

## Section I: Best Available Vocabulary/Code Set/Terminology Standards and Implementation Specifications

### I-A: Allergies

| Interoperability Need: Representing patient allergens: food substances  |                                       |                            |                         |                |           |      |                        |
|---|---------------------------------------|----------------------------|-------------------------|----------------|-----------|------|------------------------|
| Type  | Standard/Implementation Specification | Standards Process Maturity | Implementation Maturity | Adoption Level | Regulated | Cost | Test Tool Availability |
| Standard  | <a href="#">SNOMED-CT</a>             | Final                      | Unknown                 | Unknown        | No        | Free | N/A                    |
| Comments  |                                       |                            |                         |                |           |      |                        |
| <ul style="list-style-type: none"> <li>Mayo Clinic supports the use of SNOMED CT for Food allergies.</li> </ul> |                                       |                            |                         |                |           |      |                        |

### I-D: Race and Ethnicity

| Interoperability Need: Representing patient race and ethnicity  |   |                            |                         |                |           |      |                        |
|---|---|----------------------------|-------------------------|----------------|-----------|------|------------------------|
| Type  | Standard/Implementation Specification   | Standards Process Maturity | Implementation Maturity | Adoption Level | Regulated | Cost | Test Tool Availability |
| Standard  | <a href="#">OMB standards for Maintaining, Collecting, and Presenting Federal Data on Race and Ethnicity, Statistical Policy Directive No. 15, Oct 30, 1997</a> | Final                      | Production              | ●●●●●          | Yes       | Free | N/A                    |
| Comments  |   |                            |                         |                |           |      |                        |
| <ul style="list-style-type: none"> <li>Mayo Clinic seeks clarification and reconciliation between the HL7 Race/Ethnicity value sets versus the CDC Race/Ethnicity value sets. HL7 Race/Ethnicity is specified for use in Fast Healthcare Interoperability Resources (FHIR) – US Realm FHIR Profile and the FHIR Data Access Framework. The CDC Race/Ethnicity value sets were recently named the vocabulary standard in the 2015 Edition ONC Certification Criteria Final Rule and are also used for Clinical Quality Measures. Aligning standards for specific data elements reduces the maintenance and redundancy required with multiple code set mappings.</li> </ul> |   |                            |                         |                |           |      |                        |

### I-E: Family Health History

| Interoperability Need: Representing patient family health history |                                       |                            |                         |                |           |      |                        |
|---|---------------------------------------|----------------------------|-------------------------|----------------|-----------|------|------------------------|
| Type  | Standard/Implementation Specification | Standards Process Maturity | Implementation Maturity | Adoption Level | Regulated | Cost | Test Tool Availability |
| Standard  | <a href="#">SNOMED-CT</a>             | Final                      | Production              | ●●●●○          | Yes       | Free | N/A                    |

**Comments**

- Mayo Clinic supports the use of SNOMED CT for Family Health History.

**I-F: Functional Status/Disability**

**Interoperability Need: Representing patient functional status and/or disability**

| Type     | Standard/Implementation Specification   | Standards Process Maturity | Implementation Maturity | Adoption Level | Regulated | Cost | Test Tool Availability |
|----------|---|----------------------------|-------------------------|----------------|-----------|------|------------------------|
| Standard | <i>[See Question 4-5]<br/>4-5. Based on public feedback and HIT Standards Committee review, there does not appear to be a best available standard for several “interoperability needs” expressed in this section of the draft Advisory. Please provide feedback on whether this is correct or recommend a standard (and your accompanying rationale).</i> |                            |                         |                |           |      |                        |

**Comments**

- Mayo Clinic seeks clarification about the Functional Status/Disability purpose. If the purpose is intended to be assigned by a medical provider, International Classification of Functioning, Disability, and Health (ICF) may be appropriate and should be considered. However, if the purpose is patient reported, the use of ICF may not be feasible due to its complexity.

Mayo Clinic strongly supports the inclusion of patients’ disability status in the interoperability standards for electronic health records (EHRs). For healthcare organizations to provide patient-centered care that meets patients’ unique needs, identifying which patients have a disability is essential. The EHR is an optimal location for this information as it provides a consistent location, standardized language, and an efficient method for sharing the information across providers.

Aligned with recommendations from Section 4302 of the Patient Protection and Affordable Care Act<sup>1</sup> and proposed Stage 3 Standards for Meaningful Use of EHRs<sup>2</sup>, we recommend patients’ disability status be collected as a demographic characteristic. The information can be used to ensure that patients with disabilities receive equitable care, as well as to identify patients who require health care accommodations such as accessible examination rooms.

Reducing Health Disparities with Improved Data Collection: New Refined Data Standards for Race, Ethnicity, Sex, Primary Language, and Disability Status  
<http://aspe.hhs.gov/datacncl/standards/aca/4302/index.pdf>. Accessed November 10, 2011.

Meaningful Use Work Group. Draft Recommendations for Meaningful Use Stage 3. 2013; [http://www.healthit.gov/facas/sites/faca/files/muwg\\_stage3\\_draft\\_rec\\_07\\_aug\\_13\\_v3.pdf](http://www.healthit.gov/facas/sites/faca/files/muwg_stage3_draft_rec_07_aug_13_v3.pdf). Accessed February 24, 2014.

**I-G: Gender Identity, Sex, and Sexual Orientation**

**Interoperability Need: Representing patient gender identity**

| Type     | Standard/Implementation Specification | Standards Process Maturity | Implementation Maturity | Adoption Level | Regulated | Cost | Test Tool Availability |
|----------|---------------------------------------|----------------------------|-------------------------|----------------|-----------|------|------------------------|
| Standard | <a href="#">SNOMED-CT</a>             | Final                      | Unknown                 | Unknown        | No        | Free | N/A                    |

#### Comments

- Mayo Clinic supports The Fenway Institute's approach in following the question and answer sequence and recommends the use of LOINC for questions, SNOMED CT for answers, and HL7 NullFlavor for null values as indicated below:

| Gender Identity  |                |  |
|--|----------------|--|
| Question/Concept   | Code System    | Concept Code & Description   |
| Gender identity  | SNOMED CT      | 285116001 gender identity finding<br><i>Suggest modeling change to SDO</i> |
| What is your current gender identity? (Check all that apply) | LOINC          | <i>Submit to SDO for inclusion</i>   |
| Male   | SNOMED CT      | 446151000124109 identifies as male gender                                  |
| Female   | SNOMED CT      | 446141000124107 identifies as female gender                                |
| Female-to-Male (FTM)/Transgender Male/Trans Man              | SNOMED CT      | 407377005 female-to-male transsexual                                       |
| Male-to-Female (MTF)/Transgender Female/Trans Woman          | SNOMED CT      | 407376001 male-to-female transsexual                                       |
| Genderqueer, neither exclusively male nor female             | SNOMED CT      | 446131000124102 identifies as non-conforming gender                        |
| Additional gender category/(or other), please specify        | HL7 NullFlavor | OTH other  |
| Choose not to disclose                                       | HL7 NullFlavor | ASKU asked but unknown   |

#### Interoperability Need: Representing patient sex (at birth)

| Type     | Standard/Implementation Specification  | Standards Process Maturity | Implementation Maturity | Adoption Level | Regulated | Cost | Test Tool Availability |
|----------|--|----------------------------|-------------------------|----------------|-----------|------|------------------------|
| Standard | For Male and Female, <a href="#">HL7 Version 3 Value Set for Administrative Gender</a> | Final                      | Production              | ● ● ● ● ○      | No        | Free | N/A                    |
| Standard | For Unknown, <a href="#">HL7 Version 3 Null Flavor</a>                                 | Final                      | Production              | ● ● ● ● ○      | No        | Free | N/A                    |

#### Comments

- Mayo Clinic recommends the use of HL7 V3 Administrative Gender and Null Flavor for representing the Administrative Gender interoperability need which is missing from the 2016 Draft Interoperability Standards Advisory. **Administrative Gender** is separate and distinct from **Patient sex at birth** and is necessary to record as separate and distinct data elements because of their different uses. For example, administrative gender is used for insurance billing and patient sex at birth is used for specific clinical care decisions.
- Mayo Clinic strongly supports the addition of the Patient sex at birth interoperability need as part of the sexual orientation and gender identity question and answer sequence and recommends the following standards and representations.

| Birth Sex Assignment  |                |   |
|---|----------------|---|
| Question/Concept  | Code System    | Concept Code & Description                  |
| Birth sex assignment  | SNOMED CT      | 429019009 finding related to biological sex |
| What sex were you assigned at birth on your original birth certificate? (Check one) | LOINC          | <i>Submit to SDO for inclusion</i>          |
| Male  | SNOMED CT      | 248153007 male                              |
| Female  | SNOMED CT      | 248152002 female                            |
| Choose not to disclose  | HL7 NullFlavor | ASKU asked but unknown                      |

### Interoperability Need: Representing patient sexual orientation

| Type     | Standard/Implementation Specification | Standards Process Maturity | Implementation Maturity | Adoption Level | Regulated | Cost | Test Tool Availability |
|----------|---------------------------------------|----------------------------|-------------------------|----------------|-----------|------|------------------------|
| Standard | <a href="#">SNOMED-CT</a>             | Final                      | Unknown                 | Unknown        | No        | Free | N/A                    |

#### Comments

- Mayo Clinic supports The Fenway Institute's approach in following the question and answer sequence and recommends the use of LOINC for questions, SNOMED CT for answers, and HL7 NullFlavor for null values as indicated below:

### Sexual Orientation

| Question/Concept                | Code System    | Concept Code & Description              |
|---------------------------------|----------------|---|
| Sexual Orientation              | SNOMED CT      | 365956009 finding of sexual orientation |
| Do you think of yourself as:    | LOINC          | <i>Submit to SDO for inclusion</i>      |
| Lesbian, gay or homosexual      | SNOMED CT      | 38628009 homosexual                     |
| Straight or heterosexual        | SNOMED CT      | 20430005 heterosexual                   |
| Bisexual                        | SNOMED CT      | 42035005 bisexual                       |
| Something else, please describe | HL7 NullFlavor | OTH other                               |
| Don't know                      | HL7 NullFlavor | UNK unknown                             |
| Choose not to disclose          | HL7 NullFlavor | ASKU asked but unknown                  |

## I-H: Immunizations

### Interoperability Need: Representing immunizations – historical

| Type     | Standard/Implementation Specification                                    | Standards Process Maturity | Implementation Maturity | Adoption Level | Regulated | Cost | Test Tool Availability |
|----------|--|----------------------------|-------------------------|----------------|-----------|------|------------------------|
| Standard | <a href="#">HL7 Standard Code Set CVX—Clinical Vaccines Administered</a> | Final                      | Production              | ● ● ● ● ●      | Yes       | Free | N/A                    |

| Type     | Standard/Implementation Specification  | Standards Process Maturity | Implementation Maturity | Adoption Level | Regulated | Cost | Test Tool Availability |
|----------|--|----------------------------|-------------------------|----------------|-----------|------|------------------------|
| Standard | HL7 Standard Code Set <a href="#">MVX -Manufacturing Vaccine Formulation</a> | Final                      | Production              | ● ● ● ● ○      | No        | Free | N/A                    |

**Comments**

- Mayo Clinic supports using CVX as the mandatory code. MVX should be encouraged but considered optional for the following reasons: Patients likely will not know the specific brand of Hepatitis A vaccine they received. In addition, drug companies sometimes merge, change their name, or discontinue production of vaccines. Therefore, providing the manufacturer would be difficult.

**Interoperability Need: Representing immunizations – administered**

| Type     | Standard/Implementation Specification                                    | Standards Process Maturity | Implementation Maturity | Adoption Level | Regulated | Cost | Test Tool Availability |
|----------|--|----------------------------|-------------------------|----------------|-----------|------|------------------------|
| Standard | <a href="#">HL7 Standard Code Set CVX—Clinical Vaccines Administered</a> | Final                      | Production              | ● ● ● ● ●      | Yes       | Free | N/A                    |
| Standard | <a href="#">National Drug Code</a>                                       | Final                      | Production              | ● ● ● ● ●      | No        | Free | N/A                    |

**Comments**

- Mayo Clinic supports the use of NDC as the primary identifier. NDC codes are more specific than CVX codes, and NDC codes have been mandated by the CDC for the Vaccine For Children (VFC) campaign. Soon there will be multiple NDC codes required; one for the package called unit-of-sale (e.g., box of 10) and one for the administrable product called unit-of-use (e.g., syringe).

**I-J: Lab tests**

**Interoperability Need: Representing laboratory tests and observations**

| Type     | Standard/Implementation Specification | Standards Process Maturity | Implementation Maturity | Adoption Level | Regulated | Cost | Test Tool Availability |
|----------|---------------------------------------|----------------------------|-------------------------|----------------|-----------|------|------------------------|
| Standard | <a href="#">LOINC</a>                 | Final                      | Production              | ● ● ● ● ○      | Yes       | Free | N/A                    |

**Comments**

- Mayo Clinic supports LOINC for representation of Lab tests and recommends SNOMED CT be added to represent textual results for reportable diseases.

## I-M: Patient “problems” (i.e. conditions)

| Interoperability Need: Representing patient “problems” (i.e., conditions)   |                                       |                            |                         |                |           |      |                        |
|---|---------------------------------------|----------------------------|-------------------------|----------------|-----------|------|------------------------|
| Type  | Standard/Implementation Specification | Standards Process Maturity | Implementation Maturity | Adoption Level | Regulated | Cost | Test Tool Availability |
| Standard  | <a href="#">SNOMED-CT</a>             | Final                      | Production              | ●●●●●          | Yes       | Free | N/A                    |
| <b>Comments</b>   |                                       |                            |                         |                |           |      |                        |
| <ul style="list-style-type: none"> <li>Mayo Clinic supports the use of SNOMED CT for patient problems.</li> </ul> |                                       |                            |                         |                |           |      |                        |

## I-N: Preferred Language

| Interoperability Need: Representing patient preferred language  |                                       |                            |                         |                |           |      |                        |
|---|---------------------------------------|----------------------------|-------------------------|----------------|-----------|------|------------------------|
| Type  | Standard/Implementation Specification | Standards Process Maturity | Implementation Maturity | Adoption Level | Regulated | Cost | Test Tool Availability |
| Standard  | <a href="#">RFC 5646</a>              | Final                      | Production              | Unknown        | No        | Free | N/A                    |
| <b>Comments</b>   |                                       |                            |                         |                |           |      |                        |
| <ul style="list-style-type: none"> <li>Mayo Clinic recommends the standard for Preferred language be represented as a value set that will conform to the constraints expressed in MU Stage 2 for Consolidated CDA.</li> </ul> |                                       |                            |                         |                |           |      |                        |

## I-O: Procedures

| Interoperability Need: Representing dental procedures performed   |  |                            |                         |                |           |      |                        |
|---|--|----------------------------|-------------------------|----------------|-----------|------|------------------------|
| Type  | Standard/Implementation Specification                            | Standards Process Maturity | Implementation Maturity | Adoption Level | Regulated | Cost | Test Tool Availability |
| Standard  | <a href="#">Code on Dental Procedures and Nomenclature (CDT)</a> | Final                      | Production              | ●●●●●          | Yes       | \$   | N/A                    |
| <b>Comments</b>   |  |                            |                         |                |           |      |                        |
| <ul style="list-style-type: none"> <li>Mayo Clinic supports standardized procedural data. Code on Dental Procedures and Nomenclature (CDT) is copyrighted, and use or reprinting of CDT in any product or publication requires a license. Mayo Clinic encourages consideration for cost, openness, and administration burden of licensing when proprietary terminologies are specified as standards.</li> </ul> |  |                            |                         |                |           |      |                        |

### Interoperability Need: Representing medical procedures performed

| Type     | Standard/Implementation Specification                            | Standards Process Maturity | Implementation Maturity | Adoption Level | Regulated | Cost | Test Tool Availability |
|----------|--|----------------------------|-------------------------|----------------|-----------|------|------------------------|
| Standard | <a href="#">SNOMED-CT</a>  | Final                      | Production              | ● ● ● ● ●      | Yes       | Free | N/A                    |
| Standard | the combination of <a href="#">CPT-4</a> / <a href="#">HCPCS</a> | Final                      | Production              | ● ● ● ● ●      | Yes       | \$   | N/A                    |
| Standard | <a href="#">ICD-10-PCS</a>                                       | Final                      | Production              | ● ● ● ● ○      | Yes       | Free | N/A                    |

#### Comments

- Mayo Clinic supports standardized procedural data. Current Procedural Terminology (CPT) is copyrighted, and use or reprinting of CPT in any product or publication requires a license. Mayo Clinic encourages consideration for cost, openness, and administration burden of licensing when proprietary terminologies are specified as standards.
- Mayo Clinic recommends SNOMED CT as a comprehensive terminology for representing medical procedures performed and facilitating clinical decision support rules.

### I-P: Radiology (interventions and procedures)

#### Interoperability Need: Representing radiological interventions and procedures

| Type     | Standard/Implementation Specification | Standards Process Maturity | Implementation Maturity | Adoption Level | Regulated | Cost | Test Tool Availability |
|----------|---------------------------------------|----------------------------|-------------------------|----------------|-----------|------|------------------------|
| Standard | <a href="#">LOINC</a>                 | Final                      | Production              | ● ● ○ ○ ○      | No        | Free | N/A                    |

#### Comments

- Mayo Clinic supports LOINC as the appropriate standard for Radiology interventions and procedures for interoperability. Mayo Clinic is converging radiology nomenclature to Radlex and will provide candidate terms for incorporation into Radlex (and therefore LOINC). Mayo Clinic encourages the continued work between Regenstrief Institute and the Radiological Society of North America (RSNA) to produce a single unified source of names and codes for radiology procedures with a cooperative governance process.
- Mayo Clinic recommends the adoption of either structured or template reporting. Integrating the Healthcare Enterprise (IHE) maintains standards for templates known as the MRRT—Management of Radiology Report Templates:  
[http://www.ihe.net/uploadedFiles/Documents/Radiology/IHE\\_RAD\\_Suppl\\_MRRT.pdf](http://www.ihe.net/uploadedFiles/Documents/Radiology/IHE_RAD_Suppl_MRRT.pdf)

### I-R: Unique Device Identification

#### Interoperability Need: Representing unique implantable device identifiers

| Type     | Standard/Implementation Specification   | Standards Process Maturity | Implementation Maturity | Adoption Level | Regulated | Cost | Test Tool Availability |
|----------|---|----------------------------|-------------------------|----------------|-----------|------|------------------------|
| Standard | <a href="#">Unique device identifier as defined by the Food and Drug Administration at 21 CFR 830.3</a> | Final                      | Production              | ● ○ ○ ○ ○      | Yes       | Free | N/A                    |

#### Comments

- Mayo Clinic supports the specified FDA standard. Mayo Clinic recommends the use of the HL7 developed Harmonization Pattern for Unique Device Identifiers, November 13, 2014, as the implementation guide.  
[http://wiki.hl7.org/images/2/24/Harmonization\\_Pattern\\_for\\_Unique\\_Device\\_Identifiers\\_20141113.pdf](http://wiki.hl7.org/images/2/24/Harmonization_Pattern_for_Unique_Device_Identifiers_20141113.pdf)

## Section II: Best Available Content/Structure Standards and Implementation Specifications

### II-A: Admission, Discharge, and Transfer

#### Interoperability Need: Sending a notification of a patient's admission, discharge and/or transfer status

| Type     | Standard/Implementation Specification | Standards Process Maturity | Implementation Maturity | Adoption Level | Regulated | Cost | Test Tool Availability |
|----------|---------------------------------------|----------------------------|-------------------------|----------------|-----------|------|------------------------|
| Standard | HL7 2.x ADT message                   | Final                      | Production              | ● ● ● ● ●      | No        | Free | No                     |

#### Comments

- Mayo Clinic recommends HL7 2.5.1 or a newer version of the version 2 standards.
- Mayo Clinic recommends the use of the IHE Patient Demographics Query HL7 v3 (PDQ) and Multi-Patient Queries (MPQ) implementation specifications for querying, and IHE Patient Administration Management (PAM) for admission, discharge, and transfer transactions.

### II-G: Images

#### Interoperability Need: Medical image formats for data exchange and distribution

| Type     | Standard/Implementation Specification                                  | Standards Process Maturity | Implementation Maturity | Adoption Level | Regulated | Cost | Test Tool Availability |
|----------|--|----------------------------|-------------------------|----------------|-----------|------|------------------------|
| Standard | <a href="#">Digital Imaging and Communications in Medicine (DICOM)</a> | Final                      | Production              | ● ● ● ● ●      | No        | Free | No                     |

| Type  | Standard/Implementation Specification  | Standards Process Maturity | Implementation Maturity | Adoption Level | Regulated | Cost | Test Tool Availability |
|---|--|----------------------------|-------------------------|----------------|-----------|------|------------------------|
| Implementation Specification  | Image Acquisition Technology Specific Service/Object Pairs (SOP) Classes<br>[See Question 4-8] | Final                      | Production              | ● ○ ○ ○ ○      | No        | Free | No                     |
| <b>Comments</b>   |  |                            |                         |                |           |      |                        |
| <ul style="list-style-type: none"> <li>Mayo Clinic supports DICOM for medical images and image exchange.</li> </ul> |  |                            |                         |                |           |      |                        |

| Interoperability Need: Exchange of imaging reports  |   |                            |                         |                |           |      |                        |
|---|---|----------------------------|-------------------------|----------------|-----------|------|------------------------|
| Type  | Standard/Implementation Specification   | Standards Process Maturity | Implementation Maturity | Adoption Level | Regulated | Cost | Test Tool Availability |
| Standard  | <a href="#">Digital Imaging and Communications in Medicine (DICOM)</a>  | Final                      | Production              | ● ● ● ● ●      | No        | Free | No                     |
| Implementation Specification  | <a href="#">PS3.20 Digital Imaging and Communications in Medicine (DICOM) Standard – Part 20: Imaging Reports using HL7 Clinical Document Architecture.</a> | Final                      | Production              | ● ○ ○ ○ ○      | No        | Free | No                     |
| <b>Comments</b>   |   |                            |                         |                |           |      |                        |
| <ul style="list-style-type: none"> <li>Mayo Clinic supports DICOM for medical images and image exchange.</li> </ul> |   |                            |                         |                |           |      |                        |

## II-J: Patient Preference/Consent

| Interoperability Need: Recording patient preferences for electronic consent to access and/or share their health information with other care providers |   |                            |                         |                |           |      |                        |
|---|---|----------------------------|-------------------------|----------------|-----------|------|------------------------|
| Type  | Standard/Implementation Specification                         | Standards Process Maturity | Implementation Maturity | Adoption Level | Regulated | Cost | Test Tool Availability |
| Implementation Specification  | <a href="#">IHE Basic Patient Privacy Consents (BPPC)</a>     | Final                      | Production              | ● ● ● ● ○      | No        | Free | No                     |
| Implementation Specification  | <a href="#">IHE Cross Enterprise User Authorization (XUA)</a> | Final                      | Production              | ● ● ● ● ○      | No        | Free | No                     |
| <b>Comments</b>   |   |                            |                         |                |           |      |                        |

- Mayo Clinic supports IHE Basic Patient Privacy Consents (BPPC) specification for Patient preference/consent.

## II-K: Public Health Reporting

### Interoperability Need: Case reporting to public health agencies

| Type                             | Standard/Implementation Specification   | Standards Process Maturity | Implementation Maturity | Adoption Level | Regulated | Cost | Test Tool Availability |
|----------------------------------|---|----------------------------|-------------------------|----------------|-----------|------|------------------------|
| (1) Implementation Specification | <a href="#">IHE Quality, Research, and Public Health Technical Framework Supplement, Structured Data Capture, Trial Implementation, HL7 Consolidated CDA® Release 2.0</a> | Draft                      | Pilot                   | ● ○ ○ ○ ○ ○    | No        | Free | No                     |
| (2) Standard                     | <a href="#">Fast Healthcare Interoperability Resources (FHIR)</a>   | Draft                      | Pilot                   | ● ○ ○ ○ ○ ○    | No        | Free | No                     |
| (2) Implementation Specification | <a href="#">Structured Data Capture Implementation Guide</a>  | Draft                      | Pilot                   | ● ○ ○ ○ ○ ○    | No        | Free | No                     |

#### Comments

- Mayo Clinic supports the utilization of FHIR but recommends the release stage be DSTU 2.0 or newer before it is specified as a standard for Case reporting to public health agencies.

## II-M: Representing clinical health information as a “resource”

### Interoperability Need: Representing clinical health information as “resource”

| Type     | Standard/Implementation Specification                             | Standards Process Maturity | Implementation Maturity | Adoption Level | Regulated | Cost | Test Tool Availability |
|----------|---|----------------------------|-------------------------|----------------|-----------|------|------------------------|
| Standard | <a href="#">Fast Healthcare Interoperability Resources (FHIR)</a> | Draft                      | Pilot                   | ● ○ ○ ○ ○ ○    | No        | Free | No                     |

#### Comments

- Mayo Clinic supports the utilization of FHIR but recommends the release stage be DSTU 2.0 or newer before it is specified as the standard for Representing clinical health information as a resource.

## Section III: Best Available Standards and Implementation Specifications for Services

### III-C: Image Exchange

| Interoperability Need: Exchanging imaging documents among a group of affiliated entities                        |  |                            |                         |                |           |      |                        |
|---|--|----------------------------|-------------------------|----------------|-----------|------|------------------------|
| Type  | Standard/Implementation Specification                                    | Standards Process Maturity | Implementation Maturity | Adoption Level | Regulated | Cost | Test Tool Availability |
| Implementation Specification  | <a href="#">IHE Cross Enterprise Document Sharing for Images (XDS-I)</a> | Draft                      | Pilot                   | ● ○ ○ ○ ○      | No        | Free | No                     |
| Comments  |  |                            |                         |                |           |      |                        |
| <ul style="list-style-type: none"> <li>Mayo Clinic supports XDS-I for the purpose of image exchange.</li> </ul> |  |                            |                         |                |           |      |                        |

| Interoperability Need: Data element based query for clinical health information   |   |                            |                         |                |           |      |                        |
|---|---|----------------------------|-------------------------|----------------|-----------|------|------------------------|
| Type  | Standard/Implementation Specification                             | Standards Process Maturity | Implementation Maturity | Adoption Level | Regulated | Cost | Test Tool Availability |
| Standard  | <a href="#">Fast Healthcare Interoperability Resources (FHIR)</a> | Draft                      | Pilot                   | ● ○ ○ ○ ○      | No        | Free | No                     |
| Comments  |   |                            |                         |                |           |      |                        |
| <ul style="list-style-type: none"> <li>Mayo Clinic supports the utilization of FHIR but recommends the release stage be DSTU 2.0 or newer before it is specified as the standard for Data element based query for clinical health information.</li> </ul> |   |                            |                         |                |           |      |                        |

### General Comment

- Mayo Clinic has seen an increased usage of PDF by vendors as a means to transfer information and reports to other systems. A specific example was a recent upgrade to a vendor-supplied laboratory system in which a PDF report feed replaced a discrete feed. Using a PDF exclusively is counter to interoperability and limits the ability for institutions to use the contents of the report data thus inhibiting research and other activities. Mayo Clinic supports the continued use of discrete data as a data transport mechanism in Meaningful Use standards.