Integrating the Healthcare Enterprise

IHE Eye Care
Technical Framework Supplement

C-CDA Based General Eye Evaluation (GEE)

Rev. 2.2 - Trial Implementation

Date: December 29, 2016

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Foreword

This is a supplement to the IHE Eye Care Technical Framework V4.0. Each supplement undergoes a process of public comment and trial implementation before being incorporated into the volumes of the Technical Frameworks.

This supplement is published on December 29, 2016 for trial implementation and may be available for testing at subsequent IHE Connectathons. The supplement may be amended based on the results of testing. Following successful testing it will be incorporated into the Eye Care Technical Framework. Comments are invited and can be submitted at http://ihe.net/Eye_Care_Public_Comments.

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:

Replace Section X.X by the following:

General information about IHE can be found at: www.ihe.net.

Information about the IHE Eye Care domain can be found at: ihe.net/IHE_Domains.

Information about the organization of IHE Technical Frameworks and Supplements and the process used to create them can be found at: http://ihe.net/IHE_Process and http://ihe.net/Profiles.

The current version of the IHE Eye Care Technical Framework can be found at: http://ihe.net/Technical_Frameworks.

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CONTENTS

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1 Introduction to this Supplement

This supplement is written for Trial Implementation. It introduces a new Eye Care content profile, C-CDA®[1] Based General Eye Evaluation (GEE). Updates to Volume 1 include additions to Section 2 to introduce GEE and a new Section 8. Updates to Volume 2 include new sections for the document content information.

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[2]. 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®[3] Implementation Guide for CDA Release 2: IHE Health Story Consolidation, DSTU Release 1.1 (US Realm) Draft Standard for Trial Use July 2012
7. HL7 and other standards documents referenced in Volume 1 and Volume 2

1.1 Profile Abstract

The General Eye Evaluation (GEE) consists of two content profiles. These profiles are patient visit/encounter based and define the structure of data that is collected during a patient's general 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. The GEE profiles have been expanded to enable implementations to populate the AAO IRIS™ Registry (Intelligent Research in Sight).

[1] CDA is the registered trademark of Health Level Seven International.

[2] The first five documents can be located on the IHE Website at http://ihe.net/Technical_Frameworks. The remaining documents can be obtained from their respective publishers.

[3] HL7 is the registered trademark of Health Level Seven International.

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The United States Final Rule for Stage 2 of the EHR Incentive Program aka Meaningful Use (MU2) adopted the HL7 Consolidated CDA (C-CDA) Implementation Guide to exchange clinical documents (i.e., patient's summary of care record, consultation notes, progress notes, etc.). The C-CDA defines specification for many "general" medical sections such as medications, allergies, chief complaint, problems, and more. The General Eye Evaluation (GEE) content profiles specify many of the same applicable general sections as defined in MU2 Clinical Summary and include sections specific to a general eye care examination.

IHE Eye Care has decided to create two GEE content profiles that are supersets of two visit/encounter based C-CDA specifications selected for MU2 Clinical Summary. They are supersets of:

1. C-CDA Progress Note
2. C-CDA Consultation Note

1.2 Open Issues and Questions

None

1.3 Closed Issues

None

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Volume 1 – Profiles

Add the following to Section 1.7

1.7 History of Annual Changes

Added two Content Profiles that define the structure of the data that is collected during a patient's general eye examination. These profiles as supersets to the C-CDA Progress Note and Consultation Note and are called:

- General Eye Evaluation (GEE) C-CDA Progress Note
- General Eye Evaluation (GEE) C-CDA Consultation Note

Add the following section to Section 2.2

2.2.6 General Eye Evaluation Content Profiles

General Eye Evaluation (GEE) consists of two content profiles. These profiles are patient visit/encounter based and define the structure of data that is collected during a patient's eye 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, social history, etc. The GEE profiles have been expanded to enable implementations to populate the AAO IRIS Registry.

The United States Final Rule for Stage 2 of the EHR Incentive Program aka Meaningful Use (MU2) adopted the HL7 Consolidated CDA (C-CDA) Implementation Guide to exchange clinical documents (i.e., patient's summary of care record, consultation notes, progress notes, etc.). The C-CDA defines specification for many "general" medical sections such as medications, allergies, chief complaint, problems, and more. The General Eye Evaluation (GEE) content profiles specify the same applicable general sections as defined in MU2 Clinical Summary and include sections specific to a general eye care examination.

IHE Eye Care has created two GEE content profiles that are supersets of two visit/encounter based C-CDA specifications selected for MU2 Clinical Summary. They are named:

1. General Eye Evaluation (GEE) C-CDA Progress Note
2. General Eye Evaluation (GEE) C-CDA Consultation Note

2.3 Actors Descriptions

Add column to Table 2.3-1

Content Creator – Creates the document content.

Content Consumer – Consumes the document content.

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Add Section 8

8 General Eye Evaluation (GEE) Content Profile

The General Eye Evaluation (GEE) Content Profile defines two Consolidated CDA (C-CDA) documents consisting of two content profiles. These documents profiles are patient visit/encounter based and define the structure of data that is collected during a patient's eye 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, social history, etc.

The United States Final Rule for Stage 2 of the EHR Incentive Program aka Meaningful Use (MU2) adopted the HL7 Consolidated CDA (C-CDA) Implementation Guide to exchange clinical documents (i.e., patient's summary of care record, consultation notes, progress notes, etc.). The C-CDA defines specification for many "general" medical sections such as medications, allergies, chief complaint, problems, and more. The General Eye Evaluation (GEE) content profiles specify the same applicable general sections as defined in MU2 Clinical Summary and include sections specific to a general eye care examination.

The GEE content profiles are supersets of two visit/encounter based C-CDA specifications selected for MU2 Clinical Summary. They are named:

1. General Eye Evaluation (GEE) C-CDA Progress Note
2. General Eye Evaluation (GEE) C-CDA Consultation Note

8.1 Purpose and Scope

Change referenced section numbering when merged into technical framework

The General Eye Evaluation (GEE) Profile defines the structure of data that is collected during a patient's 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.

GEE is a customized extension of the C-CDA specifications chosen to align with MU2. This facilitates:

a. Increasing interoperability with systems that chose to support MU2
b. Reducing the burden on EHR systems that simultaneously support IHE Eye Care and MU2
c. Easing the burden for organizations incorporating general eye examinations into their EHRs

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Although GEE aligns with two visit based documents specified by MU2 Clinical Summary (i.e., Progress and Consultation Notes), IHE Eye Care does not specify whether or not systems support MU2 Clinical Summary. Vendors needs to verify themselves if they are both MU2 Clinical Summary and GEE compliant.

Note: Vendors are highly recommended to reference the MU2 Clinical Summary requirements in order to determine compliance and not rely on IHE for this.

Vendors may create a C-CDA based on either the Progress Note or Consult Note template which can be used to satisfy the MU2 Clinical Summary and the IHE EC GEE requirements simultaneously. Thus, an ophthalmologist or optometrist may provide the patient with a Clinical Summary Record which simultaneously satisfies MU2 Clinical Summary and contains sufficient eye care information to be useful. It is important for implementers to understand that they, and not IHE Eye Care, must take responsibility for MU2 compliance. IHE Eye Care GEE documents enable, but do not assure, MU2 compliance because optionality may differ from MU2 requirements. For example, vendors may choose to generate MU2 documents without the additional GEE information sections and also offer a MU2 document with the additional GEE information sections.

Lastly, the GEE documents have been expanded with C-CDA sections to enable implementations to populate the AAO IRIS Registry. IRIS Registry is a specialty registry which will satisfy MU2 Specialized Registries "menu set measures". Although GEE does not specify conformance to the registry, it has been analyzed and expanded based upon the registry needs. For example, the IRIS Registry can collect coded vital signs. The GEE specifications enable capture of coded vital signs but do not require this ability. There are many other examples such as this. Vendors are highly recommended to reference the IRIS Registry specifications for compatibility and not rely on IHE Eye Care for this.

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 general eye examination and demographic data is 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 Comprehensive Adult Medical Eye Evaluation 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

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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. A Document Consumer, a Document Recipient or a Portable Media Importer may embody the Content Consumer. 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: General Eye Evaluation Options

Actor	Option	Section
Content Consumer	View Option (See Section 8.3.1.2) Document Import Option (See Section 8.3.1.2) Section Import Option (See Section 8.3.1.2) Discrete Data Import Option (See Section 8.3.1.2)	PCC TF-2: 3.1.1 PCC TF-2: 3.1.2 PCC TF-2: 3.1.3 PCC TF-2: 3.1.4
Content Creator	Shall implement the GEE C-CDA Progress Note Document (1.3.6.1.4.1.19376.1.12.1.1.2) and/or GEE C-CDA Consultation Note Document (1.3.6.1.4.1.19376.1.12.1.1.3)	EYECARE TF-3

8.3.1 Actor Profile Requirements for GEE

8.3 1.1 Content Creator

1. A Content Creator shall be able to create a General Eye Evaluation Document according to the GEE C-CDA Progress Note Document (1.3.6.1.4.1.19376.1.12.1.1.2) and/or GEE

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C-CDA Consultation Note Document (1.3.6.1.4.1.19376.1.12.1.1.3) content profiles found in EYECARE TF-3.

8.3 1.2 Content Consumer

1. A Content Consumer shall be able to consume (receive and process) all General Eye Evaluation documents. This includes both the GEE C-CDA Progress Note Document (1.3.6.1.4.1.19376.1.12.1.1.2) and the GEE C-CDA Consultation Note Document (1.3.6.1.4.1.19376.1.12.1.1.3) that are found in EYECARE TF-3.
2. A Content Consumer shall implement the View Option or Discrete Data Import Option, or both.
    a. For View Option, the Content Consumer shall conform to IHE PCC TF-2: 3.1.1.
    b. For Discrete Data Import Option, the Content Consumer shall conform to IHE PCC TF-2: 3.1.4.
3. A Content Consumer that implements the Section Import Option shall conform to IHE PCC TF-2: 3.1.3.
4. A Content Consumer that implements the Discrete Data Import Option shall PCC TF-2: 3.1.2.

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. **No grouping rules are specified.**

IHE Eye Care recommends that the Content Creator and Content Consumer support at least one of the IHE and/or Direct Messaging exchange profiles.

- IHE XDS, IHE XDR, IHE XDM
- XDR and XDM for Direct Messaging, Version 1, Finalized 9 March 2011

8.5 Content Modules

This section conveys the content modules used for the various GEE content profiles.

8.5.1 GEE mapping to AAO Adult Preferred Practice Pattern

This section maps the "Comprehensive Adult Medical Eye Evaluation October 2010" PPP specification generated by the AAO to the content modules that will be used in generating any version of a GEE clinical document. This section is informational only.

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555 **Table 8.5.1-1: GEE Content Modules Mapped to Adult PPP**

Comprehensive Adult Medical Eye Evaluation Preferred Practice Patterns	Template Name	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 and Reason for Visit Section	2.16.840.1.113883.10.20.22.2.13
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	2.16.840.1.113883.10.20.22.2.14
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	1.3.6.1.4.1.19376.1.12.1.2.3
Systemic history: pertinent medical conditions and previous surgery	History of Past Illness	2.16.840.1.113883.10.20.22.2.20
	Procedures (entries optional)	2.16.840.1.113883.10.20.22.2.7 Note: Intended use to list systemic procedures.
	Procedures (entries required)	2.16.840.1.113883.10.20.22.2.7.1 Note: Intended use is a coded list of systemic procedures.
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 (entries required)	2.16.840.1.113883.10.20.22.2.1.1
	Ophthalmic Medications	1.3.6.1.4.1.19376.1.12.1.2.4
Allergies or adverse reactions to medications	Allergies (entries optional)	2.16.840.1.113883.10.20.22.2.6
Note 1	Problem	2.16.840.1.113883.10.20.22.2.5.1
Family History	Family History	2.16.840.1.113883.10.20.22.2.15
Social history	Social History	2.16.840.1.113883.10.20.22.2.17
Ocular Examination	Ocular Physical Exam	1.3.6.1.4.1.19376.1.12.1.2.5
Note 1	Assessment and Plan	2.16.840.1.113883.10.20.22.2.9
	Assessment	2.16.840.1.113883.10.20.22.2.8
	Plan of Care	2.16.840.1.113883.10.20.22.2.10
	Vital Signs (entries optional)	2.16.840.1.113883.10.20.22.2.4
	Instructions	2.16.840.1.113883.10.20.22.2.45
	Encounters (entries optional)	2.16.840.1.113883.10.20.22.2.22

Note 1: Blank sections in this column indicate that the information was not included in the PPP, however is included in this content profile. Also blank sections were added to coordinate with the MU2 requirements and IRIS Registry.

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8.5.2 GEE C-CDA Progress Note Content Modules

560 This section specifies the content modules used for the GEE C-CDA Progress Note Content Profile.

Table 8.5.2-1: GEE C-CDA Progress Note Content Modules

Template Name	Template Id
CDA Header Modules	See Section 6.3.1.1.4
Allergies (entries optional)	2.16.840.1.113883.10.20.22.2.6
Assessment and Plan	2.16.840.1.113883.10.20.22.2.9
Assessment	2.16.840.1.113883.10.20.22.2.8
Chief Complaint	1.3.6.1.4.1.19376.1.5.3.1.1.13.2.1
Instructions	2.16.840.1.113883.10.20.22.2.45
Interventions	2.16.840.1.113883.10.20.21.2.3
Medications (entries optional)	2.16.840.1.113883.10.20.22.2.1
Objective	2.16.840.1.113883.10.20.21.2.1
Physical Exam	2.16.840.1.113883.10.20.2.10
Plan of Care	2.16.840.1.113883.10.20.22.2.10
Problem (entries optional)	2.16.840.1.113883.10.20.22.2.5
Results (entries optional)	2.16.840.1.113883.10.20.22.2.3
Review of Systems	1.3.6.1.4.1.19376.1.5.3.1.3.18
Subjective	2.16.840.1.113883.10.20.21.2.2
Vital Signs (entries optional)	2.16.840.1.113883.10.20.22.2.4
Chief Complaint and Reason for Visit Section	2.16.840.1.113883.10.20.22.2.13
Encounters (entries optional)	2.16.840.1.113883.10.20.22.2.22
Family History	2.16.840.1.113883.10.20.22.2.15
Functional Status	2.16.840.1.113883.10.20.22.2.14
Healthcare Providers and Pharmacies	1.3.6.1.4.1.19376.1.5.3.1.2.3
History of Past Illness	2.16.840.1.113883.10.20.22.2.20
History of Present Illness	1.3.6.1.4.1.19376.1.5.3.1.3.4
Procedures (entries optional)	2.16.840.1.113883.10.20.22.2.7
Procedures (entries required)	2.16.840.1.113883.10.20.22.2.7.1
Medications (entries required)	2.16.840.1.113883.10.20.22.2.1.1
Ocular History	1.3.6.1.4.1.19376.1.12.1.2.3
Ocular Physical Exam	1.3.6.1.4.1.19376.1.12.1.2.5
Ophthalmic Medications	1.3.6.1.4.1.19376.1.12.1.2.4
Problem (entries required)	2.16.840.1.113883.10.20.22.2.5.1
Social History	2.16.840.1.113883.10.20.22.2.17

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8.5.3 GEE C-CDA Consultation Note Content Modules

This section specifies the content modules used for the GEE C-CDA Consultation Note Content Profile.

Table 8.5.3-1: GEE C-CDA Consultation Note Content Modules

Template Name	Template Id
CDA Header Modules	See Section 6.3.1.2.3
Allergies (entries optional)	2.16.840.1.113883.10.20.22.2.6
Assessment and Plan	2.16.840.1.113883.10.20.22.2.9
Assessment	2.16.840.1.113883.10.20.22.2.8
Chief Complaint and Reason for Visit Section	2.16.840.1.113883.10.20.22.2.13
Chief Complaint	1.3.6.1.4.1.19376.1.5.3.1.1.13.2.1
Encounters (entries optional)	2.16.840.1.113883.10.20.22.2.22
Family History	2.16.840.1.113883.10.20.22.2.15
General Status	2.16.840.1.113883.10.20.2.5
History of Past Illness	2.16.840.1.113883.10.20.22.2.20
History of Present Illness	1.3.6.1.4.1.19376.1.5.3.1.3.4
Immunizations (entries optional)	2.16.840.1.113883.10.20.22.2.2
Medications (entries optional)	2.16.840.1.113883.10.20.22.2.1
Physical Exam	2.16.840.1.113883.10.20.2.10
Plan of Care	2.16.840.1.113883.10.20.22.2.10
Problem (entries optional)	2.16.840.1.113883.10.20.22.2.5
Reason for Referral Section	1.3.6.1.4.1.19376.1.5.3.1.3.1
Reason for Visit Section	2.16.840.1.113883.10.20.22.2.12
Results (entries optional)	2.16.840.1.113883.10.20.22.2.3
Review of Systems	1.3.6.1.4.1.19376.1.5.3.1.3.18
Social History	2.16.840.1.113883.10.20.22.2.17
Vital Signs (entries optional)	2.16.840.1.113883.10.20.22.2.4
Functional Status	2.16.840.1.113883.10.20.22.2.14
Healthcare Providers and Pharmacies	1.3.6.1.4.1.19376.1.5.3.1.2.3
Instructions	2.16.840.1.113883.10.20.22.2.45
Procedures (entries optional)	2.16.840.1.113883.10.20.22.2.7
Procedures (entries required)	2.16.840.1.113883.10.20.22.2.7.1
Medications (entries required)	2.16.840.1.113883.10.20.22.2.1.1
Ocular History	1.3.6.1.4.1.19376.1.12.1.2.3
Ocular Physical Exam	1.3.6.1.4.1.19376.1.12.1.2.5
Ophthalmic Medications	1.3.6.1.4.1.19376.1.12.1.2.4
Problem (entries required)	2.16.840.1.113883.10.20.22.2.5.1

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Volume 2 – Transactions and Content Modules

Update Section 3

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3 Framework Overview

The IHE Technical Framework is based on actors that interact through transactions; those transactions may be further qualified with respect to their content.

Add new Section 3.1

3.1 Content Modules

There is often a very clear distinction between the transactions in a messaging framework used to package and transmit information, and the information content actually transmitted in those messages. This is especially true when the messaging framework begins to move towards mainstream computing infrastructures being adopted by the healthcare industry.

In these cases, the same transactions may be used to support a wide variety of use cases in healthcare, and so more and more the content and use of the message also needs to be profiled, sometimes separately from the transaction itself. Towards this end IHE has developed the concept of a Content Integration Profile.

Content Integration Profiles specify how the payload of a transaction fits into a specific use of that transaction. A content integration profile has three main parts. The first part describes the use case (this is found in Volume 1 in the definition of each Profile). The second part is a Content Module (found in this Volume 2), which describes the payload of the transaction; a content module is specified so as to be independent of the transaction in which it appears. The third part is binding to a specific IHE transaction, which describes how the content affects the transaction. The binding of CDA-based medical documents to workflow transactions is described in the Profile definition in Volume 1 (e.g., see IHE EYECARE TF-1:8.4).

Add new Section 5

5 Namespaces and Vocabularies

This section lists the namespaces and identifiers defined or referenced by the IHE Eye Care Technical Framework and the vocabularies defined or referenced herein.

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-2:6.3 (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

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codeSystem	codeSystemName	Description
1.2.840.10008.2.16.4	DCM	DICOM®[4] 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

The table below lists the format codes, root template identifiers and media types used by the IHE Profiles specified in the Eye Care Technical Framework.

Note: The code system for these codes is **1.3.6.1.4.1.19376.1.2.3** as assigned by the ITI Domain for codes used for the purposes of cross-enterprise document sharing (XDS).

Profile	Format Code	Media Type	Template ID
General Eye Evaluation (GEE) C-CDA Progress Note	urn:ihe:eyecare:geneyeevalpn:2014	text/xml	1.3.6.1.4.1.19376.1.12.1.1.2
General Eye Evaluation (GEE) C-CDA Consultation Note	urn:ihe:eyecare:geneyeevalcn:2014	text/xml	1.3.6.1.4.1.19376.1.12.1.1.3

Add new Section 6

[4] DICOM is the registered trademark of the National Electrical Manufacturers Association for its standards publications relating to digital communications of medical information.

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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.

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Optionality	Description
R	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. 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. 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 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.

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Note: Readers of this document are not expected to read the figure below as it was taken from the CDA document. It is here to give the reader an idea of how these concepts are linked together, for details see the full size figure from the CDA Release 2 specification.

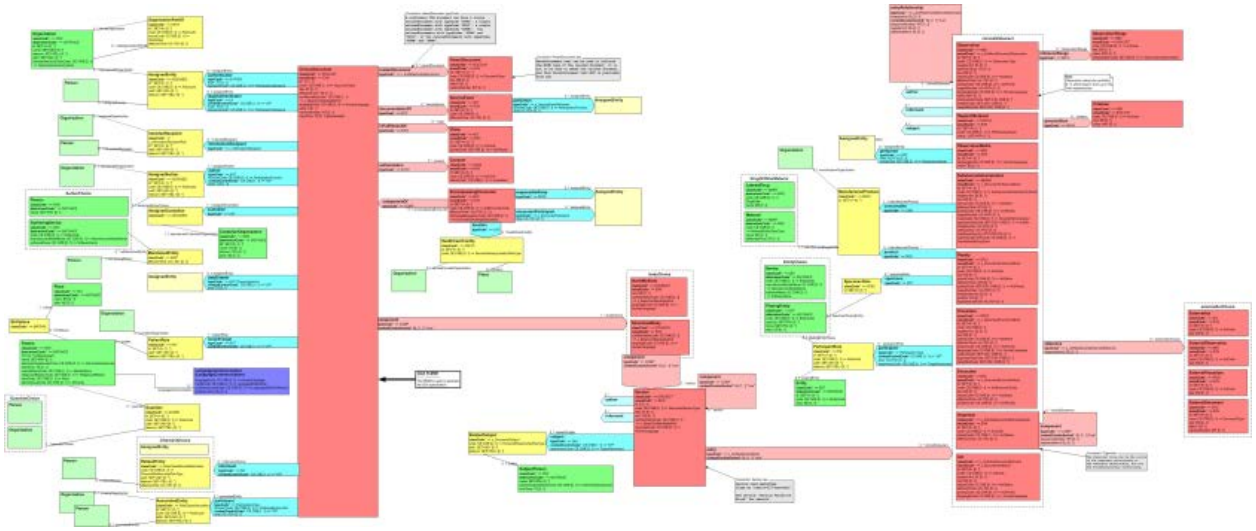

Figure 6.1.2-1: CDA R2 R-MIM with location of Document, Sections, and Entries

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.

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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.

Template ID				
Parent Template				
General Description				
Document Code				
Opt	**Data Element or Section Name**	**Template ID**	**Specification Document**	**Constraint**

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Header Elements				
Sections				

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:

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- 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**
Subsections				
Entries				

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

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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 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.

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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.

Template ID	
Parent Template	
General Description	
Header Element	
Code	

Opt	Participation	Description	Template	Spec Document	Con-straint

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.

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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.

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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 CDA Document Content Modules

6.3.1.1 General Eye Evaluation (GEE) C-CDA Progress Note Document Content Module) (1.3.6.1.4.1.19376.1.12.1.1.2)

General Eye Evaluation (GEE) C-CDA Progress Note is a content profile that defines the structure of data that is collected during a patient's eye examination. It is designed to be an extension to the C-CDA Progress Note document. An eye examination consists of an evaluation of the physiological function and the anatomical status of the eye, visual system, and related

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structures. Also included is related patient information such as history, allergies, review of systems, social history, etc.

1. The templateId/@root for conformance to this document SHALL be 1.3.1.4.1.19376.1.12.1.1.2 to assert conformance to this template.
2. The ClinicalDocument/code LOINC code for the document SHALL be 70947-7, "General eye evaluation".
3. The XDSDocumentEntry format code for this content SHALL be urn:ihe:eyecare:geneyeevalpn:2014
4. The mapping of CDA header attributes to XDS metadata SHALL be identical to the XDS-MS mapping specified in PCC TF-2: 4.1.1. GEE specific extensions are shown in Section 6.3.1.1.3.

6.3.1.1.1 Parent Template

The GEE clinical document is an extension to the C-CDA Progress Note document. Therefore, the parent of this document template shall be:

1. C-CDA Progress Note "2.16.840.1.113883.10.20.22.1.9"

Note: Implementations may support other parent templates in addition to the Progress Note.

6.3.1.1.2 Relationship to C-CDA

Some CDA sections and entries used within this GEE document are based on the HL7 Implementation Guide for CDA Release 2: IHE Health Story Consolidation, Release 1 DSTU (C-CDA) section and entry definitions. Specifically, it is a superset of the C-CDA Progress Note.

If there are no new or modified constraints for a section or entry or if only the value sets are constrained, then the definition of the section or entry is considered unchanged from the C-CDA definition and the C-CDA template ID will be used. These unchanged sections/entries are referenced directly to the C-CDA specification and are not included in this specification.

6.3.1.1.3 XDS Metadata Extensions for GEE

This section specifies extensions to the XDS metadata requirements defined by IHE ITI.

1. The XDSDocumentEntry classCode LOINC code for the class SHALL be 70947-7, "General eye evaluation".
2. The XDSDocumentEntry practiceSettingCode for this content SHALL be 394594003, SNOMED CT, "Ophthalmology"
3. The XDSDocumentEntry typeCode LOINC code for the typeCode SHALL be 70948-5, "Ocular Physical Exam".
4. The XDSDocumentEntry typeCode code for the authorSpecialty SHALL use SNOMED CT to identify the specialty of the author.

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a. The following codes are provided to express the scope of this attribute; additional SNOMED CT codes MAY be used.

SNOMED CT code
422234006, SNOMED CT, Ophthalmologist (occupation)
28229004, SNOMED CT, Optometrist (occupation)

6.3.1.1.4 GEE C-CDA Progress Note Header Section

1. SHALL conform to the C-CDA Progress Note Header Constraints specified in Section 3.8.1 of the HL7 Implementation Guide for CDA Release 2: IHE Health Story Consolidation, DSTU Release 1.1 (US Realm) Draft Standard for Trial Use July 2012.

6.3.1.1.5 GEE Document Content Specification

The following table defines the Document Content specification requirements. The column heading "Informative" is informative only, where:

- GEE – conveys the section is based upon specifications from the General Eye Evaluation
- C-CDA – conveys the section is based upon specifications from the Consolidate CDA
- IRIS Registry - conveys the section is based upon data elements ideally populating the AAO IRIS (Intelligent Research in Sight) Registry

Many of the sections are based upon multiple specifications.

The OPT column is based upon the following criteria:

1. Specification based upon GEE is the main focus. The intent is that Content Creators are required to support the ability to generate almost all sections based upon GEE. For example R[0..1], means implementations must be able to generate the sections, however for a specific instance it may be omitted if not filled in by the "user" generating the document.
2. Specification based upon C-CDA is defined similar to the specific C-CDA specification except for when it is required by GEE. For example, the section Allergies is optional in the C-CDA, however, R[0..1] for this document because it is required by GEE.
3. Specification based upon IRIS Registry is always defined as optional, except for when it is required by GEE and/or C-CDA.

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955 **Table 6.3.1.1.5-1: GEE C-CDA Progress Note Document Content Specification**

Template Name	OPT	Template Id	Informative
CDA Header Modules	M [1..1]	See Section 6.3.1.1.4	GEE, C-CDA, IRIS REGISTRY™
Allergies (entries optional)	R[0..1]	2.16.840.1.113883.10.20.22.2.6	GEE, C-CDA, IRIS REGISTRY
Assessment and Plan	C[1..1]*	2.16.840.1.113883.10.20.22.2.9	GEE, C-CDA, IRIS REGISTRY
Assessment	C[1..1]*	2.16.840.1.113883.10.20.22.2.8	GEE, C-CDA, IRIS REGISTRY
Chief Complaint	R[0..1]	1.3.6.1.4.1.19376.1.5.3.1.1.13.2.1	GEE, C-CDA
Instructions	O[0..1]	2.16.840.1.113883.10.20.22.2.45	C-CDA, IRIS REGISTRY
Interventions	O[0..1]	2.16.840.1.113883.10.20.21.2.3	C-CDA, IRIS REGISTRY
Medications (entries optional)	O[0..1]	2.16.840.1.113883.10.20.22.2.1	GEE, C-CDA, IRIS REGISTRY
Objective	O[0..1]	2.16.840.1.113883.10.20.21.2.1	C-CDA
Physical Exam	O[0..1]	2.16.840.1.113883.10.20.2.10	C-CDA
Plan of Care	C[1..1]*	2.16.840.1.113883.10.20.22.2.10	GEE, C-CDA, IRIS REGISTRY
Problem (entries optional)	O[0..1]	2.16.840.1.113883.10.20.22.2.5	GEE, C-CDA, IRIS REGISTRY
Results (entries optional)	O[0..1]	2.16.840.1.113883.10.20.22.2.3	C-CDA
Review of Systems	R[0..1]	1.3.6.1.4.1.19376.1.5.3.1.3.18	GEE, C-CDA
Subjective	O[0..1]	2.16.840.1.113883.10.20.21.2.2	C-CDA
Vital Signs (entries optional)	O[0..1]	2.16.840.1.113883.10.20.22.2.4	C-CDA, IRIS REGISTRY
Encounters (entries optional)	O[0..1]	2.16.840.1.113883.10.20.22.2.22	IRIS REGISTRY
Family History	R[0..1]	2.16.840.1.113883.10.20.22.2.15	GEE
Functional Status	R[0..1]	2.16.840.1.113883.10.20.22.2.14	GEE
Healthcare Providers and Pharmacies	R[0..1]	1.3.6.1.4.1.19376.1.5.3.1.2.3	GEE, IRIS REGISTRY
History of Past Illness	R[0..1]	2.16.840.1.113883.10.20.22.2.20	GEE
History of Present Illness	R[0..1]	1.3.6.1.4.1.19376.1.5.3.1.3.4	GEE
Procedures (entries optional)**	R[0..1]	2.16.840.1.113883.10.20.22.2.7	GEE Note: Intended use to list systemic and ocular procedures.
Procedures (entries required)**	O[0..1]	2.16.840.1.113883.10.20.22.2.7.1	GEE Note: Intended use is a coded list of systemic and ocular procedures.
Medications (entries required)	R[0..1]	2.16.840.1.113883.10.20.22.2.1.1	GEE, IRIS REGISTRY
Ocular History	R[0..1]	1.3.6.1.4.1.19376.1.12.1.2.3	GEE, IRIS REGISTRY
Ocular Physical Exam	M[1..1]	1.3.6.1.4.1.19376.1.12.1.2.5	GEE, IRIS REGISTRY
Ophthalmic Medications	R[0..1]	1.3.6.1.4.1.19376.1.12.1.2.4	GEE, IRIS REGISTRY
Problem (entries required)	R[0..1]	2.16.840.1.113883.10.20.22.2.5.1	GEE, IRIS REGISTRY
Social History	R[0..1]	2.16.840.1.113883.10.20.22.2.17	GEE, IRIS REGISTRY

*Shall include an Assessment and Plan Section or an Assessment Section and a Plan Section. Shall NOT include an Assessment/Plan Section when an Assessment Section and a Plan of Care Section are present.

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**It is recommended that Content Consumers present the information from both Procedure Sections. It is also recommended that the Ocular History be presented separately from the Procedure Sections.

Example XML Code

```
ClinicalDocument xmlns='urn:hl7-org:v3 >
  <typeId extension="POCD_HD000040" root="2.16.840.1.113883.1.3"/>
  <templateId root='2.16.840.1.113883.10.20.22.1.9'/>
  <templateId root='1.3.6.1.4.1.19376.1.12.1.1.2'/>
  <id root=' ' extension=' '/>
  <code code='70947-7' displayName='General eye evaluation'
    codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC'/>
  <title>General Eye Evaluation</title>
  <effectiveTime value='20081004012005'/>
  <confidentialityCode code='N' displayName='Normal'
    codeSystem='2.16.840.1.113883.5.25' codeSystemName='Confidentiality' />
  <languageCode code='en-US'/>
     :
  <component>
    <section>
      <templateId root='2.16.840.1.113883.10.20.22.2.6'/>
      <!-- Required if known Allergies Section content -->
    </section>
  </component>

  <component>
    <section>
      <templateId root='2.16.840.1.113883.10.20.22.2.9'/>
      <!—- Conditional Assessment and Plan Section content -->
    </section>
  </component>

  <component>
    <section>
      <templateId root='2.16.840.1.113883.10.20.22.2.8'/>
      <!—- Conditional Assessment Section content -->
    </section>
  </component>

  <component>
    <section>
      <templateId root='1.3.6.1.4.1.19376.1.5.3.1.1.13.2.1'/>
      <!—- Required if known Chief Complaint Section content -->
    </section>
  </component>

  <component>
    <section>
      <templateId root='2.16.840.1.113883.10.20.22.2.45'/>
      <!—- Optional Instructions Section content -->
    </section>
  </component>

  <component>
    <section>
      <templateId root='2.16.840.1.113883.10.20.21.2.3'/>
      <!—- Optional Interventions Section content -->
    </section>
  </component>
```


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```
<component>
   <section>
     <templateId root='2.16.840.1.113883.10.20.22.2.1'/>
     <!-- Optional Medications Section content -->
   </section>
 </component>

<component>
   <section>
     <templateId root='2.16.840.1.113883.10.20.21.2.1'/>
     <!-- Optional Objective Section content -->
   </section>
 </component>

<component>
   <section>
     <templateId root='2.16.840.1.113883.10.20.2.10'/>
     <!-- Optional Physical Exam Section content -->
   </section>
 </component>

<component>
   <section>
     <templateId root='2.16.840.1.113883.10.20.22.2.10'/>
     <!-- Conditional Plan of Care Section content -->
   </section>
 </component>

<component>
   <section>
     <templateId root='2.16.840.1.113883.10.20.22.2.5'/>
     <!-- Optional Problems Section content -->
   </section>
 </component>

<component>
   <section>
     <templateId root='2.16.840.1.113883.10.20.22.2.3'/>
     <!-- Optional Results Section content -->
   </section>
 </component>

<component>
   <section>
     <templateId root='1.3.6.1.4.1.19376.1.5.3.1.3.18'/>
     <!-- Required if known Review of Systems Section content -->
   </section>
 </component>

<component>
   <section>
     <templateId root='2.16.840.1.113883.10.20.21.2.2'/>
     <!-- Optional Subjective Section content -->
   </section>
 </component>
```


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```
<component>
   <section>
     <templateId root='2.16.840.1.113883.10.20.22.2.4'/>
     <!-- Optional Vital Signs Section content -->
   </section>
 </component>

<component>
   <section>
     <templateId root='2.16.840.1.113883.10.20.22.2.22'/>
     <!-- Optional Encounters Section content -->
   </section>
 </component>

 <component>
   <section>
     <templateId root='2.16.840.1.113883.10.20.22.2.15'/>
     <!-- Required if known Family History Section content -->
   </section>
 </component>

 <component>
   <section>
     <templateId root='2.16.840.1.113883.10.20.22.2.14'/>
     <!-- Required if known Functional Status Section content -->
   </section>
 </component>

<component>
   <section>
     <templateId root='1.3.6.1.4.1.19376.1.5.3.1.2.3'/>
     <!-- Required if known Healthcare Providers and Pharmacies Section content -->
   </section>
 </component>

 <component>
   <section>
     <templateId root='2.16.840.1.113883.10.20.22.2.20'/>
     <!-- Required if known History of Past Illness Section content -->
   </section>
 </component>

<component>
   <section>
     <templateId root='1.3.6.1.4.1.19376.1.5.3.1.3.4'/>
     <!-- Required if known History Present Illness Section content -->
   </section>
 </component>

<component>
   <section>
     <templateId root='2.16.840.1.113883.10.20.22.2.7'/>
     <!-- Required if known Procedure (entries optional)Section content -->
   </section>
 </component>
```


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```
 <component>
    <section>
      <templateId root='2.16.840.1.113883.10.20.22.2.7.1'/>
      <!—Optional Procedures (entries required) Section content -->
    </section>
  </component>

 <component>
    <section>
      <templateId root='2.16.840.1.113883.10.20.22.2.1.1'/>
      <!-- Required if known Medications Section content -->
    </section>
  </component>

  <component>
    <section>
      <templateId root='1.3.6.1.4.1.19376.1.12.1.2.3'/>
      <!-- Required if known Ocular History Section content -->
    </section>
  </component>

 <component>
    <section>
      <templateId root='1.3.6.1.4.1.19376.1.12.1.2.5'/>
      <!-- Required Ocular Physical Exam Section content -->
    </section>
  </component>

 <component>
    <section>
      <templateId root='1.3.6.1.4.1.19376.1.12.1.2.4/>
      <!-- Required if known Ocular Medications Section content -->
    </section>
  </component>

  <component>
    <section>
      <templateId root='2.16.840.1.113883.10.20.22.2.5.1'/>
      <!-- Required if known Problems Section content -->
    </section>
  </component>

  <component>
    <section>
      <templateId root='2.16.840.1.113883.10.20.22.2.17'/>
      <!-- Required if known Social History Section content -->
    </section>
  </component>

  </structuredBody></component>
</ClinicalDocument>
```

6.3.1.2 General Eye Evaluation (GEE) C-CDA Consultation Note Document Content Module) (1.3.6.1.4.1.19376.1.12.1.1.3)

General Eye Evaluation (GEE) C-CDA Consultation Note is a content profile that defines the structure of data that is collected during a patient's eye examination. It is designed to be an extension to the C-CDA Consultation Note document and is intended to convey that this patient encounter occurred in response to a referral from another provider. An eye examination consists of an evaluation of the physiological function and the anatomical status of the eye, visual system,

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and related structures. Also included is related patient information such as history, allergies, review of systems, social history, etc.

1. The templateId/@root for conformance to this document SHALL be 1.3.1.4.1.19376.1.12.1.1.3 to assert conformance to this template.
2. The ClinicalDocument/code LOINC code for the document SHALL be 70947-7, "General eye evaluation".
3. The XDSDocumentEntry format code for this content SHALL be urn:ihe:eyecare:geneyeevalcn:2014
4. The mapping of CDA header attributes to XDS metadata SHALL be identical to the XDS-MS mapping specified in PCC TF-2: 4.1.1. GEE specific extensions are shown in Section 6.3.1.2.3.

6.3.1.2.1 Parent Template

The GEE clinical document is an extension to the C-CDA Consultation Note document. Therefore, the parent of this document template shall be:

1. C-CDA Consultation Note "2.16.840.1.113883.10.20.22.1.4"

Note: Implementations may support other parent templates in addition to the Consultation Note.

6.3.1.2.2 Relationship to C-CDA

Some CDA sections and entries used within this GEE document are based on the HL7 Implementation Guide for CDA Release 2: IHE Health Story Consolidation, Release 1 DSTU (C-CDA) section and entry definitions. Specifically, it is a superset of the C-CDA Consultation Note.

If there are no new or modified constraints for a section or entry or if only the value sets are constrained, then the definition of the section or entry is considered unchanged from the C-CDA definition and the C-CDA template ID will be used. These unchanged sections/entries are referenced directly to the C-CDA specification and are not included in this specification.

6.3.1.2.3 XDS Metadata Extensions for GEE

This section specifies extensions to the XDS metadata requirements defined by IHE ITI.

1. The XDSDocumentEntry classCode LOINC code for the class SHALL be 70947-7, "General eye evaluation".
2. The XDSDocumentEntry practiceSettingCode for this content SHALL be 394594003, SNOMED CT, "Ophthalmology"
3. The XDSDocumentEntry typeCode LOINC code for the typeCode SHALL be 70948-5, "Ocular Physical Exam".
4. The XDSDocumentEntry typeCode code for the authorSpecialty SHALL use SNOMED CT to identify the specialty of the author.

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a. The following codes are provided to express the scope of this attribute; additional SNOMED CT codes MAY be used.

SNOMED CT code
422234006, SNOMED CT, Ophthalmologist (occupation)
28229004, SNOMED CT, Optometrist (occupation)

6.3.1.2.4 GEE C-CDA Consultation Note Header Section

1. Shall conform to the C-CDA Consultation Note Header Constraints specified in Section 3.2.1 of the HL7 Implementation Guide for CDA Release 2: IHE Health Story Consolidation, DSTU Release 1.1 (US Realm) Draft Standard for Trial Use July 2012.

6.3.1.2.5 GEE C-CDA Consultation Note Document Content Specification

The following table defines the Document Content specification requirements. The column heading "Informative" is informative only, where:

- GEE – conveys the section is based upon specifications from the General Eye Evaluation
- C-CDA – conveys the section is based upon specifications from the Consolidate CDA
- IRIS Registry - conveys the section is based upon data elements ideally populating the AAO IRIS Registry

Many of the sections are based upon multiple specifications.

The OPT column is based upon the following criteria:

1. Specification based upon GEE is the main focus. The intent is that Content Creators are required to support the ability to generate almost all sections based upon GEE. For example R[0..1], means implementations must be able to generate the sections, however for a specific instance it may be omitted if not filled in by the "user" generating the document.
2. Specification based upon C-CDA is defined similar to the specific C-CDA specification except for when it is required by GEE. For example, the section Allergies is optional in the C-CDA, however, R[0..1] for this document because it is required by GEE.
3. Specification based upon the IRIS Registry is always defined as optional, except for when it is required by GEE and/or C-CDA.

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Table 6.3.1.2.5-1: GEE C-CDA Consultation Note Document Content Specification

Template Name	OPT	Template Id	Informative
CDA Header Modules	M [1..1]	See Section 6.3.1.2.3	GEE, C-CDA, IRIS REGISTRY
Allergies (entries optional)	R[0..1]	2.16.840.1.113883.10.20.22.2.6	GEE, C-CDA, IRIS REGISTRY
Assessment and Plan	C[1..1]*	2.16.840.1.113883.10.20.22.2.9	GEE, C-CDA, IRIS REGISTRY
Assessment	C[1..1]*	2.16.840.1.113883.10.20.22.2.8	GEE, C-CDA, IRIS REGISTRY
Chief Complaint	C[1..1]**	1.3.6.1.4.1.19376.1.5.3.1.1.13.2.1	GEE, C-CDA
Chief Complaint and Reason for Visit Section	C[1..1]**	2.16.840.1.113883.10.20.22.2.13	GEE, C-CDA
Family History	R[0..1]	2.16.840.1.113883.10.20.22.2.15	GEE, C-CDA
General Status	O[0..1]	2.16.840.1.113883.10.20.2.5	C-CDA
History of Past Illness	R[0..1]	2.16.840.1.113883.10.20.22.2.20	GEE, C-CDA
History of Present Illness	R[1..1]	1.3.6.1.4.1.19376.1.5.3.1.3.4	GEE, C-CDA
Immunizations (entries optional)	O[0..1]	2.16.840.1.113883.10.20.22.2.2	C-CDA
Medications (entries optional)	O[0..1]	2.16.840.1.113883.10.20.22.2.1	GEE, C-CDA, IRIS REGISTRY
Physical Exam	O[0..1]	2.16.840.1.113883.10.20.2.10	C-CDA
Plan of Care	C[1..1]*	2.16.840.1.113883.10.20.22.2.10	GEE, C-CDA, IRIS REGISTRY
Problem (entries optional)	O[0..1]	2.16.840.1.113883.10.20.22.2.5	GEE, C-CDA, IRIS REGISTRY
Reason for Referral	C[1..1]***	1.3.6.1.4.1.19376.1.5.3.1.3.1	C-CDA
Reason for Visit	C[1..1]***	2.16.840.1.113883.10.20.22.2.12	C-CDA
Results (entries optional)	O[0..1]	2.16.840.1.113883.10.20.22.2.3	C-CDA
Review of Systems	R[0..1]	1.3.6.1.4.1.19376.1.5.3.1.3.18	GEE, C-CDA
Social History	R[0..1]	2.16.840.1.113883.10.20.22.2.17	GEE, C-CDA, IRIS REGISTRY
Vital Signs (entries optional)	O[0..1]	2.16.840.1.113883.10.20.22.2.4	C-CDA, IRIS REGISTRY
Encounters (entries optional)	O[0..1]	2.16.840.1.113883.10.20.22.2.22	IRIS REGISTRY
Functional Status	R[0..1]	2.16.840.1.113883.10.20.22.2.14	GEE
Healthcare Providers and Pharmacies	R[0..1]	1.3.6.1.4.1.19376.1.5.3.1.2.3	GEE, IRIS REGISTRY
Instructions	O[0..1]	2.16.840.1.113883.10.20.22.2.45	IRIS REGISTRY
Procedures (entries optional)****	R[0..1]	2.16.840.1.113883.10.20.22.2.7	GEE Note: Intended use to list systemic and ocular procedures.

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Template Name	OPT	Template Id	Informative
Procedures (entries required)****	O[0..1]	2.16.840.1.113883.10.20.22.2.7.1	GEE Note: Intended use is a coded list of systemic and ocular procedures.
Medications (entries required)	R[0..1]	2.16.840.1.113883.10.20.22.2.1.1	GEE, IRIS REGISTRY
Ocular History	R[0..1]	1.3.6.1.4.1.19376.1.12.1.2.3	GEE, IRIS REGISTRY
Ocular Physical Exam	M[1..1]	1.3.6.1.4.1.19376.1.12.1.2.5	GEE, IRIS REGISTRY
Ophthalmic Medications	R[0..1]	1.3.6.1.4.1.19376.1.12.1.2.4	GEE, IRIS REGISTRY
Problem (entries required)	R[0..1]	2.16.840.1.113883.10.20.22.2.5.1	GEE, IRIS REGISTRY

*Shall include an Assessment and Plan Section or an (Assessment Section and a Plan Section). Shall Not include an Assessment/Plan Section when an Assessment Section and a Plan of Care Section are present.

**Shall Not include a combined Chief Complaint and Reason for Visit Section with either a Chief Complaint Section or a Reason for Visit Section.

***Shall include a Reason for Referral or Reason for Visit section.

****It is recommended that Content Consumers present the information from both Procedure Sections. It is also recommended that the Ocular History be presented separately from the Procedure Sections.

Example XML Code

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ClinicalDocument xmlns='urn:hl7-org:v3 >
  <typeId extension="POCD_HD000040" root="2.16.840.1.113883.1.3"/>
  <templateId root='2.16.840.1.113883.10.20.22.1.4'/>
  <templateId root='1.3.6.1.4.1.19376.1.12.1.1.3 '/>
  <id root=' ' extension=' '/>
  <code code='70947-7' displayName='General eye evaluation'
    codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC'/>
  <title>General Eye Evaluation</title>
  <effectiveTime value='20081004012005'/>
  <confidentialityCode code='N' displayName='Normal'
    codeSystem='2.16.840.1.113883.5.25' codeSystemName='Confidentiality' />
  <languageCode code='en-US'/>
     :
  <component>
    <section>
      <templateId root='2.16.840.1.113883.10.20.22.2.6'/>
      <!—Required if known Allergies Section content -->
    </section>
  </component>

  <component>
    <section>
      <templateId root='2.16.840.1.113883.10.20.22.2.9'/>
      <!—- Conditional Assessment and Plan Section content -->
    </section>
  </component>
```


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```
  <component>
    <section>
      <templateId root='2.16.840.1.113883.10.20.22.2.8'/>
      <!—- Conditional Assessment Section content -->
    </section>
  </component>

  <component>
    <section>
      <templateId root='1.3.6.1.4.1.19376.1.5.3.1.1.13.2.1'/>
      <!—- Conditional Chief Complaint Section content -->
    </section>
  </component>

  <component>
    <section>
      <templateId root='2.16.840.1.113883.10.20.22.2.13'/>
      <!—- Conditional Chief Complaint and Reason for Visit Section content -->
    </section>
  </component>

  <component>
    <section>
      <templateId root='2.16.840.1.113883.10.20.22.2.15'/>
      <!-- Required if known Family History Section content -->
    </section>
  </component>

  <component>
    <section>
      <templateId root='2.16.840.1.113883.10.20.2.5'/>
      <!—- Optional General Status Section content -->
    </section>
  </component>

  <component>
    <section>
      <templateId root='2.16.840.1.113883.10.20.22.2.20'/>
      <!-- Required if known History of Past Illness Section content -->
    </section>
  </component>

 <component>
    <section>
      <templateId root='1.3.6.1.4.1.19376.1.5.3.1.3.4'/>
      <!-- Required if known History Present Illness Section content -->
    </section>
  </component>

  <component>
    <section>
      <templateId root='2.16.840.1.113883.10.20.22.2.2'/>
      <!—- Optional Immunizations Section content -->
    </section>
  </component>

 <component>
    <section>
      <templateId root='2.16.840.1.113883.10.20.22.2.1'/>
      <!-- Optional Medications Section content -->
    </section>
  </component>
```


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```
<component>
   <section>
     <templateId root='2.16.840.1.113883.10.20.2.10'/>
     <!-- Optional Physical Exam Section content -->
   </section>
 </component>

<component>
   <section>
     <templateId root='2.16.840.1.113883.10.20.22.2.10'/>
     <!-- Conditional Plan of Care Section content -->
   </section>
 </component>

<component>
   <section>
     <templateId root='2.16.840.1.113883.10.20.22.2.5'/>
     <!-- Optional Problems Section content -->
   </section>
 </component>

<component>
   <section>
     <templateId root='1.3.6.1.4.1.19376.1.5.3.1.3.1'/>
     <!-- Conditional Reason for Referral Section content -->
   </section>
 </component>

<component>
   <section>
     <templateId root='2.16.840.1.113883.10.20.22.2.12'/>
     <!-- Conditional Reason for Visit Section content -->
   </section>
 </component>

<component>
   <section>
     <templateId root='2.16.840.1.113883.10.20.22.2.3'/>
     <!-- Optional Results Section content -->
   </section>
 </component>

<component>
   <section>
     <templateId root='1.3.6.1.4.1.19376.1.5.3.1.3.18'/>
     <!-- Required if known Review of Systems Section content -->
   </section>
 </component>

<component>
   <section>
     <templateId root='2.16.840.1.113883.10.20.22.2.17'/>
     <!-- Required if known Social History Section content -->
   </section>
 </component>
```


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```
 <component>
    <section>
      <templateId root='2.16.840.1.113883.10.20.22.2.4'/>
      <!-- Optional Vital Signs Section content -->
    </section>
 </component>

 <component>
    <section>
      <templateId root='2.16.840.1.113883.10.20.22.2.22'/>
      <!-- Optional Encounters Section content -->
    </section>
 </component>

 <component>
    <section>
      <templateId root='2.16.840.1.113883.10.20.22.2.14'/>
      <!-- Required if known Functional Status Section content -->
    </section>
 </component>

 <component>
    <section>
      <templateId root='1.3.6.1.4.1.19376.1.5.3.1.2.3'/>
      <!-- Required if known Healthcare Providers and Pharmacies Section content -->
    </section>
 </component>

 <component>
    <section>
      <templateId root='2.16.840.1.113883.10.20.22.2.45'/>
      <!—- Optional Instructions Section content -->
    </section>
 </component>

 <component>
    <section>
      <templateId root='2.16.840.1.113883.10.20.22.2.7'/>
      <!-- Required if known Procedure (entries optional)Section content -->
    </section>
 </component>

 <component>
    <section>
      <templateId root='2.16.840.1.113883.10.20.22.2.7.1'
/>
      <!—Optional Procedures (entries required)Section content -->
    </section>
 </component>

 <component>
    <section>
      <templateId root='2.16.840.1.113883.10.20.22.2.1.1'/>
      <!-- Required if known Medications Section content -->
    </section>
 </component>

 <component>
    <section>
      <templateId root='1.3.6.1.4.1.19376.1.12.1.2.3'/>
      <!-- Required if known Ocular History Section content -->
    </section>
 </component>
```

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```
 <component>
    <section>
      <templateId root='1.3.6.1.4.1.19376.1.12.1.2.5'/>
      <!-- Required Ocular Physical Exam Section content -->
    </section>
  </component>

 <component>
    <section>
      <templateId root='1.3.6.1.4.1.19376.1.12.1.2.4/>
      <!-- Required if known Ocular Medications Section content -->
    </section>
  </component>

  <component>
    <section>
      <templateId root='2.16.840.1.113883.10.20.22.2.5.1'/>
      <!-- Required if known Problems Section content -->
    </section>
  </component>

  </structuredBody></component>
</ClinicalDocument>
```

6.3.2 CDA Section Content Modules

6.3.2.1 Ocular History 1.3.6.1.4.1.19376.1.12.1.2.3

Template ID	1.3.6.1.4.1.19376.1.12.1.2.3			
Parent Template	History of Past Illness 2.16.840.1.113883.10.20.22.2.20			
General Description	The ocular history section shall contain a narrative description of the patient's ocular history.			
Section Code	70934-5, LOINC, "Ocular history"			
Opt	**Data Element or Section Name**	**Template ID**	**Specification Document**	**Constraint**
Subsections				
R[0..1]	Ocular List of Surgeries	1.3.6.1.4.1.19376.1.12.1.2.1	EYECARE TF-2:6.3.2.2	
O[0..1]	Ocular Coded List of Surgeries	1.3.6.1.4.1.19376.1.12.1.2.2	EYECARE TF-2:6.3.2.3	

6.3.2.1.1 Parent Template

The parent of this template is History of Past Illness "2.16.840.1.113883.10.20.22.2.20".

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Example XML Code

```
<component>
  <section>
    <templateId root='2.16.840.1.113883.10.20.22.2.20'/>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.3'/>
    <id root=' ' extension=' '/>
    <code code='70934-5' displayName='Ocular history'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC'/>
    <text>
      Text as described above
    </text>

    <component>
      <section>
        :
      <!-- Required if known Ocular List of Surgeries -->
        <templateId root='1.3.6.1.4.1.19376.1.12.2.1'/>
        :
      </section>
    </component>

    <component>
      <section>
        :
      <!-- Optional Coded Ocular List of Surgeries -->
        <templateId root='1.3.6.1.4.1.19376.1.12.2.2'/>
        :
      </section>
    </component>
  </section>
</component>
```

6.3.2.2 Ocular List of Surgeries 1.3.6.1.4.1.19376.1.12.1.2.1

Template ID	1.3.6.1.4.1.19376.1.12.1.2.1
Parent Template	Procedures (entries optional) 2.16.840.1.113883.10.20.22.2.7
General Description	The ocular list of surgeries section shall contain a narrative description of the ocular diagnostic and therapeutic operative procedures and associated anesthetic techniques the patient had in the past.
Section Code	47519-4, LOINC, “History of procedures”
Entries (see Procedures Section (entries optional) specification in HL7 C-CDA document for entry requirements)	

6.3.2.2.2 Parent Template

The parent of this template is Procedures (entries optional) 2.16.840.1.113883.10.20.22.2.7”.

Example XML Code

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```
<component>
  <section>
    <templateId root='2.16.840.1.113883.10.20.22.2.7'/>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.1'/>
    <id root=' ' extension=' '/>
    <code code='47519-4' displayName='History of procedures'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC'/>
    <text>
      Text as described above
    </text>
  </section>
</component>
```

6.3.2.3 Ocular Coded List of Surgeries 1.3.6.1.4.1.19376.1.12.1.2.2

Template ID	1.3.6.1.4.1.19376.1.12.1.2.2			
Parent Template	Procedures Section (entries required) 2.16.840.1.113883.10.20.22.2.7.1			
General Description	The ocular coded list of surgeries section shall include entries for ocular procedures.			
Section Code	47519-4, LOINC, "History of procedures"			
Opt	**Data Element or Section Name**	**Template ID**	**Specification Document**	**Constraint**
Entries (see Procedures Section (entries required) specification in HL7 C-CDA document for entry requirements)				

6.3.2.3.1 Parent Template

The parent of this template is Coded List of Surgeries "2.16.840.1.113883.10.20.22.2.7.1".

Example XML Code

```
<component>
  <section>
    <templateId root='2.16.840.1.113883.10.20.22.2.7.1'/>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.2'/>
    <id root=' ' extension=' '/>
    <code code='47519-4' displayName='History of procedures'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC'/>
    <text>
      Text as described above
    </text>
    <entry>
        :
    </entry>

  </section>
</component>
```

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6.3.2.4 Ophthalmic Medications 1.3.6.1.4.1.19376.1.12.1.2.4

Template ID	1.3.6.1.4.1.19376.1.12.1.2.4
Parent Template	Medications (entries required) 2.16.840.1.113883.10.20.22.2.1.1
General Description	The ophthalmic medications section shall contain those medications prescribed for patient's ophthalmic conditions.
Section Code	70935-2, LOINC, "Ophthalmic medications"

Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
Entries				
R[1..*]	Medication Activity	2.16.840.1.113883.10.20.22.4.16	C-CDA	

6.3.2.4.1 Parent Template

The parent of this template is Medications (entries required) "2.16.840.1.113883.10.20.22.2.1.1".

6.3.2.4.2 Ophthalmic Medications Constraints

This section is a sub-set of the Medication Section to convey ophthalmic medication only. Therefore, all medications in this list SHALL also be conveyed in the parent Medications template.

Example XML Code

```
<component>
  <section>
    <templateId root='2.16.840.1.113883.10.20.22.2.1.1'/>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.4'/>
    <id root=' ' extension=' '/>
    <code code='70935-2' displayName='Ophthalmic medications'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC'/>
    <text>
      Text as described above
    </text>
    <entry>
        :
    </entry>
  </section>
</component>
```

6.3.2.5 Ocular Physical Exam 1.3.6.1.4.1.19376.1.12.1.2.5

Template ID	1.3.6.1.4.1.19376.1.12.1.2.5
Parent Template	Physical Exam 2.16.840.1.113883.10.20.2.10
General Description	The ocular physical exam section shall contain a description of detailed examination information for the eyes

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Section Code	70948-5, LOINC, "Ocular physical exam"			
Opt	**Data Element or Section Name**	**Template ID**	**Specification Document**	**Constraint**
Subsections				
R[0..1]	Routine Eye Exam	1.3.6.1.4.1.19376.1.12.1.2.6	EYECARE TF-2:6.3.2.6	

6.3.2.5.1 Parent Template

The parent of this template is Physical Exam "2.16.840.1.113883.10.20.2.10".

Example XML Code

```
<component>
  <section>
    <templateId root='2.16.840.1.113883.10.20.2.10'/>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.5'/>
    <id root=' ' extension=' '/>
    <code code='70948-5' displayName='Ocular physical exam'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC'/>
    <text>
      Text as described above
    </text>
    <component>
      <section>
         :
      <!-- Required if known Routine Eye Exam-->
        <templateId root='1.3.6.1.4.1.19376.1.12.1.2.6'/>
         :
      </section>
    </component>

  </section>
</component>
```

6.3.2.6 Routine Eye Exam 1.3.6.1.4.1.19376.1.12.1.2.6

Template ID	1.3.6.1.4.1.19376.1.12.1.2.6			
Parent Template				
General Description	The routine eye exam section shall contain a description of any type of eye exam.			
Section Code	10197-2, LOINC, "Physical findings of eye"			
Opt	**Data Element or Section Name**	**Template ID**	**Specification Document**	**Constraint**
Subsections				
R[0..1]	Visual Acuity	1.3.6.1.4.1.19376.1.12.1.2.7	EYECARE TF-2: 6.3.2.8	
R[0..1]	Vision Testing	1.3.6.1.4.1.19376.1.12.1.2.8	EYECARE TF-2: 6.3.2.7	

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R[0..1]	Refractive Measurements	1.3.6.1.4.1.19376.1.12.1.2.9	EYECARE TF-2: 6.3.2.9	
R[0..1]	Lensometry Measurements	1.3.6.1.4.1.19376.1.12.1.2.10	EYECARE TF-2: 6.3.2.10	
R[0..1]	Intraocular pressure	1.3.6.1.4.1.19376.1.12.1.2.11	EYECARE TF-2: 6.3.2.11	
R[0..1]	Confrontation Visual Field	1.3.6.1.4.1.19376.1.12.1.2.12	EYECARE TF-2: 6.3.2.12	
R[0..1]	Eye External	1.3.6.1.4.1.19376.1.12.1.2.13	EYECARE TF-2: 6.3.2.13	
R[0..1]	Lacrimal	1.3.6.1.4.1.19376.1.12.1.2.14	EYECARE TF-2: 6.3.2.18	
R[0..1]	Pupils	1.3.6.1.4.1.19376.1.12.1.2.15	EYECARE TF-2: 6.3.2.14	
R[0..1]	Ocular alignment and motility	1.3.6.1.4.1.19376.1.12.1.2.16	EYECARE TF-2: 6.3.2.15	
R[0..1]	Anterior segment	1.3.6.1.4.1.19376.1.12.1.2.17	EYECARE TF-2: 6.3.2.16	
R[0..1]	Posterior segment	1.3.6.1.4.1.19376.1.12.1.2.18	EYECARE TF-2: 6.3.2.17	
R[0..1]	Ancillary Testing	1.3.6.1.4.1.19376.1.12.1.2.19	EYECARE TF-2: 6.3.2.19	

Example XML Code

```
<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.6'/>
    <id root=' ' extension=' '/>
    <code code='10197-2' displayName='Physical finding of Eye'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC'/>
    <text>
      Text as described above
    </text>
    <component>
      <section>
        :
      <!-- Required if known Visual Acuity -->
        <templateId root='1.3.6.1.4.1.19376.1.12.1.2.7'/>
        :
      </section>
    </component>

    <component>
      <section>
        :
      <!-- Required if known Vision Testing -->
        <templateId root='1.3.6.1.4.1.19376.1.12.1.2.8'/>
        :
      </section>
    </component>

    <component>
      <section>
        :
```


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```
      <!-- Required if known Refractive Measurements -->
        <templateId root='1.3.6.1.4.1.19376.1.12.1.2.9'/>
          :
      </section>
    </component>

    <component>
      <section>
          :
      <!-- Required if known Lensometry Measurements -->
        <templateId root='1.3.6.1.4.1.19376.1.12.1.2.10'/>
          :
      </section>
    </component>

    <component>
      <section>
          :
      <!-- Required if known Intraocular Pressure -->
        <templateId root='1.3.6.1.4.1.19376.1.12.1.2.11'/>
          :
      </section>
    </component>

    <component>
      <section>
          :
      <!-- Required if known Confrontation Visual Field -->
        <templateId root='1.3.6.1.4.1.19376.1.12.1.2.12'/>
          :
      </section>
    </component>

    <component>
      <section>
          :
      <!-- Required if known Eye External -->
        <templateId root='1.3.6.1.4.1.19376.1.12.1.2.13'/>
          :
      </section>
    </component>

    <component>
      <section>
          :
      <!-- Required if known Lacrimal -->
        <templateId root='1.3.6.1.4.1.19376.1.12.1.2.14'/>
          :
      </section>
    </component>

    <component>
      <section>
          :
      <!-- Required if known Pupils -->
        <templateId root='1.3.6.1.4.1.19376.1.12.1.2.15'/>
          :
      </section>
    </component>

    <component>
      <section>
          :
      <!-- Required if known Ocular alignment and motility -->
        <templateId root='1.3.6.1.4.1.19376.1.12.1.2.16'/>
          :
      </section>
```

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```
    </component>

    <component>
      <section>
        :
      <!-- Required if known Anterior Segment -->
        <templateId root='1.3.6.1.4.1.19376.1.12.1.2.17'/>
        :
      </section>
    </component>

    <component>
      <section>
        :
      <!-- Required if known Posterior Segment -->
        <templateId root='1.3.6.1.4.1.19376.1.12.1.2.18'/>
        :
      </section>
    </component>

    <component>
      <section>
        :
      <!-- Required if known Ancillary Testing -->
        <templateId root='1.3.6.1.4.1.19376.1.12.1.2.19'/>
        :
      </section>
    </component>

  </section>
</component>
```

6.3.2.7 Vision Testing 1.3.6.1.4.1.19376.1.12.1.2.8

Template ID	1.3.6.1.4.1.19376.1.12.1.2.8
Parent Template	
General Description	The vision testing section shall contain a description of any type of vision testing excluding visual acuity and visual field.
Section Code	70936-0, LOINC, “Vision testing”

Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
Entries				
R[1..*]	Ocular Observation	1.3.6.1.4.1.19376.1.12.1.3.1	EYECARE TF-2: 6.3.3.1	

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Example XML Code

```
<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.8'/>
    <id root=' ' extension=' '/>
    <code code='70936-0' displayName='Vision testing'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC'/>
    <text>
      Text as described above
    </text>
    <entry>
        :
      <!-- Required Ocular Observation -->
        <templateId root='1.3.6.1.4.1.19376.1.12.1.3.1'/>
        :
    </entry>

  </section>
</component>
```

6.3.2.7.1 Vision Testing Constraints

This section specifies the constraint requirements for the Vision Testing content module section.

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

1. 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.
2. The following codes are provided to express the scope of this template; additional vision testing SNOMED CT based 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

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

1. The methodCode element SHALL be used to record the specific method used to make an observation.
2. SNOMED CT Procedure hierarchy (71388002) SHOULD be used for method codes; however, other code sets MAY be used, if desired.

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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)
-----	------

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

1. 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.
2. The SNOMED CT Clinical Findings hierarchy (404684003) SHOULD be used 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
163968004	On examination - color vision normal
32919003	Fusion with defective stereopsis
24982008	Diplopia
……	……..

6.3.2.8 Visual Acuity 1.3.6.1.4.1.19376.1.12.1.2.7

Template ID	1.3.6.1.4.1.19376.1.12.1.2.7			
Parent Template				
General Description	The visual acuity section shall contain a description of any type of visual acuity exam.			
Section Code	70937-8, LOINC, "Visual acuity"			
Opt	**Data Element or Section Name**	**Template ID**	**Specification Document**	**Constraint**
Entries				
R[1..*]	Visual Acuity Measurements Organizer	1.3.6.1.4.1.19376.1.12.1.3.2	EYECARE TF-2: 6.3.3.2	

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Example XML Code

```
<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.7'/>
    <id root=' ' extension=' '/>
    <code code='70937-8' displayName='Visual acuity'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC'/>
    <text>
      Text as described above
    </text>
    <entry>
        :
      <!-- Required if known Visual Acuity Measurements Organizer -->
        <templateId root='1.3.6.1.4.1.19376.1.12.1.3.2'/>
        :
    </entry>

  </section>
</component>
```

6.3.2.9 Refractive Measurements 1.3.6.1.4.1.19376.1.12.1.2.9

Template ID	1.3.6.1.4.1.19376.1.12.1.2.9
Parent Template	
General Description	The refractive measurements section shall contain a description of any type of refractive measurement.
Section Code	70938-6, LOINC, “Refractive measurements”

Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
Entries				
R[1..*]	Refractive Measurements Organizer	1.3.6.1.4.1.19376.1.12.1.3.3	EYECARE TF-2: 6.3.3.4	
R[0..*]	Visual Acuity Measurements Organizer	1.3.6.1.4.1.19376.1.12.1.3.2	EYECARE TF-2: 6.3.3.2	
R[0..*]	Keratometry Measurements Organizer	1.3.6.1.4.1.19376.1.12.1.3.4	EYECARE TF-2: 6.3.3.6	
O[0..*]	Ocular Observation	1.3.6.1.4.1.19376.1.12.1.3.1	EYECARE TF-2: 6.3.3.1	

Example XML Code

```
<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.9'/>
    <id root=' ' extension=' '/>
    <code code='70938-6' displayName='Refractive measurements'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC'/>
    <text>
      Text as described above
    </text>
    <entry>
        :
```


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```
      <!-- Required Refractive Measurements Organizer -->
        <templateId root='1.3.6.1.4.1.19376.1.12.1.3.3'/>
         :
    </entry>
    <entry>
         :
      <!—Required if known Visual Acuity Measurements Organizer -->
        <templateId root='1.3.6.1.4.1.19376.1.12.1.3.2'/>
         :
    </entry>
    <entry>
         :
      <!-- Required if known Karatometry Measurements Organizer -->
        <templateId root='1.3.6.1.4.1.19376.1.12.1.3.4'/>
         :
    </entry>
    <entry>
         :
      <!— Optional Ocular Observation -->
        <templateId root='1.3.6.1.4.1.19376.1.12.1.3.1'/>
         :
    </entry>

  </section>
</component>
```

6.3.2.10 Lensometry Measurements 1.3.6.1.4.1.19376.1.12.1.2.10

Template ID	1.3.6.1.4.1.19376.1.12.1.2.10			
Parent Template				
General Description	The lensometry measurements section shall contain a description of any lensometry measurement.			
Section Code	70939-4, LOINC, “Lensometry measurement”			
Opt	**Data Element or Section Name**	**Template ID**	**Specification Document**	**Constraint**
Entries				
R[1..*]	Lensometry Measurements Organizer	1.3.6.1.4.1.19376.1.12.1.3.5	EYECARE TF-3:6.3.3.8	

Example XML Code

```
<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.10'/>
    <id root=' ' extension=' '/>
    <code code='70939-4' displayName='Lensometry measurement'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC'/>
    <text>
      Text as described above
    </text>
    <entry>
         :
      <!-- Required Lensometry Measurements Organizer -->
        <templateId root='1.3.6.1.4.1.19376.1.12.1.3.5'/>
         :
    </entry>
```


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```
  </section>
</component>
```

6.3.2.11 Intraocular Pressure 1.3.6.1.4.1.19376.1.12.1.2.11

Template ID	1.3.6.1.4.1.19376.1.12.1.2.11			
Parent Template				
General Description	The intraocular pressure section shall contain a description of any type of intraocular pressure measurement.			
Section Code	56844-4, LOINC, "Intraocular pressure of the eye"			
Opt	**Data Element or Section Name**	**Template ID**	**Specification Document**	**Constraint**
Entries				
R[1..*]	Ocular Observation	1.3.6.1.4.1.19376.1.12.1.3.1	EYECARE TF-2: 6.3.3.1	

Example XML Code

```
<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.11'/>
    <id root=' ' extension=' '/>
    <code code='56844-4' displayName='Intraocular pressure of the eye'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC'/>
    <text>
      Text as described above
    </text>
    <entry>
        :
      <!-- Required Ocular Observation -->
        <templateId root='1.3.6.1.4.1.19376.1.12.1.3.1'/>
        :
    </entry>

  </section>
</component>
```

6.3.2.11.1 Intraocular Pressure Constraints

This section specifies the constraint requirements for the Intraocular Pressure entry.

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

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

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

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

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

Note: The ability to capture the methodCode is required, however users do not always capture this information. Therefore, implementations may use the CDA "null Flavor" feature when the methodCode has been omitted.

2. SNOMED CT Procedure hierarchy (71388002) SHOULD be used 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
-----	------

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

1. 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.
2. The SNOMED CT Clinical Findings hierarchy (404684003) SHOULD be used 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

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……	……..

6.3.2.12 Confrontation Visual Field 1.3.6.1.4.1.19376.1.12.1.2.12

Template ID		1.3.6.1.4.1.19376.1.12.1.2.12		
Parent Template				
General Description		The confrontation visual field section shall contain a description of any type of confrontation visual field exam.		
Section Code		70940-2, LOINC, "Confrontation visual field"		
Opt	**Data Element or Section Name**	**Template ID**	**Specification Document**	**Constraint**
Entries				
R[1..*]	Ocular Observation	1.3.6.1.4.1.19376.1.12.1.3.1	EYECARE TF-2: 6.3.3.1	

Example XML Code

```
<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.12'/>
    <id root=' ' extension=' '/>
    <code code='70940-2' displayName='Confrontation visual field'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC'/>
    <text>
      Text as described above
    </text>
    <entry>
        :
      <!-- Required Ocular Observation -->
        <templateId root='1.3.6.1.4.1.19376.1.12.1.3.1'/>
        :
    </entry>

  </section>
</component>
```

6.3.2.12.1 Confrontation Visual Field Constraints

This section specifies the constraint requirements for the Confrontation Visual Field entry.

6.3.2.12.1.1 <code code=' ' codeSystem='.16.840.1.113883.6.96' codeSystemName='SNOMED CT '/>

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

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

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

1. The methodCode element SHALL be used to record the specific method used to make an observation.
2. SNOMED CT Procedure hierarchy (71388002) SHOULD be used 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
410560002	Confrontation visual field test
-----	------

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

1. 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.
2. The SNOMED CT Clinical Findings hierarchy (404684003) SHOULD be used 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
……	……..

6.3.2.13 Eye External 1.3.6.1.4.1.19376.1.12.1.2.13

Template ID	1.3.6.1.4.1.19376.1.12.1.2.13

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Parent Template				
General Description	An examination of ocular adnexal structures, orbits and pertinent facial structures.			
Section Code	70941-0, LOINC, "Eye external"			
Opt	**Data Element or Section Name**	**Template ID**	**Specification Document**	**Constraint**
Entries				
R[1..*]	Ocular Observation	1.3.6.1.4.1.19376.1.12.1.3.1	EYECARE TF-2: 6.3.3.1	

Example XML Code

```
<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.13'/>
    <id root=' ' extension=' '/>
    <code code='70941-0' displayName='Eye external'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC'/>
    <text>
      Text as described above
    </text>
    <entry>
        :
      <!-- Required Ocular Observation -->
        <templateId root='1.3.6.1.4.1.19376.1.12.1.3.1'/>
        :
    </entry>

  </section>
</component>
```

6.3.2.13.1 Eye External Constraints

This section specifies the constraint requirements for the Eye External entry.

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

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

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

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observation/code	Data Type
363935009, SNOMED-CT, Globe observable	ST
366636003, SNOMED-CT, Facial appearance finding	ST

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

1. The methodCode element SHALL be used to record the specific method used to make an observation.
2. SNOMED CT Procedure hierarchy (71388002) SHOULD be used 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
32750006	Inspection
-----	------

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

1. 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.
2. The SNOMED CT Clinical Findings hierarchy (404684003) SHOULD be used 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
……	……..

6.3.2.14 Pupils 1.3.6.1.4.1.19376.1.12.1.2.15

Template ID	1.3.6.1.4.1.19376.1.12.1.2.15
Parent Template	

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General Description	The pupils section shall contain a description of any type of pupil exam.			
Section Code	32466-5, LOINC, "Physical findings pupils"			
Opt	**Data Element or Section Name**	**Template ID**	**Specification Document**	**Constraint**
Entries				
R[1..*]	Ocular Observation	1.3.6.1.4.1.19376.1.12.1.3.1	EYECARE TF-2: 6.3.3.1	

Example XML Code

```
<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.15'/>
    <id root=' ' extension=' '/>
    <code code='32466-5' displayName='Physical findings pupils'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC'/>
    <text>
      Text as described above
    </text>
    <entry>
        :
      <!-- Required Ocular Observation -->
        <templateId root='1.3.6.1.4.1.19376.1.12.1.3.1'/>
        :
    </entry>

  </section>
</component>
```

6.3.2.14.1 Pupils Constraints

This section specifies the constraint requirements for the Pupils entry.

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

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

observation/code	Data Type	Unit of Measure
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	

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

1. The methodCode element SHALL be used to record the specific method used to make an observation.
2. SNOMED CT Procedure hierarchy (71388002) SHOULD be used 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
122869004 + 84917001	Measurement + Indirect Light Pupillary Reflex
-----	------

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

1. 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.
2. The SNOMED CT Clinical Findings hierarchy (404684003) SHOULD be used 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

6.3.2.15 Ocular Alignment and Motility 1.3.6.1.4.1.19376.1.12.1.2.16

Template ID	1.3.6.1.4.1.19376.1.12.1.2.16
Parent Template	
General Description	The ocular alignment and motility section shall contain a description of any type of ocular alignment or motility exam.

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Section Code	70942-8, LOINC, "Ocular alignment and motility"			
Opt	**Data Element or Section Name**	**Template ID**	**Specification Document**	**Constraint**
Entries				
R[1..*]	Ocular Observation	1.3.6.1.4.1.19376.1.12.1.3.1	EYECARE TF-2: 6.3.3.1	

Example XML Code

```
<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.16'/>
    <id root=' ' extension=' '/>
    <code code='70942-8' displayName='Ocular alignment and motility'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC'/>
    <text>
      Text as described above
    </text>
    <entry>
        :
      <!-- Required Ocular Observation -->
        <templateId root='1.3.6.1.4.1.19376.1.12.1.3.1'/>
        :
    </entry>

  </section>
</component>
```

6.3.2.15.1 Ocular Alignment and Motility Constraints

This section specifies the constraint requirements for the Ocular Alignment and Motility entry.

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

1. An ocular alignment and motility observation entry SHALL use a SNOMED CT Observable Entity hierarchy (363787002) code to identify the observation.
2. The following codes are provided to express the scope of this template; additional ocular alignment and motility SNOMED CT based Observable Entity codes MAY be used.

observation/code	Data Type
251781009, SNOMED CT, AC/A-Accommodation Convergence/ Accommodation Ratio	ST
313088003, SNOMED-CT, Ocular muscle balance	ST
31763002, SNOMED-CT, Ocular motility observable	ST

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observation/code	Data Type
400927000, SNOMED-CT, Fusional vergence, function	ST

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

1. The methodCode element SHALL be used to record the specific method used to make an observation.
2. SNOMED CT Procedure hierarchy (71388002) SHOULD be used 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
-----	------

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

1. 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.
2. The SNOMED CT Clinical Findings hierarchy (404684003) SHOULD be used 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
……	……..

6.3.2.16 Anterior Segment 1.3.6.1.4.1.19376.1.12.1.2.17

Template ID	1.3.6.1.4.1.19376.1.12.1.2.17
Parent Template	

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General Description	The anterior segment section shall contain a description of any type of biomicroscopic examination of the anterior segment.			
Section Code	70943-6, LOINC, "Eye anterior segment"			
Opt	**Data Element or Section Name**	**Template ID**	**Specification Document**	**Constraint**
Entries				
R[1..*]	Ocular Observation	1.3.6.1.4.1.19376.1.12.1.3.1	EYECARE TF-2: 6.3.3.1	

Example XML Code

```
<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.17'/>
    <id root=' ' extension=' '/>
    <code code='70943-6' displayName='Eye anterior segment'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC'/>
    <text>
      Text as described above
    </text>
    <entry>
        :
      <!-- Required Ocular Observation -->
        <templateId root='1.3.6.1.4.1.19376.1.12.1.3.1'/>
        :
    </entry>

  </section>
</component>
```

6.3.2.16.1 Anterior Segment Constraints

This section specifies the constraint requirements for the Anterior Segment entry

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

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

observation/code	Data Type	Unit of Measure
420160007, SNOMED-CT, Ocular tear film observable	ST	
251693007, SNOMED-CT, Tear film break-up time	ST or PQ	s
363940001, SNOMED-CT, Conjunctival observable	ST	

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observation/code	Data Type	Unit of Measure
363964000, SNOMED-CT, Anterior sclera feature	ST	
363943004, SNOMED-CT, Cornea observable	ST	
363946007, SNOMED-CT, Anterior chamber observable	ST	
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	

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

1. The methodCode element SHALL be used to record the specific method used to make an observation.
2. SNOMED CT Procedure hierarchy (71388002) SHOULD be used 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
414273009	Fluorescein staining of eye
-----	------

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

1. 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.
2. The SNOMED CT Clinical Findings hierarchy (404684003) SHOULD be used 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.

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Code Value	Code Description
301926003	Conjunctiva normal
301928002	Central corneal epithelial staining pattern
301929005	Peripheral corneal epithelial staining pattern
301936006	Anterior chamber of eye normal
314016000	Age-related lens opacity
370952005	Decreased tear film break-up
-----	------

6.3.2.17 Posterior Segment 1.3.6.1.4.1.19376.1.12.1.2.18

Template ID	1.3.6.1.4.1.19376.1.12.1.2.18			
Parent Template				
General Description	The posterior segment section shall contain a description of any type of posterior segment exam.			
Section Code	79044-4, LOINC, "Eye posterior segment"			
Opt	**Data Element or Section Name**	**Template ID**	**Specification Document**	**Constraint**
Entries				
R[1..*]	Ocular Observation	1.3.6.1.4.1.19376.1.12.1.3.1	EYECARE TF-2: 6.3.3.1	

Example XML Code

```
<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.18'/>
    <id root=' ' extension=' '/>
    <code code='70944-4' displayName='Eye posterior segment'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC'/>
    <text>
      Text as described above
    </text>
    <entry>
        :
      <!-- Required Ocular Observation -->
        <templateId root='1.3.6.1.4.1.19376.1.12.1.3.1'/>
        :
    </entry>

  </section>
</component>
```


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6.3.2.17.1 Posterior Segment Constraints

This section specifies the constraint requirements for the Posterior entry.

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

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

observation/code	Data Type	Unit Of Measure
363965004, SNOMED CT, Vitreous cavity observable	ST	
363971005, SNOMED-CT, Optic disc observable	ST	
637369018, SNOMED CT, Optic cup/disc ratio observable	Real	No Unit
370937003, SNOMED CT, Vertical cup/disc ratio observable	Real	No Unit
370938008, SNOMED CT, Horizontal cup/disc ratio observable	Real	No Unit
428101000124108, SNOMED-CT, Macula observable	ST	
363968002, SNOMED-CT, Retina vessel feature	ST	
363967007, SNOMED-CT, Retina/choroid observable	ST	

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

1. The methodCode element SHALL be used to record the specific method used to make an observation.
2. SNOMED CT Procedure hierarchy (71388002) SHOULD be used 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.

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Code Value	Code Description
410453006	Binocular indirect ophthalmoscopy
410455004	Slit-lamp fundus examination
314972008	Indirect fundoscopy following mydriatic
-----	------

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

1. 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.
2. The SNOMED CT Clinical Findings hierarchy (404684003) SHOULD be used 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
-----	------

6.3.2.18 Lacrimal 1.3.6.1.4.1.19376.1.12.1.2.14

Template ID	1.3.6.1.4.1.19376.1.12.1.2.14			
Parent Template				
General Description	An examination of lacrimal structure and function.			
Section Code	70945-1, LOINC, "Lacrimal"			
Opt	**Data Element or Section Name**	**Template ID**	**Specification Document**	**Constraint**
Entries				
R[1..*]	Ocular Observation	1.3.6.1.4.1.19376.1.12.1.3.1	EYECARE TF-2: 6.3.3.1	

Example XML Code

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```
<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.14'/>
    <id root=' ' extension=' '/>
    <code code='70945-1' displayName='Lacrimal'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC'/>
    <text>
      Text as described above
    </text>
    <entry>
        :
      <!-- Required Ocular Observation -->
        <templateId root='1.3.6.1.4.1.19376.1.12.1.3.1'/>
        :
    </entry>

  </section>
</component>
```

6.3.2.18.1 Lacrimal Constraints

This section specifies the constraint requirements for the Lacrimal entry.

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

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

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

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

1. The methodCode element SHALL be used to record the specific method used to make an observation.
2. SNOMED CT Procedure hierarchy (71388002) SHOULD be used for method codes; however, other code sets MAY be used, if desired.

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

Code Value	Code Description
164742009	Schirmers test
419279005	Jones dye test
417997000	Fluorescein dye disappearance test
-----	------

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

1. 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.
2. The SNOMED CT Clinical Findings hierarchy (404684003) SHOULD be used 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
-----	------

6.3.2.19 Ancillary Testing 1.3.6.1.4.1.19376.1.12.1.2.19

Template ID	1.3.6.1.4.1.19376.1.12.1.2.19
Parent Template	
General Description	The ancillary testing section shall contain a description of ancillary eye exams
Section Code	70946-9, LOINC, "Ancillary eye tests"

Opt	Data Element or Section Name	Template ID	Specification Document	Constraint
Subsections				
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	

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Example XML Code

```
<component>
  <section>
    <templateId root='1.3.6.1.4.1.19376.1.12.1.2.19'/>
    <id root=' ' extension=' '/>
    <code code='70946-9' displayName='Ancillary eye tests'
      codeSystem='2.16.840.1.113883.6.1' codeSystemName='LOINC'/>
    <text>
      Text as described above
    </text>
    <section>
        :
      <!-- Optional DICOM Object Catalog -->
        <templateId root='1.3.6.1.4.1.19376.1.4.1.2.15'/>
        :
    </section>
    <section>
        :
      <!-- Optional Key Images -->
        <templateId root='1.3.6.1.4.1.19376.1.4.1.2.14'/>
        :
    </section>

  </section>
</component>
```


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6.3.3 CDA Entry Content Modules

Add Section 6.3.3.x

6.3.3.1 Ocular Observation 1.3.6.1.4.1.19376.1.12.1.3.1

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.

6.3.3.1.1 Specification

```
<observation classCode='OBS' moodCode='EVN'>
  <templateId root='1.3.6.1.4.1.19376.1.12.1.3.1'/>
  <id root='' extension=''/>
  <code code='' displayName='' codeSystem='' codeSystemName=''/>
  <!-- for CDA -->
  <text><reference value='#xxx'/></text>
  <statusCode code='completed'/>
  <effectiveTime value=''/>
  <repeatNumber value=''/>
  <value xsi:type='' …/>
  <interpretationCode code='' codeSystem='' codeSystemName=''/>
  <methodCode code='' codeSystem='' codeSystemName=''/>
  <targetSiteCode code='' codeSystem='' codeSystemName=''/>
  <author typeCode='AUT'>
    <assignedAuthor typeCode='ASSIGNED'><id ... /></assignedAuthor> <!-- for CDA -->
    <!-- For HL7 Version 3 Messages
    <assignedEntity typeCode='ASSIGNED'>
       <Person classCode='PSN'>
          <determinerCode root=''>
          <name>…</name>
       </Person>
    <assignedEntity>
     -->
  </author>
</observation>
```

6.3.3.1.2 <observation classCode='OBS' moodCode='EVN'>

1. These acts are ocular observations that have occurred, and SHALL be recorded using the <observation> element as shown above.

6.3.3.1.3 <templateId root='1.3.6.1.4.1.19376.1.12.1.3.1'/>

1. The <templateId> element identifies this <observation> as an ocular observation, allowing for validation of the content. The templateId SHALL appear as shown above.

6.3.3.1.4 <id root=' ' extension=' '/>

1. Each observation SHALL have an identifier.

6.3.3.1.5 <code code=' ' displayName=' ' codeSystem=' ' codeSystemName=' '/>

1. Observations SHALL have a code describing what was measured.

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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.

6.3.3.1.6 <text><reference value='#xxx'/></text> -OR- <text>text</text>

1. 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.
2. 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.
3. For HL7 Version 3 based uses, the <text> element MAY be included.

6.3.3.1.7 <statusCode code='completed'/>

1. The status code of all observations SHALL be completed.

6.3.3.1.8 <effectiveTime value=' '/>

1. The <effectiveTime> element SHALL be present in standalone observations and SHALL record the date and time when the measurement was taken.
2. The <effectiveTime> element SHALL be precise to at least the date/hour/minute.

6.3.3.1.9 <value xsi:type=' ' …/>

1. 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.

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

1. 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.

6.3.3.1.11 <methodCode code=' ' codeSystem=' ' codeSystemName=' '/>

1. 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.

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6.3.3.1.12 <targetSiteCode code=' ' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT '/>

1. 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.
2. 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

3. Additional qualifier codes MAY be conveyed to further clarify the target site.

   For example, SNOMED CT codes to state concepts such as 64217000, SNOMED-CT, Superior, 261089000, SNOMED CT, Inferior, etc.

6.3.3.1.13 <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.

1. Specific authorship of an observation MAY be represented by listing the author in the header and referencing the author in an <author> relationship.
2. If authors are explicitly listed in documents, an <id> element SHOULD reference the ID of the author in the header through an assignedAuthor Role.
3. If the author of the observation is not an author of the document the <person> object including a name and ID SHALL be included.
4. For HL7 Version 3 purposes, the <author> element SHOULD be present unless it can be determined by conduction from organizers or higher level structures.
5. When used for HL7 Version 3, the role element name is <assignedEntity> and the author SHALL be represented as an <assignedPerson> element.

6.3.3.2 Visual Acuity Measurements Organizer 1.3.6.1.4.1.19376.1.12.1.3.2

A Visual Acuity Measurements Organizer collects the observations for a single visual acuity measurement.

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6.3.3.2.1 Specification

```
<organizer classCode='CLUSTER' moodCode='EVN'>
  <templateId root='1.3.6.1.4.1.19376.1.12.1.3.2'/>
  <id root='' extension=''/>
  <code code='260246004' displayName='Visual Acuity Finding'
      codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT'/>  <statusCode
code='completed'/>
  <effectiveTime value=''/>
  <!-- For HL7 Version 3 Messages
  <author classCode='AUT'>
     <assignedEntity1 typeCode='ASSIGNED'>
        :
     <assignedEntity1>
  </author>
  -->
  <!-- one or more visual acuity observations -->
  <component typeCode='COMP'>
    <observation classCode='OBS' moodCode='EVN'>
      <templateId root='1.3.6.1.4.1.19376.1.12.1.3.6'/>
        :
    </observation>
  </component>
</organizer>
```

6.3.3.2.2 <organizer classCode='CLUSTER' moodCode='EVN'>

1. The visual acuity measurements organizer SHALL be a cluster of visual acuity measurement observations.

6.3.3.2.3 <templateId root='1.3.6.1.4.1.19376.1.12.1.3.2'/>

1. The visual acuity measurements organizer SHALL have the <templateId> elements shown above to indicate the constraints of this specification.

6.3.3.2.4 <id root=' ' extension=' '/>

1. The organizer SHALL have an <id> element.

6.3.3.2.5 <code code=’260246004’ displayName=”Visual Acuity Finding'' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT'/>

1. The <code> element SHALL be recorded as shown above to indicate that this organizer captures information about patient visual acuity measurements.
2. The <code> element SHALL be qualified with a code using a SNOMED CT Observable Entity hierarchy (363787002) code to identify the organizer qualifier.
3. The following codes are provided to express the scope of this template; additional visual acuity SNOMED CT based Observable Entity MAY be used.

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SNOMED CT Value Set

Code Value	Code Description
424622008	Potential Acuity Meter Visual Acuity
419775003	Best Corrected Visual Acuity
420050001	Uncorrected Visual Acuity
419475002	Pinhole Visual Acuity
425141002	Brightness Acuity Testing Visual Acuity
To be applied	Autorefraction Visual Acuity
To be applied	Habitual Visual Acuity
To be applied	Prescription Visual Acuity

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

SNOMED CT "Viewing Distance Type" Value Set

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

Note: So one example of usage is (260246004), with displayName "Visual Acuity Finding", qualified with code (419775003), with displayName of "Best Corrected Visual Acuity", qualified with code (251739003), with displayName of Distance Visual Acuity".

Example XML Code for the use of multiple visual acuity qualifiers

```
……
     <code code='260246004' display name='Visual Acuity Finding'
           codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT'/>

        <qualifier
           <code code='419775003' display name='Best Corrected Visual Acuity'
              codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT'/>
        </qualifier>
        <qualifier>
           <code code='251739003' display name='Distance Visual Acuity'
              codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT'/>
        </qualifier>

…….
```

6.3.3.2.6 < statusCode code='completed'/>

1. The status code of all organizers SHALL be completed.

6.3.3.2.7 <effectiveTime value=' '/>

1. The effective time element SHALL be present to indicate when the measurement was taken. The <effectiveTime> element SHALL be precise to at least the date/hour/minute.

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6.3.3.2.8 <author typeCode='AUT'><assignedEntity1 typeCode='ASSIGNED'>...</assignedEntity1></author>

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

6.3.3.2.9 <!-- one or more visual acuity measurements observations --> <component typeCode='COMP'>

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

6.3.3.3 Visual Acuity Measurement Observations 1.3.6.1.4.1.19376.1.12.1.3.6

The visual acuity measurement observation entry is meant to be an abstract representation of the visual acuity measurement 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.

6.3.3.3.1 Specification

Example XML Code

Note: The left side box shows a visual acuity example and the right side box shows a refractive measurement example. The yellow shaded XML illustrates the use of <entryRelationship>, <entryRelationship>is used to provide the link to which refractive measurement organizer was used for this particular visual acuity. See Section 6.3.3.13.

```
<component>
   <observation classCode="OBS" moodCode="EVN">
      <templateId root="1.3.6.1.4.1.19376.1.12.1.3.6" />
      <id root="1.2.276.0.43.200.1"
            extension="5847953241130" />
      <code code="363983007"
            codeSystem="2.16.840.1.113883.6.96"
            codeSystemName="SNOMED-CT"
            displayName="Visual Acuity" />
      <text> ... </text>
      <statusCode code="completed" />
      <effectiveTime> ... </effectiveTime>
      <value xs:type="CD"
            code="260272008"
            codeSystem="2.16.840.1.113883.6.96"
            codeSystemName="SNOMED-CT"
            displayName="Distance vision 6/6" />
      <methodCode code="252973004"
                  codeSystem="2.16.840.1.113883.6.96"
                  codeSystemName="SNOMED-CT"
                  displayName="Snellen chart assessment" />
      <targetSiteCode code="362503005"
                     codeSystem="2.16.840.1.113883.6.96"
                     codeSystemName="SNOMED-CT"
                     displayName="Entire left eye" />
      <author> ... </author>
      <entryRelationship typeCode="REFR"
                         inversionInd="false">
         <act classCode="ACT"
              moodCode="EVN">
            <templateId root='1.3.6.1.4.1.19376.1.5.3.1.4.4.1' />
            <id root="1.2.276.0.43.200.1"
                extension="5847952771108" />
            <code code="366060000"
                  codeSystem="2.16.840.1.113883.6.96"
                  codeSystemName="SNOMED-CT"
                  displayName="Refractive Measurement-Finding" />
         </act>
      </entryRelationship>
   </observation>
```

```
<entry typeCode="DRIV">
   <organizer classCode="CLUSTER"
              moodCode="EVN">
      <templateId root="1.3.6.1.4.1.19376.1.12.1.3.3" />
      <id root="1.2.276.0.43.200.1"
          extension="5847952771108" />
      <code code="366060000"
            codeSystem="2.16.840.1.113883.6.96"
            codeSystemName="SNOMED-CT"
            displayName="Refractive Measurement-Finding" />
      <statusCode code="completed" />
      <effectiveTime> ... </effectiveTime>
      <component>
         <observation classCode="OBS"
                      moodCode="EVN">
            <templateId root="1.3.6.1.4.1.19376.1.12.1.3.7" />
            <id root="1.2.276.0.43.200.1"
                extension="5847952931127" />
            <code code="251795007"
                  codeSystem="2.16.840.1.113883.6.96"
                  codeSystemName="SNOMED-CT"
                  displayName="Power of Sphere" />
            <text> ... </text>
            <statusCode code="completed" />
            <effectiveTime> ... </effectiveTime>
            <value> … </value>
            <methodCode> … </methodCode>
            <methodCode> … </methodCode>
            <targetSiteCode> … </targetSiteCode>
         </observation>
      </component>
      <component> ... </component>
      <component> ... </component>
      <component> ... </component>
   </organizer>
</entry>
```


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</component>		

6.3.3.3.2 <observation classCode='OBS' moodCode='EVN'>

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

6.3.3.3.3 <templateId root='1.3.6.1.4.1.19376.1.12.1.3.6'/>

1. The <templateId> element identifies this <observation> as a visual acuity measurement observation, allowing for validation of the content. The templateId SHALL appear as shown above.

6.3.3.3.4 <id root=' ' extension=' '/>

1. Each observation SHALL have an identifier.

6.3.3.3.5 <code code=' ' displayName=' ' codeSystem=' ' codeSystemName=' '/>

1. A visual acuity measurements observation entry SHALL use a SNOMED CT Observable Entity hierarchy (363787002) code to identify the observation.
2. The following codes are provided to express the scope of this template; additional SNOMED CT Observable Entity codes MAY be used.

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Opt	observation/code	Data Type	Unit of Measure	Value Set
C* [0..1]	363983007, SNOMED CT, Visual Acuity	CD		SNOMED CT Visual Acuity Clinical Findings (260246004) e.g., 163951003, On examination-visual acuity L-eye = 6/6; 422256009, SNOMED-CT, Count Fingers-distance vision
C* [0..1]	363983007, SNOMED CT, Visual Acuity	REAL	No Unit	
C* [0..1]	363983007, SNOMED CT, Visual Acuity	ST		Note: this should not be used as the default method for providing visual acuity but is intended for the rare circumstances where coded data is not available
O [0..1]	431031000124109, SNOMED CT, Letters Missed during optotype examination	INT	No Unit	
O [0..1]	431021000124106, SNOMED CT, Additional Letters Seen during optotype examination	INT	No Unit	
O [0..1]	252124009, SNOMED-CT, Test Distance	REAL	Ft, inch, m, cm	

One and only one of the C Visual Acuity observations listed in the table SHALL be present. If a valid code value for Visual Acuity (using the data type of CD) pertains to the observation, it SHOULD be used in lieu of a decimal value Visual Acuity (using the data type REAL) or Visual Acuity (using a data type ST).

6.3.3.3.6 <text><reference value='#xxx'/></text> -OR- <text>text</text>

1. 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.
2. 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.
3. For HL7 Version 3 based uses, the <text> element MAY be included.

6.3.3.3.7 <statusCode code='completed'/>

1. The status code of all observations SHALL be completed.

6.3.3.3.8 <effectiveTime value=' '/>

1. The <effectiveTime> element SHALL be present in visual acuity observations and SHALL record the date and time when the measurement was taken.

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2. This element SHOULD be precise to the date/hour/minute. If the date and time is unknown, this element SHOULD record that using the nullFlavor attribute.

Note: The organizer is required to capture the <effectiveTime> so if a nullFlavor is provided for the value of the underlying observation the <effectiveTime> can be inferred from the organizer

6.3.3.3.9 <value xsi:type=' ' …/>

1. The value of the observation SHALL be recorded using a data type appropriate to the observation.
2. Content modules derived from the visual acuity measurement observation content module MAY restrict the allowable data types used for the observation.

6.3.3.3.10 <targetSiteCode code=' ' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT '/>

1. The targetSiteCode SHALL be used to record which eye or that both eyes are being observed by this organizer.
2. 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

6.3.3.3.11 <methodCode code=' ' codeSystem=' ' codeSystemName=' '/>

1. The methodCode element SHALL be used to record the specific method used to make a measurement.
2. SNOMED CT Procedure hierarchy (71388002) SHOULD be used 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
…….	……

Note: It is highly recommended that implementations group observations that are from the same targetSite and methodCode. Such as all the observations for both eyes using the Snellen chart. This recommendation will help facilitate the Content Consumer's ability to easily produce a well structured "human readable" presentation of the Visual Acuity section within the exam.

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6.3.3.3.12 <author><assignedAuthor

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

In CDA uses, Visual Acuity Measurement Observations are assumed to be authored by the same author as the document through context conduction.

1. Specific authorship of an observation MAY be represented by listing the author in the header and referencing the author in an <author> relationship.
2. If authors are explicitly listed in documents, an <id> element SHOULD reference the ID of the author in the header through an assignedAuthor Role.
3. If the author of the observation is not an author of the document the <person> object including a name and ID SHALL be included.
4. For HL7 Version 3 purposes, the <author> element SHOULD be present unless it can be determined by conduction from organizers or higher level structures.
5. When used for HL7 Version 3 the role element name is <assignedEntity> and the author SHALL be represented as an <assignedPerson> element.

6.3.3.3.13 <entryRelationship typeCode="REFR" inversionInd="false">

```
<act classCode="ACT" moodCode="EVN">
<templateId root=''/>
<id root='' extension=''/>
<code code='366060000'
        displayName='Refractive Measurement-Finding
        codeSystem='2.16.840.1.113883.6.96'
        codeSystemName='SNOMED-CT'/>
<act>
<entryRelationship>
```

The <entryRelationship> element binds the Visual Acuity Measurement Observations to a refractive measurement.

1. The <entryRelationship> SHALL link the Refractive Measurements Organizer that is used to generate this visual acuity measurement observation. The <id root/extension> SHALL contain the same values as contained in the referenced Refractive Measurement Organizer.

6.3.3.4 Refractive Measurements Organizer 1.3.6.1.4.1.19376.1.12.1.3.3

A Refractive Measurements Organizer collects refractive measurement observations.

6.3.3.4.1 Specification

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Example XML Code

```
<organizer classCode='CLUSTER' moodCode='EVN'>
  <templateId root='1.3.6.1.4.1.19376.1.12.1.3.3'/>
  <id root='' extension=''/>
  <code code='366060000' displayName='Refractive Measurement-Finding'
      codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT'/>  <statusCode
code='completed'/>
  <effectiveTime value=''/>
  <!-- For HL7 Version 3 Messages
  <author classCode='AUT'>
     <assignedEntity1 typeCode='ASSIGNED'>
        :
     <assignedEntity1>
  </author>
  -->
  <!-- one or more refractive measurement observations -->
  <component typeCode='COMP'>
    <observation classCode='OBS' moodCode='EVN'>
      <templateId root='1.3.6.1.4.1.19376.1.12.1.3.6'/>
        :
    </observation>
  </component>
</organizer>
```

6.3.3.4.2 <organizer classCode='CLUSTER' moodCode='EVN'>

1. The refractive measurements organizer SHALL be a cluster of refractive measurement observations.

6.3.3.4.3 <templateId root='1.3.6.1.4.1.19376.1.12.1.3.3'/>

1. The refractive measurements organizer SHALL have the <templateId> elements shown above to indicate the constraints of this specification.

6.3.3.4.4 <id root=' ' extension=' '/>

1. The organizer SHALL have an <id> element.

6.3.3.4.5 <code code='366060000' displayName='Refractive Measurement-Finding' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT'/>

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

6.3.3.4.6 <statusCode code='completed'/>

1. The status code of all organizers SHALL be completed.

6.3.3.4.7 <effectiveTime value=' '/>

1. The effective time element SHALL be present to indicate when the measurement was taken.
2. The <effectiveTime> element SHALL be precise to at least the date/hour/minute.

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6.3.3.4.8 <author typeCode='AUT'><assignedEntity1 typeCode='ASSIGNED'>...</assignedEntity1></author>

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

6.3.3.4.9 <!-- one or more refractive measurements observations --> <component typeCode='COMP'>

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

6.3.3.5 Refractive Measurement Observations 1.3.6.1.4.1.19376.1.12.1.3.7

The refractive measurement observation entry is meant to be an abstract representation of many of the refractive measurement 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.

6.3.3.5.1 Specification

Example XML Code

```
<observation classCode='OBS' moodCode='EVN'>
  <templateId root='1.3.6.1.4.1.19376.1.12.1.3.7'/>
  <id root='' extension=''/>
  <code code='' displayName='' codeSystem='' codeSystemName=''/>
  <!-- for CDA -->
  <text><reference value='#xxx'/></text>
  <statusCode code='completed'/>
  <effectiveTime value=''/>
  <repeatNumber value=''/>
  <value xsi:type='' …/>
  <author typeCode='AUT'>
    <assignedAuthor typeCode='ASSIGNED'><id ... /></assignedAuthor> <!-- for CDA -->
    <!-- For HL7 Version 3 Messages
    <assignedEntity typeCode='ASSIGNED'>
       <Person classCode='PSN'>
          <determinerCode root=''>
          <name>…</name>
       </Person>
    <assignedEntity>
     -->
  </author>
</observation>
```

6.3.3.5.2 <observation classCode='OBS' moodCode='EVN'>

1. These acts are refractive measurement observations that have occurred, and SHALL be recorded using the <observation> element as shown above.

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6.3.3.5.3 <templateId root='1.3.6.1.4.1.19376.1.12.1.3.7/>

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

6.3.3.5.4 <id root=' ' extension=' '/>

1. Each observation SHALL have an identifier.

6.3.3.5.5 <code code=' ' displayName=' ' codeSystem=' ' codeSystemName=' '/>

1. A refractive measurement observation entry SHALL use a SNOMED CT Observable Entity hierarchy (363787002) code to identify the observation.
2. 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 [0..1]	251799001, SNOMED-CT, Axis of Cylinder	PQ	Degrees
R [0..1]	397282003, SNOMED-CT, Reading Addition Power	PQ	Diopters
R [0..1]	251802005 + 251795007, SNOMED-CT, Intermediate Distance Power	PQ	Diopters
R [0..1]	397258008, SNOMED-CT, Interpupillary distance	PQ	mm

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.

6.3.3.5.6 <text><reference value='#xxx'/></text> -OR- <text>text</text>

1. Each refractive 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.
2. For CDA based uses of refractive 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.
3. For HL7 Version 3 based uses, the <text> element MAY be included.

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6.3.3.5.7 <statusCode code='completed'/>

1. The status code of all observations SHALL be completed.

6.3.3.5.8 <effectiveTime value=' '/>

1. The <effectiveTime> element SHALL be present in standalone observations and shall record the date and time when the measurement was taken.
2. This element SHOULD be precise to the date/hour/minute. If the date and time is unknown, this element SHOULD record that using the nullFlavor attribute.

Note: The organizer is required to capture the <effectiveTime> so if a nullFlavor is provided for the value of the underlying observation the <effectiveTime> can be inferred from the organizer.

6.3.3.5.9 <value xsi:type=' ' …/>

1. The value of the observation SHALL be recorded using a data type appropriate to the observation.
2. Content modules derived from the refractive measurement observation content module MAY restrict the allowable data types used for the observation.

6.3.3.5.10 <targetSiteCode code=' ' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT '/>

1. The targetSiteCode SHALL be used to record which eye is being observed by this organizer.
2. 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

6.3.3.5.11 <methodCode code=' ' codeSystem=' ' codeSystemName=' '/>

1. The methodCode element SHALL be used to record the specific method used to make a measurement.
2. SNOMED CT Procedure hierarchy (71388002) SHOULD be used for method codes; however, other code sets MAY be used, if desired.
3. The following SNOMED CT codes represent a very limited list of examples; it is not an exhaustive list for implementation.

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

Note: It is highly recommended that implementations group observations that are from the same targetSite and methodCode. Such as all the observations for Entire left eye using Subjective refraction. This recommendation will help facilitate the Content Consumer's ability to easily produce a well-structured "human readable" presentation of the refractive measurements section within the exam.

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

In CDA uses, Refractive Measurement Observations are assumed to be authored by the same author as the document through context conduction.

1. Specific authorship of an observation MAY be represented by listing the author in the header and referencing the author in a <author> relationship.
2. If authors are explicitly listed in documents, an <id> element SHOULD reference the ID of the author in the header through an assignedAuthor Role.
3. If the author of the observation is not an author of the document the <person> object including a name and ID SHALL be included.
4. For HL7 Version 3 purposes, the <author> element SHOULD be present unless it can be determined by conduction from organizers or higher level structures.
5. When used for HL7 Version 3 the role element name is <assignedEntity> and the author SHALL be represented as an <assignedPerson> element.

6.3.3.6 Keratometry Measurements Organizer 1.3.6.1.4.1.19376.1.12.1.3.4

A Keratometry Measurements Organizer collects keratometry measurement observations.

1. If the keratometry measurements are believed to be of poor reliability an interpretation code SHOULD be entered to indicate that fact.
2. If keratometry is attempted and no measurements are able to be obtained, text SHOULD be entered to indicate that fact in the Refractive Measurements 1.3.6.1.4.1.19376.1.12.1.2.9 content module general description field.

6.3.3.6.1 Specification

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Example XML Code

```
<organizer classCode='CLUSTER' moodCode='EVN'>
  <templateId root='1.3.6.1.4.1.19376.1.12.1.3.4'/>
  <id root='' extension=''/>
  <code code='429481000124101' displayName='Keratometry Measurement'
      codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT'/>  <statusCode
code='completed'/>
  <effectiveTime value=''/>
  <!-- For HL7 Version 3 Messages
  <author classCode='AUT'>
     <assignedEntity1 typeCode='ASSIGNED'>
        :
     <assignedEntity1>
  </author>
  -->
  <!-- one or more visual acuity observations -->
  <component typeCode='COMP'>
    <observation classCode='OBS' moodCode='EVN'>
      <templateId root='1.3.6.1.4.1.19376.1.12.1.3.6'/>
        :
    </observation>
  </component>
</organizer>
```

6.3.3.6.2 <organizer classCode='CLUSTER' moodCode='EVN'>

1. The keratometry measurements organizer SHALL be a cluster of keratometry measurement observations.

6.3.3.6.3 <templateId root='1.3.6.1.4.1.19376.1.12.1.3.4'/>

1. The keratometry measurements organizer SHALL have the <templateId> elements shown above to indicate the constraints of this specification.

6.3.3.6.4 <id root=' ' extension=' '/>

1. The organizer SHALL have an <id> element.

6.3.3.6.5 <code code='429481000124101' displayName='Keratometry Measurement' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT'/>

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

6.3.3.6.6 <statusCode code='completed'/>

1. The status code of all organizers SHALL be completed.

6.3.3.6.7 <effectiveTime value=' '/>

1. The effective time element SHALL be present to indicate when the measurement was taken.
2. The <effectiveTime> element SHALL be precise to at least the date/hour/minute.

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6.3.3.6.8 <author typeCode='AUT'><assignedEntity1 typeCode='ASSIGNED'>...</assignedEntity1></author>

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

6.3.3.6.9 <!-- one or more refractive measurement observations --> <component typeCode='COMP'>

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

6.3.3.7 Keratometry Measurement Observations 1.3.6.1.4.1.19376.1.12.1.3.8

The keratometry measurement observation entry is meant to be an abstract representation of many of the keratometry measurement 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.

6.3.3.7.1 Specification

Example XML Code

```
<observation classCode='OBS' moodCode='EVN'>
  <templateId root='1.3.6.1.4.1.19376.1.12.1.3.8'/>
  <id root='' extension=''/>
  <code code='' displayName='' codeSystem='' codeSystemName=''/>
  <!-- for CDA -->
  <text><reference value='#xxx'/></text>
  <statusCode code='completed'/>
  <effectiveTime value=''/>
  <repeatNumber value=''/>
  <value xsi:type='' …/>
  <author typeCode='AUT'>
    <assignedAuthor typeCode='ASSIGNED'><id ... /></assignedAuthor> <!-- for CDA -->
    <!-- For HL7 Version 3 Messages
    <assignedEntity typeCode='ASSIGNED'>
       <Person classCode='PSN'>
          <determinerCode root=''>
          <name>…</name>
       </Person>
    <assignedEntity>
     -->
  </author>
</observation>
```

6.3.3.7.2 <observation classCode='OBS' moodCode='EVN'>

1. These acts are keratometry measurement observations that have occurred, and SHALL be recorded using the <observation> element as shown above.

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6.3.3.7.3 <templateId root='1.3.6.1.4.1.19376.1.12.1.3.8'/>

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

6.3.3.7.4 <id root=' ' extension=' '/>

1. Each observation SHALL have an identifier.

6.3.3.7.5 <code code=' ' displayName=' ' codeSystem=' ' codeSystemName=' '/>

1. A keratometry measurement observation entry SHALL use a SNOMED CT Observable Entity hierarchy (363787002) code to identify the observation.
2. The following codes are provided to express the scope of this template; additional keratometry SNOMED CT based Observable Entity codes MAY be used.

Opt	observation/code	Data Type	Unit of Measure
R [1..1]	610271000124118, SNOMED CT, Keratometry Steep Power	PQ	Diopters or mm
R [1..1]	610241000124114, SNOMED-CT, Keratometry Steep Axis	PQ	Degrees
R [1..1]	610211000124110, SNOMED-CT, Keratometry Flat Power	PQ	Diopters or mm
R [1..1]	610221000124119, SNOMED-CT, Keratometry Flat Axis	PQ	Degrees

6.3.3.7.6 <text><reference value='#xxx'/></text> -OR- <text>text</text>

1. Each keratometry 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.
2. For CDA based uses of keratometry 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.
3. For HL7 Version 3 based uses, the <text> element MAY be included.

6.3.3.7.7 <statusCode code='completed'/>

1. The status code of all observations SHALL be completed.

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6.3.3.7.8 <effectiveTime value=' '/>

1. The <effectiveTime> element SHALL be present in standalone observations and SHALL record the date and time when the measurement was taken.
2. This element SHOULD be precise to the date/hour/minute. If the date and time is unknown, this element SHOULD record that using the nullFlavor attribute.

Note: The organizer is required to capture the <effectiveTime> so if a nullFlavor is provided for the value of the underlying observation the <effectiveTime> can be inferred from the organizer.

6.3.3.7.9 <value xsi:type=' ' …/>

1. The value of the observation SHALL be recording using a data type appropriate to the observation.
2. Content modules derived from the keratometry measurement observation content module MAY restrict the allowable data types used for the observation.

6.3.3.7.10 <targetSiteCode code=' ' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT '/>

1. The targetSiteCode SHALL be used to record the eye being observed by this organizer.
2. 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

6.3.3.7.11 <methodCode code=' ' codeSystem=' ' codeSystemName=' '/>

1. The methodCode element SHALL be used to record the specific method used to make a measurement.
2. SNOMED CT Procedure hierarchy (71388002) SHOULD be used 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
	…

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Note: It is highly recommended that implementations group observations that are from the same targetSite and methodCode. Such as all the observations for Entire left eye using automated measurement. This recommendation will help facilitate the Content Consumer's ability to easily produce a well-structured "human readable" presentation of the keratometry section within the exam.

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

1. 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.
2. The SNOMED CT Clinical Findings hierarchy (404684003) SHOULD be used for interpretation codes, however, other code sets MAY be used, if desired (e.g., ICD-10).
3. The following SNOMED CT codes represent a very limited list of examples; it is not an exhaustive list for implementation.

Code Value	Code Description
232138009	Irregular Astigmatism Cornea
82649003 + 82334004	Astigmatism Indeterminate
……	……

6.3.3.7.13 <author><assignedAuthor

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

In CDA uses, Keratometry Measurement Observations are assumed to be authored by the same author as the document through context conduction.

1. Specific authorship of an observation MAY be represented by listing the author in the header and referencing the author in an <author> relationship.
2. If authors are explicitly listed in documents, an <id> element SHOULD reference the ID of the author in the header through an assignedAuthor Role.
3. If the author of the observation is not an author of the document the <person> object including a name and ID SHALL be included.
4. For HL7 Version 3 purposes, the <author> element SHOULD be present unless it can be determined by conduction from organizers or higher level structures.
5. When used for HL7 Version 3 the role element name is <assignedEntity> and the author SHALL be represented as an <assignedPerson> element.

6.3.3.8 Lensometry Measurements Organizer 1.3.6.1.4.1.19376.1.12.1.3.5

A Lensometry Measurements Organizer collects lensometry measurement observations.

6.3.3.8.1 Specification

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Example XML Code

```
<organizer classCode='CLUSTER' moodCode='EVN'>
  <templateId root='1.3.6.1.4.1.19376.1.12.1.3.5'/>
  <id root='' extension=''/>
  <code code='635151000124119' displayName='Lensometry Measurement'
      codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT'/>  <statusCode
code='completed'/>
  <effectiveTime value=''/>
  <!-- For HL7 Version 3 Messages
  <author classCode='AUT'>
     <assignedEntity1 typeCode='ASSIGNED'>
        :
     <assignedEntity1>
  </author>
  -->
  <!-- one or more lensometry measurement observations -->
  <component typeCode='COMP'>
    <observation classCode='OBS' moodCode='EVN'>
      <templateId root='1.3.6.1.4.1.19376.1.12.1.3.9'/>
        :
    </observation>
  </component>
</organizer>
```

6.3.3.8.2 <organizer classCode='CLUSTER' moodCode='EVN'>

1. The lensometry measurement organizer SHALL be a cluster of lensometry measurement observations.

6.3.3.8.3 <templateId root='1.3.6.1.4.1.19376.1.12.1.3.5'/>

1. The lensometry measurements organizer SHALL have the <templateId> elements shown above to indicate the constraints of this specification.

6.3.3.8.4 <id root=' ' extension=' '/>

1. The organizer SHALL have an <id> element.

6.3.3.8.5 <code code='635151000124119' displayName='Lensometry Measurement' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT'/>

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

6.3.3.8.6 <statusCode code='completed'/>

1. The status code of all organizers SHALL be completed.

6.3.3.8.6 <effectiveTime value=' '/>

1. The effective time element SHALL be present to indicate when the measurement was taken.
2. The <effectiveTime> element SHALL be precise to at least the date/hour/minute.

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6.3.3.8.6 <author typeCode='AUT'><assignedEntity1 typeCode='ASSIGNED'>...</assignedEntity1></author>

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

6.3.3.8.6 <!-- one or more lensometry measurement observations --> <component typeCode='COMP'>

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

6.3.3.9 Lensometry Measurement Observations 1.3.6.1.4.1.19376.1.12.1.3.9

The lensometry measurement observation entry is meant to be an abstract representation of many of the lensometry measurement 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.

6.3.3.9.1 Specification

Example XML Code

```
<observation classCode='OBS' moodCode='EVN'>
  <templateId root='1.3.6.1.4.1.19376.1.12.1.3.9'/>
  <id root='' extension=''/>
  <code code='' displayName='' codeSystem='' codeSystemName=''/>
  <!-- for CDA -->
  <text><reference value='#xxx'/></text>
  <statusCode code='completed'/>
  <effectiveTime value=''/>
  <repeatNumber value=''/>
  <value xsi:type='' …/>
  <author typeCode='AUT'>
    <assignedAuthor typeCode='ASSIGNED'><id ... /></assignedAuthor> <!-- for CDA -->
    <!-- For HL7 Version 3 Messages
    <assignedEntity typeCode='ASSIGNED'>
       <Person classCode='PSN'>
          <determinerCode root=''>
          <name>…</name>
       </Person>
    <assignedEntity>
     -->
  </author>
</observation>
```

6.3.3.9.2 <observation classCode='OBS' moodCode='EVN'>

1. These acts are lensometry measurement observations that have occurred, and SHALL be recorded using the <observation> element as shown above.

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6.3.3.9.3 <templateId root='1.3.6.1.4.1.19376.1.12.1.3.9'/>

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

6.3.3.9.4 <id root=' ' extension=' '/>

1. Each observation SHALL have an identifier.

6.3.3.9.5 <code code=' ' displayName=' ' codeSystem=' ' codeSystemName=' '/>

1. A lensometry measurement observation entry SHALL use a SNOMED CT code to identify the observation.
2. 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 [0..1]	251797004, SNOMED-CT, Power of Cylinder	PQ	Diopters	
R [0..1]	251799001, SNOMED-CT, Axis of Cylinder	PQ	Degrees	
R [0..1]	397282003, SNOMED-CT, Reading Addition Power	PQ	Diopters	
R [0..1]	251802005, SNOMED-CT, Intermediate Distance with qualifier 251795007, SNOMED-CT, Power of Sphere	PQ	Diopters	
R [0..1]	251762001, SNOMED-CT, Prism Strength with qualifier 24020000, SNOMED-CT, horizontal	PQ	Diopters	
R [0..1]	246223004, SNOMED-CT, Prism Base Direction with qualifier 24020000, SNOMED-CT, horizontal	CD		255561001, SNOMED-CT, Medial 49370004, SNOMED-CT, Lateral
R [0..1]	251762001, SNOMED-CT, Prism Strength with qualifier 33096000, SNOMED-CT, vertical	PQ	Diopters	
R [0..1]	246223004, SNOMED-CT, Prism Base Direction with qualifier 33096000, SNOMED-CT, vertical	CD		64217000, SNOMED-CT, Superior 261089000, SNOMED-CT, Inferior

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Opt	observation/code	Data Type	Unit of Measure	Value Set
R [0..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 397286000, SNOMED-CT, Progressive addition glasses if applicable
R[0..1]	50121007, SNOMED-CT, Eyeglasses	ST		Description of the eye glasses (physical object being measured)
R [0..1]	397258008, SNOMED-CT, Interpupillary distance	PQ	mm	

6.3.3.9.6 <text><reference value='#xxx'/></text> -OR- <text>text</text>

1. Each lensometry 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.
2. For CDA based uses of Lensometry 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.
3. For HL7 Version 3 based uses, the <text> element MAY be included.

6.3.3.9.7 <statusCode code='completed'/>

1. The status code of all observations SHALL be completed.

6.3.3.9.8 <effectiveTime value=' '/>

1. The <effectiveTime> element SHALL be present in standalone observations and shall record the date and time when the measurement was taken.
2. This element SHOULD be precise to the date/hour/minute. If the date and time is unknown, this element SHOULD record that using the nullFlavor attribute.

Note: The organizer is required to capture the <effectiveTime> so if a nullFlavor is provided for the value of the underlying observation the <effectiveTime> can be inferred from the organizer.

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6.3.3.9.9 <value xsi:type=' ' …/>

1. The value of the observation SHALL be recorded using a data type appropriate to the observation.
2. Content modules derived from the lensometry measurement observation content module MAY restrict the allowable data types used for the observation.

6.3.3.9.10 <targetSiteCode code=' ' codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT '/>

1. The targetSiteCode SHALL be used to record which lens is being observed by this organizer.
2. 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)

3. 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. Where the name code of the qualifier type SHALL be <name code='106231008' display name='special information qualifier'.

SNOMED CT "Spectacle Lens" qualifier Value Set

Code Value	Code Description
24028007	Right
7771000	Left

6.3.3.9.11 <methodCode code=' ' codeSystem=' ' codeSystemName=' '/>

1. The methodCode element SHALL be used to record the specific method used to make an observation.
2. SNOMED CT Procedure hierarchy (71388002) SHOULD be used 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
	…

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Note: It is highly recommended that implementations group observations that are from the same targetSite and methodCode. Such as all the observations for Spectacle Lens (physical object) using automated measurements. This recommendation will help facilitate the Content Consumer's ability to easily produce a well-structured "human readable" presentation of the lensometry section within the exam.

3110

6.3.3.9.12 <author><assignedAuthor

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

In CDA uses, Lensometry Measurement Observations are assumed to be authored by the same author as the document through context conduction.

3115 1. Specific authorship of an observation MAY be represented by listing the author in the header and referencing the author in an <author> relationship.
2. If authors are explicitly listed in documents, an <id> element SHOULD reference the ID of the author in the header through an assignedAuthor Role.
3. If the author of the observation is not an author of the document the <person> object
3120 including a name and ID SHALL be included.
4. For HL7 Version 3 purposes, the <author> element SHOULD be present unless it can be determined by conduction from organizers or higher level structures.
5. When used for HL7 Version 3, the role element name is <assignedEntity> and the author SHALL be represented as an <assignedPerson> element.

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