

DSS Pilot Site Technical Requirements Version 1.5

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Revisions

| Version | Changes | Date | Responsible |
|----------------|--|-------------|--------------------|
| 1 | Original | 11/04/09 | John DeStefano |
| 1.1 | Added roles table at end. | 11/05/09 | Shield Gschwind |
| 1.2 | Add revisions section | 11/06/09 | John DeStefano |
| 1.3 | Removed workplan, see detailed workplan | 11/11/09 | John DeStefano |
| 1.4 | Added ITI version information, Changed consent language. | 11/12/09 | John DeStefano |
| 1.5 | Updated ITI version information, Changed consent validation. | 03/12/10 | John DeStefano |

Introduction

The purpose of this document is to assist DSS pilot sites in preparing to interact with the the eHealthConnecticut Health Information Exchange platform (HIE).

Integrating the Healthcare Enterprise (IHE) – Some background

eHealthConnecticut's Health Information Infrastructure (HII) is based around an IHE Core developed by Misys Open Source Solutions (MOSS), and includes a web-based portal that provides access to the HII for those who do not have an EMR.

Sponsored by Healthcare Information and Management Systems Society (HIMSS), Radiological Society of North America (RSNA) and the American College of Cardiology (ACC), IHE brings together the major vendors in the healthcare information and imaging systems industry to agree upon and demonstrate standard interfaces and data architectures.

The Integrating the Healthcare Enterprise (IHE) initiative is a multi-year project designed to advance the state of data integration in healthcare. Its fundamental objective is to ensure that in the care of patients all required information for medical decisions is both correct and available to healthcare professionals. IHE demonstrates that imaging and other healthcare information and management systems can be successfully integrated and highlights the ways that this integration will benefit patients and health professionals.

IHE does not create new standards, but rather drives the adoption of standards to address specific clinical needs. IHE Integration Profiles specify precisely how standards are to be used to address these needs, eliminating ambiguities, reducing configuration and interfacing costs, and ensuring a higher level of practical interoperability. IHE is now truly multi-domain with Integration Profiles for Radiology, Cardiology, Laboratory, Information Technology (IT) Infrastructure, and Patient Care Coordination, which enable interoperability both within and across multiple enterprises. Additionally, IHE functionality is a new requirement for vendors who seek CCHIT certification in 2009.

Leading technology companies, that normally compete against one another, work in harmony at the annual Connect-a-thon to ensure that their systems are inter-operable. They improve on their ability to communicate with other systems according to specific data standards to support clinical care, including sharing patient data in a network of healthcare facilities like the regional health information infrastructure organizations (RHIOs) currently being designed and implemented.

What is the goal of IHE?

IHE's goal is to encourage enterprise-wide and cross enterprise sharing of the patient's clinical information by imaging and information systems used in healthcare. The goal of IHE is to remove barriers to optimal patient care by making all relevant clinical data accessible on demand to care providers at the point and time it is need for medical decisions and care.

Optimal Patient Care

Optimal patient care requires efficient access to comprehensive electronic health records (EHRs). The Integrating the Healthcare Enterprise (IHE) initiative accelerates the adoption of

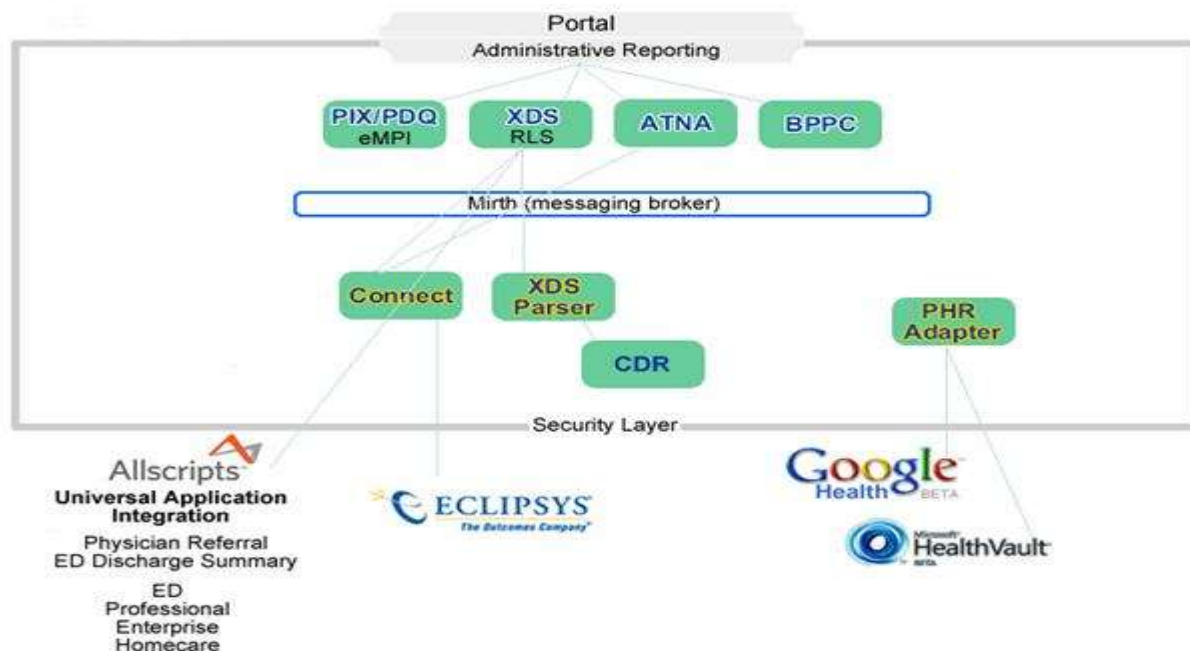
the information standards needed to support EHRs. More than 100 vendors have implemented and tested products based on IHE. All the EHR products recommended by Allscripts are CCHIT certified. IHE improves patient care by harmonizing healthcare information exchange. IHE provides a common standards-based framework for seamlessly passing health information among care providers, enabling local, regional and national health information networks. IHE enhances the quality of patient care, resulting in the following benefits:

- Safety through the reduction of medical errors
- Savings through lower implementation costs and more efficient work-flow
- Satisfaction through better informed medical decisions and faster results for both patient and physician

eHealthConnecticut and IHE

eHealthConnecticut's Community Portal will be built on the IHE standard. In 2008 MOSS proved its IHE compliance at the 2008 Connect-a-thon in Orlando, Florida. In 2009 MOSS proved itself again, this time completing the Connect-a-thon with CCHIT integrating OpenPIXPDQ into its 2009 test harness.

Since eHealthConnecticut's Community Portal will be IHE compliant, all external systems that are based on like profiles will be able to connect. This also promotes interoperability with the Nationwide Health Information Network (NHIN) that also builds on the IHE standard. The following diagram depicts how we anticipate the integration of IHE with proprietary products such as Allscripts, and Eclipsys, as well as with personal health records from Google and Microsoft.



Enterprise Master Person Index (eMPI) and Record Locator Service (RLS)

An enterprise Master Person Index (eMPI) is necessary to ensure health care summaries displayed to a provider belong to a particular patient's record and no one else. Identifying a patient across a myriad of systems is non-trivial and the community will have to decide what degree of error they are willing to commit to.

Once a patient can be positively identified in the system, the Record Locator Service (RLS) is used to pull the appropriate records from the CDR or XDS repository. It may prove worthwhile to break the eMPI and the RLS into separate components in order to create a barrier between identifiable demographic data and de-identified clinical data. Some organizations have used one way hashes to ID clinical data, so that any potential breach of the system would prevent demographics from being readily mapped to clinical data. This would also allow demographic and clinical data to reside on separate servers, creating additional in depth security by forcing servers to authenticate to each other. As part of eHealthConnecticut's build, MOSS will create an RLS and CDR as part of its XDS registry and repository work.

Patient Identity Cross-Reference / Patient Demographic Query (PIX/PDQ)

The Patient Identity Cross-Reference (PIX) maintains a database of user identities. The PIX Manager will create a Global Unique ID (GUID) and will map patient identities to a GUID as new patient records are presented to it. Mapping is based on an existing GUID set of identifiers. Identifiers can be first name, last name, telephone number, date of birth, or any other set of demographic data that is determinant of an identity. If no match is found, a new GUID is established and the patient id is mapped to it.

There is a PIX Consumer and a PIX Source. Every PIX Source will register ADT feeds with the PIX manager. In theory a PIX consumer will never make a request for a patient that does not exist, because the PIX consumer will have registered everyone it knows about.

Patient Demographic Query is used to look up information about a patient to which there is no known PIX registry, as in the case of a patient presenting to a provider for the first time. This is a query on demographics and is generally done by PDQ Consumers who do not or are not able to support a PIX interface. The PDQ will return all records that match the query rules. This can potentially create an opportunity for identifying cohorts and managing population studies.

Since eHealthConnecticut's Community Portal is being built using the IHE profile, a PIX/PDQ is absolutely necessary. PIX/PDQ not only works at the community level, but can be leveraged for institutional MPI management, where disparate systems are involved. Having a full implementation of PIX/PDQ will differentiate our solution from our competitors.

XDS Repository/Registry

The XDS Repository will store all manner of documents but is primarily focused on the storage of Continuity of Care Documents (CCD) and the Clinical Data Architecture (CDA). The XDS registry will manage the Repository and minimize duplicates as well as allow disparate systems to share documents and allow for viewing across a community.

OpenXDS, the MOSS open source XDS project, is the server side implementation of IHE XDS profile including both XDS Repository and XDS Registry actors.

The XDS Repository is responsible for the persistent storage of documents and for their registration with an appropriate XDS Registry. It assigns a URI to documents for subsequent retrieval by Document Consumers. Supported transactions will include Provide and Register Document Set (ITI-15), Register Document Set (ITI-14) and Retrieve Document (ITI-17).

The XDS Registry maintains meta-data about each registered document in a document entry. This includes a link to the document in the Repository where it is stored. The Registry responds to queries from XDS Consumers who are searching for documents meeting specific criteria. Supported transactions will include Register Document Set (ITI-14), Registry Stored Query (ITI-18) and Patient Identity Feed (ITI-8).

The major components and technologies for OpenXDS include:

- ebXML 3.0 for data modeling
- Axis2 for web services
- Relational database for storage
- XPath for xml parsing
- Hibernate for database abstraction
- Hapi for accepting patient ADT feeds from a PIX manager

ATNA

IHE ATNA profile establishes security measures including both TLS secure transactions and security audit logging. Currently, OpenATNA, the MOSS open source ATNA project, is an implementation of Audit Record Repository (ARR), only handling the server side of security audit logging to track security events.

Major components and technologies include:

- Relational database for storing log events
- UDP socket to accept messages
- XML parser and data binding (either JAXB or Xmlbeans)
- Hibernate for database abstraction
- Event filtering and reporting
- Event alerting and alarming

XDS Parser and Clinical Data Repository (CDR)

XDS documents can be parsed for discrete clinical information and stored in a clinical data repository (CDR). In addition, discrete clinical information can be imported into existing medical records without having to store an entire document. In order to extract this information from documents an XDS parser will be created.

By maintaining a CDR, eHealthConnecticut will create tremendous opportunities for discovery and learning. The portal will allow users to access health information that is appropriate to their role. For example, discrete data can be used to generate patient utilization reports that help identify frequent ED utilization. This report may lead to a case manager being assigned to determine if the individual lacks a medical home. A longitudinal summary of a patient can

help providers identify gaps in patient care and can also be used to demonstrate PQRI compliance. Also, rules can be established a priori to alert community leaders of peculiar outbreaks within a region.

Discrete data is essential to research, and simply having this information will stimulate grant and research partnership opportunities. Community health studies become possible, as does the opportunity to identify cohorts for clinical trials.

Portal

eHealthConnecticut's HIE Portal is a core element of our platform that provides clinicians and other members of the healthcare community with the right information at the right time by making patient information available across organizational boundaries without requiring an EMR. It facilitates and streamlines the sharing of patient information.

The portal is built on the Liferay Open Source Portal application. Liferay offers core portal functionalities as an out of the box solution that includes application administration, user interface, portlet integration, role based management, Single Sign on. Liferay has been developed on SOA (service oriented architecture) making it extensible for future requirements. Starting the portal development with Liferay dramatically reduces the cost of development as well as the time required for the build cycle.

The key features of the portal include User authentication / authorization, role based access utilizing BPPC consent policies, search for patients using PDQ query to PIX server, display XDS documents via XDS repository/registry. The portal will also be seamlessly integrated with Allscripts e-Prescribe with Single Sign On functionality and patient context. When a clinical data repository becomes available to the community, the portal can serve as a viewer and reporting platform.

Support

eHealthConnecticut is responsible for Level 1 (Help Desk) support. MOSS will provide Level 2 and 3 support that includes providing the Help Desk with full technical support to resolve problems in a timely and efficacious manner. MOSS support will be round-the-clock and year-round.

Alpha-Pilot

On September, 2009 eHealthConnecticut demonstrated the HIE platform. Three eHealthConnecticut participants were involved in the alpha-pilot: Hartford Hospital, St. Francis Hospital, and ProHealth. Each participant demonstrated the following services:

- Publish a Continuity of Care Document to an edge document repository
- Publish an ADT feed or other PIX source data to the PIX consumer
- Query for a patient using the PIX/PDQ
- View patient documents using eHealthConnecticut's HIE Portal

THICC Alpha-Pilot Implementation Diagram

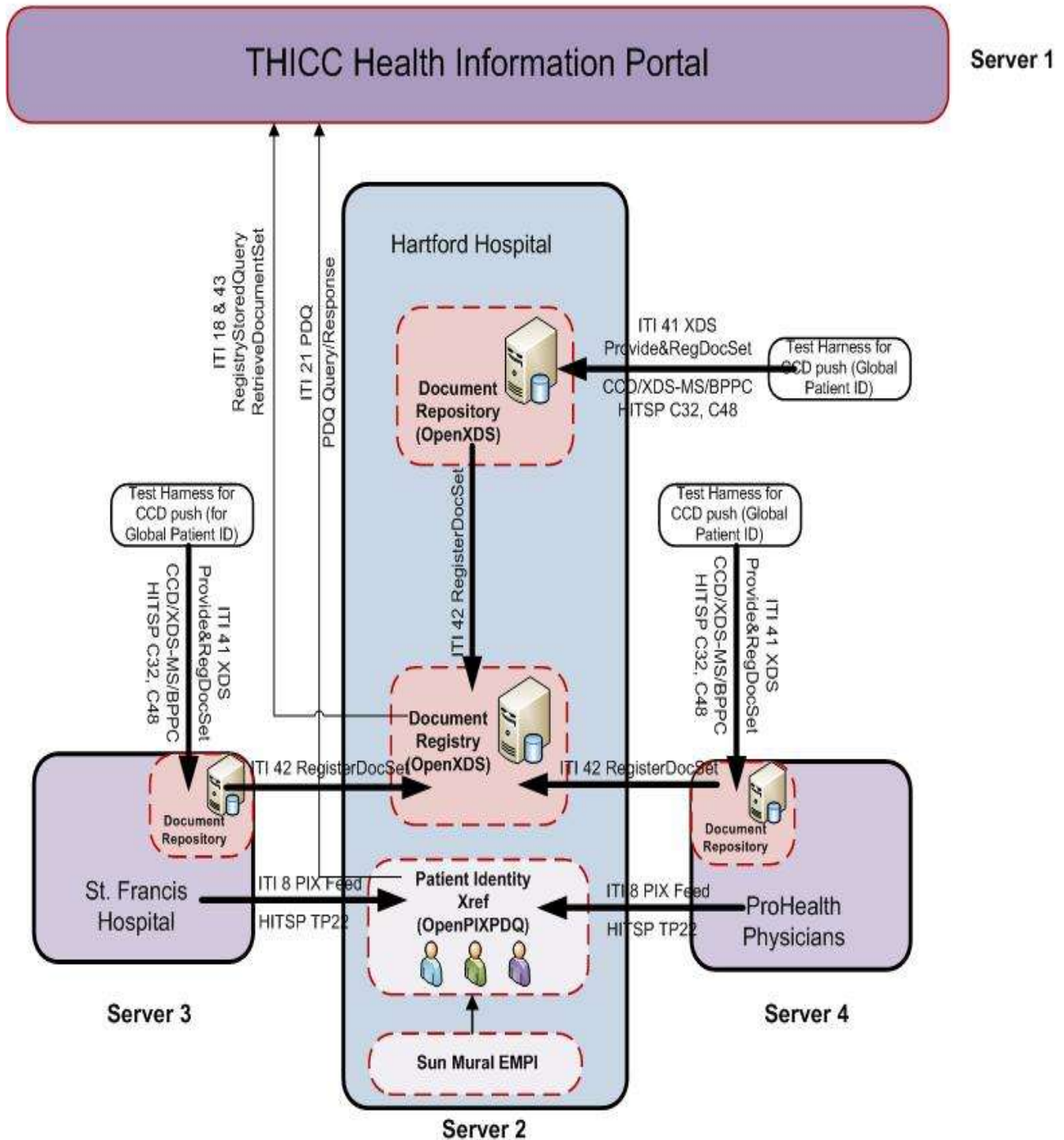
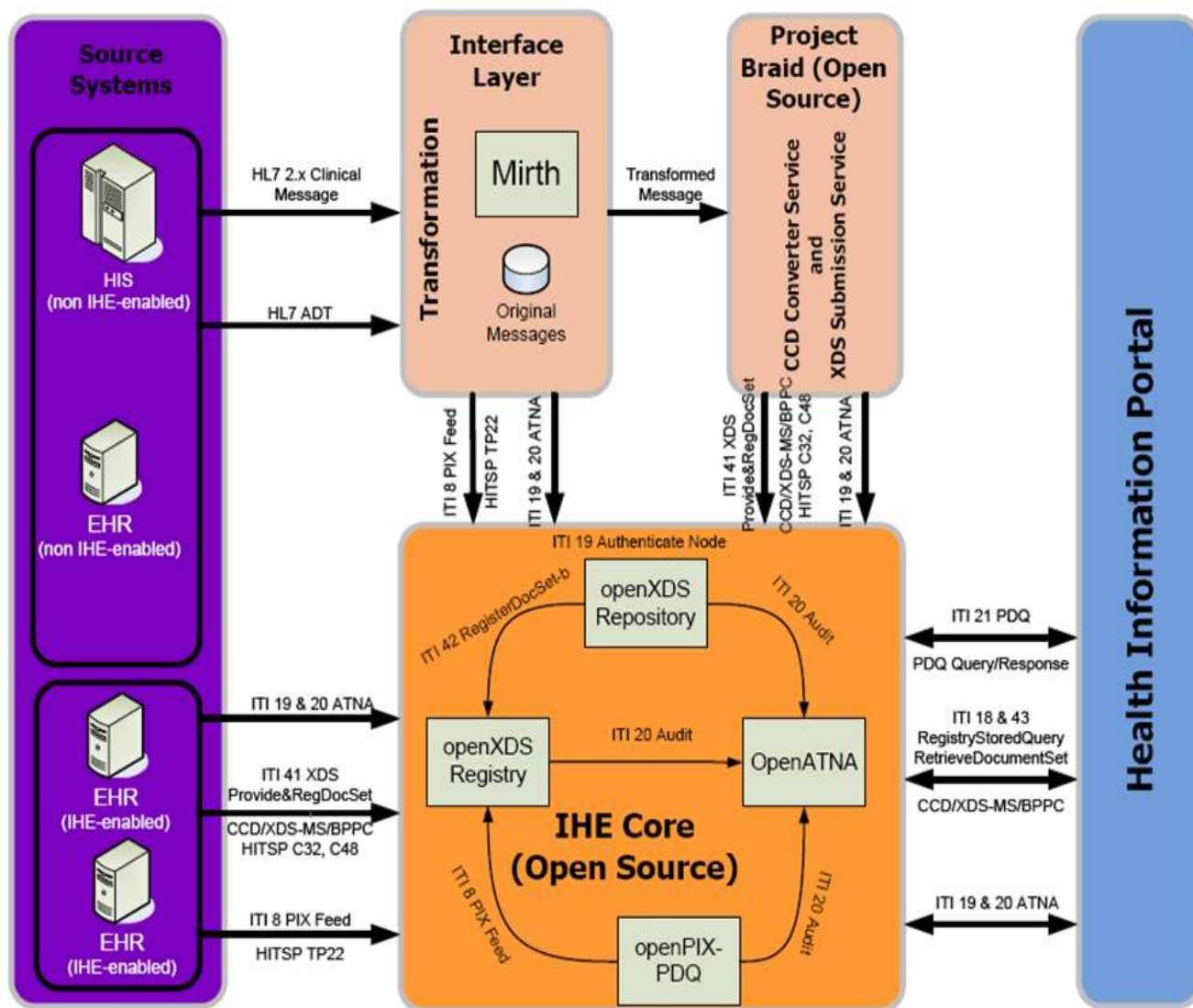


Diagram 1: IHE XDS Hybrid Architecture

Site Preparedness

Sites wishing to participate in the DSS pilot must be able to function as a Patient Cross Identity Source and a Document Provider Source. Hartford Hospital in conjunction with St. Francis Care Hospital and SMC partners is developing enabling technology to assist those sites which would have a difficult time meeting the minimum participation requirements. This effort will be donated back to the HIE community.



The above diagram outlines the the IHE IT-Infrastructure transactions that are required for IHE-enabled systems. Non-IHE-enabled systems can also participate but this requires the use of some enabling technology. The diagram above is one example of how that might be done.

In order to participate in the pilot opportunity sites must first agree to the governance policy and procedures. This is covered in detail in a separate document. The technical requirements for participation revolve around the IHE transaction sets depicted in the above diagram. Specifically, participants must be able to interact with the PIX/PDQ manager, the XDS, and the ATNA components of the HIE. Use of the Portal is optional but suggested. As was stated earlier the majority of the components are being developed in open source. They can be found on the Open Health Tools forge site (<http://www.openhealthtools.org/>). The specific projects

are OpenPIXPDQ, OpenXDS, and OpenATNA. The current ITI version supported by the platform as of this writing is version 6.

PIX/PDQ Requirements

Interaction with the PIX/PDQ components requires the ability to provide an HL7 ADT feed (HL7 v2.3.1). If a participant wishes to query the PIX/PDQ this can be accomplished with a HL7v2.5 PIX Query or HL7v2.5 PDQ Query. All transactions are secured through TLS mutual handshakes. The ability to generate and submit audit log as per the IHE ATNA profile is also required.

The patient Identity feed transaction is accomplished by an HL7 ADT message as defined in the following message specification. The Patient Identity Source Actor shall generate the message whenever a patient is admitted, pre-admitted or registered or some piece of the patient demographic data changes. Acceptable messages are ADT^A01 (Admit a patient), ADT^A04 (Register a patient), ADT^A05 (Pre-admit a patient), ADT^A08 (Update patient information), and ADT^A39 (Merge a person) for HL7 v2.3.1. Please note that ADT^A39 is a complete person merge and not a single account merge. Please inquire with your eHealthConnecticut installation analyst as to the port and server to connect to.

The required segments for ADT Patient Administration Message are:

| ADT | Patient Admission Message |
|------------|----------------------------------|
| MSH | Message Header |
| EVN | Event Type |
| PID | Patient Identification |
| PV1 | Patient Visit |

Please refer to

<https://openpixpdq.projects.openhealthtools.org/servlets/ProjectProcess.jsessionid=FCDF32B12C2452D28529B46E13A52AA0?pageID=glaJ1A>

for sample HL7 ADT messages and message acknowledgement segment (MSA).

Each message starts with an MSH as follows:

| Seq# | Length | REQ | HL7 element |
|------|--------|-----|---|
| 1 | 1 | R | Field Separator |
| 2 | 4 | R | Encoding Characters |
| 3 | 180 | R+ | Sending Application |
| 4 | 180 | R+ | Sending Facility |
| 5 | 180 | R+ | Receiving Application |
| 6 | 180 | R+ | Receiving Facility |
| 7 | 26 | R | Date/Time Of Message |
| 8 | 40 | O | Security |
| 9 | 13 | R | Message Type |
| 10 | 20 | R | Message Control ID |
| 11 | 3 | R | Processing ID |
| 12 | 60 | R | Version ID |
| 13 | 15 | O | Sequence Number |
| 14 | 180 | O | Continuation Pointer |
| 15 | 2 | O | Accept Acknowledgment Type |
| 16 | 2 | O | Application Acknowledgment Type |
| 17 | 3 | O | Country Code |
| 18 | 16 | C | Character Set |
| 19 | 250 | O | Principal Language Of Message |
| 20 | 20 | O | Alternate Character Set Handling Scheme |

| | | | |
|----|----|---|----------------------------|
| 21 | 10 | O | Conformance Statement ID # |
|----|----|---|----------------------------|

The EVN is next:

| Seq# | Length | REQ | HL7 element |
|------|--------|-----|-------------------------|
| 1 | 3 | O | Event Type Code |
| 2 | 26 | R | Recorded Date/Time |
| 3 | 26 | O | Date/Time Planned Event |
| 4 | 3 | O | Event Reason Code |
| 5 | 60 | O | Operator ID |
| 6 | 26 | R2 | Event Occurred |
| 7 | 180 | O | Event Facility # |

The PID is next:

| Seq# | Length | REQ | HL7 element |
|------|--------|-----|-----------------------------------|
| 1 | 4 | O | Set ID - Patient ID |
| 2 | 20 | O | Patient ID |
| 3 | 250 | R | Patient Identifier List |
| 4 | 20 | O | Alternate Patient ID |
| 5 | 250 | R | Patient Name |
| 6 | 250 | R+ | Mother's Maiden Name |
| 7 | 26 | R+ | Date/Time of Birth |
| 8 | 1 | R+ | Administrative Sex |
| 9 | 250 | O | Patient Alias |
| 10 | 250 | O | Race |
| 11 | 250 | R2 | Patient Address |
| 12 | 4 | O | County Code |
| 13 | 250 | R2 | Phone Number – Home |
| 14 | 250 | R2 | Phone Number – Business |
| 15 | 250 | O | Primary Language |
| 16 | 250 | O | Marital Status |
| 17 | 250 | O | Religion |
| 18 | 250 | O | Patient Account Number |
| 19 | 16 | R2 | SSN Number – Patient |
| 20 | 25 | R2 | Driver's License Number – Patient |
| 21 | 250 | O | Mother's Identifier |
| 22 | 250 | O | Ethnic Group |
| 23 | 250 | O | Birth Place |
| 24 | 1 | O | Multiple Birth Indicator |
| 25 | 2 | O | Birth Order |
| 26 | 250 | O | Citizenship |
| 27 | 250 | O | Veterans Military Status |
| 28 | 250 | O | Nationality |
| 29 | 26 | O | Patient Death Date and Time |
| 30 | 1 | O | Patient Death Indicator |

An optional PV1 follows. The purpose of the PV1 is to carry the patient consent indicator. Consent for a patient can be captured by the HIE in two ways; through the PIX feed as described below or by using the portal's patient consent module. The portal patient consent module is an on-line (web-based) tool to update a patient's consent.

IHE is not specific as to how patient consent is captured. The solution provided here is unique to our HIE. To indicate patient consent through the PIX feed PV1-16 will be used. The accepted values in the field are 'I' for opt-in, 'O' for opt-out, and 'N' for no change. If no PV1 is sent then no change will take place to the patient consent status (same as sending an 'N'). If a value other than 'I', 'O', or 'N' is sent then the value will be changed to 'N'. Only A01, A04, A05, and A08 message types can change the consent status.

To understand how to set the consent indicator you must first understand how a patient's data is provisioned for display. When patient data is requested, for instance by a portal user, only

patients who have their consent indicator set to 'I' are displayed. The 'U' indicator is set by the system when a new patient is first created due to an A01, A04, A05, or A08 message. The consent indicator is only set to 'U' if the incoming message that is creating this new patient identity does not have an 'I' or 'O' in the PV1-16. Again, the 'U' is set only for brand new patient identities in the PIX manager. If the message carries the opt-in or opt-out consent indicator then that will be used. From a work flow perspective, only send an 'I' or 'O' when the patient has actively indicated his or her consent by signing the eHealthConnecticut consent form in coordination with the ADT event; in other words for that particular visit. During processing A08 maybe created due to various demographic changes. If the patient consent is not changing in coordination with the A08 message then send a 'N' in the PV1-16 or send no PV1 segment at all.

The PIX/PDQ Manager also accommodates standard PIX and PDQ queries. Please refer to the link above for sample queries and responses. Note that in addition to the standard segments a PV1 will also be returned with the values of the current consent status in field 16. System wishing to update the patient consent flag with current data can access this in the manner outlined above.

The PV1 segment specifications are as follows:

| Seq# | Length | REQ | HL7 element |
|-----------|----------|----------|--------------------------------------|
| 2 | 1 | R | Patient Class |
| 3 | 80 | R2 | Assigned Patient Location |
| 7 | 250 | R2 | Attending Doctor |
| 8 | 250 | R2 | Referring Doctor |
| 9 | 250 | R2 | Consulting Doctor |
| 10 | 3 | R2 | Hospital Service |
| 16 | 2 | O | VIP Indicator/Patient Consent |
| 17 | 250 | R2 | Admitting Doctor |
| 19 | 250 | R2 | Visit Number |

XDS Requirements

Likewise to interact with the XDS components participants must be able to produce a Continuity of Care Document (CCD) as per IHE XDS.b specification. They must also have the capability of generating relevant meta-data for the CCD. They must be able to act as an XDS.b source (i.e. submit a CCD document) and implement IHE IT-Infrastructure transaction 41. Support for TLS mutual handshakes and the ability to generate and submit audit log data is also required.

Do not send documents for patients that have opted out of the exchange as in the PIX/PDQ requirements above.

The CCD is part of the Clinical Document Architecture (CDA) as described at HL7.org. CDA is an HL7 standard that 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 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 is capable of driving decision support and other sophisticated applications, while retaining the simple rendering of legally authenticated narrative.

An example 'Discharge Summary' CCD document follows:

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<?xml version='1.0' encoding='UTF-8'?>

<?xml-stylesheet type='text/xsl' href='default.xsl'?>

<ClinicalDocument xsi:schemaLocation="urn:hl7-org:v3 CDA.xsd" xmlns="urn:hl7-org:v3" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">

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  <templateId extension="IMPL_CDAR2_LEVEL2" root="2.16.840.1.113883.10"/>

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  <templateId root="2.16.840.1.113883.10.20.3"/>

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  <templateId root="1.3.6.1.4.1.19376.1.5.3.1.1.4"/>

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  <code code="34133-9" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="SUMMARIZATION OF EPISODE NOTE"/>

  <title>Hartford Hospital - Patient Discharge Summary</title>

  <effectiveTime value="20090811153739-0400"/>

  <confidentialityCode code="1.3.6.1.4.1.21367.2006.7.109" codeSystem="2.16.840.1.113883.5.25" codeSystemName="Confidentiality" displayName="restricted"/>

  <languageCode code="en-US"/>

  <setId root="2.16.840.1.113883.3.28.1" extension="1251315459308.3"/>

  <versionNumber value="1"/>

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    <patientRole>

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      <addr>

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        <city>Hartford</city>

        <state>CT</state>

        <postalCode>06102</postalCode>

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      <streetAddressLine>80 Seymour St.</streetAddressLine>
      <city>Hartford</city>
      <state>CT</state>
      <postalCode>06102</postalCode>
      <country>USA</country>
    </addr>
    <telecom use="WP" value="Phone: 860-545-5010"/>
    <associatedPerson>
      <name>
        <given>Richard</given>
        <given/>
        <family>Cole</family>
        <prefix/>
        <suffix/>
      </name>
    </associatedPerson>
  </associatedEntity>
</participant>
```

```

<documentationOf>
  <serviceEvent classCode="PCPR">
    <id root="2.16.840.1.113883.3.28.1.1251315461708.11"/>
    <effectiveTime>
      <low value="20040807153737-0400"/>
      <high value="20040807153737-0400"/>
    </effectiveTime>
    <performer typeCode="PRF">
      <templateId root="1.3.6.1.4.1.19376.1.5.3.1.2.3"/>
      <functionCode code="PCP" codeSystem="2.16.840.1.113883.5.88" codeSystemName="ParticipatingFunction" displayName="primary
care physician"/>
      <time>
        <low value="20090202153737-0500"/>
      </time>
      <assignedEntity>
        <id extension="1251315461755.4" root="2.16.840.1.113883.3.28.1"/>
        <code code="59058001" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED CT" displayName="General
Physician"/>
        <addr>
          <streetAddressLine>80 Seymour St.</streetAddressLine>
          <city>Hartford</city>
          <state>CT</state>
          <postalCode>06102</postalCode>
          <country>USA</country>
        </addr>
        <telecom use="WP" value="Phone: 860-545-5010"/>
        <assignedPerson>
          <name>
            <given>Richard</given>
            <given/>
            <family>Cole</family>
            <prefix>Dr</prefix>
            <suffix/>
          </name>
        </assignedPerson>
      </assignedEntity>
    </performer>
  </serviceEvent>

```

```

</documentationOf>
<componentOf nullFlavor="UNK"/>
<component>
  <structuredBody>
    <templateId extension="IMPL_CDAR2_LEVEL1-2REF_US_I2_2005SEP" root="2.16.840.1.113883.10"/>
    <component>
      <section>
        <templateId root="2.16.840.1.113883.10.20.1.11"/>
        <templateId root="1.3.6.1.4.1.19376.1.5.3.1.3.6"/>
        <id extension="1251315461864.13" root="2.16.840.1.113883.3.28.1"/>
        <code code="11450-4" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Problem List"/>
        <title>Problems</title>
        <text>None</text>
      </section>
    </component>
    <component>
      <section>
        <templateId root="1.3.6.1.4.1.19376.1.5.3.1.3.8"/>
        <id extension="1251315461895.13" root="2.16.840.1.113883.3.28.1"/>
        <code code="11348-0" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="History Of Past Illness"/>
        <title>Resolved Problem</title>
        <text>
          <table border="1">
            <thead>
              <tr>
                <th>Problem</th>
                <th>Date</th>
                <th>Status</th>
                <th>Comment</th>
              </tr>
            </thead>
            <tbody>
              <tr ID="resolvedProblem-0">
                <td ID="resolvedProblem-Problem-0">Diabetes Mellitus</td>
                <td ID="resolvedProblem-Date-0">02/02/2009</td>
                <td ID="resolvedProblem-Status-0">completed</td>
              </tr>
            </tbody>
          </table>
        </text>
      </section>
    </component>
  </structuredBody>
</component>

```

```

    <td ID="resolvedProblem-Comment-0"></td>
</tr>
<tr ID="resolvedProblem-1">
    <td ID="resolvedProblem-Problem-1">HTN</td>
    <td ID="resolvedProblem-Date-1">02/02/2009</td>
    <td ID="resolvedProblem-Status-1">completed</td>
    <td ID="resolvedProblem-Comment-1"></td>
</tr>
</tbody>
</table>
</text>
<entry>
  <act classCode="ACT" moodCode="EVN">
    <templateId root="2.16.840.1.113883.10.20.1.27"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.5.1"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.5.2"/>
    <id extension="1251315462191.10" root="2.16.840.1.113883.3.28.1"/>
    <code nullFlavor="NA"/>
    <statusCode code="completed"/>
    <effectiveTime>
      <low value="20090202153737-0500"/>
      <high nullFlavor="UNK"/>
    </effectiveTime>
    <entryRelationship typeCode="SUBJ" inversionInd="false">
      <observation classCode="OBS" moodCode="EVN">
        <templateId root="2.16.840.1.113883.10.20.1.28"/>
        <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.5"/>
        <id extension="1251315462378.7" root="2.16.840.1.113883.3.28.1"/>
        <code code="55607006" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED CT" displayName="Problem"/>
        <text>
          <reference value="#resolvedProblem-0"/>
        </text>
        <statusCode code="completed"/>
        <effectiveTime>
          <low value="20090202153737-0500"/>
        </effectiveTime>
        <value xsi:type="CD" code="250.0" codeSystem="2.16.840.1.113883.6.2" codeSystemName="ICD9"/>

```

```

<originalText>
  <reference value="#resolvedProblem-Problem-0"/>
</originalText>
</value>
<entryRelationship typeCode="REFR" inversionInd="false">
  <observation classCode="OBS" moodCode="EVN">
    <templateId root="2.16.840.1.113883.10.20.1.57"/>
    <templateId root="2.16.840.1.113883.10.20.1.50"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.1.1"/>
    <code code="33999-4" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Status"/>
    <text>
      <reference value="#resolvedProblem-Status-0"/>
    </text>
    <statusCode code="completed"/>
    <value xsi:type="CE" code="413322009" displayName="completed" codeSystem="2.16.840.1.113883.6.96"
codeSystemName="SNOMED CT"/>
  </observation>
</entryRelationship>
<entryRelationship typeCode="SUBJ" inversionInd="true">
  <act classCode="ACT" moodCode="EVN">
    <templateId root="2.16.840.1.113883.10.20.1.40"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.2"/>
    <code code="48767-8" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Annotation
Comment"/>
    <text>
      <reference value="#resolvedProblem-Comment-0"/>
    </text>
    <statusCode code="completed"/>
  </act>
</entryRelationship>
</observation>
</entryRelationship>
</act>
</entry>
<entry>
  <act classCode="ACT" moodCode="EVN">
    <templateId root="2.16.840.1.113883.10.20.1.27"/>

```

```

<templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.5.1"/>
<templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.5.2"/>
<id extension="1251315462409.10" root="2.16.840.1.113883.3.28.1"/>
<code nullFlavor="NA"/>
<statusCode code="completed"/>
<effectiveTime>
  <low value="20090202153737-0500"/>
  <high nullFlavor="UNK"/>
</effectiveTime>
<entryRelationship typeCode="SUBJ" inversionInd="false">
  <observation classCode="OBS" moodCode="EVN">
    <templateId root="2.16.840.1.113883.10.20.1.28"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.5"/>
    <id extension="1251315462409.7" root="2.16.840.1.113883.3.28.1"/>
    <code code="55607006" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED CT" displayName="Problem"/>
    <text>
      <reference value="#resolvedProblem-1"/>
    </text>
    <statusCode code="completed"/>
    <effectiveTime>
      <low value="20090202153737-0500"/>
    </effectiveTime>
    <value xsi:type="CD" code="220.0" codeSystem="2.16.840.1.113883.6.2" codeSystemName="ICD9">
      <originalText>
        <reference value="#resolvedProblem-Problem-1"/>
      </originalText>
    </value>
  </entryRelationship typeCode="REFR" inversionInd="false">
    <observation classCode="OBS" moodCode="EVN">
      <templateId root="2.16.840.1.113883.10.20.1.57"/>
      <templateId root="2.16.840.1.113883.10.20.1.50"/>
      <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.1.1"/>
      <code code="33999-4" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Status"/>
      <text>
        <reference value="#resolvedProblem-Status-1"/>
      </text>
      <statusCode code="completed"/>

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        <value xsi:type="CE" code="413322009" displayName="completed" codeSystem="2.16.840.1.113883.6.96"
codeSystemName="SNOMED CT"/>
    </observation>
</entryRelationship>
<entryRelationship typeCode="SUBJ" inversionInd="true">
    <act classCode="ACT" moodCode="EVN">
        <templateId root="2.16.840.1.113883.10.20.1.40"/>
        <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.2"/>
        <code code="48767-8" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Annotation
Comment"/>
        <text>
            <reference value="#resolvedProblem-Comment-1"/>
        </text>
        <statusCode code="completed"/>
    </act>
</entryRelationship>
</observation>
</entryRelationship>
</act>
</entry>
</section>
</component>
<component>
<section>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.3.7"/>
    <code code="11535-2" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Hospital Discharge DX"/>
    <title>Hospital Discharge DX</title>
    <text>
        <table border="1">
            <thead>
                <tr>
                    <th>Problem</th>
                    <th>Date</th>
                    <th>Status</th>
                    <th>Comment</th>
                </tr>
            </thead>

```

```

<tbody>
  <tr ID="DischargeDX-0">
    <td ID="DischargeDX-Problem-0">Acute Myocardial Infarction s/p CABG</td>
    <td ID="DischargeDX-Date-0">08/11/2009</td>
    <td ID="DischargeDX-Status-0">completed</td>
    <td ID="DischargeDX-Comment-0"></td>
  </tr>
  <tr ID="DischargeDX-1">
    <td ID="DischargeDX-Problem-1">Cardiovascular collapse</td>
    <td ID="DischargeDX-Date-1">08/11/2009</td>
    <td ID="DischargeDX-Status-1">completed</td>
    <td ID="DischargeDX-Comment-1"></td>
  </tr>
  <tr ID="DischargeDX-2">
    <td ID="DischargeDX-Problem-2">Hypertension, NOS</td>
    <td ID="DischargeDX-Date-2">08/11/2009</td>
    <td ID="DischargeDX-Status-2">completed</td>
    <td ID="DischargeDX-Comment-2"></td>
  </tr>
  <tr ID="DischargeDX-3">
    <td ID="DischargeDX-Problem-3">Dibetes Mellitus, type II</td>
    <td ID="DischargeDX-Date-3">08/11/2009</td>
    <td ID="DischargeDX-Status-3">completed</td>
    <td ID="DischargeDX-Comment-3"></td>
  </tr>
</tbody>
</table>
</text>
<entry>
  <act classCode="ACT" moodCode="EVN">
    <templateId root="2.16.840.1.113883.10.20.1.27"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.5.1"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.5.2"/>
    <id extension="1251315462440.10" root="2.16.840.1.113883.3.28.1"/>
    <code nullFlavor="NA"/>
    <statusCode code="completed"/>
    <effectiveTime>

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<low value="20090811153737-0400"/>
<high nullFlavor="UNK"/>
</effectiveTime>
<entryRelationship typeCode="SUBJ" inversionInd="false">
  <observation classCode="OBS" moodCode="EVN">
    <templateId root="2.16.840.1.113883.10.20.1.28"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.5"/>
    <id extension="1251315462456.7" root="2.16.840.1.113883.3.28.1"/>
    <code code="55607006" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED CT" displayName="Problem"/>
    <text>
      <reference value="#DischargeDX-0"/>
    </text>
    <statusCode code="completed"/>
    <effectiveTime>
      <low value="20090811153737-0400"/>
    </effectiveTime>
    <value xsi:type="CD" code="410.2" codeSystem="2.16.840.1.113883.6.2" codeSystemName="ICD9">
      <originalText>
        <reference value="#DischargeDX-Problem-0"/>
      </originalText>
    </value>
  </entryRelationship typeCode="REFR" inversionInd="false">
    <observation classCode="OBS" moodCode="EVN">
      <templateId root="2.16.840.1.113883.10.20.1.57"/>
      <templateId root="2.16.840.1.113883.10.20.1.50"/>
      <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.1.1"/>
      <code code="33999-4" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Status"/>
      <text>
        <reference value="#DischargeDX-Status-0"/>
      </text>
      <statusCode code="completed"/>
      <value xsi:type="CE" code="413322009" displayName="completed" codeSystem="2.16.840.1.113883.6.96"
codeSystemName="SNOMED CT"/>
    </observation>
  </entryRelationship>
<entryRelationship typeCode="SUBJ" inversionInd="true">
  <act classCode="ACT" moodCode="EVN">

```

```

    <templateId root="2.16.840.1.113883.10.20.1.40"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.2"/>
    <code code="48767-8" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Annotation
Comment"/>
    <text>
      <reference value="#DischargeDX-Comment-0"/>
    </text>
    <statusCode code="completed"/>
  </act>
</entryRelationship>
</observation>
</entryRelationship>
</act>
</entry>
<entry>
  <act classCode="ACT" moodCode="EVN">
    <templateId root="2.16.840.1.113883.10.20.1.27"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.5.1"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.5.2"/>
    <id extension="1251315462456.10" root="2.16.840.1.113883.3.28.1"/>
    <code nullFlavor="NA"/>
    <statusCode code="completed"/>
    <effectiveTime>
      <low value="20090811153737-0400"/>
      <high nullFlavor="UNK"/>
    </effectiveTime>
    <entryRelationship typeCode="SUBJ" inversionInd="false">
      <observation classCode="OBS" moodCode="EVN">
        <templateId root="2.16.840.1.113883.10.20.1.28"/>
        <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.5"/>
        <id extension="1251315462471.7" root="2.16.840.1.113883.3.28.1"/>
        <code code="55607006" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED CT" displayName="Problem"/>
        <text>
          <reference value="#DischargeDX-1"/>
        </text>
        <statusCode code="completed"/>
        <effectiveTime>

```

```

    <low value="20090811153737-0400"/>
  </effectiveTime>
  <value xsi:type="CD" code="785.50" codeSystem="2.16.840.1.113883.6.2" codeSystemName="ICD9">
    <originalText>
      <reference value="#DischargeDX-Problem-1"/>
    </originalText>
  </value>
  <entryRelationship typeCode="REFR" inversionInd="false">
    <observation classCode="OBS" moodCode="EVN">
      <templateId root="2.16.840.1.113883.10.20.1.57"/>
      <templateId root="2.16.840.1.113883.10.20.1.50"/>
      <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.1.1"/>
      <code code="33999-4" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Status"/>
      <text>
        <reference value="#DischargeDX-Status-1"/>
      </text>
      <statusCode code="completed"/>
      <value xsi:type="CE" code="413322009" displayName="completed" codeSystem="2.16.840.1.113883.6.96"
codeSystemName="SNOMED CT"/>
    </observation>
  </entryRelationship>
  <entryRelationship typeCode="SUBJ" inversionInd="true">
    <act classCode="ACT" moodCode="EVN">
      <templateId root="2.16.840.1.113883.10.20.1.40"/>
      <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.2"/>
      <code code="48767-8" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Annotation
Comment"/>
      <text>
        <reference value="#DischargeDX-Comment-1"/>
      </text>
      <statusCode code="completed"/>
    </act>
  </entryRelationship>
</observation>
</entryRelationship>
</act>
</entry>

```

```

<entry>
  <act classCode="ACT" moodCode="EVN">
    <templateId root="2.16.840.1.113883.10.20.1.27"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.5.1"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.5.2"/>
    <id extension="1251315462487.10" root="2.16.840.1.113883.3.28.1"/>
    <code nullFlavor="NA"/>
    <statusCode code="completed"/>
    <effectiveTime>
      <low value="20090811153737-0400"/>
      <high nullFlavor="UNK"/>
    </effectiveTime>
    <entryRelationship typeCode="SUBJ" inversionInd="false">
      <observation classCode="OBS" moodCode="EVN">
        <templateId root="2.16.840.1.113883.10.20.1.28"/>
        <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.5"/>
        <id extension="1251315462503.7" root="2.16.840.1.113883.3.28.1"/>
        <code code="55607006" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED CT" displayName="Problem"/>
        <text>
          <reference value="#DischargeDX-2"/>
        </text>
        <statusCode code="completed"/>
        <effectiveTime>
          <low value="20090811153737-0400"/>
        </effectiveTime>
        <value xsi:type="CD" code="401.9" codeSystem="2.16.840.1.113883.6.2" codeSystemName="ICD9">
          <originalText>
            <reference value="#DischargeDX-Problem-2"/>
          </originalText>
        </value>
      <entryRelationship typeCode="REFR" inversionInd="false">
        <observation classCode="OBS" moodCode="EVN">
          <templateId root="2.16.840.1.113883.10.20.1.57"/>
          <templateId root="2.16.840.1.113883.10.20.1.50"/>
          <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.1.1"/>
          <code code="33999-4" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Status"/>
          <text>

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```

        <reference value="#DischargeDX-Status-2"/>
    </text>
    <statusCode code="completed"/>
    <value xsi:type="CE" code="413322009" displayName="completed" codeSystem="2.16.840.1.113883.6.96"
codeSystemName="SNOMED CT"/>
</observation>
</entryRelationship>
<entryRelationship typeCode="SUBJ" inversionInd="true">
    <act classCode="ACT" moodCode="EVN">
        <templateId root="2.16.840.1.113883.10.20.1.40"/>
        <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.2"/>
        <code code="48767-8" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Annotation
Comment"/>
        <text>
            <reference value="#DischargeDX-Comment-2"/>
        </text>
        <statusCode code="completed"/>
    </act>
</entryRelationship>
</observation>
</entryRelationship>
</act>
</entry>
<entry>
    <act classCode="ACT" moodCode="EVN">
        <templateId root="2.16.840.1.113883.10.20.1.27"/>
        <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.5.1"/>
        <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.5.2"/>
        <id extension="1251315462503.10" root="2.16.840.1.113883.3.28.1"/>
        <code nullFlavor="NA"/>
        <statusCode code="completed"/>
        <effectiveTime>
            <low value="20090811153737-0400"/>
            <high nullFlavor="UNK"/>
        </effectiveTime>
        <entryRelationship typeCode="SUBJ" inversionInd="false">
            <observation classCode="OBS" moodCode="EVN">

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<templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.5"/>
<id extension="1251315462518.7" root="2.16.840.1.113883.3.28.1"/>
<code code="55607006" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED CT" displayName="Problem"/>
<text>
  <reference value="#DischargeDX-3"/>
</text>
<statusCode code="completed"/>
<effectiveTime>
  <low value="20090811153737-0400"/>
</effectiveTime>
<value xsi:type="CD" code="250.0" codeSystem="2.16.840.1.113883.6.2" codeSystemName="ICD9">
  <originalText>
    <reference value="#DischargeDX-Problem-3"/>
  </originalText>
</value>
<entryRelationship typeCode="REFR" inversionInd="false">
  <observation classCode="OBS" moodCode="EVN">
    <templateId root="2.16.840.1.113883.10.20.1.57"/>
    <templateId root="2.16.840.1.113883.10.20.1.50"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.1.1"/>
    <code code="33999-4" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Status"/>
    <text>
      <reference value="#DischargeDX-Status-3"/>
    </text>
    <statusCode code="completed"/>
    <value xsi:type="CE" code="413322009" displayName="completed" codeSystem="2.16.840.1.113883.6.96"
codeSystemName="SNOMED CT"/>
  </observation>
</entryRelationship>
<entryRelationship typeCode="SUBJ" inversionInd="true">
  <act classCode="ACT" moodCode="EVN">
    <templateId root="2.16.840.1.113883.10.20.1.40"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.2"/>
    <code code="48767-8" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Annotation
Comment"/>
    <text>
      <reference value="#DischargeDX-Comment-3"/>
    </text>
  </act>
</entryRelationship>

```

```

    </text>
    <statusCode code="completed"/>
  </act>
</entryRelationship>
</observation>
</entryRelationship>
</act>
</entry>
</section>
</component>
<component>
  <section>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.3.3"/>
    <code code="46241-6" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Hospital Admission DX"/>
    <title>Hospital Admission DX</title>
    <text>None</text>
  </section>
</component>
<component>
  <section>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.3.22"/>
    <code code="10183-2" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Hospital Discharge Medications"/>
    <title>Hospital Discharge Medications</title>
    <text>
      <table border="1">
        <thead>
          <tr>
            <th>Medication</th>
            <th>Sig</th>
            <th>OrderDate</th>
            <th>Duration</th>
          </tr>
        </thead>
        <tbody>
          <tr ID="dischargeMedicationOrder-0">
            <td ID="dischargeMedication-Medication-0">ECASA 325 mg</td>
          </tr>
        </tbody>
      </table>
    </text>
  </section>
</component>

```

```

<td ID="dischargeMedication-Sig-0">po daily</td>
<td ID="dischargeMedication-OrderDate-0">08/09/2009</td>
<td ID="dischargeMedication-Duration-0"></td>
</tr>
<tr ID="dischargeMedicationOrder-1">
<td ID="dischargeMedication-Medication-1">Zocor 40mg</td>
<td ID="dischargeMedication-Sig-1">po daily</td>
<td ID="dischargeMedication-OrderDate-1">08/09/2009</td>
<td ID="dischargeMedication-Duration-1"></td>
</tr>
<tr ID="dischargeMedicationOrder-2">
<td ID="dischargeMedication-Medication-2">Atenolol 50 mg tab</td>
<td ID="dischargeMedication-Sig-2">1 tab po daily</td>
<td ID="dischargeMedication-OrderDate-2">08/09/2009</td>
<td ID="dischargeMedication-Duration-2"></td>
</tr>
<tr ID="dischargeMedicationOrder-3">
<td ID="dischargeMedication-Medication-3">Glucophage 850 mg tab</td>
<td ID="dischargeMedication-Sig-3">1 tab po bid</td>
<td ID="dischargeMedication-OrderDate-3">08/09/2009</td>
<td ID="dischargeMedication-Duration-3"></td>
</tr>
<tr ID="dischargeMedicationOrder-4">
<td ID="dischargeMedication-Medication-4">Zyrtec 10 mg</td>
<td ID="dischargeMedication-Sig-4">po daily</td>
<td ID="dischargeMedication-OrderDate-4">08/09/2009</td>
<td ID="dischargeMedication-Duration-4"></td>
</tr>
</tbody>
</table>
</text>
<entry>
<substanceAdministration classCode="SBADM" moodCode="INT">
<templateId root="2.16.840.1.113883.10.20.1.24"/>
<templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.7"/>
<templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.7.1"/>

```



```

<id extension="1251315462643.8" root="2.16.840.1.113883.3.28.1"/>
<text>
  <reference value="#dischargeMedicationOrder-0"/>
</text>
<statusCode code="completed"/>
<effectiveTime xsi:type="IVL_TS">
  <low value="20090809183637-0400"/>
  <high nullFlavor="UNK"/>
</effectiveTime>
  <routeCode code="14736" codeSystem="2.16.840.1.113883.5.112" codeSystemName="RouteOfAdministration"
  displayName="IVP"/>
  <doseQuantity>
    <low value="30" unit="mg"/>
    <high value="30" unit="mg"/>
  </doseQuantity>
  <consumable typeCode="CSM">
    <manufacturedProduct classCode="MANU">
      <templateId root="2.16.840.1.113883.10.20.1.53"/>
      <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.7.2"/>
      <manufacturedMaterial>
        <code nullFlavor="UNK">
          <originalText>
            <reference value="#dischargeMedication-Medication-0"/>
          </originalText>
        </code>
        <name>ECASA 325 mg</name>
      </manufacturedMaterial>
    </manufacturedProduct>
  </consumable>
</substanceAdministration>
</entry>
<entry>
  <substanceAdministration classCode="SBADM" moodCode="INT">
    <templateId root="2.16.840.1.113883.10.20.1.24"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.7"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.7.1"/>
    <id extension="1251315462845.8" root="2.16.840.1.113883.3.28.1"/>

```

```

<text>
  <reference value="#dischargeMedicationOrder-1"/>
</text>
<statusCode code="completed"/>
<effectiveTime xsi:type="IVL_TS">
  <low value="20090809183637-0400"/>
  <high nullFlavor="UNK"/>
</effectiveTime>
<routeCode code="14737" codeSystem="2.16.840.1.113883.5.112" codeSystemName="RouteOfAdministration"
displayName="SIVP"/>
<doseQuantity>
  <low value="1" unit="mg"/>
  <high value="1" unit="mg"/>
</doseQuantity>
<consumable typeCode="CSM">
  <manufacturedProduct classCode="MANU">
    <templateId root="2.16.840.1.113883.10.20.1.53"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.7.2"/>
    <manufacturedMaterial>
      <code nullFlavor="UNK">
        <originalText>
          <reference value="#dischargeMedication-Medication-1"/>
        </originalText>
      </code>
      <name>Zocor 40mg</name>
    </manufacturedMaterial>
  </manufacturedProduct>
</consumable>
</substanceAdministration>
</entry>
<entry>
  <substanceAdministration classCode="SBADM" moodCode="INT">
    <templateId root="2.16.840.1.113883.10.20.1.24"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.7"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.7.1"/>
    <id extension="1251315462861.8" root="2.16.840.1.113883.3.28.1"/>
    <text>

```

```

    <reference value="#dischargeMedicationOrder-2"/>
  </text>
  <statusCode code="completed"/>
  <effectiveTime xsi:type="IVL_TS">
    <low value="20090809183637-0400"/>
    <high nullFlavor="UNK"/>
  </effectiveTime>
  <routeCode code="14735" codeSystem="2.16.840.1.113883.5.112" codeSystemName="RouteOfAdministration"
displayName="Oral"/>
  <doseQuantity>
    <low value="1" unit="tablet"/>
    <high value="1" unit="tablet"/>
  </doseQuantity>
  <consumable typeCode="CSM">
    <manufacturedProduct classCode="MANU">
      <templateId root="2.16.840.1.113883.10.20.1.53"/>
      <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.7.2"/>
      <manufacturedMaterial>
        <code code="277179" codeSystem="2.16.840.1.113883.6.88" codeSystemName="RxNorm">
          <originalText>
            <reference value="#dischargeMedication-Medication-2"/>
          </originalText>
        </code>
        <name>Atenolol 50 mg tab</name>
      </manufacturedMaterial>
    </manufacturedProduct>
  </consumable>
</substanceAdministration>
</entry>
<entry>
  <substanceAdministration classCode="SBADM" moodCode="INT">
    <templateId root="2.16.840.1.113883.10.20.1.24"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.7"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.7.1"/>
    <id extension="1251315462877.8" root="2.16.840.1.113883.3.28.1"/>
    <text>
      <reference value="#dischargeMedicationOrder-3"/>
    </text>
  </substanceAdministration>
</entry>

```

```

</text>
<statusCode code="completed"/>
<effectiveTime xsi:type="IVL_TS">
  <low value="20090809183637-0400"/>
  <high nullFlavor="UNK"/>
</effectiveTime>
<routeCode code="14735" codeSystem="2.16.840.1.113883.5.112" codeSystemName="RouteOfAdministration"
displayName="Oral"/>
<doseQuantity>
  <low value="1" unit="tablet"/>
  <high value="1" unit="tablet"/>
</doseQuantity>
<consumable typeCode="CSM">
  <manufacturedProduct classCode="MANU">
    <templateId root="2.16.840.1.113883.10.20.1.53"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.7.2"/>
    <manufacturedMaterial>
      <code code="6809" codeSystem="2.16.840.1.113883.6.88" codeSystemName="RxNorm">
        <originalText>
          <reference value="#dischargeMedication-Medication-3"/>
        </originalText>
      </code>
      <name>Glucophage 850 mg tab</name>
    </manufacturedMaterial>
  </manufacturedProduct>
</consumable>
</substanceAdministration>
</entry>
<entry>
  <substanceAdministration classCode="SBADM" moodCode="INT">
    <templateId root="2.16.840.1.113883.10.20.1.24"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.7"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.7.1"/>
    <id extension="1251315462877.8" root="2.16.840.1.113883.3.28.1"/>
    <text>
      <reference value="#dischargeMedicationOrder-4"/>
    </text>
  </substanceAdministration>
</entry>

```

```

<statusCode code="completed"/>
<effectiveTime xsi:type="IVL_TS">
  <low value="20090809183637-0400"/>
  <high nullFlavor="UNK"/>
</effectiveTime>
<routeCode code="14736" codeSystem="2.16.840.1.113883.5.112" codeSystemName="RouteOfAdministration"
displayName="IVP"/>
<doseQuantity>
  <low value="10" unit="mg"/>
  <high value="10" unit="mg"/>
</doseQuantity>
<consumable typeCode="CSM">
  <manufacturedProduct classCode="MANU">
    <templateId root="2.16.840.1.113883.10.20.1.53"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.7.2"/>
    <manufacturedMaterial>
      <code nullFlavor="UNK">
        <originalText>
          <reference value="#dischargeMedication-Medication-4"/>
        </originalText>
      </code>
      <name>Zyrtec 10 mg</name>
    </manufacturedMaterial>
  </manufacturedProduct>
</consumable>
</substanceAdministration>
</entry>
</section>
</component>
<component>
  <section>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.3.20"/>
    <code code="42346-7" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Medications on
Admission"/>
    <title>Medications on Admission</title>
    <text>
      <table border="1">
        <thead>

```

```

<tr>
  <th>Medication</th>
  <th>Sig</th>
  <th>OrderDate</th>
  <th>Duration</th>
</tr>
</thead>
<tbody>
  <tr ID="admissionMedicationOrder-0">
    <td ID="admissionMedication-Medication-0">Atenolol 50 mg tab</td>
    <td ID="admissionMedication-Sig-0">1 tab po daily</td>
    <td ID="admissionMedication-OrderDate-0">08/26/2009</td>
    <td ID="admissionMedication-Duration-0"></td>
  </tr>
  <tr ID="admissionMedicationOrder-1">
    <td ID="admissionMedication-Medication-1">Glucophage 850 mg tab</td>
    <td ID="admissionMedication-Sig-1">1 tab po bid</td>
    <td ID="admissionMedication-OrderDate-1">08/26/2009</td>
    <td ID="admissionMedication-Duration-1"></td>
  </tr>
</tbody>
</table>
</text>
<entry>
  <substanceAdministration classCode="SBADM" moodCode="EVN">
    <templateId root="2.16.840.1.113883.10.20.1.24"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.7"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.7.1"/>
    <id extension="1251315462908.8" root="2.16.840.1.113883.3.28.1"/>
    <text>
      <reference value="#admissionMedicationOrder-0"/>
    </text>
    <statusCode code="completed"/>
    <effectiveTime xsi:type="IVL_TS">
      <low value="20090826153737-0400"/>
      <high nullFlavor="UNK"/>

```

```

</effectiveTime>
<routeCode code="14735" codeSystem="2.16.840.1.113883.5.112" codeSystemName="RouteOfAdministration"
displayName="Oral"/>
<doseQuantity>
<low value="1" unit="tablet"/>
<high value="1" unit="tablet"/>
</doseQuantity>
<consumable typeCode="CSM">
<manufacturedProduct classCode="MANU">
<templateId root="2.16.840.1.113883.10.20.1.53"/>
<templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.7.2"/>
<manufacturedMaterial>
<code code="277179" codeSystem="2.16.840.1.113883.6.88" codeSystemName="RxNorm">
<originalText>
<reference value="#admissionMedication-Medication-0"/>
</originalText>
</code>
<name>Atenolol 50 mg tab</name>
</manufacturedMaterial>
</manufacturedProduct>
</consumable>
</substanceAdministration>
</entry>
<entry>
<substanceAdministration classCode="SBADM" moodCode="EVN">
<templateId root="2.16.840.1.113883.10.20.1.24"/>
<templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.7"/>
<templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.7.1"/>
<id extension="1251315462908.8" root="2.16.840.1.113883.3.28.1"/>
<text>
<reference value="#admissionMedicationOrder-1"/>
</text>
<statusCode code="completed"/>
<effectiveTime xsi:type="IVL_TS">
<low value="20090826153737-0400"/>
<high nullFlavor="UNK"/>
</effectiveTime>

```

```

<routeCode code="14735" codeSystem="2.16.840.1.113883.5.112" codeSystemName="RouteOfAdministration"
displayName="Oral"/>
<doseQuantity>
  <low value="1" unit="tablet"/>
  <high value="1" unit="tablet"/>
</doseQuantity>
<consumable typeCode="CSM">
  <manufacturedProduct classCode="MANU">
    <templateId root="2.16.840.1.113883.10.20.1.53"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.7.2"/>
    <manufacturedMaterial>
      <code code="6809" codeSystem="2.16.840.1.113883.6.88" codeSystemName="RxNorm">
        <originalText>
          <reference value="#admissionMedication-Medication-1"/>
        </originalText>
      </code>
      <name>Glucophage 850 mg tab</name>
    </manufacturedMaterial>
  </manufacturedProduct>
</consumable>
</substanceAdministration>
</entry>
</section>
</component>
<component>
  <section>
    <templateId root="2.16.840.1.113883.10.20.1.2"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.3.13"/>
    <id extension="1251315462923.13" root="2.16.840.1.113883.3.28.1"/>
    <code code="48765-2" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Allergies, Adverse
Reactions, Alerts"/>
    <title>Allergies and Adverse Reactions</title>
    <text>
      <table border="1">
        <thead>
          <tr>
            <th>Allergen</th>
            <th>Reaction</th>
          </tr>
        </thead>
      </table>
    </text>
  </section>
</component>

```



```

    <th>Date</th>
  </th>
</tr>
</thead>
<tbody>
  <tr>
    <td ID="allergy-Allergen-0">Patient reports seasonal allergies</td>
    <td ID="allergy-Reaction-0">Seasonal</td>
    <td ID="allergy-Date-0">08/07/2009</td>
  </tr>
  <tr>
    <td ID="allergy-Allergen-1">Negative for hives</td>
    <td ID="allergy-Reaction-1">rash</td>
    <td ID="allergy-Date-1">08/07/2009</td>
  </tr>
</tbody>
</table>
</text>
<entry>
  <act classCode="ACT" moodCode="EVN">
    <templateId root="2.16.840.1.113883.10.20.1.27"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.5.1"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.5.3"/>
    <id extension="1251315462923.10" root="2.16.840.1.113883.3.28.1"/>
    <code nullFlavor="NA"/>
    <statusCode code="active"/>
    <effectiveTime>
      <low value="20090807153737-0400"/>
    </effectiveTime>
    <entryRelationship typeCode="SUBJ" inversionInd="false">
      <observation classCode="OBS" moodCode="EVN">
        <templateId root="2.16.840.1.113883.10.20.1.28"/>
        <templateId root="2.16.840.1.113883.10.20.1.18"/>
        <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.5"/>
        <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.6"/>
        <id extension="1251315462939.7" root="2.16.840.1.113883.3.28.1"/>

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```

    <code code="ALG" codeSystem="2.16.840.1.113883.5.4" codeSystemName="ObservationIntoleranceType"
    displayName="Allergy"/>
    <statusCode code="completed"/>
    <effectiveTime>
      <low value="20090807153737-0400"/>
    </effectiveTime>
    <value xsi:type="CD"/>
    <participant typeCode="CSM">
      <participantRole classCode="MANU">
        <addr nullFlavor="UNK"/>
        <telecom nullFlavor="UNK"/>
        <playingEntity classCode="MMAT">
          <code nullFlavor="UNK">
            <originalText>
              <reference value="#allergy-Allergen-0"/>
            </originalText>
          </code>
        </playingEntity>
      </participantRole>
    </participant>
  </observation>
</entryRelationship>
</act>
</entry>
<entry>
  <act classCode="ACT" moodCode="EVN">
    <templateId root="2.16.840.1.113883.10.20.1.27"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.5.1"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.5.3"/>
    <id extension="1251315463126.10" root="2.16.840.1.113883.3.28.1"/>
    <code nullFlavor="NA"/>
    <statusCode code="active"/>
    <effectiveTime>
      <low value="20090807153737-0400"/>
    </effectiveTime>
    <entryRelationship typeCode="SUBJ" inversionInd="false">
      <observation classCode="OBS" moodCode="EVN">

```

```

<templateId root="2.16.840.1.113883.10.20.1.28"/>
<templateId root="2.16.840.1.113883.10.20.1.18"/>
<templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.5"/>
<templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.6"/>
<id extension="1251315463126.7" root="2.16.840.1.113883.3.28.1"/>
<code code="ALG" codeSystem="2.16.840.1.113883.5.4" codeSystemName="ObservationIntoleranceType"
displayName="Allergy"/>
<statusCode code="completed"/>
<effectiveTime>
  <low value="20090807153737-0400"/>
</effectiveTime>
<value xsi:type="CD"/>
<participant typeCode="CSM">
  <participantRole classCode="MANU">
    <addr nullFlavor="UNK"/>
    <telecom nullFlavor="UNK"/>
    <playingEntity classCode="MMAT">
      <code nullFlavor="UNK">
        <originalText>
          <reference value="#allergy-Allergen-1"/>
        </originalText>
      </code>
    </playingEntity>
  </participantRole>
</participant>
</observation>
</entryRelationship>
</act>
</entry>
</section>
</component>
<component>
  <section>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.3.5"/>
    <code code="8648-8" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Hospital Course"/>
    <title>Hospital Course</title>

```

<text>This patient was stabilized and subsequently was taken to the cath lab where he was noted to have three vessel disease. He was taken to the OR where a bypass grafting was performed. Internal Mammary graft to the mid LAD, SVG to circumflex, and SVG to distal

RCA were performed by Dr. Carl Vascula. Post operative Echocardiogram showed preserved LV function to be normal. Mr. Atkinson did well during the post operative period with the exception of his BP which was poorly controlled. His Atenolol was decreased because of his lowered B/P during admission. He was also started on Aspirin and a statin. He will be discharged to home and follow up with Dr. Hartley in 3 weeks.</text>

</section>

</component>

<component>

<section>

<templateId root="1.3.6.1.4.1.19376.1.5.3.1.3.4"/>

<code code="10164-2" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="History of Present Illness"/>

<title>History of Present Illness</title>

<text>

<list>

<item>Mr. Atkins is a 64 year old male referred from Dr. P. Primary, with 3-day history of intermittent substernal, dull chest tightness with exertional activity. During initial exam, patient developed acute episode of pain 6/10, decreased to 3/10 with 3 nitro's and ASA given.</item>

</list>

</text>

</section>

</component>

<component>

<section>

<templateId root="1.3.6.1.4.1.19376.1.5.3.1.3.18"/>

<id extension="1251315463188.13" root="2.16.840.1.113883.3.28.1"/>

<code code="10187-3" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Review of Systems"/>

<title>Review of Systems</title>

<text>

<list>

<item>Constitutional: Positive for body aches, Negative for chills, fatigue, fever, poor PO intake.</item>

<item>Eyes: Negative for acute changes.</item>

<item>ENT: Negative for nasal discharge, rhinorrhea, sore throat.</item>

<item>Cardiovascular: Positive for chest pain with movement, Negative for edema, palpitations, PND.</item>

<item>Respiratory: Negative for cough, Negative for dyspnea on exertion, hemoptysis, orthopnea.</item>

<item>Abdomen/GI: Negative for abdominal pain, nausea, vomiting, diarrhea.</item>

<item>MS/extremity: Negative for acute changes.</item>

<item>Skin: Negative for rash, swelling.</item>

<item>Neuro: Negative for dizziness, headache, syncope.</item>

</list>

</text>

```

</section>
</component>
<component>
<section>
  <templateId root="1.3.6.1.4.1.19376.1.5.3.1.3.29"/>
  <templateId root="1.3.6.1.4.1.19376.1.5.3.1.3.30"/>
  <id extension="1251315463188.13" root="2.16.840.1.113883.3.28.1"/>
  <code code="11493-4" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Hospital Discharge Studies Summary"/>
  <title>Hospital Discharge Studies Summary</title>
  <text>
    <table border="1">
      <thead>
        <tr>
          <th>Procedure</th>
          <th>Observation Date</th>
        </tr>
      </thead>
      <tbody>
        <tr>
          <td ID="procedure-Procedure-0">CABG</td>
          <td ID="procedure-ObservationDate-0">08/09/2009</td>
        </tr>
        <tr>
          <td ID="procedure-Procedure-1">LIMA->SVG->Circ</td>
          <td ID="procedure-ObservationDate-1">08/09/2009</td>
        </tr>
        <tr>
          <td ID="procedure-Procedure-2">SVG->RCA</td>
          <td ID="procedure-ObservationDate-2">08/09/2009</td>
        </tr>
      </tbody>
    </table>
  </text>
  <entry>
    <procedure classCode="PROC" moodCode="EVN">
      <templateId root="2.16.840.1.113883.10.20.1.29"/>

```

```
<templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.19"/>
<id extension="1251315463266.9" root="2.16.840.1.113883.3.28.1"/>
<text>
  <reference value="#procedure-Procedure-0"/>
</text>
<statusCode code="completed"/>
<effectiveTime value="20090809153737-0400"/>
</procedure>
</entry>
<entry>
  <procedure classCode="PROC" moodCode="EVN">
    <templateId root="2.16.840.1.113883.10.20.1.29"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.19"/>
    <id extension="1251315463266.9" root="2.16.840.1.113883.3.28.1"/>
    <text>
      <reference value="#procedure-Procedure-1"/>
    </text>
    <statusCode code="completed"/>
    <effectiveTime value="20090809153737-0400"/>
  </procedure>
</entry>
<entry>
  <procedure classCode="PROC" moodCode="EVN">
    <templateId root="2.16.840.1.113883.10.20.1.29"/>
    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.19"/>
    <id extension="1251315463266.9" root="2.16.840.1.113883.3.28.1"/>
    <text>
      <reference value="#procedure-Procedure-2"/>
    </text>
    <statusCode code="completed"/>
    <effectiveTime value="20090809153737-0400"/>
  </procedure>
</entry>
</section>
</component>
<component>
  <section>
```

```

<templateId root="1.3.6.1.4.1.19376.1.5.3.1.3.31"/>
<id extension="1251315463266.13" root="2.16.840.1.113883.3.28.1"/>
<code code="18776-5" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Treatment Plan"/>
<title>Treatment Plan</title>
<text>
<list>
<item>Follow up with Dr. Richard Cole, Cardiologist</item>
<item>Follow up with his primary care physician, Dr. P. Primary in two weeks for diabetic medication monitoring.</item>
</list>
</text>
</section>
</component>
</structuredBody>
</component>
</ClinicalDocument>

```

The HL7 Continuity of Care Document (CCD) is a type of CDA document that attempts to capture a patient's health summary. CCD adds content to the CDA structure by describing various document sections such as patient demographics, insurance information, diagnosis and problem list, medications, allergies and care plan that collectively can represent a snapshot of a patient's health data. The CCD is the result of a collaborative effort between the HL7 and ASTM organizations to harmonize the data format between ASTM's Continuity of Care Record (CCR) and HL7's Clinical Document Architecture (CDA) specifications.

The creation of a CCD document can be difficult. A quick start guide can be found at http://www.himssehra.org/ASP/CCD_QSG_20071112.asp. The site at <http://medbi.blogspot.com/2008/02/creating-c-bindings-for-ccr-and-ccd.html> may also be helpful. There is a project on Sourceforge called braid (<http://sourceforge.net/projects/braid/>) that contains an implementation of the IHE XDS client side profiles.

The platform implements the XDS.b IHE profile specification for XDS document exchange. This implementation is based on Web Services. WSDL for the services can be obtained by a request to the XDS Repository/Registry or it may be cut and pasted from below. Please inquire with your eHealthConnecticut installation analyst as to the port and server to connect to for acquiring the WSDL.

XDS WSDL

```

<?xml version="1.0" encoding="UTF-8"?>
<wsdl:definitions xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/" xmlns:ax250="http://exception.common2.registry.nist.gov/xsd"
xmlns:ns1="http://org.apache.axis2/xsd" xmlns:ns="http://serviceclasses.ws.registry.nist.gov"
xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl" xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/" xmlns:ax253="http://registry.common2.registry.nist.gov/xsd"
xmlns:soap12="http://schemas.xmlsoap.org/wsdl/soap12/" targetNamespace="http://serviceclasses.ws.registry.nist.gov">
<wsdl:documentation>xdsrepository</wsdl:documentation>
<wsdl:types>
<xs:schema attributeFormDefault="qualified" elementFormDefault="qualified"

```

```

targetNamespace="http://registry.common2.registry.nist.gov/xsd">
  <xs:complexType name="Metadata">
    <xs:sequence>
      <xs:element minOccurs="0" name="allDefinedIds" nillable="true" type="xs:anyType"/>
      <xs:element minOccurs="0" name="allObjects" nillable="true" type="xs:anyType"/>

      <xs:element minOccurs="0" name="allUids" nillable="true" type="xs:anyType"/>
      <xs:element minOccurs="0" name="associationIds" nillable="true" type="xs:anyType"/>
      <xs:element minOccurs="0" name="associations" nillable="true" type="xs:anyType"/>
      <xs:element minOccurs="0" name="classifications" nillable="true" type="xs:anyType"/>
      <xs:element minOccurs="0" name="documentUidMap" nillable="true" type="xs:anyType"/>
      <xs:element minOccurs="0" name="extrinsicObjectIds" nillable="true" type="xs:anyType"/>
      <xs:element minOccurs="0" name="extrinsicObjects" nillable="true" type="xs:anyType"/>
      <xs:element minOccurs="0" name="folderIds" nillable="true" type="xs:anyType"/>
      <xs:element minOccurs="0" name="folders" nillable="true" type="xs:anyType"/>

      <xs:element minOccurs="0" name="grokMetadata" type="xs:boolean"/>
      <xs:element minOccurs="0" name="majorObjects" nillable="true" type="xs:anyType"/>
      <xs:element minOccurs="0" name="metadata" nillable="true" type="xs:anyType"/>
      <xs:element minOccurs="0" name="metadataDescription" nillable="true" type="xs:string"/>
      <xs:element minOccurs="0" name="nonObjectRefs" nillable="true" type="xs:anyType"/>
      <xs:element minOccurs="0" name="objectIdsToDeprecate" nillable="true" type="xs:anyType"/>
      <xs:element minOccurs="0" name="objectRefs" nillable="true" type="xs:anyType"/>
      <xs:element minOccurs="0" name="objectRefsOnly" type="xs:boolean"/>
      <xs:element minOccurs="0" name="original" nillable="true" type="xs:anyType"/>

      <xs:element minOccurs="0" name="referencedObjects" nillable="true" type="xs:anyType"/>
      <xs:element minOccurs="0" name="referencedObjectsThatMustHaveSamePatientId" nillable="true" type="xs:anyType"/>
      <xs:element minOccurs="0" name="registryPackageIds" nillable="true" type="xs:anyType"/>
      <xs:element minOccurs="0" name="registryPackages" nillable="true" type="xs:anyType"/>
      <xs:element minOccurs="0" name="root" nillable="true" type="xs:anyType"/>
      <xs:element minOccurs="0" name="submissionSet" nillable="true" type="xs:anyType"/>
      <xs:element minOccurs="0" name="submissionSetId" nillable="true" type="xs:string"/>
      <xs:element minOccurs="0" name="submissionSetIds" nillable="true" type="xs:anyType"/>
      <xs:element minOccurs="0" name="submissionSetPatientId" nillable="true" type="xs:string"/>

      <xs:element minOccurs="0" name="submissionSetSourceId" nillable="true" type="xs:string"/>
      <xs:element minOccurs="0" name="submissionSetUniqueId" nillable="true" type="xs:string"/>
      <xs:element minOccurs="0" name="submissionSets" nillable="true" type="xs:anyType"/>
      <xs:element minOccurs="0" name="uidHashMap" nillable="true" type="xs:anyType"/>
      <xs:element minOccurs="0" name="uidMap" nillable="true" type="xs:anyType"/>
      <xs:element minOccurs="0" name="uriChunkSize" type="xs:int"/>
      <xs:element minOccurs="0" name="v2" nillable="true" type="xs:anyType"/>
      <xs:element minOccurs="0" name="v2SubmitObjectsRequest" nillable="true" type="xs:anyType"/>
      <xs:element minOccurs="0" name="v3" nillable="true" type="xs:anyType"/>

      <xs:element minOccurs="0" name="v3SubmitObjectsRequest" nillable="true" type="xs:anyType"/>
      <xs:element minOccurs="0" name="version2" type="xs:boolean"/>
      <xs:element minOccurs="0" name="wrapper" nillable="true" type="xs:anyType"/>
      <xs:element minOccurs="0" name="_metadata_containers" nillable="true" type="xs:anyType"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="ErrorLogger">
    <xs:sequence/>
  </xs:complexType>

  <xs:complexType name="Response">
    <xs:complexContent>
      <xs:extension base="ax253:ErrorLogger">
        <xs:sequence>
          <xs:element minOccurs="0" name="errorsAndWarnings" nillable="true" type="xs:string"/>
          <xs:element minOccurs="0" name="response" nillable="true" type="xs:anyType"/>
          <xs:element minOccurs="0" name="root" nillable="true" type="xs:anyType"/>
          <xs:element minOccurs="0" name="registryErrorList" nillable="true" type="ax253:RegistryErrorList"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="RegistryErrorList">

```



```

<xs:complexContent>
  <xs:extension base="ax253:ErrorLogger">
    <xs:sequence>
      <xs:element minOccurs="0" name="errorsAndWarnings" nillable="true" type="xs:string"/>
      <xs:element minOccurs="0" name="registryErrorList" nillable="true" type="xs:anyType"/>

      <xs:element minOccurs="0" name="status" nillable="true" type="xs:string"/>
      <xs:element minOccurs="0" name="verbose" type="xs:boolean"/>
      <xs:element minOccurs="0" name="version" type="xs:short"/>
    </xs:sequence>
  </xs:extension>
</xs:complexContent>
</xs:complexType>
</xs:schema>
<xs:schema xmlns:ax251="http://serviceclasses.ws.registry.nist.gov" attributeFormDefault="qualified" elementFormDefault="qualified"
targetNamespace="http://exception.common2.registry.nist.gov/xsd">

  <xs:import namespace="http://serviceclasses.ws.registry.nist.gov"/>
  <xs:complexType name="XdsException">
    <xs:complexContent>
      <xs:extension base="ns:Exception">
        <xs:sequence/>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="MetadataException">

    <xs:complexContent>
      <xs:extension base="ax250:XdsException">
        <xs:sequence/>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
</xs:schema>
<xs:schema xmlns:ax254="http://registry.common2.registry.nist.gov/xsd" xmlns:ax252="http://exception.common2.registry.nist.gov/xsd"
attributeFormDefault="qualified" elementFormDefault="qualified" targetNamespace="http://serviceclasses.ws.registry.nist.gov">
  <xs:import namespace="http://exception.common2.registry.nist.gov/xsd"/>

  <xs:import namespace="http://registry.common2.registry.nist.gov/xsd"/>
  <xs:complexType name="Exception">
    <xs:sequence>
      <xs:element minOccurs="0" name="Exception" nillable="true" type="xs:anyType"/>
    </xs:sequence>
  </xs:complexType>
  <xs:element name="MetadataException">
    <xs:complexType>
      <xs:sequence>

        <xs:element minOccurs="0" name="MetadataException" nillable="true" type="ax252:MetadataException"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
  <xs:element name="runContentValidationService">
    <xs:complexType>
      <xs:sequence>
        <xs:element minOccurs="0" name="m" nillable="true" type="ax253:Metadata"/>
        <xs:element minOccurs="0" name="response" nillable="true" type="ax253:Response"/>

      </xs:sequence>
    </xs:complexType>
  </xs:element>
  <xs:element name="runContentValidationServiceResponse">
    <xs:complexType>
      <xs:sequence>
        <xs:element minOccurs="0" name="return" type="xs:boolean"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
  <xs:element name="getServiceNameResponse">

```

```

        <xs:complexType>
          <xs:sequence>
            <xs:element minOccurs="0" name="return" nillable="true" type="xs:string"/>
          </xs:sequence>
        </xs:complexType>
      </xs:element>
    </xs:schema>

</wsdl:types>
<wsdl:message name="runContentValidationServiceRequest">
  <wsdl:part name="parameters" element="ns:runContentValidationService"/>
</wsdl:message>
<wsdl:message name="runContentValidationServiceResponse">
  <wsdl:part name="parameters" element="ns:runContentValidationServiceResponse"/>
</wsdl:message>
<wsdl:message name="MetadataException">
  <wsdl:part name="parameters" element="ns:MetadataException"/>
</wsdl:message>
<wsdl:message name="RetrieveDocumentSetRequestRequest"/>
<wsdl:message name="RetrieveDocumentSetRequestResponse"/>
<wsdl:message name="ProvideAndRegisterDocumentSetRequestRequest"/>
<wsdl:message name="ProvideAndRegisterDocumentSetRequestResponse"/>
<wsdl:message name="getServiceNameRequest"/>
<wsdl:message name="getServiceNameResponse">
  <wsdl:part name="parameters" element="ns:getServiceNameResponse"/>
</wsdl:message>

<wsdl:portType name="xdsrepositorybPortType">
  <wsdl:operation name="runContentValidationService">
    <wsdl:input message="ns:runContentValidationServiceRequest" wsaw:Action="urn:runContentValidationService"/>
    <wsdl:output message="ns:runContentValidationServiceResponse" wsaw:Action="urn:runContentValidationServiceResponse"/>
    <wsdl:fault message="ns:MetadataException" name="MetadataException"
wsaw:Action="urn:runContentValidationServiceMetadataException"/>
  </wsdl:operation>
  <wsdl:operation name="RetrieveDocumentSetRequest">
    <wsdl:input message="ns:RetrieveDocumentSetRequestRequest" wsaw:Action="urn:ihe:iti:2007:RetrieveDocumentSet"/>
    <wsdl:output message="ns:RetrieveDocumentSetRequestResponse" wsaw:Action="urn:RetrieveDocumentSetRequestResponse"/>
  </wsdl:operation>
  <wsdl:operation name="ProvideAndRegisterDocumentSetRequest">
    <wsdl:input message="ns:ProvideAndRegisterDocumentSetRequestRequest"
wsaw:Action="urn:ihe:iti:2007:ProvideAndRegisterDocumentSet-b"/>
    <wsdl:output message="ns:ProvideAndRegisterDocumentSetRequestResponse"
wsaw:Action="urn:ProvideAndRegisterDocumentSetRequestResponse"/>
  </wsdl:operation>
  <wsdl:operation name="getServiceName">
    <wsdl:input message="ns:getServiceNameRequest" wsaw:Action="urn:getServiceName"/>
    <wsdl:output message="ns:getServiceNameResponse" wsaw:Action="urn:getServiceNameResponse"/>
  </wsdl:operation>
</wsdl:portType>
<wsdl:binding name="xdsrepositorybSoap11Binding" type="ns:xdsrepositorybPortType">
  <soap:binding transport="http://schemas.xmlsoap.org/soap/http" style="document"/>
  <wsdl:operation name="runContentValidationService">
    <soap:operation soapAction="urn:runContentValidationService" style="document"/>
    <wsdl:input>
      <soap:body use="literal"/>
    </wsdl:input>
    <wsdl:output>
      <soap:body use="literal"/>
    </wsdl:output>
    <wsdl:fault name="MetadataException">
      <soap:fault use="literal" name="MetadataException"/>
    </wsdl:fault>
  </wsdl:operation>
  <wsdl:operation name="RetrieveDocumentSetRequest">
    <soap:operation soapAction="" style="document"/>
    <wsdl:input>

```

```

        <soap:body use="literal"/>
    </wsdl:input>
    <wsdl:output>
        <soap:body use="literal"/>
    </wsdl:output>
</wsdl:operation>
<wsdl:operation name="ProvideAndRegisterDocumentSetRequest">
    <soap:operation soapAction="" style="document"/>
    <wsdl:input>

        <soap:body use="literal"/>
    </wsdl:input>
    <wsdl:output>
        <soap:body use="literal"/>
    </wsdl:output>
</wsdl:operation>
<wsdl:operation name="getServiceName">
    <soap:operation soapAction="urn:getServiceName" style="document"/>
    <wsdl:input>

        <soap:body use="literal"/>
    </wsdl:input>
    <wsdl:output>
        <soap:body use="literal"/>
    </wsdl:output>
</wsdl:operation>
</wsdl:binding>
<wsdl:binding name="xdsrepositorybSoap12Binding" type="ns:xdsrepositorybPortType">
    <soap12:binding transport="http://schemas.xmlsoap.org/soap/http" style="document"/>

    <wsdl:operation name="runContentValidationService">
        <soap12:operation soapAction="urn:runContentValidationService" style="document"/>
        <wsdl:input>
            <soap12:body use="literal"/>
        </wsdl:input>
        <wsdl:output>
            <soap12:body use="literal"/>
        </wsdl:output>
        <wsdl:fault name="MetadataException">

            <soap12:fault use="literal" name="MetadataException"/>
        </wsdl:fault>
    </wsdl:operation>
    <wsdl:operation name="RetrieveDocumentSetRequest">
        <soap12:operation soapAction="" style="document"/>
        <wsdl:input>
            <soap12:body use="literal"/>
        </wsdl:input>
        <wsdl:output>

            <soap12:body use="literal"/>
        </wsdl:output>
    </wsdl:operation>
    <wsdl:operation name="ProvideAndRegisterDocumentSetRequest">
        <soap12:operation soapAction="" style="document"/>
        <wsdl:input>
            <soap12:body use="literal"/>
        </wsdl:input>
        <wsdl:output>

            <soap12:body use="literal"/>
        </wsdl:output>
    </wsdl:operation>
    <wsdl:operation name="getServiceName">
        <soap12:operation soapAction="urn:getServiceName" style="document"/>
        <wsdl:input>
            <soap12:body use="literal"/>
        </wsdl:input>
        <wsdl:output>

```

```

        <soap12:body use="literal"/>
    </wsdl:output>
</wsdl:operation>
</wsdl:binding>
<wsdl:binding name="xdsrepositorybHttpBinding" type="ns:xdsrepositorybPortType">
    <http:binding verb="POST"/>
    <wsdl:operation name="runContentValidationService">
        <http:operation location="xdsrepositoryb/runContentValidationService"/>
        <wsdl:input>

            <mime:content type="text/xml" part="runContentValidationService"/>
        </wsdl:input>
        <wsdl:output>
            <mime:content type="text/xml" part="runContentValidationService"/>
        </wsdl:output>
    </wsdl:operation>
    <wsdl:operation name="RetrieveDocumentSetRequest">
        <http:operation location="xdsrepositoryb/RetrieveDocumentSetRequest"/>
        <wsdl:input>

            <mime:content type="text/xml" part="RetrieveDocumentSetRequest"/>
        </wsdl:input>
        <wsdl:output>
            <mime:content type="text/xml" part="RetrieveDocumentSetRequest"/>
        </wsdl:output>
    </wsdl:operation>
    <wsdl:operation name="ProvideAndRegisterDocumentSetRequest">
        <http:operation location="xdsrepositoryb/ProvideAndRegisterDocumentSetRequest"/>
        <wsdl:input>

            <mime:content type="text/xml" part="ProvideAndRegisterDocumentSetRequest"/>
        </wsdl:input>
        <wsdl:output>
            <mime:content type="text/xml" part="ProvideAndRegisterDocumentSetRequest"/>
        </wsdl:output>
    </wsdl:operation>
    <wsdl:operation name="getServiceName">
        <http:operation location="xdsrepositoryb/getServiceName"/>
        <wsdl:input>

            <mime:content type="text/xml" part="getServiceName"/>
        </wsdl:input>
        <wsdl:output>
            <mime:content type="text/xml" part="getServiceName"/>
        </wsdl:output>
    </wsdl:operation>
</wsdl:binding>
<wsdl:service name="xdsrepositoryb">
    <wsdl:port name="xdsrepositorybHttpSoap11Endpoint" binding="ns:xdsrepositorybSoap11Binding">

        <soap:address location="http://192.168.0.48:8010/axis2/services/xdsrepositoryb.xdsrepositorybHttpSoap11Endpoint"/>
    </wsdl:port>
    <wsdl:port name="xdsrepositorybHttpSoap12Endpoint" binding="ns:xdsrepositorybSoap12Binding">
        <soap12:address location="http://192.168.0.48:8010/axis2/services/xdsrepositoryb.xdsrepositorybHttpSoap12Endpoint"/>
    </wsdl:port>
    <wsdl:port name="xdsrepositorybHttpEndpoint" binding="ns:xdsrepositorybHttpBinding">
        <http:address location="http://192.168.0.48:8010/axis2/services/xdsrepositoryb.xdsrepositorybHttpEndpoint"/>
    </wsdl:port>
</wsdl:service>webtoolkit/

</wsdl:definitions>

```

There are two configuration options for the XDS server side components. The MOSS platform has available an XDS Repository and Registry. If sites wish to participate in the exchange acting in a Federated model then they must host their own IHE compliant XDS Repository. The MOSS XDS Repository is available to participants. It requires a server class machine and a database. The database options are very liberal. We currently know that MySQL and

PostgreSQL work. If you wish to stand this component up in your environment we will be happy to assist you. In order to do this we will require remote access to the server you wish to use. That server must also have connectivity to the Internet with limited access to the ports required for the XDS transactions. Those ports are configurable.

Participants may also chose to participate in a totally central way. In that case no local repository is necessary. All XDS documents and registration meta-data will be stored on the central XDS Repository and Registry.

Portal Requirements

The current version of the Portal has been tested on FireFox (any version) and Internet Explorer (version 6 and 8). To use the portal a users must request access from the HIE administrator. A list must be sent to the HIE Administrator with the users first and last name, an e-mail address for the user, their role. Roles are Administrative Staff, General Care Provider, Direct Care Provider, Emergency Care Provider, and Researcher.

Functional Roles and BPPC

Basic Patient Privacy Consents (BPPC) provides a mechanism for the users to record the patient privacy consent(s). BPPC policies are a method to mark documents published to XDS with the patient privacy consent that was used to authorize the document, and a method for XDS Consumers to use to enforce the privacy consent appropriate to the access and use of the document.

The XDS documents will be marked with a BPPC confidentiality code (Policy). Only functional roles assigned access to the policy will have ability to view those documents.

BPPC policies and functional roles will be preloaded via a configuration file as per the community needs.

1. The user will be assigned with a BPPC **functional role** depending on the type of information to which he/she has access. The functional roles are
 1. Administrative Staff
 2. General Care Provider
 3. Direct Care Provider
 4. Emergency Care Provider
 5. Researcher
 6. Patient or Legal Representative
2. The basic **BPPC policies** (configurable) that will be preloaded in this release are
 1. Billing Information (Confidentiality Code 1)
 2. Administrative Information (Confidentiality Code 2)
 3. General Clinical Information (Confidentiality Code 3)
 4. Sensitive Clinical Information (Confidentiality Code 4)
 5. Research Information (Confidentiality Code 5)

