HIE Repository Model

CHIxP/IHE Web Services Implementation Guide
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</table>

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"YES" Example

"NO" Example

NULL (Break the Glass) Example
## Revision History

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<th>Author</th>
<th>Description</th>
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<td>1.0</td>
<td>01/14/2011</td>
<td>Joel Ryba</td>
<td>Original Release</td>
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<tr>
<td>1.1</td>
<td>02/24/2011</td>
<td>Joel Ryba</td>
<td>Modifications to appendices A2 &amp; A3 (XML)</td>
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<td>3.0</td>
<td>05/09/2011</td>
<td>Chris Titterton</td>
<td>Modifications to appendices A2 &amp; A3 (XML)</td>
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| 4.0     | 06/23/2011 | Prahalad Rangan/Joel Ryba | Added appendices A7 (Insurance IDs in Patient Identity Feed) & A8 (Performing Lab in C32)  
|         |            |                  | Modified “Preferred Business Model” section, page 5                         |
| 5.0     | 12/28/2011 | Joel/Prahalad    | Revisions for sample transactions and C62                                  |
| 5.1     | 04/25/2012 | Joel/Prahalad    | Appendix A8: Example PIX Add and PIX Query                                  |
|         |            |                  | Appendix A9: Example Registry stored Query for on-demand and static documents |
|         |            |                  | Appendix A10: Example provide and register transactions/parameters for 1.1 C32, 1.1 XACML, 2. RPLC parameter for replace, 4. Retrieve document, 4.1 soap response when patient has not given consent. |
| 5.2     | 06/21/2013 | Prahalad         | Modified Registering patient with exchange functional requirement I, ii. Changed Hixny Logo |
The HIE Repository Model

Hixny HIE is implemented primarily as a repository in the Statewide Health Information Network of New York (SHIN-NY). This means that data is submitted into Hixny and access is granted with RHIO specific consent by the patient being filed with the HIE. This document covers how EHR vendors access the HIE for repository functions via web services.

In this model, all data flows into the HIE regardless of consent at the sending facility. This makes the data available at a later date for other facilities that receive proper consent from the patient. Data sharing happens when the data is accessed, not when it is converted into the SHIN-NY node (Hixny HIE).

All data is also provided to Hixny. This means that Hixny does not support simply providing a reference to documents via a “register document” function. Instead all documents must be “provided and registered”. This allows Hixny to provide members with a known service level when accessing patient records.

The documents supported for providing data are the C32 (continuity of care) and the C37 (laboratory results) documents. Lab results can be sent in the C32 if supported by the EHR vendor.

For retrieving data, Hixny supports pulling the community CCD. This is a consolidated version of the patient health record from all sources. These include CCDs provided by various types of Practices; HL7 real-time fed data from Hospitals, Labs, and Imaging Centers; and real-time calls to Surescripts. Allowing only the community record to be pulled simplifies the EHR integration by eliminating the need for the user to sift through data from various sources. It also matches the data provide by users of the Hixny portal.

Consent to access the patient data is expressed in a XACML (XML Access Control Markup Language) document that is provided to the HIE in a similar way as the clinical data.

End users are expressed to Hixny through a SAML (Security Assertion Markup Language) header with each web service transaction.

In addition to this repository model via web services, Hixny supports sending Referrals via the HIE using various forms from Web Services to SMTP to HL7 to Portal Access. Hixny serves as the abstraction point in this secure messaging model by transforming between the providers and consumers of information for both content and transport. These models are not covered in this document and are generally pursued after a vendor or practice has established repository functionality covered in this document.
# Sharing Data with the Exchange

## Use Case

<table>
<thead>
<tr>
<th>Use Case</th>
<th>Sharing Data with the Exchange</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Goal</strong></td>
<td>The ability for an EHR to register patient demographics, consent and clinical data with the exchange so that it may be shared with other members via either the clinical portal or another EHR.</td>
</tr>
</tbody>
</table>
| **Primary Actor(s)** | Patient Identity Feed HL7v3 (ITI x1)  
                        Provide and Register Document Set-b (ITI 15b) |
| **Trigger**       | EHR registers patient demographics, consent or clinical data with the Exchange |
| **Main Success Scenario** | EHR can register patient demographics into the exchange MPI.  
                              EHR can send patient consent information and it gets stored in the exchange for later evaluation.  
                              EHR can send clinical data for a patient to the exchange and it is available in subsequent queries of that patient’s record. |
Functional Requirements

1. Registering patient with exchange
   (i) EHR sends an Add/Update message to the PIX manager endpoint of the exchange.
   (ii) Exchange updates MPI with data provided in step “i” above and respond to the EHR with a success message.

2. Providing declaration of patient consent to exchange
   (i) EHR sends a PIX (Patient Identifier Cross Referencing) query to the exchange’s PIX manager endpoint containing a local identifier (MRN) from the EHR facility.
   (ii) Exchange responds back with EID for patient.
   (iii) EHR Generates XACML based consent document.
   (iv) EHR sends valid XDS.b (Cross-Enterprise Document Sharing) Provide and Register Document Set (PnR) transaction to the exchange’s XDS repository end point containing document for EID from step “ii” above. The PnR metadata should follow the specifications for the IHE Basic Patient Privacy Consents module.
   (v) Exchange consumes XACML document and generates corresponding internal consent policy for later evaluation.
   (vi) Exchange responds with success message.

3. Sending Clinical Data to exchange
   (i) EHR sends a PIX Query to the exchange’s PIX manager endpoint containing a local identifier (MRN) from the EHR facility.
   (ii) Exchange responds back with EID for patient.
   (iii) EHR generates CCD or other document to be sent to the exchange.
   (iv) EHR sends XDS.b Provide and Register document Set transaction (PnR) to the proper exchange end point.
   (v) Exchange responds back with a success message.

Preferred Business Model

It is preferred that the EHR send updated CCDs to Hixny when the encounter is closed. The SHIN-NY requirement is for new clinical data to be sent to the HIE within 24 hours. All notes may not be completed by the practitioner in this timeframe, so practices may want to initially send preliminary CCDs and then finalized versions later.

Replacement CCDs should be identified as such per IHE standards.
# Retrieving Data from the Exchange

## Use Case

<table>
<thead>
<tr>
<th>Use Case</th>
<th>Sharing Data with the Exchange</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Goal</strong></td>
<td>The ability for an EHR to retrieve documents including the HIE Summary record from the exchange and display it to their users.</td>
</tr>
<tr>
<td><strong>Primary Actor(s)</strong></td>
<td>Patient Identity Feed HL7v3 (ITI x1)</td>
</tr>
<tr>
<td></td>
<td>Registry Stored Query (ITI 18)</td>
</tr>
<tr>
<td></td>
<td>Retrieve Document Set (ITI xx)</td>
</tr>
<tr>
<td><strong>Trigger</strong></td>
<td>EHR queries for documents using the HIE identifier and retrieves one or more documents from the list of available docs.</td>
</tr>
<tr>
<td><strong>Main Success Scenario</strong></td>
<td>EHR can retrieve the HIE patient identifier via a PIX Query</td>
</tr>
<tr>
<td></td>
<td>EHR can obtain the list of available documents for a patient via Registry Stored Query. The only document exposed by Hixny is the consolidated community health record.</td>
</tr>
<tr>
<td></td>
<td>EHR can retrieve the HIE patient summary document and display it to its users.</td>
</tr>
</tbody>
</table>
Functional Requirements

1. Querying exchange for patient EID
   (i) EHR sends a PIX Query to the exchange’s PIX manager endpoint containing a local identifier (MRN) from the EHR facility.
   (ii) Exchange responds back with EID for patient.

2. Requesting a list of available documents for the patient.
   (i) EHR sends XDS.b Registry Stored Query to the exchange document registry endpoint containing the EID and optional list of supported filter criteria.
   (ii) Exchange responds back with a list of available documents. The primary goal is to retrieve the dynamically generated HIE Level Patient Summary Document specifically intended for the recipient system. This is an “on-demand” document as defined by IHE. In addition to the C32, which is a combination of all discrete clinical data that can be supported in the C32, Hixny also offers unstructured data reports that can be pulled as on-demand C62 documents (PDFs). These unstructured reports include discharge summaries, operative reports, etc.

3. Retrieving patient summary document from the exchange
   (ii) Exchange responds back with complete HIE Level Patient Summary (C32) Document.

4. An alternative to step 3, is to retrieve either on-demand C62 PDFs or to query and retrieve static C32 documents.

Preferred Business Model

It is preferred that the EMRs retrieve an updated record from the community for every patient visit. If the patient has previously established consent and has a scheduled appointment you may want to collect these records in a nightly process. If the patient either registers a new consent or has an unscheduled visit, you will have to collect the community record in real-time. Of course, all calls can be made in real-time if that is preferred by either the vendor or the practice. The Hixny preference is simply that for each patient from whom a positive consent has been gathered that the practice/EHR retrieves the community record in order to have the information available to provide the best possible care.

If the client system is used in a setting where emergency access, also known as break-the-glass, is appropriate, then real-time retrieval is necessary since prefetching only, or failure to do so if lacking consent, would not allow the clinician to achieve this emergency access.
Implementation/Testing

Lifecycle

The practice implementation lifecycle below is based on EHR vendors with a CHIxP compliant system. This practice/vendor implementation does not include work to lift vendors to CHIxP compliance, development of IHE web services, or development of CDA content.

Configuration Exchange

Hixny and Vendor will exchange OIDs, x.509 public certificates, and Web Service end points, and Facility/User Identifiers for test system.

Configuration

Hixny and vendor will configure the trading partners in their respective systems.

Unit Testing

Vendor will attempt to perform PIX add/update, C32 provide and register, PIX inquiry, and Retrieve of the community health record.

Any negative responses will be reported to Hixny helpdesk and Hixny will open a support ticket. Support ticket initial response is 1 business day. Problem resolution time depends on the issue. The Vendor will be asked to supply actual web service package being sent to the Hixny test system and the actual response package received from Hixny.
Integration Testing
Data provided into the Hixny system will be validated between the EHR and the Hixny portal by the practice users and their EHR vendor.

Promotion to Production
Hixny will setup the Production Environment with the facility and users for production. Hixny will provide production web service end points to the vendor. Vendor will provide a certificate for production if different from test. Hixny will implement the vendor/practice certificate in production.

User Acceptance Testing
The community record will be tested by the practice and by Hixny user Quality Assurance user IDs. These IDs are only available during this period of time and are separately audited. The practice can only use them under a special quality assurance testing agreement with Hixny.
Appendices
A1: CHIxP Connectivity

Interoperability Specifications

For web services to be interoperable, they need to comply with the same standards. For this, the State of New York has developed the Common Health Information Exchange Protocol (CHIxP) standards for web service interoperability. The standards are specified below and represent the most common standards implemented today.

Areas covered include the WS-I Basic Profile and WS-I Basic Security Profile. In addition, CHIxP specifies the implementation of Transport Layer Security (TLS) and User Authentication using SAML. The web service details including SAML are explained in other sections of this document.

The Transport Layer Security can be explained here as part of the basic EHR configuration. In addition to interoperability of the web services, the endpoints of the services are secured. In order for any system to call the web service (post to the service endpoint), the public certificate of the client must be registered with Hixny and the private certificate must be implemented in the client. The EHR vendor or practice will do this by generating or purchasing a certificate and sending the public certificate to Hixny. Hixny will register the certificate into its web server to allow the client to connect. The EHR vendor will similarly register the private side of the certificate in the client. Since Hixny does not call web services of the EHR vendors, since we do not support the register of a document without providing it, there is no reason to do the opposite, register the Hixny certificate, as a client of the EHR.
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<thead>
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<td><strong>WS-Interoperability Basic Profile 1.2 (modified)</strong></td>
</tr>
<tr>
<td>Simple Object Access Protocol (SOAP) 1.2 (exception from the basic profile)</td>
</tr>
<tr>
<td>Hypertext Transfer Protocol (HTTP) 1.1</td>
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<tr>
<td>WS-Addressing 1.0</td>
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<tr>
<td>Message Transmission Optimization Mechanism (MTOM) binding for SOAP 1.1</td>
</tr>
<tr>
<td>Web Services Description Language (WSDL) 1.1</td>
</tr>
<tr>
<td>XML Schema (XSD) 1.0</td>
</tr>
<tr>
<td>Universal Discovery and Description Interface (UDDI) 3.0.2</td>
</tr>
<tr>
<td><strong>WS-Interoperability Basic Security Profile 1.1</strong></td>
</tr>
<tr>
<td>WS-Security (SOAP Message Security) 1.1</td>
</tr>
<tr>
<td>X.509 Public Key Infrastructure</td>
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<tr>
<td>Transport Layer Security (TLS) 1.0</td>
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<tr>
<td>Secure Sockets Layer (SSL) 3.0</td>
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<tr>
<td>WS-Security SAML Token Profile 1.1</td>
</tr>
<tr>
<td>Security Assertion Markup Language (SAML) 2.0</td>
</tr>
<tr>
<td><strong>Secure Connection/Transport</strong></td>
</tr>
<tr>
<td>SSL encryption</td>
</tr>
<tr>
<td><strong>System Authentication</strong></td>
</tr>
<tr>
<td>X.509 certificate to identify trading partner</td>
</tr>
<tr>
<td><strong>User Authentication</strong></td>
</tr>
<tr>
<td>SAML Assertion for End User Credentials for Authentication and Auditing</td>
</tr>
</tbody>
</table>
A2: SHIN-NY XACML Consent Policies

Provide and Register Metadata

Hixny expects the Provide and Register metadata for updating patient consent to adhere to the specifications detailed in the IHE Basic Patient Privacy Consents Module (BPPC). The BPPC module documentation describes the necessary changes to the PnR metadata. Along with the proper metadata, the PnR request should provide the appropriate XACML document as described below.

XACML Examples

The following example XACML documents show what Hixny expects to receive for the SHIN-NY Yes, No, and Null (Emergency Access) consent values. The intention is for the policies in these examples to be sent to Hixny via a standard XDSb Provide and Register document transaction with the changes described in the BPPC. In all cases the Sending Facility OID and Local MRN will be used as policy identifiers.

“YES” Example

This would add the group associated with facility 1.2.3.4.5 to a "ShowAlways" consent.

```xml
  <Target>
    <Resources>
      <Resource>
        <ResourceMatch MatchId="http://www.hhs.gov/healthit/nhin/function#instance-identifier-equal ">
          <AttributeValue DataType="urn:hl7-org:v3#II" xmins:hl7="urn:hl7-org:v3"><hl7:PatientId root="1.2.3.4.5" extension="99999"/></AttributeValue>
        </ResourceMatch>
      </Resource>
    </Resources>
    <Target>
      <Rule RuleId="1" Effect="Permit">
        <!-- permit users from facility 1.2.3.4.5 -->
      </Rule>
    </Target>
  </Target>
</Policy>
```
"NO" Example

This would add the group associated with facility 1.2.3.4.5 to a "BlockAlways" consent.

```xml
  <Target>
    <Resources>
      <Resource>
        <ResourceMatch MatchId="urn:hl7-org:v3#II" xmlns:hl7="urn:hl7-org:v3">
          <AttributeValue DataType="urn:hl7-org:v3#II">
            <hl7:PatientId root="1.2.3.4.5" extension="9999999999999999"/>
          </AttributeValue>
        </ResourceMatch>
      </Resource>
    </Resources>
  </Target>
  <!-- Deny users from facility 1.2.3.4.5. No break the glass allowed. -->
  <Rule RuleId="1" Effect="Deny">
    <Target>
      <Subjects>
        <Subject>
          <SubjectMatch MatchId="urn:oasis:names:tc:xacml:1.0:function:anyURI-equal">
            <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#anyURI">
              urn:oid:1.2.3.4.5
            </AttributeValue>
          </SubjectMatch>
        </Subject>
      </Subjects>
    </Target>
  </Rule>
</Policy>
```

NULL (Break the Glass) Example

This would remove any prior YES or NO consent for the group associated with facility 1.2.3.4.5. A null consent is implicitly defined by the facility level consent settings.

```xml
  <Target>
    <Resources>
      <Resource>
        <ResourceMatch MatchId="urn:hl7-org:v3#II" xmlns:hl7="urn:hl7-org:v3">
          <AttributeValue DataType="urn:hl7-org:v3#II">
            <hl7:PatientId root="1.2.3.4.5" extension="9999999999999999"/>
          </AttributeValue>
        </ResourceMatch>
      </Resource>
    </Resources>
  </Target>
</Policy>
```
<Resource>
  <ResourceMatch MatchId="http://www.hhs.gov/healthit/nhin/function#instance-identifier-equal">
    <AttributeValue DataType="urn:hl7-org:v3#II" xmlns:hl7="urn:hl7-org:v3">
      <hl7:PatientId root="1.2.3.4.5" extension="99999"/>
    </AttributeValue>
  </ResourceMatch>
  <ResourceDataType="urn:hl7-org:v3#II"/>
</Resource>

<Rule RuleId="1" Effect="Permit">
  <Target>
    <Subjects>
      <Subject>
        <SubjectMatch MatchId="urn:oasis:names:tc:xacml:1.0:function:anyURI-equal">
          <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#string">EMERGENCY</AttributeValue>
        </SubjectMatch>
        <SubjectMatch>
          <AttributeId>
            "urn:oasis:names:tc:xspa:1.0:subject:purposeofuse"
          </AttributeId>
        </SubjectMatch>
        <SubjectMatch>
          <AttributeId>
            "urn:oasis:names:tc:xspa:1.0:subject:organization-id"
          </AttributeId>
        </SubjectMatch>
      </Subject>
    </Subjects>
  </Target>
</Rule>
</Policy>
There are three types of message exchange in NY State that will require the use of SAML tokens:

- Local: Messages passed between point-of-care systems and the little bus (RHIOs)
- Regional: Messages passed between little bus and the big bus (SHIN -NY)
- National: Messages passed between the big bus with other trusted nodes in the cloud (MMM, NHIN)

All three types will use SOAP over a secured TLS connection and must provide a SAML token with each request message. National and regional messaging must digitally sign this SAML token. Initially local messaging will not be required to sign the SAML assertion. This allows the point-of-care systems and RHIO's to focus on the development and testing of the core messaging frameworks (PIX, XDSb, XACML, etc). Once the SHIN-NY has the infrastructure to act as a certificate authority and identity provider, the systems and RHIOs may move to using digital signatures on the SAML token.

Note, each RHIO must still obtain certificates to communicate with the big bus and other secure nodes. The RHIO will forward and sign local messages for these regional/national destinations on behalf of the point-of-care systems. The signature will use the holder-of-key format.

The following is a sample SAML assertion for a local request. The in-line annotations describe how the field will be used by the little bus. The SHIN-NY attributes "UserName", "UserOrganization" and "PurposeOfUse" will be used to evaluate access and consent. Each user making a request must exist as a user in the little bus (with a list of applicable user roles). All other fields are for auditing purposes only.

**Caveats**

The Assertion/Subject/NameID element's format Attribute may be restricted or changed in future, but the sample should be sufficient for initial testing

For EHR- >Little Bus communications, we are NOT expecting or requiring either an Assertion/Signature element or an Assertion/Subject/SubjectConfirmation element.

The SHIN-NY namespace and related attributes are not specified in the Information Security Architecture Requirements, the [http://www.shin-ny.org](http://www.shin-ny.org) URI is used here.
The SHIN-NY coding system for UserCategory is not fully specified, nor does it have an OID. The base options currently expected are listed, but are subject to change with the introduction of the coding system.
<nhin:PurposeForUse code="TREATMENT" codeSystem="2.16.840.1.113883.18.7.1"
  codeSystemName="nhin-purpose" displayName="treatment"/>
</saml2:AttributeValue>

<saml2:Attribute Name="UserRHIO" NameFormat="http://www.shin-ny.org">
  <saml2:AttributeValue xsi:type="xs:string">BHIX</saml2:AttributeValue>
</saml2:Attribute>

<--UserCategory needs further specification.
Currently assumed categories are based on Information Security Architecture Requirements:
Practitioner, PractitionerBTG, NonPractitionerClinical, NonPractitionerNonClinical, Admin, NonClinical, AdminClinical.
Eventual contents will be something like the following:
    -->
    <saml2:Attribute Name="UserCategory" NameFormat="http://www.shin-ny.org">
      <saml2:AttributeValue>
        <shinny:UserCategory code="a" codeSystem="SHIN-NY CodeSystem" codeSystemName="SHIN-NY CodeSystem Name" displayName="Practitioner"/>
      </saml2:AttributeValue>
    </saml2:Attribute>
</saml2:AttributeStatement>
</saml2:Assertion>
A4: Hixny Supported Transactions

Hixny Supported IHE Profiles and Actors

This is limited to those used in the repository model. Additional profiles and actors are used for other use cases.

<table>
<thead>
<tr>
<th>HITSP Profiles/Actor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient Identifier Cross Reference version 3 (PIXv3): Consumer, Manager</td>
</tr>
<tr>
<td>• PIX – ADD/REVISED¹</td>
</tr>
<tr>
<td>• PIX – QUERY</td>
</tr>
<tr>
<td>Patient Demographics Query version 3 (PDQv3): Consumer, Supplier</td>
</tr>
<tr>
<td>• PDQ – Query</td>
</tr>
<tr>
<td>Cross Enterprise Document Sharing version b (XDS.b): Consumer, Registry, Repository, Source</td>
</tr>
<tr>
<td>• XDS.b – Provide and Register Document Set²</td>
</tr>
<tr>
<td>• XDS.b – Registry Stored Query</td>
</tr>
<tr>
<td>• XDS.b – Retrieve Document Set</td>
</tr>
<tr>
<td>Audit Trail and Node Authentication (ATNA): Repository (UDP only), Secure Application</td>
</tr>
<tr>
<td>Consistent Time (CT): Time Client</td>
</tr>
</tbody>
</table>

Hixny Supported Document Types

This is limited to those used in the repository model. Additional document types are used for other use cases.

<table>
<thead>
<tr>
<th>Document Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>HITSP C32 – Patient Summary Document</td>
</tr>
</tbody>
</table>

¹ Please refer to Section A7 for information about Insurance Provider in the Patient Identity Feed
² Please refer to Section A8 for Provider information for Lab Results in the Provide and Register Document Set transaction
| HITSP C37 – Lab Report Document |
| HITSP C62 – PDF Document      |
| XACML (Consent declaration)   |
# A5: Hixny Supported CDA Content Modules

## Sections

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Hospital Discharge Medications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advance Directives</td>
<td>Immunizations</td>
</tr>
<tr>
<td>Allergies and Other Adverse Reactions</td>
<td>Medications</td>
</tr>
<tr>
<td>Diagnostic Result</td>
<td>Medications – Administered</td>
</tr>
<tr>
<td>Discharge Diagnosis</td>
<td>Non-Ratified Sections</td>
</tr>
<tr>
<td>Encounters</td>
<td>Plan of Care</td>
</tr>
<tr>
<td>Family History</td>
<td>Problems List</td>
</tr>
<tr>
<td>History of Past Illness</td>
<td>Procedures and Interventions</td>
</tr>
<tr>
<td>History of Present Illness*</td>
<td>Reason for Referral*</td>
</tr>
<tr>
<td>Hospital Admission Diagnosis</td>
<td>Social History</td>
</tr>
<tr>
<td>Hospital Course*</td>
<td>Vital Signs</td>
</tr>
</tbody>
</table>
### Entries

<table>
<thead>
<tr>
<th>Advance Directive</th>
<th>Language Spoken*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allergy and Drug Sensitivity</td>
<td>Medication</td>
</tr>
<tr>
<td>Comment</td>
<td>Personal Information</td>
</tr>
<tr>
<td>Condition</td>
<td>Plan of Care</td>
</tr>
<tr>
<td>Encounter</td>
<td>Procedure</td>
</tr>
<tr>
<td>Family History</td>
<td>Result</td>
</tr>
<tr>
<td>Healthcare Provider*</td>
<td>Social History</td>
</tr>
<tr>
<td>Immunization*</td>
<td>Support</td>
</tr>
<tr>
<td>Information Source*</td>
<td>Vital Sign</td>
</tr>
</tbody>
</table>

*Note: Exporting Only*
A6: Insurance Subscriber IDs in Patient Identity Feed

Below is a sample PIX ADD request that features the insurance subscriber IDs in the asOtherIDs section. Insurance IDs are required as they are used in the patient record linking algorithm.

The custom transform looks for specific OIDs for the id:root
1.2.3.4.5.100
1.2.3.4.5.200
1.2.3.4.5.300

Each of these OIDs marks primary, secondary, and tertiary insurance respectively. The relevant section is highlighted in the xml below.

```
<soapenv:Envelope xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope"
xmlns:wsa="http://www.w3.org/2005/08/addressing"
xmlns:wsse="http://docs.oasis-open.org/wss/oasis-wss-wssecurity-secext-1.1.xsd"
xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd"
xmlns:xs="XMLSchema-instance"
xmlns:saml="urn:oasis:names:tc:SAML:2.0:assertion"
xmlns:wsse11="http://docs.oasis-open.org/wss/oasis-wss-wssecurity-secext-1.1.xsd">
  <soapenv:Body>
    <v3:PRPA_IN201301UV02 ITSVersion="XML_1.0" xmlns:v3="urn:hl7-org:v3">
      <v3:id root="1.2.840.114350.1.13.99998.8735.109045004130167002.1272572864836.1"/>
      <v3:creationTime value="20100429162744"/>
      <v3:interactionId extension="PRPA_IN201301UV02" root="2.16.840.1.113883.1.6"/>
      <v3:processingCode code="P"/>
      <v3:processingModeCode code="T"/>
      <v3:acceptAckCode code="AL"/>
      <v3:receiver typeCode="RCV">
        <v3:device classCode="DEV" determinerCode="INSTANCE">
          <v3:id root="2.16.840.1.113883.3.72.6.5.10"/>
          <v3:asAgent classCode="AGNT">
            <v3:representedOrganization classCode="ORG" determinerCode="INSTANCE">
              <v3:id root="2.16.840.1.113883.4.319"/>
              <v3:representedOrganization/>
            </v3:representedOrganization>
          </v3:asAgent>
        </v3:device>
      </v3:receiver typeCode="RCV">
      <v3:sender typeCode="SND">
        <v3:device classCode="DEV" determinerCode="INSTANCE">
          <v3:id root="2.16.840.1.113883.1.13.99998.8735.109045004130167002.1272572864836.1"/>
          <v3:asAgent classCode="AGNT">
            <v3:representedOrganization classCode="ORG" determinerCode="INSTANCE">
              <v3:id root="2.16.840.1.113883.3.241"/>
              <v3:representedOrganization/>
            </v3:representedOrganization>
          </v3:asAgent>
        </v3:device>
      </v3:sender typeCode="SND">
      <v3:controlActProcess classCode="CACT" moodCode="EVN">
        <v3:code code="PRPA_TE201301UV02" codeSystem="2.16.840.1.113883.1.6"/>
        <v3:subject typeCode="SUBJ">
          <v3:registrationEvent classCode="REG" moodCode="EVN">
          </v3:registrationEvent>
        </v3:subject>
      </v3:controlActProcess>
    </v3:PRPA_IN201301UV02>
  </soapenv:Body>
</soapenv:Envelope>
```
A7: Performing Lab for Lab Results

NY State requires performing site for lab results if printed on a report. C32 doesn’t standardly have a place for this. We are looking at adding the <performer> for the performing site, as used in the C37. This requires the vendors to add this to their C32 Diagnostic Result Entries, and for the Hixnyside to be modified to consume that data and display it.
A8: Example PIX Transactions

PIX Add

Please refer to Appendix A6 for information on insurance identifiers in the PIX add transaction. The below example does not include insurance identifiers.

```xml
<soapenv:Envelope xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope">
  <soapenv:Header xmlns:wsa="http://www.w3.org/2005/08/addressing">
    <wsa:To>
      <wsa:Address>http://www.w3.org/2005/08/addressing/anonymous</wsa:Address>
      <wsa:ReplyTo>
        <wsa:MessageID>urn:uuid:9d959fe6-9d94-0596-e6ee-46b48f2ee6f6</wsa:MessageID>
      </wsa:ReplyTo>
    </wsa:To>
    <wsa:MessageID>urn:uuid:9d959fe6-9d94-0596-e6ee-46b48f2ee6f6</wsa:MessageID>
    <wsa:Action>urn:hl7-org:v3:PRPA_IN201301UV02</wsa:Action>
  </soapenv:Header>
  <soapenv:Body>
    <v3:PRPA_IN201301UV02 xmlns:v3="urn:hl7-org:v3" ITSVersions="XML_1.0">
      <v3:id root="2.16.840.1.113883.3.227.107042039032165038.1308081924304.1"/>
      <v3:creationTime value="20110614160524"/>
      <v3:interactionId extension="PRPA_IN201301UV02" root="2.16.840.1.113883.1.6"/>
      <v3:processingCode code="P"/>
      <v3:processingModeCode code="T"/>
      <v3:acceptAckCode code="AL"/>
      <v3:receiver typeCode="RCV">
        <v3:device classCode="DEV" determinerCode="INSTANCE">
          <v3:id root="2.16.840.1.113883.4.319"/>
        </v3:device>
      </v3:receiver>
      <v3:sender typeCode="SND">
        <v3:device classCode="DEV" determinerCode="INSTANCE">
          <v3:id root="2.16.840.1.113883.3.227"/>
          <v3:asAgent classCode="AGNT">
            <v3:representedOrganization classCode="ORG" determinerCode="INSTANCE">
              <v3:id root="2.16.840.1.113883.4.319.10"/>
              <v3:representingOrganization/>
            </v3:representedOrganization>
            <v3:asAgent/>
          </v3:asAgent>
        </v3:device>
      </v3:sender>
      <v3:controlActProcess classCode="CACT" moodCode="EVN">
        <v3:code code="PRPA_TE201301UV02" codeSystem="2.16.840.1.113883.1.6"/>
        <v3:subject typeCode="SUBJ">
          <v3:registrationEvent classCode="REG" moodCode="EVN">
            <v3:id nullFlavor="NA"/>
            <v3:statusCode code="active"/>
            <v3:subject1 typeCode="SBJ">
              <v3:patient classCode="PAT" root="2.16.840.1.113883.4.319.10"/>
            </v3:patient>
          </v3:registrationEvent>
          <v3:representingOrganization/>
        </v3:subject>
      </v3:controlActProcess>
      <v3:name>
        <v3:family>MousePeru</v3:family>
        <v3:given>Mickey</v3:given>
      </v3:name>
    </v3:PRPA_IN201301UV02>
  </soapenv:Body>
</soapenv:Envelope>
```
<v3:administrativeGenderCode code="M"/>
<v3:birthTime value="19890104"/>
<v3:addr>
  <v3:streetAddressLine>1 MAIN ST</v3:streetAddressLine>
  <v3:city>ORLANDO</v3:city>
  <v3:state>FL</v3:state>
</v3:addr>
<v3:patientPerson>
  <v3:providerOrganization classCode="ORG" determinerCode="INSTANCE">
    <v3:id root="2.16.840.1.113883.4.319.10"/>
    <v3:name>CVPH</v3:name>
    <v3:contactParty classCode="CON">
      <v3:telecom value="/\”/>
    </v3:contactParty>
  </v3:providerOrganization>
</v3:patient>
<v3:subject1>
  <v3:custodian typeCode="CST">
    <v3:assignedEntity classCode="ASSIGNED">
      <v3:id root="2.16.840.1.113883.4.319.10"/>
      <v3:assignedOrganization classCode="ORG" determinerCode="INSTANCE">
        <v3:name>CVPH</v3:name>
      </v3:assignedOrganization>
    </v3:assignedEntity>
    <v3:custodian>
      <v3:registrationEvent>
        <v3:subject>
          <v3:controlActProcess>
            <v3:PRPA_IN201301UV02>
              <soapenv:Body>
</soapenv:Envelope>

**PIX Query**

<soapenv:Envelope xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope">
  <soapenv:Header xmlns:wsa="http://www.w3.org/2005/08/addressing">
    <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <Assertion /> </wsse:Security>
  </soapenv:Header>
  <soapenv:Body>
    <v3:PRPA_IN201309UV02 xmlns:v3="urn:hl7-org:v3" ITVersion="XML_1.0">
      <v3:id root="2.16.840.1.113883.4.391.14.100000057038146068.1325012902454.1"/>
      <v3:creationTime value="20111227130822"/>
      <v3:interactionId extension="PRPA_IN201309UV02" root="2.16.840.1.113883.4.16"/>
      <v3:processingCode code="P"/>
      <v3:processingModeCode code="T"/>
      <v3:acceptAckCode code="AL"/>
      <v3:receiver typeCode="RCV"/>
      <v3:device classCode="DEV" determinerCode="INSTANCE">
        <v3:id root="2.16.840.1.113883.4.319"/>
        <v3:asAgent classCode="AGNT">
          <v3:representedOrganization classCode="ORG" determinerCode="INSTANCE">
            <v3:id root="HIXNY RHIO"/>
          </v3:representedOrganization>
        </v3:asAgent>
      </v3:device>
    </v3:PRPA_IN201309UV02>
  </soapenv:Body>
</soapenv:Envelope>
<v3:sender typeCode="SND">
  <v3:device classCode="DEV" determinerCode="INSTANCE">
    <v3:id root="2.16.840.1.113883.4.391.14"/>
    <v3:asAgent classCode="AGNT">
      <v3:representedOrganization classCode="ORG" determinerCode="INSTANCE">
        <v3:id root="eClinicalWorks"/>
        <v3:representedOrganization/>
      </v3:representedOrganization>
    </v3:asAgent>
    <v3:device/>
  </v3:sender>
  <v3:controlActProcess classCode="CACT" moodCode="EVN">
    <v3:code code="PRPA_TE201309UV02" codeSystem="2.16.840.1.113883.1.6"/>
    <v3:authorOrPerformer typeCode="AUT">
      <v3:assignedDevice classCode="ASSIGNED"/>
    </v3:authorOrPerformer>
    <v3:queryByParameter>
      <v3:queryId extension="13250129026571" root="1.2.840.114350.1.13.28.1.18.5.999"/>
      <v3:statusCode code="new"/>
      <v3:responsePriorityCode code="I"/>
      <v3:parameterList>
        <v3:dataSource>
          <v3:value root="2.16.840.1.113883.4.319"/>
          <v3:semanticsText>DataSource.id</v3:semanticsText>
        </v3:dataSource>
        <v3:patientIdentifier>
          <v3:value assigningAuthorityName="eClinicalWorks" extension="379" root="2.16.840.1.113883.4.391.14.254"/>
          <v3:semanticsText>Patient.Id</v3:semanticsText>
        </v3:patientIdentifier>
        <v3:parameterList>
          <v3:queryByParameter>
            <v3:controlActProcess/>
          </v3:queryByParameter>
        </v3:parameterList>
      </v3:parameterList>
    </v3:queryByParameter>
  </v3:controlActProcess>
</soapenv:Body>
</soapenv:Envelope>
A9: Example Registry Transactions

Registry Store Query (On-Demand C32)

```xml
  <query:ResponseOption returnComposedObjects="true" returnType="LeafClass/>
  <rim:AdhocQuery id="urn:uuid:14d4debf-8f97-4251-9a74-a90016b0a0d">
    <rim:Slot name="$XDSDocumentEntryPatientId">
      <rim:ValueList>
        <rim:Value>4314450^^^&amp;2.16.840.1.113883.4.319&amp;ISO</rim:Value>
      </rim:ValueList>
    </rim:Slot>
    <rim:Slot name="$XDSDocumentEntryStatus">
      <rim:ValueList>
        <rim:Value>(urn:oasis:names:tc:ebxml-regrep:StatusType:Approved)</rim:Value>
      </rim:ValueList>
    </rim:Slot>
    <rim:Slot name="$XDSDocumentEntryType">
      <rim:ValueList>
        <rim:Value>(urn:uuid:34268e47-fdf5-41a6-ba33-82133c465248)</rim:Value>
      </rim:ValueList>
    </rim:Slot>
  </rim:AdhocQuery>
</query:AdhocQueryRequest>
```

Registry Store Query (On-Demand C62s)

Below are the parameters available for a XDSb FindDocument query that a client system can use to search metadata for documents. Refer to section ITI TF 2b-3.18.4.1.2.3.7.1 for more detail.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>$XDSDocumentEntryPatientId</td>
<td>Hixny patient MPI ID</td>
<td>123^^^&amp; 2.16.840.1.113883.4.319&amp;ISO</td>
</tr>
<tr>
<td>$XDSDocumentEntryClassCode</td>
<td>Determined by lookup table, see below</td>
<td>Discharge summarization^^Connectathon classCodes</td>
</tr>
<tr>
<td>$XDSDocumentEntryTypeCode</td>
<td>Determined by lookup table, see below</td>
<td>18842-5^^LOINC</td>
</tr>
<tr>
<td>$XDSDocumentEntryPracticeSettingCode</td>
<td>No way in HealthShare to map facility to a type</td>
<td>n/a</td>
</tr>
<tr>
<td>$XDSDocumentEntryCreationTimeFrom</td>
<td>Not available as these are generated on-demand</td>
<td>n/a</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-----------------------------------------------</td>
<td>-----</td>
</tr>
<tr>
<td>$XDSDocumentEntryCreationTimeTo</td>
<td>Not available as these are generated on-demand</td>
<td>n/a</td>
</tr>
<tr>
<td>$XDSDocumentEntryServiceStartTimeFrom</td>
<td>Service start time = end time = document time</td>
<td>20110901</td>
</tr>
<tr>
<td>$XDSDocumentEntryServiceStartTimeTo</td>
<td>20110902</td>
<td></td>
</tr>
<tr>
<td>$XDSDocumentEntryServiceStopTimeFrom</td>
<td>20110901</td>
<td></td>
</tr>
<tr>
<td>$XDSDocumentEntryServiceStopTimeTo</td>
<td>20110902</td>
<td></td>
</tr>
<tr>
<td>$XDSDocumentEntryHealthcareFacilityTypeCode</td>
<td>No way in Healthshare to map facility to a type</td>
<td>n/a</td>
</tr>
<tr>
<td>$XDSDocumentEntryEventCodeList</td>
<td>Not used</td>
<td>n/a</td>
</tr>
<tr>
<td>$XDSDocumentEntryConfidentialityCode</td>
<td>Hard coded to normal</td>
<td>N^2.16.840.1.113883.5.25</td>
</tr>
<tr>
<td>$XDSDocumentEntryAuthorPerson</td>
<td>Document clinician, attending clinician, or EnteredBy</td>
<td>John Smith</td>
</tr>
<tr>
<td>$XDSDocumentEntryFormatCode</td>
<td>Always PDF</td>
<td>PDF^Connect-a-thon formatCodes</td>
</tr>
<tr>
<td>$XDSDocumentEntryStatus</td>
<td>Usually only want approved documents</td>
<td>urn:oasis:names:tc:ebxml-regrep:StatusType:Approved</td>
</tr>
</tbody>
</table>

Hixny recommends using the patient ID, status, type code and format code parameters to search for documents. To scope by date, add the service start time from/to parameters as well. The type code has the better mappings than class code to the default IHE / NIST codes. After query, the consumer may choose to further limit the result set by looking at the document title field in the query results.

The following table shows the default mapping from HL7 types to XDSb elements. This is a configurable list that we can update as needed. Items in *green italics* are a default value due to a lack of matching codes between the default IHE/NIST codes.

<table>
<thead>
<tr>
<th>HL7 Type</th>
<th>Title</th>
<th>Class Code</th>
<th>Type Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>AR</td>
<td>Autopsy report</td>
<td>Autopsy^Connect-a-thon classCodes</td>
<td>18743-5^LOINC</td>
</tr>
<tr>
<td>CD</td>
<td>Cardiodynamics</td>
<td><em>Summarization of episode^Connect-a-thon</em></td>
<td>34133-9^LOINC</td>
</tr>
<tr>
<td>Class</td>
<td>Description</td>
<td>Class Codes</td>
<td>LOINC Code</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------------------------------------------------</td>
<td>-------------</td>
<td>------------------</td>
</tr>
<tr>
<td>CN Consultation</td>
<td>Consult-a-thon classCodes</td>
<td>Consult^ Connect-a-thon classCodes</td>
<td>11488-4^LOINC</td>
</tr>
<tr>
<td>DI Diagnostic Imaging</td>
<td>Summarization of episode classCodes</td>
<td>34133-9^LOINC</td>
<td></td>
</tr>
<tr>
<td>DS Discharge Summary</td>
<td>Discharge summarization classCodes</td>
<td>18842-5^LOINC</td>
<td></td>
</tr>
<tr>
<td>ED Emergency Report</td>
<td>Summarization of episode classCodes</td>
<td>34111-5^LOINC</td>
<td></td>
</tr>
<tr>
<td>HP History and Physical</td>
<td>History and Physical classCodes</td>
<td>34117-2^LOINC</td>
<td></td>
</tr>
<tr>
<td>OP Operative Report</td>
<td>Operative Connect-a-thon classCodes</td>
<td>11504-8^LOINC</td>
<td></td>
</tr>
<tr>
<td>PC Psychiatric Consultation</td>
<td>Summarization of episode classCodes</td>
<td>34102-4^LOINC</td>
<td></td>
</tr>
<tr>
<td>PH Psychiatric History and Physical</td>
<td>Summarization of episode classCodes</td>
<td>34102-4^LOINC</td>
<td></td>
</tr>
<tr>
<td>PN Procedure Note</td>
<td>Summarization of episode classCodes</td>
<td>34133-9^LOINC</td>
<td></td>
</tr>
<tr>
<td>PR Progress Note</td>
<td>Summarization of episode classCodes</td>
<td>34133-9^LOINC</td>
<td></td>
</tr>
<tr>
<td>SP Surgical Pathology</td>
<td>Pathology Procedure Connect-a-thon classCodes</td>
<td>34122-2^LOINC</td>
<td></td>
</tr>
<tr>
<td>TS Transfer Summary</td>
<td>Transfer summarization classCodes</td>
<td>18761-7^LOINC</td>
<td></td>
</tr>
</tbody>
</table>

**Registry Store Query (Static Documents)**

Note OID difference for repository for static versus on-demand documents

```xml
  <query:ResponseOption returnComposedObjects="true" returnType="LeafClass"/>
  <rim:AdhocQuery id="urn:uuid:14d4debf-8f97-4251-9a74-a9016ba010d">
    <rim:Slot name="$XDSDocumentEntryPatientId">
      <rim:ValueList>
        <rim:Value>123456789^&2.16.840.1.113883.4.319^&ISO</rim:Value>
      </rim:ValueList>
    </rim:Slot>
    <rim:Slot name="$XDSDocumentEntryStatus">
      <rim:ValueList>
        <rim:Value>(urn:oasis:names:tc:ebxml-regrep:StatusType:Approved)</rim:Value>
      </rim:ValueList>
    </rim:Slot>
  </rim:AdhocQuery>
</query:AdhocQueryRequest>
```
A10: Example Repository Transactions

Provide and Register (New Document)

1.1 C32 Clinical Data
The below request is an example provide and register request for a document to be sent as an attachment. Alternatively, the document may be embedded within the request base64 encoded.

```xml
<soapenv:Envelope xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope"
 xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd"
 xmlns:xs="XMLSchema-instance"
 xmlns:saml="urn:oasis:names:tc:SAML:2.0:assertion"
 xmlns:wsse11="http://docs.oasis-open.org/wss/oasis-wss-wssecurity-secext-1.1.xsd">
  <soapenv:Header>
    <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <Assertion/>
    </wsse:Security>
    <wsa:To/>
    <wsa:ReplyTo>
      <wsa:Address>http://www.w3.org/2005/08/addressing/anonymous</wsa:Address>
    </wsa:ReplyTo>
    <wsa:MessageID>urn:uuid:867f38ee-e67e-90e2-04a0-f965445ad850</wsa:MessageID>
  </soapenv:Header>
  <soapenv:Body>
    <xsdb:ProvideAndRegisterDocumentSetRequest xmlns:xsdb="urn:ihe:iti:xds-b:2007">
      <lcm:SubmitObjectsRequest xmlns:lcm="urn:oasis:names:tc:ebxml-regrep:xsd:lcm:3.0">
        <rim:RegistryObjectList xmlns:rim="urn:oasis:names:tc:ebxml-regrep:xsd:rim:3.0">
          <rim:ExtrinsicObject id="Document01" mimeType="text/xml" objectType="urn:uuid:7edca82f-054d-47f2-a032-9b2a5b5186c1">
            <rim:Slot name="creationTime">
              <rim:ValueList><rim:Value>20110215192525</rim:Value></rim:ValueList>
            </rim:Slot>
            <rim:Slot name="languageCode">
              <rim:ValueList><rim:Value>en-us</rim:Value></rim:ValueList>
            </rim:Slot>
            <rim:Slot name="hash">
              <rim:ValueList>
              </rim:ValueList>
            </rim:Slot>
          </rim:ExtrinsicObject>
        </rim:RegistryObjectList>
      </lcm:SubmitObjectsRequest>
    </xsdb:ProvideAndRegisterDocumentSetRequest>
  </soapenv:Body>
</soapenv:Envelope>
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</rim:ValueList>
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</rim:Slot>
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</rim:Name>
<rim:Description>
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classifiedObject="Document01" id="id_1" nodeRepresentation="" objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Classification">
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</rim:ValueList>
</rim:Slot>
<rim:Slot name="authorInstitution">
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<rim:Value>Bolton Health Center</rim:Value>
</rim:ValueList>
</rim:Slot>
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classifiedObject="Document01" id="id_3" nodeRepresentation="" objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Classification">
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</rim:Slot>
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classifiedObject="Document01" id="id_4" nodeRepresentation="" objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Classification">
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</rim:ValueList>
</rim:Slot>
<rim:Name>
<rim:LocalizedString value="Clinical-Staff"/> nodeRepresentation="urn:ihe:pcc:xphr:2007"
<rim:RegistryPackage urn:oasis:names:tc:ebxml-registry:RegistryObject:RegistryPackage>
  <rim:Name>
    <rim:LocalizedString xml:lang="en-us" charset="UTF-8" value="Exchange of Personal Health Records"/>
  </rim:Name>
  <rim:ExtrinsicObject>
    <rim:ExternalIdentifier id="id_6" nodeRepresentation="Hospital Setting" objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Classification">
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        <rim:ValueList>
          <rim:Value>IHE PCC</rim:Value>
        </rim:ValueList>
      </rim:Slot>
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              <rim:Value>Connect-a-thon healthcareFacilityTypeCodes</rim:Value>
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            <rim:ValueList>
              <rim:Value id_8 urn:uuid:cccf5598-8b07-4b77-a05e-a952c785ead" classificationScheme="urn:uuid:58a68f41-87b3-4a3e-92fd-a8ffee98427">
                <rim:Slot name="codingScheme">
                  <rim:ValueList>
                    <rim:Value>LOINC</rim:Value>
                  </rim:ValueList>
                </rim:Slot>
                <rim:Slot name="value">
                  <rim:ValueList>
                    <rim:Value id_7 urn:uuid:2e82c1f6-a085-4c72-9da3-8640a32e42ab" classificationScheme="urn:uuid:1.2.840.113619.21.1.5338525317171811.1225648184001060_8989890054">
                      <rim:Slot name="value">
                        <rim:ValueList>
                          <rim:Value id_10 identificationScheme="urn:uuid:58a68f41-87b3-4a3e-92fd-a8ffee98427" registryObject="Document01" value="86711" amp;2.16.840.1.113883.4.319 and ISO">
                            <rim:Slot name="value">
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                                <rim:Value id_9 identificationScheme="urn:uuid:58a68f41-87b3-4a3e-92fd-a8ffee98427" registryObject="Document01" value="86711" amp;2.16.840.1.113883.4.319 and ISO">
                                  <rim:Slot name="value">
                                    <rim:ValueList>
                                      <rim:Value id_8 identificationScheme="urn:uuid:58a68f41-87b3-4a3e-92fd-a8ffee98427" registryObject="Document01" value="86711" amp;2.16.840.1.113883.4.319 and ISO">
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                                              <rim:Value id_7 identificationScheme="urn:uuid:58a68f41-87b3-4a3e-92fd-a8ffee98427" registryObject="Document01" value="86711" amp;2.16.840.1.113883.4.319 and ISO">
                                                <rim:Slot name="value">
                                                  <rim:ValueList>
                                                    <rim:Value id_6 identificationScheme="urn:uuid:58a68f41-87b3-4a3e-92fd-a8ffee98427" registryObject="Document01" value="86711" amp;2.16.840.1.113883.4.319 and ISO">
                                                      <rim:Slot name="value">
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                                                          <rim:Value id_5 identificationScheme="urn:uuid:58a68f41-87b3-4a3e-92fd-a8ffee98427" registryObject="Document01" value="86711" amp;2.16.840.1.113883.4.319 and ISO">
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                                                                <rim:Value id_4 identificationScheme="urn:uuid:58a68f41-87b3-4a3e-92fd-a8ffee98427" registryObject="Document01" value="86711" amp;2.16.840.1.113883.4.319 and ISO">
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                                                                      <rim:Value id_3 identificationScheme="urn:uuid:58a68f41-87b3-4a3e-92fd-a8ffee98427" registryObject="Document01" value="86711" amp;2.16.840.1.113883.4.319 and ISO">
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                                                                          <rim:ValueList>
                                                                            <rim:Value id_2 identificationScheme="urn:uuid:58a68f41-87b3-4a3e-92fd-a8ffee98427" registryObject="Document01" value="86711" amp;2.16.840.1.113883.4.319 and ISO">
                                                                              <rim:Slot name="value">
                                                                                <rim:ValueList>
                                                                                  <rim:Value id_1 identificationScheme="urn:uuid:58a68f41-87b3-4a3e-92fd-a8ffee98427" registryObject="Document01" value="86711" amp;2.16.840.1.113883.4.319 and ISO">
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                                                                                          <rim:Value id_0 identificationScheme="urn:uuid:58a68f41-87b3-4a3e-92fd-a8ffee98427" registryObject="Document01" value="86711" amp;2.16.840.1.113883.4.319 and ISO">
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    </rim:Value>
  </rim:Value>
</rim:ExtrinsicObject>
</rim:RegistryPackage>
1.2 XACML for Consent

The only difference between the metadata of the provide and register transactions between C32 and XACML documents is that for XACML the below is used.

Instead of something like below for C32

Provide and Register (IHE Replace Document)

Addition of this association element to the metadata of the provider and register shown in 1.1 of Appendix A10 will replace the document identified in the targetObject parameter.
The value to be used for the targetObject parameter can be obtained from the registryObject parameter in the response of a registry stored query for stable documents for the same patient.

Provide and Register (Auto-Replace by Hixny)

Same as new document but Hixny deprecates any old C32 documents for the facility/patient combination with the latest document.

Retrieve Document Set

The repository unique id for stable documents in the Test environment is 2.16.840.1.113883.4.319.1 and individual documents can be retrieved from this repository. The on-demand consolidated document can be retrieved from 2.16.840.1.113883.4.319.1.2 in the Test environment.

Example soap response and CCD returned when patient has not given consent

In the case of retrieving the on-demand document for a patient who has not given consent the repository would return the just the basic demographic information with no clinical data. An example response is below.
An example of the CCD returned with just the basic demographic information is below:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<ClinicalDocument xmlns:urn="hl7-org:v3">
  <realmCode code="US"/>
  <typeCode root="2.16.840.1.113883.1.3" extension="POCD_HD000040"/>
  <templateId root="2.16.840.1.113883.3.27.1776"/>
  <templateId root="2.16.840.1.113883.10.20.1"/>
  <templateId root="2.16.840.1.113883.10.20.3"/>
  <templateId root="2.16.840.1.113883.10.20.10"/>
  <templateId root="2.16.840.1.113883.10.20.10.1"/>
  <templateId root="2.16.840.1.113883.10.20.10.2"/>
  <templateId root="2.16.840.1.113883.10.20.30"/>
  <templateId root="2.16.840.1.113883.3.88.11.32.1"/>
  <templateId root="1.3.6.1.4.1.19376.1.5.3.1.1.1"/>
  <templateId root="1.3.6.1.4.1.19376.1.5.3.1.1.2"/>
  <templateId root="1.3.6.1.4.1.19376.1.5.3.1.1.5"/>
  <templateId root="1.3.6.1.4.1.19376.1.5.3.1.1.6"/>
  <id root="7C0497D7" cS8F-4C79-9896-21D9C5CC9C92"/>
  <code code="34133-9" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Summarization of Episode Note"/>
  <title> Patient Summary Document </title>
  <effectiveTime value="20120424000000"/>
  <confidentialityCode code="N" codeSystem="2.16.840.1.113883.5.25"/>
  <languageCode code="en-US"/>
  <recordTarget/>
  <patientRole>
    <id root="2.16.840.1.113883.4.319" extension="68711"/>
    <addr use="HP">
      <streetAddressLine>1 MAIN ST</streetAddressLine>
      <city>ORLANDO</city>
      <state>FL</state>
      <useablePeriod xsi:schemaLocation="http://www.w3.org/2001/XMLSchema-instance" xsi:type="IVL_TS">
        <low value="20120424000000"/>
        <high nullFlavor="UNK"/>
      </useablePeriod>
    </addr>
    <telecom nullFlavor="UNK"/>
  </patientRole>
  <patient>
    <name use="L">
      <given>Mickey</given>
      <family>MousePeru</family>
    </name>
    <administrativeGenderCode code="M" codeSystem="2.16.840.1.113883.5.1" codeSystemName="AdministrativeGenderCode" displayName="Male"/>
    <birthTime value="19890104000000"/>
  </patient>
</ClinicalDocument>
```
</patientRole>
</recordTarget>
<author typeCodes="AUTH">
  <!--time value="20120424094032-0300"-->
  <assignedAuthor classCodes="ASSIGNED">
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    <addr nullFlavor="UNK"/>
    <telecom nullFlavor="UNK"/>
    <assignedPerson>
      <name nullFlavor="UNK"/>
    </assignedPerson>
    <representedOrganization>
      <id root="2.16.840.1.113883.4.319" extension="HIXNY"/>
      <name>Healthcare Information Exchange New York</name>
      <telecom use="WP" value="tel:(518) 783-0518"/>
      <addr use="WP">
        <streetAddressLine>15 Cornell Drive</streetAddressLine>
        <city>Latham</city>
        <state>NY</state>
        <postalCode>12110</postalCode>
        <country>USA</country>
      </addr>
    </representedOrganization>
  </assignedAuthor>
</author>
<author typeCodes="AUTH">
  <!--time value="20120424094032-0300"-->
  <assignedAuthor classCodes="ASSIGNED">
    <id root="2.16.840.1.113883.3.86.3"/>
    <addr nullFlavor="UNK"/>
    <telecom nullFlavor="UNK"/>
    <assignedAuthoringDevice>
      <softwareName>InterSystems HealthShare</softwareName>
    </assignedAuthoringDevice>
    <representedOrganization>
      <id root="2.16.840.1.113883.4.319" extension="HIXNY"/>
      <name>Healthcare Information Exchange New York</name>
      <telecom use="WP" value="tel:(518) 783-0518"/>
      <addr use="WP">
        <streetAddressLine>15 Cornell Drive</streetAddressLine>
        <city>Latham</city>
        <state>NY</state>
        <postalCode>12110</postalCode>
        <country>USA</country>
      </addr>
    </representedOrganization>
  </assignedAuthor>
</author>

<assignedEntity>
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  <addr use="WP">
    <streetAddressLine>15 Cornell Drive</streetAddressLine>
    <city>Latham</city>
    <state>NY</state>
    <postalCode>12110</postalCode>
    <country>USA</country>
  </addr>
  <telecom use="WP" value="tel:(518) 783-0518"/>
  <assignedPerson>
    <name use="L">Healthcare Information Exchange New York</name>
  </assignedPerson>
</assignedEntity>

<representedOrganization>
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  <telecom use="WP" value="tel:(518) 783-0518"/>
  <addr use="WP">
    <streetAddressLine>15 Cornell Drive</streetAddressLine>
    <city>Latham</city>
    <state>NY</state>
  </addr>
</representedOrganization>
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        <high nullFlavor="UNK" />
    </time>
    <assignedEntity classCode="ASSIGNED">
        <id nullFlavor="UNK" />
        <addr nullFlavor="UNK" />
        <telecom nullFlavor="UNK" />
        <assignedPerson>
            <name nullFlavor="UNK" />
        </assignedPerson>
    </assignedEntity>
</performer>
</serviceEvent>
</documentationOf>

<component>
    <structuredBody>
        <section>
            <templateId root="2.16.840.1.113883.3.88.11.83.116" />
            <templateId root="2.16.840.1.113883.10.20.1.1" />
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            <templateId root="1.3.6.1.4.1.19376.1.5.3.1.3.35" />
            <code code="42348-3" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" />
            <title>Advance Directives</title>
            <text>
                <paragraph ID="noAdvanceDirectives">This patient has no known advance directives.</paragraph>
            </text>
            <entry typeCode="DRIV">
                <observation classCode="OBS" moodCode="EVN">
                    <templateId root="2.16.840.1.113883.3.88.11.83.12" />
                    <templateId root="2.16.840.1.113883.10.20.1.17" />
                    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.13" />
                    <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.13.7" />
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                    <code nullFlavor="NI" />
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                        <reference value="#noAdvanceDirectives"/>
                    </originalText>
                </code>
                <text>
                    <reference nullFlavor="NI"/>
                </text>
                <effectiveTime nullFlavor="NI" />
                <value xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:type="CD" nullFlavor="NI"/>
                <participant typeCode="CST">
                    <participantRole classCode="AGNT">
                        <addr nullFlavor="NI" />
                        <telecom nullFlavor="NI" />
                        <playingEntity>
                            <name nullFlavor="NI" />
                        </playingEntity>
                    </participantRole>
                </participant>
                <entryRelationship typeCode="REFR">
                    <observation classCode="OBS" moodCode="EVN">
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                        <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.13" />
                        <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.13.7" />
                        <id nullFlavor="NI" />
                        <code nullFlavor="NI" />
                        <originalText>
                            <reference value="#noAdvanceDirectives"/>
                        </originalText>
                    </code>
                    <text>
                        <reference nullFlavor="NI"/>
                    </text>
                    <statusCode code="completed"/>
                    <value xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:type="CD" nullFlavor="NI"/>
                </observation>
            </entry>
        </section>
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</component>
Allergies, Adverse Reactions, Alerts

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<text nullFlavor="NI"/>
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</effectiveTime>
<entryRelationship typeCode="SUBJ" inversionInd="false">
<observation classCode="OBS" moodCode="EVN">
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  <tempId root="2.16.840.1.113883.10.20.1.28"/>
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<text>
  <reference value="#noAllergies"/>
</text>
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  <high nullFlavor="UNK"/>
</effectiveTime>
<value xsi:nil=http://www.w3.org/2001/XMLSchema-instance xsi:type="CD" nullFlavor="NI"/>
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</entryRelationship>
</section>
</component>
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  <tempId root="2.16.840.1.113883.10.20.1.8"/>
  <tempId root="1.3.6.1.4.1.19376.1.5.3.1.3.19"/>
  <code code="10160-0" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" display="History of Medication Use"/>
<Medications title=""/>
<text>
  <paragraph ID="#noMedications"">This patient has no known medications.</paragraph>
</text>
<entry typeCode="DRV">
<substanceAdministration classCode="SBADM" moodCode="EVN">
  <templateId root="2.16.840.1.113883.3.88.11.83.8"/>
  <tempId root="2.16.840.1.113883.10.20.1.24"/>
  <tempId root="1.3.6.1.4.1.19376.1.5.3.1.4.7"/>
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  <id nullFlavor="NI"/>
<code nullFlavor="NA"/>
<text nullFlavor="NI"/>
<statusCode code="completed"/>
<routeCode nullFlavor="UNK"/>
<rateQuantity nullFlavor="NA"/>
<consumable typeCode="CSM"/>
<manufacturedProduct classCode="MANU"/>
  <templateId root="2.16.840.1.113883.3.88.11.83.8.2"/>
  <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 nullFlavor="NA"/>
<code nullFlavor="NA"/>
  <originalText>
    <reference value="#noMedications"/>
  </originalText>
</code>
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<manufacturedProduct/>
</consumable>
This patient has no known immunizations.

This patient has no known results.
nullFlavor="NI"/>
</observation>
</entry>
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<templateId root="1.3.6.1.4.1.19376.1.5.3.1.1.5.3.31"/>
<code code="46240-8" displayName="History of Encounters" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"/>
<title>Encounters</title>
<text>
<paragraph ID="noEncounters">This patient has no known encounters.</paragraph>
</text>
</entry>
</component>
</section>
</templateId root="2.16.840.1.113883.3.88.11.83.145"/>
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<templateId root="1.3.6.1.4.1.19376.1.5.3.1.1.5.3.1.11"/>
<code code="47519-4" displayName="History of Procedures" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"/>
<title>Procedures and Interventions</title>
<text>
<paragraph ID="noProcedures">This patient has no known procedures.</paragraph>
</text>
</entry>
</component>
</section>
<templateId root="2.16.840.1.113883.3.88.11.83.124"/>
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<code code="18776-5" displayName="Treatment Plan" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"/>
<title>Plan of Care</title>
<text>
<paragraph ID="noPlanOfCare"><noPlanOfCare/>
</text>
</entry>
</component>
</section>
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<code code="46772-9" displayName="Treatment Plan" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"/>
<title>Plan of Care</title>
<text>
<paragraph ID="noPlanOfCare">This patient has no known plan of care.</paragraph>
</text>
</entry>
</component>
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<title>Procedures and Interventions</title>
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<paragraph ID="noProcedures">This patient has no known procedures.</paragraph>
</text>
</entry>
</component>
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<code code="46240-8" displayName="History of Encounters" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"/>
<title>Encounters</title>
<text>
<paragraph ID="noEncounters">This patient has no known encounters.</paragraph>
</text>
</entry>
</component>
</section>
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  <effectiveTime>
    <low nullFlavor="UNK"/>
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  </effectiveTime>
</entry>
</section>
</component>
</structuredBody>
</component>
</ClinicalDocument>
# A11: Hixny Implementation Questionnaire

## Purpose

The Purpose of this document is to collect data which can be used to help identify gaps and assess the current state of readiness for an EHR vendor to connect to and share data with Hixny using IHE compliant interfaces. Please fill out this questionnaire as completely as possible and if available provide samples of each of the document types listed below that your system is capable of generating.

## IHE Profiles/Actors

<table>
<thead>
<tr>
<th>Profiles/Actor</th>
<th>Support</th>
<th>Certified*</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient Identifier Cross Reference version 3 (PIXv3): Consumer, Manager</td>
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<tr>
<td>PIX – ADD/REVISED</td>
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<tr>
<td>PIX – QUERY</td>
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<tr>
<td>Patient Demographics Query version 3 (PDQv3): Consumer, Supplier</td>
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<tr>
<td>PDQ – Query</td>
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<tr>
<td>Cross Enterprise Document Sharing version b (XDS.b): Consumer, Registry, Repository, Source</td>
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<td>XDS.b – Provide and Register Document Set</td>
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<td>XDS.b – Registry Stored Query</td>
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<tr>
<td>XDS.b – Retrieve Document Set</td>
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<tr>
<td>Consistent Time (CT): Time Client</td>
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* Note: Certified should only be marked if the actor in question was tested and passed certification at a recent connect-a-thon event.
Hixny Supported Document Types

<table>
<thead>
<tr>
<th>Document Type</th>
<th>Support</th>
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<tbody>
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<td>HITSP C32 – Patient Summary Document</td>
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<tr>
<td>HITSP C37 – Lab Report Document</td>
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<td>HITSP C48 – Encounter Summary Document</td>
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<td>Used for eReferral Model, not Repository</td>
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<tr>
<td>XACML (Consent declaration)*</td>
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</table>

*Note: See Sample XACML document for NY State consent requirements

Hixny Supported CDA Content Modules

Please check off the sections/entries that your system is capable of generating:

**Sections**

- Demographics
- Advance Directives
- Allergies and Other Adverse Reactions
- Diagnostic Result
- Discharge Diagnosis
- Encounters
- Family History
- History of Past Illness
- History of Present Illness*
- Hospital Admission Diagnosis
- Hospital Course
- Hospital Discharge Medications
- Immunizations
- Medications
- Medications – Administered
- Non-Ratified Sections
- Plan of Care
- Problems List
- Procedures and Interventions
- Reason for Referral*
- Social History
- Vital Signs

**Entries**

- Advance Directive
- Allergy and Drug Sensitivity
- Comment
- Condition
- Encounter
- Family History
- Language Spoken*
- Medication
- Personal Information
- Plan of Care
- Procedure
- Result
Additional CDA Sections and Entries

Please list out any additional sections and entries that your system is capable of generating that are not in the Hixny supported list:

<table>
<thead>
<tr>
<th>Sections/Entries</th>
<th>Version</th>
<th>Comments</th>
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</tbody>
</table>

SAML Assertion*

☐ Ability to Send SAML Assertion with All IHE Transactions

*Note: See sample SAML Assertion supported by Hixny