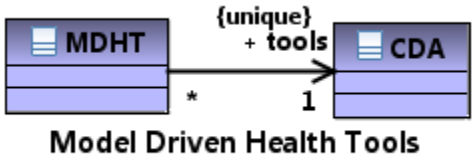
Implementation Guide for CDA Release 2
Coccidioidomycosis Case Report CDA R2
Optional Subtitle



Model Driven Health Tools

PROTOTYPE: FOR DISCUSSION AND DEMONSTRATION USE ONLY

Contents

Acknowledgments

This document contains an example of healthcare standards and specifications publication generated from UML models, using the OHT Model Driven Health Tools (MDHT). Some portions of this document may not be publicly available but are included for demonstration purposes only, therefore this version of the document is to be treated as CONFIDENTIAL by the project participants.

This demonstration document contains informtion from the following sources:

Revision History

Rev	Date	By Whom	Changes
New	July 2010	Dave Carlson	
First draft for posting	December 2010	Dave Carlson	Updated model content and publication format

Chapter 1

INTRODUCTION

Topics:

Overview

This implementation guide is generated from UML models developed in the Open Health Tools (OHT) Model-Driven Health Tools (MDHT) project. The data specifications have been formalized into computational models expressed in UML. These models are used by automated tooling to generate this publication, plus validation tools and Java libraries for implementers.

Approach

Working with specifications generated from formal UML models provides the opportunity to work with the data from the perspective of the underlying model and electronic format and to explore many design issues thoroughly. Taking this as an initial step ensures that the data set developers and standards community can reach consensus prior to the larger commitment of time that would be required to bring the full data set into standard format.

This project supports reusability and ease of data collection through a standard data representation harmonized with work developed through Health Information Technology Expert Panel (HITEP), balloted through Health Level Seven (HL7) and/or recognized by the Health Information Technology Standards Panel (HITSP).

This implementation guide (IG) specifies a standard for electronic submission of NCRs in a Clinical Document Architecture (CDA), Release 2 format.

Scope

TODO: scope of this implementation guide.

Audience

The audience for this document includes software developers and implementers who wish to develop...

Organization of This Guide

The requirements as laid out in the body of this document are subject to change per the policy on implementation guides (see section 13.02" Draft Standard for Trial Use Documents" within the HL7 Governance and Operations Manual, *http://www.hl7.org/documentcenter/public/membership/HL7_Governance_and_Operations_Manual.pdf*).

Templates

Templates are organized by document (see Document Templates), by section (see Section Templates), and by clinical statements (see Clinical Statement Templates). Within a section, templates are arranged hierarchically, where a more specific template is nested under the more generic template that it conforms to. See Templates by Containment for a listing of the higher level templates by containment; the appendix Templates Used in This Guide includes a table of all of the templates Organized Hierarchically.

Vocabulary and Value Sets

Vocabularies recommended in this guide are from standard vocabularies. When SNOMED codes are used, rules defined in Using SNOMED CT in HL7 Version 3 are adhered to. In many cases, these vocabularies are further constrained into value sets for use within this guide. Value set names and OIDs are summarized in the table Summary of Value Sets. Each named value set in this summary table is stored in a template database that will be maintained by CHCA.

Use of Templates

When valued in an instance, the template identifier (`templateId`) signals the imposition of a set of template-defined constraints. The value of this attribute provides a unique identifier for the templates in question.

Originator Responsibilities

An originator can apply a `templateId` to assert conformance with a particular template.

In the most general forms of CDA exchange, an originator need not apply a `templateId` for every template that an object in an instance document conforms to. This implementation guide asserts when `templateId`s are required for conformance.

Recipient Responsibilities

A recipient may reject an instance that does not contain a particular `templateId` (e.g., a recipient looking to receive only CCD documents can reject an instance without the appropriate `templateId`).

A recipient may process objects in an instance document that do not contain a `templateId` (e.g., a recipient can process entries that contain Observation acts within a Problems section, even if the entries do not have `templateId`s).

Conventions Used in This Guide

Conformance Requirements

Conformance statements are grouped and identified by the name of the template, along with the templateId and the context of the template (e.g., ClinicalDocument, section, observation), which specifies the element under constraint. If a template is a specialization of another template, its first constraint indicates the more general template. In all cases where a more specific template conforms to a more general template, asserting the more specific template also implies conformance to the more general template. An example is shown below.

Template name

`[<type of template>: templateId <XXXX.XX.XXX.XXX>]`

Description of the template will be here .....

1. Conforms to <The template name> Template (templateId: XXXX<XX>XXX>YYY).
2. **SHALL** contain [1..1] @classCode = <AAA> <code display name> (CodeSystem: 123.456.789 <XXX> Class) **STATIC** (CONF:<number>).
3. .....

Figure 1: Template name and "conforms to" appearance

The conformance verb keyword at the start of a constraint (**SHALL** , **SHOULD** , **MAY**, etc.) indicates business conformance, whereas the cardinality indicator (0..1, 1..1, 1..*, etc.) specifies the allowable occurrences within an instance. Thus, " **MAY** contain 0..1" and " **SHOULD** contain 0..1" both allow for a document to omit the particular component, but the latter is a stronger recommendation that the component be included if it is known.

The following cardinality indicators may be interpreted as follows:

0..1 as zero to one present
1..1 as one and only one present
2..2 as two must be present
1..* as one or more present
0..* as zero to many present

Value set bindings adhere to HL7 Vocabulary Working Group best practices, and include both a conformance verb (**SHALL** , **SHOULD** , **MAY,** etc.) and an indication of **DYNAMIC** vs. **STATIC** binding. The use of **SHALL** requires that the component be valued with a member from the cited value set; however, in every case any HL7 "null" value such as other (OTH) or unknown (UNK) may be used.

Each constraint is uniquely identified (e.g., "CONF:605") by an identifier placed at or near the end of the constraint. These identifiers are not sequential as they are based on the order of creation of the constraint.

1. **SHALL** contain [1..1] component/structuredBody (CONF:4082).
    a. This component/structuredBody **SHOULD** contain [0..1] component (CONF:4130) such that it
        a. **SHALL** contain [1..1] Reporting Parameters section (templateId:2.16.840.1.113883.10.20.17.2.1) (CONF:4131).
    b. This component/structuredBody **SHALL** contain [1..1] component (CONF:4132) such that it
        a. **SHALL** contain [1..1] Patient data section - NCR (templateId:2.16.840.1.113883.10.20.17.2.5) (CONF:4133).

Figure 2: Template-based conformance statements example

CCD templates are included within this implementation guide for ease of reference. CCD templates contained within this implementation guide are formatted WITHOUT typical **KEYWORD** and **XML** element styles. A WIKI site is available if you would like to make a comment to be considered for the next release of CCD: *http://wiki.hl7.org/index.php?title=CCD_Suggested_Enhancements* The user name and password are: wiki/wikiwiki. You will need to create an account to edit the page and add your suggestion.

1. The value for "Observation / @moodCode" in a problem observation SHALL be "EVN" 2.16.840.1.113883.5.1001 ActMood STATIC. (CONF: 814).
2. A problem observation SHALL include exactly one Observation / statusCode. (CONF: 815).
3. The value for "Observation / statusCode" in a problem observation SHALL be "completed" 2.16.840.1.113883.5.14 ActStatus STATIC. (CONF: 816).
4. A problem observation SHOULD contain exactly one Observation / effectiveTime, to indicate the biological timing of condition (e.g. the time the condition started, the onset of the illness or symptom, the duration of a condition). (CONF: 817).

Figure 3: CCD conformance statements example

Keywords

The keywords SHALL, SHALL NOT, SHOULD, SHOULD NOT, MAY, and NEED NOT in this document are to be interpreted as described in the *HL7 Version 3 Publishing Facilitator's Guide*:

- **SHALL**: an absolute requirement
- **SHALL NOT**: an absolute prohibition against inclusion
- **SHOULD/SHOULD NOT**: valid reasons to include or ignore a particular item, but must be understood and carefully weighed
- **MAY/NEED NOT**: truly optional; can be included or omitted as the author decides with no implications

XML Examples

XML samples appear in various figures in this document in a fixed-width font. Portions of the XML content may be omitted from the content for brevity, marked by an ellipsis (…) as shown in the example below.

```
<ClinicalDocument xmlns='urn:h17-org:v3'>
  ...
</ClinicalDocument>
```

Figure 4: ClinicalDocument example

XPath expressions are used in the narrative and conformance requirements to identify elements because they are familiar to many XML implementers.

Chapter 2

DOCUMENT TEMPLATES

Topics:

This section contains the document level constraints for CDA documents that are compliant with this implementation guide.

Coccidioides Case Report

[ClinicalDocument: templateId `2.16.840.1.113883.10.20.15.1.10`]

1. **SHALL** conform to *PHCR Public Health Case Report* template (templateId: `2.16.840.1.113883.10.20.15`)
2. **SHOULD** contain zero or one [0..1] **`component`**, such that
   a. Contains exactly one [1..1] *Coccidioides PHCR Social History Section* (templateId: `2.16.840.1.113883.10.20.15.2.29`)
3. **SHALL** contain exactly one [1..1] **`title`** = "Public Health Case Report - Coccidioidomycosis"
4. **SHALL** contain exactly one [1..1] **`component`**, such that
   a. Contains exactly one [1..1] *Coccidioides PHCR Clinical Information Section* (templateId: `2.16.840.1.113883.10.20.15.2.30`)
5. **SHOULD** contain zero or one [0..1] **`component`**, such that
   a. Contains exactly one [1..1] *Coccidioides PHCR Treatment Information Section* (templateId: `2.16.840.1.113883.10.20.15.2.31`)
6. **SHOULD** contain zero or one [0..1] **`component`**, such that
   a. Contains exactly one [1..1] *Coccidioides PHCR Relevant Dx Tests Section* (templateId: `2.16.840.1.113883.10.20.15.2.32`)

Coccidioides Case Report example

Chapter 3

SECTION TEMPLATES

Topics:

Coccidioides PHCR Clinical Information Section

[Section: templateId `2.16.840.1.113883.10.20.15.2.30`]

1. **SHALL** conform to *PHCR Phcr Clinical Information Section* template (templateId: `2.16.840.1.113883.10.20.15.2.1`)
2. **SHALL** contain exactly one [1..1] **`entry`**, such that
   a. Contains **`@typeCode="`**`DRIV"` *DRIV (is derived from)*
   b. Contains exactly one [1..1] *Coccidioides Case Observation* (templateId: `2.16.840.1.113883.10.20.15.3.87`)
3. **MAY** contain zero or more [0..*] **`entry`**, such that
   a. Contains **`@typeCode="`**`DRIV"` *DRIV (is derived from)*
   b. Contains exactly one [1..1] *Coccidioides Immunosuppressed Medical Condition History Observation* (templateId: `2.16.840.1.113883.10.20.15.3.94`)

Coccidioides PHCR Clinical Information Section example

Coccidioides PHCR Relevant Dx Tests Section

[Section: templateId `2.16.840.1.113883.10.20.15.2.32`]

1. **SHALL** conform to *PHCR Phcr Relevant Dx Tests Section* template (templateId: `2.16.840.1.113883.10.20.15.2.3`)
2. **MAY** contain zero or more [0..*] **`entry`**, such that
   a. Contains **`@typeCode="`**`DRIV"` *DRIV (is derived from)*
   b. Contains exactly one [1..1] *Coccidioides Result Organizer* (templateId: `2.16.840.1.113883.10.20.15.3.92`)
3. **SHOULD** contain zero or more [0..*] **`entry`**, such that
   a. Contains **`@typeCode="`**`DRIV"` *DRIV (is derived from)*
   b. Contains exactly one [1..1] *Coccidioides Result Observation* (templateId: `2.16.840.1.113883.10.20.15.3.93`)

Coccidioides PHCR Relevant Dx Tests Section example

Coccidioides PHCR Social History Section

[Section: templateId `2.16.840.1.113883.10.20.15.2.29`]

1. **SHALL** conform to *PHCR Phcr Social History Section* template (templateId: `2.16.840.1.113883.10.20.15.2.22`)
2. **MAY** contain zero or more [0..*] **`entry`**, such that
   a. Contains **`@typeCode="`**`DRIV"` *DRIV (is derived from)*
   b. Contains exactly one [1..1] *Coccidioides Possible Exposure Location Act* (templateId: `2.16.840.1.113883.10.20.15.3.86`)

Coccidioides PHCR Social History Section example

Coccidioides PHCR Treatment Information Section

[Section: templateId `2.16.840.1.113883.10.20.15.2.31`]

1. **SHALL** conform to *PHCR Phcr Treatment Information Section* template (templateId: `2.16.840.1.113883.10.20.15.2.4`)
2. **SHALL** contain exactly one [1..1] **`entry`**, such that
   a. Contains **`@typeCode="`**`DRIV"` *DRIV (is derived from)*
   b. Contains exactly one [1..1] *Coccidioides Therapeutic Regimen Act* (templateId: `2.16.840.1.113883.10.20.15.3.89`)

Coccidioides PHCR Treatment Information Section example

Chapter 4

CLINICAL STATEMENT TEMPLATES

Topics:

This section of the Implementation Guide details the clinical statement entries referenced in the document section templates. The clinical statement entry templates are arranged alphabetically.

Coccidioides Case Observation

[Observation: templateId `2.16.840.1.113883.10.20.15.3.87`]

1. **SHALL** conform to *PHCR Case Observation* template (templateId: `2.16.840.1.113883.10.20.15.3.54`)
2. Contains zero or more [0..*] **`entryRelationship`**, such that
   a. Contains exactly one [1..1] *Coccidioides Signs And Symptoms Observation* (templateId: `2.16.840.1.113883.10.20.15.3.88`)
3. **SHALL** contain exactly one [1..1] **`value/@code`**`="60826002"` *Coccidioidomycosis* (CodeSystem: `2.16.840.1.113883.6.96 SNOMEDCT`), where its data type is CD (CONF:1874)

Coccidioides Case Observation example

Coccidioides Immunosuppressed Medical Condition History Observation

[Observation: templateId `2.16.840.1.113883.10.20.15.3.94`]

1. **SHALL** conform to *PHCR Phcr Relevant Medical Condition History Observation* template (templateId: `2.16.840.1.113883.10.20.15.3.62`)
2. **SHOULD** contain zero or one [0..1] **`entryRelationship`**, such that
   a. Contains **`@typeCode="`**`REFR"` *REFR (refers to)*
   b. Contains exactly one [1..1] *Coccidioides Immunosuppressed Medical Condition Problem Observation* (templateId: `2.16.840.1.113883.10.20.15.3.95`)

Coccidioides Immunosuppressed Medical Condition History Observation example

Coccidioides Immunosuppressed Medical Condition Problem Observation

[Observation: templateId `2.16.840.1.113883.10.20.15.3.95`]

1. **SHALL** conform to *CCD Problem Observation* template (templateId: `2.16.840.1.113883.10.20.1.28`)
2. **SHALL** contain zero or more [0..*] **`value`**, which **SHALL** be selected from ValueSet `2.16.840.1.114222.4.11.6028` *`Comorbid Conditions`* **DYNAMIC**, where its data type is CD

Coccidioides Immunosuppressed Medical Condition Problem Observation example

Coccidioides Possible Exposure Location Act

[Act: templateId `2.16.840.1.113883.10.20.15.3.86`]

1. **SHALL** contain exactly one [1..1] **`@classCode`**`="ACT"` *Act* (CodeSystem: `2.16.840.1.113883.5.6 HL7ActClass`)
2. **SHALL** contain exactly one [1..1] **`@moodCode`**`="EVN"` *Event* (CodeSystem: `2.16.840.1.113883.5.1001 HL7ActMood`)
3. **SHALL** contain exactly one [1..1] **`code/@code`**`="413350009"` *Finding with explicit context* (CodeSystem: `2.16.840.1.113883.6.96 SNOMEDCT`)

4. **SHALL** contain zero or one [0..1] **`statusCode/@code`**`="completed"` (CodeSystem: `2.16.840.1.113883.5.14 ActStatus`)
5. **SHALL** contain [1..*] participant, which **SHALL** contain [1..1] @typeCode="LOC" Location (CodeSystem: 2.16.840.1.113883.5.90 HL7ParticipationType) STATIC

Coccidioides Possible Exposure Location Act example

Coccidioides Result Observation

[Observation: templateId `2.16.840.1.113883.10.20.15.3.93`]

1. **SHALL** conform to *PHCR Result Observation* template (templateId: `2.16.840.1.113883.10.20.15.3.58`)
2. **SHALL** contain exactly one [1..1] **`code`**, which **SHALL** be selected from ValueSet `2.16.840.1.114222.4.11.4134` *`Lab Test Name (Coccidioidomycosis)`* **DYNAMIC** (CONF-412)

Coccidioides Result Observation example

Coccidioides Result Organizer

[Organizer: templateId `2.16.840.1.113883.10.20.15.3.92`]

1. **SHALL** conform to *PHCR Result Organizer* template (templateId: `2.16.840.1.113883.10.20.15.3.59`)
2. **SHALL** contain at least one [1..*] **`component`**, such that
   a. Contains exactly one [1..1] *Coccidioides Result Observation* (templateId: `2.16.840.1.113883.10.20.15.3.93`)
3. **SHALL** contain exactly one [1..1] **`code`** (CONF-397, CONF:1999)

Coccidioides Result Organizer example

Coccidioides Signs And Symptoms Observation

[Observation: templateId `2.16.840.1.113883.10.20.15.3.88`]

1. **SHALL** conform to *PHCR Signs And Symptoms Observation* template (templateId: `2.16.840.1.113883.10.20.15.3.53`)
2. **SHALL** contain exactly one [1..1] **`value`**, which **SHALL** be selected from ValueSet `2.16.840.1.114222.4.11.6025` *`Signs and Symptoms (Coccidioidomycosis)`* **DYNAMIC**, where its data type is CD

Coccidioides Signs And Symptoms Observation example

Coccidioides Therapeutic Regimen Act

[Act: templateId `2.16.840.1.113883.10.20.15.3.89`]

1. **SHALL** conform to *PHCR Therapeutic Regimen Act* template (templateId: `2.16.840.1.113883.10.20.15.3.57`)

2. **SHOULD** contain zero or more [0..*] **`entryRelationship`**, such that
   a. Contains **`@typeCode="COMP"`** *COMP (has component)*
   b. Contains exactly one [1..1] *Coccidioides Treatment Given Substance Administration* (templateId: `2.16.840.1.113883.10.20.15.3.90`)
3. **MAY** contain zero or more [0..*] **`entryRelationship`**, such that
   a. Contains **`@typeCode="COMP"`** *COMP (has component)*
   b. Contains exactly one [1..1] *Coccidioides Treatment Not Given Substance Administration* (templateId: `2.16.840.1.113883.10.20.15.3.91`)

Coccidioides Therapeutic Regimen Act example

Coccidioides Treatment Given Substance Administration

[SubstanceAdministration: templateId `2.16.840.1.113883.10.20.15.3.90`]

1. **SHALL** conform to *PHCR Treatment Given Substance Administration* template (templateId: `2.16.840.1.113883.10.20.15.3.55`)
2. **SHALL** be selected from ValueSet TBD PHVS_MedicationTreatment_Coccidioidomycosis

Coccidioides Treatment Given Substance Administration example

Coccidioides Treatment Not Given Substance Administration

[SubstanceAdministration: templateId `2.16.840.1.113883.10.20.15.3.91`]

1. **SHALL** conform to *PHCR Treatment Not Given Substance Administration* template (templateId: `2.16.840.1.113883.10.20.15.3.56`)
2. **SHALL** be selected from ValueSet TBD PHVS_MedicationTreatment_Coccidioidomycosis

Coccidioides Treatment Not Given Substance Administration example

Chapter 5

OTHER CLASSES

This section of the Implementation Guide describes other classes that are not CDA Clinical Documents, Sections, or Clinical Statements.

Chapter 6

VALUE SETS

Topics:

The following tables summarize the value sets used in this Implementation Guide.

Comorbid Conditions

Value Set	Comorbid Conditions - 2.16.840.1.114222.4.11.6028
Source	PHIN VADS
Source URL	https://phinvads.cdc.gov/vads/ViewValueSet.action?oid=2.16.840.1.114222.4.11.6028

Concept Code	Concept Name	Code System	Description
62479008	Acquired immune deficiency syndrome (AIDS)	SNOMEDCT	
15167005	Alcohol abuse	SNOMEDCT	
62914000	Cerebrovascular Disease	SNOMEDCT	
90688005	Chronic renal failure syndrome	SNOMEDCT	
42343007	Congestive Heart Failure	SNOMEDCT	
6525002	Dependent drug abuse	SNOMEDCT	
73211009	Diabetes mellitus	SNOMEDCT	
46635009	Diabetes Type I	SNOMEDCT	
44054006	Diabetes Type II	SNOMEDCT	
235856003	Disorder of liver	SNOMEDCT	
46177005	End-stage renal disease disorder	SNOMEDCT	
86406008	Human immunodeficiency virus infection	SNOMEDCT	
90708001	Kidney Disease	SNOMEDCT	
93143009	Leukemia, disease	SNOMEDCT	
32230006	Malabsorption syndrome	SNOMEDCT	
86049000	Malignant neoplasm, primary	SNOMEDCT	
22298006	Myocardial Infarction	SNOMEDCT	
19829001	Pulmonary Disease	SNOMEDCT	
87433001	Pulmonary Emphysema	SNOMEDCT	
42399005	Renal failure syndrome	SNOMEDCT	
47515009	Simple silicosis	SNOMEDCT	
161663000	Tissue/Organ Recipient	SNOMEDCT	

Lab Test Name (Coccidioidomycosis)

Value Set	Lab Test Name (Coccidioidomycosis) - 2.16.840.1.114222.4.11.4134
Code System	Code System Name - Code System OID
Source	PHIN VADS
Source URL	https://phinvads.cdc.gov/vads/ViewValueSet.action?oid=2.16.840.1.114222.4.11.4134
Definition	lab tests associated with Coccidioidomycosis

Medication Treatment (Coccidioidomycosis)

Value Set	Medication Treatment (Coccidioidomycosis) - 2.16.840.1.114222.4.11.6026
Source	PHIN VADS
Source URL	https://phinvads.cdc.gov/vads/ViewValueSet.action?oid=2.16.840.1.114222.4.11.6026
Definition	Coccidioidomycosis treatment value set has medication concepts used to treat Coccidioidomycosis.

Concept Code	Concept Name	Code System	Description
4450	Fluconazole	RxNorm	
28031	Itraconazole	RxNorm	
6135	Ketoconazole	RxNorm	
732	Amphotericin B	RxNorm	

Signs and Symptoms (Coccidioidomycosis)

Value Set	Signs and Symptoms (Coccidioidomycosis) - 2.16.840.1.114222.4.11.6025
Source	PHIN VADS
Source URL	https://phinvads.cdc.gov/vads/ViewValueSet.action?oid=2.16.840.1.114222.4.11.6025
Definition	Coccidioidomycosis Signs and Symptoms value set is primarily based upon the SNOMED concepts that are defined in the CSTE standardized reporting definition for Coccidioidomycosis.

Concept Code	Concept Name	Code System	Description
84387000	Asymptomatic	SNOMEDCT	
386661006	Fever	SNOMEDCT	
84229001	Fatigue	SNOMEDCT	
49727002	Cough	SNOMEDCT	
284523002	Persistent Cough	SNOMEDCT	
267036007	Dyspnea (Shortness of breath)	SNOMEDCT	

Concept Code	Concept Name	Code System	Description
42984000	Night Sweats	SNOMEDCT	
29857009	Chest Pain	SNOMEDCT	
43724002	Chill	SNOMEDCT	
57676002	Joint Pain	SNOMEDCT	
25064002	Headache	SNOMEDCT	
68962001	Muscle Pain	SNOMEDCT	
56018004	Wheezing	SNOMEDCT	
32861005	Rash (erythema nodosum)	SNOMEDCT	
36715001	Rash (erythema multiforme)	SNOMEDCT	
58767000	Rash (toxic erythema)	SNOMEDCT	
161882006	Stiff Neck	SNOMEDCT	
267102003	Sore Throat	SNOMEDCT	
89362005	Weight Loss	SNOMEDCT	
66857006	Hemoptysis (Cough Blood)	SNOMEDCT	
233604007	Pneumonia	SNOMEDCT	
301232003	Pulmonary lesion (lesion of lung)	SNOMEDCT	
46303000	Coccidioidal Meningitis	SNOMEDCT	
85055004	Disseminated Coccidioidomycosis	SNOMEDCT	

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- HL7 Implementation Guide for CDA Release 2: NHSN Healthcare Associated Infection (HAI) Reports, Release 2 Draft Standard for Trial Use January 2009 Available at: *NHSN Healthcare Associated Infection (HAI) Reports*
- Dolin RH, Alschuler L, Boyer S, Beebe C, Behlen FM, Biron PV, Shabo A, (Editors). HL7 Clinical Document Architecture, Release 2.0. ANSI-approved HL7 Standard; May 2005. Ann Arbor, Mich.: Health Level Seven, Inc. Available through *HL7* or if an HL7 member with the following link: *CDA Release 2 Normative Web Edition.*
- *LOINC®* : Logical Observation Identifiers Names and Codes, Regenstrief Institute.
- *SNOMED CT®* : SNOMED Clinical Terms SNOMED International Organization.
- Extensible Markup Language, *www.w3.org/XML* .
- Dolin RH, Alschuler L, Boyer S, Beebe C, Behlen FM, Biron PV, Shabo A., HL7 Clinical Document Architecture, Release 2. J Am Med Inform Assoc. 2006;13:30-39. Available at: *http://www.jamia.org/cgi/reprint/13/1/30* .
- Using SNOMED CT in HL7 Version 3; Implementation Guide, Release 1.5. Available through *HL7* or if an HL7 member with the following link: *Using SNOMED CT in HL7 Version 3*