

**Integrating the Healthcare Enterprise**



**IHE Eye Care  
Technical Framework Supplement**

**Routine Eye Exam  
(REE)**

**Draft for Public Comment**

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## Foreword

This is a supplement to the IHE Eye Care Technical Framework V3.7. Each supplement undergoes a process of public comment and trial implementation before being incorporated into the volumes of the Technical Frameworks.

This supplement is submitted for Public Comment between November 1, 2011 and November 30, 2011. Comments are invited and may be submitted at <http://www.ihe.net/eyecare/eyecarecomments.cfm>. In order to be considered in development of the Trial Implementation version of the supplement comments must be received by November 30, 2011.

This supplement describes changes to the existing technical framework documents and where indicated amends text by addition (**bold underline**) or removal (~~**bold strikethrough**~~), as well as addition of large new sections introduced by editor's instructions to "add new text" or similar, which for readability are not bolded or underlined.

"Boxed" instructions like the sample below indicate to the Volume Editor how to integrate the relevant section(s) into the relevant Technical Framework volume:

<i>Replace Section X.X by the following:</i>
--

General information about IHE can be found at: [www.ihe.net](http://www.ihe.net)

Information about the IHE Eye Care domain can be found at:  
<http://www.ihe.net/Domains/index.cfm>

Information about the structure of IHE Technical Frameworks and Supplements can be found at:  
<http://www.ihe.net/About/process.cfm> and <http://www.ihe.net/profiles/index.cfm>

The current version of the IHE Technical Framework can be found at:  
[http://www.ihe.net/Technical\\_Framework/index.cfm](http://www.ihe.net/Technical_Framework/index.cfm)

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## Introduction to this Supplement

This supplement is written for Public Comment. It introduces a new Eye Care content profile Routine Eye Exam (REE). Updates to volume 1 include additions to section 2 to introduce REE and a new section 8. Updates to volume 2 include new sections for the transactions.

This supplement is written as changes to the documents listed below. The reader should have already read and understood these documents:

1. [IHE Eye Care Technical Framework Volume 1, Integration Profiles](#)
2. [IHE Eye Care Technical Framework Volume 2, Transactions](#)

This supplement also references other documents<sup>1</sup>. The reader should have already read and understood these documents:

1. [IT Infrastructure Technical Framework Volume 1](#)
2. [IT Infrastructure Technical Framework Volume 2](#)
3. [IT Infrastructure Technical Framework Volume 3](#)
4. [IHE Patient Care Coordination Technical Framework Volume 1](#)
5. [IHE Patient Care Coordination Technical Framework Volume 2](#)
6. HL7 and other standards documents referenced in Volume 1 and Volume 2

## Profile Abstract

The Routine Eye Exam content profile defines the structure of the data that is often collected during a patient's routine eye examination. The American Academy of Ophthalmology (AAO) has created a collection of recommended best practices for this and other aspects of eye care that it terms the Preferred Practice Patterns (PPP). The information in this document is based upon the "[Comprehensive Adult Medical Eye Evaluation October 2010](#)" PPP specification generated by the AAO. The comprehensive eye examination consists of an evaluation of the physiological function and the anatomical status of the eye, visual system and its related structures.

## Open Issues and Questions

1. *Not all code values are defined. IHE needs to coordinate with LONIC and SNOMED for specific codes that are missing.*

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<sup>1</sup> The first five documents can be located on the IHE Website at [http://www.ihe.net/Technical\\_Framework/index.cfm#IT](http://www.ihe.net/Technical_Framework/index.cfm#IT). The remaining document can be obtained from its respective publisher.

2. *IHE Eye Care OIDs will be assigned when the document is in Trail Implementation state.*
3. *When specifying specific eye care physical exam sections (i.e., intraocular pressure, pupils, anterior segment and lids...), this specification currently always constraints the type of ocular observation using SNOMED CT Observable Entity hierarchy (363787002) codes. The Ocular Observation entry does not define any restrictions; therefore, codes other than SNOMED could be used if needed in the future. Should we keep this model or restrict this flexibility and always specify SNOMED for observation codes at the Ocular Observation level?*

## **Closed Issues**

None at this time

# Volume 1 – Profiles

*Add the following to section 1.7*

## 1.7 History of Annual Changes

Added the Routine Eye Exam (REE) Content Profile. This content profile defines the structure of the data that is often collected during a patient’s routine eye examination.

*Add the following section to section 2.2*

### 2.2.6 Routine Eye Exam Content Profile

Routine Eye Exam (REE) is a content profile that defines the structure of the data that is often collected during a patient’s routine eye care examination. An eye examination consists of an evaluation of the physiological function and the anatomical status of the eye, visual system, and its related structures. Also included is related patient information such as history, allergies, review of systems, physical examination, social history, etc.

## 2.3 Actors Descriptions

*Add column to table 2.3-1*

**Content Creator** – Creates the document content.

**Content Consumer** – Consumes the document content.

*Add Section 8*

## 8 Routine Eye Exam Content Profile (REE)

Routine Eye Exam (REE) is a content profile that defines the structure of the data that is often collected during a patient’s routine eye care examination. An eye examination consists of an evaluation of the physiological function and the anatomical status of the eye, visual system, and its related structures. Also included is related patient information such as history, allergies, review of systems, physical examination, social history, etc.

### 8.1 Purpose and Scope

*Change referenced section numbering when merged into technical framework*

The Routine Eye Exam content profile defines the structure of the data that is often collected during a patient’s routine eye examination. The American Academy of Ophthalmology (AAO) has created a collection of recommended best practices for this and other aspects of eye care that it terms the Preferred Practice Patterns (PPP). The information in this document is based upon the “[Comprehensive Adult Medical Eye Evaluation October 2010](#)” PPP specification generated by the AAO. The comprehensive eye examination consists of an evaluation of the physiological function and the anatomical status of the eye, visual system and its related structures.

### 8.2 Process Flow

#### 8.2.1 Use Cases

*Change referenced section numbering when merged into technical framework*

Comprehensive eye care deals with a broad spectrum of specialty disciplines each with its own lexicon, examination techniques, and procedures. The highest volume and most central component of this is the routine adult eye examination. A patient presents for a routine eye examination and demographic data is either created, retrieved from existing databases, or updated. The patient provides a chief complaint and historical information relevant to the eye, and a partial or complete examination of the eye and visual system is performed using various optical devices. Multiple people may contribute to this process including receptionist, technician, and physician.

The PPP for a Routine Adult Eye Examination provides a roadmap for data collection. The nature of the data varies widely and may be discrete and defined by existing terminology standards (e.g., visual acuity, intra ocular pressure) or narrative and available only as free text (e.g., description of a lesion, description of morphology). After this data is collected the clinician will arrive at an assessment and management plan. All of this must be recorded in a fashion that will allow subsequent transfer across diverse information platforms without loss of content or meaning using existing standards and protocols.

### 8.3 Actors/Transactions

There are two actors in this profile, the Content Creator and the Content Consumer. Content is created by a Content Creator and is consumed by a Content Consumer. The sharing or transmission of content from one actor to the other is addressed by the appropriate use of IHE profiles described below, and is out of scope of this profile. A Document Source or a Portable Media Creator may embody the Content Creator Actor. A Document Consumer, a Document Recipient or a Portable Media Importer may embody the Content Consumer Actor. The sharing or transmission of content or updates from one actor to the other is addressed by the use of appropriate IHE profiles described in the section on Content Bindings with XDS, XDM and XDR in PCC TF-2:4.1



**Figure 8.3-1 Actor Diagram**

**Table 8.3-1 Routine Eye Exam Options**

Actor	Option	Section
Content Consumer	View Option (See Note 1)	PCC TF-2: 3.1.1
	Document Import Option (See Note 1)	PCC TF-2: 3.1.2
	Section Import Option (See Note 1)	PCC TF-2: 3.1.3
	Discrete Data Import Option (See Note 1)	PCC TF-2: 3.1.4
Content Creator	No options defined	

Note 1: The Actor shall support at least one of these options.

### 8.4 Grouping

This section describes the behaviors expected of the Content Creator and Content Consumer actors of this profile when grouped with actors of other IHE profiles.

#### 8.4.1 Content Bindings with XDS, XDM and XDR

It is expected that the exchanges of this content will occur in an environment where healthcare organizations have a coordinated infrastructure that serves the information sharing needs of this community of care. Several mechanisms are supported by IHE profiles:

- A registry/repository-based infrastructure is defined by the IHE Cross Enterprise Document Sharing (XDS) and other IHE Integration Profiles such as patient identification (PIX & PDQ) and notification of availability of documents (NAV).
- A media-based infrastructure is defined by the IHE Cross Enterprise Document Media Interchange (XDM) profile.
- A reliable messaging-based infrastructure is defined by the IHE Cross Enterprise Document Reliable Interchange (XDR) profile.
- All of these infrastructures support Security and privacy through the use of the Consistent Time (CT) and Audit Trail and Node Authentication (ATNA) profiles.

For more details on these profiles, see the IHE IT Infrastructure Technical Framework. Content profiles may impose additional requirements on the transactions used when grouped with actors from other IHE Profiles.

#### 8.4.2 Cross Enterprise Document Sharing, Media Interchange and Reliable Messages

Actors from the ITI XDS, XDM and XDR profiles most often embody the Content Creator and Content Consumer sharing function of this profile. A Content Creator or Content Consumer may be grouped with appropriate actors from the XDS, XDM or XDR profiles, and the metadata sent in the document sharing or interchange messages has specific relationships to the content of the clinical document described in the content profile.

#### 8.4.3 Audit Trail and Node Authentication (ATNA)

When the Content Creator or Content Consumer actor of this profile is grouped with the Secure Node or Secure Application actor of the ATNA profile, the content creator actor shall generate appropriate audit record events for each of the following trigger events:

**Table 8.4.3-1 Minimum Trigger Event Set**

Trigger Event	Description
Actor-start-stop	Start up and shut-down of the content creator or content consumer actor.
Patient-Record-Event	Creation, access, modification <sup>4</sup> or deletion of the content described within this profile.
Node-Authentication-Failure	Secure node authentication failure is detected.

The above list is a minimum set that must be demonstrated by all actors of this profile when grouped with the secure node or secure application actor. Additional audit records shall also be generated depending upon the actions available in the product implementing the secure node or secure application actor.

#### 8.4.4 Notification of Document Availability (NAV)

A Document Source should provide the capability to issue a Send Notification Transaction per the ITI Notification of Document Availability (NAV) Integration Profile in order to notify one or more Document Consumer(s) of the availability of one or more documents for retrieval. One of the Acknowledgement Request options may be used to request from a Document Consumer that an acknowledgement should be returned when it has received and processed the notification. A Document Consumer should provide the capability to receive a Receive Notification Transaction per the NAV Integration Profile in order to be notified by Document Sources of the availability of one or more documents for retrieval. The Send Acknowledgement option may be used to issue a Send Acknowledgement to a Document Source that the notification was received and processed.

### 8.4.5 Document Digital Signature (DSG)

When a Content Creator Actor needs to digitally sign a document in a submission set, it may support the Digital Signature (DSG) Content Profile as a Document Source. When a Content Consumer Actor needs to verify a Digital Signature, it may retrieve the digital signature document and may perform the verification against the signed document content.

## 8.5 Content Modules

**Table 8.5-1 Routine Eye Exam Modules**

Comprehensive Adult Medical Eye Evaluation Preferred Practice Patterns	PCC Template Name	PCC Template Id
Demographic data	Header Modules	N/A
Identity of the patient's other pertinent health care providers	Healthcare Providers and Pharmacies	1.3.6.1.4.1.19376.1.5.3.1.2.3
Chief Complaint	Chief Complaint	1.3.6.1.4.1.19376.1.5.3.1.1.13.2.1
Present status of visual function	Functional Status	1.3.6.1.4.1.19376.1.5.3.1.3.17
History of Present Illness and Ocular Symptoms	History of Present Illness	1.3.6.1.4.1.19376.1.5.3.1.3.4
Ocular history	Ocular History	1.3.6.1.4.1.19376.1.12.1.1.bb
	List of Surgeries	1.3.6.1.4.1.19376.1.5.3.1.3.11
	Coded List of Surgeries	1.3.6.1.4.1.19376.1.5.3.1.3.12
Systemic history: pertinent medical conditions and previous surgery	History of Past Illness	1.3.6.1.4.1.19376.1.5.3.1.3.8
	List of Surgeries	1.3.6.1.4.1.19376.1.5.3.1.3.11
	Coded List of Surgeries	1.3.6.1.4.1.19376.1.5.3.1.3.12
Note 1	Review of Systems	1.3.6.1.4.1.19376.1.5.3.1.3.18
Medications - ophthalmic and systemic medications currently used, including nutritional supplements	Medications	1.3.6.1.4.1.19376.1.5.3.1.3.19
	Ophthalmic Medications	1.3.6.1.4.1.19376.1.12.1.1.pp
Allergies or adverse reactions to medications	Allergies and Other Adverse Reactions	1.3.6.1.4.1.19376.1.5.3.1.3.13

<b>Comprehensive Adult Medical Eye Evaluation Preferred Practice Patterns</b>	<b>PCC Template Name</b>	<b>PCC Template Id</b>
Note 1	Active Problems	1.3.6.1.4.1.19376.1.5.3.1.3.6
Family History	Family Medical History	1.3.6.1.4.1.19376.1.5.3.1.3.14
	Coded Family Medical History	1.3.6.1.4.1.19376.1.5.3.1.3.15
Social history	Social History	1.3.6.1.4.1.19376.1.5.3.1.3.16
	Coded Social History	1.3.6.1.4.1.19376.1.5.3.1.3.16.1
Ocular Examination	Physical Exam	1.3.6.1.4.1.19376.1.5.3.1.1.9.15
	Eyes	1.3.6.1.4.1.19376.1.5.3.1.1.9.19
Visual acuity with current correction	Visual Acuity	1.3.6.1.4.1.19376.1.12.1.1.dd
Vision Testing	Vision Testing	1.3.6.1.4.1.19376.1.12.1.1.cc
Refractive Measurements	Refractive Measurements	1.3.6.1.4.1.19376.1.12.1.1.ee
Lensometry Measurements	Lensometry Measurements	1.3.6.1.4.1.19376.1.12.1.1.oo
Intraocular pressure measurement	Intraocular pressure	1.3.6.1.4.1.19376.1.12.1.1.ff
Visual fields by confrontation	Confrontation Visual Field	1.3.6.1.4.1.19376.1.12.1.1.gg
External examination	Eye External	1.3.6.1.4.1.19376.1.12.1.1.hh
	Lacrimal	1.3.6.1.4.1.19376.1.12.1.1.mm
Pupillary function	Pupils	1.3.6.1.4.1.19376.1.12.1.1.ii
Ocular alignment and motility	Ocular alignment and motility	1.3.6.1.4.1.19376.1.12.1.1.jj
Slit-lamp biomicroscopic examination:	Anterior segment and lids	1.3.6.1.4.1.19376.1.12.1.1.kk
Fundus examination	Posterior segment (fundus)	1.3.6.1.4.1.19376.1.12.1.1.ll
Note 1	Ancillary Testing	1.3.6.1.4.1.19376.1.12.1.1.nn
Note 1	Assessment and Plan	1.3.6.1.4.1.19376.1.5.3.1.1.13.2.5

Note 1: Blank entries in this column indicate that the information was not included in the PPP, however is included in this content profile.

## 8.6 Security Considerations

*Add Section X*

## Volume 3 – Content Modules

### 5 Namespaces and Vocabularies

codeSystem	codeSystemName	Description
1.3.6.1.4.1.19376.1.5.3.1	IHE PCC Template Identifiers	This is the root OID for all IHE PCC Templates. A list of PCC templates can be found in IHE PCC TF-2;6.2 (CDA Release 2.0 Content Modules).
2.16.840.1.113883.6.1	LOINC	Logical Observation Identifier Names and Codes
2.16.840.1.113883.6.96	SNOMED CT	SNOMED Controlled Terminology
1.2.840.10008.2.16.4	DCM	DICOM Controlled Terminology; PS 3.16 Content Mapping Resource, Annex D
1.3.6.1.4.1.19376.1.12.1	IHE Eye Care Template Identifiers	This is the root OID for all IHE Eye Care Templates.
1.3.6.1.4.1.19376.1.4.1	IHE Cardiology Template Identifiers	This is the root OID for all IHE Cardiology Templates.

### 5.1 IHE Format Codes

Profile	Format Code	Media Type	Template ID
Routine Eye Exam (REE)	urn:ihe:eyecare:eyeexam:2011	text/xml	1.3.6.1.4.1.19376.1.12.1.1.x

<i>Add Section 6</i>
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## 6 Content Modules

### 6.1 Conventions

#### 6.1.1 Content Module Conventions

##### 6.1.1.1 Cardinality Constraints

Within Section 6, the following conventions are used to describe data element cardinality constraints.

The cardinality expresses the number of times an attribute or association may appear in a CDA document instance that conforms to the specifications described within section 6. Cardinality is expressed as a minimum and a maximum value separated by ‘..’, and enclosed in ‘[ ]’, e.g., ‘[0..1]’.

Minimum cardinality is expressed as an integer that is equal to or greater than zero. If the minimum cardinality is zero, the element need only appear in message instances when the sending application has data with which to value the element. Mandatory elements must have a minimum cardinality greater than zero.

The maximum cardinality is expressed either as a positive integer (greater than zero and greater than or equal to the minimum cardinality) or as unlimited using an asterisk (“\*”).

##### 6.1.1.2 Data Element Optionality Constraints

Within Section 6, the following conventions are used to describe data element optionality constraints. Where applicable, the "interaction" between cardinality constraints and optionality constraints are also described below.

**Table 6.1.1.2-1 Data Element Optionality Constraints**

Optionality	Description
M	A "Mandatory" section, entry or data element is one that SHALL always be provided. If there is information available, the element must be present and non-null. If there is no information available, or it cannot be transmitted, the data element must contain a value indicating the reason for omission of the data. Note that any element declared to be "Mandatory" must also be "Required" and have a minimum cardinality of one.
R	<p>A "Required" section, entry or element SHALL be included in the document if its minimum cardinality is one. If the data exists, the sending application SHALL send it as a non-null value or a non-empty element. If the data does not exist and if the minimum cardinality is greater than zero, then the sending application SHALL send an appropriate null value. Only if data does not exist for a required element and that element has a minimum cardinality of 0 MAY the required element be omitted in a document.</p> <p>In all cases, if a required element is present in a document received by an actor claiming support for the Profile, then it SHALL be correctly processed by the receiving actor. A receiving actor SHALL NOT raise an error due to the absence of a required element with a cardinality of 0, although it MAY issue a warning that required information is missing.</p> <p>For required elements, conforming applications must demonstrate their ability to provide and communicate not null values. Receiving applications must demonstrate their ability to receive and process (e.g., store, or</p>

Optionality	Description
	display to users) not null values for required elements. This is equivalent to a SHOULD requirement.
O	An optional data element is one that MAY be provided, whether the information is available or not. If the implementation elects to support this optional section, then its support shall meet the requirement set forth for the "Required" or R.
C	A conditional data element is one that is required, or optional, depending upon other conditions. These will have further notes explaining when the data element is required.

Note: The definitions of M, R, and O are consistent with HL7 v3 Conformance profiles, but differ slightly from the 2010 and earlier versions of IHE Patient Care Coordination Content or Workflow profiles. It is expected that all IHE Technical Framework documents will converge to these HL7-based definitions.

### 6.1.1.3 Coded Terminology Values

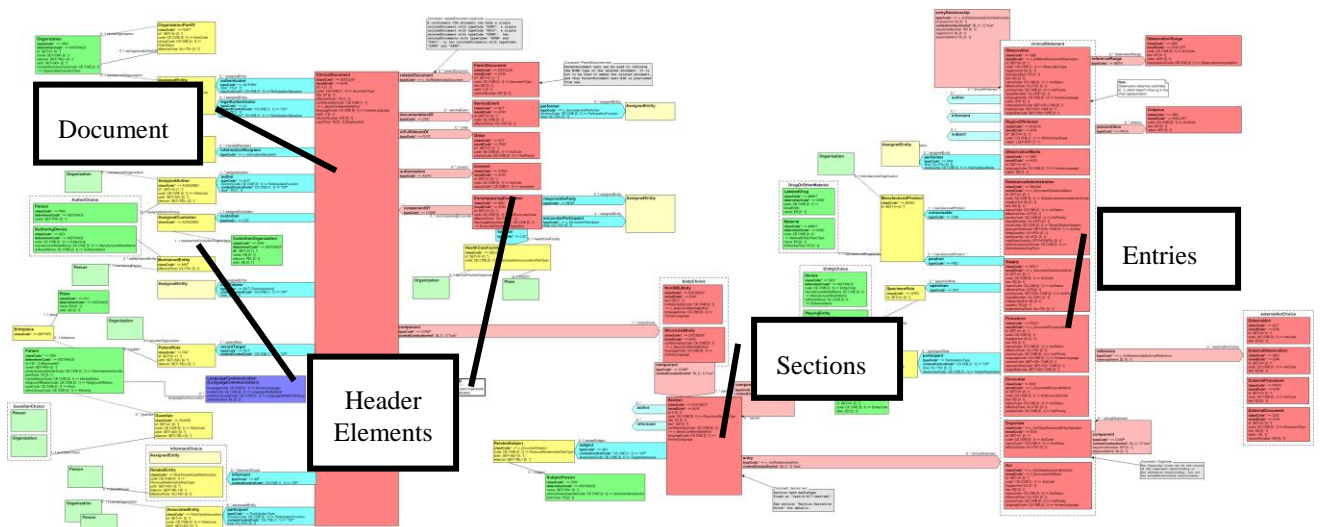
Coded terminology values are used extensively, and are encoded in CDA documents using the CD (Concept Descriptor) data type. Generally, these values are specified in Profile requirements using a triplet of the code value (encoded in XML attribute `code`), the coding scheme (encoded in XML attribute `codeSystemName`), and the code meaning (encoded in XML attribute `displayName`). When necessary to disambiguate such a triplet from the rest of the specification text, it may be enclosed in curly braces, e.g., {160245001, SNOMED CT, “No current problems or disability”}.

Representation of a coded terminology value in the CD data type requires encoding of the coding scheme OID in XML attribute `codeSystem`. For readability, these OIDs are not elaborated in the specification text. Content Creator actors must use the appropriate OIDs from Section 5 in encoding CD data type values.

Unless otherwise specified, value sets are specified with STATIC stability and have CWE (Coded With Extensibility) coding strength, as defined in the HL7 Core Principles and Properties of v3 Models. That is, the version of the value set as of the date of publication of the Profile is binding, and an implementation may use coded concepts not present in the value set.

### 6.1.2 Structure of Content Modules

For CDA Release 2 the Content Modules are organized by document, section, entry, and header elements.



**Figure 6.1.2-1 CDA R2 R-MIM with location of Document, Sections, and Entries**

Each content module is defined in terms of constraints that must be obeyed by instances of that content module, in effect a contract between the Content Creator and the Content Consumer. Each content module has a name, also known as its template identifier. The template identifiers are used to identify the contract implied by the content module.

Content modules may inherit features of other content modules of the same type (Document, Section, or Entry) by defining the parent content module that they inherit from. They may not inherit features from a different type. Although information in the CDA Header is in a different location than information in a CDA Entry, these two content modules are considered to be of the same type, and so may inherit from each other when necessary.

Each content module has a list of data elements that are mandatory (M), required if known (R), optional (O), and conditional (C). The presentation of this information varies with the type of content module, and is described in more detail below. Additional data elements may be provided by the sender that are not defined by a specific content module, but the receiver is not required to interpret them. Thus, it is not an error to include more than is asked for, but it is an error to reject a content module because it contains more than is defined by the template. This allows values to be added to the content modules delivered in this framework, through extensions to it that are not defined or profiled by IHE. It further allows content modules to be defined later by IHE that are refinements or extensions over previous content modules.

In order to retain this capability, constraints that apply to any content module will always apply to any content modules that inherit from it. Thus, the "contracts" are always valid down the inheritance hierarchy. Second, data elements of a content module will rarely be deprecated. This will usually occur only in the cases where they have been deprecated by the base standard. While any specific content module has a limited scope and set of use cases, deprecating the data element prevents any future content module from taking advantage of what has already been

defined when a particular data element has been deprecated simply because it was not necessary in the original use case.

### 6.1.2.1 Document Content Modules

Each **document** content module will define the appropriate codes used to classify the document, and will also describe the specific section and header data elements that are included. The code used to classify it is specified using an external vocabulary, typically LOINC in the case of CDA Release 2 documents. The set of data elements that make up the document are defined, including the whether these data elements must, should or may be included in the document. Each data element is mapped to a lower level content module via a template identifier, and the document content module will further indicate whether these data elements are mandatory, required if known or optional. Thus, a document content module contains as constraints:

- The template identifier of the parent content module when there is one.
- The LOINC code or codes that are used to classify the document.
- A possibly empty set of mandatory, required if known, and optional header content modules, and their template identifiers.
- A possibly empty set of mandatory, required if known, and optional section content modules, and their template identifiers.
- Other constraints as necessary.

The order of section content modules is not specified; sections may appear in any order, and may be nested, in accordance with local implementation style specifications.

#### 6.1.2.1.1 Document Content Module Table

The Document Content Module is specified using the following table.

<b>Template ID</b>				
<b>Parent Template</b>				
<b>General Description</b>				
<b>Document Code</b>				
<b>Opt</b>	<b>Data Element or Section Name</b>	<b>Template ID</b>	<b>Specification Document</b>	<b>Constraint</b>
<b>Header Elements</b>				
<b>Sections</b>				

This table implies the following conformance statements:

1. The document SHALL include the specified Template ID in the <templateID> element of the <clinicalDocument> act element (the CDA root act).
2. The document SHALL conform to all the requirements of the specified Parent Template(s).
3. The document SHALL include the specified Document Code in the <code> element of the <clinicalDocument> act element, except if the specified Document Code includes the keyword “SHOULD” or “MAY”; in the latter case, this requirement is relaxed to the requirement strength of those keywords.
4. The document SHALL include the specified Header Elements in accordance with their specified Cardinality and Optionality (Opt column value, as described in Section 6.1.1), in accordance with the specified Template ID and further constraints specified in the identified Technical Framework section.
5. The document SHALL include the specified Sections in accordance with their specified Cardinality and Optionality (Opt column value, as described in Section 6.1.1), in accordance with the specified Template ID and further constraints specified in the identified Technical Framework section.

Note: The further constraints are typically specific value sets to be applied to code elements in the template.

The Document Content Module table may be supplemented with additional specific conformance requirements.

### 6.1.2.2 Section Content Modules

**Section** content modules will define the content of a section of a clinical document. Sections will usually contain narrative text, and so this definition will often describe the information present in the narrative, although sections may be wholly comprised of subsections.

Sections may contain various subsections. If no subsections are included, a section may not contain entries without providing narrative text at the section level. These subsections may be mandatory, required if known or optional. Sections may also contain various entries, and again, these may be mandatory, required if known, or optional.

Sections can inherit constraints from another parent section content module. Sections are classified using an external vocabulary (again typically this would be LOINC, although in some cases DICOM), and so the list of possible section codes is also specified. Sections that inherit from another section module will specify the same section code(s) as its parent, unless it further restricts the type of section to smaller set of codes.

Thus, a section content module will contain as constraints:

- The template identifier of the parent content module when there is one.
- The code or codes that shall be used to classify the section.
- A possibly empty set of mandatory, required if known, and optional section content modules, and their template identifiers for the subsections of this section.

- A possibly empty set of mandatory, required if known, and optional entry content modules, and their template identifiers.
- Other constraints as necessary.

### 6.1.2.2.1 Section Content Module Table

The Section Content Module is specified using the following table.

Template ID				
Parent Template				
General Description				
Section Code				
Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
<b>Subsections</b>				
<b>Entries</b>				

This table implies the following conformance statements:

1. The section SHALL include the specified Template ID in the <templateID> element of the <section> act element.
2. The section SHALL conform to all the requirements of the specified Parent Template.
3. The section SHALL include the specified Section Code in the <code> element of the <section> act element, except if the specified Section Code includes the keyword “SHOULD or “MAY”; in the latter case, this requirement is relaxed to the requirement strength of those keywords.
4. The section SHALL include the specified Subsections in accordance with their specified Cardinality and Optionality (Opt column value, as described in Section 6.1.1), in accordance with the specified Template ID and further constraints specified in the identified Technical Framework section.
5. The section SHALL include the specified Entries in accordance with their specified Cardinality and Optionality (Opt column value, as described in Section 6.1.1), in accordance with the specified Template ID and further constraints specified in the identified Technical Framework section.

The Section Content Module table may be supplemented with additional specific conformance requirements.

### 6.1.2.2.2 Observation Entry Constraint Table

Constraints on Entries may be further specified using the following table. The template for the entry (typically the IHE PCC Simple Observation template) is specified by the invoking table, for which this table provides additional constraint specifications. Multiple rows may be present in the table to specify constraints on multiple entries based on a template invoked with cardinality greater than 1.

Opt	Exam Type Condition	observation/code	Data Type	Unit of Measure	Value Set

This table implies the following conformance statements:

1. There **SHALL** be entries in accordance with each row in the table in accordance with the specified Cardinality and Optionality (Opt column value, as described in Section 6.1.1).
2. Conditional (C) entries **SHALL** be present in accordance with the specified Exam Type Condition.

Note: The exam type is specified in the CDA Header in the documentationOf / serviceEvent / code element.

3. The entry **SHALL** include the specified observation / code element value. The specified targetSiteCode, methodCode, and interpretationCode elements **MAY** be included.

Note: The codes may be specified as a value selected from an identified Value Set.

4. The entry **SHALL** include a value of the specified Data Type.
5. If Data Type is PQ, the entry value **SHALL** use the specified Unit of Measure.
6. If Data Type is CD, the entry value **SHALL** be selected from the specified Value Set.

Notes: 1. The code may be specified as a single value, rather than as a selection from a Value Set.

2. The Value Set table entry may indicate the presence of additional constraints, e.g., for specification of severity, by a '+' and a constraint type. Such additional constraints will have specific requirements specified outside the table.

### 6.1.2.3 Entry and Header Content Modules

**Entry** and **Header** content modules are the lowest level of content for which content modules are defined. These content modules are associated with classes from the HL7 Reference Information Model (RIM). These "RIM" content modules will constrain a single RIM class. Entry content modules typically constrain an "Act" class or one of its subtypes, while header content modules will normally constrain "Participation", "Role" or "Entity" classes, but may also constrain an "Act" class.

Entry and Header content modules describe the mandatory, required if known, and optional XML elements and attributes that are present in the CDA Release 2 instance. Header and Entry

content modules may also be built up using other Header and Entry content modules. An entry or header content module may also specify constraints on the vocabularies used for codes found in the entry, or data types for the values found in the entry. Thus, an entry or header content module will contain as constraints:

- The template identifier of the parent content module when there is one.
- A description of the XML elements and attributes used in the entry, along with explanations of their meaning.
- An indication of those XML elements or attributes that are mandatory, required if known, or optional.
- Vocabulary domains to use when coding the entry.
- Data types used to specify the value of the entry.
- Other constraints as necessary.

### 6.1.2.3.1 Header Content Module Table

A Header Content Module is specified using the following table.

<b>Template ID</b>					
<b>Parent Template</b>					
<b>General Description</b>					
<b>Header Element</b>					
<b>Code</b>					
<b>Opt</b>	<b>Participation</b>	<b>Description</b>	<b>Template</b>	<b>Spec Document</b>	<b>Con-straint</b>

This table implies the following conformance statements:

1. The specified Header Element SHALL be present in the CDA header.
 

Note: This is limited by the Cardinality and Optionality of the header data element as specified in the template that invokes this Content Module.
2. The header data element SHALL include the specified Template ID in the <templateID> element of the relevant act element.
3. The header data element SHALL conform to all the requirements of the specified Parent Template.
4. The header data element SHALL include the specified Code in the <code> element, except if the specified Code includes the keyword “SHOULD or “MAY”; in the latter case, this requirement is relaxed to the requirement strength of those keywords.
5. The header data element SHALL include the specified subsidiary Participation data elements in accordance with their specified Cardinality and Optionality (Opt column

value, as described in Section 6.1.1), using the specified Participation <typeCode> element, and in accordance with the specified Template ID and further constraints specified in the identified Technical Framework section.

The Header Content Module table may be supplemented with additional specific conformance requirements.

### 6.1.2.3.2 Entry Content Module Table

An Entry Content Module is specified using the following table.

Template ID					
Parent Template					
General Description					
Class/Mood		Code		Value Type	Value
Opt	entryRelationship	Description	Template	Spec Document	Con-straint

This table implies the following conformance statements:

1. The entry SHALL include the specified Template ID in the <templateID> element of the clinical statement act element.
2. The entry SHALL conform to all the requirements of the specified Parent Template.
3. The entry SHALL include the specified classCode and moodCode values, and be conformant to the HL7 v3 requirements of that Act Class and Mood.
4. The entry SHALL include the specified entry Code in the <code> element of the clinical statement act element, except if the specified Section Code includes the keyword “SHOULD” or “MAY”; in the latter case, this requirement is relaxed to the requirement strength of those keywords.
5. If of Class/Mood OBS/EVN, the entry SHALL include a value of the specified Data Type.
6. If Data Type is CD, the entry value SHALL be the specified Value.

Note: The code may be specified as a value.

7. The entry SHALL include the specified subsidiary Entries in accordance with their specified Cardinality and Optionality (Opt column value, as described in Section 6.1.1), using the specified entryRelationship <typeCode> element, and in accordance with the specified Template ID and further constraints specified in the identified Technical Framework section.

The Entry Content Module table may be supplemented with additional specific conformance requirements.

#### 6.1.2.4 Value Sets

Value sets, which are potentially reusable in a variety of contexts, are described separately from the content modules. Each value set is identified by name and OID, and its constituent concept values are listed in a table.

Value sets concepts may be drawn from multiple coding systems and some concepts may be represented in more than one coding system. When there is a choice of coding system, the content module that invokes the value set may establish constraints on when to use a particular system (e.g., based on local policy or national regulation). The content module that invokes the value set may also establish constraints on whether concepts not in the defined value set can be used (e.g., using the HL7 CWE [coded with exceptions] and CNE [coded no exceptions] domain qualifiers); unless otherwise specified, the value set is extensible (CWE). The HL7 v3 CD data type allows the representation of a concept by a code together with a translation code in a different coding system; when multiple codes are provided for a concept, use of such translation codes is recommended.

### 6.2 Folder Document Modules

NA

### 6.3 CDA Release 2 Content Modules

#### 6.3.1 Document Content Modules

##### 6.3.1.A Routine Eye Exam 1.3.6.1.4.1.19376.1.12.1.1.aa

Routine Eye Exam (REE) is a content profile that defines the structure of the data that is often collected during a patient’s routine eye care examination. An eye examination consists of an evaluation of the physiological function and the anatomical status of the eye, visual system, and its related structures. Also included is related patient information such as history, allergies, review of systems, physical examination, social history, etc.

Comprehensive Adult Medical Eye Evaluation Preferred Practice Patterns	PCC Template Name	OPT	PCC Template Id
Demographic data	Header Modules	M [1..1]	N/A
Identity of the patient’s other pertinent health care providers	Healthcare Providers and Pharmacies	R[0..1]	1.3.6.1.4.1.19376.1.5.3.1.2.3

IHE Eye Care Technical Framework Supplement – Routine Eye Exam (REE)

<b>Comprehensive Adult Medical Eye Evaluation Preferred Practice Patterns</b>	<b>PCC Template Name</b>	<b>OPT</b>	<b>PCC Template Id</b>
Chief Complaint	Chief Complaint	R[1..1]	1.3.6.1.4.1.19376.1.5.3.1.1.13.2.1
Present status of visual function	Functional Status	R[0..1]	1.3.6.1.4.1.19376.1.5.3.1.3.17
History of Present Illness and Ocular Symptoms	History of Present Illness	R[0..1]	1.3.6.1.4.1.19376.1.5.3.1.3.4
Ocular history	Ocular History	R[0..1]	1.3.6.1.4.1.19376.1.12.1.1.bb
	List of Surgeries	R[0..1]	1.3.6.1.4.1.19376.1.5.3.1.3.11
	Coded List of Surgeries	O[0..1]	1.3.6.1.4.1.19376.1.5.3.1.3.12
Systemic history: pertinent medical conditions and previous surgery	History of Past Illness	R[0..1]	1.3.6.1.4.1.19376.1.5.3.1.3.8
	List of Surgeries	R[0..1]	1.3.6.1.4.1.19376.1.5.3.1.3.11
	Coded List of Surgeries	O[0..1]	1.3.6.1.4.1.19376.1.5.3.1.3.12
Note 1	Review of Systems	R[0..1]	1.3.6.1.4.1.19376.1.5.3.1.3.18
Medications - ophthalmic and systemic medications currently used, including nutritional supplements	Medications	R[0..1]	1.3.6.1.4.1.19376.1.5.3.1.3.19
	Ophthalmic Medications	R[1..1]	1.3.6.1.4.1.19376.1.12.1.1.pp
Allergies or adverse reactions to medications	Allergies and Other Adverse Reactions	R[0..1]	1.3.6.1.4.1.19376.1.5.3.1.3.13
Note 1	Active Problems	R[0..1]	1.3.6.1.4.1.19376.1.5.3.1.3.6
Family History	Family Medical History	R[0..1]	1.3.6.1.4.1.19376.1.5.3.1.3.14
	Coded Family Medical History	O[0..1]	1.3.6.1.4.1.19376.1.5.3.1.3.15
Social history	Social History	R[0..1]	1.3.6.1.4.1.19376.1.5.3.1.3.16
	Coded Social History	O[0..1]	1.3.6.1.4.1.19376.1.5.3.1.3.16.1
Ocular Examination	Physical Exam	M[1..1]	1.3.6.1.4.1.19376.1.5.3.1.1.9.15
	Eyes	M[1..1]	1.3.6.1.4.1.19376.1.5.3.1.1.9.19
Visual acuity with current correction:	Visual Acuity	R[0..1]	1.3.6.1.4.1.19376.1.12.1.1.dd
Vision Testing	Vision Testing	R[0..1]	1.3.6.1.4.1.19376.1.12.1.1.cc
Refractive Measurements	Refractive Measurements	R[0..1]	1.3.6.1.4.1.19376.1.12.1.1.ee
Lensometry Measurements	Lensometry Measurements	R[0..1]	1.3.6.1.4.1.19376.1.12.1.1.oo
Intraocular pressure	Intraocular pressure	R[0..1]	1.3.6.1.4.1.19376.1.12.1.1.ff

Comprehensive Adult Medical Eye Evaluation Preferred Practice Patterns	PCC Template Name	OPT	PCC Template Id
measurement			
Visual fields by confrontation	Confrontation Visual Field	R[0..1]	1.3.6.1.4.1.19376.1.12.1.1.gg
External examination	Eye External	R[0..1]	1.3.6.1.4.1.19376.1.12.1.1.hh
	Lacrimal	R[0..1]	1.3.6.1.4.1.19376.1.12.1.1.mm
Pupillary function	Pupils	R[0..1]	1.3.6.1.4.1.19376.1.12.1.1.ii
Ocular alignment and motility	Ocular alignment and motility	R[0..1]	1.3.6.1.4.1.19376.1.12.1.1.jj
Slit-lamp biomicroscopic examination:	Anterior segment and lids	R[0..1]	1.3.6.1.4.1.19376.1.12.1.1.kk
Fundus examination	Posterior segment (fundus)	R[0..1]	1.3.6.1.4.1.19376.1.12.1.1.ll
Note 1:	Ancillary Testing	R[0..1]	1.3.6.1.4.1.19376.1.12.1.1.nn
Note 1	Assessment and Plan	R[0..1]	1.3.6.1.4.1.19376.1.5.3.1.1.13.2.5

### 6.3.3 CDA Section Content Modules

#### 6.3.3.x.1 Ocular History 1.3.6.1.4.1.19376.1.12.1.1.bb

<b>Template ID</b>	1.3.6.1.4.1.19376.1.12.1.1.bb			
<b>Parent Template</b>				
<b>General Description</b>	The ocular history section shall contain a narrative description of the patient’s ocular history.			
<b>Section Code</b>	xxxxx, LOINC, “Ocular History”			
Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
<b>Subsections</b>				
R[0..1]	List of Surgeries	1.3.6.1.4.1.19376.1.5.3.1.3.11	PCC TF-2	
O[0..1]	Coded List of Surgeries	1.3.6.1.4.1.19376.1.5.3.1.3.12	PCC TF-2	

*Example of XML Code TBD*

**6.3.3.x.2 Ophthalmic Medications 1.3.6.1.4.1.19376.1.12.1.1.pp**

<b>Template ID</b>	1.3.6.1.4.1.19376.1.12.1.1.pp			
<b>Parent Template</b>	Medications 1.3.6.1.4.1.19376.1.5.3.1.3.19			
<b>General Description</b>	The ocular medications section shall contain those medications prescribed for patient’s ophthalmic conditions.			
<b>Section Code</b>	xxx, LOINC, “Ophthalmic Medications”			
<b>Opt</b>	<b>Data Element or Section Name</b>	<b>Template ID</b>	<b>Specification Document</b>	<b>Constraint</b>
<b>Entry</b>				
R[1..1]	Medications	1.3.6.1.4.1.19376.1.5.3.1.4.7	PCC TF-2	

*Example of XML Code TBD*

**6.3.3.x.3 Eyes 1.3.6.1.4.1.19376.1.5.3.1.1.9.19**

<b>Template ID</b>	1.3.6.1.4.1.19376.1.5.3.1.1.9.19			
<b>Parent Template</b>	Physical Exam 1.3.6.1.4.1.19376.1.5.3.1.1.9.15			
<b>General Description</b>	The eyes section shall contain a description of any type of eye exam.			
<b>Section Code</b>	10197-2, LOINC, “Physical findings of Eye”			
<b>Opt</b>	<b>Data Element or Section Name</b>	<b>Template ID</b>	<b>Specification Document</b>	<b>Constraint</b>
<b>Subsections</b>				
R[0..1]	Visual Acuity	1.3.6.1.4.1.19376.1.12.1.1.dd	EYECARE TF-3:6.3.3.x.5	
R[0..1]	Vision Testing	1.3.6.1.4.1.19376.1.12.1.1.cc	EYECARE TF-3:6.3.3.x.4	6.3.3.x.4.1
R[0..1]	Refractive Measurements	1.3.6.1.4.1.19376.1.12.1.1.ee	EYECARE TF-3:6.3.3.x.6	
R[0..1]	Lensometry Measurements	1.3.6.1.4.1.19376.1.12.1.1.oo	EYECARE TF-3:6.3.3.x.7	
R[0..1]	Intraocular pressure	1.3.6.1.4.1.19376.1.12.1.1.ff	EYECARE TF-3:6.3.3.x.8	6.3.3.x.8.1
R[0..1]	Confrontation Visual Field	1.3.6.1.4.1.19376.1.12.1.1.gg	EYECARE TF-3:6.3.3.x.9	6.3.3.x.9.1
R[0..1]	Eye External	1.3.6.1.4.1.19376.1.12.1.1.hh	EYECARE TF-3:6.3.3.x.10	6.3.3.x.10.1

R[0..1]	Lacrimal	1.3.6.1.4.1.19376.1.12.1.1.mm	EYECARE TF-3:6.3.3.x.15	6.3.3.x.15.1
R[0..1]	Pupils	1.3.6.1.4.1.19376.1.12.1.1.ii	EYECARE TF-3:6.3.3.x.11	6.3.3.x.11.1
R[0..1]	Ocular alignment and motility	1.3.6.1.4.1.19376.1.12.1.1.jj	EYECARE TF-3:6.3.3.x.12	6.3.3.x.12.1
R[0..1]	Anterior segment and lids	1.3.6.1.4.1.19376.1.12.1.1.kk	EYECARE TF-3:6.3.3.x.13	6.3.3.x.13.1
R[0..1]	Posterior segment (fundus)	1.3.6.1.4.1.19376.1.12.1.1.ll	EYECARE TF-3:6.3.3.x.14	6.3.3.x.14.1
R[0..1]	Ancillary Testing	1.3.6.1.4.1.19376.1.12.1.1.nn	EYECARE TF-3:6.3.3.x.16	

*Example of XML Code TBD*

#### 6.3.3.x.4 Vision Testing 1.3.6.1.4.1.19376.1.12.1.1.cc

<b>Template ID</b>	1.3.6.1.4.1.19376.1.12.1.1.cc			
<b>Parent Template</b>	Eyes 1.3.6.1.4.1.19376.1.5.3.1.1.9.19			
<b>General Description</b>	The vision section shall contain a description of any type of vision testing excluding visual acuity and visual field.			
<b>Section Code</b>	xxx, LOINC, “Vision Testing”			
<b>Opt</b>	<b>Data Element or Section Name</b>	<b>Template ID</b>	<b>Specification Document</b>	<b>Constraint</b>
<b>Entries</b>				
R[1..*]	Ocular Observation	1.3.6.1.4.1.19376.1.12.1.1.zz	EYECARE TF-3:6.3.4.a	6.3.3.x.4.1

#### 6.3.3.x.4.1 Vision Testing Constraints

`<code code=' ' codeSystem=2.16.840.1.113883.6.96 ' ' codeSystemName='SNOMED CT' />`

A vision testing ocular observation entry shall use a SNOMED CT Observable Entity hierarchy (363787002) code to identify the observable entity that is the basis for the observation. The following codes are provided to express the scope of this template; additional vision testing based SNOMED CT Observable Entity codes may be used.

observation/code	Data Type
271726001, SNOMED CT, Color vision	ST
251686008, SNOMED-CT, Contrast sensitivity	ST
359750002, SNOMED-CT, Stereoscopic acuity	ST
78513008, SNOMED-CT, Fusion binocular vision	ST

**<methodCode code=' ' codeSystem=2.16.840.1.113883.6.96 ' ' codeSystemName='SNOMED CT '/>**

The methodCode element shall be used to record the specific method used to make an observation.

SNOMED CT Procedure hierarchy (71388002) is preferred for method codes; however, other code sets may be used, if desired.

The following SNOMED CT codes represent a very limited list of examples; it is NOT an exhaustive list for implementation.

Code Value	Code Description
7510005	Color vision examination (procedure)
410566008	Contrast sensitivity test (procedure)
421635003	Stereo fly testing
252853008	Stereotests (procedure)
396187005	Diplopia test (procedure)
-----	-----

**<interpretationCode code=' ' codeSystem=' ' codeSystemName=' '/>**

If there is an interpretation that can be performed using an observation result (e.g., high, borderline, normal, low), these may be recorded within the interpretationCode element.

The SNOMED CT Clinical Findings hierarchy (404684003) is preferred for interpretation codes, however, other code sets may be used, if desired (e.g., ICD-10).

The following SNOMED CT codes represent a very limited list of examples; it is NOT an exhaustive list for implementation.

Code Value	Code Description
23289000	Abnormal color vision

Code Value	Code Description
163968004	On examination - color vision normal
32919003	Fusion with defective stereopsis
24982008	Diplopia
.....	.....

*Example of XML Code TBD*

### 6.3.3.x.5 Visual Acuity 1.3.6.1.4.1.19376.1.12.1.1.dd

Template ID	1.3.6.1.4.1.19376.1.12.1.1.dd			
Parent Template	Eyes 1.3.6.1.4.1.19376.1.5.3.1.1.9.19			
General Description	The visual acuity section shall contain a description of any type of visual acuity exam.			
Section Code	xxxxxx, LOINC, “Visual Acuity”			
Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
<b>Entries</b>				
R[1..*]	Visual Acuity Measurements Organizer	1.3.6.1.4.1.19376.1.12.1.1.yy	EYECARE TF-3:6.3.4.b	

*Example of XML Code TBD*

### 6.3.3.x.6 Refractive Measurements 1.3.6.1.4.1.19376.1.12.1.1.ee

Template ID	1.3.6.1.4.1.19376.1.12.1.1.ee			
Parent Template	Eyes 1.3.6.1.4.1.19376.1.5.3.1.1.9.19			
General Description	The refractive measurements section shall contain a description of any type of refractive measurement.			
Section Code	xxxxxx, LOINC, “Refractive Measurements”			
Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
<b>Entries</b>				
R[1..*]	Refractive Measurements Organizer	1.3.6.1.4.1.19376.1.12.1.1.ww	EYECARE TF-3:6.3.4.d	
R[0..*]	Visual Acuity Measurements Organizer	1.3.6.1.4.1.19376.1.12.1.1.yy	EYECARE TF-3:6.3.4.b	
R[0..*]	Keratometry Measurements Organizer	1.3.6.1.4.1.19376.1.12.1.1.uu	EYECARE TF-3:6.3.4.h	
O[0..*]	Ocular Observation	1.3.6.1.4.1.19376.1.12.1.1.zz	EYECARE TF-3:6.3.4.a	

*Example of XML Code TBD*

**6.3.3.x.7 Lensometry Measurements 1.3.6.1.4.1.19376.1.12.1.1.oo**

<b>Template ID</b>	1.3.6.1.4.1.19376.1.12.1.1.oo			
<b>Parent Template</b>	Eyes 1.3.6.1.4.1.19376.1.5.3.1.1.9.19			
<b>General Description</b>	The lensometry measurements section shall contain a description of any lensometry measurement.			
<b>Section Code</b>	xxxxxx, LOINC, “Lensometry Measurements”			
<b>Opt</b>	<b>Data Element or Section Name</b>	<b>Template ID</b>	<b>Specification Document</b>	<b>Constraint</b>
<b>Entries</b>				
R[1..*]	Lensometry Measurements Organizer	1.3.6.1.4.1.19376.1.12.1.1.ss	EYECARE TF-3:6.3.4.f	

*Example of XML Code TBD*

**6.3.3.x.8 Intraocular Pressure 1.3.6.1.4.1.19376.1.12.1.1.ff**

<b>Template ID</b>	1.3.6.1.4.1.19376.1.12.1.1.ff			
<b>Parent Template</b>	Eyes 1.3.6.1.4.1.19376.1.5.3.1.1.9.19			
<b>General Description</b>	The intraocular pressure section shall contain a description of any type of intraocular pressure measurement.			
<b>Section Code</b>	56844-4, LOINC, “Intraocular pressure of the eye”			
<b>Opt</b>	<b>Data Element or Section Name</b>	<b>Template ID</b>	<b>Specification Document</b>	<b>Constraint</b>
<b>Entries</b>				
R[1..*]	Ocular Observation	1.3.6.1.4.1.19376.1.12.1.1.zz	EYECARE TF-3:6.3.4.a	

**6.3.3.x.8.1 Intraocular Pressure Constraints**

`<code code=' ' codeSystem=2.16.840.1.113883.6.96 ' ' codeSystemName='SNOMED CT '/>`

An intraocular pressure ocular observation entry shall use a SNOMED CT Observable Entity hierarchy (363787002) code to identify the observation. The following code is provided to express the scope of this template; additional intraocular pressure based SNOMED CT Observable Entity codes may be used.

<b>observation/code</b>	<b>Data Type</b>	<b>Unit of Measure</b>
41633001, SNOMED-CT, Intraocular pressure	PQ	mm[Hg]

**<methodCode code=' ' codeSystem=2.16.840.1.113883.6.96 ' ' codeSystemName='SNOMED CT '/>**

The methodCode element shall be used to record the specific method used to make an observation.

SNOMED CT Procedure hierarchy (71388002) is preferred for method codes; however, other code sets may be used, if desired.

The following SNOMED CT codes represent a very limited list of examples; it is NOT an exhaustive list for implementation.

Code Value	Code Description
389152008	Goldmann applanation tonometry
389149000	Schiotz tonometry
-----	-----

**<interpretationCode code=' ' codeSystem=' ' codeSystemName=' '/>**

If there is an interpretation that can be performed using an observation result (e.g., high, borderline, normal, low), these may be recorded within the interpretationCode element.

The SNOMED CT Clinical Findings hierarchy (404684003) is preferred for interpretation codes, however, other code sets may be used, if desired (e.g., ICD-10).

The following SNOMED CT codes represent a very limited list of examples; it is NOT an exhaustive list for implementation.

Code Value	Code Description
23670006	Decreased intraocular pressure
60280003	Normal intraocular pressure
112222000	Raised intraocular pressure
.....	.....

*Example of XML Code TBD*

**6.3.3.x.9 Confrontation Visual Field 1.3.6.1.4.1.19376.1.12.1.1.gg**

<b>Template ID</b>	1.3.6.1.4.1.19376.1.12.1.1.gg			
<b>Parent Template</b>	Eyes 1.3.6.1.4.1.19376.1.5.3.1.1.9.19			
<b>General Description</b>	The confrontation visual field section shall contain a description of any type of confrontation visual field exam.			
<b>Section Code</b>	xxxxxx, LOINC, “Confrontation Visual Field”			
<b>Opt</b>	<b>Data Element or Section Name</b>	<b>Template ID</b>	<b>Specification Document</b>	<b>Constraint</b>
<b>Entries</b>				
R[1..*]	Ocular Observation	1.3.6.1.4.1.19376.1.12.1.1.zz	EYECARE TF-3:6.3.4.a	

**6.3.3.x.9.1 Confrontation Visual Field Constraints**

**<code code=' ' codeSystem=2.16.840.1.113883.6.96 ' ' codeSystemName='SNOMED CT '/>**

A confrontation visual field ocular observation entry shall use a SNOMED CT Observable Entity hierarchy (363787002) code to identify the observation. The following code is provided to express the scope of this template; additional confrontation visual field based SNOMED CT Observable Entity codes may be used.

<b>observation/code</b>	<b>Data Type</b>
421640006, SNOMED-CT, Confrontation visual field	ST

**<methodCode code=' ' codeSystem=2.16.840.1.113883.6.96 ' ' codeSystemName='SNOMED CT '/>**

The methodCode element shall be used to record the specific method used to make an observation.

SNOMED CT Procedure hierarchy (71388002) is preferred for method codes; however, other code sets may be used, if desired.

The following SNOMED CT codes represent a very limited list of examples; it is NOT an exhaustive list for implementation.

<b>Code Value</b>	<b>Code Description</b>
410560002	Confrontation visual field test
-----	-----

**<interpretationCode code=' ' codeSystem=' ' codeSystemName=' '/>**

If there is an interpretation that can be performed using an observation result (e.g., high, borderline, normal, low), these may be recorded within the interpretationCode element.

The SNOMED CT Clinical Findings hierarchy (404684003) is preferred for interpretation codes, however, other code sets may be used, if desired (e.g., ICD-10).

The following SNOMED CT codes represent a very limited list of examples; it is NOT an exhaustive list for implementation.

Code Value	Code Description
164002009	On examination - visual fields normal
421096000	Full to confrontation visual fields
.....	.....

*Example of XML Code TBD*

### 6.3.3.x.10 Eye External 1.3.6.1.4.1.19376.1.12.1.1.hh

<b>Template ID</b>		1.3.6.1.4.1.19376.1.12.1.1.hh		
<b>Parent Template</b>		Eyes 1.3.6.1.4.1.19376.1.5.3.1.1.9.19		
<b>General Description</b>		An examination of ocular adnexal structures and pertinent facial structures.		
<b>Section Code</b>		xxxxxx, LOINC, “Eye External”		
Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
<b>Entries</b>				
R[1..*]	Ocular Observation	1.3.6.1.4.1.19376.1.12.1.1.zz	EYECARE TF-3:6.3.4.a	

#### 6.3.3.x.10.1 Eye External Constraints

**<code code=' ' codeSystem=2.16.840.1.113883.6.96 ' ' codeSystemName='SNOMED CT '/>**

An eye external ocular observation entry shall use a SNOMED CT Observable Entity hierarchy (363787002) code to identify the observation. The following codes are provided to express the scope of this template; additional eye external based SNOMED CT Observable Entity codes may be used.

observation/code	Data Type
363929009, SNOMED CT, Eyelid observable	ST
421261009, SNOMED-CT, Eyelash observable	ST
251693007, SNOMED-	ST

observation/code	Data Type
CT, Tear film break-up time	
363935009, SNOMED-CT, Globe observable	ST
366636003, SNOMED-CT, Facial appearance finding	ST

**<methodCode code=' ' codeSystem=2.16.840.1.113883.6.96 ' ' codeSystemName='SNOMED CT '/>**

The methodCode element shall be used to record the specific method used to make an observation.

SNOMED CT Procedure hierarchy (71388002) is preferred for method codes; however, other code sets may be used, if desired.

The following SNOMED CT codes represent a very limited list of examples; it is NOT an exhaustive list for implementation.

Code Value	Code Description
424391002	Exophthalmometry
417997000	Fluorescein dye disappearance test
-----	-----

**<interpretationCode code=' ' codeSystem=' ' codeSystemName=' '/>**

If there is an interpretation that can be performed using an observation result (e.g., high, borderline, normal, low), these may be recorded within the interpretationCode element.

The SNOMED CT Clinical Findings hierarchy (404684003) is preferred for interpretation codes, however, other code sets may be used, if desired (e.g., ICD-10).

The following SNOMED CT codes represent a very limited list of examples; it is NOT an exhaustive list for implementation.

Code Value	Code Description
14520009	Lid retraction
84893000	Lid lag
.....	.....

*Example of XML Code TBD*

**6.3.3.x.11 Pupils 1.3.6.1.4.1.19376.1.12.1.1.ii**

<b>Template ID</b>	1.3.6.1.4.1.19376.1.12.1.1.ii			
<b>Parent Template</b>	Eyes 1.3.6.1.4.1.19376.1.5.3.1.1.9.19			
<b>General Description</b>	The pupils section shall contain a description of any type of pupil exam.			
<b>Section Code</b>	32466-5, LOINC, “Physical Findings Pupils”			
<b>Opt</b>	<b>Data Element or Section Name</b>	<b>Template ID</b>	<b>Specification Document</b>	<b>Constraint</b>
<b>Entries</b>				
R[1..*]	Ocular Observation	1.3.6.1.4.1.19376.1.12.1.1.zz	EYECARE TF-3:6.3.4.a	

**6.3.3.x.11.1 Pupils Constraints**

**<code code=' ' codeSystem=2.16.840.1.113883.6.96 ' ' codeSystemName='SNOMED CT '/>**

A pupil ocular observation entry shall use a SNOMED CT Observable Entity hierarchy (363787002) code to identify the observation. The following codes are provided to express the scope of this template; additional pupil based SNOMED CT Observable Entity codes may be used.

<b>observation/code</b>	<b>Data Type</b>	<b>Unit of Measure</b>
363953003, SNOMED CT, Size of pupil	PQ	mm
363954009, SNOMED-CT, Pupil shape	ST	
363955005, SNOMED-CT, Equality of pupils	ST	
113147002, SNOMED-CT, Pupil reaction to light	ST	

**<methodCode code=' ' codeSystem=2.16.840.1.113883.6.96 ' ' codeSystemName='SNOMED CT '/>**

The methodCode element shall be used to record the specific method used to make an observation.

SNOMED CT Procedure hierarchy (71388002) is preferred for method codes; however, other code sets may be used, if desired.

The following SNOMED CT codes represent a very limited list of examples; it is NOT an exhaustive list for implementation.

Code Value	Code Description
32750006	Inspection
122869004	Measurement
-----	-----

**<interpretationCode code=' ' codeSystem=' ' codeSystemName=' '/>**

If there is an interpretation that can be performed using an observation result (e.g., high, borderline, normal, low), these may be recorded within the interpretationCode element.

The SNOMED CT Clinical Findings hierarchy (404684003) is preferred for interpretation codes, however, other code sets may be used, if desired (e.g., ICD-10).

The following SNOMED CT codes represent a very limited list of examples; it is NOT an exhaustive list for implementation.

Code Value	Code Description
232121005	Afferent pupillary defect
386667005	Pupils equal, react to light and accommodation
418970005	Pupil equal round and reacting to light

*Example of XML Code TBD*

### 6.3.3.x.12 Ocular Alignment and Motility 1.3.6.1.4.1.19376.1.12.1.1.jj

<b>Template ID</b>	1.3.6.1.4.1.19376.1.12.1.1.jj			
<b>Parent Template</b>	Eyes 1.3.6.1.4.1.19376.1.5.3.1.1.9.19			
<b>General Description</b>	The ocular alignment and motility section shall contain a description of any type of ocular alignment or motility exam.			
<b>Section Code</b>	xxxxxx, LOINC, “Ocular Alignment and Motility”			
Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
<b>Entries</b>				
R[1..*]	Ocular Observation	1.3.6.1.4.1.19376.1.12.1.1.zz	EYECARE TF-3:6.3.4.a	

#### 6.3.3.x.12.1 Ocular Alignment and Motility Constraints

**<code code=' ' codeSystem=2.16.840.1.113883.6.96 ' ' codeSystemName='SNOMED CT' />**

An ocular alignment and motility observation entry shall use a SNOMED CT Observable Entity hierarchy (363787002) code to identify the observation. The following codes are provided to

express the scope of this template; additional ocular alignment and motility based SNOMED CT Observable Entity codes may be used.

observation/code	Data Type
251776000, SNOMED CT, Ocular accommodation	ST
313088003, SNOMED-CT, Ocular muscle balance	ST
31763002, SNOMED-CT, Ocular motility observable	ST
400927000, SNOMED-CT, Fusional vergence, function	ST

**<methodCode code=' ' codeSystem=2.16.840.1.113883.6.96 ' ' codeSystemName='SNOMED CT '/>**

The methodCode element shall be used to record the specific method used to make an observation.

SNOMED CT Procedure hierarchy (71388002) is preferred for method codes; however, other code sets may be used, if desired.

The following SNOMED CT codes represent a very limited list of examples; it is NOT an exhaustive list for implementation.

Code Value	Code Description
400919009	Alternate cover test
252874009	Krimsky test
-----	-----

**<interpretationCode code=' ' codeSystem=' ' codeSystemName=' '/>**

If there is an interpretation that can be performed using an observation result (e.g., high, borderline, normal, low), these may be recorded within the interpretationCode element.

The SNOMED CT Clinical Findings hierarchy (404684003) is preferred for interpretation codes, however, other code sets may be used, if desired (e.g., ICD-10).

The following SNOMED CT codes represent a very limited list of examples; it is NOT an exhaustive list for implementation.

Code Value	Code Description
164045002	On examination - eye movements normal
419825008	Limited leftward eye movement

Code Value	Code Description
.....	.....

### 6.3.3.x.13 Anterior Segment and Lids 1.3.6.1.4.1.19376.1.12.1.1.kk

<b>Template ID</b>	1.3.6.1.4.1.19376.1.12.1.1.kk			
<b>Parent Template</b>	Eyes 1.3.6.1.4.1.19376.1.5.3.1.1.9.19			
<b>General Description</b>	The anterior segment and lids section shall contain a description of any type of biomicroscopic examination of the anterior segment and lids.			
<b>Section Code</b>	xxxxxx, LOINC, “Anterior Segment and Lids”			
Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
<b>Entries</b>				
R[1..*]	Ocular Observation	1.3.6.1.4.1.19376.1.12.1.1.zz	EYECARE TF-3: 6.3.4.a	

#### 6.3.3.x.13.1 Anterior Segment and Lids Constraints

`<code code=' ' codeSystem=2.16.840.1.113883.6.96 ' ' codeSystemName='SNOMED CT' />`

An anterior segment and lids ocular observation entry shall use a SNOMED CT Observable Entity hierarchy (363787002) code to identify the observation. The following codes are provided to express the scope of this template; additional anterior segment and lids based SNOMED CT Observable Entity codes may be used.

observation/code	Data Type	Unit of Measure
363929009, SNOMED CT, Eyelid observable	ST	
420160007, SNOMED-CT, Ocular tear film observable	ST	
251693007, SNOMED-CT, Tear film break-up time	ST or PQ	s
421261009, SNOMED-CT, Eyelash observable	ST	
363940001, SNOMED-CT, Conjunctival observable	ST	
363964000, SNOMED-CT, Anterior sclera feature	ST	
363943004, SNOMED-CT, Cornea observable	ST	
363946007, SNOMED-CT, Anterior chamber observable	ST	

observation/code	Data Type	Unit of Measure
363956006, SNOMED-CT, Iris observable	ST	
363959004, SNOMED-CT, Crystalline lens observable	ST	
3363965004, SNOMED-CT, Vitreous cavity observable	ST	
363949000, SNOMED-CT, Observable of angle of anterior chamber	ST	

**<methodCode code=' ' codeSystem=2.16.840.1.113883.6.96 ' ' codeSystemName='SNOMED CT '/>**

The methodCode element shall be used to record the specific method used to make an observation.

SNOMED CT Procedure hierarchy (71388002) is preferred for method codes; however, other code sets may be used, if desired.

The following SNOMED CT codes represent a very limited list of examples; it is NOT an exhaustive list for implementation.

Code Value	Code Description
398891008	Slit lamp biomicroscopy
76949005	Gonioscopy
410459005	Ultrasound pachymetry
414273009	Fluorescein staining of eye
-----	-----

**<interpretationCode code=' ' codeSystem=' ' codeSystemName=' '/>**

If there is an interpretation that can be performed using an observation result (e.g., high, borderline, normal, low), these may be recorded within the interpretationCode element.

The SNOMED CT Clinical Findings hierarchy (404684003) is preferred for interpretation codes, however, other code sets may be used, if desired (e.g., ICD-10).

The following SNOMED CT codes represent a very limited list of examples; it is NOT an exhaustive list for implementation.

Code Value	Code Description
301926003	Conjunctiva normal
301928002	Central corneal epithelial staining pattern

Code Value	Code Description
301929005	Peripheral corneal epithelial staining pattern
301936006	Anterior chamber of eye normal
247570005	Collarettes of lash follicles
314016000	Age-related lens opacity
370952005	Decreased tear film break-up
-----	-----

*Example of XML Code TBD*

### 6.3.3.x.14. Posterior Segment (Fundus) 1.3.6.1.4.1.19376.1.12.1.1.II

<b>Template ID</b>	1.3.6.1.4.1.19376.1.12.1.1.II			
<b>Parent Template</b>	Eyes 1.3.6.1.4.1.19376.1.5.3.1.1.9.19			
<b>General Description</b>	The posterior segment (fundus) section shall contain a description of any type of posterior segment exam.			
<b>Section Code</b>	xxxxxx, LOINC, "Posterior Segment"			
Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
<b>Entries</b>				
R[1..*]	Ocular Observation	1.3.6.1.4.1.19376.1.12.1.1.zz	EYECARE TF-3:6.3.4.a	

#### 6.3.3.x.14.1 Posterior Segment (Fundus) Constraints

`<code code=' ' codeSystem=2.16.840.1.113883.6.96 ' ' codeSystemName='SNOMED CT' />`

A posterior segment (fundus) ocular observation entry shall use a SNOMED CT Observable Entity hierarchy (363787002) code to identify the observation. The following codes are provided to express the scope of this template; additional posterior segment (fundus) based SNOMED CT Observable Entity codes may be used.

observation/code	Data Type
363965004, SNOMED CT, Vitreous cavity observable	ST
363971005, SNOMED-CT, Optic disc observable	ST
xxxxxxx, SNOMED-CT, Macula observable	ST
363968002, SNOMED-CT, Retina vessel feature	ST
363967007, SNOMED-CT,	ST

observation/code	Data Type
Retina/choroid observable	

The methodCode element shall be used to record the specific method used to make an observation.

SNOMED CT Procedure hierarchy (71388002) is preferred for method codes; however, other code sets may be used, if desired.

The following SNOMED CT codes represent a very limited list of examples; it is NOT an exhaustive list for implementation.

Code Value	Code Description
410453006	Binocular indirect ophthalmoscopy
410455004	Slit-lamp fundus examination
-----	-----

**<interpretationCode code=' ' codeSystem=' ' codeSystemName=' '/>**

If there is an interpretation that can be performed using an observation result (e.g., high, borderline, normal, low), these may be recorded within the interpretationCode element.

The SNOMED CT Clinical Findings hierarchy (404684003) is preferred for interpretation codes, however, other code sets may be used, if desired (e.g., ICD-10).

The following SNOMED CT codes represent a very limited list of examples; it is NOT an exhaustive list for implementation.

Code Value	Code Description
169372000	On examination optic disc normal
163979009	On examination – optic disc cupped
163983009	On examination – retina normal
-----	-----

*Example of XML Code TBD*

**6.3.3.x.15 Lacrimal 1.3.6.1.4.1.19376.1.12.1.1.mm**

<b>Template ID</b>		1.3.6.1.4.1.19376.1.12.1.1.mm		
<b>Parent Template</b>		Eyes 1.3.6.1.4.1.19376.1.5.3.1.1.9.19		
<b>General Description</b>		An examination of lacrimal structure and function.		
<b>Section Code</b>		xxxxxx, LOINC, “Lacrimal”		
<b>Opt</b>	<b>Data Element or Section Name</b>	<b>Template ID</b>	<b>Specification Document</b>	<b>Constraint</b>
<b>Entries</b>				
R[1..*]	Ocular Observation	1.3.6.1.4.1.19376.1.12.1.1.zz	EYECARE TF-3:6.3.4.a	

**6.3.3.x.15.1 Lacrimal Constraints**

**<code code=' ' codeSystem=2.16.840.1.113883.6.96 ' ' codeSystemName='SNOMED CT' />**

A lacrimal ocular observation entry shall use a SNOMED CT Observable Entity hierarchy (363787002) code to identify the observation. The following codes are provided to express the scope of this template; additional lacrimal based SNOMED CT Observable Entity codes may be used.

<b>observation/code</b>	<b>Data Type</b>
417323003, SNOMED CT, Lacrimal drainage system	ST
64702000, SNOMED-CT, Tear production, function	ST
251693007, SNOMED-CT, Tear film break-up time	ST

**<methodCode code=' ' codeSystem=2.16.840.1.113883.6.96 ' ' codeSystemName='SNOMED CT' />**

The methodCode element shall be used to record the specific method used to make an observation.

SNOMED CT Procedure hierarchy (71388002) is preferred for method codes; however, other code sets may be used, if desired.

The following SNOMED CT codes represent a very limited list of examples; it is NOT an exhaustive list for implementation.

<b>Code Value</b>	<b>Code Description</b>
164742009	Schirmers test

Code Value	Code Description
419279005	Jones dye test
-----	-----

**<interpretationCode code=' ' codeSystem=' ' codeSystemName=' '/>**

If there is an interpretation that can be performed using an observation result (e.g., high, borderline, normal, low), these may be recorded within the interpretationCode element.

The SNOMED CT Clinical Findings hierarchy (404684003) is preferred for interpretation codes, however, other code sets may be used, if desired (e.g., ICD-10).

The following SNOMED CT codes represent a very limited list of examples; it is NOT an exhaustive list for implementation.

Code Value	Code Description
251700007	Lacrimal drainage – not patent
370952005	Decreased tear film break-up
-----	-----

*Example of XML Code TBD*

### 6.3.3.x.16 Ancillary Testing 1.3.6.1.4.1.19376.1.12.1.1.nn

<b>Template ID</b>	1.3.6.1.4.1.19376.1.12.1.1.nn			
<b>Parent Template</b>	Eyes 1.3.6.1.4.1.19376.1.5.3.1.1.9.19			
<b>General Description</b>	The ancillary testing section shall contain a description of ancillary eye exams			
<b>Section Code</b>	xxxxxx, LOINC, “Ancillary Tests”			
Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
<b>Subsections</b>				
O[0..1]	DICOM Object Catalog	1.3.6.1.4.1.19376.1.4.1.2.15	CARD TF-2	
O[0..1]	Key Images	1.3.6.1.4.1.19376.1.4.1.2.14	CARD TF-2	

*Example of XML Code TBD*

### 6.3.4 CDA Entry Content Modules

*Add section 6.3.4.x*

#### 6.3.4.a Ocular Observation 1.3.6.1.4.1.19376.1.12.1.1.zz

The ocular observation entry is meant to be an abstract representation of many of the ocular observations used in this specification. It can be made concrete by the specification of a few additional constraints, namely the vocabulary used for codes, and the value representation.

##### 6.3.4.a.1 Specification

*Example of XML Code TBD*

##### 6.3.4.a.2 <observation classCode='OBS' moodCode='EVN'>

These acts are simply observations that have occurred, and so are recorded using the <observation> element as shown above.

##### 6.3.4.a.3 <templateId root='1.3.6.1.4.1.19376.1.12.1.1.zz' />

The <templateId> element identifies this <observation> as a simple observation, allowing for validation of the content. The templateId must appear as shown above.

##### 6.3.4.a.4 <id root=' ' extension=' ' />

Each observation shall have an identifier.

##### 6.3.4.a.5 <code code=' ' displayName=' ' codeSystem=' ' codeSystemName=' ' />

Observations shall have a code describing what was measured. The code system used is determined by the vocabulary constraints on the types of measurements that might be recorded in a section. Content modules that are derived from the Ocular Observation content module may restrict the code system and code values used for the observation.

##### 6.3.4.a.6 <text><reference value='#xxx' /></text> -OR- <text>text</text>

Each observation measurement entry may contain a <text> element providing the free text that provides the same information as the observation within the narrative portion of the document with a <text> element. For CDA based uses of Ocular Observations, this element SHALL be present, and SHALL contain a <reference> element that points to the related string in the narrative portion of the document. For HL7 Version 3 based uses, the <text> element MAY be included.

##### 6.3.4.a.7 <statusCode code='completed' />

The status code of all observations shall be completed.

**6.3.4.a.8 <effectiveTime value=' '/>**

The <effectiveTime> element shall be present in standalone observations and shall record the date and time when the measurement was taken. This element should be precise to the day. If the date and time is unknown, this element should record that using the nullFlavor attribute.

**6.3.4.a.9 <value xsi:type=' ' .../>**

The value of the observation shall be recorded using a data type appropriate to the observation. Content modules derived from the Ocular Observation content module may restrict the allowable data types used for the observation.

**6.3.4.a.10 <interpretationCode code=' ' codeSystem=' ' codeSystemName=' '/>**

If there is an interpretation that can be performed using an observation result (e.g., high, borderline, normal, low), these may be recorded within the interpretationCode element.

**6.3.4.a.11 <methodCode code=' ' codeSystem=' ' codeSystemName=' '/>**

The methodCode element shall be used to record the specific method used to make an observation when this information is not already pre-coordinated with the observation code.

**6.3.4.a.12 <targetSiteCode code=' ' codeSystem=2.16.840.1.113883.6.96 ' ' codeSystemName='SNOMED CT '/>**

The targetSiteCode shall be used to record the target site where an observation is made when this information is not already pre-coordinated with the observation code. An Ocular Observation shall use one of the following SNOMED CT Anatomical Structure (91723000) codes.

Code Value	Description
362503005	Entire left eye
362502000	Entire right eye
362508001	Both eyes, entire

Additional qualifier codes may be conveyed to further clarify the target site such as SNOMED CT codes to state concepts such as 64217000, SNOMED-CT, Superior, 261089000, SNOMED CT, Inferior, etc.

**6.3.4.a.13 <author><assignedAuthor classCode='ASSIGNED'>...<assignedAuthor></author>**

In CDA uses, Ocular Observations are assumed to be authored by the same author as the document through context conduction. However specific authorship of observation may be represented by listing the author in the header and referencing the author in a <author> relationship. If authors are explicitly listed in documents, an <id> element SHOULD reference

the ID of the author in the header through an assignedAuthor Role. If the author of the observation is not an author of the document the <person> object including a name and ID SHALL be included.

For HL7 Version 3 purposes, the <author> element SHOULD be present unless it can be determined by conduction from organizers or higher level structures. When used for HL7 Version 3, the role element name is <assignedEntity> and the author is represented as <assignedPerson> element.

### 6.3.4.b Visual Acuity Measurements Organizer 1.3.6.1.4.1.19376.1.12.1.1.yy

A visual acuity measurements organizer collects visual acuity measurement observations.

#### 6.3.4.b.1 Specification

*Example of XML Code TBD*

#### 6.3.4.b.2 <organizer classCode='CLUSTER' moodCode='EVN'>

The visual acuity measurement organizer is a cluster of visual acuity measurements observations.

#### 6.3.4.b.3 <templateId root='1.3.6.1.4.1.19376.1.12.1.1.yy' />

The visual acuity measurement organizer shall have the <templateId> elements shown above to indicate the constraints of this specification.

#### 6.3.4.b.4 <id root=' ' extension=' ' />

The organizer shall have an <id> element.

#### 6.3.4.b.5 <code code="" displayName="" codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' /> or <code code="" displayName="" codeSystem='2.16.840.10008.2.16.4' codeSystemName='DCM' />

The <code> element shall be recorded as shown above to indicate that this organizer captures information about patient visual acuity measurements.

For the visual acuity organizer, the <code> element shall use a code with qualifiers (HL7 CD data type). The code shall use a SNOMED CT Observable Entity hierarchy (363787002) code to identify the observation qualifier or a code from the DICOM code from Context Group (CID 4216 Ophthalmic Visual Acuity Type). The following codes are provided to express the scope of this template; additional visual acuity based SNOMED CT Observable Entity and DICOM CID 4216 codes may be used.

#### SNOMED CT Value Set

Code Value	Code Description
424622008	Potential Acuity Meter Visual Acuity

Code Value	Code Description
419775003	Best Corrected Visual Acuity
420050001	Uncorrected Visual Acuity
419475002	Pinhole Visual Acuity
425141002	Brightness Acuity Testing Visual Acuity

**DICOM Value Set CID 4216**

Code Value	Code Description
111685	Autorefracton Visual Acuity
111686	Habitual Visual Acuity
111687	Prescription Visual Acuity

The required qualifier for the visual acuity organizer <code> element shall use a SNOMED CT that specifies the distance viewing type from the table below. Additional visual acuity based SNOMED CT codes may be used.

**SNOMED CT “Distance Viewing Type” Value Set**

Code Value	Code Description
251743004	Near Visual Acuity
251739003	Distance Visual Acuity
418553009	Intermediate Visual Acuity
	Other Visual Acuity

**6.3.4.b.6 <text><reference value='#xxx' /></text> -OR- <text>text</text>**

Each visual acuity observation measurement entry may contain a <text> element providing the free text that provides the same information as the observation within the narrative portion of the document with a <text> element. For CDA based uses of visual acuity Observations, this element SHALL be present, and SHALL contain a <reference> element that points to the related string in the narrative portion of the document. For HL7 Version 3 based uses, the <text> element MAY be included.

**6.3.4.b.7 <targetSiteCode code=' ' codeSystem=2.16.840.1.113883.6.96 ' ' codeSystemName='SNOMED CT ' />**

The targetSiteCode shall be used to record which eye or that both eyes are being observed by this organizer. The targetSiteCode shall use one of the following SNOMED CT Anatomical Structure (91723000) codes.

Code Value	Code Description
362503005	Entire left eye
362502000	Entire right eye
362508001	Both eyes. entire

**6.3.4.b.8 <methodCode code=' ' codeSystem=' ' codeSystemName=' '/>**

The methodCode element shall be used to record the specific method used to make an observation.

SNOMED CT Procedure hierarchy (71388002) is preferred for method codes; however, other code sets may be used, if desired.

The following SNOMED CT codes represent a very limited list of examples; it is NOT an exhaustive list for implementation.

Code Value	Code Description
252973004	Snellen chart assessment
400909003	Allen picture test
.....	.....

**6.3.4.b.9 <statusCode code='completed'/>**

The observations have all been completed.

**6.3.4.b.10 <effectiveTime value=' '/>**

The effective time element shall be present to indicate when the measurement was taken.

**6.3.4.b.11 <author typeCode='AUT'><assignedEntity1 typeCode='ASSIGNED'>...</assignedEntity1></author>**

For use with HL7 Version 3, Visual Acuity Measurements organizers SHALL contain an <author> element to represent the person or device.

**6.3.4.b.12 <!-- one or more visual acuity measurements observations -->  
<component typeCode='COMP'>**

The organizer shall have one or more <component> elements that are <observation> elements using the Visual Acuity Measurement Observation template.

**6.3.4.c Visual Acuity Measurement Observations 1.3.6.1.4.1.19376.1.12.1.1.xx**

The visual acuity measurements observation entry is meant to be an abstract representation of the visual acuity measurements observations used in this specification. It can be made concrete by

the specification of a few additional constraints, namely the vocabulary used for codes, and the value representation.

### 6.3.4.c.1 Specification

*Example of XML Code TBD*

### 6.3.4.c.2 <observation classCode='OBS' moodCode='EVN'>

These acts are visual acuity observations that have occurred, and so are recorded using the <observation> element as shown above.

### 6.3.4.c.3 <templateId root='1.3.6.1.4.1.19376.1.12.1.1.xx'>

The <templateId> element identifies this <observation> as visual acuity measurements observation, allowing for validation of the content. The templateId must appear as shown above.

### 6.3.4.c.4 <id root=' ' extension=' ' />

Each observation shall have an identifier.

### 6.3.4.c.5 <code code=' ' displayName=' ' codeSystem=' ' codeSystemName=' ' />

A visual acuity observation entry shall use a SNOMED CT Clinical Findings hierarchy (404684003) code to identify the observation. The following codes are provided to express the scope of this template; additional SNOMED CT Clinical Findings codes may be used. If needed, additional code sets may be used.

Opt	observation/code	Data Type	Unit of Measure	Value Set
C* [0..1]	xxxxxx, SNOMED CT, Visual Acuity Coded	CD		SNOMED CT Visual Acuity Clinical Findings (260246004)
C* [0..1]	xxxxxx, SNOMED CT, Visual Acuity Decimal	REAL	No Unit	
C* [0..1]	xxxxxxx, SNOMED CT, Lower Level Vision	CD		SNOMED CT Visual Acuity Clinical Findings (260246004)
O [0..1]	xxxxxx, SNOMED CT, Visual Acuity Modifiers (1)	INT	No Unit	The first value is a positive or negative integer numeric value such as +1, +2, +3, 0, -1, -2, or -3 used to indicate that the patient missed letters on the line referenced, or saw additional letters on the next smaller line.
O [0..1]	xxxxxx, SNOMED CT, Visual Acuity Modifiers (2)	INT	No Unit	The second value is a positive or negative integer

Opt	observation/code	Data Type	Unit of Measure	Value Set
				numeric value such as +1, +2, +3, 0, -1, -2, or -3 which in combination with the first value indicates that the patient both saw additional letters on the next smaller line and missed letters on the line referenced.
O [0..1]	251762001, SNOMED CT, Low Vision Distance	REAL	Ft, inch, m, cm	

\* One or more of the observations listed in the table shall be present. If a valid code value for Visual Acuity Coded pertains to the observation, its use is recommended over the use of Visual Acuity Decimal.

**6.3.4.c.6 <statusCode code='completed'/>**

The status code of all observations shall be completed.

**6.3.4.c.7 <effectiveTime value=' '/>**

The <effectiveTime> element shall be present in visual acuity observations and shall record the date and time when the measurement was taken. This element should be precise to the day. If the date and time is unknown, this element should record that using the nullFlavor attribute.

**6.3.4.c.8 <value xsi:type=' ' .../>**

The value of the observation shall be recorded using a data type appropriate to the observation. Content modules derived from the visual acuity measurements observation content module may restrict the allowable data types used for the observation.

**6.3.4.c.9 <author><assignedAuthor**

**classCode='ASSIGNED'>...<assignedAuthor></author>**

In CDA uses, Visual Acuity Measurements Observations are assumed to be authored by the same author as the document through context conduction. However specific authorship of observation may be represented by listing the author in the header and referencing the author in a <author> relationship. If authors are explicitly listed in documents, an <id> element SHOULD reference the ID of the author in the header through an assignedAuthor Role. If the author of the observation is not an author of the document the <person> object including a name and ID SHALL be included.

For HL7 Version 3 purposes, the <author> element SHOULD be present unless it can be determined by conduction from organizers or higher level structures. When used for HL7

Version 3 the role element name is <assignedEntity> and the author is represented as an <assignedPerson> element.

#### **6.3.4.d Refractive Measurements Organizer 1.3.6.1.4.1.19376.1.12.1.1.ww**

A refractive measurements organizer collects refractive measurement observations.

##### **6.3.4.d.1 Specification**

*Example of XML Code TBD*

##### **6.3.4.d.2 <organizer classCode='CLUSTER' moodCode='EVN'>**

The refractive measurement organizer is a cluster of refractive measurements observations.

##### **6.3.4.d.3 <templateId root='1.3.6.1.4.1.19376.1.12.1.1.ww'>**

The refractive measurement organizer shall have the <templateId> elements shown above to indicate the constraints of this specification.

##### **6.3.4.d.4 <id root=' ' extension=' ' />**

The organizer shall have an <id> element.

##### **6.3.4.d.5 <code code='xxxxxxx' displayName='Refractive Measurements' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />**

The <code> element shall be recorded as shown above to indicate that this organizer captures information about patient refractive measurements.

##### **6.3.4.d.6 <targetSiteCode code=' ' codeSystem=2.16.840.1.113883.6.96 ' ' codeSystemName='SNOMED CT' />**

The targetSiteCode shall be used to record which eye or lens being observed by this organizer. The targetSiteCode shall use one of the following SNOMED CT Anatomical Structure (91723000) codes.

**SNOMED CT “Anatomical Structure” Value Set**

Code Value	Code Description
362503005	Entire left eye
362502000	Entire right eye

##### **6.3.4.d.7 <methodCode code=' ' codeSystem=' ' codeSystemName=' ' />**

The methodCode element shall be used to record the specific method used to make an observation.

SNOMED CT Procedure hierarchy (71388002) is preferred for method codes; however, other code sets may be used, if desired.

The following SNOMED CT codes represent a very limited list of examples; it is NOT an exhaustive list for implementation.

The methodCode uses a code with qualifiers (HL7 CD data type), therefore multiple codes may be included as qualifiers. For example methodCode 397277005, Subjective refractions could be conveyed with a qualifier code of 397278000, Cycloplegic refraction.

The following value set is a limited list of examples; it is NOT an exhaustive list for implementation.

Code Value	Code Description
397277005	Subjective refraction
397276001	Objective refraction
397524001	Retinoscopy
397278000	Cycloplegic refraction

#### 6.3.4.d.8 <statusCode code='completed'/>

The observations have all been completed.

#### 6.3.4.d.9 <effectiveTime value=' '/>

The effective time element shall be present to indicate when the measurement was taken.

#### 6.3.4.d.10 <author typeCode='AUT'><assignedEntity1 typeCode='ASSIGNED'>...</assignedEntity1></author>

For use with HL7 Version 3, Refractive Measurements organizers SHALL contain an <author> element to represent the person or device.

#### 6.3.4.d.11 <!-- one or more refractive measurements observations --> <component typeCode='COMP'>

The organizer shall have one or more <component> elements that are <observation> elements using the Refractive Measurement Observation template.

#### 6.3.4.e Refractive Measurement Observations 1.3.6.1.4.1.19376.1.12.1.1.vv

The refractive measurements observation entry is meant to be an abstract representation of many of the refractive measurements observations used in this specification. It can be made concrete by the specification of a few additional constraints, namely the vocabulary used for codes, and the value representation.

### 6.3.4.e.1 Specification

*Example of XML Code TBD*

#### 6.3.4.e.2 <observation classCode='OBS' moodCode='EVN'>

These acts are refractive measurements observations that have occurred, and so are recorded using the <observation> element as shown above.

#### 6.3.4.e.3 <templateId root='1.3.6.1.4.1.19376.1.12.1.1.vv'>

The <templateId> element identifies this <observation> as a refractive measurements observation, allowing for validation of the content. The templateId must appear as shown above.

#### 6.3.4.e.4 <id root=' ' extension=' '/>

Each observation shall have an identifier.

#### 6.3.4.e.5 <code code=' ' displayName=' ' codeSystem=' ' codeSystemName=' '/>

A refractive measurements observation entry shall use a SNOMED CT Observable Entity hierarchy (363787002) code to identify the observation. The following codes are provided to express the scope of this template; additional SNOMED CT Observable Entity codes may be used.

Opt	observation/code	Data Type	Unit of Measure
R [1..1]	251795007, SNOMED CT, Power of Sphere	PQ	Diopters
R [1..1]	251797004, SNOMED-CT, Power of Cylinder	PQ	Diopters
R [1..1]	251799001, SNOMED-CT, Axis of Cylinder	PQ	Degrees
R [1..1]	397282003, SNOMED-CT, Reading Addition Power	PQ	Diopters
R [1..1]	251802005 + 251795007, SNOMED-CT, Intermediate Distance Power	PQ	Diopters
O [0..1]	397258008, SNOMED-CT, Interpupillary distance	PQ	mm

If the SNOMED CT code system is selected, a code may be constructed using the SNOMED CT Compositional Grammar. If that approach is selected, a code may be constructed from multiple SNOMED codes, which may include multiple concept descriptors, qualifiers, etc.

#### 6.3.4.e.6 <statusCode code='completed'>

The status code of all observations shall be completed.

#### **6.3.4.e.7 <effectiveTime value=' '/>**

The <effectiveTime> element shall be present in standalone observations and shall record the date and time when the measurement was taken. This element should be precise to the day. If the date and time is unknown, this element should record that using the nullFlavor attribute.

#### **6.3.4.e.8<value xsi:type=' ' .../>**

The value of the observation shall be recorded using a data type appropriate to the observation. Content modules derived from the refractive measurements observation content module may restrict the allowable data types used for the observation.

#### **6.3.4.e.9 <author><assignedAuthor**

**classCode='ASSIGNED'>...<assignedAuthor></author>**

In CDA uses, Refractive Measurements Observations are assumed to be authored by the same author as the document through context conduction. However specific authorship of observation may be represented by listing the author in the header and referencing the author in a <author> relationship. If authors are explicitly listed in documents, an <id> element SHOULD reference the ID of the author in the header through an assignedAuthor Role. If the author of the observation is not an author of the document the <person> object including a name and ID SHALL be included.

For HL7 Version 3 purposes, the <author> element SHOULD be present unless it can be determined by conduction from organizers or higher level structures. When used for HL7 Version 3 the role element name is <assignedEntity> and the author is represented as an <assignedPerson> element.

#### **6.3.4.f Lensometry Measurements Organizer 1.3.6.1.4.1.19376.1.12.1.1.ss**

A lensometry measurements organizer collects lensometry measurement observations.

##### **6.3.4.f.1 Specification**

*Example of XML Code TBD*

##### **6.3.4.f.2 <organizer classCode='CLUSTER' moodCode='EVN'>**

The lensometry measurement organizer is a cluster of lensometry measurements observations.

##### **6.3.4.f.3 <templateId root='1.3.6.1.4.1.19376.1.12.1.1.ss'>**

The lensometry measurement organizer shall have the <templateId> elements shown above to indicate the constraints of this specification.

**6.3.4.f.4 <id root=' ' extension=' '/>**

The organizer shall have an <id> element.

**6.3.4.f.5 <code code='xxxxxx' displayName='Lensonmetry Measurements' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT'/>**

The <code> element shall be recorded as shown above to indicate that this organizer captures information about spectacle measurements (lensometry).

**6.3.4.f.6 <targetSiteCode code=' ' codeSystem=2.16.840.1.113883.6.96 ' ' codeSystemName='SNOMED CT '/>**

The targetSiteCode shall be used to record which lens is being observed by this organizer. The targetSiteCode shall use the following SNOMED CT Spectacle Lens Physical Object (421591000) code with qualifiers (HL7 CD data type).

**SNOMED CT “Spectacle Lens” Value Set**

Code Value	Code Description
421591000	Spectacle Lens (physical object)

The required qualifier for the targetSiteCode element when using the SNOMED CT Spectacle Lens code shall use a SNOMED CT code that specifies the laterality of the lens type from the table below.

**SNOMED CT “Spectacle Lens” qualifier Value Set**

Code Value	Code Description
24028007	Right
7771000	Left

**6.3.4.f.7 <methodCode code=' ' codeSystem=' ' codeSystemName=' '/>**

The methodCode element shall be used to record the specific method used to make an observation.

SNOMED CT Procedure hierarchy (71388002) is preferred for method codes; however, other code sets may be used, if desired.

The following SNOMED CT codes represent a very limited list of examples; it is NOT an exhaustive list for implementation.

The following value set is a limited list of examples; it is NOT an exhaustive list for implementation.

Code Value	Code Description
122869004 + 87982008	Manual Measurement
122869004 + 8359006	Automated Measurement
	...

#### 6.3.4.f.8 <statusCode code='completed'/>

The observations have all been completed.

#### 6.3.4.f.9 <effectiveTime value=' '/>

The effective time element shall be present to indicate when the measurement was taken.

#### 6.3.4.f.10 <author typeCode='AUT'><assignedEntity1 typeCode='ASSIGNED'>...</assignedEntity1></author>

For use with HL7 Version 3, Lensometry Measurements organizers SHALL contain an <author> element to represent the person or device.

#### 6.3.4.f.11 <!-- one or more refractive measurements observations --> <component typeCode='COMP'>

The organizer shall have one or more <component> elements that are <observation> elements using the Lensometry Measurement Observation template.

### 6.3.4.g Lensometry Measurement Observations 1.3.6.1.4.1.19376.1.12.1.1.rr

The lensometry measurements observation entry is meant to be an abstract representation of many of the lensometry measurements observations used in this specification. It can be made concrete by the specification of a few additional constraints, namely the vocabulary used for codes, and the value representation.

#### 6.3.4.g.1 Specification

*Example of XML Code TBD*

#### 6.3.4.g.2 <observation classCode='OBS' moodCode='EVN'>

These acts are lensometry measurements observations that have occurred, and so are recorded using the <observation> element as shown above.

#### 6.3.4.g.3 <templateId root='1.3.6.1.4.1.19376.1.12.1.1.rr'/>

The <templateId> element identifies this <observation> as a lensometry measurement observation allowing for validation of the content. The templateId must appear as shown above.

**6.3.4.g.4 <id root=' ' extension=' '/>**

Each observation shall have an identifier.

**6.3.4.g.5 <code code=' ' displayName=' ' codeSystem=' ' codeSystemName=' '/>**

A lensometry measurements observation entry shall use a SNOMED CT code to identify the observation. The following codes are provided to express the scope of this template; additional SNOMED CT codes may be used.

Opt	observation/code	Data Type	Unit of Measure	Value Set
R [1..1]	251795007, SNOMED CT, Power of Sphere	PQ	Diopters	
R [1..1]	251797004, SNOMED-CT, Power of Cylinder	PQ	Diopters	
R [1..1]	251799001, SNOMED-CT, Axis of Cylinder	PQ	Degrees	
R [1..1]	397282003, SNOMED-CT, Reading Addition Power	PQ	Diopters	
R [1..1]	251802005, SNOMED-CT, Intermediate Distance with qualifier 251795007, SNOMED-CT, Power of Sphere	PQ	Diopters	
R [1..1]	251762001, SNOMED-CT, Prism Strength with qualifier 24020000, SNOMED-CT, horizontal	PQ	Diopters	
R [1..1]	246223004, SNOMED-CT, Prism Base Direction with qualifier 24020000, SNOMED-CT, horizontal	CD		255561001, SNOMED-CT, Medial 49370004, SNOMED-CT, Lateral
R [1..1]	251762001, SNOMED-CT, Prism Strength with qualifier 33096000, SNOMED-CT, vertical	PQ	Diopters	
R [1..1]	246223004, SNOMED-CT, Prism Base Direction with qualifier 33096000, SNOMED-CT, vertical	CD		64217000, SNOMED-CT, Superior 261089000, SNOMED-CT, Inferior
R [1..1]	246155009, SNOMED-CT, Type of lens	CD		50121007, SNOMED-CT, Single vision glasses 397283008, SNOMED-CT, Multifocal glasses 397285001, SNOMED-CT, Bifocal glasses 397284002, SNOMED-CT, Trifocal glasses

Opt	observation/code	Data Type	Unit of Measure	Value Set
				397286000, SNOMED-CT, Progressive addition glasses if applicable
O [0..1]	397258008, SNOMED-CT, Interpupillary distance	PQ	mm	

#### 6.3.4.g.6 <statusCode code='completed'/>

The status code of all observations shall be completed.

#### 6.3.4.g.7 <effectiveTime value=' '/>

The <effectiveTime> element shall be present in standalone observations and shall record the date and time when the measurement was taken. This element should be precise to the day. If the date and time is unknown, this element should record that using the nullFlavor attribute.

#### 6.3.4.g.8 <value xsi:type=' ' .../>

The value of the observation shall be recorded using a data type appropriate to the observation. Content modules derived from the refractive measurements observation content module may restrict the allowable data types used for the observation.

#### 6.3.4.g.9 <author><assignedAuthor

**classCode='ASSIGNED'>...<assignedAuthor></author>**

In CDA uses, Lensometry Measurements Observations are assumed to be authored by the same author as the document through context conduction. However specific authorship of observation may be represented by listing the author in the header and referencing the author in a <author> relationship. If authors are explicitly listed in documents, an <id> element SHOULD reference the ID of the author in the header through an assignedAuthor Role. If the author of the observation is not an author of the document the <person> object including a name and ID SHALL be included.

For HL7 Version 3 purposes, the <author> element SHOULD be present unless it can be determined by conduction from organizers or higher level structures. When used for HL7 Version 3 the role element name is <assignedEntity> and the author is represented as an <assignedPerson> element.

#### 6.3.4.h Keratometry Measurements Organizer 1.3.6.1.4.1.19376.1.12.1.1.uu

A keratometry measurements organizer collects keratometry measurement observations.

#### 6.3.4.h.1 Specification

*Example of XML Code TBD*

**6.3.4.h.2 <organizer classCode='CLUSTER' moodCode='EVN'>**

The keratometry measurement organizer is a cluster of keratometry measurement observations.

**6.3.4.h.3 <templateId root='1.3.6.1.4.1.19376.1.12.1.1.uu'>**

The keratometry measurement organizer shall have the <templateId> elements shown above to indicate the constraints of this specification.

**6.3.4.h.4 <id root=' ' extension=' ' />**

The organizer shall have an <id> element.

**6.3.4.h.5 <code code='xxxxxxx' displayName='Keratometry Measurements' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT' />**

The <code> element shall be recorded as shown above to indicate that this organizer captures information about patient keratometry measurements.

**6.3.4.h.6 <targetSiteCode code=' ' codeSystem=2.16.840.1.113883.6.96 ' ' codeSystemName='SNOMED CT ' />**

The targetSiteCode shall be used to record the eye being observed by this organizer. The targetSiteCode shall use one of the following SNOMED CT Anatomical Structure (91723000) codes.

Code Value	Code Description
362503005	Entire left eye
362502000	Entire right eye

**6.3.4.h.7 <methodCode code=' ' codeSystem=' ' codeSystemName=' ' />**

The methodCode element shall be used to record the specific method used to make an observation.

SNOMED CT Procedure hierarchy (71388002) is preferred for method codes; however, other code sets may be used, if desired.

The following SNOMED CT codes represent a very limited list of examples; it is NOT an exhaustive list for implementation.

Code Value	Code Description
122869004 + 87982008	Manual Measurement
122869004 + 8359006	Automated Measurement
	...

#### **6.3.4.h.8 <statusCode code='completed'/>**

The observations have all been completed.

#### **6.3.4.h.9 <effectiveTime value=' '/>**

The effective time element shall be present to indicate when the measurement was taken.

#### **6.3.4.h.10 <author typeCode='AUT'><assignedEntity1 typeCode='ASSIGNED'>...</assignedEntity1></author>**

For use with HL7 Version 3, Refractive Measurements organizers SHALL contain an <author> element to represent the person or device.

#### **6.3.4.h.11 <!-- one or more refractive measurements observations --> <component typeCode='COMP'>**

The organizer shall have one or more <component> elements that are <observation> elements using the Keratometry Measurement Observation template.

#### **6.3.4.i Keratometry Measurement Observations 1.3.6.1.4.1.19376.1.12.1.1.tt**

The keratometry measurements observation entry is meant to be an abstract representation of many of the keratometry measurements observations used in this specification. It can be made concrete by the specification of a few additional constraints, namely the vocabulary used for codes, and the value representation.

##### **6.3.4.i.1 Specification**

*Example of XML Code TBD*

##### **6.3.4.i.2 <observation classCode='OBS' moodCode='EVN'>**

These acts are keratometry measurements observations that have occurred, and so are recorded using the <observation> element as shown above.

##### **6.3.4.i.3 <templateId root='1.3.6.1.4.1.19376.1.12.1.1.tt'/>**

The <templateId> element identifies this <observation> as a keratometry measurements observation, allowing for validation of the content. The templateId must appear as shown above.

##### **6.3.4.i.4 <id root=' ' extension=' '/>**

Each observation shall have an identifier.

##### **6.3.4.i.5 <code code=' ' displayName=' ' codeSystem=' ' codeSystemName=' '/>**

A keratometry measurements observation entry shall use a SNOMED CT Observable Entity hierarchy (363787002) code to identify the observation. The following codes are provided to

express the scope of this template; additional keratometry based SNOMED CT Observable Entity codes may be used.

Opt	observation/code	Data Type	Unit of Measure
R [1..1]	xxxxxx, SNOMED CT, Keratometric Steep Power	PQ	Diopters or mm
R [1..1]	xxxxxx, SNOMED-CT, Keratometric Steep Axis	PQ	Degrees
R [1..1]	xxxxxx, SNOMED-CT, Keratometric Flat Power	PQ	Diopters or mm
R [1..1]	xxxxxx, SNOMED-CT, Keratometric Flat Axis	PQ	Degrees

**6.3.4.i.6 <statusCode code='completed'/>**

The status code of all observations shall be completed.

**6.3.4.i.7 <effectiveTime value=' '/>**

The <effectiveTime> element shall be present in standalone observations and shall record the date and time when the measurement was taken. This element should be precise to the day. If the date and time is unknown, this element should record that using the nullFlavor attribute.

**6.3.4.i.8 <value xsi:type=' ' .../ >**

The value of the observation shall be recording using a data type appropriate to the observation. Content modules derived from the keratometry measurements observation content module may restrict the allowable data types used for the observation.

**6.3.4.i.9 <author><assignedAuthor**

**classCode='ASSIGNED'>...<assignedAuthor></author>**

In CDA uses, Keratometry Measurements Observations are assumed to be authored by the same author as the document through context conduction. However specific authorship of observation may be represented by listing the author in the header and referencing the author in a <author> relationship. If authors are explicitly listed in documents, an <id> element SHOULD reference the ID of the author in the header through an assignedAuthor Role. If the author of the observation is not an author of the document the <person> object including a name and ID SHALL be included.

For HL7 Version 3 purposes, the <author> element SHOULD be present unless it can be determined by conduction from organizers or higher level structures. When used for HL7 Version 3 the role element name is <assignedEntity> and the author is represented as <assignedPerson> element.