birth Place	O
Multiple Birth Indicator	O
Birth Order	O
Citizenship	O
Veterans Military Status	O
Patient Death Date and Time	O
Patient Death Indicator	O
Identity Unknown Indicator	O
Identity Reliability Code	O
Last Update Date/Time	O
Last Update Facility	O
Tribal Citizenship	O
Living Dependency	O
Living Arrangement	O
Patient Primary Facility	O
Handicap	O
Organ Donor Code	O
Publicity Code (Who can see record)_	O
Protection Indicator (is record confidential)	O
Protection Indicator Effective Date	O
Advance Directive Code	O
Immunization Registry Status	O
Immunization Registry Status Effective Date	O
Publicity Code Effective Date	O

Payers Benefits and Eligibility

Data Element Name	Optional/Required/Derived
Eligibility Begin Date	R
Eligibility End Date	R
Benefit Category	R
Benefit Qualifier	R
Categorical Indicator	R
Eligibility Category	R
Eligibility Key Code	R
Eligibility Program	R
Eligibility Effective Date	D
Health Plan ID	R
Rate Code	R
Enrollment Type	R
Status Code	R
BHS Category	O
BHS Site	O
Patient Other Insurance	
Carrier Name	O
Begin Date	O
End Date	O
Patient Medicare Coverage	
Medicare Coverage Type	O
Medicare Claim ID	O
Payer ID	O
Begin Date	O
End Date	O
Patient Relationships – Multiple occurrences ****	
Relationship Type	D
Relation Name	D

Problems and Diagnoses

Data Element Name	Optional/ Required/ Derived
Service Provider Name	R
Diagnosis Code	R
Diagnosis Code Description	D
First Occurrence Date	D
Last Occurrence Date	D
Service Date	R
Form Type	R
Service Location	R
Claim/Enc Indicator	R
Sensitive Information Flag	D
Date/Time Record Added	D
Date/Time Record Modified	D
Diagnosis Source	D

Lab Results

Data Element Name	Optional/Required/Derived
Lab Company	R
Lab Location	O
Lab Phone #	R
Lab Fax #	O
Lab Order Number	O
Lab Order Name	O
Lab Order Code	O
Lab Order Status	O
Lab Order Notes	O
Lab Order Requested Date	O
Lab Order Reported Date	O
Specimen Type	O
Specimen Collection Method	O
Specimen Received Date/Time	O
Specimen Collection Date/Time	R
Specimen Source	O
Test Instructions	O
Test Instructions Provided Indicator	O
Ordering Provider Identification (NPI)	R
Ordering Provider Name	R
Ordering Provider Address	R
Ordering Provider Phone #	R
Send to Add'l Provider indicator	O
Additional Provider NPI	O
Additional Provider Name	O
Additional Provider Address	O
Additional Provider Phone #	O
Test Name	R
Test Code	O
Test Status	O
Test Notes	O
Test Abnormal Flag	O
Test Reference Range	O
Test Category	O
Test Units	O
Test Observation Value	O

Medication List

Data Element Name	Optional/Required/Derived
NDC Code	R
NDC Description	R
Product Name	R
Dose	R
Route	R
Dispense Date	R
Dispense Quantity	R
Refill Count	R
Dispensing Provider	R
Prescribing Provider	R
Sensitive Information Flag	D
Date/Time Record Added	D
Date/Time Record Modified	D
Medication Data Source	D

Procedures

Data Element Name	Optional/Required/Derived
Form Type	R
Claim Type	R
Claim Category Of Service	R
Place Of Service	R
Procedure Code Qualifier	R
Procedure Code	R
Modifier 1	O
Modifier 2	O
Modifier 3	O
Modifier 4	O
Service Date	R
Service Provider Name	D
Claim/Enc Indicator	R
Sensitive Information Flag	D
Date/Time Record Added	D
Date/Time Record Modified	D
Procedure Data Source	D

Allergies

Data Element Name	Optional/Required/Derived
Allergen Type Code	O
Allergen Code/Mnemonic/Description	O
Allergy Severity Code	O
Allergy Reaction Code	O
Identification Date	O

Alerts

Data Element Name	Optional/Required/Derived
Alert Code	O
Alert Status	O
Alert Threat Level	O
Alert Trigger	O
Alert Name	O
Alert Type	O
Alert Action Code	O
Alert Action Description	O
Alert Notification Persons	O
Alert Notification E-mails	O
Alert Notification Phone Numbers	O

Clinical Documents Info

Data Element Name	Optional/Required/Derived
Document Type	R
Document Version Number	O
Document Content Presentation	O
Activity Date/Time	O
Primary Activity Provider Code/Name	O
Origination Date/Time	O
Transcription Date/Time	O
Edit Date/Time	O
Originator Code/Name	O
Assigned Document Authenticator	O
Transcriptionist Code/Name	O
Unique Document Number	R
Parent Document Number	O
Placer Order Number	O
Filler Order Number	O
Unique Document File Name	O
Document Completion Status	O
Document Confidentiality Status	O
Document Availability Status	O
Document Storage Status	O
Document Change Reason	O
Authentication Person, Time Stamp	O
Distributed Copies (Code and Name of Recipients)	O
Document Object or Narrative	R

Findings

Data Element Name	Optional/Required/Derived
Service Provider Name	R
Finding Code	R
Finding Code Description	D
First Occurrence Date	D
Last Occurrence Date	D
Service Date	R
Form Type	R
Service Location	R
Claim/Enc Indicator	R
Sensitive Information Flag	D
Date/Time Record Added	D
Date/Time Record Modified	D
Finding Source	D

Vital Signs

Data Element Name	Optional/Required/ Derived
Diastolic blood pressure observation value	O
Diastolic blood pressure units	O
Diastolic blood pressure reference range	O
Diastolic blood pressure abnormal flag	O
Diastolic blood pressure date and time	O
Systolic blood pressure observation value	O
Systolic blood pressure units	O
Systolic blood pressure reference range	O
Systolic blood pressure abnormal flag	O
Systolic blood pressure date and time	O
Pulse observation value	O
Pulse units	O
Pulse reference range	O
Pulse abnormal flag	O
Pulse date and time	O
Respiratory rate observation value	O
Respiratory rate units	O
Respiratory rate reference range	O
Respiratory rate abnormal flag	O
Respiratory rate date and time	O
Blood pressure method	O
Heart Rate method	O
Responsible Observer (Provider)	O
Responsible Observer Organization	O

Orders Info

Data Element Name	Optional/ Required/ Derived
Order Number	R
Order Type	R
Order Status	R
Order Submitted Date	R
Order Completed Date	R
Order Placer Name	R
Order Placer Phone number	R
Order Placer Organization	R
Order Filler Organization	R
Order Filler Phone Number	R
Order Filler E-mail	R

Encounter History

Data Element Name	Optional/Required/Derived
Encounter Start Date/Time	R
Encounter End Date/Time	R
Encounter Publicity Code	R
Encounter Protection Indicator	R
Encounter Location	R
Encounter Facility	R
Encounter Type	R
Encounter Attending Doctor	R
Patient Type	R

Imaging Data Info

Data Element Name	Optional/Required/Derived
Requested Procedure ID	O
Reason for the Requested Procedure	O
Patient Comments	O
Placer Order Number / Procedure	O
Filler Order Number / Procedure	O
Confidentiality Code	O
Names of Intended Recipients of Results PN	O
Requested Procedure Comments	O
Reason for the Imaging Service Request	O

Filler Order Number / Imaging Service Request	O
Results ID	O
Interpretation Recorded Date	O
Interpretation Transcription Date	O
Interpretation Text	O
Interpretation Author	O
Physician Approving Interpretation	O
Interpretation Diagnosis Description	O
Interpretation Diagnosis Code	O
Interpretation ID	O
Interpretation ID Issuer	O
Impressions	O
Results Comments	O
Group Length	O
Issuer of Patient	O
Patient's Birth Date	O
Patient's Birth Time	O
Patient's Sex	O
Other Patient Names	O
Patient's Birth Name	O
Patient's Age	O
Patient's Address	O
Patient's Mother's Birth Name	O
Military Rank	O
Branch of Service	O
Medical Alerts	O
Contrast Allergies	O
Country of Residence	O
Region of Residence	O
Patient's Telephone Numbers	O
Ethnic Group	O
Occupation	O
Smoking Status	O
Additional Patient History	O
Pregnancy Status	O
Last Menstrual Date	O
Patient's Religious Preference	O
Requested Procedure Priority	O
Patient Transport Arrangements	O
Requested Procedure Location	O
Reporting Priority	O
Issue Date of Imaging Service Request	O
Issue Time of Imaging Service Request	O
Placer Order Number / Imaging Service Request	O

Order Entered By	O
Order Enterer's Location	O
Order Callback Phone Number	O
Placer Order Number	O
Filler Order Number	O
Imaging Service Request Comments	O
Confidentiality Constraint on Patient Data Description	O
Group Length	O
Results ID Issuer	O
Referenced Interpretation Sequence	O
Interpretation Recorded Time	O
Interpretation Recorder PN	O
Reference to Recorded	O
Interpretation Transcription Time	O
Interpretation Transcriber	O
Interpretation Approver	O
Interpretation Approval	O
Interpretation Approval	O
Results Distribution List Sequence	O
Distribution Name	O
Distribution Address	O
Interpretation Type	O
Interpretation Status	O

CCR Data Elements

Some of the data elements above may be mapped to create a continuity of care document for a specific patient. This summary document may become a integrated view of the patient. Per ASTM, a continuity of care document may have the following data elements:

Document Header Information

1. Continuity of Care Document Identifier - Required
2. Document Language - Required
3. Document Version - Required
4. Document Creation Date/Time - Required
5. Patient - Required
6. From - Required
7. To - Optional
8. Purpose - Optional
9. DateTime - Optional
10. Description - Required
11. OrderRequest - Optional
12. Indications - Optional

13. ReferenceID - Optional
14. CommentID - Optional

Payers - Required

1. PayerID - Required
2. DateTime - Optional
3. Type - Optional
4. PaymentProvider - optional
5. Subscriber - optional
6. Authorizations - Optional
7. Source - Required
8. InternalCCRLink - Optional
9. ReferenceID - Optional
10. CommentID - Optional

AdvanceDirective - Required if known

1. AdvancedDirectiveObjectID - Required if known
2. DateTime - Optional
3. IDs - Optional
4. Type - Required
5. Description - Required
6. Status - Required
7. Source - Required
8. InternalCCRLink - Optional
9. ReferenceID - Optional
10. CommentID - Optional

Support - optional

SupportProvider - Optional

Functional Status - optional

1. Function - Optional
2. FunctionID - Required
3. DateTime - Optional
4. Type - Required
5. Description - Optional
6. Status - Required
7. Problem - Optional
8. Test - Optional
9. Source - Required
10. InternalCCRLink - Optional
11. ReferenceID - Optional
12. CommentID - Optional

Problems - optional

1. Problem - Optional
2. ProblemID - Required
3. DateTime - Optional
4. IDs - Optional

5. Type - Optional
6. Description - Optional
7. Status - Optional

Episodes - Optional

1. HealthStatus - Optional
2. PatientKnowledge - Optional
3. Source - Required
4. InternalCCRLink - Optional
5. ReferenceID - Optional
6. CommentID - Optional

Family History - Optional

1. FamilyProblem - Optional
2. FamilyProblemID - Required
3. DateTime - Optional
4. IDs - Optional
5. Type - Optional
6. Description - Optional
7. Status - Optional
8. Problem - Optional
9. FamilyMember - Optional
10. Source Required
11. InternalCCRLink - Optional
12. ReferenceID - Optional
13. CommentID - Optional

Social History - optional

1. SocialHistoryElement - Optional
2. SocialHistoryElementID - Required
3. DateTime - Optional
4. IDs - Optional
5. Type - Optional
6. Description - Optional
7. Status - Optional
8. Episodes - Optional
9. Source - Required
10. InternalCCRLink - Optional
11. ReferenceID - Optional
12. CommentID - Optional

Alerts

1. Alert - Optional
2. AlertID - Required
3. DateTime - Optional
4. IDs - Optional
5. Type - Optional
6. Description - Optional

7. Status - Optional
8. Agent - Optional.
9. Reaction - Optional
10. Source - Required
11. InternalCCRLink - Optional
12. ReferenceID - Optional
13. CommentID - Optional

Medications - optional

1. MedicationsObjectID - Required
2. DateTime - Optional
3. IDs - Optional
4. Type - Optional
5. Description - Optional
6. Status - Optional
7. Product - Required
8. ProductName - Required
9. BrandName - Optional
10. Strength - Optional
11. Form - Optional
12. Concentration - Optional
13. Size - Optional
14. Manufacturer - Optional
15. IDs - Optional
16. Quantity - Optional
17. Directions - Optional
18. DoseIndicator - Optional
19. DeliveryMethod - Optional
20. Dose - Optional
21. DoseCalculation - Optional
22. Vehicle - Optional
23. Route - Optional
24. Site - Optional
25. AdministrationTiming - Optional
26. Frequency - Optional
27. Interval - Optional
28. Duration - Optional
29. DoseRestriction - Optional
30. Indication - Optional
31. StopIndicator - Optional
32. DirectionSequencePosition - Optional
33. MultipleDirectionModifier - Optional
34. PatientInstructions - Optional
35. FulfillmentInstructions - Optional
36. Refill - Optional

37. SeriesNumber - Optional
38. Consent - Optional
39. Reaction - Optional
40. FulfillmentHistory - Optional
41. Source - Required
42. InternalCCRLink - Optional
43. ReferenceID - Optional
44. CommentID - Optional

Medical Equipment

Equipment - Optional

Immunizations - optional

Immunization - Optional

Vital Signs

Result - Optional

Results - optional

1. Result - Optional
2. ResultsID - Required
3. DateTime - Optional
4. IDs - Optional
5. Type - Required
6. Description - Optional
7. Procedure - Optional
8. Substance - Optional
9. Test - Optional
10. DateTime - Optional
11. IDs - Optional
12. Type - Required
13. Description - Optional
14. Status - Optional
15. Method - Optional
16. Agent - Optional
17. TestResult - Required
18. NormalResult - Optional
19. Flag - Optional
20. ConfidenceValue - Optional
21. Source - Required
22. InternalCCRLink - Optional
23. ReferenceID - Optional
24. CommentID - Optional

Procedures - Optional

1. ProceduresObjectID - Required
2. DateTime - Optional
3. IDs - Optional
4. Type - Optional

5. Description - Optional
6. Status - Optional
7. Location - Optional
8. Practitioner - Optional
9. Frequency - Optional
10. Duration - Optional
11. Product - Optional
12. Substance - Optional
13. Method - Optional
14. Position - Optional
15. Site - Optional
16. InternalCCRLink - Optional
17. ReferenceID - Optional
18. CommentID - Optional

Encounters - Optional

1. EncountersObjectID - Required
2. DateTime - Optional
3. IDs - Optional
4. Type - Optional
5. Description - Required
6. Practitioner - Optional
7. Frequency - Optional
8. Duration - Optional
9. Indication - Optional
10. Instructions - Optional
11. Consent - Optional
12. Source - Required
13. InternalCCRLink - Optional
14. ReferenceID - Optional
15. CommentID - Optional

Plan of Care - Optional

1. PlanofCareObjectID - Required
2. DateTime - Optional
3. IDs - Optional
4. Type - Optional
5. Description - Optional
6. Status - Optional
7. OrderRequest - Optional
8. DateTime - Optional
9. IDs - Optional
10. Type - Optional
11. Description - Optional
12. Status - Optional
13. Procedure - Optional

14. Product - Optional
15. Medication - Optional
16. Immunization - Optional
17. Service - Optional
18. Encounter - Optional
19. Authorization - Optional
20. Goals - Optional
21. Source - Required
22. InternalCCRLink - Optional
23. ReferenceID - Optional
24. CommentID - Optional

Healthcare Providers - Optional

Related Document Actors

1. ActorID - Required
2. Person - Optional
3. Name - Optional
4. BirthName - Optional
5. DisplayName - Optional
6. DateOfBirth - Optional
7. Gender - Optional
8. Organization - Optional
9. InformationSystem - Optional
10. IDs - Optional
11. Relation - Optional
12. Specialty - Optional
13. Address - Optional
14. Telephone - Optional
15. Email - Optional
16. URL - Optional
17. Status - Optional
18. Source - Required
19. InternalCCRLink - Optional
20. ReferenceID - Optional
21. CommentID - Optional

Document References - Optional

1. ReferenceObjectID - Required
2. DateTime - Optional
3. Description - Optional
4. Source - Optional
5. Locations - Optional

DocumentComments - Optional

1. CommentObjectID - Required
2. DateTime - Optional
3. Description - Required

4. Source - Optional
5. ReferenceID - Optional

Document Signatures - Optional

1. SignatureObjectID - Required
2. ExactDateTime - Optional
3. Type - Optional
4. IDs - Optional
5. Source - Optional

Signature - Optional

Appendix F – Glossary

Acceptable Use Policy
Set of rules and guidelines that specify appropriate use of computer systems or networks.

[edit] Access Control
Preventing the unauthorized use of health information resources.

[edit] Accountability
Makes sure that the actions of a person or agency may be traced to that individual or agency.

[edit] Accredited Standards Committee (ASC)
An organization that has been accredited by ANSI for the development of American National Standards.

[edit] AHCCCS Decision Support System (ADDS)
In 2005, the Agency implemented a "data warehouse," known as the AHCCCS Decision Support System (ADDS), which utilizes data loaded from the PMMIS to provide a timely and flexible way to collect and analyze a variety of data overall and by individual Contractor.

[edit] AMA
The American Medical Association

[edit] AMIE
Arizona Medical Information Exchange is a proof of concept for a federated medical information exchange. The proof of concept was launched on September 29, 2008 by AHCCCS. AMIE does not collect or store clinical data, but provides the means to POC clnicians to locate and view information available from the health care participating health care facilities. The records available are hospital discharge summaries, laboratory results, and medication history. The architectural components are the record locator service, gateways, emulators, and viewer.

[edit] American Health Information Community (AHIC)
A federal advisory body, charted in 2005 to make recommendations to the Secretary of the U.S. Department of Health and Human Services on how to accelerate the development and adoption of health information technology. AHIC was formed by the Secretary to help advance effort to achieve President Bush's goal for most Americans to have access to secure electronic heath records by 2014.

[edit] American Standard Code for Information Exchange (ASCII)
A convention for representing alphanumeric information using digital data. It is a standard seven-bit character code meaning it uses patterns of seven binary digits (a range of 0 to 127 decimal) to represent each character, used by computer manufacturers to represent 128 characters for information interchange among data processing systems, communication systems and other information system equipment. See also: http://en.wikipedia.org/wiki/ASCII

[edit] American National Standards Institute (ANSI)
Body that coordinates the development and use of voluntary consensus standards in the U.S/ Founded in 1918, the Institute oversees the creation, promulgation and use of thousands of norms and guidelines that directly impact businesses in nearly every sector. See also: http://www.ansi.org/about_ansi/overview/overview.aspx?menuid=1

[edit] Anonymized
Personal information which has been processed to make it impossible to know whose information it is.

[edit] Antivirus software
A software program that checks a computer or network to find all major types of harmful software that can damage a computer system.

[edit] Application Service Provider (ASP)
A business that provides computer-based services to customers over a network. See also: http://www.azhec.org/

[edit] Arizona Health Care Cost Containment System (AHCCCS)
State organization who administers Arizona's Medicaid program See also: http://www.azahcccs.gov/Site/AboutUs.asp

[edit] ASC X12
A standard for Electronic Document Interchange-ASC X12 is a family of Standards that provides both general and specific descriptions for data interchange within a number of industries. The HL7 Encoding Rules are modeled on the X12 Standards, although there are differences. The HL7 Standard needs to accommodate on-line exchange of individual transactions on LANs. These differences, and certain applications issues, are responsible for the variance from X12. X12 has recently decided to follow the UN/EDIFACT encoding rules for all X12 standards produced in 1995 or later. X12N transactions that facilitate the transfer of healthcare claims and remittance information as well as benefit coordination, enrollment and verification are enjoying dramatically increased use. HL7 has elected to assume that all new business transactions between institutions regarding the interchange of claims, benefits, or other financial information are the responsibility of ASC X12N, the insurance subcommittee of X12.

In February of 1994, HL7 and X12 signed an agreement to "improve coordination efforts and have identified that technical issues must be harmonized. Both groups agree to migrate to the appropriate level of resolution of potentially overlapping work by utilizing user and standards communities' and anticipated healthcare reform requirements."

Since then, HL7 and X12 have created two bodies to address the goals of harmonization: (1) HL7 - X12N Coordinating Ad Hoc Steering Committee to oversee efforts, and (2) HL7 - X12N Joint Coordinating Committee to develop and implement specific plans to achieve harmonization. Both

committees have convened a meeting in 1994 and continued their work through 1996. See also: www.x12.org

[edit] Audit
To track activities, identify the types of access that took place, identify a security breach, or warn the administrator of suspicious activity. (Ref: All In One CISSP Certification Exam Guide, Shon Harris, CISSP, MCSE, CCNS, 2002, McGraw Hill, Osborne, Berkley, CA.)

[edit] Audit Logs
A chronological sequence of audit records, each of which contacts evidence directly pertaining to and resulting from the execution of transactions. Audit logs may collect information across multiple organizations, geographic regions, health information exchanges, and potentially specific systems.

[edit] Audit Trail
A chronological record of activities of information system users which enables prior states of the information to be faithfully reconstructed. (Ref: ISO TS 18308)

[edit] Authentication
Verifying the identity of a user, process, or device, before allowing access to resources in an information system.

[edit] Authorized User
An individual Participant or an individual designated to use any information services on behalf of the participant, including without limitation, an employee of the Participant and / or a credentialed member of the Participant’s medical staff. See also: http://www.connectingforhealth.org

[edit] Backup
A copy of my files made to help regain any lost information in my record if necessary.

[edit] Breach
When Data is accidentally or intentionally lost, stolen, or misplaced.

[edit] Care Record Summary [CRS]
A Care Record Summary document contains patient's relevant health history for some time period. It is intended for communication between healthcare providers. A CRS is one document that can be transmitted using CDA.

[edit] Centers for Medicare and Medicaid Services (CMS)
The Centers for Medicare and Medicaid Services (CMS), previously known as the Health Care Financing Administration (HCFA), is a federal agency within the United States Department of Health and Human Services (DHHS) that administers the Medicare program and works in partnership with State governments to administer Medicaid, the State Children's Health Insurance Program (SCHIP), and health insurance portability standards. In addition to these programs, CMS has other responsibilities, including the administrative simplification standards from the Health Insurance

Portability and Accountability Act of 1996 (HIPAA), quality standards in long-term care facilities (more commonly referred to as nursing homes) through its survey and certification process, and clinical laboratory quality standards under the Clinical Laboratory Improvement Amendments. See also: http://en.wikipedia.org/wiki/Centers_for_Medicare_and_Medicaid_Services

[edit] Centers for Disease Control and Prevention (CDC)
An organization that maintains several code sets included in the HIPAA standards, including the ICD-9-CM codes.

[edit] Certification
A complete examination of an information system to be sure that the system can perform at the level required to support the intended results and meet the national standards for health information technology.

[edit] Certification Commission for Healthcare Information Technology (CCHIT)
The Certification Commission for Healthcare Information Technology or CCHIT is a recognized certification body (RCB) for electronic health records and their networks, and an independent, voluntary, private-sector initiative. It is our mission is to accelerate the adoption of health information technology by creating an efficient, credible and sustainable certification program. See also: www.cchit.org

[edit] Clinical Data Repository (CDR)
Clinical data repository is a database that has been specifically designed to support clinical transactions. It integrates data entered by clinicians via the presentation layer with data from other source systems, such as laboratory information systems, radiology information systems, and pharmacy information systems. It also may receive data from external sources, such as disease management data from a health plan, a current medication list from a referring provider (possibly through a provider portal or a continuity of care record transaction), a health history from a patient (possibly through a patient portal or personal health record system), or formulary information from a drug knowledge base vendor. Software applications then provide the instructions for processing these data in the repository, such as providing an alert about a potential drug-drug interaction or supplying a template populated with patient data to serve as the baseline for updating a patient assessment (rather than reentering the assessment with every admission).

[edit] Clinical Data Warehouse (CDW)
A clinical data warehouse is a database that has been optimized for data analysis using aggregated clinical information; it is a subject-oriented, integrated, time-variant, nonvolatile collection of data in support of clinical management decision-making. A clinical data warehouse generally receives its data from the clinical data repository but can also be instantiated directly from messaged or transferred information. What differentiates the clinical data warehouse from the repository is that it is not patient centric but rather the data is combined and architected in such a way for answer specific questions or to provide performance/quality feedback within the organization. The warehouse is generally designed for long term archival of clinical data and aggregation across institution, provider, cost center, payor, function, health codes, etc. The selection of the aggregation

schemes is driven by the determination of what is needed to be monitored and fed back to the organization in order to improve quality of care, cost of service delivery or identify trends and patterns.

[edit] Clinical Data Exchange (CDX) Gateway
A service which runs on a gateway and enables exchange of clinical information.

[edit] Clinical Document Architecture (CDA)
The CDA Release 2.0 provides an exchange model for clinical documents (such as discharge summaries and progress notes) - and brings the healthcare industry closer to the realization of an electronic medical record. By leveraging the use of XML, the HL7 Reference Information Model (RIM) and coded vocabularies, the CDA makes documents both machine-readable - ;so they are easily parsed and processed electronically - and human-readable - so they can be easily retrieved and used by the people who need them. CDA documents can be displayed using XML-aware Web browsers or wireless applications such as cell phones. While Release 2.0 retains the simplicity of rendering and clear definition of clinical documents formulated in Release 1.0 (2000), it provides state-of-the-art interoperability for machine-readable coded semantics. The product of 5 years of improvements, CDA R2 body is based on the HL7 Clinical Statement model, is fully RIM-compliant and capable of driving decision support and other sophisticated applications, while retaining the simple rendering of legally-authenticated narrative. See Also: www.hl7.org

[edit] Clinical Laboratory Improvement Amendments (CLIA)
Amendments for establishing quality standards for laboratory testing which ensure the accuracy, reliability and timeliness of patient test results regardless of where the test was performed. See also: http://www.fda.gov/cdrh/clia/

[edit] Commercial Off-The-Shelf Solution (COTS) products
Pre-packaged applications that can be bought to meet the users' needs. See also: http://infonet/Main/Reference/Acronyms/AcronymLookUp.aspx

[edit] Computerized Provider Order Entry (CPOE)
A computer application that allows a physician's orders for diagnostic and treatment services (such as medications, laboratory and other tests) to be entered electronically instead of being recorded on order sheets or prescription pads. The computer compares the order against standards for dosing, checks for allergies or interactions with other medications, and warns the physician about potential problems. See also: http://www.hhs.gov/healthit/glossary.html

[edit] Confidentiality
Obligation of a person or agency that receives information about an individual, as part of providing a service to that individual, to protect that information from unauthorized persons or unauthorized uses. Confidentiality also includes respecting the privacy interest of the individuals who are associated with that information.

[edit] Consent Directive

A consent directive is a record of a healthcare consumer's privacy policy, which is in accordance with governing jurisdictional and organization privacy policies that grant or withhold consent:

To one or more identified entities in a defined role
To perform one or more operations (e.g., collect, access, use, disclose, amend, or delete)
On an instance or type of individually identifiable health information (IIHI)
For a purpose such as treatment, payment, operations, research, public health, quality measures, health status evaluation by third parties, or marketing
Under certain conditions, e.g., when unconscious
For specified time period, e.g. effective and expiration dates
In certain context, e.g., in an emergency
A consent directive is an instance of governing jurisdictional and organization privacy policies, which may or may not be backed up by a signed document (paper or electronic).
[edit] Continuity of Care Record (CCR)
The Continuity of Care Record (CCR) is 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. See also: http://en.wikipedia.org/wiki/Electronic_health_recordElectronic_medical_record_.28EMR.29

[edit] Contraindication Alerts
Notifications that can be provided to a provider or pharmacist providing warnings concerning drug interactions with other drugs, indicated allergies, and other situations.

[edit] Current Medication List
A list of medications for which a consumer has an active prescription; this information is frequently consulted by a clinician while providing care and is especially important during transitions in care from one site, setting, or level of care to another. Clinicians are assisted in care management decisions if the current medication list includes patient-reported use of non-prescription medications such as over-the-counter drugs and remedies such as herbal and homeopathic supplements.

[edit] Current Procedural Terminology (CPT)
The list maintained by the American Medical Association to provide unique billing codes for services rendered. The current version is the CPT 2007. It is divided into three sections: • Category I CPT Code(s) • Category II CPT Code(s) – Performance Measurement • Category III CPT Code(s) – Emerging Technology It currently is used as Level 1 of the Healthcare Common Procedure Coding System.

[edit] Data Provider/Consumer
A person or organization who is contracted to exchange data (either retrieve or submit data) utilizing the Health Information Exchange.

[edit] Data Provider

Healthcare Provider that provides data utilizing Health Information Exchange. See also: http://www.connectingforhealth.org

[edit] Data Use Agreement
An agreement between a health provider, agency or organization and a designated receiver of information to allow for the use of limited health information for the purpose of research, public health or health care operations. The agreement assures that the information will be used only for specific purposes.

[edit] Decryption
The process used to “unscramble” information so that a “scrambled” or jumbled message becomes understandable.

[edit] De-identified Health Information
Name, address, and other personal information are removed when sharing health information, so that it cannot be used to determine who a person is.

[edit] Department of Health Services (DHS) in Arizona
An agency responsible for the administration of health services for the State of Arizona. Some of the services provided are vital statistics, certifying licenses for nursing homes, day care centers, etc. All licenses regulated by the State of Arizona are monitored by DHS. See also: http://infonet/Main/Reference/Acronyms/AcronymLookUp.aspx

[edit] Digital Certificate
Like a driver’s license, it proves electronically that the person is who he or she says they are.

[edit] Digital Signature
Uniquely identifies one person electronically and is used like a written signature. For example a doctor or nurse may use a digital signature at the end of an email to a patient just as she would sign a letter.

[edit] Disclosure
The release, transfer, of information to someone else

[edit] EDI Electronic Data Interchange (EDI)
Note: Data interchange standards may use either EDI terminology or XML HIPAA Compliant Electronic Data Interchange (EDI) Health Care Transactions 276/277 (Health Care Claim Status) Health Care Claim Status Request (276) Health Care Claim Status Response (277) 278 (Health Care Services Review) Request for Review and Response Notification Inquiry/Response 834 (Benefit Enrollment) Health Care Benefits Enrollment and Maintenance 835 (Health Care Claim Payment) Make payment on a health care claim Send an Explanation of Benefits (EOB) remittance advice Make payment and send an EOB in the same transaction 837 (Health Care Claims) Professional Institutional Dental Data Reporting 270/271 (Health Care Eligibility Inquiry and Response) 270 Eligibility Inquiry about health care benefits and eligibility 271 Eligibility Response to a request about health care

benefits and eligibility 820 Payroll Deducted and other group Premium Payments for Insurance Products Used to make a premium payment for insurance products or to make a payment to a payee. See also: http://www.wpc-edi.com/

[edit] Early Periodic Screening, Diagnosis, and Treatment Program (EPSDT)
The child health component of Medicaid. It is designed to improve the health of low-income children, by financing appropriate and necessary pediatric services.

To remember the elements of EPSDT, use the name of the program: Early Identifying problems early, starting at birth Periodic Checking children's health at periodic, age-appropriate intervals Screening Doing physical, mental, developmental, dental, hearing, vision, and other screening tests to detect potential problems Diagnosis Performing diagnostic tests to follow up when a risk is identified, and Treatment Treating the problems found. See also: http://www.hrsa.gov/epsdt/overview.htm

[edit] Electronic Health Record Solution (EHRS)
An Electronic Health Record Solution (EHRS) is a combination of people, organizational entities, business processes, systems, technology and standards that enable the interaction and exchange of clinical data to provide high quality and effective health services. At an enterprise level, this includes the broad range of existing Point of Service (PoS) applications, the health information they hold, as well as the EHR articulated in this Strategy Document that allows this information to be securely and appropriately shared. It is made up of:

Mechanisms to find and uniquely identify people, providers and locations;
Patient-centric Electronic Health Records (EHR);
Presentation solutions and intelligent agents;
Common services and standards to enable integration and interoperability;
Workflow and case management;
Decision support services;
Services to support health surveillance and research;
Services to ensure privacy and security;
Physical infrastructure to support reliable and highly available electronic communications;

[edit] EHR-Lite
EHR-Lite is an application that provides only a subset of the functionality of a full EHR. It is used as a way to gradually expose providers to HIT and ease the adoption of full-blown and interoperable EHRs; in a way, a middle-step towards overcoming the fear of what an EHR will mean for practicing in the health sector; for example, as a way to view radiology reports and images, submit and receive lab results (eLabs, not just displaying lab results) and to prescribe medications electronically (ePrescribing). EHR- Lite is a tool that allows providers to immerse themselves into HIT and particularly EHR’s without having to plummet into full-blown, expensive, and rapidly changing EHR-landscape, head-first.

[edit] Enterprise service Bus (ESB)

An enterprise service bus is a middleware infrastructure that supports enhanced interoperability and service plugability both within and between your applications. As a standards-based integration backbone, an ESB combines messaging, Web services, transformation, security management and routing for intelligently directed communication and mediation.

It can serve as the foundation for a service oriented architecture and it can scale to offer enterprise-class performance. Applications that are integrated through an ESB can be added, moved, changed or deleted with minimal disruption to your other applications. Four key capabilites are adapters,data transformation, orchestration, and communications. (as defined by Sun)

[edit] EPHI
"Electronic Protected Health Information" is defined by the Health Insurance Portability and Accountability Act (HIPAA) Standards for Privacy of Individually Identifiable Health Information, 45 C.F.R. Part 160 and Part 164, Subpart E, and the HIPAA Security Standards, 45 C.F.R. Part 160 and Part 164, Subpart C, both as amended from time to time.

[edit] ePrescribing
The process of using electronic means to transfer information between provider and pharmacist regarding a prescription.

[edit] Electronic Data Interchange for Administration, Commerce and Transport (EDIFACT)
An international EDI Format, sometimes referred to as UN/EDIFACT, since the United Nations has a role in it. Interactive X12 transactions use the EDIFACT message syntax.

[edit] Electronic Health Record (EHR)
An electronic record of health-related information on an individual that conforms to nationally recognized interoperability standards and that can be created, managed, and consulted by authorized clinicians and staff across more than one health care organization. Ref: Office of the National Coordinator, April 28 2008, Defining Key Health Information Technology Terms

[edit] Electronic Medical Record (EMR)
An electronic record of health-related information on an individual that can be created, gathered, managed, and consulted by authorized clinicians and staff within one health care organization. Ref: Office of the National Coordinator, April 28 2008, Defining Key Health Information Technology Terms

[edit] Electronic Personal Health Record (ePHR)
An electronic, cumulative record of health-related information on an individual, drawn from multiple sources, that is created, gathered and managed by the individual. The integrity of data in the ePHR and control of access to the data is the responsibility of the individual. Ref: Office of the National Coordinator, April 2008, Defining Key Health Information Technology Terms

[edit] Encounter
Encounter serves as a focal point linking clinical, administrative, and financial information. Encounters occur in many different settings – ambulatory care, inpatient care, emergency care,

home health care, filed and virtual (telemedicine). AHCCCS contractors report encounters which are reimbursable, face-to-face meetings between a covered person and a health care provider whose services are provided. Ref: http://www.ncvhs.hhs.gov/040127p1.htm.

[edit] Encryption
The process of enciphering or encoding a message so as to render it unintelligible without a key to decrypt (unscramble) the message. See also: http://toolkit.ehealthinitiative.org/glossary/

[edit] e-Prescribing (Electronic Prescribing)
The entering of a prescription for a medication into an automated data entry system (handheld, PC, or other) and thereby generating a prescription electronically, instead of handwriting the prescription on paper. See also: http://www.chcf.org/topics/view.cfm?itemID=12862

[edit] Healthcare Provider
A physician, group practice, hospital or health system that provides Treatment to Patients, has been assigned an AHCCCS provider number, and has entered into a HIeHR Participation Agreement. A Health Care Provider also may be a Data Supplier as well as an Authorized User.

[edit] Health Information
The term 'health information' means any information, whether oral or recorded in any form or medium, that is (A) created or received by a health care provider, health plan, public health authority, employer, life insurer, school or university, or health care clearinghouse; and (B) relates to the past, present, or future physical or mental health or condition of an individual, the provision of health care to an individual, or the past, present, or future payment for the provision of health car to an individual. (45 C.F.R. § 164.103)

[edit] Health Information Security and Privacy Collaboration (HISPC)
A public-private partnership that brings together a multidisciplinary team of experts from 33 states and Puerto Rico to work with the National Governors' Association Center for Best Practices to assess and develop plans to address the state-to-state variation in privacy laws and business practices that create barriers, or potential barriers, to eHIE.

[edit] Health Information Exchange (HIE)
Health information exchange (HIE) is defined as the mobilization of healthcare information electronically across organizations within a region or community.

HIE provides the capability to electronically move clinical information among disparate health care information systems while maintaining the meaning of the information being exchanged. The goal of HIE is to facilitate access to and retrieval of clinical data to provide safer, more timely, efficient, effective, equitable, patient-centered care. HIE is also useful to Public Health authorities to assist in analyses of the health of the population.

[edit] HIE Services

The information sharing, aggregation services and software for which the participant registers. See also: http://www.connectingforhealth.org

[edit] Health Information Organization (HIO)
An organization that oversees and governs the exchange of health-related information among organizations according to nationally recognized standards. Ref: Office of the National Coordinator, April 28 2008, Defining Key Health Information Technology Terms

[edit] Health Information Privacy
An individual's right to control the acquiring, use or release of his or her personal health information.

[edit] Health Information Technology (HIT)
The application of information processing involving both computer hardware and software that deals with the storage, retrieval, sharing, and use of healthcare information, data, and knowledge for communication and decision-making See also: http://www.azhec.org/

[edit] Healthcare Information Technology Standards Panel (HITSP)
Works on issues dealing with EHR functionality, interoperability and privacy.

[edit] Health Insurance Portability and Accountability Act (HIPAA)
Law passed by the U.S. Congress in 1996 (Public Law 104-191) that included provisions that required Health and Human Services (HHS) to adopt national standards for electronic healthcare. HIPAA includes provisions that require that doctors, hospitals and others protect the privacy of patients' health care information. See also: http://www.cchit.org/about/resources/Glossary.htm

[edit] Health Level 7 (HL7)
Data standard used for messages that are interchanged between hospital and physician record systems and between EMR systems and practice management systems. One of several ANSI accredited standards developing organizations operating in the healthcare arena. See also: http://en.wikipedia.org/wiki/Electronic_health_recordElectronic_medical_record_.28EMR.29

[edit] Health Plan Employer Data and Information Set (HEDIS)
Widely used set of performance measures in the managed care industry, developed and maintained by the National Committee for Quality Assurance (NCQA). HEDIS was designed to allow consumers to compare health plan performance to other plans and to national or regional benchmarks. See also: http://en.wikipedia.org/wiki/Health_Plan_Employer_Data_and_Information_Set

[edit] Healthcare Information and Management Systems Society (HIMSS)
The healthcare industry's membership organization exclusively focused on providing leadership for the optimal use of healthcare information technology and management systems for the betterment of human health. See also: http://www.azhec.org/

[edit] Healthcare Provider

Under HIPAA, this is "…a provider of services as defined in the section 1861(u) of the [Social Security] Act, 42 USC 1395x(u), a provider of medical or other health services as defined in section 1861(s) of the Act, 42 USC 1395(s) and any other person or organization who furnished, bills, or is paid for health care in the normal course of business." [45 CFR 160.103].

[edit] Identity Theft
The act of fraudulently pretending to be another person by using that person's identification or personal information for purposes of stealing money or gaining other benefits.

[edit] Incident Response Plan
The instructions or procedures that an organization can use to detect, respond to, and limit the effect of computer system attacks.

[edit] IIHI
The Privacy Rule of the Health Insurance Portability and Accountability Act of 1996 (HIPAA) creates a set of requirements and restrictions for the handling of Protected Health Information (PHI). PHI is defined as a subset of individually identifiable health information (IIHI) that is maintained or transmitted in any form, including oral communications that is created or received by a health care provider, relates to the past, present or future physical or mental condition of an individual; provision of health care to an individual; or payment for that health care; and identifies or could be used to identify the individual. HIPAA specifically recognizes that PHI may be created, used and disclosed in the course of performing research

[edit] Informed Consent
Information exchange between a clinical investigator and research subjects. This exchange may include question/answer sessions, verbal instructions, measures of understanding, and reading and signing informed consent documents and recruitment materials.

[edit] International Classification of Disease, 9th Revision, Clinical Modification (ICD-9-CM)
The 1972 revision of the international disease classification system that was developed by the World Health Organization (WHO), CM is a clinical "modification" to meet the needs of classifying and indexing morbidity data for medical care review and statistical purposes. This version is also used to report the medical necessity of services and supplies for reimbursement purposes. It is modified annually by the ICD-9-CM Coordination and Maintenance Committee which is comprised of participants from the National Center for Health Statistics and CMS. (Ref: ICD-9-CM 2007 Mag Mutual)

[edit] International Classification of Diseases, 10th Revision (ICD-10)
ICD-10-CM is the upgraded revision of ICD-9-CM that has been in effect internationally since the late 1990s and is a more specific classification system. ICD-10-CM has been developed to most efficiently convert the data in EHR terminology systems for secondary data use and it is the opinion that ICD-9-CM lacks the specificity to do this. Therefore, although there is not yet a final ruling as to the adoption date for ICD-10-CM, there is a push by AHIMA for a final conversion no later than October 1, 2011. http://www.govhealthit.com/online/news/350059-1.html

[edit] International Standards Organization (ISO) or International Organization for Standardization
An organization that coordinates the development and adoption of numerous international standards.

[edit] Interoperability
Interoperability is the ability of different information technology systems and software applications to communicate, to exchange data accurately, effectively and consistently, and to use the information that has been exchanged. Ref: The National Alliance for Health Information Technology, July 2005, What is Interoperability? Six facets of interoperability are further delineated:

Uniform movement of healthcare data from one system to another such that the clinical or operational purpose and meaning of the data is preserved and unaltered.
Uniform presentation of data, enabling disparate stakeholders to use different underlying systems to have consistent presentation of data when doing so is clinically or operationally important.
Uniform user controls to the extent that a stakeholder is accessing a variety of underlying systems, and contextual information and navigational controls are presented consistently and provide for consistent actions from relevant systems.
Uniform safeguarding of data security and integrity and data moves from system to system such that only authorized people and programs may view, manipulate, create, or alter the data.
Uniform protection of patient confidentiality is achieved even as stakeholders in different organizations access data that has been exchanged across systems, particularly in order to prevent unauthorized access to sensitive information by people who should not, or do not need to know.
Uniform assurance of common degree of service quality so that stakeholders who rely on the set of interoperable systems can count on the availability and responsiveness of the overall system as they perform their jobs.
[edit] Lab Result Distribution
The lab result distribution is the electronic delivery of lab results to health care providers, health plans, governmental organizations or any other authorized organization. For example, health plans may subscribe to a lab result distribution service to receive all lab results for their members. AHCCCS may subscribe to this service to receive all lab results available for its members.

[edit] Logical Observation Identifiers Names and Codes (LOINC)
LOINC codes are universal identifiers for laboratory and other clinical observations . These codes were organized by Clement McDonald in 1994 supported by Regenstrief Institute and the National Library of Medicine. A database containing all LOINCs is available as a free download for use in standards. This code set is updated quarterly. See also:
http://www.regenstrief.org/medinformatics/loinc/

[edit] Medicaid Information Technology Architecture (MITA) Initiative
MITA is an initiative of the Center for Medicaid & State Operations (CMSO) intended to foster integrated business and IT transformation across the Medicaid enterprise to improve the administration of the Medicaid program. It is a national framework to support improved systems

development and health care management for the Medicaid enterprise. See also: http://www.cms.hhs.gov/MedicaidInfoTechArch/

[edit] Medication History
A list of past and present prescription and non-prescription patient medications that is relevant for future clinical episodes.

[edit] Medication List
See “Current Medication List”

[edit] Medication Reconciliation
This is the process of comparing a patient’s medication orders to the list of medications that the patient has been taking. The purpose is to identify and avoid medication errors such as omissions, duplication, dosing errors, or drug interactions. Medication reconciliation should take place at every transition of care that involves new orders for medications or existing orders are rewritten. (Ref: The Joint Commission, Sentinel Event Alert; Issue 35 – January 25, 2006)

[edit] Medical Trading Area (MTA)
An MTA is a geographic area defined by where a population cluster receives its medical services. It is an area in which groups of physicians, hospitals, labs and other providers work together to serve a population of consumers. See also: http://www.azhec.org/

[edit] Medicaid Management Information System (MMIS)
The mechanized claims processing and information retrieval system which states are required to have, unless this requirement is waived by the Secretary. (Ref: http://www.cms.hhs.gov/MMIS)

[edit] Member
An individual who receives, or has received, services from AHCCCS or any Health Plan.

[edit] Message Transformation
Translation of a message from one standard to another in order to interface with HIE data partner systems. (i.e. HL7 2.X to CCD)

[edit] Master Person Index (azMPI or MPI)
A Master Person Index (MPI) is generally used to manage person identification and cross-reference across disparate systems. Healthcare organizations may have several systems handling various different data processing needs, from laboratory to billing, each with its own database of persons and person identifier numbering schemes. Each of these can be called an ID Domain. An MPI can function as a Correlation Manager between these domains, providing a cross-reference of a person’s identifiers across each of the domains. Typically an MPI will also have one universal or enterprise identifier that uniquely identifies the person in the MPI itself. The domain for this identifier may or may not be the domain for clients of the MPI. MPI functionality also typically includes methods to provide an identifier for a person, given a set of traits or demographics for that person. An example of the use of this is for a client system to query the MPI for a person given a set of demographics. The

MPI uses matching algorithms to find possible matching persons, and returns to the client system the identifiers for those persons (as defined in HL7 2.5 standard documentation).

[edit] National Council for Prescription Drug Programs (CPDP)
An ANSI-accredited group that maintains a number of standard formats for use by the retail pharmacy industry, some of which are included in the HIPAA mandates.

[edit] National Drug Code (NDC)
A medical code set that has been eliminated by HIPAA as the standard for all providers except retail pharmacies. (Ref:
http://www.cms.hhs.gov/TransactionCodeSetsStands/02_TransactionsandCodeSetsRegulations.asp)

[edit] National Provider Identifier (NPI)
A unique identification number for covered health care providers. Implemented by CMS under HIPAA standards. See also: http://www.cms.hhs.gov/NationalProvIdentStand/

[edit] National Uniform Claim Committee (NUCC)
An organization chaired and hosted by the American Medical Association that maintains the CMS-1500 claim form and set of data element specifications for professional claims submission via the CMS-1500 claim form, the Professional EMC NSF and X12 837. The NUCC has a formal consultative role under HIPAA for all transactions affecting non-dental non-institutional professional care services.

[edit] Non-Repudiation
The process of confirming proof of information delivery to the sender and proof of sender identity to the recipient.

[edit] Notice of Privacy Practices or Privacy Notice
HIPAA requires that all covered health plans, healthcare clearinghouses, or healthcare providers give patients a document that explains their privacy practices and how information about the patients' medical records may be shared.

[edit] Office of the National Coordinator for Health Information Technology (ONC)
U.S. Department of Health and Human Services office that provides leadership for the development and nationwide implementation of an interoperable health information technology infrastructure to improve the quality and efficiency of healthcare and the ability of consumers to manage their care and safety. See also: http://www.azhec.org/

[edit] Open Source
An approach to software development in which programmers can read, redistribute, and modify the source code for a piece of software, resulting in community development of a shared product.

[edit] Open Source Software
Computer software whose source code is available under a license (or arrangement such as the public domain) that permits users to use, change, and improve the software, and to redistribute it in

modified or unmodified form. It is often developed in a public, collaborative manner. See also: http://en.wikipedia.org/wiki/Open_source_software

[edit] Patient
An individual receiving medical Treatment or health care services from a Health Care Provider.

[edit] Pharmacy Benefit Manager (PBM)
A third party administrator of prescription drug programs. They are primarily responsible for processing and paying prescription drug claims. They are also responsible for developing and maintaining the formulary, contracting with pharmacies, and negotiating discounts and rebates with drug manufacturers. See also: http://en.wikipedia.org/wiki/Pharmacy_benefit_manager

[edit] Policy/Legal Requirements
Operational, regulatory, and policy based parameters with which the project must comply.

[edit] Practice Management System (PMS)
Part of the medical office record. It carries the financial, demographic, and non-medical information about patients. This information frequently includes patient's name, federal identification number, date of birth, telephone numbers, emergency contact person, alternate names for the patient, insurance company or entities responsible for payment, subscriber information for an insurance company, employer information, information to verify insurance eligibility, information to qualify for lower fees based on family size and income, and provider numbers to process medical claims. See also: http://www.azhec.org/

[edit] Protected Health Information (PHI)
PHI is defined as "Individually identifiable health information that is transmitted by electronic media, maintained in electronic form, or transmitted in any other form or medium. PHI does not include education records covered by the Family Educational Rights and Privacy Act, certain records described in that act that have substantial privacy protection, or employment records held by an employer. (Ref: 45 C.F.R. § 164.103)

[edit] Public Health Agencies (local/state/federal)
Local, State, and Federal government organizations and personnel that exist to help protect and improve the health of their respective constituents.

[edit] Personal Health Record (PHR)
A health record that can be created, reviewed, annotated, and maintained by the patient or the caregiver for a patient. The personal health record may include any aspect(s) of the health condition, medications, medical problems, allergies, vaccination history, visit history, or communications with healthcare providers.

[edit] Predictive Modeling
Predictive Modeling is the process of analyzing currently available data (via data mining) to prospectively identify specific individuals who are at high-risk of having adverse outcomes in the near

future. In other words the probability that the individual will develop or express illnesses if not managed or intervened in time and thus becoming a costly patient to treat.

[edit] Record Locator Service (RLS)
An information service that locates patient records across systems given a set of criteria, such as patient demographics or id numbers.

[edit] Registries
Organized systems for the collection, storage, retrieval, analysis, and dissemination of information on individual persons to support health needs. May include emergency contact information/next-of-kin registries, etc.

[edit] RxNorm
Provides standard names for clinical drugs (active ingredients + strength + dose form) and for dose forms as administered to a patient. See also:
http://www.nlm.nih.gov/research/umls/rxnorm/index.html

[edit] Security
In information systems, the degree to which data, databases, or other assets are protected from exposure to accidental or malicious disclosure, interruption, unauthorized access, modification, removal or destruction. See also: http://toolkit.ehealthinitiative.org/glossary/

[edit] Secure Sockets Layer (SSL)
A commonly-used protocol for managing the security of data transmission on the Internet.

[edit] Structured Data
Structured data is data that allows for querying and reporting against predetermined data types and understood relationships. It consists of discrete data with defined semantics rather than narrative text or encapsulated objects, such as .pdf files.

[edit] Subjective Objective Assessment Plan (SOAP)
Architecture for clinical notes: • Subjective – the patient description of problems and issues • Objective – vital signs, examination, laboratory, imaging and other objective data which is to be used to make decisions about care • Assessment – diagnoses • Plan –evaluation and treatment, includes laboratory and imaging, medications, referrals, patient education, self management and lifestyle modifications, etc.

[edit] Service Oriented Architecture (SOA)
SOA is a design approach that integrates business and IT strategies to provide users with common services that leverage existing and new functionality. A key goal is the development of a business and technology architecture that can support changing regulatory, business and customer needs.

[edit] Systematized Nomenclature of Medicine (SnoMed)

A system of standardized medical terminology covering clinical data for diseases, clinical findings and procedures. It allows a consistent way to index, store, retrieve, and aggregate clinical data across specialties and sites of care.

Ownership of SNOMED CT® transferred to new international organization Copenhagen, Denmark. The newly-formed International Health Terminology Standards Development Organization (IHTSDO®, also known as SNOMED SDO®) has acquired the intellectual property rights of SNOMED Clinical Terms (SNOMED CT®) and its antecedents from the College of American Pathologists (CAP) for $7.8 million, marking a milestone in the international standardization of health data. See also: http://en.wikipedia.org/wiki/Snomed, http://www.ihtsdo.org/news/article/view/ownership-of-snomed-ctR-transferred-to-new-international-organisation/

[edit] Telemedecine
Telemedicine is the use of medical information exchanged from one site to another via electronic communications to improve patients' health status. Closely associated with telemedicine is the term "telehealth," which is often used to encompass a broader definition of remote healthcare that does not always involve clinical services. Videoconferencing, transmission of still images, e-health including patient portals, remote monitoring of vital signs, continuing medical education and nursing call centers are all considered part of telemedicine and telehealth.

[edit] Unstructured Data
Data that is either free text or encapsulated in some type of object. This type of data cannot be broken appart without losing its context and semantics. Some examples include word processing files, html files (web pages), presentation files, spreadsheets, graphics, audio files, video files and emails.

[edit] Use
Sharing, employing, applying, utilizing, examining or analyzing health information.

[edit] Workgroup for Electronic Data Interchange (WEDI)
A standards group whose goal is to improve healthcare through widespread adoption of e-commerce protocols, technologies, and tools. See also: http://www.wedi.org/

[edit] XML Extensible Markup Language
A standards group whose goal is to improve healthcare through widespread adoption of e-commerce protocols, technologies, and tools.