



**HL7 Version 3 Implementation Guide:
Clinical Quality Language (CQL) – based
Health Quality Measure Format (HQMF)
Release 1, STU 2 – US Realm**

MAY 2017

Volume 3 – QDM Templates for CQL-based HQMF

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International Classification of Diseases (ICD) codes	World Health Organization (WHO)
NUCC Health Care Provider Taxonomy code set	American Medical Association. Please see http://www.nucc.org . AMA licensing contact: 312-464-5022 (AMA IP services)

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1 STRUCTURE OF THIS GUIDE

Three volumes comprise this *HL7 Version 3 Implementation Guide: Clinical Quality Language (CQL)-based Health Quality Measure Format (HQMF), Release 1.1 (US Realm), Standard for Trial Use:*

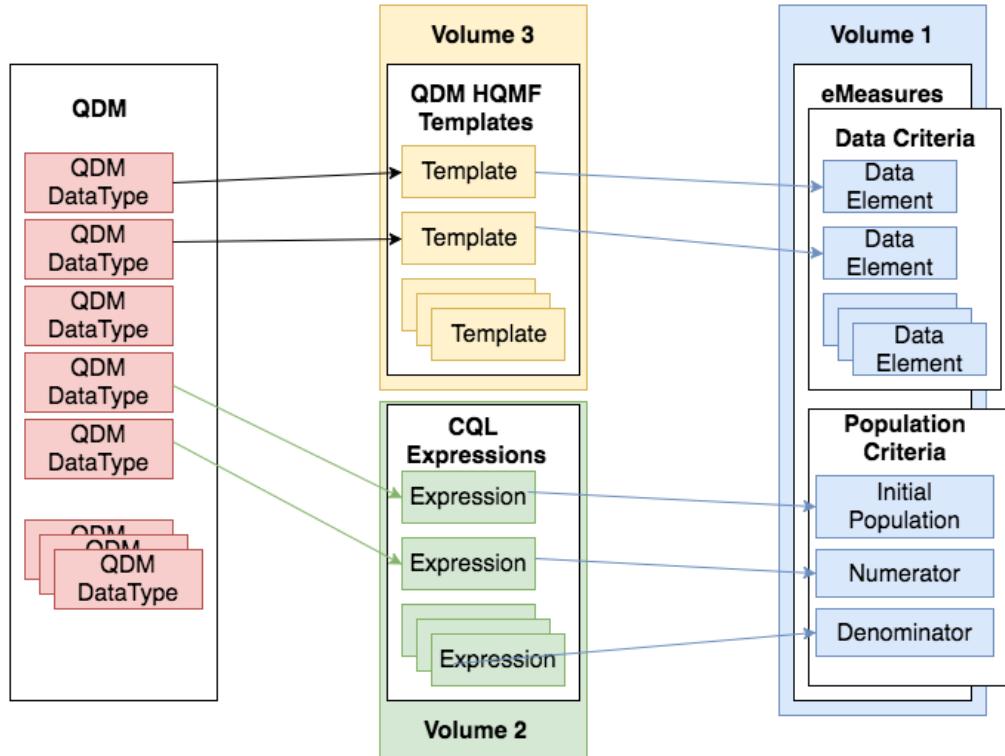


Figure 1: Relationship between QDM, CQL, eMeasure, and the volumes of this IG.

Volume 1 : Provides narrative introduction, background material, and conformance requirements for representing CQL-based eCQMs in HQMF.

Volume 2 : Describes how to incorporate version 5.0.2 of the Quality Data Model into a CQL- based eCQM in accordance with accepted formatting and usage conventions.

Volume 3 : Contains the QDM templates for the CQL-based HQMF for QDM data types, necessary for constructing CQL-based HQMF measures that are use the QDM.

2 CONFORMANCE CONVENTIONS

2.1 Templates and Conformance Statements

Conformance statements within this IG are presented as constraints from the Trifolia Workbench, a template repository. An algorithm converts constraints recorded in Trifolia to a printable presentation. Each constraint is uniquely identified by conformance number at or near the end of the constraint (e.g., CONF:3335-31306). The digits in the conformance number before the hyphen identify which implementation guide the template belongs to and the number after the hyphen is unique to the owning implementation guide. Together, these two numbers uniquely identify each constraint. These identifiers are persistent but not sequential. Conformance numbers in this guide associated with a conformance statement that is carried forward from a previous version of this guide will carry the same conformance number from the previous version. This is true even if the previous conformance statement has been edited. If a conformance statement is entirely new it will have a new conformance number.

Bracketed information following each template title indicates the template type (dataCriteriaSection, populationCriteriaSection, actCriteria, observationCriteria, etc.), the object identifier (OID) or uniform resource name (URN), and whether the template is open or closed. The identifier OID is the templateId/@root value; all templateIds have an @root value. Updated templates also have an @extension value, which is a date identifying the version of this template; such templates are identified by URN and the HL7 version (urn:hl7ii). The URN identifier includes both the @root and @extension value for the templateId (for example, identifier urn:hl7ii:2.16.840.1.113883.10.20.28.1.2:2017-05-01).

Each section and entry template in the guide includes a context table. The "Contained By" column indicates which documents or sections use this template and if the template is optional or required in the containing template. The "Contains" column indicates templates contained within this template. Each template also includes a constraint overview table to summarize the constraints in the template. Value set tables, where applicable, and brief XML example figures are included with most explanations.

2.2 Template Versioning

A new version of an existing implementation guide reuses templates from the previous version. During the ballot phase or update phase, templates carry the designation “Published” to indicate the template is unchanged from the previous version or “Draft” to indicate a new or revised template. Substantial revisions to previously published templates are indicated by the version number (V2, V3, etc.) in all phases: ballot, update, and published guides.

If there are no substantive changes to a template that has been successfully published, the template will carry the same templateId/@root (identifier oid) and templateId/@extension as in the previous implementation guide. (In the case of older templates, the @extension attribute will not be present.) During a new ballot or update phase, “Published” is appended to the main heading for the template to indicate that the template cannot be commented on in the ballot or update. The “Published” designation is removed in the final publication versions.

2.3 Open and Closed Templates

In open templates, all of the features of the HQMF Release 1 Normative base specification are allowed except as constrained by the templates. By contrast, a closed template specifies what is allowed and nothing further may be included. Templates in an HQMF Release 1 Normative document are open. However measure developers should be cautioned that only the elements described in these templates are supported by the Measure Authoring Tool (MAT)¹.

2.4 Conformance Verbs

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

- **SHALL**: an absolute requirement for the particular element. Where a **SHALL** constraint is applied to an XML element, that element must be present in an instance, but may have an exceptional value (i.e., may have a nullFlavor), unless explicitly precluded. Where a **SHALL** constraint is applied to an XML attribute, that attribute must be present, and must contain a conformant value.
- **SHALL NOT**: an absolute prohibition against inclusion
- **SHOULD/SHOULD NOT**: best practice or recommendation. There may be valid reasons to ignore an item, but the full implications must be understood and carefully weighed before choosing a different course
- **MAY/NEED NOT**: truly optional; can be included or omitted as the author decides with no implications

2.5 Cardinality

The cardinality indicator (0..1, 1..1, 1..*, etc.) specifies the allowable occurrences within a document instance. The cardinality indicators are interpreted with the following format “m...n” where m represents the least and n the most:

- 0..1 : zero to one
- 1..1 : exactly one
- 1..* : at least one
- 0..* : zero or more
- 1..n : at least one and not more than n

When a constraint has subordinate clauses, the scope of the cardinality of the parent constraint must be clear. In the next figure, the constraint says exactly one code is to be present. The subordinate constraint specifies some additional characteristics of that code.

¹Measure Authoring Tool. <https://www.emesuretool.cms.gov/>

2.6 Vocabulary Conformance

The templates in this document use terms from several code systems. These vocabularies are defined in various supporting specifications and may be maintained by other bodies, as is the case for the LOINC® and SNOMED CT® vocabularies.

Value-set bindings adhere to HL7 Vocabulary Working Group best practices, and include both a conformance verb (**SHALL**, **SHOULD**, **MAY**, etc.) and an indication of **DYNAMIC** vs. **STATIC** binding. Value-set constraints can be **STATIC**, meaning that they are bound to a specified version of a value set, or **DYNAMIC**, meaning that they are bound to the most current version of the value set. A simplified constraint, used when the binding is to a single code, includes the meaning of the code.

In a QDM-based HQMF document, a QDM data type is coupled with a single value set, a grouping value set, or a directly referenced code to become a QDM element. This guide uses the notation “{\$QDMElementValueSetOID}” in lieu of a real value set OID to indicate that this is where the value set binding should occur during creation of a QDM element.

A full discussion of the representation of vocabulary is outside the scope of this document; for more information, see the *HL7 Version 3*, Normative Edition sections on Abstract Data Types and XML Data Types R2.

2.7 Data Types

HQMF Normative uses the HL7 Version 3 Data Types, Release 2 abstract and Release 2 XML-specific specification. All attributes of a data type are allowed unless explicitly prohibited by this specification.

2.8 QDM Attribute Mappings

In a QDM-HQMF template, the QDM data type is mapped to the template, and QDM attributes of the QDM data type are mapped to attributes of the QDM-HQMF template. Attribute-level mapping is indicated within the template via a note.

2.9 Asserting an ActCriteria Not Met with a Reason

To specify a QDM element as not done, such as to say a patient was not prescribed with antithrombotic therapy because of contraindication (“Medication, Not Ordered”), this is done through the use of the actionNegationInd attribute (The QDM attribute negation rationale is represented using the actionNegationInd).

The actionNegationInd if true, specifies that the actCriteria indicated was not met. A nested reason for the actCriteria not being met can be represented through an outboundRelationship type of “RSON” to the Reason entry QDM-HQMF template.

2.10 XPath Notation

Instead of the traditional dotted notation used by HL7 to represent RIM classes, this document uses XML Path Language (XPath) notation in conformance statements and elsewhere to identify

the XML elements and attributes within the HQMF Release 1 Normative document instance to which various constraints are applied. The implicit context of these expressions is the root of the document. This notation provides a mechanism that will be familiar to developers for identifying parts of an XML document.

XPath statements appear in this document in a monospace font.

XPath syntax selects nodes from an XML document using a path containing the context of the node(s). The path is constructed from node names and attribute names (prefixed by an '@') and concatenated with a '/' symbol.

2.11 XML Examples and Sample Documents

XML examples appear in figures in this document in this monospace font. Portions of the XML content may be omitted from the content for brevity, marked by an ellipsis (...).

Within the narrative, XML element (code, measureAttribute, etc.) and attribute (SNOMED CT, 282291009, etc.) names also appear in this monospace font.

3 DOCUMENT

3.1 QDM Templates for CQL-Based HQMF Header

[QualityMeasureDocument: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.1.2:2017-05-01 (open)]

Table 1: QDM Templates for CQL-Based HQMF Header Contexts

Contained By:	Contains:
	Data Criteria Section Measure Description Section Measure Observations Section Population Criteria Section

This is the document header template for a CQL-based HQMF document that contains QDM-based entry templates.

Table 2: QDM Templates for CQL-Based HQMF Header Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
QualityMeasureDocument (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.1.2:2017-05-01)					
typeId	1..1	SHALL		3335-18786	
@root	1..1	SHALL		3335-18787	2.16.840.1.113883.1.3
@extension	1..1	SHALL		3335-18788	POQM_HD000001UV02
templateId	1..1	SHALL		3335-18771	
item	1..*	SHALL		3335-18772	
@root	1..1	SHALL		3335-18773	2.16.840.1.113883.10.20.28.1.2
@extension	0..1	SHALL		3335-33755	2017-05-01
id	1..1	SHALL		3335-18542	
code	1..1	SHALL		3335-18575	
@code	1..1	SHALL		3335-18576	57024-2
@codeSystem	1..1	SHALL		3335-33757	urn:oid:2.16.840.1.113883.6.1 (LOINC)
title	1..1	SHALL		3335-18541	
text	0..1	SHOULD		3335-18578	
statusCode	1..1	SHALL		3335-18579	
@code	1..1	SHALL		3335-32666	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
effectiveTime	0..1	MAY		3335-18789	
availabilityTime	0..1	MAY		3335-18790	
languageCode	0..1	MAY		3335-18791	
setId	1..1	SHALL		3335-18543	
versionNumber	0..1	SHOULD		3335-18544	
author	0..*	SHOULD		3335-18563	
responsibleParty	1..1	SHALL		3335-18564	

representedResponsibleOrganization	1..1	SHALL		3335-18565	
id	1..1	SHALL		3335-18566	
item	1..1	SHALL		3335-18567	
name	1..1	SHALL		3335-18568	
custodian	1..1	SHALL		3335-18555	
responsibleParty	1..1	SHALL		3335-18556	
@classCode	1..1	SHALL		3335-29933	ASSIGNED
representedResponsibleOrganization	1..1	SHALL		3335-18557	
id	1..1	SHALL		3335-18558	
item	1..1	SHALL		3335-18559	
name	1..1	SHALL		3335-18560	
verifier	0..1	SHOULD		3335-18754	
responsibleParty	1..1	SHALL		3335-18755	
representedResponsibleOrganization	1..1	SHALL		3335-18756	
id	1..1	SHALL		3335-18757	
item	1..1	SHALL		3335-18758	
name	1..1	SHALL		3335-18759	
relatedDocument	1..*	SHALL		3335-34627	
expressionDocument	1..1	SHALL		3335-34628	
text	1..1	SHALL		3335-34629	
@mediaType	1..1	SHALL		3335-34631	application/cql
reference	1..1	SHALL		3335-34630	

@value	1..1	SHALL		3335-34632	
controlVariable	1..1	SHALL		3335-18545	
measurePeriod	1..1	SHALL		3335-18546	
code	1..1	SHALL		3335-18547	
@code	1..1	SHALL		3335-18548	MSRTP
@codeSystem	1..1	SHALL		3335-30056	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
value	1..1	SHALL		3335-18550	
subjectOf	1..1	SHALL		3335-18580	
measureAttribute	1..1	SHALL		3335-18581	
code	1..1	SHALL		3335-18582	
@code	1..1	SHALL		3335-18583	MSRSCORE
@codeSystem	1..1	SHALL		3335-30057	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
value	1..1	SHALL	CD	3335-29935	
@code	1..1	SHALL		3335-29936	urn:oid:2.16.840.1.113883.1.11. 20367 (ObservationMeasureScoring)
subjectOf	1..*	SHALL		3335-18588	
measureAttribute	1..1	SHALL		3335-18590	
code	1..1	SHALL		3335-18591	
@code	1..1	SHALL		3335-29934	MSRTYPE
@codeSystem	1..1	SHALL		3335-30058	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
value	1..1	SHALL	CD	3335-29938	
@code	1..1	SHALL		3335-29939	urn:oid:2.16.840.1.113883.1.11. 20368 (ObservationMeasureType)
subjectOf	0..1	SHOULD		3335-18596	
measureAttribute	1..1	SHALL		3335-18597	

code	1..1	SHALL		3335-18598	
@code	1..1	SHALL		3335-18599	ITMCNT
@codeSystem	1..1	SHALL		3335-30059	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
value	1..1	SHALL	CD	3335-29983	
subjectOf	0..1	SHOULD		3335-18603	
measureAttribute	1..1	SHALL		3335-18604	
code	1..1	SHALL		3335-18605	
@code	1..1	SHALL		3335-29941	COPY
@codeSystem	1..1	SHALL		3335-30060	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
value	1..1	SHALL	ED	3335-18609	
subjectOf	0..1	SHOULD		3335-18610	
measureAttribute	1..1	SHALL		3335-18611	
code	1..1	SHALL		3335-18612	
@code	1..1	SHALL		3335-18613	CRS
@codeSystem	1..1	SHALL		3335-30061	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
value	1..1	SHALL	ED	3335-29942	
subjectOf	0..1	SHOULD		3335-18617	
measureAttribute	1..1	SHALL		3335-18618	
code	1..1	SHALL		3335-18619	
@code	1..1	SHALL		3335-18620	GUIDE
@codeSystem	1..1	SHALL		3335-30062	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
value	1..1	SHALL	ED	3335-29943	
subjectOf	0..1	SHOULD		3335-18624	

measureAttribute	1..1	SHALL		3335-18625	
code	1..1	SHALL		3335-18626	
@code	1..1	SHALL		3335-18627	DEF
@codeSystem	1..1	SHALL		3335-30063	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
value	1..1	SHALL	ED	3335-18690	
subjectOf	0..1	SHOULD		3335-18630	
measureAttribute	1..1	SHALL		3335-18631	
code	1..1	SHALL		3335-18632	
@code	1..1	SHALL		3335-18633	IDUR
@codeSystem	1..1	SHALL		3335-30064	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
value	1..1	SHALL	ED	3335-18636	
subjectOf	0..1	SHOULD		3335-18637	
measureAttribute	1..1	SHALL		3335-18638	
code	1..1	SHALL		3335-18639	
@code	1..1	SHALL		3335-18640	KEY
@codeSystem	1..1	SHALL		3335-30065	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
subjectOf	0..1	SHOULD		3335-18644	
measureAttribute	1..1	SHALL		3335-18645	
code	1..1	SHALL		3335-18646	
@code	1..1	SHALL		3335-18647	MSRAGG
@codeSystem	1..1	SHALL		3335-30066	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
value	1..1	SHALL	ED	3335-18649	
subjectOf	0..1	SHOULD		3335-18650	

measureAttribute	1..1	SHALL		3335-18651	
code	1..1	SHALL		3335-18652	
@code	1..1	SHALL		3335-18653	MSRADJ
@codeSystem	1..1	SHALL		3335-30067	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
value	1..1	SHALL	ED	3335-18656	
subjectOf	0..1	SHOULD		3335-18657	
measureAttribute	1..1	SHALL		3335-18658	
code	1..1	SHALL		3335-18659	
@code	1..1	SHALL		3335-18663	RAT
@codeSystem	1..1	SHALL		3335-30068	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
value	1..1	SHALL	ED	3335-18662	
subjectOf	0..*	SHOULD		3335-18664	
measureAttribute	1..1	SHALL		3335-18665	
code	1..1	SHALL		3335-18666	
@code	1..1	SHALL		3335-18667	REF
@codeSystem	1..1	SHALL		3335-30069	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
value	1..1	SHALL	ED	3335-18668	
subjectOf	0..*	SHOULD		3335-18669	
measureAttribute	1..1	SHALL		3335-18670	
code	1..1	SHALL		3335-18671	
@code	1..1	SHALL		3335-18672	MSRSET
@codeSystem	1..1	SHALL		3335-30070	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
value	1..1	SHALL	CD	3335-29950	urn:oid:2.16.840.1.113883.1.11. 16927 (RoleClassServiceDeliveryLocatio n)

subjectOf	0..1	SHOULD		3335-18674	
measureAttribute	1..1	SHALL		3335-18675	
code	1..1	SHALL		3335-18676	
@code	1..1	SHALL		3335-18677	MSRJUR
@codeSystem	1..1	SHALL		3335-30071	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
value	1..1	SHALL	CD	3335-29951	
subjectOf	0..1	SHOULD		3335-18679	
measureAttribute	1..1	SHALL		3335-18680	
code	1..1	SHALL		3335-18681	
@code	1..1	SHALL		3335-29952	MSRTOPIC
@codeSystem	1..1	SHALL		3335-30072	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
value	1..1	SHALL	CD	3335-29953	
subjectOf	0..1	SHOULD		3335-18691	
measureAttribute	1..1	SHALL		3335-18692	
code	1..1	SHALL		3335-18693	
@code	1..1	SHALL		3335-18694	MSRRPTR
@codeSystem	1..1	SHALL		3335-30073	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
value	1..1	SHALL	CD	3335-29954	
subjectOf	0..1	SHOULD		3335-18698	
measureAttribute	1..1	SHALL		3335-18699	
code	1..1	SHALL		3335-18700	
@code	1..1	SHALL		3335-18701	MSRRPTTIME
@codeSystem	1..1	SHALL		3335-30074	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)

value	1..1	SHALL	PQ	3335-29955	
subjectOf	0..1	SHOULD		3335-18705	
measureAttribute	1..1	SHALL		3335-18706	
code	1..1	SHALL		3335-18707	
@code	1..1	SHALL		3335-30075	USE
@codeSystem	1..1	SHALL		3335-30076	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
value	1..1	SHALL	ED	3335-18711	
subjectOf	0..1	SHOULD		3335-18712	
measureAttribute	1..1	SHALL		3335-18713	
code	1..1	SHALL		3335-18714	
@code	1..1	SHALL		3335-18715	SDE
@codeSystem	1..1	SHALL		3335-30077	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
value	1..1	SHALL	ED	3335-18718	
subjectOf	0..1	SHOULD		3335-18719	
measureAttribute	1..1	SHALL		3335-18720	
code	1..1	SHALL		3335-18721	
@code	1..1	SHALL		3335-29956	TRANF
@codeSystem	1..1	SHALL		3335-30078	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
value	1..1	SHALL	ED	3335-18725	
subjectOf	0..1	SHOULD		3335-18726	
measureAttribute	1..1	SHALL		3335-18727	
code	1..1	SHALL		3335-18728	
@code	1..1	SHALL		3335-18729	STRAT

@codeSystem	1..1	SHALL		3335-30079	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
value	1..1	SHALL	ED	3335-18732	
subjectOf	0..1	SHOULD		3335-18733	
measureAttribute	1..1	SHALL		3335-18734	
code	1..1	SHALL		3335-18735	
@code	1..1	SHALL		3335-18736	IPOP
@codeSystem	1..1	SHALL		3335-30080	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
value	1..1	SHALL	ED	3335-18739	
subjectOf	0..1	SHOULD		3335-18740	
measureAttribute	1..1	SHALL		3335-18741	
code	1..1	SHALL		3335-18742	
@code	1..1	SHALL		3335-29957	DENOM
@codeSystem	1..1	SHALL		3335-30081	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
value	1..1	SHALL	ED	3335-18746	
subjectOf	0..1	SHOULD		3335-18747	
measureAttribute	1..1	SHALL		3335-18748	
code	1..1	SHALL		3335-18749	
@code	1..1	SHALL		3335-29958	DENEX
@codeSystem	1..1	SHALL		3335-30082	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
value	1..1	SHALL	ED	3335-18753	
subjectOf	0..1	SHOULD		3335-29959	
measureAttribute	1..1	SHALL		3335-29960	
code	1..1	SHALL		3335-30083	

@code	1..1	SHALL		3335-30084	NUMER
@codeSystem	1..1	SHALL		3335-30085	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
value	1..1	SHALL	ED	3335-29962	
subjectOf	0..1	SHOULD		3335-29963	
measureAttribute	1..1	SHALL		3335-29964	
code	1..1	SHALL		3335-29965	
@code	1..1	SHALL		3335-29967	NUMEX
@codeSystem	1..1	SHALL		3335-30086	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
value	1..1	SHALL	ED	3335-29966	
subjectOf	0..1	SHOULD		3335-29968	
measureAttribute	1..1	SHALL		3335-29969	
code	1..1	SHALL		3335-29970	
@code	1..1	SHALL		3335-29971	DENEXCEP
@codeSystem	1..1	SHALL		3335-30087	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
value	1..1	SHALL	ED	3335-29972	
subjectOf	0..1	SHOULD		3335-29973	
measureAttribute	1..1	SHALL		3335-29974	
code	1..1	SHALL		3335-29975	
@code	1..1	SHALL		3335-29976	MSRPOPL
@codeSystem	1..1	SHALL		3335-30088	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
value	1..1	SHALL	ED	3335-29977	
subjectOf	0..1	SHOULD		3335-29978	
measureAttribute	1..1	SHALL		3335-29979	

code	1..1	SHALL		3335-29980	
@code	1..1	SHALL		3335-29981	MSRPOPLEX
@codeSystem	1..1	SHALL		3335-30089	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
value	1..1	SHALL	ED	3335-29982	
subjectOf	0..1	SHOULD		3335-29984	
measureAttribute	1..1	SHALL		3335-29985	
code	1..1	SHALL		3335-29986	
@code	1..1	SHALL		3335-29987	DISC
@codeSystem	1..1	SHALL		3335-30090	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
value	1..1	SHALL	ED	3335-29988	
subjectOf	0..1	MAY		3335-34637	
measureAttribute	1..1	SHALL		3335-34638	
code	1..1	SHALL		3335-34639	
@code	1..1	SHALL		3335-34640	CMPMSRSCR
@codeSystem	1..1	SHALL		3335-34641	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode) = 2.16.840.1.113883.5.4
value	1..1	SHALL	CD	3335-34642	
@code	1..1	SHALL		3335-34643	
component	1..*	SHALL		3335-18813	
component	1..1	SHALL		3335-18815	
dataCriteriaSection	1..1	SHALL		3335-18833	Data Criteria Section (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.2.6:2017-05-01
component	1..*	SHALL		3335-19057	
populationCriteriaSection	1..1	SHALL		3335-19058	Population Criteria Section (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.2.7:2017-05-01

component	0..1	MAY		3335-29989	
measureDescriptionSection	1..1	SHALL		3335-29990	Measure Description Section (identifier: urn:oid:2.16.840.1.113883.10.2 0.28.2.3)
component	0..1	MAY		3335-29991	
measureObservationsSection	1..1	SHALL		3335-29992	Measure Observations Section (identifier: urn:oid:2.16.840.1.113883.10.2 0.28.2.4)

1. **SHALL** contain exactly one [1..1] **typeId** (CONF:3335-18786).
 - a. This typeId **SHALL** contain exactly one [1..1] `@root="2.16.840.1.113883.1.3"` (CONF:3335-18787).
 - b. This typeId **SHALL** contain exactly one [1..1] `@extension="POQM_HD000001UV02"` (CONF:3335-18788).
2. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-18771).
 - a. This templateId **SHALL** contain at least one [1..*] **item** (CONF:3335-18772) such that it
 - i. **SHALL** contain exactly one [1..1] `@root="2.16.840.1.113883.10.20.28.1.2"` (CONF:3335-18773).
 - ii. **SHALL** contain zero or one [0..1] `@extension="2017-05-01"` (CONF:3335-33755).
3. **SHALL** contain exactly one [1..1] **id** (CONF:3335-18542).
4. **SHALL** contain exactly one [1..1] **code** (CONF:3335-18575).
 - a. This code **SHALL** contain exactly one [1..1] `@code="57024-2"` Health Quality Measure Document (CONF:3335-18576).
 - b. This code **SHALL** contain exactly one [1..1] `@codeSystem` (CodeSystem: LOINC urn:oid:2.16.840.1.113883.6.1) (CONF:3335-33757).
5. **SHALL** contain exactly one [1..1] **title** (CONF:3335-18541).
6. **SHOULD** contain zero or one [0..1] **text** (CONF:3335-18578).
7. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-18579).
 - a. This statusCode **SHALL** contain exactly one [1..1] `@code="completed"` Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-32666).
8. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-18789).
9. **MAY** contain zero or one [0..1] **availabilityTime** (CONF:3335-18790).
10. **MAY** contain zero or one [0..1] **languageCode** (CONF:3335-18791).
11. **SHALL** contain exactly one [1..1] **setId** (CONF:3335-18543).
12. **SHOULD** contain zero or one [0..1] **versionNumber** (CONF:3335-18544).
13. **SHOULD** contain zero or more [0..*] **author** (CONF:3335-18563).
 - a. The author, if present, **SHALL** contain exactly one [1..1] **responsibleParty** (CONF:3335-18564).

- i. This responsibleParty **SHALL** contain exactly one [1..1] **representedResponsibleOrganization** (CONF:3335-18565).
 - 1. This representedResponsibleOrganization **SHALL** contain exactly one [1..1] **id** (CONF:3335-18566).
 - a. This id **SHALL** contain exactly one [1..1] **item** (CONF:3335-18567).
 - 2. This representedResponsibleOrganization **SHALL** contain exactly one [1..1] **name** (CONF:3335-18568).
14. **SHALL** contain exactly one [1..1] **custodian** (CONF:3335-18555).
- a. This custodian **SHALL** contain exactly one [1..1] **responsibleParty** (CONF:3335-18556).
 - i. This responsibleParty **SHALL** contain exactly one [1..1] **@classCode="ASSIGNED"** (CONF:3335-29933).
 - ii. This responsibleParty **SHALL** contain exactly one [1..1] **representedResponsibleOrganization** (CONF:3335-18557).
 - 1. This representedResponsibleOrganization **SHALL** contain exactly one [1..1] **id** (CONF:3335-18558).
 - a. This id **SHALL** contain exactly one [1..1] **item** (CONF:3335-18559).
 - 2. This representedResponsibleOrganization **SHALL** contain exactly one [1..1] **name** (CONF:3335-18560).
15. **SHOULD** contain zero or one [0..1] **verifier** (CONF:3335-18754).
- a. The verifier, if present, **SHALL** contain exactly one [1..1] **responsibleParty** (CONF:3335-18755).
 - i. This responsibleParty **SHALL** contain exactly one [1..1] **representedResponsibleOrganization** (CONF:3335-18756).
 - 1. This representedResponsibleOrganization **SHALL** contain exactly one [1..1] **id** (CONF:3335-18757).
 - a. This id **SHALL** contain exactly one [1..1] **item** (CONF:3335-18758).
 - 2. This representedResponsibleOrganization **SHALL** contain exactly one [1..1] **name** (CONF:3335-18759).
16. **SHALL** contain at least one [1..*] **relatedDocument** (CONF:3335-34627).
- a. Such relatedDocuments **SHALL** contain exactly one [1..1] **expressionDocument** (CONF:3335-34628).
 - i. This expressionDocument **SHALL** contain exactly one [1..1] **text** (CONF:3335-34629).
 - 1. This text **SHALL** contain exactly one [1..1] **@mediaType="application/cql"** (CONF:3335-34631).
 - 2. This text **SHALL** contain exactly one [1..1] **reference** (CONF:3335-34630).
 - a. This reference **SHALL** contain exactly one [1..1] **@value** (CONF:3335-34632).

Note: This value contains a URI (relative or absolute) that identifies the CQL expression document.

17. **SHALL** contain exactly one [1..1] **controlVariable** (CONF:3335-18545).

- a. This controlVariable **SHALL** contain exactly one [1..1] **measurePeriod** (CONF:3335-18546).
 - i. This measurePeriod **SHALL** contain exactly one [1..1] **code** (CONF:3335-18547).
 1. This code **SHALL** contain exactly one [1..1] @code="MSRTPT" Measurement Period (CONF:3335-18548).
 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30056).
 - ii. This measurePeriod **SHALL** contain exactly one [1..1] **value** (CONF:3335-18550).
Note: Measure period could be either an IVL_TS or a PIVL_TS data type. Refer to the base HQMF R2 standard for details.

18. **SHALL** contain exactly one [1..1] **subjectOf** (CONF:3335-18580) such that it

- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-18581).
 - i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-18582).
 1. This code **SHALL** contain exactly one [1..1] @code="MSRSCORE" Measure Scoring (CONF:3335-18583).
 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30057).
 - ii. This measureAttribute **SHALL** contain exactly one [1..1] **value** with @xsi:type="CD" (CONF:3335-29935).
 1. This value **SHALL** contain exactly one [1..1] @code (ValueSet: [ObservationMeasureScoring](#) urn:oid:2.16.840.1.113883.1.11.20367) (CONF:3335-29936).

19. **SHALL** contain at least one [1..*] **subjectOf** (CONF:3335-18588) such that it

- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-18590).
 - i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-18591).
 1. This code **SHALL** contain exactly one [1..1] @code="MSRTYPE" Measure Type (CONF:3335-29934).
 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30058).
 - ii. This measureAttribute **SHALL** contain exactly one [1..1] **value** with @xsi:type="CD" (CONF:3335-29938).
 1. This value **SHALL** contain exactly one [1..1] @code (ValueSet: [ObservationMeasureType](#) urn:oid:2.16.840.1.113883.1.11.20368) (CONF:3335-29939).

20. **SHOULD** contain zero or one [0..1] **subjectOf** (CONF:3335-18596) such that it

- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-18597).

- i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-18598).
 - 1. This code **SHALL** contain exactly one [1..1] @code="ITMCNT" Items Counted (CONF:3335-18599).
 - 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30059).
 - ii. This measureAttribute **SHALL** contain exactly one [1..1] **value** with @xsi:type="CD" (CONF:3335-29983).
21. **SHOULD** contain zero or one [0..1] **subjectOf** (CONF:3335-18603) such that it
- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-18604).
 - i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-18605).
 - 1. This code **SHALL** contain exactly one [1..1] @code="COPY" Copyright (CONF:3335-29941).
 - 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30060).
 - ii. This measureAttribute **SHALL** contain exactly one [1..1] **value** with @xsi:type="ED" (CONF:3335-18609).
22. **SHOULD** contain zero or one [0..1] **subjectOf** (CONF:3335-18610) such that it
- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-18611).
 - i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-18612).
 - 1. This code **SHALL** contain exactly one [1..1] @code="CRS" Clinical Recommendation Statement (CONF:3335-18613).
 - 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30061).
 - ii. This measureAttribute **SHALL** contain exactly one [1..1] **value** with @xsi:type="ED" (CONF:3335-29942).
23. **SHOULD** contain zero or one [0..1] **subjectOf** (CONF:3335-18617) such that it
- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-18618).
 - i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-18619).
 - 1. This code **SHALL** contain exactly one [1..1] @code="GUIDE" Guide (CONF:3335-18620).
 - 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30062).
 - ii. This measureAttribute **SHALL** contain exactly one [1..1] **value** with @xsi:type="ED" (CONF:3335-29943).
24. **SHOULD** contain zero or one [0..1] **subjectOf** (CONF:3335-18624) such that it
- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-18625).

- i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-18626).
 - 1. This code **SHALL** contain exactly one [1..1] @code="DEF" Definition (CONF:3335-18627).
 - 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30063).
 - ii. This measureAttribute **SHALL** contain exactly one [1..1] **value** with @xsi:type="ED" (CONF:3335-18690).
25. **SHOULD** contain zero or one [0..1] **subjectOf** (CONF:3335-18630) such that it
- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-18631).
 - i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-18632).
 - 1. This code **SHALL** contain exactly one [1..1] @code="IDUR" Improvement Notation (CONF:3335-18633).
 - 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30064).
 - ii. This measureAttribute **SHALL** contain exactly one [1..1] **value** with @xsi:type="ED" (CONF:3335-18636).
26. **SHOULD** contain zero or one [0..1] **subjectOf** (CONF:3335-18637) such that it
- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-18638).
 - i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-18639).
 - 1. This code **SHALL** contain exactly one [1..1] @code="KEY" Keyword (CONF:3335-18640).
 - 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30065).
27. **SHOULD** contain zero or one [0..1] **subjectOf** (CONF:3335-18644) such that it
- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-18645).
 - i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-18646).
 - 1. This code **SHALL** contain exactly one [1..1] @code="MSRAGG" Rate Aggregation (CONF:3335-18647).
 - 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30066).
 - ii. This measureAttribute **SHALL** contain exactly one [1..1] **value** with @xsi:type="ED" (CONF:3335-18649).
28. **SHOULD** contain zero or one [0..1] **subjectOf** (CONF:3335-18650) such that it
- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-18651).
 - i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-18652).

1. This code **SHALL** contain exactly one [1..1] @code="MSRADJ" Risk Adjustment (CONF:3335-18653).
 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30067).
 - ii. This measureAttribute **SHALL** contain exactly one [1..1] **value** with @xsi:type="ED" (CONF:3335-18656).
29. **SHOULD** contain zero or one [0..1] **subjectOf** (CONF:3335-18657) such that it
- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-18658).
 - i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-18659).
 1. This code **SHALL** contain exactly one [1..1] @code="RAT" Rationale (CONF:3335-18663).
 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30068).
 - ii. This measureAttribute **SHALL** contain exactly one [1..1] **value** with @xsi:type="ED" (CONF:3335-18662).
30. **SHOULD** contain zero or more [0..*] **subjectOf** (CONF:3335-18664) such that it
- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-18665).
 - i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-18666).
 1. This code **SHALL** contain exactly one [1..1] @code="REF" Reference (CONF:3335-18667).
 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30069).
 - ii. This measureAttribute **SHALL** contain exactly one [1..1] **value** with @xsi:type="ED" (CONF:3335-18668).
31. **SHOULD** contain zero or more [0..*] **subjectOf** (CONF:3335-18669) such that it
- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-18670).
 - i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-18671).
 1. This code **SHALL** contain exactly one [1..1] @code="MSRSET" Care Setting (CONF:3335-18672).
 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30070).
 - ii. This measureAttribute **SHALL** contain exactly one [1..1] **value** with @xsi:type="CD" (ValueSet: [RoleClassServiceDeliveryLocation](#) urn:oid:2.16.840.1.113883.1.11.16927) (CONF:3335-29950).
32. **SHOULD** contain zero or one [0..1] **subjectOf** (CONF:3335-18674) such that it
- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-18675).
 - i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-18676).

1. This code **SHALL** contain exactly one [1..1] @code="MSRJUR" Jurisdiction (CONF:3335-18677).
 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30071).
 - ii. This measureAttribute **SHALL** contain exactly one [1..1] **value** with @xsi:type="CD" (CONF:3335-29951).
33. **SHOULD** contain zero or one [0..1] **subjectOf** (CONF:3335-18679) such that it
- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-18680).
 - i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-18681).
 1. This code **SHALL** contain exactly one [1..1] @code="MSRTOPIC" Topic Type (CONF:3335-29952).
 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30072).
 - ii. This measureAttribute **SHALL** contain exactly one [1..1] **value** with @xsi:type="CD" (CONF:3335-29953).
34. **SHOULD** contain zero or one [0..1] **subjectOf** (CONF:3335-18691) such that it
- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-18692).
 - i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-18693).
 1. This code **SHALL** contain exactly one [1..1] @code="MSRRPTR" Reporter Type (CONF:3335-18694).
 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30073).
 - ii. This measureAttribute **SHALL** contain exactly one [1..1] **value** with @xsi:type="CD" (CONF:3335-29954).
35. **SHOULD** contain zero or one [0..1] **subjectOf** (CONF:3335-18698) such that it
- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-18699).
 - i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-18700).
 1. This code **SHALL** contain exactly one [1..1] @code="MSRRPTTIME" Timeframe for Reporting (CONF:3335-18701).
 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30074).
 - ii. This measureAttribute **SHALL** contain exactly one [1..1] **value** with @xsi:type="PQ" (CONF:3335-29955).
36. **SHOULD** contain zero or one [0..1] **subjectOf** (CONF:3335-18705) such that it
- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-18706).
 - i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-18707).

1. This code **SHALL** contain exactly one [1..1] @code="USE" Notice of Use (CONF:3335-30075).
 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30076).
 - ii. This measureAttribute **SHALL** contain exactly one [1..1] **value** with @xsi:type="ED" (CONF:3335-18711).
37. **SHOULD** contain zero or one [0..1] **subjectOf** (CONF:3335-18712) such that it
- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-18713).
 - i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-18714).
 1. This code **SHALL** contain exactly one [1..1] @code="SDE" Supplemental Data Elements (CONF:3335-18715).
 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30077).
 - ii. This measureAttribute **SHALL** contain exactly one [1..1] **value** with @xsi:type="ED" (CONF:3335-18718).
38. **SHOULD** contain zero or one [0..1] **subjectOf** (CONF:3335-18719) such that it
- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-18720).
 - i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-18721).
 1. This code **SHALL** contain exactly one [1..1] @code="TRANF" Transmission Format (CONF:3335-29956).
 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30078).
 - ii. This measureAttribute **SHALL** contain exactly one [1..1] **value** with @xsi:type="ED" (CONF:3335-18725).
39. **SHOULD** contain zero or one [0..1] **subjectOf** (CONF:3335-18726) such that it
- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-18727).
 - i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-18728).
 1. This code **SHALL** contain exactly one [1..1] @code="STRAT" Stratification (CONF:3335-18729).
 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30079).
 - ii. This measureAttribute **SHALL** contain exactly one [1..1] **value** with @xsi:type="ED" (CONF:3335-18732).
40. **SHOULD** contain zero or one [0..1] **subjectOf** (CONF:3335-18733) such that it
- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-18734).
 - i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-18735).

1. This code **SHALL** contain exactly one [1..1] **@code="IPOP"** Initial Population (CONF:3335-18736).
 2. This code **SHALL** contain exactly one [1..1] **@codeSystem** (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30080).
 - ii. This measureAttribute **SHALL** contain exactly one [1..1] **value** with **@xsi:type="ED"** (CONF:3335-18739).
41. **SHOULD** contain zero or one [0..1] **subjectOf** (CONF:3335-18740) such that it
- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-18741).
 - i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-18742).
 1. This code **SHALL** contain exactly one [1..1] **@code="DENOM"** Denominator (CONF:3335-29957).
 2. This code **SHALL** contain exactly one [1..1] **@codeSystem** (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30081).
 - ii. This measureAttribute **SHALL** contain exactly one [1..1] **value** with **@xsi:type="ED"** (CONF:3335-18746).
42. **SHOULD** contain zero or one [0..1] **subjectOf** (CONF:3335-18747) such that it
- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-18748).
 - i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-18749).
 1. This code **SHALL** contain exactly one [1..1] **@code="DENEX"** Denominator Exclusion (CONF:3335-29958).
 2. This code **SHALL** contain exactly one [1..1] **@codeSystem** (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30082).
 - ii. This measureAttribute **SHALL** contain exactly one [1..1] **value** with **@xsi:type="ED"** (CONF:3335-18753).
43. **SHOULD** contain zero or one [0..1] **subjectOf** (CONF:3335-29959) such that it
- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-29960).
 - i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-30083).
 1. This code **SHALL** contain exactly one [1..1] **@code="NUMER"** Numerator (CONF:3335-30084).
 2. This code **SHALL** contain exactly one [1..1] **@codeSystem** (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30085).
 - ii. This measureAttribute **SHALL** contain exactly one [1..1] **value** with **@xsi:type="ED"** (CONF:3335-29962).
44. **SHOULD** contain zero or one [0..1] **subjectOf** (CONF:3335-29963) such that it
- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-29964).
 - i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-29965).

1. This code **SHALL** contain exactly one [1..1] @code="NUMEX" Numerator Exclusion (CONF:3335-29967).
 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30086).
 - ii. This measureAttribute **SHALL** contain exactly one [1..1] **value** with @xsi:type="ED" (CONF:3335-29966).
45. **SHOULD** contain zero or one [0..1] **subjectOf** (CONF:3335-29968) such that it
- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-29969).
 - i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-29970).
 1. This code **SHALL** contain exactly one [1..1] @code="DENEXCEP" Denominator Exception (CONF:3335-29971).
 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30087).
 - ii. This measureAttribute **SHALL** contain exactly one [1..1] **value** with @xsi:type="ED" (CONF:3335-29972).
46. **SHOULD** contain zero or one [0..1] **subjectOf** (CONF:3335-29973) such that it
- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-29974).
 - i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-29975).
 1. This code **SHALL** contain exactly one [1..1] @code="MSRPOPL" Measure Population (CONF:3335-29976).
 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30088).
 - ii. This measureAttribute **SHALL** contain exactly one [1..1] **value** with @xsi:type="ED" (CONF:3335-29977).
47. **SHOULD** contain zero or one [0..1] **subjectOf** (CONF:3335-29978) such that it
- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-29979).
 - i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-29980).
 1. This code **SHALL** contain exactly one [1..1] @code="MSRPOPLEX" Measure Population Exclusions (CONF:3335-29981).
 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30089).
 - ii. This measureAttribute **SHALL** contain exactly one [1..1] **value** with @xsi:type="ED" (CONF:3335-29982).
48. **SHOULD** contain zero or one [0..1] **subjectOf** (CONF:3335-29984) such that it
- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-29985).
 - i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-29986).

1. This code **SHALL** contain exactly one [1..1] @code="DISC" Disclaimer (CONF:3335-29987).
 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30090).
 - ii. This measureAttribute **SHALL** contain exactly one [1..1] **value** with @xsi:type="ED" (CONF:3335-29988).
49. **MAY** contain zero or one [0..1] **subjectof** (CONF:3335-34637) such that it
- a. **SHALL** contain exactly one [1..1] **measureAttribute** (CONF:3335-34638).
 - i. This measureAttribute **SHALL** contain exactly one [1..1] **code** (CONF:3335-34639).
 1. This code **SHALL** contain exactly one [1..1] @code="CMPMSRSCR" Composite measure scoring (CONF:3335-34640).
 2. This code **SHALL** contain exactly one [1..1] @codeSystem="2.16.840.1.113883.5.4" (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-34641).
 - ii. This measureAttribute **SHALL** contain exactly one [1..1] **value** with @xsi:type="CD" (CONF:3335-34642).
 1. This value **SHALL** contain exactly one [1..1] @code (CONF:3335-34643).

Note: Will add a valueset that contain the following codes:
"OPPORSCR", "ALLORNONESCR", "LINEARSCR", "WEIGHTSCR"
50. **SHALL** contain at least one [1..*] **component** (CONF:3335-18813).
51. **SHALL** contain exactly one [1..1] **component** (CONF:3335-18815) such that it
- a. **SHALL** contain exactly one [1..1] Data Criteria Section (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.2.6:2017-05-01) (CONF:3335-18833).
52. **SHALL** contain at least one [1..*] **component** (CONF:3335-19057) such that it
- a. **SHALL** contain exactly one [1..1] Population Criteria Section (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.2.7:2017-05-01) (CONF:3335-19058).
53. **MAY** contain zero or one [0..1] **component** (CONF:3335-29989) such that it
- a. **SHALL** contain exactly one [1..1] Measure Description Section (identifier: urn:oid:2.16.840.1.113883.10.20.28.2.3) (CONF:3335-29990).
54. **MAY** contain zero or one [0..1] **component** (CONF:3335-29991) such that it
- a. **SHALL** contain exactly one [1..1] Measure Observations Section (identifier: urn:oid:2.16.840.1.113883.10.20.28.2.4) (CONF:3335-29992).

4 SECTION

4.1 Data Criteria Section

[dataCriteriaSection: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.2.6:2017-05-01 (open)]

Table 3: Data Criteria Section Contexts

Contained By:	Contains:
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<u>QDM Templates for CQL-Based HQMF Header</u> (required)	<u>Adverse Event</u> <u>Allergy/Intolerance</u> <u>Assessment, Performed</u> <u>Assessment, Recommended</u> <u>Care Goal</u> <u>Communication: From Patient to Provider</u> <u>Communication: From Provider to Patient</u> <u>Communication: From Provider to Provider</u> <u>Device, Applied</u> <u>Device, Order</u> <u>Device, Recommended</u> <u>Diagnosis</u> <u>Diagnostic Study, Order</u> <u>Diagnostic Study, Performed</u> <u>Diagnostic Study, Recommended</u> <u>Encounter, Active</u> <u>Encounter, Order</u> <u>Encounter, Performed</u> <u>Encounter, Recommended</u> <u>Family History</u> <u>Immunization, Administered</u> <u>Immunization, Order</u> <u>Intervention, Order</u> <u>Intervention, Performed</u> <u>Intervention, Recommended</u> <u>Laboratory Test, Order</u> <u>Laboratory Test, Performed</u> <u>Laboratory Test, Recommended</u> <u>Medication, Active</u> <u>Medication, Administered</u> <u>Medication, Discharge</u> <u>Medication, Dispensed</u> <u>Medication, Order</u> <u>Patient Care Experience</u> <u>Patient Characteristic</u> <u>Patient Characteristic Birth Date</u> <u>Patient Characteristic Clinical Trial Participant</u> <u>Patient Characteristic Ethnicity</u> <u>Patient Characteristic Expired</u> <u>Patient Characteristic Payer</u> <u>Patient Characteristic Race</u> <u>Patient Characteristic Sex</u> <u>Physical Exam, Order</u> <u>Physical Exam, Performed</u> <u>Physical Exam, Recommended</u> <u>Procedure, Order</u> <u>Procedure, Performed</u> <u>Procedure, Recommended</u>
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Contained By:	Contains:
	Provider Care Experience Provider Characteristic Substance, Administered Substance, Order Substance, Recommended Symptom

The Data Criteria Section contains the criteria describing the data of interest to a measure.

Table 4: Data Criteria Section Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
dataCriteriaSection (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.2.6:2017-05-01)					
templateId	1..1	SHALL		3335-18804	
item	1..*	SHALL		3335-18805	
@root	1..1	SHALL		3335-18806	2.16.840.1.113883.10.20.28.2.6
@extension	1..1	SHALL		3335-33440	2017-05-01
id	0..1	MAY		3335-18856	
code	1..1	SHALL		3335-18807	
@code	1..1	SHALL		3335-18808	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 57025-9
@codeSystem	1..1	SHALL		3335-30091	urn:oid:2.16.840.1.113883.6.1 (LOINC)
title	1..1	SHALL		3335-18857	
@value	1..1	SHALL		3335-18964	Data Criteria Section
text	1..1	SHALL		3335-18858	
entry	1..*	SHALL		3335-18853	
entry	0..*	MAY		3335-34258	
@typeCode	1..1	SHALL		3335-34259	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIV
observationCriteria	1..1	SHALL		3335-34260	Adverse Event (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.120:2017-05-01)
entry	0..*	MAY		3335-34261	
@typeCode	1..1	SHALL		3335-34262	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIV
observationCriteria	1..1	SHALL		3335-34263	Allergy/Intolerance (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.119:2017-05-01)
entry	0..*	MAY		3335-34176	
@typeCode	1..1	SHALL		3335-34177	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIV

observationCriteria	1..1	SHALL		3335-34178	<u>Assessment, Performed (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.117:2017-05-01)</u>
entry	0..*	MAY		3335-34179	
typeId	1..1	SHALL		3335-34180	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIIV
observationCriteria	1..1	SHALL		3335-34181	<u>Assessment, Recommended (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.118:2017-05-01)</u>
entry	0..*	MAY		3335-32667	
@typeCode	1..1	SHALL		3335-32668	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIIV
observationCriteria	1..1	SHALL		3335-32669	<u>Care Goal (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.7:2017-05-01)</u>
entry	0..*	MAY		3335-32670	
@typeCode	1..1	SHALL		3335-32671	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIIV
actCriteria	1..1	SHALL		3335-34481	<u>Communication: From Patient to Provider (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.8:2017-05-01)</u>
entry	0..*	MAY		3335-32673	
@typeCode	1..1	SHALL		3335-32674	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIIV
actCriteria	1..1	SHALL		3335-32675	<u>Communication: From Provider to Patient (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.9:2017-05-01)</u>
entry	0..*	MAY		3335-32676	
@typeCode	1..1	SHALL		3335-32677	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIIV
actCriteria	1..1	SHALL		3335-32678	<u>Communication: From Provider to Provider (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.10:2017-05-01)</u>
entry	0..*	MAY		3335-32685	

@typeCode	1..1	SHALL		3335-32686	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIV
procedureCriteria	1..1	SHALL		3335-32687	Device, Applied (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.13:2017-05-01
entry	0..*	MAY		3335-32691	
@typeCode	1..1	SHALL		3335-32692	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIV
supplyCriteria	1..1	SHALL		3335-32693	Device, Order (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.15:2017-05-01
entry	0..*	MAY		3335-32694	
@typeCode	1..1	SHALL		3335-32695	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIV
supplyCriteria	1..1	SHALL		3335-32696	Device, Recommended (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.16:2017-05-01
entry	0..*	MAY		3335-34055	
@typeCode	1..1	SHALL		3335-34056	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIV
observationCriteria	1..1	SHALL		3335-34057	Diagnosis (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.110:2017-05-01
entry	0..*	MAY		3335-34038	
@typeCode	1..1	SHALL		3335-34039	DRIV
observationCriteria	1..1	SHALL		3335-34040	Family History (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.111:2017-05-01
entry	0..*	MAY		3335-32715	
@typeCode	1..1	SHALL		3335-32716	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIV
observationCriteria	1..1	SHALL		3335-32717	Diagnostic Study, Order (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.22:2017-05-01
entry	0..*	MAY		3335-32718	

@typeCode	1..1	SHALL		3335-32719	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIV
observationCriteria	1..1	SHALL		3335-32720	Diagnostic Study, Performed (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.23:2017-05-01
entry	0..*	MAY		3335-32721	
@typeCode	1..1	SHALL		3335-32722	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIV
observationCriteria	1..1	SHALL		3335-32723	Diagnostic Study, Recommended (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.24:2017-05-01
entry	0..*	MAY		3335-32727	
@typeCode	1..1	SHALL		3335-32728	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIV
encounterCriteria	1..1	SHALL		3335-32729	Encounter, Active (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.26:2017-05-01
entry	0..*	MAY		3335-32730	
@typeCode	1..1	SHALL		3335-32731	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIV
encounterCriteria	1..1	SHALL		3335-32732	Encounter, Order (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.27:2017-05-01
entry	0..*	MAY		3335-32733	
@typeCode	1..1	SHALL		3335-32734	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIV
encounterCriteria	1..1	SHALL		3335-32735	Encounter, Performed (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.5:2017-05-01
entry	0..*	MAY		3335-32736	
@typeCode	1..1	SHALL		3335-32737	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIV
encounterCriteria	1..1	SHALL		3335-32738	Encounter, Recommended (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.28:2017-05-01

entry	0..*	MAY		3335-32757	
@typeCode	1..1	SHALL		3335-32758	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIV
actCriteria	1..1	SHALL		3335-32759	Intervention, Order (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.35:2017-05-01
entry	0..*	MAY		3335-32760	
@typeCode	1..1	SHALL		3335-32761	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIV
actCriteria	1..1	SHALL		3335-32762	Intervention, Performed (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.36:2017-05-01
entry	0..*	MAY		3335-32763	
@typeCode	1..1	SHALL		3335-32764	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIV
actCriteria	1..1	SHALL		3335-32765	Intervention, Recommended (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.37:2017-05-01
entry	0..*	MAY		3335-32775	
@typeCode	1..1	SHALL		3335-32776	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIV
procedureCriteria	1..1	SHALL		3335-32777	Laboratory Test, Order (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.41:2017-05-01
entry	0..*	MAY		3335-32778	
@typeCode	1..1	SHALL		3335-32779	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIV
observationCriteria	1..1	SHALL		3335-32780	Laboratory Test, Performed (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.42:2017-05-01
entry	0..*	MAY		3335-32781	
@typeCode	1..1	SHALL		3335-32782	DRIV

observationCriteria	1..1	SHALL		3335-32783	Laboratory Test, Recommended (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.43:2017-05-01
entry	0..*	MAY		3335-32787	
@typeCode	1..1	SHALL		3335-32788	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIIV
substanceAdministrationCriteria	1..1	SHALL		3335-32789	Medication, Active (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.44:2017-05-01
entry	0..*	MAY		3335-32790	
@typeCode	1..1	SHALL		3335-32791	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIIV
substanceAdministrationCriteria	1..1	SHALL		3335-32792	Medication, Administered (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.45:2017-05-01
entry	0..*	MAY		3335-33949	
@typeCode	1..1	SHALL		3335-33950	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIIV
substanceAdministrationCriteria	1..1	SHALL		3335-33951	Immunization, Administered (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.112:2017-05-01
entry	0..*	MAY		3335-32797	
@typeCode	1..1	SHALL		3335-32803	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIIV
substanceAdministrationCriteria	1..1	SHALL		3335-32804	Medication, Discharge (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.48:2017-05-01
entry	0..*	MAY		3335-32798	
@typeCode	1..1	SHALL		3335-32805	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIIV
substanceAdministrationCriteria	1..1	SHALL		3335-32806	Medication, Order (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.51:2017-05-01
entry	0..*	MAY		3335-33955	

@typeCode	1..1	SHALL		3335-33956	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIIV
substanceAdministrationCriteria	1..1	SHALL		3335-34037	Immunization, Order (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.113:2017-05-01)
entry	0..*	MAY		3335-32799	
@typeCode	1..1	SHALL		3335-32807	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIIV
supplyCriteria	1..1	SHALL		3335-32808	Medication, Dispensed (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.49:2017-05-01)
entry	0..*	MAY		3335-32811	
@typeCode	1..1	SHALL		3335-32821	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIIV
observationCriteria	1..1	SHALL		3335-32822	Patient Care Experience (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.52:2017-05-01)
entry	0..*	MAY		3335-32812	
@typeCode	1..1	SHALL		3335-32823	DRIIV
observationCriteria	1..1	SHALL		3335-32824	Patient Characteristic (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.53:2017-05-01)
entry	0..*	MAY		3335-32813	
@typeCode	1..1	SHALL		3335-32825	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIIV
observationCriteria	1..1	SHALL		3335-32826	Patient Characteristic Clinical Trial Participant (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.6:2017-05-01)
entry	0..*	MAY		3335-32814	
@typeCode	1..1	SHALL		3335-32827	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIIV
observationCriteria	1..1	SHALL		3335-32828	Patient Characteristic Birth Date (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.54:2017-05-01)

entry	0..*	MAY		3335-32815	
@typeCode	1..1	SHALL		3335-32829	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIV
observationCriteria	1..1	SHALL		3335-32830	Patient Characteristic Ethnicity (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.56:2017-05-01)
entry	0..*	MAY		3335-32816	
@typeCode	1..1	SHALL		3335-32831	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIV
observationCriteria	1..1	SHALL		3335-32832	Patient Characteristic Expired (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.57:2017-05-01)
entry	0..*	MAY		3335-32817	
@typeCode	1..1	SHALL		3335-32833	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIV
observationCriteria	1..1	SHALL		3335-32834	Patient Characteristic Payer (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.58:2017-05-01)
entry	0..*	MAY		3335-32818	
@typeCode	1..1	SHALL		3335-32835	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIV
observationCriteria	1..1	SHALL		3335-32836	Patient Characteristic Race (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.59:2017-05-01)
entry	0..*	MAY		3335-32819	
@typeCode	1..1	SHALL		3335-32837	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIV
observationCriteria	1..1	SHALL		3335-32838	Patient Characteristic Sex (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.55:2017-05-01)
entry	0..*	MAY		3335-32844	
@typeCode	1..1	SHALL		3335-32845	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIV

observationCriteria	1..1	SHALL		3335-32846	Physical Exam, Order (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.61:2017-05-01)
entry	0..*	MAY		3335-32847	
@typeCode	1..1	SHALL		3335-32848	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = DRIV
observationCriteria	1..1	SHALL		3335-32849	Physical Exam, Performed (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.62:2017-05-01)
entry	0..*	MAY		3335-32850	
@typeCode	1..1	SHALL		3335-32851	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = DRIV
observationCriteria	1..1	SHALL		3335-32852	Physical Exam, Recommended (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.63:2017-05-01)
entry	0..*	MAY		3335-32856	
@typeCode	1..1	SHALL		3335-32857	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = DRIV
procedureCriteria	1..1	SHALL		3335-32858	Procedure, Performed (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.67:2017-05-01)
entry	0..*	MAY		3335-32859	
@typeCode	1..1	SHALL		3335-32860	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = DRIV
procedureCriteria	1..1	SHALL		3335-32861	Procedure, Recommended (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.68:2017-05-01)
entry	0..*	MAY		3335-32862	
@typeCode	1..1	SHALL		3335-32863	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = DRIV
procedureCriteria	1..1	SHALL		3335-32864	Procedure, Order (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.66:2017-05-01)
entry	0..*	MAY		3335-32868	

@typeCode	1..1	SHALL		3335-32869	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIV
observationCriteria	1..1	SHALL		3335-32870	Provider Care Experience (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.70:2017-05-01)
entry	0..*	MAY		3335-32871	
@typeCode	1..1	SHALL		3335-32872	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIV
observationCriteria	1..1	SHALL		3335-32873	Provider Characteristic (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.71:2017-05-01)
entry	0..*	MAY		3335-32996	
@typeCode	1..1	SHALL		3335-32997	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIV
substanceAdministrationCriteria	1..1	SHALL		3335-32998	Substance, Administered (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.73:2017-05-01)
entry	0..*	MAY		3335-33005	
@typeCode	1..1	SHALL		3335-33006	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIV
substanceAdministrationCriteria	1..1	SHALL		3335-33007	Substance, Order (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.77:2017-05-01)
entry	0..*	MAY		3335-33011	
@typeCode	1..1	SHALL		3335-33012	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIV
substanceAdministrationCriteria	1..1	SHALL		3335-33013	Substance, Recommended (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.78:2017-05-01)
entry	0..*	MAY		3335-34058	
@typeCode	1..1	SHALL		3335-34059	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = DRIV
observationCriteria	1..1	SHALL		3335-34113	Symptom (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.116:2017-05-01)

1. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-18804).
 - a. This templateId **SHALL** contain at least one [1..*] **item** (CONF:3335-18805) such that it
 - i. **SHALL** contain exactly one [1..1] @root="2.16.840.1.113883.10.20.28.2.6" (CONF:3335-18806).
 - ii. **SHALL** contain exactly one [1..1] @extension="2017-05-01" (CONF:3335-33440).
2. **MAY** contain zero or one [0..1] **id** (CONF:3335-18856).
3. **SHALL** contain exactly one [1..1] **code** (CONF:3335-18807).
 - a. This code **SHALL** contain exactly one [1..1] @code="57025-9" Data Criteria (CodeSystem: LOINC urn:oid:2.16.840.1.113883.6.1 **STATIC**) (CONF:3335-18808).
 - b. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: LOINC urn:oid:2.16.840.1.113883.6.1) (CONF:3335-30091).
4. **SHALL** contain exactly one [1..1] **title** (CONF:3335-18857).
 - a. This title **SHALL** contain exactly one [1..1] @value="Data Criteria Section" (CONF:3335-18964).
5. **SHALL** contain exactly one [1..1] **text** (CONF:3335-18858).
6. **SHALL** contain at least one [1..*] **entry** (CONF:3335-18853).
7. **MAY** contain zero or more [0..*] **entry** (CONF:3335-34258) such that it
 - a. **SHALL** contain exactly one [1..1] @typeCode="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-34259).
 - b. **SHALL** contain exactly one [1..1] **Adverse Event** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.120:2017-05-01) (CONF:3335-34260).
8. **MAY** contain zero or more [0..*] **entry** (CONF:3335-34261) such that it
 - a. **SHALL** contain exactly one [1..1] @typeCode="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-34262).
 - b. **SHALL** contain exactly one [1..1] **Allergy/Intolerance** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.119:2017-05-01) (CONF:3335-34263).
9. **MAY** contain zero or more [0..*] **entry** (CONF:3335-34176) such that it
 - a. **SHALL** contain exactly one [1..1] @typeCode="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-34177).
 - b. **SHALL** contain exactly one [1..1] **Assessment, Performed** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.117:2017-05-01) (CONF:3335-34178).
10. **MAY** contain zero or more [0..*] **entry** (CONF:3335-34179) such that it

- a. **SHALL** contain exactly one [1..1] **typeId**="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-34180).
 - b. **SHALL** contain exactly one [1..1] **Assessment, Recommended** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.118:2017-05-01) (CONF:3335-34181).
11. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32667) such that it
- a. **SHALL** contain exactly one [1..1] **@typeCode**="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32668).
 - b. **SHALL** contain exactly one [1..1] **Care Goal** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.7:2017-05-01) (CONF:3335-32669).
12. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32670) such that it
- a. **SHALL** contain exactly one [1..1] **@typeCode**="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32671).
 - b. **SHALL** contain exactly one [1..1] **Communication: From Patient to Provider** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.8:2017-05-01) (CONF:3335-34481).
13. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32673) such that it
- a. **SHALL** contain exactly one [1..1] **@typeCode**="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32674).
 - b. **SHALL** contain exactly one [1..1] **Communication: From Provider to Patient** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.9:2017-05-01) (CONF:3335-32675).
14. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32676) such that it
- a. **SHALL** contain exactly one [1..1] **@typeCode**="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32677).
 - b. **SHALL** contain exactly one [1..1] **Communication: From Provider to Provider** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.10:2017-05-01) (CONF:3335-32678).
15. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32685) such that it
- a. **SHALL** contain exactly one [1..1] **@typeCode**="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32686).
 - b. **SHALL** contain exactly one [1..1] **Device, Applied** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.13:2017-05-01) (CONF:3335-32687).
16. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32691) such that it
- a. **SHALL** contain exactly one [1..1] **@typeCode**="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32692).

- b. **SHALL** contain exactly one [1..1] [Device, Order](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.15:2017-05-01) (CONF:3335-32693).
17. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32694) such that it
- a. **SHALL** contain exactly one [1..1] @[typeCode](#)="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32695).
 - b. **SHALL** contain exactly one [1..1] [Device, Recommended](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.16:2017-05-01) (CONF:3335-32696).
18. **MAY** contain zero or more [0..*] **entry** (CONF:3335-34055) such that it
- a. **SHALL** contain exactly one [1..1] @[typeCode](#)="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-34056).
 - b. **SHALL** contain exactly one [1..1] [Diagnosis](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.110:2017-05-01) (CONF:3335-34057).
19. **MAY** contain zero or more [0..*] **entry** (CONF:3335-34038) such that it
- a. **SHALL** contain exactly one [1..1] @[typeCode](#)="DRIV" Is Derived From (CONF:3335-34039).
 - b. **SHALL** contain exactly one [1..1] [Family History](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.111:2017-05-01) (CONF:3335-34040).
20. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32715) such that it
- a. **SHALL** contain exactly one [1..1] @[typeCode](#)="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32716).
 - b. **SHALL** contain exactly one [1..1] [Diagnostic Study, Order](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.22:2017-05-01) (CONF:3335-32717).
21. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32718) such that it
- a. **SHALL** contain exactly one [1..1] @[typeCode](#)="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32719).
 - b. **SHALL** contain exactly one [1..1] [Diagnostic Study, Performed](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.23:2017-05-01) (CONF:3335-32720).
22. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32721) such that it
- a. **SHALL** contain exactly one [1..1] @[typeCode](#)="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32722).
 - b. **SHALL** contain exactly one [1..1] [Diagnostic Study, Recommended](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.24:2017-05-01) (CONF:3335-32723).
23. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32727) such that it

- a. **SHALL** contain exactly one [1..1] @typeCode="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32728).
 - b. **SHALL** contain exactly one [1..1] Encounter, Active (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.26:2017-05-01) (CONF:3335-32729).
24. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32730) such that it
- a. **SHALL** contain exactly one [1..1] @typeCode="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32731).
 - b. **SHALL** contain exactly one [1..1] Encounter, Order (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.27:2017-05-01) (CONF:3335-32732).
25. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32733) such that it
- a. **SHALL** contain exactly one [1..1] @typeCode="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32734).
 - b. **SHALL** contain exactly one [1..1] Encounter, Performed (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.5:2017-05-01) (CONF:3335-32735).
26. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32736) such that it
- a. **SHALL** contain exactly one [1..1] @typeCode="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32737).
 - b. **SHALL** contain exactly one [1..1] Encounter, Recommended (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.28:2017-05-01) (CONF:3335-32738).
27. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32757) such that it
- a. **SHALL** contain exactly one [1..1] @typeCode="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32758).
 - b. **SHALL** contain exactly one [1..1] Intervention, Order (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.35:2017-05-01) (CONF:3335-32759).
28. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32760) such that it
- a. **SHALL** contain exactly one [1..1] @typeCode="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32761).
 - b. **SHALL** contain exactly one [1..1] Intervention, Performed (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.36:2017-05-01) (CONF:3335-32762).
29. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32763) such that it
- a. **SHALL** contain exactly one [1..1] @typeCode="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32764).

- b. **SHALL** contain exactly one [1..1] [Intervention, Recommended](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.37:2017-05-01) (CONF:3335-32765).
30. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32775) such that it
- a. **SHALL** contain exactly one [1..1] @**typeCode**="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32776).
 - b. **SHALL** contain exactly one [1..1] [Laboratory Test, Order](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.41:2017-05-01) (CONF:3335-32777).
31. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32778) such that it
- a. **SHALL** contain exactly one [1..1] @**typeCode**="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32779).
 - b. **SHALL** contain exactly one [1..1] [Laboratory Test, Performed](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.42:2017-05-01) (CONF:3335-32780).
32. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32781) such that it
- a. **SHALL** contain exactly one [1..1] @**typeCode**="DRIV" Is Derived From (CONF:3335-32782).
 - b. **SHALL** contain exactly one [1..1] [Laboratory Test, Recommended](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.43:2017-05-01) (CONF:3335-32783).
33. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32787) such that it
- a. **SHALL** contain exactly one [1..1] @**typeCode**="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32788).
 - b. **SHALL** contain exactly one [1..1] [Medication, Active](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.44:2017-05-01) (CONF:3335-32789).
34. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32790) such that it
- a. **SHALL** contain exactly one [1..1] @**typeCode**="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32791).
 - b. **SHALL** contain exactly one [1..1] [Medication, Administered](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.45:2017-05-01) (CONF:3335-32792).
35. **MAY** contain zero or more [0..*] **entry** (CONF:3335-33949) such that it
- a. **SHALL** contain exactly one [1..1] @**typeCode**="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-33950).
 - b. **SHALL** contain exactly one [1..1] [Immunization, Administered](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.112:2017-05-01) (CONF:3335-33951).
36. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32797) such that it

- a. **SHALL** contain exactly one [1..1] @typeCode="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32803).
 - b. **SHALL** contain exactly one [1..1] Medication, Discharge (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.48:2017-05-01) (CONF:3335-32804).
37. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32798) such that it
- a. **SHALL** contain exactly one [1..1] @typeCode="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32805).
 - b. **SHALL** contain exactly one [1..1] Medication, Order (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.51:2017-05-01) (CONF:3335-32806).
38. **MAY** contain zero or more [0..*] **entry** (CONF:3335-33955) such that it
- a. **SHALL** contain exactly one [1..1] @typeCode="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-33956).
 - b. **SHALL** contain exactly one [1..1] Immunization, Order (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.113:2017-05-01) (CONF:3335-34037).
39. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32799) such that it
- a. **SHALL** contain exactly one [1..1] @typeCode="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32807).
 - b. **SHALL** contain exactly one [1..1] Medication, Dispensed (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.49:2017-05-01) (CONF:3335-32808).
40. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32811) such that it
- a. **SHALL** contain exactly one [1..1] @typeCode="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32821).
 - b. **SHALL** contain exactly one [1..1] Patient Care Experience (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.52:2017-05-01) (CONF:3335-32822).
41. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32812) such that it
- a. **SHALL** contain exactly one [1..1] @typeCode="DRIV" Is Derived From (CONF:3335-32823).
 - b. **SHALL** contain exactly one [1..1] Patient Characteristic (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.53:2017-05-01) (CONF:3335-32824).
42. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32813) such that it
- a. **SHALL** contain exactly one [1..1] @typeCode="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32825).

- b. **SHALL** contain exactly one [1..1] Patient Characteristic Clinical Trial Participant (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.6:2017-05-01) (CONF:3335-32826).
43. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32814) such that it
- SHALL** contain exactly one [1..1] @typeCode="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32827).
 - SHALL** contain exactly one [1..1] Patient Characteristic Birth Date (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.54:2017-05-01) (CONF:3335-32828).
44. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32815) such that it
- SHALL** contain exactly one [1..1] @typeCode="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32829).
 - SHALL** contain exactly one [1..1] Patient Characteristic Ethnicity (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.56:2017-05-01) (CONF:3335-32830).
45. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32816) such that it
- SHALL** contain exactly one [1..1] @typeCode="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32831).
 - SHALL** contain exactly one [1..1] Patient Characteristic Expired (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.57:2017-05-01) (CONF:3335-32832).
46. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32817) such that it
- SHALL** contain exactly one [1..1] @typeCode="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32833).
 - SHALL** contain exactly one [1..1] Patient Characteristic Payer (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.58:2017-05-01) (CONF:3335-32834).
47. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32818) such that it
- SHALL** contain exactly one [1..1] @typeCode="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32835).
 - SHALL** contain exactly one [1..1] Patient Characteristic Race (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.59:2017-05-01) (CONF:3335-32836).
48. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32819) such that it
- SHALL** contain exactly one [1..1] @typeCode="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32837).

- b. **SHALL** contain exactly one [1..1] Patient Characteristic Sex (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.55:2017-05-01) (CONF:3335-32838).
49. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32844) such that it
- a. **SHALL** contain exactly one [1..1] @typeCode="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32845).
 - b. **SHALL** contain exactly one [1..1] Physical Exam, Order (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.61:2017-05-01) (CONF:3335-32846).
50. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32847) such that it
- a. **SHALL** contain exactly one [1..1] @typeCode="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32848).
 - b. **SHALL** contain exactly one [1..1] Physical Exam, Performed (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.62:2017-05-01) (CONF:3335-32849).
51. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32850) such that it
- a. **SHALL** contain exactly one [1..1] @typeCode="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32851).
 - b. **SHALL** contain exactly one [1..1] Physical Exam, Recommended (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.63:2017-05-01) (CONF:3335-32852).
52. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32856) such that it
- a. **SHALL** contain exactly one [1..1] @typeCode="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32857).
 - b. **SHALL** contain exactly one [1..1] Procedure, Performed (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.67:2017-05-01) (CONF:3335-32858).
53. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32859) such that it
- a. **SHALL** contain exactly one [1..1] @typeCode="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32860).
 - b. **SHALL** contain exactly one [1..1] Procedure, Recommended (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.68:2017-05-01) (CONF:3335-32861).
54. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32862) such that it
- a. **SHALL** contain exactly one [1..1] @typeCode="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32863).
 - b. **SHALL** contain exactly one [1..1] Procedure, Order (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.66:2017-05-01) (CONF:3335-32864).

55. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32868) such that it
- SHALL** contain exactly one [1..1] @**typeCode**="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32869).
 - SHALL** contain exactly one [1..1] **Provider Care Experience** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.70:2017-05-01) (CONF:3335-32870).
56. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32871) such that it
- SHALL** contain exactly one [1..1] @**typeCode**="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32872).
 - SHALL** contain exactly one [1..1] **Provider Characteristic** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.71:2017-05-01) (CONF:3335-32873).
57. **MAY** contain zero or more [0..*] **entry** (CONF:3335-32996) such that it
- SHALL** contain exactly one [1..1] @**typeCode**="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32997).
 - SHALL** contain exactly one [1..1] **Substance, Administered** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.73:2017-05-01) (CONF:3335-32998).
58. **MAY** contain zero or more [0..*] **entry** (CONF:3335-33005) such that it
- SHALL** contain exactly one [1..1] @**typeCode**="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-33006).
 - SHALL** contain exactly one [1..1] **Substance, Order** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.77:2017-05-01) (CONF:3335-33007).
59. **MAY** contain zero or more [0..*] **entry** (CONF:3335-33011) such that it
- SHALL** contain exactly one [1..1] @**typeCode**="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-33012).
 - SHALL** contain exactly one [1..1] **Substance, Recommended** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.78:2017-05-01) (CONF:3335-33013).
60. **MAY** contain zero or more [0..*] **entry** (CONF:3335-34058) such that it
- SHALL** contain exactly one [1..1] @**typeCode**="DRIV" Is Derived From (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-34059).
 - SHALL** contain exactly one [1..1] **Symptom** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.116:2017-05-01) (CONF:3335-34113).

4.2 Measure Description Section

[measureDescriptionSection: identifier urn:oid:2.16.840.1.113883.10.20.28.2.3
(open)]

Table 5: Measure Description Section Contexts

Contained By:	Contains:
QDM Templates for CQL-Based HQMF Header (optional)	

The Measure Description Section is used to provide a more detailed or embellished description, such as one containing images and/or flow diagrams, than that provided in QualityMeasureDocument.text.

Table 6: Measure Description Section Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
measureDescriptionSection (identifier: urn:oid:2.16.840.1.113883.10.20.28.2.3)					
templateId	1..1	SHALL		87-18897	
item	1..*	SHALL		87-18898	
@root	1..1	SHALL		87-18899	2.16.840.1.113883.10.20.28.2.3
id	0..1	MAY		87-18913	
code	1..1	SHALL		87-18914	
@code	1..1	SHALL		87-19064	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 74045-6
@codeSystem	1..1	SHALL		87-30102	urn:oid:2.16.840.1.113883.6.1 (LOINC)
title	1..1	SHALL		87-18918	
@value	1..1	SHALL		87-18919	Measure Description Section
text	1..1	SHALL		87-18920	

1. **SHALL** contain exactly one [1..1] **templateId** (CONF:87-18897).
 - a. This templateId **SHALL** contain at least one [1..*] **item** (CONF:87-18898) such that it
 - i. **SHALL** contain exactly one [1..1]
`@root="2.16.840.1.113883.10.20.28.2.3"` (CONF:87-18899).
2. **MAY** contain zero or one [0..1] **id** (CONF:87-18913).
3. **SHALL** contain exactly one [1..1] **code** (CONF:87-18914).

- a. This code **SHALL** contain exactly one [1..1] @code="74045-6" Measure Description (CodeSystem: LOINC urn:oid:2.16.840.1.113883.6.1 **STATIC**) (CONF:87-19064).
 - b. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: LOINC urn:oid:2.16.840.1.113883.6.1) (CONF:87-30102).
4. **SHALL** contain exactly one [1..1] **title** (CONF:87-18918).
 - a. This title **SHALL** contain exactly one [1..1] @value="Measure Description Section" (CONF:87-18919).
 5. **SHALL** contain exactly one [1..1] **text** (CONF:87-18920).

Figure 2: Measure Description Section Example

```
<component>
  <measureDescriptionSection>
    <templateId>
      <item root="2.16.840.1.113883.10.20.28.2.3"/>
    </templateId>
    <code code="74045-6" codeSystem="2.16.840.1.113883.6.1">
      <displayName value="Measure Description"/>
    </code>
    <title value="Measure Description Section"/>
    <text value="...."/>
  </measureDescriptionSection>
</component>
```

4.3 Measure Observations Section

[measureObservationsSection: identifier
urn:oid:2.16.840.1.113883.10.20.28.2.4 (open)]

Table 7: Measure Observations Section Contexts

Contained By:	Contains:
QDM Templates for CQL-Based HQMF Header (optional)	

The Measure Observations section defines computations (e.g., time from check in to antibiotic administration) used to score particular aspects of performance. Measure observations are used in ratio and continuous variable eMeasures.

Table 8: Measure Observations Section Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
measureObservationsSection (identifier: urn:oid:2.16.840.1.113883.10.20.28.2.4)					
templateId	1..1	SHALL		87-18901	
item	1..*	SHALL		87-18902	
@root	1..1	SHALL		87-18903	2.16.840.1.113883.10.20.28.2.4
id	0..1	MAY		87-18904	
code	1..1	SHALL		87-18905	
@code	1..1	SHALL		87-18906	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 57027-5
@codeSystem	1..1	SHALL		87-30103	urn:oid:2.16.840.1.113883.6.1 (LOINC)
title	1..1	SHALL		87-18910	
@value	1..1	SHALL		87-18965	Measure Observations Section
text	1..1	SHALL		87-18911	

1. **SHALL** contain exactly one [1..1] **templateId** (CONF:87-18901).
 - a. This templateId **SHALL** contain at least one [1..*] **item** (CONF:87-18902) such that it
 - i. **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.2.4"** (CONF:87-18903).
2. **MAY** contain zero or one [0..1] **id** (CONF:87-18904).
3. **SHALL** contain exactly one [1..1] **code** (CONF:87-18905).
 - a. This code **SHALL** contain exactly one [1..1] **@code="57027-5"** Measure Observation (CodeSystem: LOINC urn:oid:2.16.840.1.113883.6.1 **STATIC**) (CONF:87-18906).
 - b. This code **SHALL** contain exactly one [1..1] **@codeSystem** (CodeSystem: LOINC urn:oid:2.16.840.1.113883.6.1) (CONF:87-30103).
4. **SHALL** contain exactly one [1..1] **title** (CONF:87-18910).
 - a. This title **SHALL** contain exactly one [1..1] **@value="Measure Observations Section"** (CONF:87-18965).
5. **SHALL** contain exactly one [1..1] **text** (CONF:87-18911).

Figure 3: Measure Observations Section Example

```
<component>
  <measureObservationSection>
    <templateId>
      <item root="2.16.840.1.113883.10.20.28.2.4"/>
    </templateId>
    <code code="57027-5" codeSystem="2.16.840.1.113883.6.1">
      <displayName value="Measure Observation"/>
    </code>
    <title value="Measure Observation Section"/>
    <text value="...."/>
  </measureObservationSection>
</component>
```

4.4 Population Criteria Section

[populationCriteriaSection: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.2.7:2017-05-01 (open)]

Table 9: Population Criteria Section Contexts

Contained By:	Contains:
QDM Templates for CQL-Based HQMF Header (required)	

The Population Criteria Section is used to formalize a measure's population types (e.g., initial population, numerator, denominator).

[Please refer to Volume 1 and Volume 2 of this IG for additional constraints and examples for the Population Criteria Section.](#)

Table 10: Population Criteria Section Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
populationCriteriaSection (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.2.7:2017-05-01)					
templateId	1..1	SHALL		3335-18774	
item	1..*	SHALL		3335-18775	
@root	1..1	SHALL		3335-18776	2.16.840.1.113883.10.20.28.2.7
@extension	1..1	SHALL		3335-34633	2017-05-01
id	0..1	MAY		3335-18960	
code	1..1	SHALL		3335-19059	
@code	1..1	SHALL		3335-19060	57026-7
@codeSystem	1..1	SHALL		3335-30092	urn:oid:2.16.840.1.113883.6.1 (LOINC)
title	1..1	SHALL		3335-18781	
@value	1..1	SHALL		3335-18782	Population Criteria Section
text	1..1	SHALL		3335-18961	
component	1..*	SHALL		3335-29995	
initialPopulationCriteria	1..1	SHALL		3335-29996	
code	1..1	SHALL		3335-30022	
@code	1..1	SHALL		3335-30023	IPOP
@codeSystem	1..1	SHALL		3335-30093	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
component	0..*	MAY		3335-30024	
numeratorCriteria	1..1	SHALL		3335-30025	
code	1..1	SHALL		3335-30028	
@code	1..1	SHALL		3335-30029	NUMER
@codeSystem	1..1	SHALL		3335-30094	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
component	0..*	MAY		3335-30026	

denominatorCriteria	1..1	SHALL		3335-30027	
code	1..1	SHALL		3335-30030	
@code	1..1	SHALL		3335-30031	DENOM
@codeSystem	1..1	SHALL		3335-30095	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
component	0..*	MAY		3335-30032	
measurePopulationCriteria	1..1	SHALL		3335-30033	
code	1..1	SHALL		3335-30034	
@code	1..1	SHALL		3335-30035	MSRPOPL
@codeSystem	1..1	SHALL		3335-30096	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
component	0..*	MAY		3335-30036	
denominatorExceptionCriteria	1..1	SHALL		3335-30037	
code	1..1	SHALL		3335-30038	
@code	1..1	SHALL		3335-30039	DENEXCEP
@codeSystem	1..1	SHALL		3335-30097	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
component	0..*	MAY		3335-30040	
denominatorExclusionCriteria	1..1	SHALL		3335-30041	
code	1..1	SHALL		3335-30042	
@code	1..1	SHALL		3335-30043	DENEX
@codeSystem	1..1	SHALL		3335-30098	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
component	0..*	MAY		3335-30044	
numeratorExclusionCriteria	1..1	SHALL		3335-30045	
code	1..1	SHALL		3335-30046	
@code	1..1	SHALL		3335-30047	NUMEX

@codeSystem	1..1	SHALL		3335-30099	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
component	0..*	MAY		3335-30048	
measurePopulationExclusionCriteria	1..1	SHALL		3335-30049	
code	1..1	SHALL		3335-30050	
@code	1..1	SHALL		3335-30051	MSRPOPLEX
@codeSystem	1..1	SHALL		3335-30100	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
component	0..*	MAY		3335-30052	
stratifierCriteria	1..1	SHALL		3335-30053	
code	0..1	MAY		3335-30054	
@code	1..1	SHALL		3335-30055	STRAT
@codeSystem	1..1	SHALL		3335-30101	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
precondition	1..*	SHALL		3335-34634	
criteriaReference	1..1	SHALL		3335-34635	
id	1..1	SHALL		3335-34644	
@root	1..1	SHALL		3335-34645	
@extension	1..1	SHALL		3335-34646	

1. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-18774).
 - a. This templateId **SHALL** contain at least one [1..*] **item** (CONF:3335-18775) such that it
 - i. **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.2.7"** (CONF:3335-18776).
 - ii. **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-34633).
2. **MAY** contain zero or one [0..1] **id** (CONF:3335-18960).
3. **SHALL** contain exactly one [1..1] **code** (CONF:3335-19059).
 - a. This code **SHALL** contain exactly one [1..1] **@code="57026-7"** Population Criteria (CONF:3335-19060).

- b. This code **SHALL** contain exactly one [1..1] **@codeSystem** (CodeSystem: LOINC urn:oid:2.16.840.1.113883.6.1) (CONF:3335-30092).
- 4. **SHALL** contain exactly one [1..1] **title** (CONF:3335-18781).
 - a. This title **SHALL** contain exactly one [1..1] **@value**="Population Criteria Section" (CONF:3335-18782).
- 5. **SHALL** contain exactly one [1..1] **text** (CONF:3335-18961).
- 6. **SHALL** contain at least one [1..*] **component** (CONF:3335-29995) such that it
 - a. **SHALL** contain exactly one [1..1] **initialPopulationCriteria** (CONF:3335-29996).
 - i. This initialPopulationCriteria **SHALL** contain exactly one [1..1] **code** (CONF:3335-30022).
 - 1. This code **SHALL** contain exactly one [1..1] **@code**="IPOP" Initial Population (CONF:3335-30023).
 - 2. This code **SHALL** contain exactly one [1..1] **@codeSystem** (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30093).
- 7. **MAY** contain zero or more [0..*] **component** (CONF:3335-30024) such that it
 - a. **SHALL** contain exactly one [1..1] **numeratorCriteria** (CONF:3335-30025).
 - i. This numeratorCriteria **SHALL** contain exactly one [1..1] **code** (CONF:3335-30028).
 - 1. This code **SHALL** contain exactly one [1..1] **@code**="NUMER" Numerator (CONF:3335-30029).
 - 2. This code **SHALL** contain exactly one [1..1] **@codeSystem** (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30094).
- 8. **MAY** contain zero or more [0..*] **component** (CONF:3335-30026) such that it
 - a. **SHALL** contain exactly one [1..1] **denominatorCriteria** (CONF:3335-30027).
 - i. This denominatorCriteria **SHALL** contain exactly one [1..1] **code** (CONF:3335-30030).
 - 1. This code **SHALL** contain exactly one [1..1] **@code**="DENOM" Denominator (CONF:3335-30031).
 - 2. This code **SHALL** contain exactly one [1..1] **@codeSystem** (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30095).
- 9. **MAY** contain zero or more [0..*] **component** (CONF:3335-30032) such that it
 - a. **SHALL** contain exactly one [1..1] **measurePopulationCriteria** (CONF:3335-30033).
 - i. This measurePopulationCriteria **SHALL** contain exactly one [1..1] **code** (CONF:3335-30034).
 - 1. This code **SHALL** contain exactly one [1..1] **@code**="MSRPOPL" Measure Population (CONF:3335-30035).
 - 2. This code **SHALL** contain exactly one [1..1] **@codeSystem** (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30096).
- 10. **MAY** contain zero or more [0..*] **component** (CONF:3335-30036) such that it

- a. **SHALL** contain exactly one [1..1] **denominatorExceptionCriteria** (CONF:3335-30037).
 - i. This denominatorExceptionCriteria **SHALL** contain exactly one [1..1] **code** (CONF:3335-30038).
 - 1. This code **SHALL** contain exactly one [1..1] @code="DENEXCEP" Denominator Exception (CONF:3335-30039).
 - 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30097).
11. **MAY** contain zero or more [0..*] **component** (CONF:3335-30040) such that it
- a. **SHALL** contain exactly one [1..1] **denominatorExclusionCriteria** (CONF:3335-30041).
 - i. This denominatorExclusionCriteria **SHALL** contain exactly one [1..1] **code** (CONF:3335-30042).
 - 1. This code **SHALL** contain exactly one [1..1] @code="DENEX" Denominator Exclusion (CONF:3335-30043).
 - 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30098).
12. **MAY** contain zero or more [0..*] **component** (CONF:3335-30044) such that it
- a. **SHALL** contain exactly one [1..1] **numeratorExclusionCriteria** (CONF:3335-30045).
 - i. This numeratorExclusionCriteria **SHALL** contain exactly one [1..1] **code** (CONF:3335-30046).
 - 1. This code **SHALL** contain exactly one [1..1] @code="NUMEX" Numerator Exclusion (CONF:3335-30047).
 - 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30099).
13. **MAY** contain zero or more [0..*] **component** (CONF:3335-30048) such that it
- a. **SHALL** contain exactly one [1..1] **measurePopulationExclusionCriteria** (CONF:3335-30049).
 - i. This measurePopulationExclusionCriteria **SHALL** contain exactly one [1..1] **code** (CONF:3335-30050).
 - 1. This code **SHALL** contain exactly one [1..1] @code="MSRPOPLEX" Measure Population Exclusions (CONF:3335-30051).
 - 2. This code **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30100).
14. **MAY** contain zero or more [0..*] **component** (CONF:3335-30052) such that it
- a. **SHALL** contain exactly one [1..1] **stratifierCriteria** (CONF:3335-30053).
 - i. This stratifierCriteria **MAY** contain zero or one [0..1] **code** (CONF:3335-30054).
 - 1. The code, if present, **SHALL** contain exactly one [1..1] @code="STRAT" Stratification (CONF:3335-30055).

2. The code, if present, **SHALL** contain exactly one [1..1] @codeSystem (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30101).
- ii. This stratifierCriteria **SHALL** contain at least one [1..*] **precondition** (CONF:3335-34634).
 1. Such preconditions **SHALL** contain exactly one [1..1] **criteriaReference** (CONF:3335-34635).
 - a. This criteriaReference **SHALL** contain exactly one [1..1] **id** (CONF:3335-34644).
 - i. This id **SHALL** contain exactly one [1..1] @root (CONF:3335-34645).
 - ii. This id **SHALL** contain exactly one [1..1] @extension (CONF:3335-34646).

5 ENTRY

5.1 Admission Source

[Role: identifier urn:hl7ii:2.16.840.1.113883.10.20.28.4.123:2017-05-01
(open)]

Table 11: Admission Source Contexts

Contained By:	Contains:
Encounter, Performed (optional)	

This template represents the QDM attribute: Admission Source

The location from which the patient was admitted (e.g., physician referral, facility from which the patient was transferred).

Table 12: Admission Source Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
Role (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.123:2017-05-01)					
@classCode	1..1	SHALL		3335-34344	urn:oid:2.16.840.1.113883.5.110 (HL7RoleClass) = SDLOC
templateId	1..1	SHALL		3335-34340	
item	1..1	SHALL		3335-34341	
@root	1..1	SHALL		3335-34345	2.16.840.1.113883.10.20.28.3.123
@extension	1..1	SHALL		3335-34530	2017-05-01
code	1..1	SHALL		3335-34342	
@valueSet	0..1	SHOULD		3335-34346	

1. **SHALL** contain exactly one [1..1] **@classCode="SDLOC"** Service Delivery Location (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-34344).
2. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-34340).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-34341).
 - i. This item **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.3.123"** (CONF:3335-34345).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-34530).
3. **SHALL** contain exactly one [1..1] **code** (CONF:3335-34342).
 - a. This code **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-34346).

Figure 4: Admission Source Example

```
<role classCode="SDLOC">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.123" extension="2017-05-01"/>
  </templateId>
  <code valueSet="{{$QDMElementValueSetOID}}"/>
</role>
```

5.2 Adverse Event

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.120:2017-05-01 (open)]

Table 13: Adverse Event Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Facility Location Severity Observation

This template represents the QDM data type: Adverse Event

Adverse Event is used to define any untoward medical occurrence associated with the clinical care delivery, whether or not considered drug related.

Timing: The Prevalence Period references the time from the onset date to the abatement date.

Table 14: Adverse Event Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.120:2017-05-01)					
@classCode	1..1	SHALL		3335-34210	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = OBS
@moodCode	1..1	SHALL		3335-34211	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3335-34183	
item	1..1	SHALL		3335-34184	
@root	1..1	SHALL		3335-34194	2.16.840.1.113883.10.20.28.4.1 20
@extension	1..1	SHALL		3335-34531	2017-05-01
id	1..1	SHALL		3335-34212	
code	1..1	SHALL		3335-34185	
@code	1..1	SHALL		3335-34196	ASSERTION
@codeSystem	1..1	SHALL		3335-34197	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode) = 2.16.840.1.113883.5.4
title	1..1	SHALL		3335-34213	
statusCode	1..1	SHALL		3335-34186	
@code	1..1	SHALL		3335-34198	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
effectiveTime	0..1	MAY	IVL_TS	3335-34187	
low	0..1	MAY		3335-34199	
high	0..1	MAY		3335-34200	
value	1..1	SHALL	CD	3335-34188	
@code	1..1	SHALL		3335-34201	281647001
@codeSystem	1..1	SHALL		3335-34202	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 2.16.840.1.113883.6.96
participation	1..1	SHALL		3335-34189	
@typeCode	1..1	SHALL		3335-34207	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = CSM

role	1..1	SHALL		3335-34190	
@classCode	1..1	SHALL		3335-34206	urn:oid:2.16.840.1.113883.5.110 (HL7RoleClass) = MANU
playingEntity	1..1	SHALL		3335-34191	
@classCode	1..1	SHALL		3335-34204	urn:oid:2.16.840.1.113883.5.41 (HL7EntityClass) = MMAT
@determinerCode	1..1	SHALL		3335-34205	urn:oid:2.16.840.1.113883.5.30 (HL7EntityDeterminer) = KIND
code	1..1	SHALL		3335-34192	
@valueSet	0..1	SHOULD		3335-34203	
participation	0..1	MAY		3335-34500	
@typeCode	1..1	SHALL		3335-34501	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode) = LOC
role	1..1	SHALL		3335-34502	Facility Location (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.92:2017-05-01)
outboundRelationship	0..1	MAY		3335-34497	
@typeCode	1..1	SHALL		3335-34498	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = REF_R
observationCriteria	1..1	SHALL		3335-34499	Severity Observation (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.93:2017-05-01)
observationCriteria	1..1	SHALL		3335-34683	
@classCode	1..1	SHALL		3335-34687	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = OBS
@moodCode	1..1	SHALL		3335-34688	urn:oid:2.16.840.1.113883.5.1001 (HL7ActMood) = EVN
code	1..1	SHALL		3335-34684	
@code	1..1	SHALL		3335-34689	ASSERTION
@codeSystem	1..1	SHALL		3335-34690	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode) = 2.16.840.1.113883.5.4
value	1..1	SHALL	CD	3335-34685	
@valueSet	0..1	SHOULD		3335-34691	

1. **SHALL** contain exactly one [1..1] **@classCode="OBS"** Observation (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6) (CONF:3335-34210).
2. **SHALL** contain exactly one [1..1] **@moodCode="EVN"** Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-34211).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-34183).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-34184).
 - i. This item **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.4.120"** (CONF:3335-34194).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-34531).
4. **SHALL** contain exactly one [1..1] **id** (CONF:3335-34212).
5. **SHALL** contain exactly one [1..1] **code** (CONF:3335-34185).
 - a. This code **SHALL** contain exactly one [1..1] **@code="ASSERTION"** Assertion (CONF:3335-34196).
 - b. This code **SHALL** contain exactly one [1..1] **@codeSystem="2.16.840.1.113883.5.4"** (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-34197).
6. **SHALL** contain exactly one [1..1] **title** (CONF:3335-34213).
7. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-34186).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code="completed"** Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-34198).
8. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-34187).

Note: QDM Attribute: Relevant Period (The Relevant Period references the time from the adverse event began to the time the adverse event completed)

 - a. The effectiveTime, if present, **MAY** contain zero or one [0..1] **low** (CONF:3335-34199).

Note: startTime – the time the adverse event began
 - b. The effectiveTime, if present, **MAY** contain zero or one [0..1] **high** (CONF:3335-34200).

Note: stopTime – the time the adverse event completed
9. **SHALL** contain exactly one [1..1] **value** with **@xsi:type="CD"** (CONF:3335-34188).
 - a. This value **SHALL** contain exactly one [1..1] **@code="281647001"** Adverse Reaction (CONF:3335-34201).
 - b. This value **SHALL** contain exactly one [1..1] **@codeSystem="2.16.840.1.113883.6.96"** (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:3335-34202).
10. **SHALL** contain exactly one [1..1] **participation** (CONF:3335-34189) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode="CSM"** Consumable (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-34207).
 - b. **SHALL** contain exactly one [1..1] **role** (CONF:3335-34190).
 - i. This role **SHALL** contain exactly one [1..1] **@classCode="MANU"** Manufactured (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-34206).
 - ii. This role **SHALL** contain exactly one [1..1] **playingEntity** (CONF:3335-34191).

1. This playingEntity **SHALL** contain exactly one [1..1] **@classCode="MMAT"** Manufactured Material (CodeSystem: HL7EntityClass urn:oid:2.16.840.1.113883.5.41) (CONF:3335-34204).
 2. This playingEntity **SHALL** contain exactly one [1..1] **@determinerCode="KIND"** Kind (CodeSystem: HL7EntityDeterminer urn:oid:2.16.840.1.113883.5.30) (CONF:3335-34205).
 3. This playingEntity **SHALL** contain exactly one [1..1] **code** (CONF:3335-34192).
 - a. This code **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-34203).
11. **MAY** contain zero or one [0..1] **participation** (CONF:3335-34500) such that it
Note: QDM Attribute: Facility Location
- a. **SHALL** contain exactly one [1..1] **@typeCode="LOC"** Location (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-34501).
 - b. **SHALL** contain exactly one [1..1] **Facility Location** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.92:2017-05-01) (CONF:3335-34502).
12. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-34497) such that it
Note: QDM Attribute: Severity
- a. **SHALL** contain exactly one [1..1] **@typeCode="REFR"** (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-34498).
 - b. **SHALL** contain exactly one [1..1] **Severity Observation** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.93:2017-05-01) (CONF:3335-34499).
13. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-34682) such that it
Note: QDM Attribute: Type (The characterization of the reaction (e.g., hypersensitivity, rash, gastroenteric symptoms, etc.)
- a. **SHALL** contain exactly one [1..1] **@typeCode="REFR"** Refers To (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-34686).
 - b. **SHALL** contain exactly one [1..1] **observationCriteria** (CONF:3335-34683).
 - i. This observationCriteria **SHALL** contain exactly one [1..1] **@classCode="OBS"** (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6) (CONF:3335-34687).
 - ii. This observationCriteria **SHALL** contain exactly one [1..1] **@moodCode="EVN"** (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-34688).
 - iii. This observationCriteria **SHALL** contain exactly one [1..1] **code** (CONF:3335-34684).
 1. This code **SHALL** contain exactly one [1..1] **@code="ASSERTION"** Assertion (CONF:3335-34689).
 2. This code **SHALL** contain exactly one [1..1] **@codeSystem="2.16.840.1.113883.5.4"** (CodeSystem:

HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-34690).

- iv. This observationCriteria **SHALL** contain exactly one [1..1] **value** with @xsi:type="CD" (CONF:3335-34685).
 - 1. This value **SHOULD** contain zero or one [0..1] @valueSet (CONF:3335-34691).

Figure 5: Adverse Event Example

```
<observationCriteria classCode="OBS" moodCode="EVN">
    <templateId>
        <item root="2.16.840.1.113883.10.20.28.3.120" extension="2017-05-01"/>
    </templateId>
    <id root="69da3f12-e963-4f6f-baed-3e59cf9b58c8"/>
    <code code="ASSERTION" codeSystem="2.16.840.1.113883.5.4" codeSystemName="ActCode"/>
    <title value="Adverse Event"/>
    <statusCode code="completed"/>
    <value xsi:type="CD" code="281647001" codeSystem="2.16.840.1.113883.6.96"
codeSystemName="SNOMED-CT">
        <displayName value="Adverse Reaction"/>
    </value>
    <participation typeCode="CSM">
        <role classCode="MANU">
            <playingEntity classCode="MMAT" determinerCode="KIND">
                <code valueSet="{$QDMElementValueSetOID}"/>
            </playingEntity>
        </role>
    </participation>
</observationCriteria>
```

5.3 Allergy/Intolerance

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.119:2017-05-01 (open)]

Table 15: Allergy/Intolerance Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Severity Observation

This template represents the QDM data type: Allergy/Intolerance

Allergy is used to address immune-mediated reactions to a substance such as type 1 hypersensitivity reactions, other allergy-like reactions, including pseudo-allergy.

Intolerance is a record of a clinical assessment of a propensity, or a potential risk to an individual, to have a non-immune mediated adverse reaction on future exposure to the specified substance, or class of substance.

Timing: The Prevalence Period references the time from the onset date to the abatement date.

Table 16: Allergy/Intolerance Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.119:2017-05-01)					
@classCode	1..1	SHALL		3335-34241	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = OBS
@moodCode	1..1	SHALL		3335-34242	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3335-34215	
item	1..1	SHALL		3335-34216	
@root	1..1	SHALL		3335-34228	2.16.840.1.113883.10.20.28.4.1 19
@extension	1..1	SHALL		3335-34532	2017-05-01
id	1..1	SHALL		3335-34243	
code	1..1	SHALL		3335-34217	
@code	1..1	SHALL		3335-34229	ASSERTION
@codeSystem	1..1	SHALL		3335-34230	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode) = 2.16.840.1.113883.5.4
title	1..1	SHALL		3335-34244	
statusCode	1..1	SHALL		3335-34218	
@code	1..1	SHALL		3335-34231	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
effectiveTime	0..1	MAY	IVL_TS	3335-34219	
low	0..1	MAY		3335-34232	
high	0..1	MAY		3335-34233	
value	1..1	SHALL	CD	3335-34220	
@code	1..1	SHALL		3335-34234	106190000
@codeSystem	1..1	SHALL		3335-34235	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 2.16.840.1.113883.6.96
participation	1..1	SHALL		3335-34221	
@typeCode	1..1	SHALL		3335-34240	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = CSM

role	1..1	SHALL		3335-34222	
@classCode	1..1	SHALL		3335-34239	urn:oid:2.16.840.1.113883.5.110 (HL7RoleClass) = MANU
playingEntity	1..1	SHALL		3335-34223	
@classCode	1..1	SHALL		3335-34237	urn:oid:2.16.840.1.113883.5.41 (HL7EntityClass) = MMAT
@determinerCode	1..1	SHALL		3335-34238	urn:oid:2.16.840.1.113883.5.30 (HL7EntityDeterminer) = KIND
code	1..1	SHALL		3335-34224	
@valueSet	0..1	SHOULD		3335-34236	
outboundRelationship	0..1	MAY		3335-34214	
@typeCode	1..1	SHALL		3335-34226	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = REF_R
observationCriteria	1..1	SHALL		3335-34225	Severity Observation (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.93:2017-05-01)
outboundRelationship	0..1	MAY		3335-34692	
@typeCode	1..1	SHALL		3335-34695	REF_R
observationCriteria	1..1	SHALL		3335-34693	
@classCode	1..1	SHALL		3335-34696	OBS
@moodCode	1..1	SHALL		3335-34697	EVN
code	1..1	SHALL		3335-34694	
@code	1..1	SHALL		3335-34698	ASSERTION
@codeSystem	1..1	SHALL		3335-34699	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode) = 2.16.840.1.113883.5.4
value	1..1	SHALL	CD	3335-34700	
@valueSet	0..1	SHOULD		3335-34701	

1. **SHALL** contain exactly one [1..1] @classCode="OBS" Observation (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6) (CONF:3335-34241).

2. **SHALL** contain exactly one [1..1] @moodCode="EVN" Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-34242).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-34215).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-34216).
 - i. This item **SHALL** contain exactly one [1..1] @root="2.16.840.1.113883.10.20.28.4.119" (CONF:3335-34228).
 - ii. This item **SHALL** contain exactly one [1..1] @extension="2017-05-01" (CONF:3335-34532).
4. **SHALL** contain exactly one [1..1] **id** (CONF:3335-34243).
5. **SHALL** contain exactly one [1..1] **code** (CONF:3335-34217).
 - a. This code **SHALL** contain exactly one [1..1] @code="ASSERTION" Assertion (CONF:3335-34229).
 - b. This code **SHALL** contain exactly one [1..1] @codeSystem="2.16.840.1.113883.5.4" (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-34230).
6. **SHALL** contain exactly one [1..1] **title** (CONF:3335-34244).
7. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-34218).
 - a. This statusCode **SHALL** contain exactly one [1..1] @code="completed" Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-34231).
8. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-34219).

Note: QDM Attribute: Prevalence Period (The Prevalence Period references the time from the onset date to the abatement date)

 - a. The effectiveTime, if present, **MAY** contain zero or one [0..1] **low** (CONF:3335-34232).

Note: Onset Date
 - b. The effectiveTime, if present, **MAY** contain zero or one [0..1] **high** (CONF:3335-34233).

Note: Abatement Date
9. **SHALL** contain exactly one [1..1] **value** with @xsi:type="CD" (CONF:3335-34220).
 - a. This value **SHALL** contain exactly one [1..1] @code="106190000" Allergy (CONF:3335-34234).
 - b. This value **SHALL** contain exactly one [1..1] @codeSystem="2.16.840.1.113883.6.96" (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:3335-34235).
10. **SHALL** contain exactly one [1..1] **participation** (CONF:3335-34221) such that it Note: Substance
 - a. **SHALL** contain exactly one [1..1] @typeCode="CSM" Consumable (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-34240).
 - b. **SHALL** contain exactly one [1..1] **role** (CONF:3335-34222).
 - i. This role **SHALL** contain exactly one [1..1] @classCode="MANU" Manufactured (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-34239).
 - ii. This role **SHALL** contain exactly one [1..1] **playingEntity** (CONF:3335-34223).

1. This playingEntity **SHALL** contain exactly one [1..1] **@classCode="MMAT"** Manufactured Material (CodeSystem: HL7EntityClass urn:oid:2.16.840.1.113883.5.41) (CONF:3335-34237).
 2. This playingEntity **SHALL** contain exactly one [1..1] **@determinerCode="KIND"** Kind (CodeSystem: HL7EntityDeterminer urn:oid:2.16.840.1.113883.5.30) (CONF:3335-34238).
 3. This playingEntity **SHALL** contain exactly one [1..1] **code** (CONF:3335-34224).
 - a. This code **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-34236).
11. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-34214) such that it
- Note: QDM Attribute: Severity
- a. **SHALL** contain exactly one [1..1] **@typeCode="REFR"** Refers To (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-34226).
 - b. **SHALL** contain exactly one [1..1] **Severity Observation** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.93:2017-05-01) (CONF:3335-34225).
12. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-34692) such that it
- Note: QDM Attribute: Type (The characterization of the reaction (e.g., hypersensitivity, rash, gastroenteric symptoms, etc.)
- a. **SHALL** contain exactly one [1..1] **@typeCode="REFR"** Refers To (CONF:3335-34695).
 - b. **SHALL** contain exactly one [1..1] **observationCriteria** (CONF:3335-34693).
 - i. This observationCriteria **SHALL** contain exactly one [1..1] **@classCode="OBS"** (CONF:3335-34696).
 - ii. This observationCriteria **SHALL** contain exactly one [1..1] **@moodCode="EVN"** (CONF:3335-34697).
 - iii. This observationCriteria **SHALL** contain exactly one [1..1] **code** (CONF:3335-34694).
 1. This code **SHALL** contain exactly one [1..1] **@code="ASSERTION"** Assertion (CONF:3335-34698).
 2. This code **SHALL** contain exactly one [1..1] **@codeSystem="2.16.840.1.113883.5.4"** (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-34699).
 - iv. This observationCriteria **SHALL** contain exactly one [1..1] **value** with **@xsi:type="CD"** (CONF:3335-34700).
 1. This value **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-34701).

Figure 6: Allergy/Intolerance Example

```
<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.119" extension="2017-05-01"/>
  </templateId>
  <id root="dd055113-6d52-4b3f-928e-235f8e52c4c0"/>
  <code code="ASSERTION" codeSystem="2.16.840.1.113883.5.4" codeSystemName="ActCode"/>
  <title value="Allergy Intolerance"/>
  <statusCode code="completed"/>
  <value xsi:type="CD" code="106190000" codeSystem="2.16.840.1.113883.6.96"
codeSystemName="SNOMED-CT">
    <displayName value="Allergy"/>
  </value>
  <participation typeCode="CSM">
    <role classCode="MANU">
      <playingEntity classCode="MMAT" determinerCode="KIND">
        <code valueSet="{$QDMElementValueSetOID}"/>
      </playingEntity>
    </role>
  </participation>
</observationCriteria>
```

5.4 Assessment, Performed

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.117:2017-05-01 (open)]

Table 17: Assessment, Performed Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Component Reason

This template represents the QDM data type: Assessment, Performed.

Assessment is a resource used to define specific observations that clinicians use to guide treatment of the patient. An assessment can be a single question, or observable entity with an expected response, an organized collection of questions intended to solicit information from patients, providers or other individuals, or a single observable entity that is part of such a collection of questions. The Assessment Performed template represents the completion of an assessment.

Timing: The time the assessment is completed; author time.

Table 18: Assessment, Performed Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.117:2017-05-01)					
@classCode	1..1	SHALL		3335-34142	OBS
@moodCode	1..1	SHALL		3335-34143	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
@actionNegationInd	0..1	MAY		3335-34144	
templateId	1..1	SHALL		3335-34126	
item	1..1	SHALL		3335-34127	
@root	1..1	SHALL		3335-34134	2.16.840.1.113883.10.20.28.4.1 17
@extension	1..1	SHALL		3335-34254	2017-05-01
id	1..1	SHALL		3335-34145	
code	1..1	SHALL		3335-34128	
@valueSet	0..1	SHOULD		3335-34136	
title	1..1	SHALL		3335-34146	
statusCode	1..1	SHALL		3335-34129	
@code	1..1	SHALL		3335-34137	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
effectiveTime	0..1	MAY	IVL_TS	3335-34386	
low	1..1	SHALL		3335-34387	
value	0..1	MAY		3335-34147	
methodCode	0..1	MAY		3335-34246	
item	0..1	SHOULD		3335-34247	
@valueSet	0..1	SHOULD		3335-34249	
outboundRelationship	0..1	MAY		3335-34245	
@typeCode	1..1	SHALL		3335-34250	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = RSON

observationCriteria	1..1	SHALL		3335-34248	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01)
outboundRelationship	0..*	MAY		3335-34608	
@typeCode	1..1	SHALL		3335-34609	REFR
observationCriteria	1..1	SHALL		3335-34610	Component (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.121:2017-05-01)

1. **SHALL** contain exactly one [1..1] **@classCode="OBS"** Observation (CONF:3335-34142).
2. **SHALL** contain exactly one [1..1] **@moodCode="EVN"** Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-34143).
3. **MAY** contain zero or one [0..1] **@actionNegationInd** (CONF:3335-34144).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-34126).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-34127).
 - i. This item **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.4.117"** (CONF:3335-34134).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-34254).
5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-34145).
6. **SHALL** contain exactly one [1..1] **code** (CONF:3335-34128).
 - a. This code **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-34136).
7. **SHALL** contain exactly one [1..1] **title** (CONF:3335-34146).
8. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-34129).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code="completed"** Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-34137).
9. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-34386).
 - a. The effectiveTime, if present, **SHALL** contain exactly one [1..1] **low** (CONF:3335-34387).
Note: QDM Attribute: Author Time (The time the assessment is completed)
10. **MAY** contain zero or one [0..1] **value** (CONF:3335-34147).
Note: QDM Attribute: Result
11. **MAY** contain zero or one [0..1] **methodCode** (CONF:3335-34246).
Note: QDM Attribute: Method
 - a. The methodCode, if present, **SHOULD** contain zero or one [0..1] **item** (CONF:3335-34247).
 - i. The item, if present, **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-34249).
12. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-34245) such that it
Note: QDM Attribute: Reason

- a. **SHALL** contain exactly one [1..1] @typeCode="RSON" Has Reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-34250).
 - b. **SHALL** contain exactly one [1..1] Reason (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-34248).
13. **MAY** contain zero or more [0..*] **outboundRelationship** (CONF:3335-34608) such that it Note: QDM Attribute: Component
- a. **SHALL** contain exactly one [1..1] @typeCode="REFR" Refers To (CONF:3335-34609).
 - b. **SHALL** contain exactly one [1..1] Component (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.121:2017-05-01) (CONF:3335-34610).

Figure 7: Assessment, Performed Example

```
<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.117" extension="2017-05-01"/>
  </templateId>
  <id root="08f25bc3-5eff-49a5-b2ec-f66f1027574c"/>
  <code valueSet="{$QDMElementValueSetOID}"/>
  <title value="Assessment, Performed"/>
  <statusCode code="completed"/>
</observationCriteria>
```

5.5 Assessment, Recommended

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.118:2017-05-01 (open)]

Table 19: Assessment, Recommended Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Reason

This template represents the QDM data type: Assessment, Recommended.

Assessment is a resource used to define specific observations that clinicians use to guide treatment of the patient. An assessment can be a single question, or observable entity with an expected response, an organized collection of questions intended to solicit information from patients, providers or other individuals, or a single observable entity that is part of such a collection of questions. This template represents a recommendation to perform an assessment.

All QDM datatypes referring to recommendations address the time that the recommendation occurs, a single point in time. Vendors have expressed concerns that recommendations are not necessarily captured or managed in a standard manner as part of structured data capture in clinical workflow; many are documented as part of assessments in narrative text. Measure developers should address feasibility of clinical workflow to capture recommendations when evaluating measures.

Timing: The time the recommendation is authored (i.e., provided to the patient).

Table 20: Assessment, Recommended Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.118:2017-05-01)					
@classCode	1..1	SHALL		3335-34165	OBS
@moodCode	1..1	SHALL		3335-34166	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = INT
@actionNegationInd	0..1	MAY		3335-34167	
templateId	1..1	SHALL		3335-34149	
item	1..1	SHALL		3335-34150	
@root	1..1	SHALL		3335-34157	2.16.840.1.113883.10.20.28.4.1 18
@extension	1..1	SHALL		3335-34273	2017-05-01
id	1..1	SHALL		3335-34168	
code	1..1	SHALL		3335-34151	
@valueSet	0..1	SHOULD		3335-34159	
title	1..1	SHALL		3335-34169	
statusCode	1..1	SHALL		3335-34152	
@code	1..1	SHALL		3335-34160	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = active
methodCode	0..1	MAY		3335-34265	
item	0..1	SHOULD		3335-34266	
@valueSet	0..1	SHOULD		3335-34268	
participation	0..1	MAY		3335-34270	
@typeCode	1..1	SHALL		3335-34274	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = AUT
time	1..1	SHALL		3335-34271	
low	1..1	SHALL		3335-34275	
role	1..1	SHALL		3335-34272	
@classCode	1..1	SHALL		3335-34276	ROL

id	0..1	MAY		3335-34277	
outboundRelationship	0..1	MAY		3335-34264	
@typeCode	1..1	SHALL		3335-34269	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-34267	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01)

1. **SHALL** contain exactly one [1..1] **@classCode="OBS"** Observation (CONF:3335-34165).
2. **SHALL** contain exactly one [1..1] **@moodCode="INT"** intent (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-34166).
3. **MAY** contain zero or one [0..1] **@actionNegationInd** (CONF:3335-34167).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-34149).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-34150).
 - i. This item **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.4.118"** (CONF:3335-34157).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-34273).
5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-34168).
6. **SHALL** contain exactly one [1..1] **code** (CONF:3335-34151).
 - a. This code **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-34159).
7. **SHALL** contain exactly one [1..1] **title** (CONF:3335-34169).
8. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-34152).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code="active"** Active (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-34160).
9. **MAY** contain zero or one [0..1] **methodCode** (CONF:3335-34265).
Note: QDM Attribute: Method
 - a. The methodCode, if present, **SHOULD** contain zero or one [0..1] **item** (CONF:3335-34266).
 - i. The item, if present, **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-34268).
10. **MAY** contain zero or one [0..1] **participation** (CONF:3335-34270) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode="AUT"** Author (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-34274).
 - b. **SHALL** contain exactly one [1..1] **time** (CONF:3335-34271).
 - i. This time **SHALL** contain exactly one [1..1] **low** (CONF:3335-34275).
Note: QDM Attribute: Author Time (The time the recommendation is authored)
 - c. **SHALL** contain exactly one [1..1] **role** (CONF:3335-34272).

- i. This role **SHALL** contain exactly one [1..1] @classCode="ROL" Role (CONF:3335-34276).
 - ii. This role **MAY** contain zero or one [0..1] **id** (CONF:3335-34277).
11. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-34264) such that it

Note: QDM Attribute: Reason

- a. **SHALL** contain exactly one [1..1] @typeCode="RSON" Has Reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-34269).
- b. **SHALL** contain exactly one [1..1] **Reason** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-34267).

Figure 8: Assessment, Recommended Example

```
<observationCriteria classCode="OBS" moodCode="INT">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.118" extension="2017-05-01"/>
  </templateId>
  <id root="904c1629-8a5d-4a33-846e-994a97a3caf0"/>
  <code valueSet="{$QDMElementValueSetOID}"/>
  <title value="Assessment, Recommended"/>
  <statusCode code="active"/>
</observationCriteria>
```

5.6 Care Goal

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.7:2017-05-01 (open)]

Table 21: Care Goal Contexts

Contained By:	Contains:
Data Criteria Section (optional)	

This template represents the QDM data type: Care Goal.

Care Goal represents a defined target or measure to be achieved in the process of patient care, that is, an expected outcome. A typical goal is expressed as a change in status expected at a defined future time. That change can be an observation represented by other QDM categories (diagnostic tests, laboratory tests, symptoms, etc.) scheduled for some time in the future and with a particular value. A goal can be found in the plan of care (care plan), the structure used by all stakeholders, including the patient, to define the management actions for the various conditions, problems, or issues identified for the target of the plan. This structure, through which the goals and care-planning actions and processes can be organized, planned, communicated, and checked for completion, is represented in the QDM categories as a Record Artifact. A time/date stamp is required. Specifically, a care plan is composed of the following elements:

- Problem, which is managed by other QDM standard categories (condition/diagnosis/problem) and their related data elements.
- Procedure, which is managed by other standard categories and their related data elements. Note that procedures are a continuum of interventions ranging from actions patients can do for themselves to those that can be performed by others (caregivers or clinical professionals), including detailed complex surgical procedures requiring highly trained physicians, nurses, and state-of-the-art facilities.
- Goal, which is what is expected to happen.
- Outcome, which is what happened. An outcome can be shown by other QDM standard categories and their related data elements.

Table 22: Care Goal Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.7:2017-05-01)					
@classCode	1..1	SHALL		3335-27869	OBS
@moodCode	1..1	SHALL		3335-27870	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = GOL
templateId	1..1	SHALL		3335-27872	
item	1..1	SHALL		3335-28447	
@root	1..1	SHALL		3335-28448	2.16.840.1.113883.10.20.28.4.7
@extension	1..1	SHALL		3335-33051	2017-05-01
id	1..1	SHALL		3335-32479	
code	1..1	SHALL		3335-27873	
@code	1..1	SHALL		3335-27874	ASSERTION
@codeSystem	1..1	SHALL		3335-27875	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode) = 2.16.840.1.113883.5.4
title	1..1	SHALL		3335-32480	
statusCode	1..1	SHALL		3335-32481	
@code	1..1	SHALL		3335-32482	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = active
effectiveTime	0..1	MAY	IVL_TS	3335-32488	
low	0..1	MAY		3335-32489	
high	0..1	MAY		3335-32490	
value	1..1	SHALL	CD	3335-27876	
@valueSet	0..1	SHOULD		3335-32483	
outboundRelationship	0..1	MAY		3335-33032	
observationCriteria	1..1	SHALL		3335-33033	
@classCode	1..1	SHALL		3335-33034	OBS

id	1..1	SHALL		3335-33035	
code	1..1	SHALL		3335-33036	
@code	1..1	SHALL		3335-33037	urn:oid:2.16.840.1.113883.5.107 (HL7RoleLinkType) = REL
@codeSystem	1..1	SHALL		3335-33038	2.16.840.1.113883.5.107
value	1..1	SHALL	CD	3335-33039	
@valueSet	0..1	SHOULD		3335-33040	
outboundRelationship	0..1	MAY		3335-33041	
@typeCode	1..1	SHALL		3335-33044	GOAL
observationCriteria	1..1	SHALL		3335-33042	
@classCode	1..1	SHALL		3335-33045	OBS
@moodCode	1..1	SHALL		3335-33046	GOL
id	1..1	SHALL		3335-33047	
code	1..1	SHALL		3335-33043	
@code	1..1	SHALL		3335-33048	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 385676005
@codeSystem	1..1	SHALL		3335-33049	2.16.840.1.113883.6.96
value	1..1	SHALL		3335-33050	

1. **SHALL** contain exactly one [1..1] **@classCode="OBS"** Observation (CONF:3335-27869).
2. **SHALL** contain exactly one [1..1] **@moodCode="GOL"** Goal (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-27870).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-27872).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-28447).
 - i. This item **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.4.7"** (CONF:3335-28448).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-33051).
4. **SHALL** contain exactly one [1..1] **id** (CONF:3335-32479).
5. **SHALL** contain exactly one [1..1] **code** (CONF:3335-27873).
 - a. This code **SHALL** contain exactly one [1..1] **@code="ASSERTION"** (CONF:3335-27874).

- b. This code **SHALL** contain exactly one [1..1]
`@codeSystem="2.16.840.1.113883.5.4"` (CodeSystem: HL7ActCode
`urn:oid:2.16.840.1.113883.5.4`) (CONF:3335-27875).
- 6. **SHALL** contain exactly one [1..1] **title** (CONF:3335-32480).
- 7. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-32481).
 - a. This statusCode **SHALL** contain exactly one [1..1] `@code="active"` (CodeSystem:
`HL7ActStatus` `urn:oid:2.16.840.1.113883.5.14`) (CONF:3335-32482).
- 8. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-32488).

Note: QDM Attribute: Relevant Period (The Relevant Period references the period between Start Time and Stop Time)

 - a. The effectiveTime, if present, **MAY** contain zero or one [0..1] **low** (CONF:3335-32489).
 Note: Start Time (when the goal is recorded, and therefore should be considered effective)
 - b. The effectiveTime, if present, **MAY** contain zero or one [0..1] **high** (CONF:3335-32490).
 Note: Stop Time (when the target outcome is expected to be met)
- 9. **SHALL** contain exactly one [1..1] **value** with `@xsi:type="CD"` (CONF:3335-27876).
 - a. This value **SHOULD** contain zero or one [0..1] `@valueSet` (CONF:3335-32483).
- 10. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-33032) such that it
 Note: QDM Attribute: Related To
 - a. **SHALL** contain exactly one [1..1] **observationCriteria** (CONF:3335-33033).
 - i. This observationCriteria **SHALL** contain exactly one [1..1] `@classCode="OBS"` Observation (CONF:3335-33034).
 - ii. This observationCriteria **SHALL** contain exactly one [1..1] **id** (CONF:3335-33035).
 - iii. This observationCriteria **SHALL** contain exactly one [1..1] **code** (CONF:3335-33036).
 - 1. This code **SHALL** contain exactly one [1..1] `@code="REL"` Related (CodeSystem: HL7RoleLinkType
`urn:oid:2.16.840.1.113883.5.107`) (CONF:3335-33037).
 - 2. This code **SHALL** contain exactly one [1..1] `@codeSystem="2.16.840.1.113883.5.107"` (CONF:3335-33038).
 - iv. This observationCriteria **SHALL** contain exactly one [1..1] **value** with `@xsi:type="CD"` (CONF:3335-33039).
 - 1. This value **SHOULD** contain zero or one [0..1] `@valueSet` (CONF:3335-33040).
- 11. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-33041) such that it
 Note: QDM Attribute: Target Outcome
 - a. **SHALL** contain exactly one [1..1] `@typeCode="GOAL"` (CONF:3335-33044).
 - b. **SHALL** contain exactly one [1..1] **observationCriteria** (CONF:3335-33042).
 - i. This observationCriteria **SHALL** contain exactly one [1..1] `@classCode="OBS"` (CONF:3335-33045).
 - ii. This observationCriteria **SHALL** contain exactly one [1..1] `@moodCode="GOL"` (CONF:3335-33046).

- iii. This observationCriteria **SHALL** contain exactly one [1..1] **id** (CONF:3335-33047).
- iv. This observationCriteria **SHALL** contain exactly one [1..1] **code** (CONF:3335-33043).
 - 1. This code **SHALL** contain exactly one [1..1] `@code="385676005"` Outcome of action (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:3335-33048).
 - 2. This code **SHALL** contain exactly one [1..1] `@codeSystem="2.16.840.1.113883.6.96"` (CONF:3335-33049).
- v. This observationCriteria **SHALL** contain exactly one [1..1] **value** (CONF:3335-33050).

Figure 9: Care Goal Example

```
<observationCriteria classCode="OBS" moodCode="GOL">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.7" extension="2017-05-01"/>
  </templateId>
  <id root="f0a729a3-6fe8-4e79-acee-b4dd16b3e755"/>
  <code code="ASSERTION" codeSystem="2.16.840.1.113883.5.4"/>
  <title value="Care Goal"/>
  <statusCode code="active"/>
  <value xsi:type="CD" valueSet="{$QDMElementValueSetOID}"/>
</observationCriteria>
```

5.7 Cause

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.105:2017-05-01 (open)]

Table 23: Cause Contexts

Contained By:	Contains:
Patient Characteristic Expired (optional)	

This template represents the QDM attribute: Cause.

This represents the recorded cause of death.

Table 24: Cause Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.105:2017-05-01)					
@classCode	1..1	SHALL		3335-33456	OBS
@moodCode	1..1	SHALL		3335-33457	EVN
templateId	1..1	SHALL		3335-33453	
item	1..1	SHALL		3335-33454	
@root	1..1	SHALL		3335-33458	2.16.840.1.113883.10.20.28.4.105
@extension	1..1	SHALL		3335-34647	2017-05-01
id	1..1	SHALL		3335-33459	
code	1..1	SHALL		3335-33455	
@code	1..1	SHALL		3335-33460	42752001
@codeSystem	1..1	SHALL		3335-33461	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 2.16.840.1.113883.6.96
title	1..1	SHALL		3335-33463	
value	1..1	SHALL	CD	3335-33462	
@valueSet	0..1	SHOULD		3335-34663	

1. **SHALL** contain exactly one [1..1] @classCode="OBS" Observation (CONF:3335-33456).
2. **SHALL** contain exactly one [1..1] @moodCode="EVN" Event (CONF:3335-33457).
3. **SHALL** contain exactly one [1..1] templateId (CONF:3335-33453).
 - a. This templateId **SHALL** contain exactly one [1..1] item (CONF:3335-33454).
 - i. This item **SHALL** contain exactly one [1..1] @root="2.16.840.1.113883.10.20.28.4.105" (CONF:3335-33458).
 - ii. This item **SHALL** contain exactly one [1..1] @extension="2017-05-01" (CONF:3335-34647).
4. **SHALL** contain exactly one [1..1] id (CONF:3335-33459).
5. **SHALL** contain exactly one [1..1] code (CONF:3335-33455).
 - a. This code **SHALL** contain exactly one [1..1] @code="42752001" Due to (CONF:3335-33460).

- b. This code **SHALL** contain exactly one [1..1] @codeSystem="2.16.840.1.113883.6.96" (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:3335-33461).
- 6. **SHALL** contain exactly one [1..1] **title** (CONF:3335-33463).
- 7. **SHALL** contain exactly one [1..1] **value** with @xsi:type="CD" (CONF:3335-33462).
 - a. This value **SHOULD** contain zero or one [0..1] @valueSet (CONF:3335-34663).

Figure 10: Cause Example

```
<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.105" extension="2017-05-01"/>
  </templateId>
  <id root="302625d2-e41a-4d51-ba11-af0dfc81a11b"/>
  <code code="42752001" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED CT">
    <displayName value="Due to"/>
  </code>
  <title value="Cause"/>
  <value xsi:type="CD" valueSet="{$QDMElementValueSetOID}"/>
</observationCriteria>
```

5.8 Communication: From Patient to Provider

[actCriteria: identifier urn:hl7ii:2.16.840.1.113883.10.20.28.4.8:2017-05-01
(open)]

Table 25: Communication: From Patient to Provider Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Reason

This template represents the QDM data type: Communication: From Patient to Provider.

This represents a communication initiated by the patient and received by the provider.

Timing: The time the communication occurs, or is sent; author time.

Table 26: Communication: From Patient to Provider Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
actCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.8:2017-05-01)					
@classCode	1..1	SHALL		3335-27877	ACT
@moodCode	1..1	SHALL		3335-27878	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
@actionNegationInd	0..1	MAY		3335-31929	
templateId	1..1	SHALL		3335-27879	
item	1..1	SHALL		3335-31930	
@root	1..1	SHALL		3335-31931	2.16.840.1.113883.10.20.28.4.8
@extension	1..1	SHALL		3335-33638	2017-05-01
id	1..1	SHALL		3335-31932	
code	1..1	SHALL		3335-33473	
@valueSet	0..1	SHOULD		3335-33474	
title	1..1	SHALL		3335-31933	
statusCode	1..1	SHALL		3335-31934	
@code	1..1	SHALL		3335-31935	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
effectiveTime	0..1	MAY	IVL_TS	3335-31936	
low	1..1	SHALL		3335-31937	
participation	1..1	SHALL		3335-27883	
@typeCode	1..1	SHALL		3335-27884	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = AUT
role	1..1	SHALL		3335-31939	
@classCode	1..1	SHALL		3335-31940	urn:oid:2.16.840.1.113883.5.11 0 (HL7RoleClass) = PAT
participation	1..1	SHALL		3335-27887	
@typeCode	1..1	SHALL		3335-27888	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = IRCP
role	1..1	SHALL		3335-31941	

@classCode	1..1	SHALL		3335-31942	urn:oid:2.16.840.1.113883.5.110 (HL7RoleClass) = ASSIGNED
code	1..1	SHALL		3335-31943	
@code	1..1	SHALL		3335-31944	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 158965000
@codeSystem	1..1	SHALL		3335-31945	2.16.840.1.113883.6.96
outboundRelationship	0..1	MAY		3335-33468	
@typeCode	1..1	SHALL		3335-33471	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-33472	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01)

1. **SHALL** contain exactly one [1..1] **@classCode**="ACT" Act (CONF:3335-27877).
2. **SHALL** contain exactly one [1..1] **@moodCode**="EVN" Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-27878).
3. **MAY** contain zero or one [0..1] **@actionNegationInd** (CONF:3335-31929).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-27879) such that it
 - a. **SHALL** contain exactly one [1..1] **item** (CONF:3335-31930).
 - i. This item **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.28.4.8" (CONF:3335-31931).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension**="2017-05-01" (CONF:3335-33638).
5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-31932).
6. **SHALL** contain exactly one [1..1] **code** (CONF:3335-33473).
 - a. This code **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-33474).
7. **SHALL** contain exactly one [1..1] **title** (CONF:3335-31933).
8. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-31934).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code**="completed" Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-31935).
9. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-31936).
 - a. The effectiveTime, if present, **SHALL** contain exactly one [1..1] **low** (CONF:3335-31937).
Note: QDM Attribute: Author Datetime (The time the communication occurs, or is sent)
10. **SHALL** contain exactly one [1..1] **participation** (CONF:3335-27883) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode**="AUT" Author (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-27884).
 - b. **SHALL** contain exactly one [1..1] **role** (CONF:3335-31939).

- i. This role **SHALL** contain exactly one [1..1] @classCode="PAT" Patient (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-31940).
11. **SHALL** contain exactly one [1..1] **participation** (CONF:3335-27887) such that it
- a. **SHALL** contain exactly one [1..1] @typeCode="IRCP" Information Recipient (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-27888).
 - b. **SHALL** contain exactly one [1..1] **role** (CONF:3335-31941).
 - i. This role **SHALL** contain exactly one [1..1] @classCode="ASSIGNED" Assigned (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-31942).
 - ii. This role **SHALL** contain exactly one [1..1] **code** (CONF:3335-31943).
 - 1. This code **SHALL** contain exactly one [1..1] @code="158965000" Medical practitioner (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:3335-31944).
 - 2. This code **SHALL** contain exactly one [1..1] @codeSystem="2.16.840.1.113883.6.96" SNOMED-CT (CONF:3335-31945).
12. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-33468) such that it
- a. **SHALL** contain exactly one [1..1] @typeCode="RSON" Has Reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-33471).
 - b. **SHALL** contain exactly one [1..1] **Reason** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-33472).

Figure 11: Communication: From Patient to Provider Example

```

<actCriteria classCode="ACT" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.8" extension="2017-05-01"/>
  </templateId>
  <id root="6bf11fc2-78f9-4517-bafa-7988b350e188"/>
  <code valueSet="{$QDMElementValueSetOID}"/>
  <title value="Communication: From Patient to Provider"/>
  <statusCode code="completed"/>
  <participation typeCode="AUT">
    <role classCode="PAT"/>
  </participation>
  <participation typeCode="IRCP">
    <role classCode="ASSIGNED">
      <code code="158965000" codeSystem="2.16.840.1.113883.6.96">
        <displayName value="Medical Practitioner"/>
      </code>
    </role>
  </participation>
</actCriteria>

```

5.9 Communication: From Provider to Patient

[actCriteria: identifier urn:hl7ii:2.16.840.1.113883.10.20.28.4.9:2017-05-01
(open)]

Table 27: Communication: From Provider to Patient Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Reason

This template represents the QDM data type: Communication: From Provider to Patient.

This represents the provision of any communication to the patient. (e.g., results, findings, plans for care, medical advice, instructions, educational resources, appointments).

Timing: The time the communication occurs, or is sent; author time.

Table 28: Communication: From Provider to Patient Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
actCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.9:2017-05-01)					
@classCode	1..1	SHALL		3335-32075	ACT
@moodCode	1..1	SHALL		3335-32076	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
@actionNegationInd	0..1	MAY		3335-32077	
templateId	1..1	SHALL		3335-32078	
item	1..1	SHALL		3335-32079	
@root	1..1	SHALL		3335-32080	2.16.840.1.113883.10.20.28.4.9
@extension	1..1	SHALL		3335-33639	2017-05-01
id	1..1	SHALL		3335-32081	
code	1..1	SHALL		3335-33521	
@valueSet	0..1	SHOULD		3335-33522	
title	1..1	SHALL		3335-32082	
statusCode	1..1	SHALL		3335-32083	
@code	1..1	SHALL		3335-32084	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
effectiveTime	0..1	MAY	IVL_TS	3335-32085	
low	1..1	SHALL		3335-32086	
participation	1..1	SHALL		3335-32088	
@typeCode	1..1	SHALL		3335-32089	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = IRCP
role	1..1	SHALL		3335-32090	
@classCode	1..1	SHALL		3335-32091	urn:oid:2.16.840.1.113883.5.11 0 (HL7RoleClass) = PAT
participation	1..1	SHALL		3335-32092	
@typeCode	1..1	SHALL		3335-32093	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = AUT
role	1..1	SHALL		3335-32094	

@classCode	1..1	SHALL		3335-32095	urn:oid:2.16.840.1.113883.5.110 (HL7RoleClass) = ASSIGNED
code	1..1	SHALL		3335-32096	
@code	1..1	SHALL		3335-32097	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 158965000
@codeSystem	1..1	SHALL		3335-32098	2.16.840.1.113883.6.96
outboundRelationship	0..1	MAY		3335-33516	
@typeCode	1..1	SHALL		3335-33519	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-33520	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01)

1. **SHALL** contain exactly one [1..1] **@classCode="ACT"** Act (CONF:3335-32075).
2. **SHALL** contain exactly one [1..1] **@moodCode="EVN"** Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-32076).
3. **MAY** contain zero or one [0..1] **@actionNegationInd** (CONF:3335-32077).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-32078) such that it
 - a. **SHALL** contain exactly one [1..1] **item** (CONF:3335-32079).
 - i. This item **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.4.9"** (CONF:3335-32080).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-33639).
5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-32081).
6. **SHALL** contain exactly one [1..1] **code** (CONF:3335-33521).
 - a. This code **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-33522).
7. **SHALL** contain exactly one [1..1] **title** (CONF:3335-32082).
8. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-32083).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code="completed"** Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-32084).
9. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-32085).
 - a. The effectiveTime, if present, **SHALL** contain exactly one [1..1] **low** (CONF:3335-32086).
Note: QDM Attribute: Author Datetime (The time the communication occurs, or is sent)
10. **SHALL** contain exactly one [1..1] **participation** (CONF:3335-32088) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode="IRCP"** Information Recipient (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-32089).

- b. **SHALL** contain exactly one [1..1] **role** (CONF:3335-32090).
 - i. This role **SHALL** contain exactly one [1..1] **@classCode="PAT"** Patient (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-32091).
11. **SHALL** contain exactly one [1..1] **participation** (CONF:3335-32092) such that it
- a. **SHALL** contain exactly one [1..1] **@typeCode="AUT"** Author (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-32093).
 - b. **SHALL** contain exactly one [1..1] **role** (CONF:3335-32094).
 - i. This role **SHALL** contain exactly one [1..1] **@classCode="ASSIGNED"** Assigned (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-32095).
 - ii. This role **SHALL** contain exactly one [1..1] **code** (CONF:3335-32096).
 - 1. This code **SHALL** contain exactly one [1..1] **@code="158965000"** Medical practitioner (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:3335-32097).
 - 2. This code **SHALL** contain exactly one [1..1] **@codeSystem="2.16.840.1.113883.6.96"** SNOMED-CT (CONF:3335-32098).
12. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-33516) such that it
- a. **SHALL** contain exactly one [1..1] **@typeCode="RSON"** Has Reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-33519).
 - b. **SHALL** contain exactly one [1..1] **Reason** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-33520).

Figure 12: Communication: From Provider to Patient Example

```

<actCriteria classCode="ACT" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.9" extension="2017-05-01"/>
  </templateId>
  <id root="779f04e6-60f0-4c34-987f-7e6188907a5c"/>
  <code valueSet="{$QDMElementValueSetOID}"/>
  <title value="Communication: From Provider to Patient"/>
  <statusCode code="completed"/>
  <participation typeCode="IRCP">
    <role classCode="PAT"/>
  </participation>
  <participation typeCode="AUT">
    <role classCode="ASSIGNED">
      <code code="158965000" codeSystem="2.16.840.1.113883.6.96">
        <displayName value="Medical Practitioner"/>
      </code>
    </role>
  </participation>
</actCriteria>

```

5.10 Communication: From Provider to Provider

[actCriteria: identifier urn:hl7ii:2.16.840.1.113883.10.20.28.4.10:2017-05-01
(open)]

Table 29: Communication: From Provider to Provider Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Reason

This template represents the QDM data type: Communication: From Provider to Provider.

This represents the provision of any communication from one clinician to another regarding findings, assessments, plans of care, consultative advice, instructions, educational resources, etc.

Timing: The time the communication occurs, or is sent; author time.

Table 30: Communication: From Provider to Provider Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
actCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.10:2017-05-01)					
@classCode	1..1	SHALL		3335-32127	ACT
@moodCode	1..1	SHALL		3335-32128	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
@actionNegationInd	0..1	MAY		3335-32129	
templateId	1..1	SHALL		3335-32130	
item	1..1	SHALL		3335-32131	
@root	1..1	SHALL		3335-32132	2.16.840.1.113883.10.20.28.3.1 0
@extension	1..1	SHALL		3335-33640	2016-12-01
id	1..1	SHALL		3335-32133	
code	1..1	SHALL		3335-33524	
@valueSet	0..1	SHOULD		3335-33525	
title	1..1	SHALL		3335-32134	
statusCode	1..1	SHALL		3335-32135	
@code	1..1	SHALL		3335-32136	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
effectiveTime	0..1	MAY	IVL_TS	3335-32137	
low	1..1	SHALL		3335-32138	
participation	1..1	SHALL		3335-32140	
@typeCode	1..1	SHALL		3335-32141	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = IRCP
role	1..1	SHALL		3335-32142	
@classCode	1..1	SHALL		3335-32143	urn:oid:2.16.840.1.113883.5.11 0 (HL7RoleClass) = ASSIGNED
code	1..1	SHALL		3335-32144	
@code	1..1	SHALL		3335-32145	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 158965000
@codeSystem	1..1	SHALL		3335-32146	2.16.840.1.113883.6.96

participation	1..1	SHALL		3335-32147	
@typeCode	1..1	SHALL		3335-32148	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = AUT
role	1..1	SHALL		3335-32149	
@classCode	1..1	SHALL		3335-32150	urn:oid:2.16.840.1.113883.5.11 0 (HL7RoleClass) = ASSIGNED
code	1..1	SHALL		3335-32151	
@code	1..1	SHALL		3335-32152	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 158965000
@codeSystem	1..1	SHALL		3335-32153	2.16.840.1.113883.6.96
outboundRelationship	0..1	MAY		3335-33053	
@typeCode	1..1	SHALL		3335-33054	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-33055	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.88:2017-05-01

1. **SHALL** contain exactly one [1..1] **@classCode**="ACT" Act (CONF:3335-32127).
2. **SHALL** contain exactly one [1..1] **@moodCode**="EVN" Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-32128).
3. **MAY** contain zero or one [0..1] **@actionNegationInd** (CONF:3335-32129).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-32130).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-32131).
 - i. This item **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.28.3.10" (CONF:3335-32132).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension**="2016-12-01" (CONF:3335-33640).
5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-32133).
6. **SHALL** contain exactly one [1..1] **code** (CONF:3335-33524).
 - a. This code **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-33525).
7. **SHALL** contain exactly one [1..1] **title** (CONF:3335-32134).
8. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-32135).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code**="completed" Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-32136).
9. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-32137).
 - a. The effectiveTime, if present, **SHALL** contain exactly one [1..1] **low** (CONF:3335-32138).

Note: QDM Attribute: Author Datetime (The time the communication occurs, or is sent)

10. **SHALL** contain exactly one [1..1] **participation** (CONF:3335-32140) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode="IRCP"** Information Recipient (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-32141).
 - b. **SHALL** contain exactly one [1..1] **role** (CONF:3335-32142).
 - i. This role **SHALL** contain exactly one [1..1] **@classCode="ASSIGNED"** Assigned (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-32143).
 - ii. This role **SHALL** contain exactly one [1..1] **code** (CONF:3335-32144).
 1. This code **SHALL** contain exactly one [1..1] **@code="158965000"** Medical Practitioner (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:3335-32145).
 2. This code **SHALL** contain exactly one [1..1] **@codeSystem="2.16.840.1.113883.6.96"** SNOMED-CT (CONF:3335-32146).
11. **SHALL** contain exactly one [1..1] **participation** (CONF:3335-32147) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode="AUT"** Author (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-32148).
 - b. **SHALL** contain exactly one [1..1] **role** (CONF:3335-32149).
 - i. This role **SHALL** contain exactly one [1..1] **@classCode="ASSIGNED"** Assigned (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-32150).
 - ii. This role **SHALL** contain exactly one [1..1] **code** (CONF:3335-32151).
 1. This code **SHALL** contain exactly one [1..1] **@code="158965000"** Medical practitioner (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:3335-32152).
 2. This code **SHALL** contain exactly one [1..1] **@codeSystem="2.16.840.1.113883.6.96"** SNOMED-CT (CONF:3335-32153).
12. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-33053) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode="RSON"** Has Reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-33054).
 - b. **SHALL** contain exactly one [1..1] **Reason** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-33055).

Figure 13: Communication: From Provider to Provider Example

```
<actCriteria classCode="ACT" moodCode="EVN">
    <templateId>
        <item root="2.16.840.1.113883.10.20.28.3.10" extension="2017-05-01"/>
    </templateId>
    <id root="9c74ac9b-2507-4193-a010-584b31f3f29a"/>
    <code valueSet="{$QDMElementValueSetOID}"/>
    <title value="Communication: From Provider to Provider"/>
    <statusCode code="completed"/>
    <participation typeCode="IRCP">
        <role classCode="ASSIGNED">
            <code code="158965000" codeSystem="2.16.840.1.113883.6.96">
                <displayName value="Medical Practitioner"/>
            </code>
        </role>
    </participation>
    <participation typeCode="AUT">
        <role classCode="ASSIGNED">
            <code code="158965000" codeSystem="2.16.840.1.113883.6.96">
                <displayName value="Medical Practitioner"/>
            </code>
        </role>
    </participation>
</actCriteria>
```

5.11 Component

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.121:2017-05-01 (open)]

Table 31: Component Contexts

Contained By:	Contains:
Assessment, Performed (optional) Diagnostic Study, Performed (optional) Physical Exam, Performed (optional) Procedure, Performed (optional)	

This template represents the QDM attribute: Component

Table 32: Component Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.121:2017-05-01)					
@classCode	1..1	SHALL		3335-34576	OBS
@moodCode	1..1	SHALL		3335-34577	EVN
templateId	1..1	SHALL		3335-34570	
item	1..1	SHALL		3335-34571	
@root	1..1	SHALL		3335-34573	2.16.840.1.113883.10.20.28.4.121
@extension	1..1	SHALL		3335-34580	2017-05-01
id	1..1	SHALL		3335-34578	
code	1..1	SHALL		3335-34572	
@code	1..1	SHALL		3335-34574	
@codeSystem	1..1	SHALL		3335-34575	
title	1..1	SHALL		3335-34607	
value	1..1	SHALL		3335-34579	

1. **SHALL** contain exactly one [1..1] @classCode="OBS" Observation (CONF:3335-34576).
2. **SHALL** contain exactly one [1..1] @moodCode="EVN" Event (CONF:3335-34577).
3. **SHALL** contain exactly one [1..1] templateId (CONF:3335-34570).
 - a. This templateId **SHALL** contain exactly one [1..1] item (CONF:3335-34571).
 - i. This item **SHALL** contain exactly one [1..1] @root="2.16.840.1.113883.10.20.28.4.121" (CONF:3335-34573).
 - ii. This item **SHALL** contain exactly one [1..1] @extension="2017-05-01" (CONF:3335-34580).
4. **SHALL** contain exactly one [1..1] id (CONF:3335-34578).
5. **SHALL** contain exactly one [1..1] code (CONF:3335-34572).
Note: Code
6. **SHALL** contain exactly one [1..1] title (CONF:3335-34607).
7. **SHALL** contain exactly one [1..1] value (CONF:3335-34579).
Note: Result

Figure 14: Component Example

```
<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.4.121" extension="2017-05-01"/>
  </templateId>
  <id root="dcccce626-74a2-41ef-9add-60070b6bb936"/>
  <code code="32412-9" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC">
    <displayName value="5 minute Apgar Heart rate"/>
  </code>
  <title value="Component"/>
  <value xsi:type="CD" valueSet="{$QDMElementValueSetOID}"/>
</observationCriteria>
```

5.11.1 Laboratory Test Component

[observationCriteria: identifier
urn:h17ii:2.16.840.1.113883.10.20.28.3.126:2017-05-01 (open)]

Table 33: Laboratory Test Component Contexts

Contained By:	Contains:
Laboratory Test, Performed (optional)	Laboratory Test Reference Range

This template represents the QDM attribute: Component (for Laboratory Test, Performed)

Table 34: Laboratory Test Component Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.3.126:2017-05-01)					
@classCode	1..1	SHALL		3335-34588	OBS
@moodCode	1..1	SHALL		3335-34589	EVN
templateId	1..1	SHALL		3335-34581	
item	1..1	SHALL		3335-34582	
@root	1..1	SHALL		3335-34584	2.16.840.1.113883.10.20.28.4.122
@extension	1..1	SHALL		3335-34585	2017-05-01
outboundRelationship	0..1	MAY		3335-34604	
@typeCode	1..1	SHALL		3335-34605	REFR
observationCriteria	1..1	SHALL		3335-34616	Laboratory Test Reference Range (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.124:2017-05-01)

1. Conforms to [Component](#) template (identifier: [urn:hl7ii:2.16.840.1.113883.10.20.28.4.121:2017-05-01](#)).
 2. **SHALL** contain exactly one [1..1] `@classCode="OBS"` Observation (CONF:3335-34588).
 3. **SHALL** contain exactly one [1..1] `@moodCode="EVN"` Event (CONF:3335-34589).
 4. **SHALL** contain exactly one [1..1] `templateId` (CONF:3335-34581).
 - a. This templateId **SHALL** contain exactly one [1..1] `item` (CONF:3335-34582).
 - i. This item **SHALL** contain exactly one [1..1] `@root="2.16.840.1.113883.10.20.28.4.122"` (CONF:3335-34584).
 - ii. This item **SHALL** contain exactly one [1..1] `@extension="2017-05-01"` (CONF:3335-34585).
 5. **MAY** contain zero or one [0..1] `outboundRelationship` (CONF:3335-34604).
- Note: Reference Range
- a. The outboundRelationship, if present, **SHALL** contain exactly one [1..1] `@typeCode="REFR"` Refers To (CONF:3335-34605).
 - b. The outboundRelationship, if present, **SHALL** contain exactly one [1..1] [Laboratory Test Reference Range](#) (identifier: [urn:hl7ii:2.16.840.1.113883.10.20.28.4.124:2017-05-01](#)) (CONF:3335-34616).

Figure 15: Laboratory Test Component Example

```
<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.126" extension="2017-05-01"/>
  </templateId>
  <id root="edd94e15-dc95-49d6-8a65-74cb2b87c93b"/>
  <code code="2339-0" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC">
    <displayName value="Glucose [Mass/?volume] in Blood"/>
  </code>
  <title value="Laboratory Test Component"/>
  <value xsi:type="CD" valueSet="{$QDMElementValueSetOID}"/>
</observationCriteria>
```

5.12 Device, Applied

[procedureCriteria: identifier
urn:h17ii:2.16.840.1.113883.10.20.28.4.13:2017-05-01 (open)]

Table 35: Device, Applied Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Reason

This template represents the QDM data type: Device, Applied.

This represents the application of an instrument, apparatus, implement, machine, contrivance, implant, in-vitro reagent, or other similar or related article, including a component part or accessory, intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease and that is not dependent on being metabolized to achieve any of its primary intended purposes.

Timing: The Relevant Period addresses: startTime – When the device is inserted or first used; stopTime – when the device is removed or last used.

Table 36: Device, Applied Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
procedureCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.13:2017-05-01)					
@classCode	1..1	SHALL		3335-31302	PROC
@moodCode	1..1	SHALL		3335-31303	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
@actionNegationInd	0..1	MAY		3335-31304	
templateId	1..1	SHALL		3335-31305	
item	1..1	SHALL		3335-31306	
@root	1..1	SHALL		3335-31307	2.16.840.1.113883.10.20.28.4.1 3
@extension	1..1	SHALL		3335-33361	2017-05-01
id	1..1	SHALL		3335-31308	
code	1..1	SHALL		3335-31517	
@code	1..1	SHALL		3335-33062	360030002
@codeSystem	1..1	SHALL		3335-33063	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 2.16.840.1.113883.6.96
title	1..1	SHALL		3335-31309	
statusCode	1..1	SHALL		3335-31310	
@code	1..1	SHALL		3335-31311	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
effectiveTime	0..1	MAY	IVL_TS	3335-31312	
low	0..1	MAY		3335-31313	
high	0..1	MAY		3335-31314	
approachSiteCode	0..1	MAY		3335-33359	
item	0..1	SHOULD		3335-33360	
@valueSet	0..1	SHOULD		3335-33362	
targetSiteCode	0..1	MAY		3335-31485	

item	0..1	SHOULD		3335-33060	
@valueSet	0..1	SHOULD		3335-33061	
participation	1..1	SHALL		3335-31315	
@typeCode	1..1	SHALL		3335-31316	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = DEV
role	1..1	SHALL		3335-31317	
@classCode	1..1	SHALL		3335-31318	urn:oid:2.16.840.1.113883.5.110 (HL7RoleClass) = MANU
playingDevice	1..1	SHALL		3335-31319	
@classCode	1..1	SHALL		3335-31320	urn:oid:2.16.840.1.113883.5.41 (HL7EntityClass) = DEV
@determinerCode	1..1	SHALL		3335-31321	urn:oid:2.16.840.1.113883.5.30 (HL7EntityDeterminer) = KIND
code	1..1	SHALL		3335-31322	
@valueSet	0..1	SHOULD		3335-31323	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT)
participation	1..1	SHALL		3335-34503	
@typeCode	1..1	SHALL		3335-34506	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = AUT
time	1..1	SHALL		3335-34504	
low	1..1	SHALL		3335-34507	
role	1..1	SHALL		3335-34505	
@classCode	1..1	SHALL		3335-34508	urn:oid:2.16.840.1.113883.5.110 (HL7RoleClass) = ROL
id	0..1	MAY		3335-34509	
outboundRelationship	0..1	MAY		3335-31330	
@typeCode	1..1	SHALL		3335-31331	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-31332	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.88:2017-05-01

1. **SHALL** contain exactly one [1..1] @classCode="PROC" Procedure (CONF:3335-31302).

2. **SHALL** contain exactly one [1..1] @moodCode="EVN" Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-31303).
3. **MAY** contain zero or one [0..1] @actionNegationInd (CONF:3335-31304).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] templateId (CONF:3335-31305).
 - a. This templateId **SHALL** contain exactly one [1..1] item (CONF:3335-31306).
 - i. This item **SHALL** contain exactly one [1..1] @root="2.16.840.1.113883.10.20.28.4.13" (CONF:3335-31307).
 - ii. This item **SHALL** contain exactly one [1..1] @extension="2017-05-01" (CONF:3335-33361).
5. **SHALL** contain exactly one [1..1] id (CONF:3335-31308).
6. **SHALL** contain exactly one [1..1] code (CONF:3335-31517).
 - a. This code **SHALL** contain exactly one [1..1] @code="360030002" Application of Device (CONF:3335-33062).
 - b. This code **SHALL** contain exactly one [1..1] @codeSystem="2.16.840.1.113883.6.96" (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:3335-33063).
7. **SHALL** contain exactly one [1..1] title (CONF:3335-31309).
8. **SHALL** contain exactly one [1..1] statusCode (CONF:3335-31310).
 - a. This statusCode **SHALL** contain exactly one [1..1] @code="completed" Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-31311).
9. **MAY** contain zero or one [0..1] effectiveTime (CONF:3335-31312).
Note: QDM Attribute: Relevant Period
 - a. The effectiveTime, if present, **MAY** contain zero or one [0..1] low (CONF:3335-31313).
Note: Start Time (When the device is inserted or first used)
 - b. The effectiveTime, if present, **MAY** contain zero or one [0..1] high (CONF:3335-31314).
Note: Stop Time (When the device is removed or last used)
10. **MAY** contain zero or one [0..1] approachSiteCode (CONF:3335-33359).
Note: QDM Attribute: Anatomical Approach Site
 - a. The approachSiteCode, if present, **SHOULD** contain zero or one [0..1] item (CONF:3335-33360).
 - i. The item, if present, **SHOULD** contain zero or one [0..1] @valueSet (CONF:3335-33362).
11. **MAY** contain zero or one [0..1] targetSiteCode (CONF:3335-31485).
Note: QDM Attribute: Anatomical Location Site
 - a. The targetSiteCode, if present, **SHOULD** contain zero or one [0..1] item (CONF:3335-33060).
 - i. The item, if present, **SHOULD** contain zero or one [0..1] @valueSet (CONF:3335-33061).
12. **SHALL** contain exactly one [1..1] participation (CONF:3335-31315) such that it
 - a. **SHALL** contain exactly one [1..1] @typeCode="DEV" Device (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-31316).
 - b. **SHALL** contain exactly one [1..1] role (CONF:3335-31317).

- i. This role **SHALL** contain exactly one [1..1] **@classCode="MANU"** Manufactured Product (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-31318).
 - ii. This role **SHALL** contain exactly one [1..1] **playingDevice** (CONF:3335-31319).
 - 1. This playingDevice **SHALL** contain exactly one [1..1] **@classCode="DEV"** Device (CodeSystem: HL7EntityClass urn:oid:2.16.840.1.113883.5.41) (CONF:3335-31320).
 - 2. This playingDevice **SHALL** contain exactly one [1..1] **@determinerCode="KIND"** Kind (CodeSystem: HL7EntityDeterminer urn:oid:2.16.840.1.113883.5.30) (CONF:3335-31321).
 - 3. This playingDevice **SHALL** contain exactly one [1..1] **code** (CONF:3335-31322).
 - a. This code **SHOULD** contain zero or one [0..1] **@valueSet** (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:3335-31323).
13. **SHALL** contain exactly one [1..1] **participation** (CONF:3335-34503) such that it
- a. **SHALL** contain exactly one [1..1] **@typeCode="AUT"** Author (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-34506).
 - b. **SHALL** contain exactly one [1..1] **time** (CONF:3335-34504).
 - i. This time **SHALL** contain exactly one [1..1] **low** (CONF:3335-34507).
Note: QDM Attribute: Author Datetime
 - c. **SHALL** contain exactly one [1..1] **role** (CONF:3335-34505).
 - i. This role **SHALL** contain exactly one [1..1] **@classCode="ROL"** Role (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-34508).
 - ii. This role **MAY** contain zero or one [0..1] **id** (CONF:3335-34509).
14. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-31330) such that it
Note: QDM Attribute: Reason
- a. **SHALL** contain exactly one [1..1] **@typeCode="RSON"** Has Reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-31331).
 - b. **SHALL** contain exactly one [1..1] **Reason** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-31332).

Figure 16: Device, Applied Example

```
<procedureCriteria classCode="PROC" moodCode="EVN">
    <templateId>
        <item root="2.16.840.1.113883.10.20.28.3.13" extension="2017-05-01"/>
    </templateId>
    <id root="0dd19511-ce93-4490-9b9a-8cf3d967cf94"/>
    <code code="360030002" codeSystem="2.16.840.1.113883.6.96">
        <displayName value="Application of Device"/>
    </code>
    <title value="Device, Applied"/>
    <statusCode code="completed"/>
    <participation typeCode="DEV">
        <role classCode="MANU">
            <playingDevice classCode="DEV" determinerCode="KIND">
                <code valueSet="{$QDMElementValueSetOID}"/>
            </playingDevice>
        </role>
    </participation>
</procedureCriteria>
```

5.13 Device, Order

[supplyCriteria: identifier urn:hl7ii:2.16.840.1.113883.10.20.28.4.15:2017-05-01 (open)]

Table 37: Device, Order Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Reason

This template represents the QDM data type: Device, Order.

Device represents an order for an instrument, apparatus, implement, machine, contrivance, implant, in-vitro reagent, or other similar or related article, including a component part or accessory, intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease and that is not dependent on being metabolized to achieve any of its primary intended purposes.

Timing: The time the order is signed; author time

Table 38: Device, Order Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
supplyCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.15:2017-05-01)					
@classCode	1..1	SHALL		3335-29840	SPLY
@moodCode	1..1	SHALL		3335-29841	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = RQO
@actionNegationInd	0..1	MAY		3335-31002	
templateId	1..1	SHALL		3335-29842	
item	1..1	SHALL		3335-29843	
@root	1..1	SHALL		3335-29844	2.16.840.1.113883.10.20.28.4.1 5
@extension	1..1	SHALL		3335-33642	2017-05-01
id	1..1	SHALL		3335-29845	
title	1..1	SHALL		3335-29846	
statusCode	1..1	SHALL		3335-31003	
@code	1..1	SHALL		3335-31004	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = active
participation	1..1	SHALL		3335-29847	
@typeCode	1..1	SHALL		3335-29848	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = DEV
role	1..1	SHALL		3335-29849	
@classCode	1..1	SHALL		3335-29850	urn:oid:2.16.840.1.113883.5.11 0 (HL7RoleClass) = MANU
playingDevice	1..1	SHALL		3335-29851	
@classCode	1..1	SHALL		3335-29852	urn:oid:2.16.840.1.113883.5.41 (HL7EntityClass) = DEV
@determinerCode	1..1	SHALL		3335-29853	urn:oid:2.16.840.1.113883.5.30 (HL7EntityDeterminer) = KIND
code	1..1	SHALL		3335-29854	
@valueSet	0..1	SHOULD		3335-29855	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT)
participation	0..1	MAY		3335-33475	
@typeCode	1..1	SHALL		3335-33477	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = AUT

time	1..1	SHALL		3335-33476	
low	1..1	SHALL		3335-33478	
role	1..1	SHALL		3335-33569	
@classCode	1..1	SHALL		3335-33570	urn:oid:2.16.840.1.113883.5.110 (HL7RoleClass) = ROL
id	0..1	MAY		3335-33571	
outboundRelationship	0..1	MAY		3335-29888	
@typeCode	1..1	SHALL		3335-29892	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-29889	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01)

1. **SHALL** contain exactly one [1..1] **@classCode="SPLY"** Supply (CONF:3335-29840).
2. **SHALL** contain exactly one [1..1] **@moodCode="RQO"** Request (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-29841).
3. **MAY** contain zero or one [0..1] **@actionNegationInd** (CONF:3335-31002).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-29842).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-29843).
 - i. This item **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.4.15"** (CONF:3335-29844).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-33642).
5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-29845).
6. **SHALL** contain exactly one [1..1] **title** (CONF:3335-29846).
7. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-31003).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code="active"** Active (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-31004).
8. **SHALL** contain exactly one [1..1] **participation** (CONF:3335-29847) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode="DEV"** Device (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-29848).
 - b. **SHALL** contain exactly one [1..1] **role** (CONF:3335-29849).
 - i. This role **SHALL** contain exactly one [1..1] **@classCode="MANU"** Manufactured Product (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-29850).
 - ii. This role **SHALL** contain exactly one [1..1] **playingDevice** (CONF:3335-29851).

1. This playingDevice **SHALL** contain exactly one [1..1] **@classCode="DEV"** Device (CodeSystem: HL7EntityClass urn:oid:2.16.840.1.113883.5.41) (CONF:3335-29852).
 2. This playingDevice **SHALL** contain exactly one [1..1] **@determinerCode="KIND"** Kind (CodeSystem: HL7EntityDeterminer urn:oid:2.16.840.1.113883.5.30) (CONF:3335-29853).
 3. This playingDevice **SHALL** contain exactly one [1..1] **code** (CONF:3335-29854).
 - a. This code **SHOULD** contain zero or one [0..1] **@valueSet** (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:3335-29855).
9. **MAY** contain zero or one [0..1] **participation** (CONF:3335-33475) such that it
- a. **SHALL** contain exactly one [1..1] **@typeCode="AUT"** Author (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-33477).
 - b. **SHALL** contain exactly one [1..1] **time** (CONF:3335-33476).
 - i. This time **SHALL** contain exactly one [1..1] **low** (CONF:3335-33478).
Note: QDM Attribute: Author Datetime (The time the order is signed)
 - c. **SHALL** contain exactly one [1..1] **role** (CONF:3335-33569).
 - i. This role **SHALL** contain exactly one [1..1] **@classCode="ROL"** Role (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-33570).
 - ii. This role **MAY** contain zero or one [0..1] **id** (CONF:3335-33571).
10. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-29888) such that it
Note: QDM Attribute: Reason
- a. **SHALL** contain exactly one [1..1] **@typeCode="RSON"** Has Reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-29892).
 - b. **SHALL** contain exactly one [1..1] **Reason** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-29889).

Figure 17: Device, Order Example

```
<supplyCriteria classCode="SPLY" moodCode="RQO">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.15" extension="2017-05-01"/>
  </templateId>
  <id root="5ab17ed3-166c-4265-9c61-d254e30c8e83"/>
  <title value="Device, Order"/>
  <statusCode code="active"/>
  <participation typeCode="DEV">
    <role classCode="MANU">
      <playingDevice classCode="DEV" determinerCode="KIND">
        <code valueSet="{$QDMElementValueSetOID}"/>
      </playingDevice>
    </role>
  </participation>
</supplyCriteria>
```

5.14 Device, Recommended

[supplyCriteria: identifier urn:hl7ii:2.16.840.1.113883.10.20.28.4.16:2017-05-01 (open)]

Table 39: Device, Recommended Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Reason

This template represents the QDM data type: Device, Recommended.

Device represents a recommendation for an instrument, apparatus, implement, machine, contrivance, implant, in-vitro reagent, or other similar or related article, including a component part or accessory, intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease and that is not dependent on being metabolized to achieve any of its primary intended purposes.

Timing: The time the recommendation is authored (i.e., provided to the patient).

All QDM datatypes referring to recommendations address the time that the recommendation occurs, a single point in time. Vendors have expressed concerns that recommendations are not necessarily captured or managed in a standard manner as part of structured data capture in clinical workflow; many are documented as part of assessments in narrative text. Measure developers should address feasibility of clinical workflow to capture recommendations when evaluating measures.

Table 40: Device, Recommended Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
supplyCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.16:2017-05-01)					
@classCode	1..1	SHALL		3335-31708	SPLY
@moodCode	1..1	SHALL		3335-31709	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = INT
@actionNegationInd	0..1	MAY		3335-31710	
templateId	1..1	SHALL		3335-31711	
item	1..1	SHALL		3335-31712	
@root	1..1	SHALL		3335-31713	2.16.840.1.113883.10.20.28.4.1 6
@extension	1..1	SHALL		3335-33699	2017-05-01
id	1..1	SHALL		3335-31714	
title	1..1	SHALL		3335-31715	
statusCode	1..1	SHALL		3335-31716	
@code	1..1	SHALL		3335-31717	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = active
participation	1..1	SHALL		3335-31721	
@typeCode	1..1	SHALL		3335-31722	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = DEV
role	1..1	SHALL		3335-31723	
@classCode	1..1	SHALL		3335-31724	urn:oid:2.16.840.1.113883.5.11 0 (HL7RoleClass) = MANU
playingDevice	1..1	SHALL		3335-31725	
@classCode	1..1	SHALL		3335-31726	urn:oid:2.16.840.1.113883.5.41 (HL7EntityClass) = DEV
@determinerCode	1..1	SHALL		3335-31727	urn:oid:2.16.840.1.113883.5.30 (HL7EntityDeterminer) = KIND
code	1..1	SHALL		3335-31728	
@valueSet	0..1	SHOULD		3335-31729	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT)
participation	0..1	MAY		3335-34322	
@typeCode	1..1	SHALL		3335-34325	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = AUT

time	1..1	SHALL		3335-34323	
low	1..1	SHALL		3335-34326	
role	1..1	SHALL		3335-34324	
@classCode	1..1	SHALL		3335-34327	ROL
id	0..1	MAY		3335-34328	
outboundRelationship	0..1	MAY		3335-31736	
@typeCode	1..1	SHALL		3335-31737	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-31738	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01)

1. **SHALL** contain exactly one [1..1] **@classCode="SPLY"** Supply (CONF:3335-31708).
2. **SHALL** contain exactly one [1..1] **@moodCode="INT"** Intent (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-31709).
3. **MAY** contain zero or one [0..1] **@actionNegationInd** (CONF:3335-31710).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-31711).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-31712).
 - i. This item **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.4.16"** (CONF:3335-31713).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-33699).
5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-31714).
6. **SHALL** contain exactly one [1..1] **title** (CONF:3335-31715).
7. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-31716).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code="active"** Active (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-31717).
8. **SHALL** contain exactly one [1..1] **participation** (CONF:3335-31721) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode="DEV"** Device (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-31722).
 - b. **SHALL** contain exactly one [1..1] **role** (CONF:3335-31723).
 - i. This role **SHALL** contain exactly one [1..1] **@classCode="MANU"** Manufactured Product (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-31724).
 - ii. This role **SHALL** contain exactly one [1..1] **playingDevice** (CONF:3335-31725).

1. This playingDevice **SHALL** contain exactly one [1..1] **@classCode="DEV"** Device (CodeSystem: HL7EntityClass urn:oid:2.16.840.1.113883.5.41) (CONF:3335-31726).
 2. This playingDevice **SHALL** contain exactly one [1..1] **@determinerCode="KIND"** Kind (CodeSystem: HL7EntityDeterminer urn:oid:2.16.840.1.113883.5.30) (CONF:3335-31727).
 3. This playingDevice **SHALL** contain exactly one [1..1] **code** (CONF:3335-31728).
 - a. This code **SHOULD** contain zero or one [0..1] **@valueSet** (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:3335-31729).
9. **MAY** contain zero or one [0..1] **participation** (CONF:3335-34322) such that it
- a. **SHALL** contain exactly one [1..1] **@typeCode="AUT"** Author (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-34325).
 - b. **SHALL** contain exactly one [1..1] **time** (CONF:3335-34323).
 - i. This time **SHALL** contain exactly one [1..1] **low** (CONF:3335-34326).
Note: QDM Attribute: Author Datetime (The time the recommendation is authored (i.e., provided to the patient))
 - c. **SHALL** contain exactly one [1..1] **role** (CONF:3335-34324).
 - i. This role **SHALL** contain exactly one [1..1] **@classCode="ROL"** Role (CONF:3335-34327).
 - ii. This role **MAY** contain zero or one [0..1] **id** (CONF:3335-34328).
10. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-31736) such that it
Note: QDM Attribute: Reason
- a. **SHALL** contain exactly one [1..1] **@typeCode="RSON"** Has Reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-31737).
 - b. **SHALL** contain exactly one [1..1] **Reason** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-31738).

Figure 18: Device, Recommended Example

```
<supplyCriteria classCode="SPLY" moodCode="INT">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.16" extension="2017-05-01"/>
  </templateId>
  <id root="5ab17ed3-166c-426d-9c61-d254e30c9e87"/>
  <title value="Device, Recommended"/>
  <statusCode code="active"/>
  <participation typeCode="DEV">
    <role classCode="MANU">
      <playingDevice classCode="DEV" determinerCode="KIND">
        <code valueSet="{$QDMElementValueSetOID}"/>
      </playingDevice>
    </role>
  </participation>
</supplyCriteria>
```

5.15 Diagnosis

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.110:2017-05-01 (open)]

Table 41: Diagnosis Contexts

Contained By:	Contains:
Data Criteria Section (optional) Encounter, Performed (optional)	Severity Observation

Condition/Diagnosis/Problem represents a practitioner's identification of a patient's disease, illness, injury, or condition. This category contains a single datatype to represent all of these concepts: Diagnosis. A practitioner determines the diagnosis by means of examination, diagnostic test results, patient history, and/or family history. Diagnoses are usually considered unfavorable, but may also represent neutral or favorable conditions that affect a patient's plan of care (e.g., pregnancy).

The QDM does not prescribe the source of diagnosis data in the EHR. Diagnoses may be found in a patient's problem list, encounter diagnosis list, claims data, or other sources within the EHR. The preferred terminology for diagnoses is SNOMEDCT, but diagnoses may also be encoded using ICD9/10.

The Diagnosis datatype should not be used for differential diagnoses or rule out diagnoses (neither of which are currently supported by the QDM).

The onset datetime corresponds to the implicit start datetime of the datatype and the abatement datetime corresponds to the implicit stop datetime of the datatype. If the abatement datetime is null, then the diagnosis is considered to still be active. When this datatype is used with timing relationships, the criterion is looking for an active diagnosis for the time frame indicated by the timing relationships.

Timing: The Prevalence Period references the time from the onset date to the abatement date.

Table 42: Diagnosis Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.110:2017-05-01)					
@classCode	1..1	SHALL		3335-33768	OBS
@moodCode	1..1	SHALL		3335-33769	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3335-33770	
item	1..1	SHALL		3335-33771	
@root	1..1	SHALL		3335-33776	2.16.840.1.113883.10.20.28.4.1 10
@extension	1..1	SHALL		3335-34321	2017-05-01
id	1..1	SHALL		3335-33777	
code	1..1	SHALL		3335-33772	
@code	1..1	SHALL		3335-33778	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 282291009
@codeSystem	1..1	SHALL		3335-33779	2.16.840.1.113883.6.96
title	1..1	SHALL		3335-33780	
statusCode	1..1	SHALL		3335-33773	
@code	1..1	SHALL		3335-33781	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
effectiveTime	0..1	MAY	IVL_TS	3335-33774	
low	0..1	MAY		3335-33782	
high	0..1	MAY		3335-33783	
value	1..1	SHALL	CD	3335-33775	
@valueSet	0..1	SHOULD		3335-33784	
targetSiteCode	0..1	MAY		3335-33785	
item	0..*	SHOULD		3335-33786	
@valueSet	0..1	SHOULD		3335-33788	
outboundRelationship	0..1	MAY		3335-33787	

@typeCode	1..1	SHALL		3335-33789	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = REFR
observationCriteria	1..1	SHALL		3335-33790	Severity Observation (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.93:2017-05-01)

1. **SHALL** contain exactly one [1..1] **@classCode="OBS"** Observation (CONF:3335-33768).
2. **SHALL** contain exactly one [1..1] **@moodCode="EVN"** Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-33769).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-33770).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-33771).
 - i. This item **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.4.110"** (CONF:3335-33776).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-34321).
4. **SHALL** contain exactly one [1..1] **id** (CONF:3335-33777).
5. **SHALL** contain exactly one [1..1] **code** (CONF:3335-33772).
 - a. This code **SHALL** contain exactly one [1..1] **@code="282291009"** Diagnosis (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:3335-33778).
 - b. This code **SHALL** contain exactly one [1..1] **@codeSystem="2.16.840.1.113883.6.96"** (SNOMED CT) (CONF:3335-33779).
6. **SHALL** contain exactly one [1..1] **title** (CONF:3335-33780).
7. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-33773).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code="completed"** Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-33781).
8. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-33774).

Note: QDM Attribute: Prevalence Period (The Prevalence Period references the time from the onset date to the abatement date)

 - a. The effectiveTime, if present, **MAY** contain zero or one [0..1] **low** (CONF:3335-33782).
Note: Onset Datetime
 - b. The effectiveTime, if present, **MAY** contain zero or one [0..1] **high** (CONF:3335-33783).
Note: Abatement Datetime
9. **SHALL** contain exactly one [1..1] **value** with **@xsi:type="CD"** (CONF:3335-33775).
 - a. This value **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-33784).
10. **MAY** contain zero or one [0..1] **targetSiteCode** (CONF:3335-33785).

Note: QDM attribute: Anatomical Location Site

 - a. The targetSiteCode, if present, **SHOULD** contain zero or more [0..*] **item** (CONF:3335-33786).
 - i. The item, if present, **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-33788).

11. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-33787) such that it

Note: QDM Attribute: Severity

- a. **SHALL** contain exactly one [1..1] @**typeCode**="REFR" (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-33789).
- b. **SHALL** contain exactly one [1..1] **Severity Observation** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.93:2017-05-01) (CONF:3335-33790).

Figure 19: Diagnosis Example

```
<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.110" extension="2017-05-01"/>
  </templateId>
  <id root="9e4e810d-3c3e-461e-86f8-6fe7a0b1ca2b"/>
  <code code="282291009" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED CT">
    <displayName value="Diagnosis"/>
  </code>
  <title value="Diagnosis"/>
  <statusCode code="completed"/>
  <value xsi:type="CD" valueSet="{$QDMElementValueSetOID}"/>
</observationCriteria>
```

5.16 Diagnostic Study, Order

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.22:2017-05-01 (open)]

Table 43: Diagnostic Study, Order Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Radiation Dosage Reason

This template represents the QDM data type: Diagnostic Study, Order.

Diagnostic Study represents any kind of medical test performed as a specific test or series of steps to aid in diagnosing or detecting disease (e.g., to establish a diagnosis, measure the progress or recovery from disease, confirm that a person is free from disease). The QDM defines diagnostic studies as those that are not performed in organizations that perform testing on samples of human blood, tissue, or other substance from the body. Diagnostic studies may make use of digital images and textual reports. Such studies include but are not limited to imaging studies, cardiology studies (electrocardiogram, treadmill stress testing), pulmonary-function testing, vascular laboratory testing, and others.

Diagnostic Study, Order represents that a diagnostic study has been ordered.

Timing: The time the order is signed; author time.

Table 44: Diagnostic Study, Order Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.22:2017-05-01)					
@classCode	1..1	SHALL		3335-30105	OBS
@moodCode	1..1	SHALL		3335-30106	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = RQO
@actionNegationInd	0..1	MAY		3335-30485	
templateId	1..1	SHALL		3335-30108	
item	1..1	SHALL		3335-30109	
@root	1..1	SHALL		3335-30117	2.16.840.1.113883.10.20.28.4.2 2
@extension	1..1	SHALL		3335-33643	2017-05-01
id	1..1	SHALL		3335-30110	
code	1..1	SHALL		3335-30111	
@valueSet	0..1	SHOULD		3335-30126	
title	1..1	SHALL		3335-30112	
statusCode	1..1	SHALL		3335-30232	
@code	1..1	SHALL		3335-30233	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = active
methodCode	0..1	MAY		3335-30115	
item	0..1	SHOULD		3335-30116	
@valueSet	0..1	SHOULD		3335-30908	
participation	0..1	MAY		3335-33480	
@typeCode	1..1	SHALL		3335-33482	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = AUT
time	1..1	SHALL		3335-33481	
low	1..1	SHALL		3335-33483	
role	1..1	SHALL		3335-33572	
@classCode	1..1	SHALL		3335-33573	urn:oid:2.16.840.1.113883.5.11 0 (HL7RoleClass) = ROL

id	1..1	SHALL		3335-33574	
outboundRelationship	0..1	MAY		3335-30118	
@typeCode	1..1	SHALL		3335-30909	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = REF_R
observationCriteria	1..1	SHALL		3335-30119	Radiation Dosage (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.106:2017-05-01)
outboundRelationship	0..1	MAY		3335-33620	
@typeCode	1..1	SHALL		3335-33621	REF_R
observationCriteria	1..1	SHALL		3335-33622	Radiation Dosage (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.106:2017-05-01)
outboundRelationship	0..1	MAY		3335-30124	
@typeCode	1..1	SHALL		3335-30912	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-30125	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01)

1. **SHALL** contain exactly one [1..1] **@classCode="OBS"** Observation (CONF:3335-30105).
2. **SHALL** contain exactly one [1..1] **@moodCode="RQO"** Request (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:3335-30106).
3. **MAY** contain zero or one [0..1] **@actionNegationInd** (CONF:3335-30485).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-30108).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-30109).
 - i. This item **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.4.22"** (CONF:3335-30117).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-33643).
5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-30110).
6. **SHALL** contain exactly one [1..1] **code** (CONF:3335-30111).
 - a. This code **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-30126).
7. **SHALL** contain exactly one [1..1] **title** (CONF:3335-30112).
8. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-30232).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code="active"** Active (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-30233).

9. **MAY** contain zero or one [0..1] **methodCode** (CONF:3335-30115).

Note: QDM Attribute: Method

- a. The methodCode, if present, **SHOULD** contain zero or one [0..1] **item** (CONF:3335-30116).

- i. The item, if present, **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-30908).

10. **MAY** contain zero or one [0..1] **participation** (CONF:3335-33480) such that it

- a. **SHALL** contain exactly one [1..1] **@typeCode="AUT"** Author (CodeSystem:

HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-33482).

- b. **SHALL** contain exactly one [1..1] **time** (CONF:3335-33481).

- i. This time **SHALL** contain exactly one [1..1] **low** (CONF:3335-33483).

Note: QDM Attribute: Author Time (The time the order is signed)

- c. **SHALL** contain exactly one [1..1] **role** (CONF:3335-33572).

- i. This role **SHALL** contain exactly one [1..1] **@classCode="ROL"** Role (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-33573).

- ii. This role **SHALL** contain exactly one [1..1] **id** (CONF:3335-33574).

11. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-30118) such that it

Note: QDM Attribute: Radiation Dosage

- a. **SHALL** contain exactly one [1..1] **@typeCode="REFR"** Refers to (CodeSystem:

HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-30909).

- b. **SHALL** contain exactly one [1..1] **Radiation Dosage** (identifier:

urn:hl7ii:2.16.840.1.113883.10.20.28.4.106:2017-05-01) (CONF:3335-30119).

12. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-33620) such that it

Note: QDM Attribute: Radiation Duration

- a. **SHALL** contain exactly one [1..1] **@typeCode="REFR"** Refers To (CONF:3335-33621).

- b. **SHALL** contain exactly one [1..1] **Radiation Dosage** (identifier:

urn:hl7ii:2.16.840.1.113883.10.20.28.4.106:2017-05-01) (CONF:3335-33622).

13. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-30124) such that it

Note: QDM Attribute: Reason

- a. **SHALL** contain exactly one [1..1] **@typeCode="RSON"** Has reason (CodeSystem:

HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-30912).

- b. **SHALL** contain exactly one [1..1] **Reason** (identifier:

urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-30125).

Figure 20: Diagnostic Study, Order Example

```
<observationCriteria classCode="OBS" moodCode="RQO">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.22" extension="2017-05-01"/>
  </templateId>
  <id root="628e7169-c8eb-448e-9d74-a59dc02844e9" />
  <code valueSet="{$QDMElementValueSetOID}"/>
  <title value="Diagnostic Study, Order"/>
  <statusCode code="active"/>
</observationCriteria>
```

5.17 Diagnostic Study, Performed

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.23:2017-05-01 (open)]

Table 45: Diagnostic Study, Performed Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Component Facility Location Radiation Dosage Radiation Duration Reason Status

This template represents the QDM data type: Diagnostic Study, Performed.

Diagnostic Study represents any kind of medical test performed as a specific test or series of steps to aid in diagnosing or detecting disease (e.g., to establish a diagnosis, measure the progress or recovery from disease, confirm that a person is free from disease). The QDM defines diagnostic studies as those that are not performed in organizations that perform testing on samples of human blood, tissue, or other substance from the body. Diagnostic studies may make use of digital images and textual reports. Such studies include but are not limited to imaging studies, cardiology studies (electrocardiogram, treadmill stress testing), pulmonary-function testing, vascular laboratory testing, and others.

The QDM defines diagnostic studies as those that are not performed in organizations that perform testing on samples of human blood, tissue, or other substance from the body. Diagnostic studies may make use of digital images and textual reports. Such studies include but are not limited to imaging studies, cardiology studies (electrocardiogram, treadmill stress testing), pulmonary-function testing, vascular laboratory testing, and others.

Timing: The Relevant Period addresses: startTime – when the diagnostic study is initiated; stopTime – when the diagnostic study is completed.

Examples:

- Initiation of a treadmill stress test to the time the treadmill stress test has completed
- Initiation of the ultrasound study until completion of the ultrasound study

Table 46: Diagnostic Study, Performed Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.23:2017-05-01)					
@classCode	1..1	SHALL		3335-30775	OBS
@moodCode	1..1	SHALL		3335-30776	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
@actionNegationInd	0..1	MAY		3335-30777	
templateId	1..1	SHALL		3335-30778	
item	1..1	SHALL		3335-30779	
@root	1..1	SHALL		3335-30780	2.16.840.1.113883.10.20.28.4.2 3
@extension	1..1	SHALL		3335-33605	2017-05-01
id	1..1	SHALL		3335-30781	
code	1..1	SHALL		3335-30782	
@valueSet	0..1	SHOULD		3335-30783	
title	1..1	SHALL		3335-30784	
statusCode	1..1	SHALL		3335-30785	
@code	1..1	SHALL		3335-30786	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
effectiveTime	0..1	MAY	IVL_TS	3335-30787	
low	0..1	MAY		3335-30788	
high	0..1	MAY		3335-30789	
value	0..1	MAY		3335-33612	
methodCode	0..1	MAY		3335-30790	
item	0..1	SHOULD		3335-30791	
@valueSet	0..1	SHOULD		3335-30917	
participation	0..1	MAY		3335-30792	
@typeCode	1..1	SHALL		3335-30993	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode) = LOC

role	1..1	SHALL		3335-30992	Facility Location (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.92:2017-05-01)
participation	0..1	MAY		3335-34510	
@typeCode	1..1	SHALL		3335-34513	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = AUT
time	1..1	SHALL		3335-34511	
low	1..1	SHALL		3335-34514	
role	1..1	SHALL		3335-34512	
@classCode	1..1	SHALL		3335-34515	urn:oid:2.16.840.1.113883.5.110 (HL7RoleClass) = ROL
id	0..1	MAY		3335-34516	
outboundRelationship	0..1	MAY		3335-30793	
@typeCode	1..1	SHALL		3335-30918	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = REFR
observationCriteria	1..1	SHALL		3335-30794	Radiation Dosage (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.106:2017-05-01)
outboundRelationship	0..1	MAY		3335-33604	
@typeCode	1..1	SHALL		3335-33606	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = REFR
observationCriteria	1..1	SHALL		3335-33607	Radiation Duration (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.107:2017-05-01)
outboundRelationship	0..1	MAY		3335-30799	
@typeCode	1..1	SHALL		3335-30921	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-30800	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01)
outboundRelationship	0..1	MAY		3335-33365	
@typeCode	1..1	SHALL		3335-34614	REFR
observationCriteria	1..1	SHALL		3335-33366	Status (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.94:2017-05-01)

outboundRelationship	0..*	MAY		3335-34611	
@typeCode	1..1	SHALL		3335-34612	REFR
observationCriteria	1..1	SHALL		3335-34613	Component (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.121:2017-05-01

1. **SHALL** contain exactly one [1..1] **@classCode**="OBS" Observation (CONF:3335-30775).
2. **SHALL** contain exactly one [1..1] **@moodCode**="EVN" Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:3335-30776).
3. **MAY** contain zero or one [0..1] **@actionNegationInd** (CONF:3335-30777).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-30778).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-30779).
 - i. This item **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.28.4.23" (CONF:3335-30780).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension**="2017-05-01" (CONF:3335-33605).
5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-30781).
6. **SHALL** contain exactly one [1..1] **code** (CONF:3335-30782).
 - a. This code **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-30783).
7. **SHALL** contain exactly one [1..1] **title** (CONF:3335-30784).
8. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-30785).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code**="completed" Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-30786).
9. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-30787).
Note: QDM Attribute: Relevant Period
 - a. The effectiveTime, if present, **MAY** contain zero or one [0..1] **low** (CONF:3335-30788).
Note: Start Time (When the diagnostic study is initiated)
 - b. The effectiveTime, if present, **MAY** contain zero or one [0..1] **high** (CONF:3335-30789).
Note: Stop Time (When the diagnostic study is completed)
10. **MAY** contain zero or one [0..1] **value** (CONF:3335-33612).
Note: QDM Attribute: Result
11. **MAY** contain zero or one [0..1] **methodCode** (CONF:3335-30790).
Note: QDM Attribute: Method
 - a. The methodCode, if present, **SHOULD** contain zero or one [0..1] **item** (CONF:3335-30791).
 - i. The item, if present, **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-30917).
12. **MAY** contain zero or one [0..1] **participation** (CONF:3335-30792) such that it
Note: QDM Attribute: Facility Location

- a. **SHALL** contain exactly one [1..1] @**typeCode**="LOC" Location (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30993).
 - b. **SHALL** contain exactly one [1..1] **Facility Location** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.92:2017-05-01) (CONF:3335-30992).
13. **MAY** contain zero or one [0..1] **participation** (CONF:3335-34510) such that it
 Note: QDM Attribute: Facility Location
- a. **SHALL** contain exactly one [1..1] @**typeCode**="AUT" Author (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-34513).
 - b. **SHALL** contain exactly one [1..1] **time** (CONF:3335-34511).
 - i. This time **SHALL** contain exactly one [1..1] **low** (CONF:3335-34514).
 Note: QDM Attribute: Author Datetime
 - c. **SHALL** contain exactly one [1..1] **role** (CONF:3335-34512).
 - i. This role **SHALL** contain exactly one [1..1] @**classCode**="ROL" Role (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-34515).
 - ii. This role **MAY** contain zero or one [0..1] **id** (CONF:3335-34516).
14. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-30793) such that it
 Note: QDM Attribute: Radiation Dosage
- a. **SHALL** contain exactly one [1..1] @**typeCode**="REFR" Refers To (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-30918).
 - b. **SHALL** contain exactly one [1..1] **Radiation Dosage** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.106:2017-05-01) (CONF:3335-30794).
15. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-33604) such that it
 Note: QDM Attribute: Radiation Duration
- a. **SHALL** contain exactly one [1..1] @**typeCode**="REFR" Refers To (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-33606).
 - b. **SHALL** contain exactly one [1..1] **Radiation Duration** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.107:2017-05-01) (CONF:3335-33607).
16. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-30799) such that it
 Note: QDM Attribute: Reason
- a. **SHALL** contain exactly one [1..1] @**typeCode**="RSON" Has Reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-30921).
 - b. **SHALL** contain exactly one [1..1] **Reason** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-30800).
17. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-33365) such that it
 Note: QDM Attribute: Status
- a. **SHALL** contain exactly one [1..1] @**typeCode**="REFR" Refers To (CONF:3335-34614).

- b. **SHALL** contain exactly one [1..1] **Status** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.94:2017-05-01) (CONF:3335-33366).
18. **MAY** contain zero or more [0..*] **outboundRelationship** (CONF:3335-34611) such that it Note: QDM Attribute: Component
- a. **SHALL** contain exactly one [1..1] @**typeCode**="REFR" Refers To (CONF:3335-34612).
 - b. **SHALL** contain exactly one [1..1] **Component** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.121:2017-05-01) (CONF:3335-34613).

Figure 21: Diagnostic Study, Performed Example

```
<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.23" extension="2017-05-01"/>
  </templateId>
  <id root="f584ead4-808b-43c2-93e3-b8606e156233"/>
  <code valueSet="{$QDMElementValueSetOID}"/>
  <title value="Diagnostic Study, Performed"/>
  <statusCode code="completed"/>
</observationCriteria>
```

5.18 Diagnostic Study, Recommended

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.24:2017-05-01 (open)]

Table 47: Diagnostic Study, Recommended Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Radiation Dosage Radiation Duration Reason

This template represents the QDM data type: Diagnostic Study, Recommended.

Diagnostic Study represents any kind of medical test performed as a specific test or series of steps to aid in diagnosing or detecting disease (e.g., to establish a diagnosis, measure the progress or recovery from disease, confirm that a person is free from disease). The QDM defines diagnostic studies as those that are not performed in organizations that perform testing on samples of human blood, tissue, or other substance from the body. Diagnostic studies may make use of digital images and textual reports. Such studies include but are not limited to imaging studies, cardiology studies (electrocardiogram, treadmill stress testing), pulmonary-function testing, vascular laboratory testing, and others.

Timing: The time the order is signed; author time.

All QDM datatypes referring to recommendations address the time that the recommendation occurs, a single point in time. Vendors have expressed concerns that recommendations are not necessarily captured or managed in a standard manner as part of structured data capture in

clinical workflow; many are documented as part of assessments in narrative text. Measure developers should address feasibility of clinical workflow to capture recommendations when evaluating measures.

Table 48: Diagnostic Study, Recommended Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.24:2017-05-01)					
@classCode	1..1	SHALL		3335-30572	OBS
@moodCode	1..1	SHALL		3335-30573	urn:oid:2.16.840.1.113883.5.1001 (HL7ActMood) = INT
@actionNegationInd	0..1	MAY		3335-30574	
templateId	1..1	SHALL		3335-30575	
item	1..1	SHALL		3335-30576	
@root	1..1	SHALL		3335-30577	2.16.840.1.113883.10.20.28.4.24
@extension	1..1	SHALL		3335-33751	2017-05-01
id	1..1	SHALL		3335-30578	
code	1..1	SHALL		3335-30579	
@valueSet	0..1	SHOULD		3335-30580	
title	1..1	SHALL		3335-30581	
statusCode	1..1	SHALL		3335-30582	
@code	1..1	SHALL		3335-30583	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = active
methodCode	0..1	MAY		3335-30587	
item	0..1	SHOULD		3335-30588	
@valueSet	0..1	SHOULD		3335-30913	
participation	0..1	MAY		3335-34329	
@typeCode	1..1	SHALL		3335-34331	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = AUT
time	1..1	SHALL		3335-34330	
low	1..1	SHALL		3335-34332	
role	1..1	SHALL		3335-34333	
@classCode	1..1	SHALL		3335-34334	urn:oid:2.16.840.1.113883.5.110 (HL7RoleClass) = ROL

id	0..1	MAY		3335-34335	
outboundRelationship	0..1	MAY		3335-30589	
@typeCode	1..1	SHALL		3335-30914	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = REF_R
observationCriteria	1..1	SHALL		3335-30590	Radiation Dosage (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.106:2017-05-01)
outboundRelationship	0..1	MAY		3335-33626	
@typeCode	1..1	SHALL		3335-33627	REF_R
observationCriteria	1..1	SHALL		3335-33628	Radiation Duration (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.107:2017-05-01)
outboundRelationship	0..1	MAY		3335-30987	
@typeCode	1..1	SHALL		3335-30988	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-30989	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01)

1. **SHALL** contain exactly one [1..1] **@classCode="OBS"** Observation (CONF:3335-30572).
2. **SHALL** contain exactly one [1..1] **@moodCode="INT"** Intent (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:3335-30573).
3. **MAY** contain zero or one [0..1] **@actionNegationInd** (CONF:3335-30574).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-30575).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-30576).
 - i. This item **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.4.24"** (CONF:3335-30577).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-33751).
5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-30578).
6. **SHALL** contain exactly one [1..1] **code** (CONF:3335-30579).
 - a. This code **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-30580).
7. **SHALL** contain exactly one [1..1] **title** (CONF:3335-30581).
8. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-30582).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code="active"** Active (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-30583).

9. **MAY** contain zero or one [0..1] **methodCode** (CONF:3335-30587).

Note: QDM Attribute: Method

- a. The methodCode, if present, **SHOULD** contain zero or one [0..1] **item** (CONF:3335-30588).

- i. The item, if present, **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-30913).

10. **MAY** contain zero or one [0..1] **participation** (CONF:3335-34329).

- a. The participation, if present, **SHALL** contain exactly one [1..1] **@typeCode="AUT"** Author (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-34331).

- b. The participation, if present, **SHALL** contain exactly one [1..1] **time** (CONF:3335-34330).

- i. This time **SHALL** contain exactly one [1..1] **low** (CONF:3335-34332).

Note: QDM Attribute: Author Datetime (The time the recommendation is authored)

- c. The participation, if present, **SHALL** contain exactly one [1..1] **role** (CONF:3335-34333).

- i. This role **SHALL** contain exactly one [1..1] **@classCode="ROL"** Role (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-34334).

- ii. This role **MAY** contain zero or one [0..1] **id** (CONF:3335-34335).

11. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-30589) such that it

Note: QDM Attribute: Radiation Dosage

- a. **SHALL** contain exactly one [1..1] **@typeCode="REFR"** Refers To (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-30914).

- b. **SHALL** contain exactly one [1..1] **Radiation Dosage** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.106:2017-05-01) (CONF:3335-30590).

12. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-33626) such that it

Note: QDM Attribute: Radiation Duration

- a. **SHALL** contain exactly one [1..1] **@typeCode="REFR"** Refers To (CONF:3335-33627).

- b. **SHALL** contain exactly one [1..1] **Radiation Duration** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.107:2017-05-01) (CONF:3335-33628).

13. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-30987) such that it

- a. **SHALL** contain exactly one [1..1] **@typeCode="RSON"** Has Reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-30988).

- b. **SHALL** contain exactly one [1..1] **Reason** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-30989).

Figure 22: Diagnostic Study, Recommended Example

```
<observationCriteria classCode="OBS" moodCode="INT">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.24" extension="2017-05-01"/>
  </templateId>
  <id root="f584ead4-808b-43c2-93e3-b8606e156233"/>
  <code valueSet="{$QDMElementValueSetOID}"/>
  <title value="Diagnostic Study, Recommended"/>
  <statusCode code="active"/>
</observationCriteria>
```

5.19 Dosage

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.125:2017-05-01 (open)]

Table 49: Dosage Contexts

Contained By:	Contains:
Immunization, Administered (optional) Immunization, Order (optional) Medication, Active (optional) Medication, Administered (optional) Medication, Discharge (optional) Medication, Dispensed (optional) Medication, Order (optional) Substance, Administered (optional) Substance, Order (optional) Substance, Recommended (optional)	

This template represents the QDM attribute: Dosage.

Details of how medication is/is to be taken, i.e., the quantity (mg, cc, tablets) to be taken at a single administration.

Table 50: Dosage Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.125:2017-05-01)					
@classCode	1..1	SHALL		3335-34423	OBS
@moodCode	1..1	SHALL		3335-34424	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3335-34420	
item	1..1	SHALL		3335-34421	
@root	1..1	SHALL		3335-34425	2.16.840.1.113883.10.20.28.4.1 25
@extension	1..1	SHALL		3335-34650	2017-05-01
id	1..1	SHALL		3335-34426	
code	1..1	SHALL		3335-34422	
@code	1..1	SHALL		3335-34427	260911001
@codeSystem	1..1	SHALL		3335-34428	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 2.16.840.1.113883.6.96
title	1..1	SHALL		3335-34429	
value	1..1	SHALL	PQ	3335-34430	

1. **SHALL** contain exactly one [1..1] **@classCode="OBS"** Observation (CONF:3335-34423).
2. **SHALL** contain exactly one [1..1] **@moodCode="EVN"** Event (CodeSystem: HL7ActMood
urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-34424).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-34420).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-34421).
 - i. This item **SHALL** contain exactly one [1..1]
@root="2.16.840.1.113883.10.20.28.4.125" (CONF:3335-34425).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-34650).
4. **SHALL** contain exactly one [1..1] **id** (CONF:3335-34426).
5. **SHALL** contain exactly one [1..1] **code** (CONF:3335-34422).
 - a. This code **SHALL** contain exactly one [1..1] **@code="260911001"** Dosage (CONF:3335-34427).

- b. This code **SHALL** contain exactly one [1..1] @codeSystem="2.16.840.1.113883.6.96" (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:3335-34428).
- 6. **SHALL** contain exactly one [1..1] **title** (CONF:3335-34429).
- 7. **SHALL** contain exactly one [1..1] **value** with @xsi:type="PQ" (CONF:3335-34430).

Figure 23: Dosage Example

```
<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.125" extension="2017-05-01"/>
  </templateId>
  <id root="a77fb848-5778-4948-a3df-cf9ae40997c4"/>
  <code code="260911001" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED CT">
    <displayName value="Dosage"/>
  </code>
  <title value="Dosage"/>
  <value xsi:type="PQ" value="200" unit="mg"/>
</observationCriteria>
```

5.20 Encounter, Active

[EncounterCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.26:2017-05-01 (open)]

Table 51: Encounter, Active Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Facility Location Reason

This template represents the QDM data type: Encounter, Active.

An encounter is an identifiable grouping of healthcare-related activities characterized by the entity relationship between the subject of care and a healthcare provider; such grouping is determined by the healthcare provider. A patient encounter represents interaction between a healthcare provider and a patient with a face-to-face patient visit to a clinician's office, or any electronically remote interaction with a clinician for any form of diagnostic treatment or therapeutic event.

This template represents an encounter that is active.

Timing: The Relevant Period addresses:`startTime` – The time the encounter began (admission time); `stopTime` – The time the encounter ended (discharge time).

Table 52: Encounter, Active Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
EncounterCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.26:2017-05-01)					
@classCode	1..1	SHALL		3335-31898	ENC
@moodCode	1..1	SHALL		3335-31899	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3335-31901	
item	1..1	SHALL		3335-31902	
@root	1..1	SHALL		3335-31903	2.16.840.1.113883.10.20.28.4.2 6
@extension	1..1	SHALL		3335-33370	2017-05-01
id	1..1	SHALL		3335-31904	
code	1..1	SHALL		3335-31905	
@valueSet	0..1	SHOULD		3335-31906	
title	1..1	SHALL		3335-31907	
statusCode	1..1	SHALL		3335-31908	
@code	1..1	SHALL		3335-31909	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = active
effectiveTime	0..1	MAY	IVL_TS	3335-31910	
low	0..1	MAY		3335-31911	
high	0..1	MAY		3335-31912	
lengthOfStayQuantity	0..1	MAY		3335-31913	
participation	0..1	MAY		3335-31914	
@typeCode	1..1	SHALL		3335-31915	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode) = LOC
role	1..1	SHALL		3335-31916	Facility Location (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.92:2017-05-01
outboundRelationship	0..1	MAY		3335-34336	
@typeCode	1..1	SHALL		3335-34337	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = RSON

observationCriteria	1..1	SHALL		3335-34338	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01)
---------------------	------	-------	--	----------------------------	--

1. **SHALL** contain exactly one [1..1] **@classCode**="ENC" Encounter (CONF:3335-31898).
2. **SHALL** contain exactly one [1..1] **@moodCode**="EVN" Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-31899).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-31901).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-31902).
 - i. This item **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.28.4.26" (CONF:3335-31903).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension**="2017-05-01" (CONF:3335-33370).
4. **SHALL** contain exactly one [1..1] **id** (CONF:3335-31904).
5. **SHALL** contain exactly one [1..1] **code** (CONF:3335-31905).
 - a. This code **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-31906).
6. **SHALL** contain exactly one [1..1] **title** (CONF:3335-31907).
7. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-31908).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code**="active" Active (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-31909).
8. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-31910).

Note: QDM attribute: Relevant Period

 - a. The effectiveTime, if present, **MAY** contain zero or one [0..1] **low** (CONF:3335-31911).

Note: Admission Datetime (The time the encounter began)
 - b. The effectiveTime, if present, **MAY** contain zero or one [0..1] **high** (CONF:3335-31912).

Note: Discharge Datetime (The time the encounter ended)
9. **MAY** contain zero or one [0..1] **lengthOfStayQuantity** (CONF:3335-31913).

Note: QDM Attribute: Length of Stay
10. **MAY** contain zero or one [0..1] **participation** (CONF:3335-31914) such that it

Note: QDM Attribute: Facility Location

 - a. **SHALL** contain exactly one [1..1] **@typeCode**="LOC" Location (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-31915).
 - b. **SHALL** contain exactly one [1..1] **Facility Location** (identifier: [urn:hl7ii:2.16.840.1.113883.10.20.28.4.92:2017-05-01](#)) (CONF:3335-31916).
11. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-34336) such that it

Note: QDM Attribute: Reason

 - a. **SHALL** contain exactly one [1..1] **@typeCode**="RSON" Has Reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-34337).
 - b. **SHALL** contain exactly one [1..1] **Reason** (identifier: [urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01](#)) (CONF:3335-34338).

Figure 24: Encounter, Active Example

```
<encounterCriteria classCode="ENC" moodCode="EVN">
    <templateId>
        <item root="2.16.840.1.113883.10.20.28.3.26" extension="2017-05-01"/>
    </templateId>
    <id root="849ef94a-c345-4a63-adec-1e58367758d7"/>
    <code valueSet="{$QDMElementValueSetOID}"/>
    <title value="Encounter, Active"/>
    <statusCode code="active"/>
    <lengthOfStayQuantity>
        <uncertainRange highClosed="true">
            <high xsi:type="PQ" value="120" unit="d"/>
        </uncertainRange>
    </lengthOfStayQuantity>
</encounterCriteria>
```

5.21 Encounter, Order

[EncounterCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.27:2017-05-01 (open)]

Table 53: Encounter, Order Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Facility Location Reason

This template represents the QDM data type: Encounter, Order.

This template describes an order for an encounter. It describes the ordered interactions between the patient and clinicians. Interactions include in-person encounters, telephone conversations, and email exchanges.

Timing: The time the order is signed; author datetime.

Table 54: Encounter, Order Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
EncounterCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.27:2017-05-01)					
@classCode	1..1	SHALL		3335-30860	ENC
@moodCode	1..1	SHALL		3335-30861	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = RQO
@actionNegationInd	0..1	MAY		3335-30862	
templateId	1..1	SHALL		3335-30863	
item	1..1	SHALL		3335-30864	
@root	1..1	SHALL		3335-30865	2.16.840.1.113883.10.20.28.4.2 7
@extension	1..1	SHALL		3335-33645	2017-05-01
id	1..1	SHALL		3335-30866	
code	1..1	SHALL		3335-30867	
@valueSet	0..1	SHOULD		3335-30868	
title	1..1	SHALL		3335-30869	
statusCode	1..1	SHALL		3335-30870	
@code	0..1	SHALL		3335-30871	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = active
participation	0..1	MAY		3335-30875	
@typeCode	1..1	SHALL		3335-30876	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode) = LOC
role	1..1	SHALL		3335-30877	Facility Location (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.92:2017-05-01
participation	0..1	MAY		3335-33485	
@typeCode	1..1	SHALL		3335-33487	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = AUT
time	1..1	SHALL		3335-33486	
low	1..1	SHALL		3335-33488	
role	1..1	SHALL		3335-33575	

@classCode	1..1	SHALL		3335-33576	urn:oid:2.16.840.1.113883.5.110 (HL7RoleClass) = ROL
id	0..1	MAY		3335-33577	
outboundRelationship	0..1	MAY		3335-30878	
@typeCode	1..1	SHALL		3335-30879	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-30880	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01)

1. **SHALL** contain exactly one [1..1] **@classCode**="ENC" Encounter (CONF:3335-30860).
2. **SHALL** contain exactly one [1..1] **@moodCode**="RQO" Request (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-30861).
3. **MAY** contain zero or one [0..1] **@actionNegationInd** (CONF:3335-30862).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-30863).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-30864).
 - i. This item **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.28.4.27" (CONF:3335-30865).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension**="2017-05-01" (CONF:3335-33645).
5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-30866).
6. **SHALL** contain exactly one [1..1] **code** (CONF:3335-30867).
 - a. This code **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-30868).
7. **SHALL** contain exactly one [1..1] **title** (CONF:3335-30869).
8. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-30870).
 - a. This statusCode **SHALL** contain zero or one [0..1] **@code**="active" Active (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-30871).
9. **MAY** contain zero or one [0..1] **participation** (CONF:3335-30875) such that it
Note: QDM Attribute: Facility Location
 - a. **SHALL** contain exactly one [1..1] **@typeCode**="LOC" Location (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30876).
 - b. **SHALL** contain exactly one [1..1] **Facility Location** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.92:2017-05-01) (CONF:3335-30877).
10. **MAY** contain zero or one [0..1] **participation** (CONF:3335-33485) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode**="AUT" Author (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-33487).
 - b. **SHALL** contain exactly one [1..1] **time** (CONF:3335-33486).
 - i. This time **SHALL** contain exactly one [1..1] **low** (CONF:3335-33488).
Note: QDM Attribute: Author Datetime

- c. **SHALL** contain exactly one [1..1] **role** (CONF:3335-33575).
 - i. This role **SHALL** contain exactly one [1..1] **@classCode="ROL"** Role (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-33576).
 - ii. This role **MAY** contain zero or one [0..1] **id** (CONF:3335-33577).
11. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-30878) such that it Note: QDM Attribute: Reason
- a. **SHALL** contain exactly one [1..1] **@typeCode="RSON"** Has Reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-30879).
 - b. **SHALL** contain exactly one [1..1] **Reason** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-30880).

Figure 25: Encounter, Order Example

```
<encounterCriteria classCode="ENC" moodCode="RQO">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.27" extension="2017-05-01"/>
  </templateId>
  <id root="c4cb3abb-1e2e-4b3a-97c1-de1685b7da02"/>
  <code valueSet="{$QDMElementValueSetOID}"/>
  <title value="Encounter, Order"/>
  <statusCode code="active"/>
</encounterCriteria>
```

5.22 Encounter, Performed

[EncounterCriteria: identifier urn:hl7ii:2.16.840.1.113883.10.20.28.4.5:2017-05-01 (open)]

Table 55: Encounter, Performed Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Admission Source Diagnosis Facility Location Principal Diagnosis Reason

This template represents the QDM data type: Encounter, Performed.

An encounter is an identifiable grouping of healthcare-related activities characterized by the entity relationship between the subject of care and a healthcare provider; such grouping is determined by the healthcare provider. A patient encounter represents interaction between a healthcare provider and a patient with a face-to-face patient visit to a clinician's office, or any electronically remote interaction with a clinician for any form of diagnostic treatment or therapeutic event.

This template represents an encounter that is completed.

Timing: The Relevant Period addresses: startTime – The time the encounter began (admission time); stopTime – The time the encounter ended (discharge time).

Table 56: Encounter, Performed Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
EncounterCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.5:2017-05-01)					
@classCode	1..1	SHALL		3335-31005	ENC
@moodCode	1..1	SHALL		3335-31006	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
@actionNegationInd	0..1	MAY		3335-31007	
templateId	1..1	SHALL		3335-31008	
item	1..1	SHALL		3335-31009	
@root	1..1	SHALL		3335-31010	2.16.840.1.113883.10.20.28.4.5
@extension	1..1	SHALL		3335-33397	2017-05-01
id	1..1	SHALL		3335-31011	
code	1..1	SHALL		3335-31012	
@valueSet	0..1	SHOULD		3335-31013	
title	1..1	SHALL		3335-31014	
statusCode	1..1	SHALL		3335-31015	
@code	1..1	SHALL		3335-31016	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
effectiveTime	0..1	MAY	IVL_TS	3335-31017	
low	0..1	MAY		3335-31018	
high	0..1	MAY		3335-31019	
lengthOfStayQuantity	0..1	MAY		3335-31033	
dischargeDispositionCode	0..1	MAY		3335-31034	
@valueSet	0..1	SHOULD		3335-33105	
participation	0..1	MAY		3335-31021	
@typeCode	1..1	SHALL		3335-31022	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode) = LOC

role	1..1	SHALL		3335-31023	Facility Location (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.92:2017-05-01)
participation	0..1	MAY		3335-34371	
@typeCode	1..1	SHALL		3335-34372	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode) = LOC
role	1..1	SHALL		3335-34373	Admission Source (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.123:2017-05-01)
participation	0..1	MAY		3335-34656	
@typeCode	1..1	SHALL		3335-34659	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = AUT
time	1..1	SHALL		3335-34657	
low	1..1	SHALL		3335-34660	
role	1..1	SHALL		3335-34658	
@classCode	1..1	SHALL		3335-34661	urn:oid:2.16.840.1.113883.5.110 (HL7RoleClass) = ROL
id	0..1	MAY		3335-34662	
outboundRelationship	0..1	MAY		3335-31024	
@typeCode	1..1	SHALL		3335-31025	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-31026	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01)
outboundRelationship	0..1	MAY		3335-33756	
@typeCode	1..1	SHALL		3335-33760	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = REFR
observationCriteria	1..1	SHALL		3335-34374	Principal Diagnosis (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.122:2017-05-01)
outboundRelationship	0..1	MAY		3335-34041	
@typeCode	1..1	SHALL		3335-34045	REFR
observationCriteria	1..1	SHALL		3335-34375	Diagnosis (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.110:2017-05-01)

1. **SHALL** contain exactly one [1..1] `@classCode="ENC"` Encounter (CONF:3335-31005).
2. **SHALL** contain exactly one [1..1] `@moodCode="EVN"` Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-31006).
3. **MAY** contain zero or one [0..1] `@actionNegationInd` (CONF:3335-31007).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] `templateId` (CONF:3335-31008).
 - a. This templateId **SHALL** contain exactly one [1..1] `item` (CONF:3335-31009).
 - i. This item **SHALL** contain exactly one [1..1] `@root="2.16.840.1.113883.10.20.28.4.5"` (CONF:3335-31010).
 - ii. This item **SHALL** contain exactly one [1..1] `@extension="2017-05-01"` (CONF:3335-33397).
5. **SHALL** contain exactly one [1..1] `id` (CONF:3335-31011).
6. **SHALL** contain exactly one [1..1] `code` (CONF:3335-31012).
 - a. This code **SHOULD** contain zero or one [0..1] `@valueSet` (CONF:3335-31013).
7. **SHALL** contain exactly one [1..1] `title` (CONF:3335-31014).
8. **SHALL** contain exactly one [1..1] `statusCode` (CONF:3335-31015).
 - a. This statusCode **SHALL** contain exactly one [1..1] `@code="completed"` Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-31016).
9. **MAY** contain zero or one [0..1] `effectiveTime` (CONF:3335-31017).
Note: QDM Attribute: Relevant Period
 - a. The effectiveTime, if present, **MAY** contain zero or one [0..1] `low` (CONF:3335-31018).
Note: Admission Datetime (The time the encounter began)
 - b. The effectiveTime, if present, **MAY** contain zero or one [0..1] `high` (CONF:3335-31019).
Note: Discharge Datetime (The time the encounter ended)
10. **MAY** contain zero or one [0..1] `lengthOfStayQuantity` (CONF:3335-31033).
Note: QDM Attribute: Length of Stay
11. **MAY** contain zero or one [0..1] `dischargeDispositionCode` (CONF:3335-31034).
Note: QDM Attribute: Discharge status
 - a. The dischargeDispositionCode, if present, **SHOULD** contain zero or one [0..1] `@valueSet` (CONF:3335-33105).
12. **MAY** contain zero or one [0..1] `participation` (CONF:3335-31021) such that it
Note: QDM Attribute: Facility Location
 - a. **SHALL** contain exactly one [1..1] `@typeCode="LOC"` Location (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-31022).
 - b. **SHALL** contain exactly one [1..1] `Facility Location` (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.92:2017-05-01) (CONF:3335-31023).
13. **MAY** contain zero or one [0..1] `participation` (CONF:3335-34371) such that it
Note: QDM Attribute: Admission Source
 - a. **SHALL** contain exactly one [1..1] `@typeCode="LOC"` Location (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-34372).

- b. **SHALL** contain exactly one [1..1] **Admission Source** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.123:2017-05-01) (CONF:3335-34373).
14. **MAY** contain zero or one [0..1] **participation** (CONF:3335-34656) such that it
- a. **SHALL** contain exactly one [1..1] @**typeCode**="AUT" Author (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-34659).
 - b. **SHALL** contain exactly one [1..1] **time** (CONF:3335-34657).
 - i. This time **SHALL** contain exactly one [1..1] **low** (CONF:3335-34660).
Note: QDM Attribute: Author Datetime
 - c. **SHALL** contain exactly one [1..1] **role** (CONF:3335-34658).
 - i. This role **SHALL** contain exactly one [1..1] @**classCode**="ROL" Role (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-34661).
 - ii. This role **MAY** contain zero or one [0..1] **id** (CONF:3335-34662).
15. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-31024) such that it
Note: QDM Attribute: Reason
- a. **SHALL** contain exactly one [1..1] @**typeCode**="RSON" Has Reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-31025).
 - b. **SHALL** contain exactly one [1..1] **Reason** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-31026).
16. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-33756) such that it
Note: QDM Attribute: Principal Diagnosis
- a. **SHALL** contain exactly one [1..1] @**typeCode**="REFR" (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-33760).
 - b. **SHALL** contain exactly one [1..1] **Principal Diagnosis** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.122:2017-05-01) (CONF:3335-34374).
17. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-34041) such that it
Note: QDM Attribute: Diagnosis
- a. **SHALL** contain exactly one [1..1] @**typeCode**="REFR" (CONF:3335-34045).
 - b. **SHALL** contain exactly one [1..1] **Diagnosis** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.110:2017-05-01) (CONF:3335-34375).

Figure 26: Encounter, Performed Example

```
<encounterCriteria classCode="ENC" moodCode="EVN">
    <templateId>
        <item root="2.16.840.1.113883.10.20.28.3.5" extension="2017-05-01"/>
    </templateId>
    <id root="d7fbe089-ff04-4f58-b604-cb6d5ebce4cc"/>
    <code valueSet="{$QDMElementValueSetOID}"/>
    <title value="Encounter, Performed"/>
    <statusCode code="completed"/>
    <outboundRelationship typeCode="REFR">
        <actCriteria classCode="ACT" moodCode="EVN">
            <id root="9f751ae5-edb2-4fb3-b49c-d0f0fdef3999"/>
            <code code="52534-5" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC">
                <displayName value="Principal Diagnosis"/>
            </code>
            <title value="Encounter Principal Diagnosis"/>
            <outboundRelationship typeCode="SUBJ">
                <observationCriteria classCode="OBS" moodCode="EVN">
                    <templateId>
                        <item root="2.16.840.1.113883.10.20.28.3.110"/>
                    </templateId>
                    <id root="9e4e810d-3c3e-461e-86f8-6fe7a0b1ca2b"/>
                    <code code="282291009" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED CT">
                        <displayName value="Diagnosis"/>
                    </code>
                    <title value="Diagnosis"/>
                    <statusCode code="completed"/>
                    <value xsi:type="CD" valueSet="{$PrincipalDxValueSet}"/>
                </observationCriteria>
            </outboundRelationship>
        </actCriteria>
    </outboundRelationship>
</encounterCriteria>
```

5.23 Encounter, Recommended

[`EncounterCriteria: identifier`
`urn:hl7ii:2.16.840.1.113883.10.20.28.4.28:2017-05-01 (open)`]

Table 57: Encounter, Recommended Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Facility Location Reason

This template represents the QDM data type: Encounter, Recommended.

This template describes a recommendation for an encounter. It describes the recommended interactions between the patient and clinicians. Interactions include in-person encounters, telephone conversations, and email exchanges.

Timing: The time the recommendation is authored (i.e., provided to the patient).

All QDM datatypes referring to recommendations address the time that the recommendation occurs, a single point in time. Vendors have expressed concerns that recommendations are not necessarily captured or managed in a standard manner as part of structured data capture in clinical workflow; many are documented as part of assessments in narrative text. Measure developers should address feasibility of clinical workflow to capture recommendations when evaluating measures.

Table 58: Encounter, Recommended Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
EncounterCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.28:2017-05-01)					
@classCode	1..1	SHALL		3335-30854	ENC
@moodCode	1..1	SHALL		3335-30518	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = INT
@actionNegationInd	0..1	MAY		3335-30855	
templateId	1..1	SHALL		3335-30519	
item	1..1	SHALL		3335-30520	
@root	1..1	SHALL		3335-30521	2.16.840.1.113883.10.20.28.4.2 8
@extension	1..1	SHALL		3335-33694	2017-05-01
id	1..1	SHALL		3335-30522	
code	1..1	SHALL		3335-30523	
@valueSet	0..1	SHOULD		3335-30856	
title	1..1	SHALL		3335-30526	
statusCode	1..1	SHALL		3335-30857	
@code	0..1	SHALL		3335-30858	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = active
participation	0..1	MAY		3335-30532	
@typeCode	1..1	SHALL		3335-30859	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode) = LOC
role	1..1	SHALL		3335-30533	Facility Location (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.92:2017-05-01
participation	0..1	MAY		3335-34377	
@typeCode	1..1	SHALL		3335-34380	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = AUT
time	1..1	SHALL		3335-34378	
low	1..1	SHALL		3335-34381	
role	1..1	SHALL		3335-34379	

id	0..1	MAY		3335-34382	
outboundRelationship	0..1	MAY		3335-30534	
@typeCode	1..1	SHALL		3335-30535	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-30536	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01)

1. **SHALL** contain exactly one [1..1] **@classCode**="ENC" Encounter (CONF:3335-30854).
2. **SHALL** contain exactly one [1..1] **@moodCode**="INT" Intent (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-30518).
3. **MAY** contain zero or one [0..1] **@actionNegationInd** (CONF:3335-30855).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-30519).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-30520).
 - i. This item **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.28.4.28" (CONF:3335-30521).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension**="2017-05-01" (CONF:3335-33694).
5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-30522).
6. **SHALL** contain exactly one [1..1] **code** (CONF:3335-30523).
 - a. This code **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-30856).
7. **SHALL** contain exactly one [1..1] **title** (CONF:3335-30526).
8. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-30857).
 - a. This statusCode **SHALL** contain zero or one [0..1] **@code**="active" Active (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-30858).
9. **MAY** contain zero or one [0..1] **participation** (CONF:3335-30532) such that it
Note: QDM Attribute: Facility Location
 - a. **SHALL** contain exactly one [1..1] **@typeCode**="LOC" Location (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30859).
 - b. **SHALL** contain exactly one [1..1] **Facility Location** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.92:2017-05-01) (CONF:3335-30533).
10. **MAY** contain zero or one [0..1] **participation** (CONF:3335-34377) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode**="AUT" Author (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-34380).
 - b. **SHALL** contain exactly one [1..1] **time** (CONF:3335-34378).
 - i. This time **SHALL** contain exactly one [1..1] **low** (CONF:3335-34381).
Note: QDM Attribute: Author Datetime
 - c. **SHALL** contain exactly one [1..1] **role** (CONF:3335-34379).
 - i. This role **MAY** contain zero or one [0..1] **id** (CONF:3335-34382).

11. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-30534) such that it

Note: QDM Attribute: Reason

- a. **SHALL** contain exactly one [1..1] @**typeCode**="RSON" Has Reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-30535).
- b. **SHALL** contain exactly one [1..1] **Reason** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-30536).

Figure 27: Encounter, Recommended Example

```
<encounterCriteria classCode="ENC" moodCode="INT">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.28" extension="2017-05-01"/>
  </templateId>
  <id root="0c2f3978-f615-4138-af4f-59ef78b46c62"/>
  <code valueSet="{$QDMElementValueSetOID}"/>
  <title value="Encounter, Recommended"/>
  <statusCode code="active"/>
</encounterCriteria>
```

5.24 Facility Location

[Role: identifier urn:hl7ii:2.16.840.1.113883.10.20.28.4.92:2017-05-01
(open)]

Table 59: Facility Location Contexts

Contained By:	Contains:
Adverse Event (required) Diagnostic Study, Performed (optional) Encounter, Active (optional) Encounter, Order (optional) Encounter, Performed (optional) Encounter, Recommended (optional)	

This template represents the QDM attribute: Facility Location.

The particular location of a facility in which the diagnostic study or encounter occurs or occurred. Examples include, but are not limited to, intensive care units (ICUs), non-ICUs, burn critical-care unit, neonatal ICU, and respiratory-care unit.

The Location Period addresses: StartTime = the time the patient arrived at the location; StopTime = the time the patient departed from the location.

Table 60: Facility Location Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
Role (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.92:2017-05-01)					
@classCode	1..1	SHALL		3335-30514	urn:oid:2.16.840.1.113883.5.110 (HL7RoleClass) = SDLOC
templateId	1..1	SHALL		3335-30515	
item	1..1	SHALL		3335-30516	
@root	1..1	SHALL		3335-30517	2.16.840.1.113883.10.20.28.3.92
@extension	1..1	SHALL		3335-34376	2016-12-01
code	0..1	SHOULD		3335-30900	
@valueSet	0..1	SHOULD		3335-30901	
effectiveTime	0..1	MAY		3335-31926	
low	0..1	MAY		3335-31927	
high	0..1	MAY		3335-31928	

1. **SHALL** contain exactly one [1..1] **@classCode="SDLOC"** Service Delivery Location (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-30514).
2. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-30515).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-30516).
 - i. This item **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.3.92"** (CONF:3335-30517).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension="2016-12-01"** (CONF:3335-34376).
3. **SHOULD** contain zero or one [0..1] **code** (CONF:3335-30900).
 - a. The code, if present, **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-30901).
4. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-31926).

Note: QDM Attribute: Location Period

- a. The effectiveTime, if present, **MAY** contain zero or one [0..1] **low** (CONF:3335-31927).
Note: Facility Location Arrival Datetime (The time the patient arrived at the location)
- b. The effectiveTime, if present, **MAY** contain zero or one [0..1] **high** (CONF:3335-31928).
Note: Facility Location Departure Datetime (The time the patient departed from the location)

Figure 28: Facility Location Example

```
<role classCode="SDLOC">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.92" extension="2017-05-01"/>
  </templateId>
  <code valueSet="{$QDMElementValueSetOID}"/>
</role>
```

5.25 Family History

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.111:2017-05-01 (open)]

Table 61: Family History Contexts

Contained By:	Contains:
Data Criteria Section (optional)	

Family History represents a diagnosis or problem experienced by a family member of the patient. Typically, a family history will not contain very much detail, but the simple identification of a diagnosis or problem in the patient's family history may be relevant to the care of the patient.

Timing: The time the family history item is authored (i.e., entered into the record).

Table 62: Family History Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.111:2017-05-01)					
@classCode	1..1	SHALL		3335-33797	OBS
@moodCode	1..1	SHALL		3335-33798	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3335-33791	
item	1..1	SHALL		3335-33792	
@root	1..1	SHALL		3335-33799	2.16.840.1.113883.10.20.28.4.1 11
@extension	0..1	MAY		3335-34383	2017-05-01
id	1..1	SHALL		3335-33800	
code	1..1	SHALL		3335-33793	
@code	0..1	SHALL		3335-33801	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 10157- 6
@codeSystem	1..1	SHALL		3335-33802	2.16.840.1.113883.6.1
title	1..1	SHALL		3335-33803	
statusCode	1..1	SHALL		3335-33794	
@code	1..1	SHALL		3335-33804	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
value	1..1	SHALL	CD	3335-33795	
@valueSet	0..1	SHOULD		3335-33805	
participation	0..1	MAY		3335-33796	
@typeCode	1..1	SHALL		3335-33806	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = AUT
time	1..1	SHALL		3335-33807	
low	1..1	SHALL		3335-33815	
role	1..1	SHALL		3335-33808	
@classCode	1..1	SHALL		3335-33817	ROL
id	0..1	MAY		3335-33818	

participation	0..1	MAY		3335-33809	
@typeCode	1..1	SHALL		3335-33819	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = SUBJ
role	1..1	SHALL		3335-33810	
@classCode	1..1	SHALL		3335-33820	PRS
code	1..1	SHALL		3335-33811	
@valueSet	0..1	SHOULD		3335-33821	

1. **SHALL** contain exactly one [1..1] **@classCode="OBS"** Observation (CONF:3335-33797).
2. **SHALL** contain exactly one [1..1] **@moodCode="EVN"** Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-33798).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-33791).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-33792).
 - i. This item **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.4.111"** (CONF:3335-33799).
 - ii. This item **MAY** contain zero or one [0..1] **@extension="2017-05-01"** (CONF:3335-34383).
4. **SHALL** contain exactly one [1..1] **id** (CONF:3335-33800).
5. **SHALL** contain exactly one [1..1] **code** (CONF:3335-33793).
 - a. This code **SHALL** contain zero or one [0..1] **@code="10157- 6"** Family History (CodeSystem: LOINC urn:oid:2.16.840.1.113883.6.1) (CONF:3335-33801).
 - b. This code **SHALL** contain exactly one [1..1] **@codeSystem="2.16.840.1.113883.6.1"** (LOINC) (CONF:3335-33802).
6. **SHALL** contain exactly one [1..1] **title** (CONF:3335-33803).
7. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-33794).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code="completed"** Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-33804).
8. **SHALL** contain exactly one [1..1] **value** with @xsi:type="CD" (CONF:3335-33795).
 - a. This value **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-33805).
Note: {\$QDMElementValueSetOID}
9. **MAY** contain zero or one [0..1] **participation** (CONF:3335-33796) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode="AUT"** Author (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-33806).
 - b. **SHALL** contain exactly one [1..1] **time** (CONF:3335-33807).
 - i. This time **SHALL** contain exactly one [1..1] **low** (CONF:3335-33815).
Note: QDM Attribute: Author Datetime (The time the family history item is authored (i.e., entered into the record))
 - c. **SHALL** contain exactly one [1..1] **role** (CONF:3335-33808).

- i. This role **SHALL** contain exactly one [1..1] @classCode="ROL" Role (CONF:3335-33817).
- ii. This role **MAY** contain zero or one [0..1] **id** (CONF:3335-33818).

10. **MAY** contain zero or one [0..1] **participation** (CONF:3335-33809) such that it

Note: QDM Attribute: Relationship

- a. **SHALL** contain exactly one [1..1] @typeCode="SUBJ" Subject (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-33819).
- b. **SHALL** contain exactly one [1..1] **role** (CONF:3335-33810).
 - i. This role **SHALL** contain exactly one [1..1] @classCode="PRS" Person (CONF:3335-33820).
 - ii. This role **SHALL** contain exactly one [1..1] **code** (CONF:3335-33811).
 - 1. This code **SHOULD** contain zero or one [0..1] @valueSet (CONF:3335-33821).

Figure 29: Family History Example

```

<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.111" extension="2017-05-01"/>
  </templateId>
  <id root="bd4673f9-0da9-4491-98ba-a00c4191d518"/>
  <code code="10157-6" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC">
    <displayName value="Family History"/>
  </code>
  <title value="Family History"/>
  <statusCode code="completed"/>
  <value xsi:type="CD" valueSet="{$QDMElementValueSetOID}"/>
  <participation typeCode="SBJ">
    <role classCode="PRS">
      <code valueSet="{$RelationshipValueSetOID}"/>
    </role>
  </participation>
</observationCriteria>

```

5.26 Frequency

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.99:2017-05-01 (open)]

Table 63: Frequency Contexts

Contained By:	Contains:
Medication, Active (optional) Medication, Administered (optional) Medication, Discharge (optional) Medication, Dispensed (optional) Medication, Order (optional) Substance, Administered (optional) Substance, Order (optional) Substance, Recommended (optional)	

This template represents the QDM attribute: Frequency.

Frequency represents number of times a medication is given within a specified time.

Table 64: Frequency Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.99:2017-05-01)					
@classCode	1..1	SHALL		3335-31049	OBS
@moodCode	1..1	SHALL		3335-31050	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3335-31051	
item	1..1	SHALL		3335-31052	
@root	1..1	SHALL		3335-31053	2.16.840.1.113883.10.20.28.4.9 9
@extension	1..1	SHALL		3335-34652	2017-05-01
id	1..1	SHALL		3335-31054	
code	1..1	SHALL		3335-31055	
@code	1..1	SHALL		3335-31056	307430002
@codeSystem	1..1	SHALL		3335-31057	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 2.16.840.1.113883.6.96
title	1..1	SHALL		3335-31058	
value	1..1	SHALL		3335-31059	

1. **SHALL** contain exactly one [1..1] @classCode="OBS" Observation (CONF:3335-31049).
2. **SHALL** contain exactly one [1..1] @moodCode="EVN" Event (CodeSystem: HL7ActMood
urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-31050).
3. **SHALL** contain exactly one [1..1] templateId (CONF:3335-31051).
 - a. This templateId **SHALL** contain exactly one [1..1] item (CONF:3335-31052).
 - i. This item **SHALL** contain exactly one [1..1]
@root="2.16.840.1.113883.10.20.28.4.99" (CONF:3335-31053).
 - ii. This item **SHALL** contain exactly one [1..1] @extension="2017-05-01"
(CONF:3335-34652).
4. **SHALL** contain exactly one [1..1] id (CONF:3335-31054).
5. **SHALL** contain exactly one [1..1] code (CONF:3335-31055).
 - a. This code **SHALL** contain exactly one [1..1] @code="307430002" Frequency
(CONF:3335-31056).

- b. This code **SHALL** contain exactly one [1..1] @codeSystem="2.16.840.1.113883.6.96" (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:3335-31057).
- 6. **SHALL** contain exactly one [1..1] **title** (CONF:3335-31058).
- 7. **SHALL** contain exactly one [1..1] **value** (CONF:3335-31059).

Figure 30: Frequency Example

```
<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.99"/>
  </templateId>
  <id root="bfb593cb-3547-4fa6-940d-2869c80c022d"/>
  <code code="307430002" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED CT">
    <displayName value="Frequency"/>
  </code>
  <title value="Frequency"/>
  <value xsi:type="CD" valueSet="{$QDMElementValueSetOID}"/>
</observationCriteria>
```

5.27 Immunization, Administered

[substanceAdministrationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.112:2017-05-01 (open)]

Table 65: Immunization, Administered Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Dosage Reason

This template represents the QDM data type: Immunization, Administered.

Immunization represents vaccines administered to patients in healthcare settings but does not include non-vaccine agents.

Timing: The time the immunization is administered, i.e., a single point in time, or author datetime.

Table 66: Immunization, Administered Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
substanceAdministrationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.112:2017-05-01)					
@classCode	1..1	SHALL		3335-33833	SBADM
@moodCode	1..1	SHALL		3335-33834	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
@actionNegationInd	0..1	MAY		3335-33835	
templateId	1..1	SHALL		3335-33830	
item	1..1	SHALL		3335-33831	
@root	1..1	SHALL		3335-33836	2.16.840.1.113883.10.20.28.4.1 12
@extension	1..1	SHALL		3335-34384	2017-05-01
id	1..1	SHALL		3335-33837	
code	1..1	SHALL		3335-33832	
@code	1..1	SHALL		3335-33838	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 416118004
@codeSystem	1..1	SHALL		3335-33839	2.16.840.1.113883.6.96
title	1..1	SHALL		3335-33840	
statusCode	1..1	SHALL		3335-33841	
@code	1..1	SHALL		3335-33847	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
effectiveTime	0..1	MAY	IVL_TS	3335-33842	
low	1..1	SHALL		3335-33848	
routeCode	0..1	MAY		3335-33843	
@valueSet	0..1	SHOULD		3335-33850	
doseQuantity	0..1	MAY		3335-33851	
participation	1..1	SHALL		3335-33844	
@typeCode	1..1	SHALL		3335-33852	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = CSM
role	1..1	SHALL		3335-33845	

@classCode	1..1	SHALL		3335-33853	urn:oid:2.16.840.1.113883.5.110 (HL7RoleClass) = MANU
playingManufacturedMaterial	1..1	SHALL		3335-33846	
@classCode	1..1	SHALL		3335-33854	urn:oid:2.16.840.1.113883.5.41 (HL7EntityClass) = MMAT
@determinerCode	1..1	SHALL		3335-33855	urn:oid:2.16.840.1.113883.5.30 (EntityDeterminer) = KIND
code	1..1	SHALL		3335-33856	
@valueSet	0..1	SHOULD		3335-33858	
outboundRelationship	0..1	MAY		3335-33857	
@typeCode	1..1	SHALL		3335-33859	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-33860	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01)
outboundRelationship	0..1	MAY		3335-34491	
@typeCode	1..1	SHALL		3335-34492	REFR
observationCriteria	1..1	SHALL		3335-34493	Dosage (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.125:2017-05-01)

1. **SHALL** contain exactly one [1..1] **@classCode**="SBADM" Substance Administration (CONF:3335-33833).
2. **SHALL** contain exactly one [1..1] **@moodCode**="EVN" Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-33834).
3. **MAY** contain zero or one [0..1] **@actionNegationInd** (CONF:3335-33835).
Note: QDM Attribute: Negation rationale
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-33830).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-33831).
 - i. This item **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.28.4.112" (CONF:3335-33836).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension**="2017-05-01" (CONF:3335-34384).
5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-33837).
6. **SHALL** contain exactly one [1..1] **code** (CONF:3335-33832).
 - a. This code **SHALL** contain exactly one [1..1] **@code**="416118004" Administration (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:3335-33838).

- b. This code **SHALL** contain exactly one [1..1] @codeSystem="2.16.840.1.113883.6.96" (SNOMED CT) (CONF:3335-33839).
7. **SHALL** contain exactly one [1..1] **title** (CONF:3335-33840).
8. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-33841).
- a. This statusCode **SHALL** contain exactly one [1..1] @code="completed" Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-33847).
9. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-33842).
- a. The effectiveTime, if present, **SHALL** contain exactly one [1..1] **low** (CONF:3335-33848).
- Note: QDM Attribute: Author Datetime (The time the immunization is administered, i.e., a single point in time))
10. **MAY** contain zero or one [0..1] **routeCode** (CONF:3335-33843).
- a. The routeCode, if present, **SHOULD** contain zero or one [0..1] @valueSet (CONF:3335-33850).
- Note: QDM Attribute: Route
11. **MAY** contain zero or one [0..1] **doseQuantity** (CONF:3335-33851).
- Note: QDM Attribute: Supply
12. **SHALL** contain exactly one [1..1] **participation** (CONF:3335-33844) such that it
- a. **SHALL** contain exactly one [1..1] @typeCode="CSM" Consumable (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-33852).
 - b. **SHALL** contain exactly one [1..1] **role** (CONF:3335-33845).
 - i. This role **SHALL** contain exactly one [1..1] @classCode="MANU" Manufactured (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-33853).
 - ii. This role **SHALL** contain exactly one [1..1] **playingManufacturedMaterial** (CONF:3335-33846).
 - 1. This playingManufacturedMaterial **SHALL** contain exactly one [1..1] @classCode="MMAT" Manufactured Material (CodeSystem: HL7EntityClass urn:oid:2.16.840.1.113883.5.41) (CONF:3335-33854).
 - 2. This playingManufacturedMaterial **SHALL** contain exactly one [1..1] @determinerCode="KIND" Kind (CodeSystem: EntityDeterminer urn:oid:2.16.840.1.113883.5.30) (CONF:3335-33855).
 - 3. This playingManufacturedMaterial **SHALL** contain exactly one [1..1] **code** (CONF:3335-33856).
 - a. This code **SHOULD** contain zero or one [0..1] @valueSet (CONF:3335-33858).
13. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-33857) such that it
- Note: QDM Attribute: Reason
- a. **SHALL** contain exactly one [1..1] @typeCode="RSON" Has Reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-33859).

- b. **SHALL** contain exactly one [1..1] [Reason](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-33860).
14. **MAY** contain zero or one [0..1] [outboundRelationship](#) (CONF:3335-34491) such that it Note: QDM Attribute: Dosage
- a. **SHALL** contain exactly one [1..1] @[typeCode](#)="REFR" Refers To (CONF:3335-34492).
 - b. **SHALL** contain exactly one [1..1] [Dosage](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.125:2017-05-01) (CONF:3335-34493).

Figure 31: Immunization, Administered Example

```
<substanceAdministrationCriteria classCode="SBADM" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.112" extension="2017-05-01"/>
  </templateId>
  <id root="de28ff02-d2cf-436e-898a-58eb49e15b47"/>
  <code code="416118004" codeSystem="2.16.840.1.113883.6.96">
    <displayName value="Administration"/>
  </code>
  <title value="Immunization, Administered"/>
  <statusCode code="completed"/>
  <participation typeCode="CSM">
    <role classCode="MANU">
      <playingManufacturedMaterial classCode="MMAT" determinerCode="KIND">
        <code valueSet="{$QDMElementValueSetOID}"/>
      </playingManufacturedMaterial>
    </role>
  </participation>
</substanceAdministrationCriteria>
```

5.28 Immunization, Order

[substanceAdministrationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.113:2017-05-01 (open)]

Table 67: Immunization, Order Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Dosage Reason

This template represents the QDM data type: Immunization, Order.

Immunization represents vaccines administered to patients in healthcare settings but does not include non-vaccine agents.

Timing: The time the order is signed; author datetime.

Table 68: Immunization, Order Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
substanceAdministrationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.113:2017-05-01)					
@classCode	1..1	SHALL		3335-34025	SBADM
@moodCode	1..1	SHALL		3335-34026	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = RQO
@actionNegationInd	0..1	MAY		3335-34027	
templateId	1..1	SHALL		3335-34003	
item	1..1	SHALL		3335-34004	
@root	1..1	SHALL		3335-34016	2.16.840.1.113883.10.20.28.4.1 13
@extension	1..1	SHALL		3335-34385	2017-05-01
id	1..1	SHALL		3335-34028	
title	1..1	SHALL		3335-34029	
statusCode	1..1	SHALL		3335-34005	
@code	1..1	SHALL		3335-34017	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = active
effectiveTime	0..1	MAY	IVL_TS	3335-34006	
low	0..1	MAY		3335-34018	
routeCode	0..1	MAY		3335-34007	
@valueSet	0..1	SHOULD		3335-34019	
doseQuantity	0..1	MAY		3335-34030	
participation	1..1	SHALL		3335-34008	
@typeCode	1..1	SHALL		3335-34024	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = CSM
role	1..1	SHALL		3335-34009	
@classCode	1..1	SHALL		3335-34020	urn:oid:2.16.840.1.113883.5.11 0 (HL7RoleClass) = MANU
playingManufacturedMaterial	1..1	SHALL		3335-34010	
@classCode	1..1	SHALL		3335-34022	urn:oid:2.16.840.1.113883.5.41 (HL7EntityClass) = MMAT

@determinerCode	1..1	SHALL		3335-34023	urn:oid:2.16.840.1.113883.5.30 (HL7EntityDeterminer) = KIND
code	1..1	SHALL		3335-34011	
@valueSet	0..1	SHOULD		3335-34021	
participation	0..1	MAY		3335-34012	
@typeCode	1..1	SHALL		3335-34035	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = AUT
time	1..1	SHALL		3335-34013	
low	1..1	SHALL		3335-34031	
role	1..1	SHALL		3335-34014	
@classCode	1..1	SHALL		3335-34033	urn:oid:2.16.840.1.113883.5.11 0 (HL7RoleClass) = ROL
id	0..1	MAY		3335-34034	
outboundRelationship	0..1	MAY		3335-34002	
@typeCode	1..1	SHALL		3335-34036	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-34015	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.88:2017-05-01
outboundRelationship	0..1	MAY		3335-34494	
@typeCode	1..1	SHALL		3335-34495	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = REFR
observationCriteria	1..1	SHALL		3335-34496	Dosage (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.125:2017-05-01

1. **SHALL** contain exactly one [1..1] **@classCode="SBADM"** Substance Administration (CONF:3335-34025).
2. **SHALL** contain exactly one [1..1] **@moodCode="RQO"** Request (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-34026).
3. **MAY** contain zero or one [0..1] **@actionNegationInd** (CONF:3335-34027).
Note: QDM Attribute: Negation rationale
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-34003).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-34004).
 - i. This item **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.4.113"** (CONF:3335-34016).

- ii. This item **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-34385).
- 5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-34028).
- 6. **SHALL** contain exactly one [1..1] **title** (CONF:3335-34029).
- 7. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-34005).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code="active"** Active (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-34017).
- 8. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-34006).
 - a. The effectiveTime, if present, **MAY** contain zero or one [0..1] **low** (CONF:3335-34018).
Note: QDM Attribute: Active datetime
- 9. **MAY** contain zero or one [0..1] **routeCode** (CONF:3335-34007).
 - a. The routeCode, if present, **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-34019).
Note: QDM Attribute: Route
- 10. **MAY** contain zero or one [0..1] **doseQuantity** (CONF:3335-34030).
Note: QDM Attribute: Supply
- 11. **SHALL** contain exactly one [1..1] **participation** (CONF:3335-34008) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode="CSM"** Consumable (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-34024).
 - b. **SHALL** contain exactly one [1..1] **role** (CONF:3335-34009).
 - i. This role **SHALL** contain exactly one [1..1] **@classCode="MANU"** Manufactured (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-34020).
 - ii. This role **SHALL** contain exactly one [1..1] **playingManufacturedMaterial** (CONF:3335-34010).
 - 1. This playingManufacturedMaterial **SHALL** contain exactly one [1..1] **@classCode="MMAT"** Manufactured Material (CodeSystem: HL7EntityClass urn:oid:2.16.840.1.113883.5.41) (CONF:3335-34022).
 - 2. This playingManufacturedMaterial **SHALL** contain exactly one [1..1] **@determinerCode="KIND"** Kind (CodeSystem: HL7EntityDeterminer urn:oid:2.16.840.1.113883.5.30) (CONF:3335-34023).
 - 3. This playingManufacturedMaterial **SHALL** contain exactly one [1..1] **code** (CONF:3335-34011).
 - a. This code **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-34021).
- 12. **MAY** contain zero or one [0..1] **participation** (CONF:3335-34012) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode="AUT"** Author (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-34035).
 - b. **SHALL** contain exactly one [1..1] **time** (CONF:3335-34013).
 - i. This time **SHALL** contain exactly one [1..1] **low** (CONF:3335-34031).
Note: QDM Attribute: Author Time (The time the order is signed)
 - c. **SHALL** contain exactly one [1..1] **role** (CONF:3335-34014).

- i. This role **SHALL** contain exactly one [1..1] @classCode="ROL" Role (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-34033).
 - ii. This role **MAY** contain zero or one [0..1] **id** (CONF:3335-34034).
13. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-34002) such that it
 Note: QDM Attribute: Reason
- a. **SHALL** contain exactly one [1..1] @typeCode="RSON" Has Reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-34036).
 - b. **SHALL** contain exactly one [1..1] **Reason** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-34015).
14. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-34494) such that it
 Note: QDM Attribute: Dosage
- a. **SHALL** contain exactly one [1..1] @typeCode="REFR" Refers To (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-34495).
 - b. **SHALL** contain exactly one [1..1] **Dosage** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.125:2017-05-01) (CONF:3335-34496).

Figure 32: Immunization, Order Example

```
<substanceAdministrationCriteria classCode="SBADM" moodCode="RQO">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.113" extension="2017-05-01"/>
  </templateId>
  <id root="27beb8e3-7c86-48cf-b430-235b72786dea"/>
  <title value="Immunization, Order"/>
  <statusCode code="active"/>
  <participation typeCode="CSM">
    <role classCode="MANU">
      <playingMaterial classCode="MMAT" determinerCode="KIND">
        <code valueSet="{$QDMElementValueSetOID}"/>
      </playingMaterial>
    </role>
  </participation>
</substanceAdministrationCriteria>
```

5.29 Incision Datetime

[ProcedureCriteria: identifier
 urn:hl7ii:2.16.840.1.113883.10.20.28.4.89:2017-05-01 (open)]

Table 69: Incision Datetime Contexts

Contained By:	Contains:
Procedure, Performed (optional)	

This template represents the QDM attribute: Incision Datetime.

Incision datetime is the time the incision was made.

Table 70: Incision Datetime Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
ProcedureCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.89:2017-05-01)					
@classCode	1..1	SHALL		3335-29907	PROC
@moodCode	1..1	SHALL		3335-29908	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3335-29909	
item	1..1	SHALL		3335-29910	
@root	1..1	SHALL		3335-29911	2.16.840.1.113883.10.20.28.4.89
@extension	1..1	SHALL		3335-33648	2017-05-01
id	1..1	SHALL		3335-29912	
code	1..1	SHALL		3335-29913	
@code	1..1	SHALL		3335-29914	34896006
@codeSystem	1..1	SHALL		3335-29915	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 2.16.840.1.113883.6.96
statusCode	1..1	SHALL		3335-29993	
@code	1..1	SHALL		3335-33152	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode) = completed
effectiveTime	0..1	MAY	IVL_TS	3335-29916	
low	0..1	MAY		3335-29917	

1. **SHALL** contain exactly one [1..1] **@classCode="PROC"** (CONF:3335-29907).
2. **SHALL** contain exactly one [1..1] **@moodCode="EVN"** (CodeSystem: HL7ActMood
urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-29908).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-29909).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-29910).
 - i. This item **SHALL** contain exactly one [1..1]
@root="2.16.840.1.113883.10.20.28.4.89" (CONF:3335-29911).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension="2017-05-01"**
(CONF:3335-33648).

4. **SHALL** contain exactly one [1..1] **id** (CONF:3335-29912).
5. **SHALL** contain exactly one [1..1] **code** (CONF:3335-29913).
 - a. This code **SHALL** contain exactly one [1..1] @code="34896006" Incision (CONF:3335-29914).
 - b. This code **SHALL** contain exactly one [1..1] @codeSystem="2.16.840.1.113883.6.96" (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:3335-29915).
6. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-29993).
 - a. This statusCode **SHALL** contain exactly one [1..1] @code="completed" Completed (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-33152).
7. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-29916).
 - a. The effectiveTime, if present, **MAY** contain zero or one [0..1] **low** (CONF:3335-29917).

Figure 33: Incision Datetime Example

```
<procedureCriteria classCode="PROC" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.89" extension="2017-05-01"/>
  </templateId>
  <id root="d903f578-526d-49bc-98ed-bba5fe196a76"/>
  <code code="34896006" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED CT">
    <displayName value="incision"/>
  </code>
  <statusCode code="completed"/>
  <effectiveTime xsi:type="IVL_TS">
    <low value="201301011000"/>
  </effectiveTime>
</procedureCriteria>
```

5.30 Intervention, Order

[actCriteria: identifier urn:hl7ii:2.16.840.1.113883.10.20.28.4.35:2017-05-01
(open)]

Table 71: Intervention, Order Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Reason

This template represents the QDM data type: Intervention, Order

An intervention order is a request by a physician or appropriately licensed care provider to an appropriate provider or facility to perform a service and/or other type of action necessary for care. Examples of this are an order for smoking cessation counseling or physical therapy.

Timing: The time the order is signed; author time

Table 72: Intervention, Order Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
actCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.35:2017-05-01)					
@classCode	1..1	SHALL		3335-30631	ACT
@moodCode	1..1	SHALL		3335-30632	urn:oid:2.16.840.1.113883.5.1001 (HL7ActMood) = RQO
@actionNegationInd	0..1	MAY		3335-30633	
templateId	1..1	SHALL		3335-30643	
item	1..1	SHALL		3335-30644	
@root	1..1	SHALL		3335-30645	2.16.840.1.113883.10.20.28.4.35
@extension	1..1	SHALL		3335-33383	2017-05-01
id	1..1	SHALL		3335-30650	
code	1..1	SHALL		3335-30652	
@valueSet	0..1	SHOULD		3335-30653	
title	1..1	SHALL		3335-30651	
statusCode	1..1	SHALL		3335-30654	
@code	1..1	SHALL		3335-30655	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = active
participation	0..1	MAY		3335-33490	
@typeCode	1..1	SHALL		3335-33492	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = AUT
time	1..1	SHALL		3335-33491	
low	1..1	SHALL		3335-33493	
role	1..1	SHALL		3335-33586	
@classCode	1..1	SHALL		3335-33587	urn:oid:2.16.840.1.113883.5.110 (HL7RoleClass) = ROL
id	0..1	MAY		3335-33588	
outboundRelationship	0..1	MAY		3335-30647	

@typeCode	1..1	SHALL		3335-30648	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-30649	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01)

1. **SHALL** contain exactly one [1..1] **@classCode="ACT"** Act (CONF:3335-30631).
2. **SHALL** contain exactly one [1..1] **@moodCode="RQO"** Request (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-30632).
3. **MAY** contain zero or one [0..1] **@actionNegationInd** (CONF:3335-30633).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-30643).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-30644).
 - i. This item **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.4.35"** (CONF:3335-30645).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-33383).
5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-30650).
6. **SHALL** contain exactly one [1..1] **code** (CONF:3335-30652).
 - a. This code **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-30653).
7. **SHALL** contain exactly one [1..1] **title** (CONF:3335-30651).
8. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-30654).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code="active"** Active (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-30655).
9. **MAY** contain zero or one [0..1] **participation** (CONF:3335-33490) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode="AUT"** Author (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-33492).
 - b. **SHALL** contain exactly one [1..1] **time** (CONF:3335-33491).
 - i. This time **SHALL** contain exactly one [1..1] **low** (CONF:3335-33493).
Note: QDM Attribute: Author Datetime (The time the order is signed)
 - c. **SHALL** contain exactly one [1..1] **role** (CONF:3335-33586).
 - i. This role **SHALL** contain exactly one [1..1] **@classCode="ROL"** Role (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-33587).
 - ii. This role **MAY** contain zero or one [0..1] **id** (CONF:3335-33588).
10. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-30647) such that it
Note: QDM Attribute: Reason
 - a. **SHALL** contain exactly one [1..1] **@typeCode="RSON"** Has Reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-30648).
 - b. **SHALL** contain exactly one [1..1] **Reason** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-30649).

Figure 34: Intervention, Order Example

```
<actCriteria classCode="ACT" moodCode="RQO">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.35" extension="2017-05-01"/>
  </templateId>
  <id root="A8951AC3-990F-43E4-970C-1F0F396D203E"/>
  <code valueSet="{$QDMElementValueSetOID}"/>
  <title value="Intervention, Order"/>
  <statusCode code="active"/>
</actCriteria>
```

5.31 Intervention, Performed

[actCriteria: identifier urn:hl7ii:2.16.840.1.113883.10.20.28.4.36:2017-05-01
(open)]

Table 73: Intervention, Performed Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Reason Result Status

This template represents the QDM data type: Intervention, Performed.

Intervention performed represents an intervention that has been completed. Intervention represents a course of action intended to achieve a result in the care of persons with health problems that does not involve direct physical contact with a patient.

Timing: The Relevant Period addresses: startTime – The time the intervention begins; stopTime – The time the intervention ends.

Table 74: Intervention, Performed Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
actCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.36:2017-05-01)					
@classCode	1..1	SHALL		3335-31150	ACT
@moodCode	1..1	SHALL		3335-31151	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
@actionNegationInd	0..1	MAY		3335-31152	
templateId	1..1	SHALL		3335-31153	
item	1..1	SHALL		3335-31154	
@root	1..1	SHALL		3335-31155	2.16.840.1.113883.10.20.28.4.3 6
@extension	1..1	SHALL		3335-33384	2017-05-01
id	1..1	SHALL		3335-31156	
code	1..1	SHALL		3335-31157	
@valueSet	0..1	SHOULD		3335-31158	
title	1..1	SHALL		3335-31159	
statusCode	1..1	SHALL		3335-31160	
@code	1..1	SHALL		3335-31161	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
effectiveTime	0..1	MAY	IVL_TS	3335-31162	
low	0..1	MAY		3335-31163	
high	0..1	MAY		3335-31164	
participation	0..1	MAY		3335-34523	
@typeCode	1..1	SHALL		3335-34526	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = AUT
time	1..1	SHALL		3335-34524	
low	1..1	SHALL		3335-34527	
role	1..1	SHALL		3335-34525	
@classCode	1..1	SHALL		3335-34528	urn:oid:2.16.840.1.113883.5.11 0 (HL7RoleClass) = ROL

id	0..1	MAY		3335-34529	
outboundRelationship	0..1	MAY		3335-31171	
@typeCode	1..1	SHALL		3335-31172	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-31173	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01)
outboundRelationship	0..1	MAY		3335-33431	
@typeCode	1..1	SHALL		3335-33433	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = REFR
observationCriteria	1..1	SHALL		3335-33434	Result (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.101:2017-05-01)
outboundRelationship	0..1	MAY		3335-33432	
@typeCode	1..1	SHALL		3335-33435	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = REFR
observationCriteria	1..1	SHALL		3335-33436	Status (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.94:2017-05-01)

1. **SHALL** contain exactly one [1..1] **@classCode="ACT"** Act (CONF:3335-31150).
2. **SHALL** contain exactly one [1..1] **@moodCode="EVN"** Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-31151).
3. **MAY** contain zero or one [0..1] **@actionNegationInd** (CONF:3335-31152).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-31153).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-31154).
 - i. This item **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.4.36"** (CONF:3335-31155).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-33384).
5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-31156).
6. **SHALL** contain exactly one [1..1] **code** (CONF:3335-31157).
 - a. This code **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-31158).
7. **SHALL** contain exactly one [1..1] **title** (CONF:3335-31159).
8. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-31160).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code="completed"** Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-31161).

9. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-31162).

Note: QDM Attribute: Relevant Period

- The effectiveTime, if present, **MAY** contain zero or one [0..1] **low** (CONF:3335-31163).

Note: Start Time (The time the intervention begins)

- The effectiveTime, if present, **MAY** contain zero or one [0..1] **high** (CONF:3335-31164).

Note: Stop Time (The time the intervention ends)

10. **MAY** contain zero or one [0..1] **participation** (CONF:3335-34523).

- The participation, if present, **SHALL** contain exactly one [1..1] @**typeCode**="AUT" Author (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-34526).

- The participation, if present, **SHALL** contain exactly one [1..1] **time** (CONF:3335-34524).

- This time **SHALL** contain exactly one [1..1] **low** (CONF:3335-34527).

Note: QDM Attribute: Author Datetime

- The participation, if present, **SHALL** contain exactly one [1..1] **role** (CONF:3335-34525).

- This role **SHALL** contain exactly one [1..1] @**classCode**="ROL" Role (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-34528).

- This role **MAY** contain zero or one [0..1] **id** (CONF:3335-34529).

11. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-31171) such that it

Note: QDM Attribute: Reason

- SHALL** contain exactly one [1..1] @**typeCode**="RSON" Has Reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-31172).

- SHALL** contain exactly one [1..1] **Reason** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-31173).

12. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-33431) such that it

Note: QDM Attribute: Result

- SHALL** contain exactly one [1..1] @**typeCode**="REFR" Refers to (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-33433).

- SHALL** contain exactly one [1..1] **Result** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.101:2017-05-01) (CONF:3335-33434).

13. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-33432) such that it

Note: QDM Attribute: Status

- SHALL** contain exactly one [1..1] @**typeCode**="REFR" Refers to (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-33435).

- SHALL** contain exactly one [1..1] **Status** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.94:2017-05-01) (CONF:3335-33436).

Figure 35: Intervention, Performed Example

```
<actCriteria classCode="ACT" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.36" extension="2017-05-01"/>
  </templateId>
  <id root="a2faf205-f9c1-485c-8edc-c9c0021a218c" />
  <code valueSet="{$QDMElementValueSetOID}"/>
  <title value="Intervention, Performed"/>
  <statusCode code="completed"/>
</actCriteria>
```

5.32 Intervention, Recommended

[actCriteria: identifier urn:hl7ii:2.16.840.1.113883.10.20.28.4.37:2017-05-01
(open)]

Table 75: Intervention, Recommended Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Reason

This template represents the QDM data type: Intervention, Recommended.

Intervention recommended represents a recommendation for an intervention. Intervention represents a course of action intended to achieve a result in the care of persons with health problems that does not involve direct physical contact with a patient. Examples include patient education and therapeutic communication.

Timing: The time the recommendation is authored (i.e., provided to the patient).

All QDM datatypes referring to recommendations address the time that the recommendation occurs, a single point in time. Vendors have expressed concerns that recommendations are not necessarily captured or managed in a standard manner as part of structured data capture in clinical workflow; many are documented as part of assessments in narrative text. Measure developers should address feasibility of clinical workflow to capture recommendations when evaluating measures.

Table 76: Intervention, Recommended Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
actCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.37:2017-05-01)					
@classCode	1..1	SHALL		3335-30801	ACT
@moodCode	1..1	SHALL		3335-30802	urn:oid:2.16.840.1.113883.5.1001 (HL7ActMood) = INT
@actionNegationInd	0..1	MAY		3335-30806	
templateId	1..1	SHALL		3335-30803	
item	1..1	SHALL		3335-30804	
@root	1..1	SHALL		3335-30805	2.16.840.1.113883.10.20.28.4.37
@extension	1..1	SHALL		3335-33385	2017-05-01
id	1..1	SHALL		3335-30807	
code	1..1	SHALL		3335-30808	
@valueSet	0..1	SHOULD		3335-30809	
title	1..1	SHALL		3335-30810	
statusCode	1..1	SHALL		3335-30811	
@code	1..1	SHALL		3335-30812	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = active
participation	0..1	MAY		3335-34392	
@typeCode	1..1	SHALL		3335-34395	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = AUT
time	1..1	SHALL		3335-34393	
low	1..1	SHALL		3335-34396	
role	1..1	SHALL		3335-34394	
@classCode	1..1	SHALL		3335-34534	urn:oid:2.16.840.1.113883.5.110 (HL7RoleClass) = ROL
id	0..1	MAY		3335-34397	
outboundRelationship	0..1	MAY		3335-30817	

@typeCode	1..1	SHALL		3335-30818	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-30819	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01)

1. **SHALL** contain exactly one [1..1] **@classCode="ACT"** Act (CONF:3335-30801).
2. **SHALL** contain exactly one [1..1] **@moodCode="INT"** Intent (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-30802).
3. **MAY** contain zero or one [0..1] **@actionNegationInd** (CONF:3335-30806).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-30803).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-30804).
 - i. This item **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.4.37"** (CONF:3335-30805).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-33385).
5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-30807).
6. **SHALL** contain exactly one [1..1] **code** (CONF:3335-30808).
 - a. This code **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-30809).
7. **SHALL** contain exactly one [1..1] **title** (CONF:3335-30810).
8. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-30811).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code="active"** Active (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-30812).
9. **MAY** contain zero or one [0..1] **participation** (CONF:3335-34392).
 - a. The participation, if present, **SHALL** contain exactly one [1..1] **@typeCode="AUT"** Author (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-34395).
 - b. The participation, if present, **SHALL** contain exactly one [1..1] **time** (CONF:3335-34393).
 - i. This time **SHALL** contain exactly one [1..1] **low** (CONF:3335-34396).
Note: QDM Attribute: Author Datetime (The time the recommendation is authored) (
 - c. The participation, if present, **SHALL** contain exactly one [1..1] **role** (CONF:3335-34394).
 - i. This role **SHALL** contain exactly one [1..1] **@classCode="ROL"** Role (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-34534).
 - ii. This role **MAY** contain zero or one [0..1] **id** (CONF:3335-34397).
10. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-30817) such that it
Note: QDM Attribute: Reason

- a. **SHALL** contain exactly one [1..1] @**typeCode**="RSON" Has Reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-30818).
- b. **SHALL** contain exactly one [1..1] **Reason** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-30819).

Figure 36: Intervention, Recommended Example

```
<actCriteria classCode="ACT" moodCode="INT">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.37" extension="2017-05-01"/>
  </templateId>
  <id root="e242b3ae-d300-4038-a039-f9cd511544c5"/>
  <code valueSet="{$QDMElementValueSetOID}"/>
  <title value="Intervention, Recommended" />
  <statusCode code="active"/>
</actCriteria>
```

5.33 Laboratory Test Reference Range

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.124:2017-05-01 (open)]

Table 77: Laboratory Test Reference Range Contexts

Contained By:	Contains:
Laboratory Test Component (optional)	
Laboratory Test, Performed (optional)	

This template represents the QDM attribute: Reference Range Low and High.

Reference Range High: The high bound (inclusive) of values that are considered normal.

Reference Range Low: The low bound (inclusive) of values that are considered normal.

Table 78: Laboratory Test Reference Range Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.124:2017-05-01)					
@classCode	1..1	SHALL		3335-34406	OBS
@moodCode	1..1	SHALL		3335-34407	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3335-34398	
item	1..1	SHALL		3335-34399	
@root	1..1	SHALL		3335-34401	2.16.840.1.113883.10.20.28.4.1 24
@extension	1..1	SHALL		3335-34615	2017-05-01
id	1..1	SHALL		3335-34408	
code	1..1	SHALL		3335-34400	
@code	1..1	SHALL		3335-34403	19147-8
@codeSystem	1..1	SHALL		3335-34404	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 2.16.840.1.113883.6.1
title	1..1	SHALL		3335-34409	
value	1..1	SHALL	IVL_P_Q	3335-34405	
low	0..1	MAY		3335-34410	
high	0..1	MAY		3335-34411	

1. **SHALL** contain exactly one [1..1] **@classCode="OBS"** Observation (CONF:3335-34406).
2. **SHALL** contain exactly one [1..1] **@moodCode="EVN"** Event (CodeSystem: HL7ActMood
urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-34407).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-34398).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-34399).
 - i. This item **SHALL** contain exactly one [1..1]
@root="2.16.840.1.113883.10.20.28.4.124" (CONF:3335-34401).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-34615).
4. **SHALL** contain exactly one [1..1] **id** (CONF:3335-34408).
5. **SHALL** contain exactly one [1..1] **code** (CONF:3335-34400).

- a. This code **SHALL** contain exactly one [1..1] @code="19147-8" Lab Test Reference Range (CONF:3335-34403).
- b. This code **SHALL** contain exactly one [1..1] @codeSystem="2.16.840.1.113883.6.1" (CodeSystem: LOINC urn:oid:2.16.840.1.113883.6.1) (CONF:3335-34404).
- 6. **SHALL** contain exactly one [1..1] **title** (CONF:3335-34409).
- 7. **SHALL** contain exactly one [1..1] **value** with @xsi:type="IVL_PQ" (CONF:3335-34405).
 - a. This value **MAY** contain zero or one [0..1] **low** (CONF:3335-34410).
Note: QDM Attribute: Reference Range Low
 - b. This value **MAY** contain zero or one [0..1] **high** (CONF:3335-34411).
Note: QDM Attribute: Reference Range High

Figure 37: Laboratory Test Reference Range Example

```
<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.124" extension="2017-05-01"/>
  </templateId>
  <id root="6a296c27-279f-4bdc-8707-6d030a6839a5"/>
  <code code="19147-8" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC">
    <displayName value="Reference Range"/>
  </code>
  <title value="Laboratory Test Reference Range"/>
  <value xsi:type="IVL_PQ">
    <high value="17.5" unit="g/dL"/>
  </value>
</observationCriteria>
```

5.34 Laboratory Test, Order

[ProcedureCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.41:2017-05-01 (open)]

Table 79: Laboratory Test, Order Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Reason

This template represents the QDM data type: Laboratory Test, Order.

Laboratory Test represents a medical procedure that involves testing a sample of blood, urine, or other substance from the body. Tests can help determine a diagnosis, plan treatment, check to see if treatment is working, or monitor the disease over time. Laboratory tests may be performed on specimens not derived from patients (electrolytes or contents of water or consumed fluids, cultures of environment, pets, other animals).

Timing: The time the order is signed; author datetime.

Table 80: Laboratory Test, Order Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
ProcedureCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.41:2017-05-01)					
@classCode	1..1	SHALL		3335-30389	PROC
@moodCode	1..1	SHALL		3335-30390	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = RQO
@actionNegationInd	0..1	MAY		3335-30391	
templateId	1..1	SHALL		3335-30392	
item	1..1	SHALL		3335-30393	
@root	1..1	SHALL		3335-30394	2.16.840.1.113883.10.20.28.4.4 1
@extension	1..1	SHALL		3335-33649	2017-05-01
id	1..1	SHALL		3335-30395	
code	1..1	SHALL		3335-30396	
@valueSet	0..1	SHOULD		3335-30397	
title	1..1	SHALL		3335-30398	
statusCode	1..1	SHALL		3335-33109	
@code	1..1	SHALL		3335-33110	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = active
methodCode	0..1	MAY		3335-30402	
item	1..1	SHALL		3335-30403	
@valueSet	0..1	SHOULD		3335-30404	
participation	0..1	MAY		3335-33495	
@typeCode	1..1	SHALL		3335-33497	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = AUT
time	1..1	SHALL		3335-33496	
low	1..1	SHALL		3335-33498	
role	1..1	SHALL		3335-33589	
@classCode	1..1	SHALL		3335-33590	urn:oid:2.16.840.1.113883.5.11 0 (HL7RoleClass) = ROL

id	0..1	MAY		3335-33591	
outboundRelationship	0..1	MAY		3335-30405	
@typeCode	1..1	SHALL		3335-30406	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-30407	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01)

1. **SHALL** contain exactly one [1..1] **@classCode**="PROC" Procedure (CONF:3335-30389).
2. **SHALL** contain exactly one [1..1] **@moodCode**="RQO" Request (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-30390).
3. **MAY** contain zero or one [0..1] **@actionNegationInd** (CONF:3335-30391).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-30392).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-30393).
 - i. This item **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.28.4.41" (CONF:3335-30394).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension**="2017-05-01" (CONF:3335-33649).
5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-30395).
6. **SHALL** contain exactly one [1..1] **code** (CONF:3335-30396).
 - a. This code **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-30397).
7. **SHALL** contain exactly one [1..1] **title** (CONF:3335-30398).
8. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-33109).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code**="active" Active (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-33110).
9. **MAY** contain zero or one [0..1] **methodCode** (CONF:3335-30402).
Note: QDM Attribute: Method
 - a. The methodCode, if present, **SHALL** contain exactly one [1..1] **item** (CONF:3335-30403).
 - i. The item, if present, **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-30404).
10. **MAY** contain zero or one [0..1] **participation** (CONF:3335-33495) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode**="AUT" Author (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-33497).
 - b. **SHALL** contain exactly one [1..1] **time** (CONF:3335-33496).
 - i. This time **SHALL** contain exactly one [1..1] **low** (CONF:3335-33498).
Note: QDM Attribute: Author Datetime (The time the order is signed)
 - c. **SHALL** contain exactly one [1..1] **role** (CONF:3335-33589).

- i. This role **SHALL** contain exactly one [1..1] @classCode="ROL" Role (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-33590).
 - ii. This role **MAY** contain zero or one [0..1] **id** (CONF:3335-33591).
11. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-30405) such that it Note: QDM Attribute: Reason
- a. **SHALL** contain exactly one [1..1] @typeCode="RSON" Has Reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-30406).
 - b. **SHALL** contain exactly one [1..1] **Reason** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-30407).

Figure 38: Laboratory Test, Order Example

```
<procedureCriteria classCode="PROC" moodCode="RQO">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.41" extension="2017-05-01"/>
  </templateId>
  <id root="3a2a37c0-9abe-4c30-a254-8561a75d1cb4"/>
  <code valueSet="{$QDMElementValueSetOID}"/>
  <title value="Laboratory Test, Order"/>
  <statusCode code="active"/>
</procedureCriteria>
```

5.35 Laboratory Test, Performed

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.42:2017-05-01 (open)]

Table 81: Laboratory Test, Performed Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Laboratory Test Component Laboratory Test Reference Range Reason Status

This template represents the QDM data type: Laboratory Test, Performed.

Laboratory Test represents a medical procedure that involves testing a sample of blood, urine, or other substance from the body. Tests can help determine a diagnosis, plan treatment, check to see if treatment is working, or monitor the disease over time. Laboratory tests may be performed on specimens not derived from patients (electrolytes or contents of water or consumed fluids, cultures of environment, pets, other animals).

Timing: The Relevant Period addresses: startTime – When the laboratory test is initiated (i.e., the time the specimen collection begins); stopTime – when the laboratory test is completed (i.e., the time the specimen collection ends).

Table 82: Laboratory Test, Performed Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.42:2017-05-01)					
@classCode	1..1	SHALL		3335-30364	OBS
@moodCode	1..1	SHALL		3335-33237	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
@actionNegationInd	0..1	MAY		3335-30365	
templateId	1..1	SHALL		3335-30366	
item	1..1	SHALL		3335-30367	
@root	1..1	SHALL		3335-30368	2.16.840.1.113883.10.20.28.4.4 2
@extension	1..1	SHALL		3335-33373	2017-05-01
id	1..1	SHALL		3335-30369	
code	1..1	SHALL		3335-30370	
@valueSet	0..1	SHOULD		3335-30371	
title	1..1	SHALL		3335-30372	
statusCode	1..1	SHALL		3335-30373	
@code	1..1	SHALL		3335-30509	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
effectiveTime	0..1	MAY	IVL_TS	3335-30374	
low	0..1	MAY		3335-30375	
high	0..1	MAY		3335-30376	
value	0..1	MAY		3335-33611	
methodCode	0..1	MAY		3335-30377	
item	1..1	SHALL		3335-30378	
@valueSet	0..1	SHOULD		3335-30379	
participation	1..1	SHALL		3335-34535	
@typeCode	1..1	SHALL		3335-34538	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = AUT

time	1..1	SHALL		3335-34536	
low	1..1	SHALL		3335-34539	
role	1..1	SHALL		3335-34537	
@classCode	1..1	SHALL		3335-34540	urn:oid:2.16.840.1.113883.5.110 (HL7RoleClass) = ROL
id	0..1	MAY		3335-34541	
outboundRelationship	0..1	MAY		3335-30380	
@typeCode	1..1	SHALL		3335-34061	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-30382	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01)
outboundRelationship	0..1	MAY		3335-33372	
@typeCode	1..1	SHALL		3335-34618	REFR
observationCriteria	1..1	SHALL		3335-33375	Status (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.94:2017-05-01)
outboundRelationship	0..1	MAY		3335-34062	
@typeCode	1..1	SHALL		3335-34066	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = REFV
observationCriteria	1..1	SHALL		3335-34412	Laboratory Test Reference Range (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.124:2017-05-01)
outboundRelationship	0..*	MAY		3335-34617	
@typeCode	1..1	SHALL		3335-34619	REFR
observationCriteria	1..1	SHALL		3335-34620	Laboratory Test Component (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.3.126:2017-05-01)

1. **SHALL** contain exactly one [1..1] @classCode="OBS" Observation (CONF:3335-30364).
2. **SHALL** contain exactly one [1..1] @moodCode="EVN" Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-33237).
3. **MAY** contain zero or one [0..1] @actionNegationInd (CONF:3335-30365).
Note: QDM Attribute: Negation Rationale

4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-30366).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-30367).
 - i. This item **SHALL** contain exactly one [1..1]
`@root="2.16.840.1.113883.10.20.28.4.42"` (CONF:3335-30368).
 - ii. This item **SHALL** contain exactly one [1..1] `@extension="2017-05-01"` (CONF:3335-33373).
5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-30369).
6. **SHALL** contain exactly one [1..1] **code** (CONF:3335-30370).
 - a. This code **SHOULD** contain zero or one [0..1] `@valueSet` (CONF:3335-30371).
7. **SHALL** contain exactly one [1..1] **title** (CONF:3335-30372).
8. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-30373).
 - a. This statusCode **SHALL** contain exactly one [1..1] `@code="completed"` Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-30509).
9. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-30374).

Note: QDM Attribute: Relevant Period

 - a. The effectiveTime, if present, **MAY** contain zero or one [0..1] **low** (CONF:3335-30375).

Note: Start Datetime (When the laboratory test is initiated (i.e., the time the specimen collection begins))
 - b. The effectiveTime, if present, **MAY** contain zero or one [0..1] **high** (CONF:3335-30376).

Note: Stop Datetime (When the laboratory test is completed (i.e., the time the specimen collection ends))
10. **MAY** contain zero or one [0..1] **value** (CONF:3335-33611).

Note: QDM Attribute: Result
11. **MAY** contain zero or one [0..1] **methodCode** (CONF:3335-30377).

Note: QDM Attribute: Method

 - a. The methodCode, if present, **SHALL** contain exactly one [1..1] **item** (CONF:3335-30378).
 - i. The item, if present, **SHOULD** contain zero or one [0..1] `@valueSet` (CONF:3335-30379).
12. **SHALL** contain exactly one [1..1] **participation** (CONF:3335-34535).
 - a. This participation **SHALL** contain exactly one [1..1] `@typeCode="AUT"` Author (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-34538).
 - b. This participation **SHALL** contain exactly one [1..1] **time** (CONF:3335-34536).
 - i. This time **SHALL** contain exactly one [1..1] **low** (CONF:3335-34539).

Note: QDM Attribute: Author Datetime
 - c. This participation **SHALL** contain exactly one [1..1] **role** (CONF:3335-34537).
 - i. This role **SHALL** contain exactly one [1..1] `@classCode="ROL"` Role (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-34540).
 - ii. This role **MAY** contain zero or one [0..1] **id** (CONF:3335-34541).
13. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-30380) such that it

Note: QDM Attribute: Reason

- a. **SHALL** contain exactly one [1..1] @**typeCode**="RSON" Has Reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-34061).
 - b. **SHALL** contain exactly one [1..1] **Reason** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-30382).
14. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-33372) such that it
- Note: QDM Attribute: Status
- a. **SHALL** contain exactly one [1..1] @**typeCode**="REFR" Refers To (CONF:3335-34618).
 - b. **SHALL** contain exactly one [1..1] **Status** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.94:2017-05-01) (CONF:3335-33375).
15. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-34062) such that it
- a. **SHALL** contain exactly one [1..1] @**typeCode**="REFV" Has Reference Values (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-34066).
 - b. **SHALL** contain exactly one [1..1] **Laboratory Test Reference Range** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.124:2017-05-01) (CONF:3335-34412).
16. **MAY** contain zero or more [0..*] **outboundRelationship** (CONF:3335-34617) such that it
- Note: QDM Attribute: Component
- a. **SHALL** contain exactly one [1..1] @**typeCode**="REFR" Refers To (CONF:3335-34619).
 - b. **SHALL** contain exactly one [1..1] **Laboratory Test Component** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.3.126:2017-05-01) (CONF:3335-34620).

Figure 39: Laboratory Test, Performed Example

```
<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.42" extension="2017-05-01"/>
  </templateId>
  <id root="05f0a7c8-371e-4e77-aad4-22ff9fdf7fa3"/>
  <code valueSet="{$QDMElementValueSetOID}"/>
  <title value="Laboratory Test, Performed"/>
  <statusCode code="completed"/>
</observationCriteria>
```

5.36 Laboratory Test, Recommended

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.43:2017-05-01 (open)]

Table 83: Laboratory Test, Recommended Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Reason

This template represents the QDM data type: Laboratory Test, Recommended.

This template represents a recommendation for a laboratory test. Laboratory Test represents a medical procedure that involves testing a sample of blood, urine, or other substance from the body. Tests can help determine a diagnosis, plan treatment, check to see if treatment is working, or monitor the disease over time. Laboratory tests may be performed on specimens not derived from patients (electrolytes or contents of water or consumed fluids, cultures of environment, pets, other animals).

Timing: The time the recommendation is authored (i.e., provided to the patient).

All QDM datatypes referring to recommendations address the time that the recommendation occurs, a single point in time. Vendors have expressed concerns that recommendations are not necessarily captured or managed in a standard manner as part of structured data capture in clinical workflow; many are documented as part of assessments in narrative text. Measure developers should address feasibility of clinical workflow to capture recommendations when evaluating measures.

Table 84: Laboratory Test, Recommended Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.43:2017-05-01)					
@classCode	1..1	SHALL		3335-30414	OBS
@moodCode	1..1	SHALL		3335-30415	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = INT
@actionNegationInd	0..1	MAY		3335-30416	
templateId	1..1	SHALL		3335-30417	
item	1..1	SHALL		3335-30418	
@root	1..1	SHALL		3335-30419	2.16.840.1.113883.10.20.28.4.4 3
@extension	1..1	SHALL		3335-33692	2017-05-01
id	1..1	SHALL		3335-30420	
code	1..1	SHALL		3335-30421	
@valueSet	0..1	SHOULD		3335-30422	
title	1..1	SHALL		3335-30423	
statusCode	1..1	SHALL		3335-30424	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus)
@code	1..1	SHALL		3335-30510	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = active
methodCode	0..1	MAY		3335-30428	
item	1..1	SHALL		3335-30429	
@valueSet	0..1	SHOULD		3335-30430	
participation	0..1	MAY		3335-34413	
@typeCode	1..1	SHALL		3335-34416	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = AUT
time	1..1	SHALL		3335-34414	
low	1..1	SHALL		3335-34417	
role	1..1	SHALL		3335-34415	
@classCode	1..1	SHALL		3335-34418	ROL

id	0..1	MAY		3335-34419	
outboundRelationship	0..1	MAY		3335-30431	
@typeCode	1..1	SHALL		3335-34115	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-30433	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01)

1. **SHALL** contain exactly one [1..1] **@classCode="OBS"** Observation (CONF:3335-30414).
2. **SHALL** contain exactly one [1..1] **@moodCode="INT"** Intent (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-30415).
3. **MAY** contain zero or one [0..1] **@actionNegationInd** (CONF:3335-30416).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-30417).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-30418).
 - i. This item **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.4.43"** (CONF:3335-30419).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-33692).
5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-30420).
6. **SHALL** contain exactly one [1..1] **code** (CONF:3335-30421).
 - a. This code **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-30422).
7. **SHALL** contain exactly one [1..1] **title** (CONF:3335-30423).
8. **SHALL** contain exactly one [1..1] **statusCode** (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-30424).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code="active"** Active (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-30510).
9. **MAY** contain zero or one [0..1] **methodCode** (CONF:3335-30428).
Note: QDM Attribute: Method
 - a. The methodCode, if present, **SHALL** contain exactly one [1..1] **item** (CONF:3335-30429).
 - i. The item, if present, **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-30430).
10. **MAY** contain zero or one [0..1] **participation** (CONF:3335-34413).
 - a. The participation, if present, **SHALL** contain exactly one [1..1] **@typeCode="AUT"** Author (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-34416).
 - b. The participation, if present, **SHALL** contain exactly one [1..1] **time** (CONF:3335-34414).

- i. This time **SHALL** contain exactly one [1..1] **low** (CONF:3335-34417).
Note: QDM Attribute: Author Datetime (The time the recommendation is authored (i.e., provided to the patient))
 - c. The participation, if present, **SHALL** contain exactly one [1..1] **role** (CONF:3335-34415).
 - i. This role **SHALL** contain exactly one [1..1] **@classCode="ROL"** Role (CONF:3335-34418).
 - ii. This role **MAY** contain zero or one [0..1] **id** (CONF:3335-34419).
11. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-30431) such that it
Note: QDM Attribute: Reason
- a. **SHALL** contain exactly one [1..1] **@typeCode="RSON"** Has Reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-34115).
 - b. **SHALL** contain exactly one [1..1] **Reason** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-30433).

Figure 40: Laboratory Test, Recommended Example

```
<observationCriteria classCode="OBS" moodCode="INT">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.43" extension="2017-05-01"/>
  </templateId>
  <id root="7a54587b-f1d6-4ce1-bb4c-30fffc5139565"/>
  <code valueSet="{$QDMElementValueSetOID}"/>
  <title value="Laboratory Test, Recommended"/>
  <statusCode code="active"/>
</observationCriteria>
```

5.37 Medication, Active

[substanceAdministrationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.44:2017-05-01 (open)]

Table 85: Medication, Active Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Dosage Frequency

This template represents the QDM data type: Medication, Active.

Medication represents clinical drugs or chemical substances intended for use in the medical diagnosis, cure, treatment, or prevention of disease. Medication active represents medication that is currently being taken by the patient.

Timing: The Relevant Period addresses: StartTime = when the medication is first known to be used (generally the time of entry on the medication list); StopTime = when the medication is discontinued (generally the time discontinuation is recorded on the medication list).

Dosage: Details of how medication is/is to be taken, i.e., the quantity (mg, cc, tablets) to be taken at a single administration.

Supply: The quantity (amount) of therapeutic agent that was provided to a patient (i.e., number of doses, number of tablets or pills, volume of medication). Used while the patient was on the given medication.

Table 86: Medication, Active Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
substanceAdministrationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.44:2017-05-01)					
@classCode	1..1	SHALL		3335-31950	SBADM
@moodCode	1..1	SHALL		3335-31951	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3335-31953	
item	1..1	SHALL		3335-31954	
@root	1..1	SHALL		3335-31955	2.16.840.1.113883.10.20.28.4.4 4
@extension	1..1	SHALL		3335-33376	2017-05-01
id	1..1	SHALL		3335-31956	
title	1..1	SHALL		3335-31957	
statusCode	1..1	SHALL		3335-31958	
@code	1..1	SHALL		3335-31959	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = active
effectiveTime	0..1	MAY	IVL_TS	3335-31960	
low	0..1	MAY		3335-31961	
high	0..1	MAY		3335-31962	
routeCode	0..1	MAY		3335-33115	
@valueSet	0..1	SHOULD		3335-33116	
doseQuantity	0..1	MAY		3335-33117	
participation	1..1	SHALL		3335-33121	
@typeCode	1..1	SHALL		3335-33122	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = CSM
role	1..1	SHALL		3335-33123	
playingMaterial	1..1	SHALL		3335-33124	
@classCode	1..1	SHALL		3335-34116	urn:oid:2.16.840.1.113883.5.41 (HL7EntityClass) = MMAT
@determinerCode	1..1	SHALL		3335-33125	urn:oid:2.16.840.1.113883.5.30 (HL7EntityDeterminer) = KIND

code	1..1	SHALL		3335-33126	
@valueSet	0..1	SHOULD		3335-33127	
outboundRelationship	0..1	MAY		3335-33118	
@typeCode	1..1	SHALL		3335-33119	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = REFR
observationCriteria	1..1	SHALL		3335-33120	Frequency (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.99:2017-05-01)
outboundRelationship	0..1	MAY		3335-34431	
@typeCode	1..1	SHALL		3335-34432	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = REFR
observationCriteria	1..1	SHALL		3335-34433	Dosage (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.125:2017-05-01)

1. **SHALL** contain exactly one [1..1] **@classCode**="SBADM" Substance Administrated (CONF:3335-31950).
2. **SHALL** contain exactly one [1..1] **@moodCode**="EVN" Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-31951).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-31953).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-31954).
 - i. This item **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.28.4.44" (CONF:3335-31955).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension**="2017-05-01" (CONF:3335-33376).
4. **SHALL** contain exactly one [1..1] **id** (CONF:3335-31956).
5. **SHALL** contain exactly one [1..1] **title** (CONF:3335-31957).
6. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-31958).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code**="active" Active (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-31959).
7. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-31960).

Note: QDM Attribute: Relevant Period

- a. The effectiveTime, if present, **MAY** contain zero or one [0..1] **low** (CONF:3335-31961).
Note: Start Datetime (When the medication is first known to be used (generally the time of entry on the medication list))
- b. The effectiveTime, if present, **MAY** contain zero or one [0..1] **high** (CONF:3335-31962).
Note: Stop Datetime (When the medication is discontinued (generally the time discontinuation is recorded on the medication list))

8. **MAY** contain zero or one [0..1] **routeCode** (CONF:3335-33115).

Note: QDM Attribute: Route

- a. The routeCode, if present, **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-33116).

9. **MAY** contain zero or one [0..1] **doseQuantity** (CONF:3335-33117).

Note: QDM Attribute: Supply

10. **SHALL** contain exactly one [1..1] **participation** (CONF:3335-33121) such that it

- a. **SHALL** contain exactly one [1..1] **@typeCode="CSM"** Consumable (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-33122).
- b. **SHALL** contain exactly one [1..1] **role** (CONF:3335-33123).

- i. This role **SHALL** contain exactly one [1..1] **playingMaterial** (CONF:3335-33124).

1. This playingMaterial **SHALL** contain exactly one [1..1] **@classCode="MMAT"** Manufactured Material (CodeSystem: HL7EntityClass urn:oid:2.16.840.1.113883.5.41) (CONF:3335-34116).

2. This playingMaterial **SHALL** contain exactly one [1..1] **@determinerCode="KIND"** Kind (CodeSystem: HL7EntityDeterminer urn:oid:2.16.840.1.113883.5.30) (CONF:3335-33125).

3. This playingMaterial **SHALL** contain exactly one [1..1] **code** (CONF:3335-33126).

- a. This code **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-33127).

11. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-33118) such that it

Note: QDM Attribute: Frequency

- a. **SHALL** contain exactly one [1..1] **@typeCode="REFR"** Refers To (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-33119).

- b. **SHALL** contain exactly one [1..1] **Frequency** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.99:2017-05-01) (CONF:3335-33120).

12. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-34431) such that it

Note: QDM Attribute: Dosage

- a. **SHALL** contain exactly one [1..1] **@typeCode="REFR"** Refers To (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-34432).

- b. **SHALL** contain exactly one [1..1] **Dosage** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.125:2017-05-01) (CONF:3335-34433).

Figure 41: Medication, Active Example

```
<substanceAdministrationCriteria classCode="SBADM" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.44" extension="2017-05-01"/>
  </templateId>
  <id root="6c21f22e-3ae3-435d-a240-7718cc418b7d"/>
  <title value="Medication, Active"/>
  <statusCode code="active"/>
  <participation typeCode="CSM">
    <role classCode="MANU">
      <playingMaterial classCode="MMAT" determinerCode="KIND">
        <code valueSet="{$QDMElementValueSetOID}"/>
      </playingMaterial>
    </role>
  </participation>
</substanceAdministrationCriteria>
```

5.38 Medication, Administered

[substanceAdministrationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.45:2017-05-01 (open)]

Table 87: Medication, Administered Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Dosage Frequency Reason

This template represents the QDM data type: Medication, Administered.

A medication refers to clinical drugs or chemical substances intended for use in the medical diagnosis, cure, treatment, or prevention of disease. This template represents a medication that was administered.

Timing: The Relevant Period addresses: StartTime = when a single medication administration event starts (e.g., the initiation of an intravenous infusion, or administering a pill or IM injection to a patient); StopTime = when a single medication administration event ends (e.g., the end time of the intravenous infusion, or the administration of a pill or IM injection is completed - for pills and IM injections, the start and stop times are the same) .

Dosage: Details of how medication is/is to be taken, i.e., the quantity (mg, cc, tablets) to be taken at a single administration.

Supply: The quantity (amount) of therapeutic agent that was provided to a patient (i.e., number of doses, number of tablets or pills, volume of medication).

Table 88: Medication, Administered Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
substanceAdministrationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.45:2017-05-01)					
@classCode	1..1	SHALL		3335-32047	SBADM
@moodCode	1..1	SHALL		3335-32048	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
@actionNegationInd	0..1	MAY		3335-32049	
templateId	1..1	SHALL		3335-32050	
item	1..1	SHALL		3335-32051	
@root	1..1	SHALL		3335-32052	2.16.840.1.113883.10.20.28.4.4 5
@extension	1..1	SHALL		3335-33386	2017-05-01
id	1..1	SHALL		3335-32053	
code	1..1	SHALL		3335-32054	
@code	1..1	SHALL		3335-32055	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 416118004
@codeSystem	1..1	SHALL		3335-32056	2.16.840.1.113883.6.96
title	1..1	SHALL		3335-32057	
statusCode	1..1	SHALL		3335-32058	
@code	1..1	SHALL		3335-32059	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
effectiveTime	0..1	MAY	IVL_TS	3335-32060	
low	0..1	MAY		3335-32061	
high	0..1	MAY		3335-32062	
routeCode	0..1	MAY		3335-32506	
@valueSet	0..1	SHOULD		3335-32507	
doseQuantity	0..1	MAY		3335-33128	
participation	1..1	SHALL		3335-32497	
@typeCode	1..1	SHALL		3335-32503	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = CSM

role	1..1	SHALL		3335-32498	
@classCode	1..1	SHALL		3335-32504	urn:oid:2.16.840.1.113883.5.110 (HL7RoleClass) = MANU
playingManufacturedMaterial	1..1	SHALL		3335-32499	
@classCode	1..1	SHALL		3335-32500	urn:oid:2.16.840.1.113883.5.41 (HL7EntityClass) = MMAT
@determinerCode	1..1	SHALL		3335-32520	urn:oid:2.16.840.1.113883.5.30 (HL7EntityDeterminer) = KIND
code	1..1	SHALL		3335-32501	
@valueSet	0..1	SHOULD		3335-32502	
participation	1..1	SHALL		3335-34542	
@typeCode	1..1	SHALL		3335-34545	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = AUT
time	1..1	SHALL		3335-34543	
low	1..1	SHALL		3335-34546	
role	1..1	SHALL		3335-34544	
@classCode	1..1	SHALL		3335-34547	urn:oid:2.16.840.1.113883.5.110 (HL7RoleClass) = ROL
id	0..1	MAY		3335-34548	
outboundRelationship	0..1	MAY		3335-32508	
@typeCode	1..1	SHALL		3335-32509	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = REFR
observationCriteria	1..1	SHALL		3335-32510	Frequency (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.99:2017-05-01)
outboundRelationship	0..1	MAY		3335-34434	
@typeCode	1..1	SHALL		3335-34435	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = REFR
observationCriteria	1..1	SHALL		3335-34436	Dosage (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.125:2017-05-01)
outboundRelationship	0..1	MAY		3335-32511	

@typeCode	1..1	SHALL		3335-32512	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-32513	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01)

1. **SHALL** contain exactly one [1..1] **@classCode="SBADM"** Substance Administration (CONF:3335-32047).
2. **SHALL** contain exactly one [1..1] **@moodCode="EVN"** Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-32048).
3. **MAY** contain zero or one [0..1] **@actionNegationInd** (CONF:3335-32049).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-32050).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-32051).
 - i. This item **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.4.45"** (CONF:3335-32052).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-33386).
5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-32053).
6. **SHALL** contain exactly one [1..1] **code** (CONF:3335-32054).
 - a. This code **SHALL** contain exactly one [1..1] **@code="416118004"** Administration (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:3335-32055).
 - b. This code **SHALL** contain exactly one [1..1] **@codeSystem="2.16.840.1.113883.6.96 "** (CONF:3335-32056).
7. **SHALL** contain exactly one [1..1] **title** (CONF:3335-32057).
8. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-32058).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code="completed"** Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-32059).
9. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-32060).
Note: QDM Attribute: Relevant Period
 - a. The effectiveTime, if present, **MAY** contain zero or one [0..1] **low** (CONF:3335-32061).
Note: Start Datetime (When a single medication administration event starts (e.g., the initiation of an intravenous infusion, or administering a pill or IM injection to a patient))
 - b. The effectiveTime, if present, **MAY** contain zero or one [0..1] **high** (CONF:3335-32062).
Note: Stop Datetime (When a single medication administration event ends (e.g., the end time of the intravenous infusion, or the administration of a pill or IM injection is completed - for pills and IM injections, the start and stop times are the same))
10. **MAY** contain zero or one [0..1] **routeCode** (CONF:3335-32506).
Note: QDM Attribute: Route

- a. The routeCode, if present, **SHOULD** contain zero or one [0..1] @valueSet (CONF:3335-32507).
11. **MAY** contain zero or one [0..1] **doseQuantity** (CONF:3335-33128).
 Note: QDM Attribute: Supply
12. **SHALL** contain exactly one [1..1] **participation** (CONF:3335-32497).
- a. This participation **SHALL** contain exactly one [1..1] @typeCode="CSM" Consumable (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-32503).
 - b. This participation **SHALL** contain exactly one [1..1] **role** (CONF:3335-32498).
 - i. This role **SHALL** contain exactly one [1..1] @classCode="MANU" Manufactured Product (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-32504).
 - ii. This role **SHALL** contain exactly one [1..1] **playingManufacturedMaterial** (CONF:3335-32499).
 - 1. This playingManufacturedMaterial **SHALL** contain exactly one [1..1] @classCode="MMAT" Manufactured Material (CodeSystem: HL7EntityClass urn:oid:2.16.840.1.113883.5.41) (CONF:3335-32500).
 - 2. This playingManufacturedMaterial **SHALL** contain exactly one [1..1] @determinerCode="KIND" Kind (CodeSystem: HL7EntityDeterminer urn:oid:2.16.840.1.113883.5.30) (CONF:3335-32520).
 - 3. This playingManufacturedMaterial **SHALL** contain exactly one [1..1] **code** (CONF:3335-32501).
 - a. This code **SHOULD** contain zero or one [0..1] @valueSet (CONF:3335-32502).
13. **SHALL** contain exactly one [1..1] **participation** (CONF:3335-34542).
- a. This participation **SHALL** contain exactly one [1..1] @typeCode="AUT" Author (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-34545).
 - b. This participation **SHALL** contain exactly one [1..1] **time** (CONF:3335-34543).
 - i. This time **SHALL** contain exactly one [1..1] **low** (CONF:3335-34546).
 Note: QDM Attribute: Author Datetime
 - c. This participation **SHALL** contain exactly one [1..1] **role** (CONF:3335-34544).
 - i. This role **SHALL** contain exactly one [1..1] @classCode="ROL" Role (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-34547).
 - ii. This role **MAY** contain zero or one [0..1] **id** (CONF:3335-34548).
14. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-32508) such that it
 Note: QDM Attribute: Frequency
- a. **SHALL** contain exactly one [1..1] @typeCode="REFR" Refers To (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32509).

- b. **SHALL** contain exactly one [1..1] **Frequency** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.99:2017-05-01) (CONF:3335-32510).
15. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-34434) such that it
 Note: QDM Attribute: Dosage
- a. **SHALL** contain exactly one [1..1] @**typeCode**="REFR" Refers To (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-34435).
 - b. **SHALL** contain exactly one [1..1] **Dosage** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.125:2017-05-01) (CONF:3335-34436).
16. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-32511) such that it
- a. **SHALL** contain exactly one [1..1] @**typeCode**="RSON" Has Reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32512).
 - b. **SHALL** contain exactly one [1..1] **Reason** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-32513).
- Note: QDM Attribute: Reason

Figure 42: Medication, Administered Example

```

<substanceAdministrationCriteria classCode="SBADM" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.45" extension="2017-05-01"/>
  </templateId>
  <id root="de28ff02-d2cf-436e-898a-58eb49e15b47"/>
  <code code="416118004" codeSystem="2.16.840.1.113883.6.96">
    <displayName value="Administration"/>
  </code>
  <title value="Medication, Administered"/>
  <statusCode code="completed"/>
  <participation typeCode="CSM">
    <role classCode="MANU">
      <playingManufacturedMaterial classCode="MMAT" determinerCode="KIND">
        <code valueSet="{$QDMElementValueSetOID}"/>
      </playingManufacturedMaterial>
    </role>
  </participation>
</substanceAdministrationCriteria>

```

5.39 Medication, Discharge

[substanceAdministrationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.48:2017-05-01 (open)]

Table 89: Medication, Discharge Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Dosage Frequency Reason

This template represents the QDM data type: Medication, Discharge.

A medication refers to clinical drugs or chemical substances intended for use in the medical diagnosis, cure, treatment, or prevention of disease. This template represents medication should be taken by or given to the patient after being discharged from an inpatient encounter

Timing: The time the discharge medication list on the discharge instruction form is authored.

Dosage: Details of how medication is/is to be taken, i.e., the quantity (mg, cc, tablets) to be taken at a single administration.

Supply: The quantity (amount) of therapeutic agent that was provided to a patient (i.e., number of doses, number of tablets or pills, volume of medication). Dispensed to a patient to be taken at a later time.

Table 90: Medication, Discharge Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
substanceAdministrationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.48:2017-05-01)					
@classCode	1..1	SHALL		3335-32521	SBADM
@moodCode	1..1	SHALL		3335-32522	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = RQO
@actionNegationInd	0..1	MAY		3335-33438	
templateId	1..1	SHALL		3335-32523	
item	1..1	SHALL		3335-32524	
@root	1..1	SHALL		3335-32525	2.16.840.1.113883.10.20.28.4.4 8
@extension	1..1	SHALL		3335-33439	2017-05-01
id	1..1	SHALL		3335-32526	
code	1..1	SHALL		3335-32527	
@code	1..1	SHALL		3335-32528	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 10183-2
@codeSystem	1..1	SHALL		3335-32529	2.16.840.1.113883.6.1
title	1..1	SHALL		3335-32530	
statusCode	1..1	SHALL		3335-32531	
@code	1..1	SHALL		3335-32532	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = active
repeatNumber	0..1	MAY		3335-32536	
routeCode	0..1	MAY		3335-32537	
@valueSet	0..1	SHOULD		3335-32538	
doseQuantity	0..1	MAY		3335-34437	
participation	1..1	SHALL		3335-32539	
@typeCode	1..1	SHALL		3335-32540	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = CSM
role	1..1	SHALL		3335-32541	
@classCode	1..1	SHALL		3335-32542	urn:oid:2.16.840.1.113883.5.11 0 (HL7RoleClass) = MANU

playingManufacturedMaterial	1..1	SHALL		3335-32543	
@classCode	1..1	SHALL		3335-32544	urn:oid:2.16.840.1.113883.5.41 (HL7EntityClass) = MMAT
@determinerCode	1..1	SHALL		3335-32545	urn:oid:2.16.840.1.113883.5.30 (HL7EntityDeterminer) = KIND
code	1..1	SHALL		3335-32546	
@valueSet	0..1	SHOULD		3335-32547	
participation	1..1	SHALL		3335-34438	
@typeCode	1..1	SHALL		3335-34442	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = AUT
time	1..1	SHALL		3335-34439	
low	1..1	SHALL		3335-34443	
role	1..1	SHALL		3335-34440	
@classCode	1..1	SHALL		3335-34444	ROL
id	0..1	MAY		3335-34445	
outboundRelationship	0..1	MAY		3335-32548	
@typeCode	1..1	SHALL		3335-32549	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = REFR
observationCriteria	1..1	SHALL		3335-32550	Frequency (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.99:2017-05-01
outboundRelationship	0..1	MAY		3335-34441	
@typeCode	1..1	SHALL		3335-34446	REFR
observationCriteria	1..1	SHALL		3335-34447	Dosage (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.125:2017-05-01
outboundRelationship	0..1	MAY		3335-34130	
@typeCode	1..1	SHALL		3335-34131	RSON
observationCriteria	1..1	SHALL		3335-34132	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.88:2017-05-01

1. **SHALL** contain exactly one [1..1] **@classCode="SBADM"** Substance Administration (CONF:3335-32521).
2. **SHALL** contain exactly one [1..1] **@moodCode="RQO"** Request (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-32522).
3. **MAY** contain zero or one [0..1] **@actionNegationInd** (CONF:3335-33438).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-32523).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-32524).
 - i. This item **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.4.48"** (CONF:3335-32525).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-33439).
5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-32526).
6. **SHALL** contain exactly one [1..1] **code** (CONF:3335-32527).
 - a. This code **SHALL** contain exactly one [1..1] **@code="10183-2"** Discharge Medication (CodeSystem: LOINC urn:oid:2.16.840.1.113883.6.1) (CONF:3335-32528).
 - b. This code **SHALL** contain exactly one [1..1] **@codeSystem="2.16.840.1.113883.6.1"** (CONF:3335-32529).
7. **SHALL** contain exactly one [1..1] **title** (CONF:3335-32530).
8. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-32531).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code="active"** Active (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-32532).
9. **MAY** contain zero or one [0..1] **repeatNumber** (CONF:3335-32536).
Note: QDM Attribute: Refills
10. **MAY** contain zero or one [0..1] **routeCode** (CONF:3335-32537).
Note: QDM Attribute: Route
 - a. The routeCode, if present, **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-32538).
11. **MAY** contain zero or one [0..1] **doseQuantity** (CONF:3335-34437).
Note: QDM Attribute: Supply
12. **SHALL** contain exactly one [1..1] **participation** (CONF:3335-32539) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode="CSM"** Consumable (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-32540).
 - b. **SHALL** contain exactly one [1..1] **role** (CONF:3335-32541).
 - i. This role **SHALL** contain exactly one [1..1] **@classCode="MANU"** Manufactured Product (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-32542).
 - ii. This role **SHALL** contain exactly one [1..1] **playingManufacturedMaterial** (CONF:3335-32543).
 1. This playingManufacturedMaterial **SHALL** contain exactly one [1..1] **@classCode="MMAT"** Manufactured Material (CodeSystem: HL7EntityClass urn:oid:2.16.840.1.113883.5.41) (CONF:3335-32544).

2. This playingManufacturedMaterial **SHALL** contain exactly one [1..1] **@determinerCode="KIND"** Kind (CodeSystem: HL7EntityDeterminer urn:oid:2.16.840.1.113883.5.30) (CONF:3335-32545).
 3. This playingManufacturedMaterial **SHALL** contain exactly one [1..1] **code** (CONF:3335-32546).
 - a. This code **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-32547).
13. **SHALL** contain exactly one [1..1] **participation** (CONF:3335-34438) such that it
- a. **SHALL** contain exactly one [1..1] **@typeCode="AUT"** Author (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-34442).
 - b. **SHALL** contain exactly one [1..1] **time** (CONF:3335-34439).
 - i. This time **SHALL** contain exactly one [1..1] **low** (CONF:3335-34443).
Note: QDM Attribute: Author Datetime (The time the discharge medication list on the discharge instruction form is authored)
 - c. **SHALL** contain exactly one [1..1] **role** (CONF:3335-34440).
 - i. This role **SHALL** contain exactly one [1..1] **@classCode="ROL"** Role (CONF:3335-34444).
 - ii. This role **MAY** contain zero or one [0..1] **id** (CONF:3335-34445).
14. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-32548) such that it
Note: QDM Attribute: Frequency
- a. **SHALL** contain exactly one [1..1] **@typeCode="REFR"** Refers To (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32549).
 - b. **SHALL** contain exactly one [1..1] **Frequency** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.99:2017-05-01) (CONF:3335-32550).
15. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-34441) such that it
Note: QDM Attribute: Dosage
- a. **SHALL** contain exactly one [1..1] **@typeCode="REFR"** Refers To (CONF:3335-34446).
 - b. **SHALL** contain exactly one [1..1] **Dosage** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.125:2017-05-01) (CONF:3335-34447).
16. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-34130) such that it
- a. **SHALL** contain exactly one [1..1] **@typeCode="RSON"** Has Reason (CONF:3335-34131).
 - b. **SHALL** contain exactly one [1..1] **Reason** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-34132).

Figure 43: Medication, Discharge Example

```
<substanceAdministrationCriteria classCode="SBADM" moodCode="RQO">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.48" extension="2017-05-01"/>
  </templateId>
  <id root="7c7cb827-4ff6-4585-aba3-885a89c32083"/>
  <code code="10183-2" codeSystem="2.16.840.1.113883.6.1">
    <displayName value="Discharge Medication"/>
  </code>
  <title value="Medication, Discharge"/>
  <statusCode code="active" />
  <participation typeCode="CSM">
    <role classCode="MANU">
      <playingManufacturedMaterial classCode="MMAT" determinerCode="KIND">
        <code valueSet="{$QDMElementValueSetOID}"/>
      </playingManufacturedMaterial>
    </role>
  </participation>
</substanceAdministrationCriteria>
```

5.40 Medication, Dispensed

[supplyCriteria: identifier urn:hl7ii:2.16.840.1.113883.10.20.28.4.49:2017-05-01 (open)]

Table 91: Medication, Dispensed Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Dosage Frequency Reason

This template represents the QDM data type: Medication, Dispensed.

Medication dispensed is to give medications to a patient or patient proxy based on a prescription. Typically, in the ambulatory setting, medications are primarily taken directly by patients and not directly observed. Hence, medications dispensed are the closest health provider documentation of medication compliance.

Timing: The time the medication dispensing event occurs; the author datetime.

Dosage: Details of how medication is/is to be taken, i.e., the quantity (mg, cc, tablets) to be taken at a single administration.

Supply: The quantity (amount) of therapeutic agent that was provided to a patient (i.e., number of doses, number of tablets or pills, volume of medication). Dispensed to a patient to be taken at a later time.

Table 92: Medication, Dispensed Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
supplyCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.49:2017-05-01)					
@classCode	1..1	SHALL		3335-32560	SPLY
@moodCode	1..1	SHALL		3335-32561	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
@actionNegationInd	0..1	MAY		3335-32562	
templateId	1..1	SHALL		3335-32563	
item	1..1	SHALL		3335-32564	
@root	1..1	SHALL		3335-32565	2.16.840.1.113883.10.20.28.4.4 9
@extension	1..1	SHALL		3335-33752	2017-05-01
id	1..1	SHALL		3335-32566	
title	1..1	SHALL		3335-32567	
statusCode	1..1	SHALL		3335-32568	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus)
@code	1..1	SHALL		3335-32582	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
effectiveTime	0..1	MAY	IVL_TS	3335-32569	
low	1..1	SHALL		3335-32570	
repeatNumber	0..1	MAY		3335-32572	
participation	1..1	SHALL		3335-32573	
@typeCode	1..1	SHALL		3335-32574	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = CSM
role	1..1	SHALL		3335-32575	
@classCode	1..1	SHALL		3335-32576	urn:oid:2.16.840.1.113883.5.11 0 (HL7RoleClass) = MANU
playingMaterial	0..1	MAY		3335-32577	
@classCode	1..1	SHALL		3335-32578	urn:oid:2.16.840.1.113883.5.41 (HL7EntityClass) = MMAT
@determinerCode	1..1	SHALL		3335-32579	urn:oid:2.16.840.1.113883.5.30 (HL7EntityDeterminer) = KIND
code	1..1	SHALL		3335-32580	

@valueSet	0..1	SHOULD		3335-32581	
outboundRelationship	0..1	MAY		3335-32586	
@typeCode	1..1	SHALL		3335-32587	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = REF_R
observationCriteria	1..1	SHALL		3335-32588	Frequency (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.99:2017-05-01)
outboundRelationship	0..1	MAY		3335-34448	
@typeCode	1..1	SHALL		3335-34449	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = REF_R
observationCriteria	1..1	SHALL		3335-34450	Dosage (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.125:2017-05-01)
outboundRelationship	0..1	MAY		3335-32589	
@typeCode	1..1	SHALL		3335-32590	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-32591	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01)

1. **SHALL** contain exactly one [1..1] **@classCode="SPLY"** Supply (CONF:3335-32560).
2. **SHALL** contain exactly one [1..1] **@moodCode="EVN"** Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-32561).
3. **MAY** contain zero or one [0..1] **@actionNegationInd** (CONF:3335-32562).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-32563).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-32564).
 - i. This item **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.4.49"** (CONF:3335-32565).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-33752).
5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-32566).
6. **SHALL** contain exactly one [1..1] **title** (CONF:3335-32567).
7. **SHALL** contain exactly one [1..1] **statusCode** (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-32568).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code="completed"** Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-32582).
8. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-32569).

- a. The effectiveTime, if present, **SHALL** contain exactly one [1..1] **low** (CONF:3335-32570).

Note: QDM Attribute: Author Datetime (The time the medication dispensing event occurs)
- 9. **MAY** contain zero or one [0..1] **repeatNumber** (CONF:3335-32572).

Note: QDM Attribute: Refills
- 10. **SHALL** contain exactly one [1..1] **participation** (CONF:3335-32573) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode="CSM"** Consumable (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-32574).
 - b. **SHALL** contain exactly one [1..1] **role** (CONF:3335-32575).
 - i. This role **SHALL** contain exactly one [1..1] **@classCode="MANU"** Manufactured Product (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-32576).
 - ii. This role **MAY** contain zero or one [0..1] **playingMaterial** (CONF:3335-32577).
 - 1. The playingMaterial, if present, **SHALL** contain exactly one [1..1] **@classCode="MMAT"** Manufactured Material (CodeSystem: HL7EntityClass urn:oid:2.16.840.1.113883.5.41) (CONF:3335-32578).
 - 2. The playingMaterial, if present, **SHALL** contain exactly one [1..1] **@determinerCode="KIND"** Kind (CodeSystem: HL7EntityDeterminer urn:oid:2.16.840.1.113883.5.30) (CONF:3335-32579).
 - 3. The playingMaterial, if present, **SHALL** contain exactly one [1..1] **code** (CONF:3335-32580).
 - a. This code **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-32581).
- 11. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-32586) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode="REFR"** Refers To (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32587).
 - b. **SHALL** contain exactly one [1..1] **Frequency** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.99:2017-05-01) (CONF:3335-32588).

Note: QDM Attribute: Frequency
- 12. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-34448) such that it

Note: QDM Attribute: Dosage

 - a. **SHALL** contain exactly one [1..1] **@typeCode="REFR"** Refers To (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-34449).
 - b. **SHALL** contain exactly one [1..1] **Dosage** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.125:2017-05-01) (CONF:3335-34450).
- 13. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-32589) such that it

- a. **SHALL** contain exactly one [1..1] @typeCode="RSON" Has Reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32590).
- b. **SHALL** contain exactly one [1..1] **Reason** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-32591).

Figure 44: Medication, Dispensed Example

```
<supplyCriteria classCode="SPLY" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.49" extension="2017-05-01"/>
  </templateId>
  <id root="3c4dcf95-2b8b-4e29-bfef-40aaf2e3a80c"/>
  <title value="Medication, Dispensed"/>
  <statusCode code="completed"/>
  <participation typeCode="CSM">
    <role classCode="MANU">
      <playingMaterial classCode="MMAT" determinerCode="KIND">
        <code valueSet="{{$QDMElementValueSetOID}}"/>
      </playingMaterial>
    </role>
  </participation>
</supplyCriteria>
```

5.41 Medication, Order

[substanceAdministrationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.51:2017-05-01 (open)]

Table 93: Medication, Order Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Dosage Frequency Reason

This template represents the QDM data type: Medication, Order.

This represents an order for a medication, intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease and that is not dependent on being metabolized to achieve any of its primary intended purposes.

Timing: The time the order is signed; author datetime.

Dosage: Details of how medication is/is to be taken, i.e., the quantity (mg, cc, tablets) to be taken at a single administration.

Supply: The quantity (amount) of therapeutic agent that was provided to a patient (i.e., number of doses, number of tablets or pills, volume of medication). Dispensed to a patient to be taken at a later time.

Table 94: Medication, Order Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
substanceAdministrationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.51:2017-05-01)					
@classCode	1..1	SHALL		3335-30218	SBADM
@moodCode	1..1	SHALL		3335-29049	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = RQO
@actionNegationInd	0..1	MAY		3335-31037	
templateId	1..1	SHALL		3335-29050	
item	1..1	SHALL		3335-29051	
@root	1..1	SHALL		3335-29052	2.16.840.1.113883.10.20.28.4.5 1
@extension	1..1	SHALL		3335-33443	2017-05-01
id	1..1	SHALL		3335-30185	
title	1..1	SHALL		3335-30186	
statusCode	1..1	SHALL		3335-30227	
@code	1..1	SHALL		3335-30228	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = active
effectiveTime	0..1	MAY	IVL_TS	3335-30504	
low	0..1	MAY		3335-31035	
repeatNumber	0..1	MAY		3335-31038	
methodCode	0..1	MAY		3335-30199	
item	0..1	SHALL		3335-30229	
@valueSet	0..1	SHOULD		3335-30230	
routeCode	0..1	MAY		3335-30188	
@valueSet	0..1	SHOULD		3335-30231	
doseQuantity	0..1	MAY		3335-30224	
participation	1..1	SHALL		3335-29053	
@typeCode	1..1	SHALL		3335-29054	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = CSM

role	1..1	SHALL		3335-29055	
@classCode	1..1	SHALL		3335-29056	urn:oid:2.16.840.1.113883.5.110 (HL7RoleClass) = MANU
playingMaterial	1..1	SHALL		3335-29057	
@classCode	1..1	SHALL		3335-29058	urn:oid:2.16.840.1.113883.5.41 (HL7EntityClass) = MMAT
@determinerCode	1..1	SHALL		3335-29059	urn:oid:2.16.840.1.113883.5.30 (HL7EntityDeterminer) = KIND
code	1..1	SHALL		3335-29060	
@valueSet	0..1	SHOULD		3335-30164	
participation	0..1	MAY		3335-33441	
@typeCode	1..1	SHALL		3335-33444	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = AUT
time	1..1	SHALL		3335-33442	
low	1..1	SHALL		3335-33500	
role	1..1	SHALL		3335-33592	
@classCode	1..1	SHALL		3335-33593	ROL
id	0..1	MAY		3335-33594	
outboundRelationship	0..1	MAY		3335-30190	
@typeCode	1..1	SHALL		3335-30191	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-30192	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01)
outboundRelationship	0..1	MAY		3335-31061	
@typeCode	1..1	SHALL		3335-34117	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = REFR
observationCriteria	1..1	SHALL		3335-31063	Frequency (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.99:2017-05-01)
outboundRelationship	0..1	MAY		3335-34451	

@typeCode	1..1	SHALL		3335-34452	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = REF
observationCriteria	1..1	SHALL		3335-34453	Dosage (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.125:2017-05-01)

1. **SHALL** contain exactly one [1..1] **@classCode**="SBADM" Substance Administration (CONF:3335-30218).
2. **SHALL** contain exactly one [1..1] **@moodCode**="RQO" Request (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-29049).
3. **MAY** contain zero or one [0..1] **@actionNegationInd** (CONF:3335-31037).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-29050).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-29051).
 - i. This item **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.28.4.51" (CONF:3335-29052).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension**="2017-05-01" (CONF:3335-33443).
5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-30185).
6. **SHALL** contain exactly one [1..1] **title** (CONF:3335-30186).
7. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-30227).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code**="active" Active (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-30228).
8. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-30504).
 - a. The effectiveTime, if present, **MAY** contain zero or one [0..1] **low** (CONF:3335-31035).
Note: QDM Attribute: Active Datetime
9. **MAY** contain zero or one [0..1] **repeatNumber** (CONF:3335-31038).
Note: QDM Attribute: Refills
10. **MAY** contain zero or one [0..1] **methodCode** (CONF:3335-30199).
Note: QDM Attribute: Method
 - a. The methodCode, if present, **SHALL** contain zero or one [0..1] **item** (CONF:3335-30229).
 - i. The item, if present, **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-30230).
11. **MAY** contain zero or one [0..1] **routeCode** (CONF:3335-30188).
Note: QDM Attribute: Route
 - a. The routeCode, if present, **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-30231).
12. **MAY** contain zero or one [0..1] **doseQuantity** (CONF:3335-30224).
Note: QDM Attribute: Supply
13. **SHALL** contain exactly one [1..1] **participation** (CONF:3335-29053) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode**="CSM" Consumable (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-29054).

- b. **SHALL** contain exactly one [1..1] **role** (CONF:3335-29055).
 - i. This role **SHALL** contain exactly one [1..1] **@classCode="MANU"** Manufactured (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-29056).
 - ii. This role **SHALL** contain exactly one [1..1] **playingMaterial** (CONF:3335-29057).
 - 1. This playingMaterial **SHALL** contain exactly one [1..1] **@classCode="MMAT"** Manufactured Material (CodeSystem: HL7EntityClass urn:oid:2.16.840.1.113883.5.41) (CONF:3335-29058).
 - 2. This playingMaterial **SHALL** contain exactly one [1..1] **@determinerCode="KIND"** Kind (CodeSystem: HL7EntityDeterminer urn:oid:2.16.840.1.113883.5.30) (CONF:3335-29059).
 - 3. This playingMaterial **SHALL** contain exactly one [1..1] **code** (CONF:3335-29060).
 - a. This code **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-30164).
14. **MAY** contain zero or one [0..1] **participation** (CONF:3335-33441) such that it
- a. **SHALL** contain exactly one [1..1] **@typeCode="AUT"** Author (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-33444).
 - b. **SHALL** contain exactly one [1..1] **time** (CONF:3335-33442).
 - i. This time **SHALL** contain exactly one [1..1] **low** (CONF:3335-33500).
Note: QDM Attribute: Author Time
 - c. **SHALL** contain exactly one [1..1] **role** (CONF:3335-33592).
 - i. This role **SHALL** contain exactly one [1..1] **@classCode="ROL"** Role (CONF:3335-33593).
 - ii. This role **MAY** contain zero or one [0..1] **id** (CONF:3335-33594).
15. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-30190) such that it
Note: QDM Attribute: Reason
- a. **SHALL** contain exactly one [1..1] **@typeCode="RSON"** Has Reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-30191).
 - b. **SHALL** contain exactly one [1..1] **Reason** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-30192).
16. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-31061) such that it
Note: QDM Attribute: Frequency
- a. **SHALL** contain exactly one [1..1] **@typeCode="REFR"** Refers To (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-34117).
 - b. **SHALL** contain exactly one [1..1] **Frequency** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.99:2017-05-01) (CONF:3335-31063).

17. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-34451) such that it

Note: QDM Attribute: Dosage

- a. **SHALL** contain exactly one [1..1] @**typeCode**="REFR" Refers To (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-34452).
- b. **SHALL** contain exactly one [1..1] **Dosage** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.125:2017-05-01) (CONF:3335-34453).

Figure 45: Medication, Order Example

```
<substanceAdministrationCriteria classCode="SBADM" moodCode="RQO">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.51" extension="2017-05-01"/>
  </templateId>
  <id root="27beb8e3-7c86-48cf-b430-235b72786dea"/>
  <title value="Medication, Order"/>
  <statusCode code="active"/>
  <participation typeCode="CSM">
    <role classCode="MANU">
      <playingMaterial classCode="MMAT" determinerCode="KIND">
        <code valueSet="{$QDMElementValueSetOID}"/>
      </playingMaterial>
    </role>
  </participation>
</substanceAdministrationCriteria>
```

5.42 Patient Care Experience

[observationCriteria: identifier

urn:hl7ii:2.16.840.1.113883.10.20.28.4.52:2017-05-01 (open)]

Table 95: Patient Care Experience Contexts

Contained By:	Contains:
Data Criteria Section (optional)	

This template represents the QDM data type: Patient Care Experience.

Data elements that meet this criterion indicate the patient's care experience, usually measured with a validated survey tool. The most common tool is the Consumer Assessment of Healthcare Providers and Systems.

Timing: The time the care experience is recorded; author datetime

Table 96: Patient Care Experience Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.52:2017-05-01)					
@classCode	1..1	SHALL		3335-32204	OBS
@moodCode	1..1	SHALL		3335-32205	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3335-32206	
item	1..1	SHALL		3335-32207	
@root	1..1	SHALL		3335-32208	2.16.840.1.113883.10.20.28.4.5 2
@extension	1..1	SHALL		3335-33700	2017-05-01
id	1..1	SHALL		3335-32209	
code	1..1	SHALL		3335-32210	
@code	1..1	SHALL		3335-32211	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 406193000
@codeSystem	1..1	SHALL		3335-32212	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT)
title	1..1	SHALL		3335-32213	
statusCode	1..1	SHALL		3335-32216	
@code	1..1	SHALL		3335-32217	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
effectiveTime	0..1	MAY	IVL_TS	3335-34388	
low	1..1	SHALL		3335-34389	
value	1..1	SHALL	CD	3335-32214	
@valueSet	0..1	SHOULD		3335-32215	

1. **SHALL** contain exactly one [1..1] @classCode="OBS" Observation (CONF:3335-32204).
2. **SHALL** contain exactly one [1..1] @moodCode="EVN" Event (CodeSystem: HL7ActMood
urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-32205).
3. **SHALL** contain exactly one [1..1] templateId (CONF:3335-32206).
 - a. This templateId **SHALL** contain exactly one [1..1] item (CONF:3335-32207).
 - i. This item **SHALL** contain exactly one [1..1]
@root="2.16.840.1.113883.10.20.28.4.52" (CONF:3335-32208).

- ii. This item **SHALL** contain exactly one [1..1] `@extension="2017-05-01"` (CONF:3335-33700).
- 4. **SHALL** contain exactly one [1..1] `id` (CONF:3335-32209).
- 5. **SHALL** contain exactly one [1..1] `code` (CONF:3335-32210).
 - a. This code **SHALL** contain exactly one [1..1] `@code="406193000"` Patient Satisfaction (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:3335-32211).
 - b. This code **SHALL** contain exactly one [1..1] `@codeSystem` (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:3335-32212).
- 6. **SHALL** contain exactly one [1..1] `title` (CONF:3335-32213).
- 7. **SHALL** contain exactly one [1..1] `statusCode` (CONF:3335-32216).
 - a. This statusCode **SHALL** contain exactly one [1..1] `@code="completed"` Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-32217).
- 8. **MAY** contain zero or one [0..1] `effectiveTime` (CONF:3335-34388).
 - a. The effectiveTime, if present, **SHALL** contain exactly one [1..1] `low` (CONF:3335-34389).

Note: QDM Attribute: Author Datetime (The time the care experience is recorded)
- 9. **SHALL** contain exactly one [1..1] `value` with `@xsi:type="CD"` (CONF:3335-32214).
 - a. This value **SHOULD** contain zero or one [0..1] `@valueSet` (CONF:3335-32215).

Figure 46: Patient Care Experience Example

```
<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.52" extension="2017-05-01"/>
  </templateId>
  <id root="5d852a88-4e5f-4a13-b29f-6798ad42d192"/>
  <code code="406193000" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED CT">
    <displayName value="Patient Satisfaction"/>
  </code>
  <title value="Patient Care Experience"/>
  <statusCode code="completed"/>
  <value xsi:type="CD" valueSet="{$QDMElementValueSetOID}"/>
</observationCriteria>
```

5.43 Patient Characteristic

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.53:2017-05-01 (open)]

Table 97: Patient Characteristic Contexts

Contained By:	Contains:
Data Criteria Section (optional)	

This template represents the QDM data type: Patient Characteristic.

Timing: The time the characteristic is authored.

Table 98: Patient Characteristic Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.53:2017-05-01)					
@classCode	1..1	SHALL		3335-31602	OBS
@moodCode	1..1	SHALL		3335-31603	urn:oid:2.16.840.1.113883.5.1001 (HL7ActMood) = EVN
@actionNegationInd	0..1	MAY		3335-31604	
templateId	1..1	SHALL		3335-31605	
item	1..1	SHALL		3335-31606	
@root	1..1	SHALL		3335-31607	2.16.840.1.113883.10.20.28.4.53
@extension	1..1	SHALL		3335-34456	2017-05-01
id	1..1	SHALL		3335-31608	
code	1..1	SHALL		3335-31609	
@valueSet	0..1	SHOULD		3335-34454	
statusCode	1..1	SHALL		3335-31613	
@code	1..1	SHALL		3335-31614	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
effectiveTime	0..1	MAY	IVL_TS	3335-31615	
low	1..1	SHALL		3335-31616	
value	0..1	MAY		3335-34455	

1. **SHALL** contain exactly one [1..1] @classCode="OBS" Observation (CONF:3335-31602).
2. **SHALL** contain exactly one [1..1] @moodCode="EVN" Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-31603).
3. **MAY** contain zero or one [0..1] @actionNegationInd (CONF:3335-31604).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] templateId (CONF:3335-31605).
 - a. This templateId **SHALL** contain exactly one [1..1] item (CONF:3335-31606).
 - i. This item **SHALL** contain exactly one [1..1] @root="2.16.840.1.113883.10.20.28.4.53" (CONF:3335-31607).

- ii. This item **SHALL** contain exactly one [1..1] @extension="2017-05-01" (CONF:3335-34456).
- 5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-31608).
- 6. **SHALL** contain exactly one [1..1] **code** (CONF:3335-31609).
 - a. This code **SHOULD** contain zero or one [0..1] @valueSet (CONF:3335-34454).
- 7. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-31613).
 - a. This statusCode **SHALL** contain exactly one [1..1] @code="completed" Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-31614).
- 8. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-31615).
 - a. The effectiveTime, if present, **SHALL** contain exactly one [1..1] **low** (CONF:3335-31616).

Note: QDM Attribute: Author Datetime (The time the characteristic is authored)
- 9. **MAY** contain zero or one [0..1] **value** (CONF:3335-34455).

Figure 47: Patient Characteristic Example

```
<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.53" extension="2017-05-01"/>
  </templateId>
  <id root="35cf9fd6-0d3d-4f86-91bf-a87fbf5ba8ef"/>
  <code valueSet ="{$QDMElementValueSetOID}"/>
  <statusCode code="completed"/>
</observationCriteria>
```

5.44 Patient Characteristic Birth Date

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.54:2017-05-01 (open)]

Table 99: Patient Characteristic Birth Date Contexts

Contained By:	Contains:
Data Criteria Section (optional)	

This template represents the QDM data type: Patient Characteristic Birth Date.

Timing: The Patient Characteristic, Birthdate is a single point in time representing the date and time of birth. It does not have a start and stop time.

Table 100: Patient Characteristic Birth Date Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.54:2017-05-01)					
@classCode	1..1	SHALL		3335-31550	OBS
@moodCode	1..1	SHALL		3335-31551	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = EVN
templateId	1..1	SHALL		3335-31552	
item	1..1	SHALL		3335-31553	
@root	1..1	SHALL		3335-31554	2.16.840.1.113883.10.20.28.4.54
@extension	1..1	SHALL		3335-33650	2017-05-01
id	1..1	SHALL		3335-31555	
code	1..1	SHALL		3335-31556	
@code	1..1	SHALL		3335-31557	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 21112-8
@codeSystem	1..1	SHALL		3335-31558	2.16.840.1.113883.6.1
title	1..1	SHALL		3335-31559	
statusCode	1..1	SHALL		3335-31583	
@code	1..1	SHALL		3335-31584	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
effectiveTime	0..1	MAY	IVL_TS	3335-31562	
low	1..1	SHALL		3335-31563	

1. **SHALL** contain exactly one [1..1] **@classCode="OBS"** Observation (CONF:3335-31550).
2. **SHALL** contain exactly one [1..1] **@moodCode="EVN"** Event (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-31551).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-31552).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-31553).
 - i. This item **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.4.54"** (CONF:3335-31554).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-33650).
4. **SHALL** contain exactly one [1..1] **id** (CONF:3335-31555).

5. **SHALL** contain exactly one [1..1] **code** (CONF:3335-31556).
 - a. This code **SHALL** contain exactly one [1..1] `@code="21112-8"` Birth Date (CodeSystem: LOINC urn:oid:2.16.840.1.113883.6.1) (CONF:3335-31557).
 - b. This code **SHALL** contain exactly one [1..1] `@codeSystem="2.16.840.1.113883.6.1"` (CONF:3335-31558).
6. **SHALL** contain exactly one [1..1] **title** (CONF:3335-31559).
7. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-31583).
 - a. This statusCode **SHALL** contain exactly one [1..1] `@code="completed"` Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-31584).
8. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-31562).
 - a. The effectiveTime, if present, **SHALL** contain exactly one [1..1] **low** (CONF:3335-31563).

Note: QDM Attribute: BirthDateTime (A single point in time representing the date and time of birth)

Figure 48: Patient Characteristic Birth Date Example

```
<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.54" extension="2017-05-01"/>
  </templateId>
  <id root="b591e825-d308-4f9e-9798-098bbd880975"/>
  <code code="21112-8" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC">
    <displayName value="Birth Date"/>
  </code>
  <title value="Patient Characteristic Birth Date"/>
  <statusCode code="completed"/>
</observationCriteria>
```

5.45 Patient Characteristic Clinical Trial Participant

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.6:2017-05-01 (open)]

Table 101: Patient Characteristic Clinical Trial Participant Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Reason

This template represents the QDM data type: Patient Characteristic Clinical Trial Participant.

This template represents that a patient is a participant in a clinical trial.

Timing: The Relevant Period addresses: startTime – The time the clinical trial began; stopTime – The time the clinical trial ended.

Table 102: Patient Characteristic Clinical Trial Participant Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.6:2017-05-01)					
@classCode	1..1	SHALL		3335-31565	OBS
@moodCode	1..1	SHALL		3335-31566	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3335-31567	
item	1..1	SHALL		3335-31568	
@root	1..1	SHALL		3335-31569	2.16.840.1.113883.10.20.28.4.6
@extension	1..1	SHALL		3335-31706	2017-05-01
id	1..1	SHALL		3335-31570	
code	1..1	SHALL		3335-31571	
@code	1..1	SHALL		3335-31572	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode) = ASSERTION
@codeSystem	1..1	SHALL		3335-31573	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode)
title	1..1	SHALL		3335-31574	
statusCode	1..1	SHALL		3335-31575	
@code	1..1	SHALL		3335-31576	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
effectiveTime	0..1	MAY	IVL_TS	3335-31577	
low	0..1	MAY		3335-31578	
high	0..1	MAY		3335-31579	
value	1..1	SHALL	CD	3335-31580	
@valueSet	0..1	SHOULD		3335-31739	
outboundRelationship	0..1	MAY		3335-31620	
@typeCode	1..1	SHALL		3335-31621	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-31622	<u>Reason (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.88:2017-05-01</u>

1. **SHALL** contain exactly one [1..1] **@classCode="OBS"** Observation (CONF:3335-31565).
2. **SHALL** contain exactly one [1..1] **@moodCode="EVN"** Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-31566).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-31567).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-31568).
 - i. This item **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.4.6"** (CONF:3335-31569).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-33706).
4. **SHALL** contain exactly one [1..1] **id** (CONF:3335-31570).
5. **SHALL** contain exactly one [1..1] **code** (CONF:3335-31571).
 - a. This code **SHALL** contain exactly one [1..1] **@code="ASSERTION"** Assertion (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-31572).
 - b. This code **SHALL** contain exactly one [1..1] **@codeSystem** (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-31573).
6. **SHALL** contain exactly one [1..1] **title** (CONF:3335-31574).
7. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-31575).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code="completed"** Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-31576).
8. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-31577).

Note: QDM Attribute: Relevant Period

 - a. The effectiveTime, if present, **MAY** contain zero or one [0..1] **low** (CONF:3335-31578).
Note: Start Datetime (The time the clinical trial began)
 - b. The effectiveTime, if present, **MAY** contain zero or one [0..1] **high** (CONF:3335-31579).
Note: Stop Datetime (The time the clinical trial ended)
9. **SHALL** contain exactly one [1..1] **value** with **@xsi:type="CD"** (CONF:3335-31580).
 - a. This value **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-31739).
10. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-31620) such that it
Note: QDM Attribute: Reason
 - a. **SHALL** contain exactly one [1..1] **@typeCode="RSON"** Has Reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-31621).
 - b. **SHALL** contain exactly one [1..1] **Reason** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-31622).

Figure 49: Patient Characteristic Clinical Trial Participant Example

```
<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.6" extension="2017-05-01"/>
  </templateId>
  <id root="c881c7cd-5ecf-4060-93c7-fbc8d1ab4500"/>
  <code code="ASSERTION" codeSystem="2.16.840.1.113883.5.4">
    <displayName value="Assertion"/>
  </code>
  <title value="Patient Characteristic Clinical Trial Participant"/>
  <statusCode code="completed"/>
  <value xsi:type="CD" valueSet="{$QDMElementValueSetOID}"/>
</observationCriteria>
```

5.46 Patient Characteristic Ethnicity

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.56:2017-05-01 (open)]

Table 103: Patient Characteristic Ethnicity Contexts

Contained By:	Contains:
Data Criteria Section (optional)	

This template represents the QDM data type: Patient Characteristic Ethnicity.

This template represents a patient's ethnicity.

Table 104: Patient Characteristic Ethnicity Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.56:2017-05-01)					
@classCode	1..1	SHALL		3335-28168	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = OBS
@moodCode	1..1	SHALL		3335-28169	urn:oid:2.16.840.1.113883.5.1001 (HL7ActMood) = EVN
templateId	1..1	SHALL		3335-28171	
item	1..1	SHALL		3335-28172	
@root	1..1	SHALL		3335-28173	2.16.840.1.113883.10.20.28.4.56
@extension	1..1	SHALL		3335-34654	2017-05-01
code	1..1	SHALL		3335-28174	
@code	1..1	SHALL		3335-28175	54133-4
@codeSystem	1..1	SHALL		3335-28176	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 2.16.840.1.113883.6.1
title	1..1	SHALL		3335-28179	
statusCode	1..1	SHALL		3335-31180	
@code	1..1	SHALL		3335-31181	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
value	1..1	SHALL	CD	3335-28180	
@valueSet	0..1	SHOULD		3335-31182	

1. **SHALL** contain exactly one [1..1] **@classCode="OBS"** (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6) (CONF:3335-28168).
2. **SHALL** contain exactly one [1..1] **@moodCode="EVN"** (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-28169).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-28171) such that it
 - a. **SHALL** contain exactly one [1..1] **item** (CONF:3335-28172).
 - i. This item **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.4.56"** (CONF:3335-28173).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-34654).
4. **SHALL** contain exactly one [1..1] **code** (CONF:3335-28174).

- a. This code **SHALL** contain exactly one [1..1] @code="54133-4" Ethnicity (CONF:3335-28175).
- b. This code **SHALL** contain exactly one [1..1] @codeSystem="2.16.840.1.113883.6.1" (CodeSystem: LOINC urn:oid:2.16.840.1.113883.6.1) (CONF:3335-28176).
- 5. **SHALL** contain exactly one [1..1] **title** (CONF:3335-28179).
- 6. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-31180).
 - a. This statusCode **SHALL** contain exactly one [1..1] @code="completed" Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-31181).
- 7. **SHALL** contain exactly one [1..1] **value** with @xsi:type="CD" (CONF:3335-28180).
 - a. This value **SHOULD** contain zero or one [0..1] @valueSet (CONF:3335-31182).

Figure 50: Patient Characteristic Ethnicity Example

```
<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.56" extension="2017-05-01"/>
  </templateId>
  <id root="a719b01b-55a7-43e9-93bb-40e765affd7b"/>
  <code code="54133-4" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC">
    <displayName value="Ethnicity"/>
  </code>
  <title value="Patient Characteristic Ethnicity"/>
  <statusCode code="completed"/>
  <value xsi:type="CD" valueSet="${QDMElementValueSetOID}"/>
</observationCriteria>
```

5.47 Patient Characteristic Expired

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.57:2017-05-01 (open)]

Table 105: Patient Characteristic Expired Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Cause

This template represents the QDM data type: Patient Characteristic Expired.

Timing: The Patient Characteristic, Expired is a single point in time representing the date and time of death. It does not have a start and stop time.

Table 106: Patient Characteristic Expired Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.57:2017-05-01)					
@classCode	1..1	SHALL		3335-31585	OBS
@moodCode	1..1	SHALL		3335-31586	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3335-31587	
item	1..1	SHALL		3335-31588	
@root	1..1	SHALL		3335-33141	2.16.840.1.113883.10.20.28.4.5 7
@extension	1..1	SHALL		3335-33381	2017-05-01
id	1..1	SHALL		3335-31590	
code	1..1	SHALL		3335-31591	
@code	1..1	SHALL		3335-31592	ASSERTION
@codeSystem	1..1	SHALL		3335-31593	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode) = 2.16.840.1.113883.5.4
title	1..1	SHALL		3335-31594	
statusCode	1..1	SHALL		3335-31595	
@code	1..1	SHALL		3335-31596	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
effectiveTime	0..1	MAY	IVL_TS	3335-31597	
low	1..1	SHALL		3335-31623	
value	1..1	SHALL	CD	3335-31600	
@code	1..1	SHALL		3335-33429	419099009
@codeSystem	1..1	SHALL		3335-33430	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 2.16.840.1.113883.6.96
outboundRelationship	0..1	MAY		3335-33450	
@typeCode	1..1	SHALL		3335-33451	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = CAUS

@inversionInd	1..1	SHALL		3335-33676	true
observationCriteria	1..1	SHALL		3335-33452	Cause (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.105:2017-05-01)

1. **SHALL** contain exactly one [1..1] **@classCode="OBS"** Observation (CONF:3335-31585).
2. **SHALL** contain exactly one [1..1] **@moodCode="EVN"** Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-31586).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-31587).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-31588).
 - i. This item **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.4.57"** (CONF:3335-33141).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-33381).
4. **SHALL** contain exactly one [1..1] **id** (CONF:3335-31590).
5. **SHALL** contain exactly one [1..1] **code** (CONF:3335-31591).
 - a. This code **SHALL** contain exactly one [1..1] **@code="ASSERTION"** Assertion (CONF:3335-31592).
 - b. This code **SHALL** contain exactly one [1..1] **@codeSystem="2.16.840.1.113883.5.4"** (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-31593).
6. **SHALL** contain exactly one [1..1] **title** (CONF:3335-31594).
7. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-31595).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code="completed"** Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-31596).
8. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-31597).
 - a. The effectiveTime, if present, **SHALL** contain exactly one [1..1] **low** (CONF:3335-31623).

Note: QDM Attribute: ExpiredDateTime (A single point in time representing the date and time of death)
9. **SHALL** contain exactly one [1..1] **value** with **@xsi:type="CD"** (CONF:3335-31600).
 - a. This value **SHALL** contain exactly one [1..1] **@code="419099009"** Dead (CONF:3335-33429).
 - b. This value **SHALL** contain exactly one [1..1] **@codeSystem="2.16.840.1.113883.6.96"** (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:3335-33430).
10. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-33450) such that it

Note: QDM Attribute: Cause

 - a. **SHALL** contain exactly one [1..1] **@typeCode="CAUS"** Cause (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-33451).
 - b. **SHALL** contain exactly one [1..1] **@inversionInd="true"** (CONF:3335-33676).

- c. **SHALL** contain exactly one [1..1] **Cause** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.105:2017-05-01) (CONF:3335-33452).

Figure 51: Patient Characteristic Expired Example

```
<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.57" extension="2017-05-01"/>
  </templateId>
  <id root="6b9cb746-991a-45b1-a0ea-e511e0a38a41"/>
  <code code="ASSERTION" codeSystem="2.16.840.1.113883.5.4">
    <displayName value="Assertion"/>
  </code>
  <title value="Patient Characteristic Expired"/>
  <statusCode code="completed"/>
  <value xsi:type="CD" code="419099009" codeSystem="2.16.840.1.113883.6.96"
codeSystemName="SNOMED CT">
    <displayName value="Dead"/>
  </value>
</observationCriteria>
```

5.48 Patient Characteristic Payer

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.58:2017-05-01 (open)]

Table 107: Patient Characteristic Payer Contexts

Contained By:	Contains:
Data Criteria Section (optional)	

This template represents the QDM data type: Patient Characteristic Payer.

This template represents a patient's payment source.

Timing: The Relevant Period addresses: startTime – The first day of insurance coverage with the referenced payer; stopTime – The last day of insurance coverage with the referenced payer.

Table 108: Patient Characteristic Payer Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.58:2017-05-01)					
@classCode	1..1	SHALL		3335-31627	OBS
@moodCode	1..1	SHALL		3335-31628	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3335-31629	
item	1..1	SHALL		3335-31630	
@root	1..1	SHALL		3335-31631	2.16.840.1.113883.10.20.28.4.5 8
@extension	1..1	SHALL		3335-34457	2017-05-01
id	1..1	SHALL		3335-31632	
code	1..1	SHALL		3335-31633	
@code	1..1	SHALL		3335-31634	48768-6
@codeSystem	1..1	SHALL		3335-31635	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 2.16.840.1.113883.6.1
title	1..1	SHALL		3335-31636	
statusCode	1..1	SHALL		3335-31637	
@code	1..1	SHALL		3335-31643	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
effectiveTime	0..1	MAY	IVL_TS	3335-31638	
low	0..1	MAY		3335-31641	
high	0..1	MAY		3335-31642	
value	1..1	SHALL	CD	3335-31639	
@valueSet	0..1	SHOULD		3335-31640	

1. **SHALL** contain exactly one [1..1] @classCode="OBS" Observation (CONF:3335-31627).
2. **SHALL** contain exactly one [1..1] @moodCode="EVN" Event (CodeSystem: HL7ActMood
urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-31628).
3. **SHALL** contain exactly one [1..1] templateId (CONF:3335-31629).

- a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-31630).
 - i. This item **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.4.58"** (CONF:3335-31631).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-34457).
- 4. **SHALL** contain exactly one [1..1] **id** (CONF:3335-31632).
- 5. **SHALL** contain exactly one [1..1] **code** (CONF:3335-31633).
 - a. This code **SHALL** contain exactly one [1..1] **@code="48768-6"** Payment Source (CONF:3335-31634).
 - b. This code **SHALL** contain exactly one [1..1] **@codeSystem="2.16.840.1.113883.6.1"** (CodeSystem: LOINC urn:oid:2.16.840.1.113883.6.1) (CONF:3335-31635).
- 6. **SHALL** contain exactly one [1..1] **title** (CONF:3335-31636).
- 7. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-31637).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code="completed"** Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-31643).
- 8. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-31638).

Note: QDM Attribute: Relevant Period

 - a. The effectiveTime, if present, **MAY** contain zero or one [0..1] **low** (CONF:3335-31641).
Note: Start Datetime (The first day of insurance coverage with the referenced payer)
 - b. The effectiveTime, if present, **MAY** contain zero or one [0..1] **high** (CONF:3335-31642).
Note: Stop Datetime (The last day of insurance coverage with the referenced payer)
- 9. **SHALL** contain exactly one [1..1] **value** with **@xsi:type="CD"** (CONF:3335-31639).
 - a. This value **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-31640).

Figure 52: Patient Characteristic Payer Example

```
<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.58" extension="2017-05-01"/>
  </templateId>
  <id root="ca3b4435-8cb4-499a-8ccd-db955364764e"/>
  <code code="48768-6" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC">
    <displayName value="Payer"/>
  </code>
  <title value="Patient Characteristic Payer"/>
  <statusCode code="completed"/>
  <value xsi:type="CD" valueSet="{$QDMElementValueSetOID}"/>
</observationCriteria>
```

5.49 Patient Characteristic Race

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.59:2017-05-01 (open)]

Table 109: Patient Characteristic Race Contexts

Contained By:	Contains:
Data Criteria Section (optional)	

This template represents the QDM data type: Patient Characteristic Race.

This template represents a patient's race.

Table 110: Patient Characteristic Race Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.59:2017-05-01)					
@classCode	1..1	SHALL		3335-31236	OBS
@moodCode	1..1	SHALL		3335-31237	urn:oid:2.16.840.1.113883.5.1001 (HL7ActMood) = EVN
templateId	1..1	SHALL		3335-31238	
item	1..1	SHALL		3335-31239	
@root	1..1	SHALL		3335-31240	2.16.840.1.113883.10.20.28.4.59
@extension	1..1	SHALL		3335-34655	2017-05-01
id	1..1	SHALL		3335-31241	
code	1..1	SHALL		3335-31242	
@code	1..1	SHALL		3335-31243	32624-9
@codeSystem	1..1	SHALL		3335-31244	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 2.16.840.1.113883.6.1
title	1..1	SHALL		3335-31245	
statusCode	1..1	SHALL		3335-31246	
@code	1..1	SHALL		3335-31247	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
value	1..1	SHALL	CD	3335-31248	
@valueSet	0..1	SHOULD		3335-31249	

1. **SHALL** contain exactly one [1..1] @classCode="OBS" Observation (CONF:3335-31236).
2. **SHALL** contain exactly one [1..1] @moodCode="EVN" Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-31237).
3. **SHALL** contain exactly one [1..1] templateId (CONF:3335-31238).
 - a. This templateId **SHALL** contain exactly one [1..1] item (CONF:3335-31239).
 - i. This item **SHALL** contain exactly one [1..1] @root="2.16.840.1.113883.10.20.28.4.59" (CONF:3335-31240).
 - ii. This item **SHALL** contain exactly one [1..1] @extension="2017-05-01" (CONF:3335-34655).

4. **SHALL** contain exactly one [1..1] **id** (CONF:3335-31241).
5. **SHALL** contain exactly one [1..1] **code** (CONF:3335-31242).
 - a. This code **SHALL** contain exactly one [1..1] @code="32624-9" Race (CONF:3335-31243).
 - b. This code **SHALL** contain exactly one [1..1] @codeSystem="2.16.840.1.113883.6.1" (CodeSystem: LOINC urn:oid:2.16.840.1.113883.6.1) (CONF:3335-31244).
6. **SHALL** contain exactly one [1..1] **title** (CONF:3335-31245).
7. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-31246).
 - a. This statusCode **SHALL** contain exactly one [1..1] @code="completed" Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-31247).
8. **SHALL** contain exactly one [1..1] **value** with @xsi:type="CD" (CONF:3335-31248).
 - a. This value **SHOULD** contain zero or one [0..1] @valueSet (CONF:3335-31249).

Figure 53: Patient Characteristic Race Example

```
<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.59" extension="2017-05-01"/>
  </templateId>
  <id root="5cabdd9d-cd97-47a2-8f15-a4a17c941d8c"/>
  <code code="54133-4" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC">
    <displayName value="Ethnicity"/>
  </code>
  <title value="Patient Characteristic Race"/>
  <statusCode code="completed"/>
  <value xsi:type="CD" valueSet="{$QDMElementValueSetOID}"/>
</observationCriteria>
```

5.50 Patient Characteristic Sex

[observationCriteria: identifier
 urn:hl7ii:2.16.840.1.113883.10.20.28.4.55:2017-05-01 (open)]

Table 111: Patient Characteristic Sex Contexts

Contained By:	Contains:
Data Criteria Section (optional)	

This template represents the QDM data type: Patient Characteristic Sex.

This template represents a patient's sex.

Table 112: Patient Characteristic Sex Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.55:2017-05-01)					
@classCode	1..1	SHALL		3335-31282	OBS
@moodCode	1..1	SHALL		3335-31283	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3335-31284	
item	1..1	SHALL		3335-31285	
@root	1..1	SHALL		3335-31286	2.16.840.1.113883.10.20.28.4.5 5
@extension	1..1	SHALL		3335-33382	2017-05-01
id	1..1	SHALL		3335-31287	
code	1..1	SHALL		3335-31288	
@code	1..1	SHALL		3335-31289	263495000
@codeSystem	1..1	SHALL		3335-31290	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 2.16.840.1.113883.6.96
title	1..1	SHALL		3335-31291	
statusCode	1..1	SHALL		3335-31292	
@code	1..1	SHALL		3335-33142	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode) = completed
effectiveTime	0..1	MAY	IVL_TS	3335-31295	
low	0..1	MAY		3335-31296	
high	0..1	MAY		3335-31297	
value	1..1	SHALL	CD	3335-31293	
@valueSet	1..1	SHOULD		3335-31294	

1. **SHALL** contain exactly one [1..1] @classCode="OBS" Observation (CONF:3335-31282).
2. **SHALL** contain exactly one [1..1] @moodCode="EVN" Event (CodeSystem: HL7ActMood
urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-31283).
3. **SHALL** contain exactly one [1..1] templateId (CONF:3335-31284).

- a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-31285).
 - i. This item **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.4.55"** (CONF:3335-31286).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-33382).
- 4. **SHALL** contain exactly one [1..1] **id** (CONF:3335-31287).
- 5. **SHALL** contain exactly one [1..1] **code** (CONF:3335-31288).
 - a. This code **SHALL** contain exactly one [1..1] **@code="263495000"** Gender (CONF:3335-31289).
 - b. This code **SHALL** contain exactly one [1..1] **@codeSystem="2.16.840.1.113883.6.96"** (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:3335-31290).
- 6. **SHALL** contain exactly one [1..1] **title** (CONF:3335-31291).
- 7. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-31292).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code="completed"** Completed (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-33142).
- 8. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-31295).
 - a. The effectiveTime, if present, **MAY** contain zero or one [0..1] **low** (CONF:3335-31296).
Note: QDM Attribute: Start Datetime
 - b. The effectiveTime, if present, **MAY** contain zero or one [0..1] **high** (CONF:3335-31297).
Note: QDM Attribute: Stop Datetime
- 9. **SHALL** contain exactly one [1..1] **value** with **@xsi:type="CD"** (CONF:3335-31293).
 - a. This value **SHOULD** contain exactly one [1..1] **@valueSet** (CONF:3335-31294).

Figure 54: Patient Characteristic Sex Example

```

<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.55" extension="2017-05-01"/>
  </templateId>
  <id root="4d3b1027-eb4b-4081-9093-e056acfd12ba"/>
  <code code="263495000" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED CT">
    <displayName value="Gender"/>
  </code>
  <title value="Patient Characteristic Sex"/>
  <statusCode code="completed"/>
  <value xsi:type="CD" valueSet="{$QDMElementValueSetOID}"/>
</observationCriteria>

```

5.51 Physical Exam, Order

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.61:2017-05-01 (open)]

Table 113: Physical Exam, Order Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Reason

This template represents the QDM data type: Physical Exam, Order.

Physical Exam represents the evaluation of the patient's body to determine its state of health. The techniques of inspection include palpation (feeling with the hands or fingers), percussion (tapping with the fingers), auscultation (listening), visual inspection, and smell. Measurements may include vital signs (blood pressure, pulse, respiration) as well as other clinical measures (such as expiratory flow rate and size of lesion). Physical exam includes psychiatric examinations.

Timing: The time the order is signed; author datetime.

Table 114: Physical Exam, Order Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.61:2017-05-01)					
@classCode	1..1	SHALL		3335-31405	OBS
@moodCode	1..1	SHALL		3335-31406	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = RQO
@actionNegationInd	0..1	MAY		3335-31407	
templateId	1..1	SHALL		3335-31408	
item	1..1	SHALL		3335-31409	
@root	1..1	SHALL		3335-31410	2.16.840.1.113883.10.20.28.4.6 1
@extension	1..1	SHALL		3335-33437	2017-05-01
id	1..1	SHALL		3335-31411	
code	1..1	SHALL		3335-31412	
@code	1..1	SHALL		3335-31434	5880005
@codeSystem	1..1	SHALL		3335-31435	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 2.16.840.1.113883.6.96
title	1..1	SHALL		3335-31413	
statusCode	1..1	SHALL		3335-31414	
@code	1..1	SHALL		3335-31415	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = active
value	1..1	SHALL	CD	3335-31437	
@valueSet	0..1	SHOULD		3335-31438	
methodCode	0..1	MAY		3335-31419	
item	1..1	SHALL		3335-31420	
@valueSet	0..1	SHOULD		3335-31421	
targetSiteCode	0..1	MAY		3335-31422	
item	1..1	SHALL		3335-31423	

@valueSet	0..1	SHOULD		3335-31424	
participation	0..1	MAY		3335-33501	
@typeCode	1..1	SHALL		3335-33503	AUT
time	1..1	SHALL		3335-33502	
low	1..1	SHALL		3335-33504	
role	1..1	SHALL		3335-33595	
@classCode	1..1	SHALL		3335-33596	urn:oid:2.16.840.1.113883.5.110 (HL7RoleClass) = ROL
id	0..1	MAY		3335-33597	
outboundRelationship	0..1	MAY		3335-31431	
@typeCode	1..1	SHALL		3335-31432	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-31433	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01)

1. **SHALL** contain exactly one [1..1] **@classCode="OBS"** Observation (CONF:3335-31405).
2. **SHALL** contain exactly one [1..1] **@moodCode="RQO"** request (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-31406).
3. **MAY** contain zero or one [0..1] **@actionNegationInd** (CONF:3335-31407).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-31408).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-31409).
 - i. This item **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.4.61"** (CONF:3335-31410).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-33437).
5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-31411).
6. **SHALL** contain exactly one [1..1] **code** (CONF:3335-31412).
 - a. This code **SHALL** contain exactly one [1..1] **@code="5880005"** Physical Examination (CONF:3335-31434).
 - b. This code **SHALL** contain exactly one [1..1] **@codeSystem="2.16.840.1.113883.6.96"** (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:3335-31435).
7. **SHALL** contain exactly one [1..1] **title** (CONF:3335-31413).
8. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-31414).

- a. This statusCode **SHALL** contain exactly one [1..1] @code="active" Active (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-31415).
- 9. **SHALL** contain exactly one [1..1] **value** with @xsi:type="CD" (CONF:3335-31437).
 - a. This value **SHOULD** contain zero or one [0..1] @valueSet (CONF:3335-31438).
- 10. **MAY** contain zero or one [0..1] **methodCode** (CONF:3335-31419).

Note: QDM Attribute: Method

 - a. The methodCode, if present, **SHALL** contain exactly one [1..1] **item** (CONF:3335-31420).
 - i. The item, if present, **SHOULD** contain zero or one [0..1] @valueSet (CONF:3335-31421).
- 11. **MAY** contain zero or one [0..1] **targetSiteCode** (CONF:3335-31422).

Note: QDM Attribute: Anatomical Location Site

 - a. The targetSiteCode, if present, **SHALL** contain exactly one [1..1] **item** (CONF:3335-31423).
 - i. The item, if present, **SHOULD** contain zero or one [0..1] @valueSet (CONF:3335-31424).
- 12. **MAY** contain zero or one [0..1] **participation** (CONF:3335-33501) such that it
 - a. **SHALL** contain exactly one [1..1] @typeCode="AUT" Author (CONF:3335-33503).
 - b. **SHALL** contain exactly one [1..1] **time** (CONF:3335-33502).
 - i. This time **SHALL** contain exactly one [1..1] **low** (CONF:3335-33504).

Note: QDM Attribute: Author Time (The time the order is signed)
 - c. **SHALL** contain exactly one [1..1] **role** (CONF:3335-33595).
 - i. This role **SHALL** contain exactly one [1..1] @classCode="ROL" Role (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-33596).
 - ii. This role **MAY** contain zero or one [0..1] **id** (CONF:3335-33597).
- 13. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-31431) such that it

Note: QDM Attribute: Reason

 - a. **SHALL** contain exactly one [1..1] @typeCode="RSON" (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-31432).
 - b. **SHALL** contain exactly one [1..1] **Reason** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-31433).

Figure 55: Physical Exam, Order Example

```
<observationCriteria classCode="OBS" moodCode="RQO">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.61" extension="2017-05-01"/>
  </templateId>
  <id root="ae06f4b8-668d-45a9-acd4-28cff4ef6d45"/>
  <code code="5880005" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED CT">
    <displayName value="Physical Examination"/>
  </code>
  <title value="Physical Exam Order"/>
  <statusCode code="active"/>
  <value xsi:type="CD" valueSet="{$QDMElementValueSetOID}"/>
</observationCriteria>
```

5.52 Physical Exam, Performed

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.62:2017-05-01 (open)]

Table 115: Physical Exam, Performed Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Component Reason Result

This template represents the QDM data type: Physical Exam, Performed.

This represents that a physical exam has been completed.

Timing: The Relevant Period addresses: startTime – The time the physical examination activity begins; stopTime – The time the physical examination activity ends.

Table 116: Physical Exam, Performed Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.62:2017-05-01)					
@classCode	1..1	SHALL		3335-31251	OBS
@moodCode	1..1	SHALL		3335-31252	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
@actionNegationInd	0..1	MAY		3335-31253	
templateId	1..1	SHALL		3335-31254	
item	1..1	SHALL		3335-31255	
@root	1..1	SHALL		3335-31256	2.16.840.1.113883.10.20.28.4.6 2
@extension	1..1	SHALL		3335-33428	2017-05-01
id	1..1	SHALL		3335-31257	
code	1..1	SHALL		3335-31258	
@code	1..1	SHALL		3335-31439	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 5880005
@codeSystem	1..1	SHALL		3335-31440	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 2.16.840.1.113883.6.96
title	1..1	SHALL		3335-31260	
statusCode	1..1	SHALL		3335-31261	
@code	1..1	SHALL		3335-31262	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
effectiveTime	0..1	MAY	IVL_TS	3335-31263	
low	0..1	MAY		3335-31264	
high	0..1	MAY		3335-31265	
value	1..1	SHALL	CD	3335-31441	
@valueSet	0..1	SHOULD		3335-31442	
methodCode	0..1	MAY		3335-31267	
item	1..1	SHALL		3335-31268	

@valueSet	0..1	SHOULD		3335-31269	
targetSiteCode	0..1	MAY		3335-31270	
item	1..1	SHALL		3335-31271	
@valueSet	0..1	SHOULD		3335-31272	
participation	0..1	MAY		3335-34549	
@typeCode	1..1	SHALL		3335-34552	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = AUT
time	1..1	SHALL		3335-34550	
low	1..1	SHALL		3335-34553	
role	1..1	SHALL		3335-34551	
@classCode	1..1	SHALL		3335-34554	urn:oid:2.16.840.1.113883.5.11 0 (HL7RoleClass) = ROL
id	0..1	MAY		3335-34555	
outboundRelationship	0..1	MAY		3335-31279	
@typeCode	1..1	SHALL		3335-31280	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-33448	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.88:2017-05-01
outboundRelationship	0..1	MAY		3335-33614	
@typeCode	1..1	SHALL		3335-33615	REFR
observationCriteria	1..1	SHALL		3335-33616	Result (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.101:2017-05-01
outboundRelationship	0..*	MAY		3335-34621	
@typeCode	1..1	SHALL		3335-34622	REFR
observationCriteria	1..1	SHALL		3335-34623	Component (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.121:2017-05-01

1. **SHALL** contain exactly one [1..1] @classCode="OBS" Observation (CONF:3335-31251).

2. **SHALL** contain exactly one [1..1] @moodCode="EVN" Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-31252).
3. **MAY** contain zero or one [0..1] @actionNegationInd (CONF:3335-31253).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] templateId (CONF:3335-31254).
 - a. This templateId **SHALL** contain exactly one [1..1] item (CONF:3335-31255).
 - i. This item **SHALL** contain exactly one [1..1] @root="2.16.840.1.113883.10.20.28.4.62" (CONF:3335-31256).
 - ii. This item **SHALL** contain exactly one [1..1] @extension="2017-05-01" (CONF:3335-33428).
5. **SHALL** contain exactly one [1..1] id (CONF:3335-31257).
6. **SHALL** contain exactly one [1..1] code (CONF:3335-31258).
 - a. This code **SHALL** contain exactly one [1..1] @code="5880005" Physical Examination (CONF:3335-31439).
 - b. This code **SHALL** contain exactly one [1..1] @codeSystem="2.16.840.1.113883.6.96" (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:3335-31440).
7. **SHALL** contain exactly one [1..1] title (CONF:3335-31260).
8. **SHALL** contain exactly one [1..1] statusCode (CONF:3335-31261).
 - a. This statusCode **SHALL** contain exactly one [1..1] @code="completed" Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-31262).
9. **MAY** contain zero or one [0..1] effectiveTime (CONF:3335-31263).
Note: QDM Attribute: Relevant Period
 - a. The effectiveTime, if present, **MAY** contain zero or one [0..1] low (CONF:3335-31264).
Note: Start Datetime (The time the physical examination activity begins)
 - b. The effectiveTime, if present, **MAY** contain zero or one [0..1] high (CONF:3335-31265).
Note: Stop Datetime (The time the physical examination activity ends)
10. **SHALL** contain exactly one [1..1] value with @xsi:type="CD" (CONF:3335-31441).
 - a. This value **SHOULD** contain zero or one [0..1] @valueSet (CONF:3335-31442).
11. **MAY** contain zero or one [0..1] methodCode (CONF:3335-31267).
Note: QDM Attribute: Method
 - a. The methodCode, if present, **SHALL** contain exactly one [1..1] item (CONF:3335-31268).
 - i. The item, if present, **SHOULD** contain zero or one [0..1] @valueSet (CONF:3335-31269).
12. **MAY** contain zero or one [0..1] targetSiteCode (CONF:3335-31270).
Note: QDM Attribute: Anatomical Location Site
 - a. The targetSiteCode, if present, **SHALL** contain exactly one [1..1] item (CONF:3335-31271).
 - i. The item, if present, **SHOULD** contain zero or one [0..1] @valueSet (CONF:3335-31272).
13. **MAY** contain zero or one [0..1] participation (CONF:3335-34549).

- a. The participation, if present, **SHALL** contain exactly one [1..1] @**typeCode**="AUT" Author (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-34552).
 - b. The participation, if present, **SHALL** contain exactly one [1..1] **time** (CONF:3335-34550).
 - i. This time **SHALL** contain exactly one [1..1] **low** (CONF:3335-34553).
Note: QDM Attribute: Author Datetime
 - c. The participation, if present, **SHALL** contain exactly one [1..1] **role** (CONF:3335-34551).
 - i. This role **SHALL** contain exactly one [1..1] @**classCode**="ROL" Role (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-34554).
 - ii. This role **MAY** contain zero or one [0..1] **id** (CONF:3335-34555).
14. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-31279) such that it
Note: QDM Attribute: Reason
- a. **SHALL** contain exactly one [1..1] @**typeCode**="RSON" (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-31280).
 - b. **SHALL** contain exactly one [1..1] **Reason** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-33448).
15. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-33614) such that it
Note: QDM Attribute: Result
- a. **SHALL** contain exactly one [1..1] @**typeCode**="REFR" Refers To (CONF:3335-33615).
 - b. **SHALL** contain exactly one [1..1] **Result** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.101:2017-05-01) (CONF:3335-33616).
16. **MAY** contain zero or more [0..*] **outboundRelationship** (CONF:3335-34621) such that it
Note: QDM Attribute: Component
- a. **SHALL** contain exactly one [1..1] @**typeCode**="REFR" Refers To (CONF:3335-34622).
 - b. **SHALL** contain exactly one [1..1] **Component** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.121:2017-05-01) (CONF:3335-34623).

Figure 56: Physical Exam, Performed Example

```
<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.62" extension="2017-05-01"/>
  </templateId>
  <id root="74a0af1f-15ed-4536-854f-79a066953e44"/>
  <code code="5880005" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED CT">
    <displayName value="Physical Examination"/>
  </code>
  <title value="Physical Exam, Performed"/>
  <statusCode code="completed"/>
  <effectiveTime xsi:type="IVL_TS"/>
  <value xsi:type="CD" valueSet="${QDMElementValueSetOID}"/>
</observationCriteria>
```

5.53 Physical Exam, Recommended

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.63:2017-05-01 (open)]

Table 117: Physical Exam, Recommended Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Reason

This template represents the QDM data type: Physical Exam, Recommended.

This template captures a recommendation by a physician or appropriately licensed care provider for a physical exam to be performed on the patient.

Timing: The time the recommendation is authored (i.e., provided to the patient).

All QDM datatypes referring to recommendations address the time that the recommendation occurs, a single point in time. Vendors have expressed concerns that recommendations are not necessarily captured or managed in a standard manner as part of structured data capture in clinical workflow; many are documented as part of assessments in narrative text. Measure developers should address feasibility of clinical workflow to capture recommendations when evaluating measures.

Table 118: Physical Exam, Recommended Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.63:2017-05-01)					
@classCode	1..1	SHALL		3335-31443	OBS
@moodCode	1..1	SHALL		3335-31444	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = INT
@actionNegationInd	0..1	MAY		3335-31445	
templateId	1..1	SHALL		3335-31446	
item	1..1	SHALL		3335-31447	
@root	1..1	SHALL		3335-31448	2.16.840.1.113883.10.20.28.4.6 1
@extension	1..1	SHALL		3335-33449	2017-05-01
id	1..1	SHALL		3335-31449	
code	1..1	SHALL		3335-31450	
@code	1..1	SHALL		3335-31451	5880005
@codeSystem	1..1	SHALL		3335-31452	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 2.16.840.1.113883.6.96
title	1..1	SHALL		3335-31453	
statusCode	1..1	SHALL		3335-31454	
@code	1..1	SHALL		3335-31455	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = active
value	1..1	SHALL	CD	3335-31459	
@valueSet	0..1	SHOULD		3335-31460	
methodCode	0..1	MAY		3335-31461	
item	1..1	SHALL		3335-31462	
@valueSet	0..1	SHOULD		3335-31463	
targetSiteCode	0..1	MAY		3335-31464	
item	1..1	SHALL		3335-31465	

@valueSet	0..1	SHOULD		3335-31466	
participation	0..1	MAY		3335-34458	
@typeCode	1..1	SHALL		3335-34461	AUT
time	1..1	SHALL		3335-34459	
low	1..1	SHALL		3335-34462	
role	1..1	SHALL		3335-34460	
@classCode	1..1	SHALL		3335-34463	urn:oid:2.16.840.1.113883.5.110 (HL7RoleClass) = ROL
id	0..1	MAY		3335-34464	
outboundRelationship	0..1	MAY		3335-31473	
@typeCode	1..1	SHALL		3335-31474	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-31475	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01)

1. **SHALL** contain exactly one [1..1] **@classCode="OBS"** Observation (CONF:3335-31443).
2. **SHALL** contain exactly one [1..1] **@moodCode="INT"** intent (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-31444).
3. **MAY** contain zero or one [0..1] **@actionNegationInd** (CONF:3335-31445).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-31446).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-31447).
 - i. This item **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.4.61"** (CONF:3335-31448).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-33449).
5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-31449).
6. **SHALL** contain exactly one [1..1] **code** (CONF:3335-31450).
 - a. This code **SHALL** contain exactly one [1..1] **@code="5880005"** Physical Examination (CONF:3335-31451).
 - b. This code **SHALL** contain exactly one [1..1] **@codeSystem="2.16.840.1.113883.6.96"** (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:3335-31452).
7. **SHALL** contain exactly one [1..1] **title** (CONF:3335-31453).
8. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-31454).

- a. This statusCode **SHALL** contain exactly one [1..1] @code="active" Active (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-31455).
- 9. **SHALL** contain exactly one [1..1] **value** with @xsi:type="CD" (CONF:3335-31459).
 - a. This value **SHOULD** contain zero or one [0..1] @valueSet (CONF:3335-31460).
- 10. **MAY** contain zero or one [0..1] **methodCode** (CONF:3335-31461).

Note: QDM Attribute: Method

 - a. The methodCode, if present, **SHALL** contain exactly one [1..1] **item** (CONF:3335-31462).
 - i. The item, if present, **SHOULD** contain zero or one [0..1] @valueSet (CONF:3335-31463).
- 11. **MAY** contain zero or one [0..1] **targetSiteCode** (CONF:3335-31464).

Note: QDM Attribute: Anatomical Location Site

 - a. The targetSiteCode, if present, **SHALL** contain exactly one [1..1] **item** (CONF:3335-31465).
 - i. The item, if present, **SHOULD** contain zero or one [0..1] @valueSet (CONF:3335-31466).
- 12. **MAY** contain zero or one [0..1] **participation** (CONF:3335-34458).
 - a. The participation, if present, **SHALL** contain exactly one [1..1] @typeCode="AUT" Author (CONF:3335-34461).
 - b. The participation, if present, **SHALL** contain exactly one [1..1] **time** (CONF:3335-34459).
 - i. This time **SHALL** contain exactly one [1..1] **low** (CONF:3335-34462).

Note: QDM Attribute: Author Datetime (The time the recommendation is authored)
 - c. The participation, if present, **SHALL** contain exactly one [1..1] **role** (CONF:3335-34460).
 - i. This role **SHALL** contain exactly one [1..1] @classCode="ROL" Role (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-34463).
 - ii. This role **MAY** contain zero or one [0..1] **id** (CONF:3335-34464).
- 13. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-31473) such that it

Note: QDM Attribute: Reason

 - a. **SHALL** contain exactly one [1..1] @typeCode="RSON" (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-31474).
 - b. **SHALL** contain exactly one [1..1] **Reason** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-31475).

Figure 57: Physical Exam, Recommended Example

```
<observationCriteria classCode="OBS" moodCode="INT">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.63" extension="2017-05-01"/>
  </templateId>
  <id root="2ba56315-4f6f-4141-be6c-0248d8dfdbfc"/>
  <code code="5880005" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED CT">
    <displayName value="Physical Examination"/>
  </code>
  <title value="Physical Exam Recommended"/>
  <statusCode code="active"/>
  <effectiveTime xsi:type="IVL_TS"/>
  <value xsi:type="CD" valueSet="{$QDMElementValueSetOID}"/>
</observationCriteria>
```

5.54 Principal Diagnosis

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.122:2017-05-01 (open)]

Table 119: Principal Diagnosis Contexts

Contained By:	Contains:
<u>Encounter, Performed</u> (optional)	

The coded diagnosis/problem established after study to be chiefly responsible for occasioning the admission of the patient to the hospital for care.

Table 120: Principal Diagnosis Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.122:2017-05-01)					
@classCode	1..1	SHALL		3335-34367	OBS
@moodCode	1..1	SHALL		3335-34368	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3335-34348	
item	1..1	SHALL		3335-34349	
@root	1..1	SHALL		3335-34358	2.16.840.1.113883.10.20.28.4.1 22
@extension	1..1	SHALL		3335-34651	2017-05-01
id	1..1	SHALL		3335-34369	
code	1..1	SHALL		3335-34350	
@code	1..1	SHALL		3335-34360	52534-5
@codeSystem	1..1	SHALL		3335-34361	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 2.16.840.1.113883.6.1
title	1..1	SHALL		3335-34370	
statusCode	1..1	SHALL		3335-34351	
@code	1..1	SHALL		3335-34362	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
value	1..1	SHALL	CD	3335-34353	
@valueSet	0..1	SHOULD		3335-34365	

1. **SHALL** contain exactly one [1..1] @classCode="OBS" Observation (CONF:3335-34367).
2. **SHALL** contain exactly one [1..1] @moodCode="EVN" Event (CodeSystem: HL7ActMood
urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-34368).
3. **SHALL** contain exactly one [1..1] templateId (CONF:3335-34348).
 - a. This templateId **SHALL** contain exactly one [1..1] item (CONF:3335-34349).
 - i. This item **SHALL** contain exactly one [1..1]
@root="2.16.840.1.113883.10.20.28.4.122" (CONF:3335-34358).
 - ii. This item **SHALL** contain exactly one [1..1] @extension="2017-05-01"
(CONF:3335-34651).
4. **SHALL** contain exactly one [1..1] id (CONF:3335-34369).

5. **SHALL** contain exactly one [1..1] **code** (CONF:3335-34350).
 - a. This code **SHALL** contain exactly one [1..1] @code="52534-5" Principal Diagnosis (CONF:3335-34360).
 - b. This code **SHALL** contain exactly one [1..1] @codeSystem="2.16.840.1.113883.6.1" (CodeSystem: LOINC urn:oid:2.16.840.1.113883.6.1) (CONF:3335-34361).
6. **SHALL** contain exactly one [1..1] **title** (CONF:3335-34370).
7. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-34351).
 - a. This statusCode **SHALL** contain exactly one [1..1] @code="completed" Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-34362).
8. **SHALL** contain exactly one [1..1] **value** with @xsi:type="CD" (CONF:3335-34353).
 - a. This value **SHOULD** contain zero or one [0..1] @valueSet (CONF:3335-34365).

Figure 58: Principal Diagnosis Example

```
<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.122" extension="2017-05-01"/>
  </templateId>
  <id root="322b8dc5-4102-4e0d-bf15-fa9379f8c9ac"/>
  <code code="52534-5" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC">
    <displayName value="Principal Diagnosis"/>
  </code>
  <title value="Principal Diagnosis"/>
  <statusCode code="completed"/>
  <value xsi:type="CD" valueSet="{$QDMElementValueSetOID}"/>
</observationCriteria>
```

5.55 Procedure, Order

[ProcedureCriteria: identifier
 urn:hl7ii:2.16.840.1.113883.10.20.28.4.66:2017-05-01 (open)]

Table 121: Procedure, Order Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Radiation Duration Reason

This template represents the QDM data type: Procedure, Order.

A procedure may be a surgery or other type of physical manipulation of a person's body in whole or in part for purposes of making observations and diagnoses or providing treatment.

This template represents an order for a procedure.

Timing: The time the order is signed; author datetime.

Table 122: Procedure, Order Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
ProcedureCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.66:2017-05-01)					
@classCode	1..1	SHALL		3335-33158	PROC
@moodCode	1..1	SHALL		3335-31120	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = RQO
@actionNegationInd	0..1	MAY		3335-31121	
templateId	1..1	SHALL		3335-31122	
item	1..1	SHALL		3335-31123	
@root	1..1	SHALL		3335-31124	2.16.840.1.113883.10.20.28.4.6 6
@extension	1..1	SHALL		3335-33422	2017-05-01
id	1..1	SHALL		3335-31125	
code	1..1	SHALL		3335-31126	
@valueSet	0..1	SHOULD		3335-31127	
title	1..1	SHALL		3335-31128	
statusCode	1..1	SHALL		3335-31129	
@code	1..1	SHALL		3335-33147	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode) = active
priorityCode	0..1	MAY		3335-31133	
item	1..1	SHALL		3335-31134	
methodCode	0..1	MAY		3335-31135	
item	1..1	SHALL		3335-31136	
@valueSet	0..1	SHOULD		3335-31235	
approachSiteCode	0..1	MAY		3335-33418	
item	1..1	SHALL		3335-33419	
@valueSet	0..1	SHOULD		3335-33423	
targetSiteCode	0..1	MAY		3335-33420	

item	1..1	SHALL		3335-33421	
@valueSet	0..1	SHOULD		3335-33424	
participation	0..1	MAY		3335-33506	
@typeCode	1..1	SHALL		3335-33508	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = AUT
time	1..1	SHALL		3335-33507	
low	1..1	SHALL		3335-33509	
role	1..1	SHALL		3335-33598	
@classCode	1..1	SHALL		3335-33599	urn:oid:2.16.840.1.113883.5.110 (HL7RoleClass) = ROL
id	0..1	MAY		3335-33600	
outboundRelationship	0..1	MAY		3335-31143	
@typeCode	1..1	SHALL		3335-33148	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-31144	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
outboundRelationship	0..1	MAY		3335-33425	
@typeCode	1..1	SHALL		3335-33426	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = REFR
observationCriteria	1..1	SHALL		3335-33427	Radiation Duration (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.107:2017-05-01

1. **SHALL** contain exactly one [1..1] @classCode="PROC" Procedure (CONF:3335-33158).
2. **SHALL** contain exactly one [1..1] @moodCode="RQO" Request (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-31120).
3. **MAY** contain zero or one [0..1] @actionNegationInd (CONF:3335-31121).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] templateId (CONF:3335-31122).
 - a. This templateId **SHALL** contain exactly one [1..1] item (CONF:3335-31123).
 - i. This item **SHALL** contain exactly one [1..1] @root="2.16.840.1.113883.10.20.28.4.66" (CONF:3335-31124).
 - ii. This item **SHALL** contain exactly one [1..1] @extension="2017-05-01" (CONF:3335-33422).
5. **SHALL** contain exactly one [1..1] id (CONF:3335-31125).

6. **SHALL** contain exactly one [1..1] **code** (CONF:3335-31126).
 - a. This code **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-31127).
7. **SHALL** contain exactly one [1..1] **title** (CONF:3335-31128).
8. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-31129).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code="active"** Active (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-33147).
9. **MAY** contain zero or one [0..1] **priorityCode** (CONF:3335-31133).

Note: QDM Attribute: Ordinality

- a. The priorityCode, if present, **SHALL** contain exactly one [1..1] **item** (CONF:3335-31134).

10. **MAY** contain zero or one [0..1] **methodCode** (CONF:3335-31135).

Note: QDM Attribute: Method

- a. The methodCode, if present, **SHALL** contain exactly one [1..1] **item** (CONF:3335-31136).
 - i. The item, if present, **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-31235).

11. **MAY** contain zero or one [0..1] **approachSiteCode** (CONF:3335-33418).

Note: QDM Attribute: Anatomical Approach Site

- a. The approachSiteCode, if present, **SHALL** contain exactly one [1..1] **item** (CONF:3335-33419).
 - i. The item, if present, **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-33423).

12. **MAY** contain zero or one [0..1] **targetSiteCode** (CONF:3335-33420).

Note: QDM Attribute: Anatomical Location Site

- a. The targetSiteCode, if present, **SHALL** contain exactly one [1..1] **item** (CONF:3335-33421).
 - i. The item, if present, **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-33424).

13. **MAY** contain zero or one [0..1] **participation** (CONF:3335-33506) such that it

- a. **SHALL** contain exactly one [1..1] **@typeCode="AUT"** Author (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-33508).

- b. **SHALL** contain exactly one [1..1] **time** (CONF:3335-33507).
 - i. This time **SHALL** contain exactly one [1..1] **low** (CONF:3335-33509).
Note: QDM Attribute: Author Dateime (The time the order is signed)

- c. **SHALL** contain exactly one [1..1] **role** (CONF:3335-33598).
 - i. This role **SHALL** contain exactly one [1..1] **@classCode="ROL"** Role (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-33599).

- ii. This role **MAY** contain zero or one [0..1] **id** (CONF:3335-33600).

14. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-31143) such that it

Note: QDM Attribute: Reason

- a. **SHALL** contain exactly one [1..1] **@typeCode="RSON"** Has Reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-33148).

- b. **SHALL** contain exactly one [1..1] [Reason](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-31144).
Note: QDM Attribute: Reason
15. **MAY** contain zero or one [0..1] [outboundRelationship](#) (CONF:3335-33425) such that it
Note: QDM Attribute: Radiation Duration
- a. **SHALL** contain exactly one [1..1] @typeCode="REFR" Refers to (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-33426).
 - b. **SHALL** contain exactly one [1..1] [Radiation Duration](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.107:2017-05-01) (CONF:3335-33427).

Figure 59: Procedure, Order Example

```
<procedureCriteria classCode="PROC" moodCode="RQO">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.66" extension="2017-05-01"/>
  </templateId>
  <id root="7d559e0a-4e01-4f52-b87b-a3342705e2f2"/>
  <code valueSet="{$QDMElementValueSetOID}"/>
  <title value="Procedure, Order"/>
  <statusCode code="active"/>
</procedureCriteria>
```

5.56 Procedure, Performed

[ProcedureCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.67:2017-05-01 (open)]

Table 123: Procedure, Performed Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Component Incision Datetime Radiation Dosage Radiation Duration Reason Result Status

This template represents the QDM data type: Procedure, Performed.

A procedure may be a surgery or other type of physical manipulation of a person's body in whole or in part for purposes of making observations and diagnoses or providing treatment.

This template represents a procedure that has been performed.

Timing: The Relevant Period addresses: StartTime = the time the procedure begins; StopTime = the time the procedure is completed.

Table 124: Procedure, Performed Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
ProcedureCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.67:2017-05-01)					
@classCode	1..1	SHALL		3335-31349	PROC
@moodCode	1..1	SHALL		3335-31336	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
@actionNegationInd	0..1	MAY		3335-31337	
templateId	1..1	SHALL		3335-31338	
item	1..1	SHALL		3335-31339	
@root	1..1	SHALL		3335-31340	2.16.840.1.113883.10.20.28.4.6 7
@extension	1..1	SHALL		3335-33398	2017-05-01
id	1..1	SHALL		3335-31341	
code	1..1	SHALL		3335-31342	
@valueSet	0..1	SHOULD		3335-31343	
title	1..1	SHALL		3335-31344	
statusCode	1..1	SHALL		3335-31345	
@code	1..1	SHALL		3335-33150	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode) = completed
effectiveTime	0..1	MAY	IVL_TS	3335-31346	
low	0..1	MAY		3335-31347	
high	0..1	MAY		3335-31348	
priorityCode	0..1	MAY		3335-31349	
item	1..1	SHALL		3335-31350	
@valueSet	0..1	SHOULD		3335-33151	
methodCode	0..1	MAY		3335-31351	
item	1..1	SHALL		3335-31352	
@valueSet	0..1	SHOULD		3335-31353	

approachSiteCode	0..1	MAY		3335-33399	
item	1..1	SHALL		3335-33400	
@valueSet	0..1	SHOULD		3335-33403	
targetSiteCode	0..1	MAY		3335-33401	
item	1..1	SHALL		3335-33402	
@valueSet	0..1	SHOULD		3335-33404	
participation	1..1	SHALL		3335-34556	
@typeCode	1..1	SHALL		3335-34559	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = AUT
time	1..1	SHALL		3335-34557	
low	1..1	SHALL		3335-34560	
role	1..1	SHALL		3335-34558	
@classCode	1..1	SHALL		3335-34561	urn:oid:2.16.840.1.113883.5.11 0 (HL7RoleClass) = ROL
id	0..1	MAY		3335-34562	
outboundRelationship	0..1	MAY		3335-31360	
@typeCode	1..1	SHALL		3335-31366	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-31361	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.88:2017-05-01
outboundRelationship	0..1	MAY		3335-31362	
@typeCode	1..1	SHALL		3335-31367	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = REFR
procedureCriteria	1..1	SHALL		3335-33153	Incision Datetime (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.89:2017-05-01
outboundRelationship	0..1	MAY		3335-31364	
@typeCode	1..1	SHALL		3335-31368	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = REFR

observationCriteria	1..1	SHALL		3335-31365	Result (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.101:2017-05-01)
outboundRelationship	0..1	MAY		3335-33405	
@typeCode	1..1	SHALL		3335-33406	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = REFR
observationCriteria	1..1	SHALL		3335-33407	Radiation Dosage (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.106:2017-05-01)
outboundRelationship	0..1	MAY		3335-33608	
@typeCode	1..1	SHALL		3335-33609	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = REFR
observationCriteria	1..1	SHALL		3335-33610	Radiation Duration (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.107:2017-05-01)
outboundRelationship	0..1	MAY		3335-33408	
@typeCode	1..1	SHALL		3335-33409	REFR
observationCriteria	1..1	SHALL		3335-33410	Status (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.94:2017-05-01)
outboundRelationship	0..*	MAY		3335-34624	
@typeCode	1..1	SHALL		3335-34625	REFR
observationCriteria	1..1	SHALL		3335-34626	Component (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.121:2017-05-01)

1. **SHALL** contain exactly one [1..1] **@classCode**="PROC" Procedure (CONF:3335-33149).
2. **SHALL** contain exactly one [1..1] **@moodCode**="EVN" Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-31336).
3. **MAY** contain zero or one [0..1] **@actionNegationInd** (CONF:3335-31337).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-31338).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-31339).
 - i. This item **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.28.4.67" (CONF:3335-31340).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension**="2017-05-01" (CONF:3335-33398).
5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-31341).
6. **SHALL** contain exactly one [1..1] **code** (CONF:3335-31342).
 - a. This code **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-31343).

7. **SHALL** contain exactly one [1..1] **title** (CONF:3335-31344).
8. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-31345).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code**="completed" Completed (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-33150).
9. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-31346).
Note: QDM Attribute: Relevant Period
 - a. The effectiveTime, if present, **MAY** contain zero or one [0..1] **low** (CONF:3335-31347).
Note: Start Datetime (The time the procedure begins)
 - b. The effectiveTime, if present, **MAY** contain zero or one [0..1] **high** (CONF:3335-31348).
Note: Stop Datetime (The time the procedure is completed)
10. **MAY** contain zero or one [0..1] **priorityCode** (CONF:3335-31349).
Note: QDM Attribute: Ordinality
 - a. The priorityCode, if present, **SHALL** contain exactly one [1..1] **item** (CONF:3335-31350).
 - i. The item, if present, **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-33151).
11. **MAY** contain zero or one [0..1] **methodCode** (CONF:3335-31351).
Note: QDM Attribute: Method
 - a. The methodCode, if present, **SHALL** contain exactly one [1..1] **item** (CONF:3335-31352).
 - i. The item, if present, **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-31353).
12. **MAY** contain zero or one [0..1] **approachSiteCode** (CONF:3335-33399).
Note: QDM Attribute: Anatomical Approach Site
 - a. The approachSiteCode, if present, **SHALL** contain exactly one [1..1] **item** (CONF:3335-33400).
 - i. The item, if present, **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-33403).
13. **MAY** contain zero or one [0..1] **targetSiteCode** (CONF:3335-33401).
Note: QDM Attribute: Anatomical Location Site
 - a. The targetSiteCode, if present, **SHALL** contain exactly one [1..1] **item** (CONF:3335-33402).
 - i. The item, if present, **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-33404).
14. **SHALL** contain exactly one [1..1] **participation** (CONF:3335-34556).
 - a. This participation **SHALL** contain exactly one [1..1] **@typeCode**="AUT" Author (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-34559).
 - b. This participation **SHALL** contain exactly one [1..1] **time** (CONF:3335-34557).
 - i. This time **SHALL** contain exactly one [1..1] **low** (CONF:3335-34560).
Note: QDM Attribute: Author Datetime
 - c. This participation **SHALL** contain exactly one [1..1] **role** (CONF:3335-34558).

- i. This role **SHALL** contain exactly one [1..1] @**classCode**="ROL" Role (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-34561).
 - ii. This role **MAY** contain zero or one [0..1] **id** (CONF:3335-34562).
15. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-31360) such that it
Note: QDM Attribute: Reason
- a. **SHALL** contain exactly one [1..1] @**typeCode**="RSON" Has Reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-31366).
 - b. **SHALL** contain exactly one [1..1] Reason (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-31361).
16. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-31362) such that it
Note: QDM Attribute: Incision Datetime
- a. **SHALL** contain exactly one [1..1] @**typeCode**="REFR" Refers To (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-31367).
 - b. **SHALL** contain exactly one [1..1] Incision Datetime (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.89:2017-05-01) (CONF:3335-33153).
17. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-31364) such that it
Note: QDM Attribute: Result
- a. **SHALL** contain exactly one [1..1] @**typeCode**="REFR" Refers To (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-31368).
 - b. **SHALL** contain exactly one [1..1] Result (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.101:2017-05-01) (CONF:3335-31365).
18. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-33405) such that it
Note: QDM Attribute: Radiation Dosage
- a. **SHALL** contain exactly one [1..1] @**typeCode**="REFR" Refers to (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-33406).
 - b. **SHALL** contain exactly one [1..1] Radiation Dosage (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.106:2017-05-01) (CONF:3335-33407).
19. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-33608) such that it
Note: QDM Attribute: Radiation Duration
- a. **SHALL** contain exactly one [1..1] @**typeCode**="REFR" Refers To (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-33609).
 - b. **SHALL** contain exactly one [1..1] Radiation Duration (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.107:2017-05-01) (CONF:3335-33610).
20. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-33408) such that it
Note: QDM Attribute: Status

- a. **SHALL** contain exactly one [1..1] @**typeCode**="REFR" Refers to (CONF:3335-33409).
 - b. **SHALL** contain exactly one [1..1] **Status** (identifier:
urn:hl7ii:2.16.840.1.113883.10.20.28.4.94:2017-05-01) (CONF:3335-33410).
21. **MAY** contain zero or more [0..*] **outboundRelationship** (CONF:3335-34624) such that it
Note: QDM Attribute: Component
- a. **SHALL** contain exactly one [1..1] @**typeCode**="REFR" Refers To (CONF:3335-34625).
 - b. **SHALL** contain exactly one [1..1] **Component** (identifier:
urn:hl7ii:2.16.840.1.113883.10.20.28.4.121:2017-05-01) (CONF:3335-34626).

Figure 60: Procedure, Performed Example

```
<procedureCriteria classCode="PROC" moodCode="EVN">
    <templateId>
        <item root="2.16.840.1.113883.10.20.28.3.67" extension="2017-05-01"/>
    </templateId>
    <id root="6cc25a38-8781-4d79-a580-6a83d1b33575"/>
    <code valueSet="{$QDMElementValueSetOID}"/>
    <title value="Procedure, Performed"/>
    <statusCode code="completed"/>
</procedureCriteria>
```

5.57 Procedure, Recommended

[ProcedureCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.68:2017-05-01 (open)]

Table 125: Procedure, Recommended Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Reason

This template represents the QDM data type: Procedure, Recommended.

A procedure may be a surgery or other type of physical manipulation of a person's body in whole or in part for purposes of making observations and diagnoses or providing treatment.

This template represents a recommendation for a procedure.

Timing: The time the recommendation is authored (i.e., provided to the patient).

All QDM datatypes referring to recommendations address the time that the recommendation occurs, a single point in time. Vendors have expressed concerns that recommendations are not necessarily captured or managed in a standard manner as part of structured data capture in clinical workflow; many are documented as part of assessments in narrative text. Measure developers should address feasibility of clinical workflow to capture recommendations when evaluating measures.

Table 126: Procedure, Recommended Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
ProcedureCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.68:2017-05-01)					
@classCode	1..1	SHALL		3335-33154	PROC
@moodCode	1..1	SHALL		3335-31209	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = INT
@actionNegationInd	0..1	MAY		3335-31210	
templateId	1..1	SHALL		3335-31211	
item	1..1	SHALL		3335-31212	
@root	1..1	SHALL		3335-31213	2.16.840.1.113883.10.20.28.4.6 8
@extension	1..1	SHALL		3335-33417	2017-05-01
id	1..1	SHALL		3335-31214	
code	1..1	SHALL		3335-31215	
@valueSet	0..1	SHOULD		3335-31216	
title	1..1	SHALL		3335-31217	
statusCode	1..1	SHALL		3335-31218	
@code	1..1	SHALL		3335-33155	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode) = completed
priorityCode	0..1	MAY		3335-31222	
item	1..1	SHALL		3335-31223	
@valueSet	0..1	SHOULD		3335-33156	
methodCode	0..1	MAY		3335-31224	
item	1..1	SHALL		3335-31225	
@valueSet	0..1	SHOULD		3335-31226	
approachSiteCode	0..1	MAY		3335-33411	
item	1..1	SHALL		3335-33412	
@valueSet	0..1	SHOULD		3335-33415	

targetSiteCode	0..1	MAY		3335-33413	
item	1..1	SHALL		3335-33414	
@valueSet	0..1	SHOULD		3335-33416	
participation	0..1	MAY		3335-34465	
@typeCode	1..1	SHALL		3335-34468	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = AUT
time	1..1	SHALL		3335-34466	
low	1..1	SHALL		3335-34469	
role	1..1	SHALL		3335-34467	
@classCode	1..1	SHALL		3335-34470	urn:oid:2.16.840.1.113883.5.110 (HL7RoleClass) = ROL
id	0..1	MAY		3335-34471	
outboundRelationship	0..1	MAY		3335-31233	
@typeCode	1..1	SHALL		3335-33157	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-31234	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01

1. **SHALL** contain exactly one [1..1] **@classCode**="PROC" Procedure (CONF:3335-33154).
2. **SHALL** contain exactly one [1..1] **@moodCode**="INT" Intent (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-31209).
3. **MAY** contain zero or one [0..1] **@actionNegationInd** (CONF:3335-31210).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-31211).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-31212).
 - i. This item **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.28.4.68" (CONF:3335-31213).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension**="2017-05-01" (CONF:3335-33417).
5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-31214).
6. **SHALL** contain exactly one [1..1] **code** (CONF:3335-31215).
 - a. This code **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-31216).
7. **SHALL** contain exactly one [1..1] **title** (CONF:3335-31217).
8. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-31218).

- a. This statusCode **SHALL** contain exactly one [1..1] @code="completed" Completed (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-33155).
- 9. **MAY** contain zero or one [0..1] **priorityCode** (CONF:3335-31222).
Note: QDM Attribute: Ordinality
 - a. The priorityCode, **SHALL** contain exactly one [1..1] **item** (CONF:3335-31223).
 - i. The item, if present, **SHOULD** contain zero or one [0..1] @valueSet (CONF:3335-33156).
- 10. **MAY** contain zero or one [0..1] **methodCode** (CONF:3335-31224).
Note: QDM Attribute: Method
 - a. The methodCode, if present, **SHALL** contain exactly one [1..1] **item** (CONF:3335-31225).
 - i. The item, if present, **SHOULD** contain zero or one [0..1] @valueSet (CONF:3335-31226).
- 11. **MAY** contain zero or one [0..1] **approachSiteCode** (CONF:3335-33411).
Note: QDM Attribute: Anatomical Approach Site
 - a. The approachSiteCode, if present, **SHALL** contain exactly one [1..1] **item** (CONF:3335-33412).
 - i. The item, if present, **SHOULD** contain zero or one [0..1] @valueSet (CONF:3335-33415).
- 12. **MAY** contain zero or one [0..1] **targetSiteCode** (CONF:3335-33413).
Note: QDM Attribute: Anatomical Location Site
 - a. The targetSiteCode, if present, **SHALL** contain exactly one [1..1] **item** (CONF:3335-33414).
 - i. The item, if present, **SHOULD** contain zero or one [0..1] @valueSet (CONF:3335-33416).
- 13. **MAY** contain zero or one [0..1] **participation** (CONF:3335-34465).
 - a. The participation, if present, **SHALL** contain exactly one [1..1] @typeCode="AUT" Author (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-34468).
 - b. The participation, if present, **SHALL** contain exactly one [1..1] **time** (CONF:3335-34466).
 - i. This time **SHALL** contain exactly one [1..1] **low** (CONF:3335-34469).
Note: QDM Attribute: Author Datetime (The time the recommendation is authored (i.e., provided to the patient))
 - c. The participation, if present, **SHALL** contain exactly one [1..1] **role** (CONF:3335-34467).
 - i. This role **SHALL** contain exactly one [1..1] @classCode="ROL" Role (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-34470).
 - ii. This role **MAY** contain zero or one [0..1] **id** (CONF:3335-34471).
- 14. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-31233) such that it
Note: QDM Attribute: Reason

- a. **SHALL** contain exactly one [1..1] @**typeCode**="RSON" Has Reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-33157).
- b. **SHALL** contain exactly one [1..1] **Reason** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-31234).

Figure 61: Procedure, Recommended Example

```
<procedureCriteria classCode="PROC" moodCode="INT">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.68" extension="2017-05-01"/>
  </templateId>
  <id root="7d559e0a-4e01-4f52-b87b-a3342705e2f2"/>
  <code valueSet="{$QDMElementValueSetOID}"/>
  <title value="Procedure, Recommended"/>
  <statusCode code="completed"/>
</procedureCriteria>
```

5.58 Provider Care Experience

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.70:2017-05-01 (open)]

Table 127: Provider Care Experience Contexts

Contained By:	Contains:
Data Criteria Section (optional)	

This template represents the QDM data type: Provider Care Experience.

Data elements that meet this criterion indicate the provider's experience with availability of resources (e.g., scheduling, equipment, space, and such consumables as medications). Provider care experience gauges provider satisfaction with key structures, processes, and outcomes in the healthcare delivery system.

Timing: The time the care experience is recorded; author time.

Table 128: Provider Care Experience Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.70:2017-05-01)					
@classCode	1..1	SHALL		3335-32218	OBS
@moodCode	1..1	SHALL		3335-32219	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3335-32220	
item	1..1	SHALL		3335-32221	
@root	1..1	SHALL		3335-32222	2.16.840.1.113883.10.20.28.4.70
@extension	1..1	SHALL		3335-33701	2017-05-01
id	1..1	SHALL		3335-32223	
code	1..1	SHALL		3335-32224	
@code	1..1	SHALL		3335-32225	405193005
@codeSystem	1..1	SHALL		3335-32226	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 2.16.840.1.113883.6.96
title	1..1	SHALL		3335-32227	
statusCode	1..1	SHALL		3335-32228	
@code	1..1	SHALL		3335-32229	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
effectiveTime	0..1	MAY	IVL_TS	3335-34390	
low	1..1	SHALL		3335-34391	
value	1..1	SHALL	CD	3335-32230	
@valueSet	0..1	SHOULD		3335-32231	

1. **SHALL** contain exactly one [1..1] @classCode="OBS" Observation (CONF:3335-32218).
2. **SHALL** contain exactly one [1..1] @moodCode="EVN" Event (CodeSystem: HL7ActMood
urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-32219).
3. **SHALL** contain exactly one [1..1] templateId (CONF:3335-32220).
 - a. This templateId **SHALL** contain exactly one [1..1] item (CONF:3335-32221).

- i. This item **SHALL** contain exactly one [1..1] `@root="2.16.840.1.113883.10.20.28.4.70"` (CONF:3335-32222).
 - ii. This item **SHALL** contain exactly one [1..1] `@extension="2017-05-01"` (CONF:3335-33701).
4. **SHALL** contain exactly one [1..1] **id** (CONF:3335-32223).
5. **SHALL** contain exactly one [1..1] **code** (CONF:3335-32224).
- a. This code **SHALL** contain exactly one [1..1] `@code="405193005"` Caregiver Satisfaction (CONF:3335-32225).
 - b. This code **SHALL** contain exactly one [1..1] `@codeSystem="2.16.840.1.113883.6.96"` (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:3335-32226).
6. **SHALL** contain exactly one [1..1] **title** (CONF:3335-32227).
7. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-32228).
- a. This statusCode **SHALL** contain exactly one [1..1] `@code="completed"` Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-32229).
8. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-34390).
- a. The effectiveTime, if present, **SHALL** contain exactly one [1..1] **low** (CONF:3335-34391).
- Note: QDM Attribute: Author Time (The time the care experience is recorded)
9. **SHALL** contain exactly one [1..1] **value** with `@xsi:type="CD"` (CONF:3335-32230).
- a. This value **SHOULD** contain zero or one [0..1] `@valueSet` (CONF:3335-32231).

Figure 62: Provider Care Experience Example

```
<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.70" extension="2017-05-01"/>
  </templateId>
  <id root="a0b2aa8d-16b8-47b3-831b-94fcbbe31e36"/>
  <code code="405193005" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED CT">
    <displayName value="Caregiver Satisfaction"/>
  </code>
  <title value="Provider Care Experience"/>
  <statusCode code="completed"/>
  <value xsi:type="CD" valueSet="{$QDMElementValueSetOID}"/>
</observationCriteria>
```

5.59 Provider Characteristic

[observationCriteria: identifier
 urn:hl7ii:2.16.840.1.113883.10.20.28.4.71:2017-05-01 (open)]

Table 129: Provider Characteristic Contexts

Contained By:	Contains:
Data Criteria Section (optional)	

This template represents the QDM data type: Provider Characteristic.

Provider characteristics refer to specific factors about a provider. Included are demographics, behavioral factors, social, or cultural factors, available resources, and preferences.

Timing: The time the characteristic is authored.

Table 130: Provider Characteristic Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.71:2017-05-01)					
@classCode	1..1	SHALL		3335-31740	OBS
@moodCode	1..1	SHALL		3335-31741	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3335-31742	
item	1..1	SHALL		3335-31743	
@root	1..1	SHALL		3335-31744	2.16.840.1.113883.10.20.28.4.71
@extension	1..1	SHALL		3335-34121	2017-05-01
id	1..1	SHALL		3335-31745	
statusCode	1..1	SHALL		3335-31748	
@code	1..1	SHALL		3335-31749	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
effectiveTime	0..1	MAY	IVL_TS	3335-31750	
low	1..1	SHALL		3335-31751	
participation	1..1	SHALL		3335-31746	
role	1..1	SHALL		3335-31753	
@classCode	1..1	SHALL		3335-31754	urn:oid:2.16.840.1.113883.5.110 (HL7RoleClass) = ASSIGNED
playingDevice	1..1	SHALL		3335-31755	
@classCode	1..1	SHALL		3335-31756	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = DEV
@determinerCode	1..1	SHALL		3335-31757	KIND
code	1..1	SHALL		3335-31758	
@valueSet	0..1	SHOULD		3335-31759	

1. **SHALL** contain exactly one [1..1] @classCode="OBS" Observation (CONF:3335-31740).
2. **SHALL** contain exactly one [1..1] @moodCode="EVN" Event (CodeSystem: HL7ActMood
urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-31741).

3. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-31742).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-31743).
 - i. This item **SHALL** contain exactly one [1..1]
`@root="2.16.840.1.113883.10.20.28.4.71"` (CONF:3335-31744).
 - ii. This item **SHALL** contain exactly one [1..1] `@extension="2017-05-01"` (CONF:3335-34121).
4. **SHALL** contain exactly one [1..1] **id** (CONF:3335-31745).
5. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-31748).
 - a. This statusCode **SHALL** contain exactly one [1..1] `@code="completed"` Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-31749).
6. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-31750).
 - a. The effectiveTime, if present, **SHALL** contain exactly one [1..1] **low** (CONF:3335-31751).

Note: QDM Attribute: Author Time (The time the characteristic is authored)
7. **SHALL** contain exactly one [1..1] **participation** (CONF:3335-31746).
 - a. This participation **SHALL** contain exactly one [1..1] **role** (CONF:3335-31753).
 - i. This role **SHALL** contain exactly one [1..1] `@classCode="ASSIGNED"` Assigned Entity (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-31754).
 - ii. This role **SHALL** contain exactly one [1..1] **playingDevice** (CONF:3335-31755).
 1. This playingDevice **SHALL** contain exactly one [1..1] `@classCode="DEV"` Device (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-31756).
 2. This playingDevice **SHALL** contain exactly one [1..1] `@determinerCode="KIND"` Kind (CONF:3335-31757).
 3. This playingDevice **SHALL** contain exactly one [1..1] **code** (CONF:3335-31758).
 - a. This code **SHOULD** contain zero or one [0..1] `@valueSet` (CONF:3335-31759).

Figure 63: Provider Characteristic Example

```
<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.71" extension="2017-05-01"/>
  </templateId>
  <id root="1b9dd45d-6d1e-4abb-87eb-2e1f1549bd58"/>
  <statusCode code="completed" />
  <participation typeCode="DEV">
    <role classCode="ASSIGNED">
      <playingDevice classCode="DEV" determinerCode="KIND">
        <code valueSet="{$QDMElementValueSetOID}"/>
      </playingDevice>
    </role>
  </participation>
</observationCriteria>
```

5.60 Radiation Dosage

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.106:2017-05-01 (open)]

Table 131: Radiation Dosage Contexts

Contained By:	Contains:
Diagnostic Study, Order (optional) Diagnostic Study, Performed (optional) Diagnostic Study, Recommended (optional) Procedure, Performed (optional)	

This template represents the QDM attribute: Radiation Dosage.

This indicates the total dosage of radiation associated with the action referenced by the datatype.

Table 132: Radiation Dosage Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.106:2017-05-01)					
@classCode	1..1	SHALL		3335-33529	OBS
@moodCode	1..1	SHALL		3335-33530	EVN
templateId	1..1	SHALL		3335-33526	
item	1..1	SHALL		3335-33527	
@root	1..1	SHALL		3335-33531	2.16.840.1.113883.10.20.28.4.106
@extension	1..1	SHALL		3335-34648	2017-05-01
id	1..1	SHALL		3335-33532	
code	1..1	SHALL		3335-33528	
@code	1..1	SHALL		3335-33533	228815006
@codeSystem	1..1	SHALL		3335-33534	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 2.16.840.1.113883.6.96
value	0..1	SHOULD	PQ	3335-33535	

1. **SHALL** contain exactly one [1..1] @classCode="OBS" Observation (CONF:3335-33529).
2. **SHALL** contain exactly one [1..1] @moodCode="EVN" Event (CONF:3335-33530).
3. **SHALL** contain exactly one [1..1] templateId (CONF:3335-33526).
 - a. This templateId **SHALL** contain exactly one [1..1] item (CONF:3335-33527).
 - i. This item **SHALL** contain exactly one [1..1] @root="2.16.840.1.113883.10.20.28.4.106" (CONF:3335-33531).
 - ii. This item **SHALL** contain exactly one [1..1] @extension="2017-05-01" (CONF:3335-34648).
4. **SHALL** contain exactly one [1..1] id (CONF:3335-33532).
5. **SHALL** contain exactly one [1..1] code (CONF:3335-33528).
 - a. This code **SHALL** contain exactly one [1..1] @code="228815006" Incident Radiation Dose (CONF:3335-33533).
 - b. This code **SHALL** contain exactly one [1..1] @codeSystem="2.16.840.1.113883.6.96" (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:3335-33534).
6. **SHOULD** contain zero or one [0..1] value with @xsi:type="PQ" (CONF:3335-33535).

Figure 64: Radiation Dosage Example

```
<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.106" extension="2017-05-01"/>
  </templateId>
  <id root="306c596a-3611-409f-beb0-af29b0fcec9e"/>
  <code code="228815006" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED CT">
    <displayName value="incident radiation dose"/>
  </code>
  <value xsi:type="PQ" value="50" unit="cGy{total}"/>
</observationCriteria>
```

5.61 Radiation Duration

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.107:2017-05-01 (open)]

Table 133: Radiation Duration Contexts

Contained By:	Contains:
Diagnostic Study, Performed (optional) Diagnostic Study, Recommended (optional) Procedure, Order (optional) Procedure, Performed (optional)	

This template represents the QDM attribute: Radiation Duration.

This indicates the time (duration) of radiation exposure associated with the action referenced by the datatype..

Table 134: Radiation Duration Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.107:2017-05-01)					
@classCode	1..1	SHALL		3335-33538	OBS
@moodCode	1..1	SHALL		3335-33539	EVN
templateId	1..1	SHALL		3335-33536	
item	1..1	SHALL		3335-33537	
@root	1..1	SHALL		3335-33540	2.16.840.1.113883.10.20.28.4.107
@extension	1..1	SHALL		3335-34649	2017-05-01
id	1..1	SHALL		3335-33542	
code	1..1	SHALL		3335-33541	
@code	1..1	SHALL		3335-33543	306751006
@codeSystem	1..1	SHALL		3335-33544	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 2.16.840.1.113883.6.96
value	0..1	SHOULD	PQ	3335-33545	

1. **SHALL** contain exactly one [1..1] @classCode="OBS" Observation (CONF:3335-33538).
2. **SHALL** contain exactly one [1..1] @moodCode="EVN" Event (CONF:3335-33539).
3. **SHALL** contain exactly one [1..1] templateId (CONF:3335-33536).
 - a. This templateId **SHALL** contain exactly one [1..1] item (CONF:3335-33537).
 - i. This item **SHALL** contain exactly one [1..1] @root="2.16.840.1.113883.10.20.28.4.107" (CONF:3335-33540).
 - ii. This item **SHALL** contain exactly one [1..1] @extension="2017-05-01" (CONF:3335-34649).
4. **SHALL** contain exactly one [1..1] id (CONF:3335-33542).
5. **SHALL** contain exactly one [1..1] code (CONF:3335-33541).
 - a. This code **SHALL** contain exactly one [1..1] @code="306751006" Duration of individual radiotherapy treatment (CONF:3335-33543).
 - b. This code **SHALL** contain exactly one [1..1] @codeSystem="2.16.840.1.113883.6.96" (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:3335-33544).
6. **SHOULD** contain zero or one [0..1] value with @xsi:type="PQ" (CONF:3335-33545).

Figure 65: Radiation Duration Example

```
<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.107" extension="2017-05-01"/>
  </templateId>
  <id root="b73f2562-3098-4f92-8703-ef88036ac788"/>
  <code code="306751006" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED
CT"/>
  <value xsi:type="PQ" value="5" unit="d"/>
</observationCriteria>
```

5.62 Reason

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01 (open)]

Table 135: Reason Contexts

Contained By:	Contains:
Assessment, Performed (optional) Assessment, Recommended (optional) Communication: From Patient to Provider (optional) Communication: From Provider to Patient (optional) Communication: From Provider to Provider (optional) Device, Applied (optional) Device, Order (optional) Device, Recommended (optional) Diagnostic Study, Order (optional) Diagnostic Study, Performed (optional) Diagnostic Study, Recommended (optional) Encounter, Active (optional) Encounter, Order (optional) Encounter, Performed (optional) Encounter, Recommended (optional) Immunization, Administered (optional) Immunization, Order (optional) Intervention, Order (optional) Intervention, Performed (optional) Intervention, Recommended (optional) Laboratory Test, Order (optional) Laboratory Test, Performed (optional) Laboratory Test, Recommended (optional) Medication, Administered (optional) Medication, Discharge (optional) Medication, Dispensed (optional) Medication, Order (optional) Patient Characteristic Clinical Trial Participant (optional) Physical Exam, Order (optional) Physical Exam, Performed (optional) Physical Exam, Recommended (optional) Procedure, Order (optional) Procedure, Performed (optional) Procedure, Recommended (optional) Substance, Administered (optional) Substance, Order (optional) Substance, Recommended (optional)	

This template represents the QDM attribute: Reason.

It represents the thought process or justification for an action or for not performing an action. In some measures, specific treatments are acceptable inclusion criteria only if a justified reason is present. Each of these measures uses a value set (often, but not exclusively, using SNOMED CT) to express acceptable justification reasons. Other measures specify reasons as justification for exclusions. Examples include patient, system, or medical-related reasons for declining to perform specific actions. Each of these measures also uses a value set to express acceptable justification reasons for declining to perform expected actions.

Table 136: Reason Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01)					
@classCode	1..1	SHALL		3335-29895	OBS
@moodCode	1..1	SHALL		3335-29896	urn:oid:2.16.840.1.113883.5.1001 (HL7ActMood) = EVN
templateId	1..1	SHALL		3335-29897	
item	1..1	SHALL		3335-29898	
@root	1..1	SHALL		3335-29899	2.16.840.1.113883.10.20.28.4.88
@extension	1..1	SHALL		3335-33686	2015-05-01
id	1..1	SHALL		3335-29900	
code	1..1	SHALL		3335-29901	
@code	1..1	SHALL		3335-29902	410666004
@codeSystem	1..1	SHALL		3335-29903	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 2.16.840.1.113883.6.96
title	1..1	SHALL		3335-33173	
value	1..1	SHALL		3335-29904	
@valueSet	0..1	SHOULD		3335-34681	

1. **SHALL** contain exactly one [1..1] **@classCode="OBS"** Observation (CONF:3335-29895).
2. **SHALL** contain exactly one [1..1] **@moodCode="EVN"** Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-29896).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-29897).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-29898).

- i. This item **SHALL** contain exactly one [1..1] `@root="2.16.840.1.113883.10.20.28.4.88"` (CONF:3335-29899).
 - ii. This item **SHALL** contain exactly one [1..1] `@extension="2015-05-01"` (CONF:3335-33686).
4. **SHALL** contain exactly one [1..1] **id** (CONF:3335-29900).
5. **SHALL** contain exactly one [1..1] **code** (CONF:3335-29901).
- a. This code **SHALL** contain exactly one [1..1] `@code="410666004"` Reason (CONF:3335-29902).
 - b. This code **SHALL** contain exactly one [1..1] `@codeSystem="2.16.840.1.113883.6.96"` (CodeSystem: SNOMED CT `urn:oid:2.16.840.1.113883.6.96`) (CONF:3335-29903).
6. **SHALL** contain exactly one [1..1] **title** (CONF:3335-33173).
7. **SHALL** contain exactly one [1..1] **value** (CONF:3335-29904).
- a. This value **SHOULD** contain zero or one [0..1] `@valueSet` (CONF:3335-34681).

Figure 66: Reason Example

```
<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.88" extension="2017-05-01"/>
  </templateId>
  <id root="05c07740-1f8d-417e-a9f2-fc769b1d342d"/>
  <code code="410666004" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED CT">
    <displayName value="Reason"/>
  </code>
  <title value="Reason"/>
  <value xsi:type="CD" valueSet="{$QDMElementValueSetOID}"/>
</observationCriteria>
```

5.63 Result

[observationCriteria: identifier
 urn:hl7ii:2.16.840.1.113883.10.20.28.4.101:2017-05-01 (open)]

Table 137: Result Contexts

Contained By:	Contains:
Intervention, Performed (optional) Physical Exam, Performed (optional) Procedure, Performed (optional)	

This template represents the QDM attribute: Result.

This represents the final consequences or data collected from a sequence of actions or events, or observable entities including, but not limited to procedures, laboratory tests, physical examinations, or diagnostic tests. This template is used to represent result in all actCriteria except observationCriteria, where result is represented directly using observationCriteria/value.

Table 138: Result Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.101:2017-05-01)					
@classCode	1..1	SHALL		3335-32186	OBS
@moodCode	1..1	SHALL		3335-32187	urn:oid:2.16.840.1.113883.5.1001 (HL7ActMood) = EVN
templateId	1..1	SHALL		3335-32188	
item	1..1	SHALL		3335-32189	
@root	1..1	SHALL		3335-32190	2.16.840.1.113883.10.20.28.4.101
@extension	1..1	SHALL		3335-34653	2017-05-01
id	1..1	SHALL		3335-32191	
code	1..1	SHALL		3335-32192	
@code	1..1	SHALL		3335-32193	394617004
@codeSystem	1..1	SHALL		3335-32194	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 2.16.840.1.113883.6.96
title	1..1	SHALL		3335-32195	
value	1..1	SHALL		3335-32196	

1. **SHALL** contain exactly one [1..1] **@classCode="OBS"** Observation (CONF:3335-32186).
2. **SHALL** contain exactly one [1..1] **@moodCode="EVN"** Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-32187).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-32188).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-32189).
 - i. This item **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.4.101"** (CONF:3335-32190).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-34653).
4. **SHALL** contain exactly one [1..1] **id** (CONF:3335-32191).
5. **SHALL** contain exactly one [1..1] **code** (CONF:3335-32192).
 - a. This code **SHALL** contain exactly one [1..1] **@code="394617004"** Result (CONF:3335-32193).

- b. This code **SHALL** contain exactly one [1..1] @codeSystem="2.16.840.1.113883.6.96" (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:3335-32194).
- 6. **SHALL** contain exactly one [1..1] **title** (CONF:3335-32195).
- 7. **SHALL** contain exactly one [1..1] **value** (CONF:3335-32196).

Figure 67: Result Example

```
<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.101" extension="2017-05-01"/>
  </templateId>
  <id root="6626ee8e-e72b-4382-97a0-9a00ac27763a"/>
  <code code="394617004" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED CT">
    <displayName value="Result"/>
  </code>
  <title value="Result"/>
  <value xsi:type="CD" valueSet="{$QDMElementValueSetOID}"/>
</observationCriteria>
```

5.64 Severity Observation

[observationCriteria: identifier
urn:h17ii:2.16.840.1.113883.10.20.28.4.93:2017-05-01 (open)]

Table 139: Severity Observation Contexts

Contained By:	Contains:
Adverse Event (required) Allergy/Intolerance (optional) Diagnosis (optional) Symptom (optional)	

This template represents the QDM attribute: Severity.

Severity observation represents the gravity of the problem, such as allergy or reaction, in terms of its actual or potential impact on the patient.

Table 140: Severity Observation Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.93:2017-05-01)					
@classCode	1..1	SHALL		3335-30129	OBS
@moodCode	1..1	SHALL		3335-30130	urn:oid:2.16.840.1.113883.5.1001 (HL7ActMood) = EVN
templateId	1..1	SHALL		3335-30131	
item	1..1	SHALL		3335-30132	
@root	1..1	SHALL		3335-30133	2.16.840.1.113883.10.20.28.4.93
@extension	1..1	SHALL		3335-33691	2017-05-01
id	1..1	SHALL		3335-30134	
code	1..1	SHALL		3335-30135	
@code	1..1	SHALL		3335-30136	SEV
@codeSystem	1..1	SHALL		3335-30137	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode) = 2.16.840.1.113883.5.4
title	1..1	SHALL		3335-30140	
value	1..1	SHALL		3335-30138	

1. **SHALL** contain exactly one [1..1] @classCode="OBS" Observation (CONF:3335-30129).
2. **SHALL** contain exactly one [1..1] @moodCode="EVN" Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-30130).
3. **SHALL** contain exactly one [1..1] templateId (CONF:3335-30131).
 - a. This templateId **SHALL** contain exactly one [1..1] item (CONF:3335-30132).
 - i. This item **SHALL** contain exactly one [1..1] @root="2.16.840.1.113883.10.20.28.4.93" (CONF:3335-30133).
 - ii. This item **SHALL** contain exactly one [1..1] @extension="2017-05-01" (CONF:3335-33691).
4. **SHALL** contain exactly one [1..1] id (CONF:3335-30134).
5. **SHALL** contain exactly one [1..1] code (CONF:3335-30135).
 - a. This code **SHALL** contain exactly one [1..1] @code="SEV" Severity Observation (CONF:3335-30136).

- b. This code **SHALL** contain exactly one [1..1] @codeSystem="2.16.840.1.113883.5.4" (CodeSystem: HL7ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:3335-30137).
- 6. **SHALL** contain exactly one [1..1] **title** (CONF:3335-30140).
- 7. **SHALL** contain exactly one [1..1] **value** (CONF:3335-30138).

Figure 68: Severity Observation Example

```
<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.93" extension="2017-05-01"/>
  </templateId>
  <id root="7cfdf091-44ff-4a5c-9626-00c7fa5b2ce0"/>
  <code code="SEV" codeSystem="2.16.840.1.113883.5.4" codeSystemName="HL7 ActCode">
    <displayName value="Severity Observation"/>
  </code>
  <title value="Severity"/>
  <value xsi:type="CD" valueSet="{$QDMElementValueSetOID}"/>
</observationCriteria>
```

5.65 Status

[observationCriteria: identifier
 urn:hl7ii:2.16.840.1.113883.10.20.28.4.94:2017-05-01 (open)]

Table 141: Status Contexts

Contained By:	Contains:
Diagnostic Study, Performed (optional) Intervention, Performed (optional) Laboratory Test, Performed (optional) Procedure, Performed (optional)	

This template represents the QDM attribute: Status.

Status represents the particular stage of the subject within a defined process.

Table 142: Status Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.94:2017-05-01)					
@classCode	1..1	SHALL		3335-30151	OBS
@moodCode	1..1	SHALL		3335-30152	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3335-30153	
item	1..*	SHALL		3335-30155	
@root	1..1	SHALL		3335-30156	2.16.840.1.113883.10.20.28.4.9 4
@extension	1..1	SHALL		3335-33690	2017-05-01
id	1..1	SHALL		3335-30157	
code	1..1	SHALL		3335-30158	
@code	1..1	SHALL		3335-30159	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 33999-4
@codeSystem	1..1	SHALL		3335-30160	urn:oid:2.16.840.1.113883.6.1 (LOINC)
title	1..1	SHALL		3335-30161	
value	1..1	SHALL		3335-30162	

1. **SHALL** contain exactly one [1..1] **@classCode="OBS"** Observation (CONF:3335-30151).
2. **SHALL** contain exactly one [1..1] **@moodCode="EVN"** Event (CodeSystem: HL7ActMood
urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-30152).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-30153).
 - a. This templateId **SHALL** contain at least one [1..*] **item** (CONF:3335-30155).
 - i. Such items **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.28.4.94"** (CONF:3335-30156).
 - ii. Such items **SHALL** contain exactly one [1..1] **@extension="2017-05-01"** (CONF:3335-33690).
4. **SHALL** contain exactly one [1..1] **id** (CONF:3335-30157).
5. **SHALL** contain exactly one [1..1] **code** (CONF:3335-30158).
 - a. This code **SHALL** contain exactly one [1..1] **@code="33999-4"** Status (CodeSystem:
LOINC urn:oid:2.16.840.1.113883.6.1) (CONF:3335-30159).
 - b. This code **SHALL** contain exactly one [1..1] **@codeSystem** (CodeSystem: LOINC
urn:oid:2.16.840.1.113883.6.1) (CONF:3335-30160).
6. **SHALL** contain exactly one [1..1] **title** (CONF:3335-30161).

7. **SHALL** contain exactly one [1..1] **value** (CONF:3335-30162).

Figure 69: Status Example

```
<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.94" extension="2017-05-01"/>
  </templateId>
  <id root="89474b1a-253e-4b72-a662-33a75d6eee0c"/>
  <code code="33999-4" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC">
    <displayName value="Status"/>
  </code>
  <title value="Status"/>
  <value xsi:type="CD" valueSet="{$QDMElementValueSetOID}"/>
</observationCriteria>
```

5.66 Substance, Administered

[substanceAdministrationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.73:2017-05-01 (open)]

Table 143: Substance, Administered Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Dosage Frequency

This template represents the QDM data type: Substance, Administered.

A substance is a chemical element and its compounds in the natural state or obtained by any manufacturing process (other than pharmaceutical drugs), including any additive necessary to preserve its stability and any impurity deriving from the process used, but excluding any solvent that may be separated without affecting the stability of the substance or changing its composition. Examples of a substance may include but are not limited to: environmental agents (e.g., pollen, dust) and food (e.g., vitamins).

This template represents a substance that has been administered.

Timing: The Relevant Period addresses: StartTime = when a single substance administration event starts (e.g., the initiation of an intravenous infusion, or administering a the substance orally or topically to a patient); StopTime = when a single substance administration event ends (e.g., the end time of the intravenous infusion, or the administration of a substance orally or topically is completed - for oral or topical administration, the start and stop times are the same).

Dosage: Details of how medication is/is to be taken, i.e., the quantity (mg, cc, tablets) to be taken at a single administration.

Supply: The quantity (amount) of therapeutic agent that was provided to a patient (i.e., number of doses, number of tablets or pills, volume of medication).

Table 144: Substance, Administered Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
substanceAdministrationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.73:2017-05-01)					
@classCode	1..1	SHALL		3335-32878	SBADM
@moodCode	1..1	SHALL		3335-32879	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
@actionNegationInd	0..1	MAY		3335-32880	
templateId	1..1	SHALL		3335-32881	
item	1..1	SHALL		3335-32882	
@root	1..1	SHALL		3335-32883	2.16.840.1.113883.10.20.28.4.7 3
@extension	1..1	SHALL		3335-33393	2017-05-01
id	1..1	SHALL		3335-32884	
code	1..1	SHALL		3335-32885	
@code	1..1	SHALL		3335-33177	416118004
@codeSystem	1..1	SHALL		3335-33178	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 2.16.840.1.113883.6.96
title	1..1	SHALL		3335-32887	
statusCode	1..1	SHALL		3335-32888	
@code	1..1	SHALL		3335-32889	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
effectiveTime	0..1	MAY	IVL_TS	3335-32890	
low	0..1	MAY		3335-32891	
high	0..1	MAY		3335-32892	
routeCode	0..1	MAY		3335-32894	
@valueSet	0..1	SHOULD		3335-32895	
doseQuantity	0..1	MAY		3335-32896	
participation	1..1	SHALL		3335-32897	

@typeCode	1..1	SHALL		3335-32898	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = CSM
role	1..1	SHALL		3335-32899	
@classCode	1..1	SHALL		3335-32900	urn:oid:2.16.840.1.113883.5.110 (HL7RoleClass) = ADMM
playingMaterial	1..1	SHALL		3335-32901	
@classCode	1..1	SHALL		3335-32902	urn:oid:2.16.840.1.113883.5.41 (HL7EntityClass) = MAT
@determinerCode	1..1	SHALL		3335-32903	urn:oid:2.16.840.1.113883.5.30 (HL7EntityDeterminer) = KIND
code	1..1	SHALL		3335-32904	
@valueSet	0..1	SHOULD		3335-32905	
participation	1..1	SHALL		3335-34563	
@typeCode	1..1	SHALL		3335-34566	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = AUT
time	1..1	SHALL		3335-34564	
low	1..1	SHALL		3335-34567	
role	1..1	SHALL		3335-34565	
@classCode	1..1	SHALL		3335-34568	urn:oid:2.16.840.1.113883.5.110 (HL7RoleClass) = ROL
id	0..1	MAY		3335-34569	
outboundRelationship	0..1	MAY		3335-32915	
@typeCode	1..1	SHALL		3335-32916	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = REFR
observationCriteria	1..1	SHALL		3335-32917	Frequency (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.99:2017-05-01
outboundRelationship	0..1	MAY		3335-34482	
@typeCode	1..1	SHALL		3335-34483	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = REFR
observationCriteria	1..1	SHALL		3335-34484	Dosage (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.125:2017-05-01

1. **SHALL** contain exactly one [1..1] **@classCode**="SBADM" Substance Administration (CONF:3335-32878).
2. **SHALL** contain exactly one [1..1] **@moodCode**="EVN" Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-32879).
3. **MAY** contain zero or one [0..1] **@actionNegationInd** (CONF:3335-32880).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-32881).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-32882).
 - i. This item **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.28.4.73" (CONF:3335-32883).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension**="2017-05-01" (CONF:3335-33393).
5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-32884).
6. **SHALL** contain exactly one [1..1] **code** (CONF:3335-32885).
 - a. This code **SHALL** contain exactly one [1..1] **@code**="416118004" Administration (CONF:3335-33177).
 - b. This code **SHALL** contain exactly one [1..1] **@codeSystem**="2.16.840.1.113883.6.96 " (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:3335-33178).
7. **SHALL** contain exactly one [1..1] **title** (CONF:3335-32887).
8. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-32888).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code**="completed" Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-32889).
9. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-32890).
Note: QDM Attribute: Relevant Period
 - a. The effectiveTime, if present, **MAY** contain zero or one [0..1] **low** (CONF:3335-32891).
Note: Start Datetime (When a single substance administration event starts (e.g., the initiation of an intravenous infusion, or administering a the substance orally or topically to a patient))
 - b. The effectiveTime, if present, **MAY** contain zero or one [0..1] **high** (CONF:3335-32892).
Note: Stop Datetime (When a single substance administration event ends (e.g., the end time of the intravenous infusion, or the administration of a substance orally or topically is completed - for oral or topical administration, the start and stop times are the same))
10. **MAY** contain zero or one [0..1] **routeCode** (CONF:3335-32894).
Note: QDM Attribute: Route
 - a. The routeCode, if present, **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-32895).
11. **MAY** contain zero or one [0..1] **doseQuantity** (CONF:3335-32896).
Note: QDM Attribute: Supply
12. **SHALL** contain exactly one [1..1] **participation** (CONF:3335-32897) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode**="CSM" Consumable (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-32898).

- b. **SHALL** contain exactly one [1..1] **role** (CONF:3335-32899).
 - i. This role **SHALL** contain exactly one [1..1] **@classCode="ADMM"** Administerable Material (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-32900).
 - ii. This role **SHALL** contain exactly one [1..1] **playingMaterial** (CONF:3335-32901).
 - 1. This playingMaterial **SHALL** contain exactly one [1..1] **@classCode="MAT"** Material (CodeSystem: HL7EntityClass urn:oid:2.16.840.1.113883.5.41) (CONF:3335-32902).
 - 2. This playingMaterial **SHALL** contain exactly one [1..1] **@determinerCode="KIND"** Kind (CodeSystem: HL7EntityDeterminer urn:oid:2.16.840.1.113883.5.30) (CONF:3335-32903).
 - 3. This playingMaterial **SHALL** contain exactly one [1..1] **code** (CONF:3335-32904).
 - a. This code **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-32905).
13. **SHALL** contain exactly one [1..1] **participation** (CONF:3335-34563) such that it
- a. **SHALL** contain exactly one [1..1] **@typeCode="AUT"** Author (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-34566).
 - b. **SHALL** contain exactly one [1..1] **time** (CONF:3335-34564).
 - i. This time **SHALL** contain exactly one [1..1] **low** (CONF:3335-34567).
Note: QDM Attribute: Author Datetime
 - c. **SHALL** contain exactly one [1..1] **role** (CONF:3335-34565).
 - i. This role **SHALL** contain exactly one [1..1] **@classCode="ROL"** Role (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-34568).
 - ii. This role **MAY** contain zero or one [0..1] **id** (CONF:3335-34569).
14. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-32915) such that it
Note: QDM Attribute: Frequency
- a. **SHALL** contain exactly one [1..1] **@typeCode="REFR"** Refers To (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32916).
 - b. **SHALL** contain exactly one [1..1] **Frequency** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.99:2017-05-01) (CONF:3335-32917).
15. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-34482) such that it
Note: QDM Attribute: Dosage
- a. **SHALL** contain exactly one [1..1] **@typeCode="REFR"** Refers To (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-34483).
 - b. **SHALL** contain exactly one [1..1] **Dosage** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.125:2017-05-01) (CONF:3335-34484).

Figure 70: Substance, Administered Example

```
<substanceAdministrationCriteria classCode="SBADM" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.73" extension="2017-05-01"/>
  </templateId>
  <id root="8918e418-fdc0-4c9c-b902-67502e324b9b"/>
  <code code="416118004" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED CT">
    <displayName value="Administration"/>
  </code>
  <title value="Substance, Administered"/>
  <statusCode code="completed" />
  <participation typeCode="CSM">
    <role classCode="ADMM">
      <playingMaterial classCode="MAT" determinerCode="KIND">
        <code valueSet="{$QDMElementValueSetOID}"/>
      </playingMaterial>
    </role>
  </participation>
</substanceAdministrationCriteria>
```

5.67 Substance, Order

[substanceAdministrationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.77:2017-05-01 (open)]

Table 145: Substance, Order Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Dosage Frequency Reason

This template represents the QDM data type: Substance, Order.

This template represents a request by a clinician or appropriately licensed care provider to a pharmacy to provide a substance to a patient.

Timing: The time the order is signed; author datetime.

Dosage: Details of how medication is/is to be taken, i.e., the quantity (mg, cc, tablets) to be taken at a single administration.

Supply: The quantity (amount) of therapeutic agent that was provided to a patient (i.e., number of doses, number of tablets or pills, volume of medication).

Table 146: Substance, Order Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
substanceAdministrationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.77:2017-05-01)					
@classCode	1..1	SHALL		3335-32623	SBADM
@moodCode	1..1	SHALL		3335-32624	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = RQO
@actionNegationInd	0..1	MAY		3335-32625	
templateId	1..1	SHALL		3335-32626	
item	1..1	SHALL		3335-32627	
@root	1..1	SHALL		3335-32628	2.16.840.1.113883.10.20.28.4.7 7
@extension	1..1	SHALL		3335-33652	2017-05-01
id	1..1	SHALL		3335-32629	
title	1..1	SHALL		3335-32632	
statusCode	1..1	SHALL		3335-32633	
@code	1..1	SHALL		3335-32634	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = active
repeatNumber	0..1	MAY		3335-32638	
methodCode	0..1	MAY		3335-33671	
item	1..1	SHALL		3335-33672	
@valueSet	0..1	SHOULD		3335-33673	
routeCode	0..1	MAY		3335-32639	
@valueSet	0..1	SHOULD		3335-32640	
doseQuantity	0..1	MAY		3335-32641	
participation	1..1	SHALL		3335-32642	
@typeCode	1..1	SHALL		3335-32643	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = CSM
role	1..1	SHALL		3335-32644	
@classCode	1..1	SHALL		3335-32645	urn:oid:2.16.840.1.113883.5.11 0 (HL7RoleClass) = ADMM

playingMaterial	1..1	SHALL		3335-32646	
@classCode	1..1	SHALL		3335-32647	urn:oid:2.16.840.1.113883.5.41 (HL7EntityClass) = MAT
@determinerCode	1..1	SHALL		3335-32648	urn:oid:2.16.840.1.113883.5.30 (HL7EntityDeterminer) = KIND
code	1..1	SHALL		3335-32649	
@valueSet	0..1	SHOULD		3335-32650	
participation	0..1	MAY		3335-33511	
@typeCode	1..1	SHALL		3335-33513	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = AUT
time	1..1	SHALL		3335-33512	
low	1..1	SHALL		3335-33514	
role	1..1	SHALL		3335-33601	
@classCode	1..1	SHALL		3335-33602	urn:oid:2.16.840.1.113883.5.110 (HL7RoleClass) = ROL
id	0..1	MAY		3335-33603	
outboundRelationship	0..1	MAY		3335-32651	
@typeCode	1..1	SHALL		3335-32652	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-32653	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.88:2017-05-01)
outboundRelationship	0..1	MAY		3335-32660	
@typeCode	1..1	SHALL		3335-32661	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = REFR
observationCriteria	1..1	SHALL		3335-32662	Frequency (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.99:2017-05-01)
outboundRelationship	0..1	MAY		3335-34485	
@typeCode	1..1	SHALL		3335-34486	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = REFR
observationCriteria	1..1	SHALL		3335-34487	Dosage (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.125:2017-05-01)

1. **SHALL** contain exactly one [1..1] **@classCode**="SBADM" Substance Administration (CONF:3335-32623).
2. **SHALL** contain exactly one [1..1] **@moodCode**="RQO" Request (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-32624).
3. **MAY** contain zero or one [0..1] **@actionNegationInd** (CONF:3335-32625).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-32626).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-32627).
 - i. This item **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.28.4.77" (CONF:3335-32628).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension**="2017-05-01" (CONF:3335-33652).
5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-32629).
6. **SHALL** contain exactly one [1..1] **title** (CONF:3335-32632).
7. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-32633).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code**="active" Active (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-32634).
8. **MAY** contain zero or one [0..1] **repeatNumber** (CONF:3335-32638).
Note: QDM Attribute: Refills
9. **MAY** contain zero or one [0..1] **methodCode** (CONF:3335-33671).
Note: QDM Attribute: Method
 - a. The methodCode, if present, **SHALL** contain exactly one [1..1] **item** (CONF:3335-33672).
 - i. The item, if present, **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-33673).
10. **MAY** contain zero or one [0..1] **routeCode** (CONF:3335-32639).
Note: QDM Attribute: Route
 - a. The routeCode, if present, **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-32640).
11. **MAY** contain zero or one [0..1] **doseQuantity** (CONF:3335-32641).
Note: QDM Attribute: Supply
12. **SHALL** contain exactly one [1..1] **participation** (CONF:3335-32642) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode**="CSM" Consumable (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-32643).
 - b. **SHALL** contain exactly one [1..1] **role** (CONF:3335-32644).
 - i. This role **SHALL** contain exactly one [1..1] **@classCode**="ADMM" Administerable Material (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-32645).
 - ii. This role **SHALL** contain exactly one [1..1] **playingMaterial** (CONF:3335-32646).

1. This playingMaterial **SHALL** contain exactly one [1..1] @classCode="MAT" Material (CodeSystem: HL7EntityClass urn:oid:2.16.840.1.113883.5.41) (CONF:3335-32647).
 2. This playingMaterial **SHALL** contain exactly one [1..1] @determinerCode="KIND" Kind (CodeSystem: HL7EntityDeterminer urn:oid:2.16.840.1.113883.5.30) (CONF:3335-32648).
 3. This playingMaterial **SHALL** contain exactly one [1..1] **code** (CONF:3335-32649).
 - a. This code **SHOULD** contain zero or one [0..1] @valueSet (CONF:3335-32650).
13. **MAY** contain zero or one [0..1] **participation** (CONF:3335-33511) such that it
- a. **SHALL** contain exactly one [1..1] @typeCode="AUT" Author (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-33513).
 - b. **SHALL** contain exactly one [1..1] **time** (CONF:3335-33512).
 - i. This time **SHALL** contain exactly one [1..1] **low** (CONF:3335-33514).
Note: QDM Attribute: Author Datetime (The time the order is signed)
 - c. **SHALL** contain exactly one [1..1] **role** (CONF:3335-33601).
 - i. This role **SHALL** contain exactly one [1..1] @classCode="ROL" Role (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-33602).
 - ii. This role **MAY** contain zero or one [0..1] **id** (CONF:3335-33603).
14. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-32651) such that it
Note: QDM Attribute: Reason
- a. **SHALL** contain exactly one [1..1] @typeCode="RSON" Has Reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32652).
 - b. **SHALL** contain exactly one [1..1] **Reason** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-32653).
15. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-32660) such that it
Note: QDM Attribute: Frequency
- a. **SHALL** contain exactly one [1..1] @typeCode="REFR" Refers To (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32661).
 - b. **SHALL** contain exactly one [1..1] **Frequency** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.99:2017-05-01) (CONF:3335-32662).
16. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-34485) such that it
Note: QDM Attribute: Dosage
- a. **SHALL** contain exactly one [1..1] @typeCode="REFR" Refers To (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-34486).

- b. **SHALL** contain exactly one [1..1] [Dosage](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.125:2017-05-01) (CONF:3335-34487).

Figure 71: Substance, Order Example

```
<substanceAdministrationCriteria classCode="SBADM" moodCode="RQO">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.77" extension="2017-05-01"/>
  </templateId>
  <id root="58f3015d-d2dc-45ac-bf6d-fa8d1588603f"/>
  <title value="Substance, Order"/>
  <statusCode code="active"/>
  <participation typeCode="CSM">
    <role classCode="ADMM">
      <playingMaterial classCode="MAT" determinerCode="KIND">
        <code valueSet="{$QDMElementValueSetOID}"/>
      </playingMaterial>
    </role>
  </participation>
</substanceAdministrationCriteria>
```

5.68 Substance, Recommended

[substanceAdministrationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.78:2017-05-01 (open)]

Table 147: Substance, Recommended Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Dosage Frequency Reason

This template represents the QDM data type: Substance, Recommended.

A substance is a chemical element and its compounds in the natural state or obtained by any manufacturing process (other than pharmaceutical drugs), including any additive necessary to preserve its stability and any impurity deriving from the process used, but excluding any solvent that may be separated without affecting the stability of the substance or changing its composition. Examples of a substance may include but are not limited to: environmental agents (e.g., pollen, dust) and food (e.g., vitamins).

This template represents a recommendation for a substance.

Timing: The time the recommendation is authored (i.e., provided to the patient).

Dosage: Details of how medication is/is to be taken, i.e., the quantity (mg, cc, tablets) to be taken at a single administration.

Supply: The quantity (amount) of therapeutic agent that was provided to a patient (i.e., number of doses, number of tablets or pills, volume of medication).

Table 148: Substance, Recommended Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
substanceAdministrationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.78:2017-05-01)					
@classCode	1..1	SHALL		3335-32063	SBADM
@moodCode	1..1	SHALL		3335-32064	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = INT
@actionNegationInd	0..1	MAY		3335-32065	
templateId	1..1	SHALL		3335-32066	
item	1..1	SHALL		3335-32125	
@root	1..1	SHALL		3335-32126	2.16.840.1.113883.10.20.28.4.7 8
@extension	1..1	SHALL		3335-33693	2017-05-01
id	1..1	SHALL		3335-32067	
title	1..1	SHALL		3335-32069	
statusCode	1..1	SHALL		3335-32070	
@code	1..1	SHALL		3335-32071	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = active
repeatNumber	0..1	MAY		3335-32121	
methodCode	0..1	MAY		3335-32122	
item	1..1	SHALL		3335-33198	
@valueSet	0..1	SHOULD		3335-33199	
routeCode	0..1	MAY		3335-32123	
@valueSet	0..1	SHOULD		3335-33200	
doseQuantity	0..1	MAY		3335-32124	
participation	1..1	SHALL		3335-32103	
@typeCode	1..1	SHALL		3335-32104	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = CSM
role	1..1	SHALL		3335-32105	
@classCode	1..1	SHALL		3335-32106	urn:oid:2.16.840.1.113883.5.11 0 (HL7RoleClass) = MANU

playingMaterial	1..1	SHALL		3335-32107	
@classCode	1..1	SHALL		3335-32108	urn:oid:2.16.840.1.113883.5.41 (HL7EntityClass) = MMAT
@determinerCode	1..1	SHALL		3335-32109	urn:oid:2.16.840.1.113883.5.30 (HL7EntityDeterminer) = KIND
code	1..1	SHALL		3335-32110	
@valueSet	0..1	SHOULD		3335-32111	
participation	0..1	MAY		3335-34473	
@typeCode	1..1	SHALL		3335-34476	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = AUT
time	1..1	SHALL		3335-34474	
low	1..1	SHALL		3335-34477	
role	1..1	SHALL		3335-34475	
@classCode	1..1	SHALL		3335-34478	urn:oid:2.16.840.1.113883.5.11 0 (HL7RoleClass) = ROL
id	0..1	MAY		3335-34479	
outboundRelationship	0..1	MAY		3335-32112	
@typeCode	1..1	SHALL		3335-32113	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = RSON
observationCriteria	1..1	SHALL		3335-32114	Reason (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.88:2017-05-01
outboundRelationship	0..1	MAY		3335-34133	
@typeCode	1..1	SHALL		3335-34472	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = REFR
observationCriteria	1..1	SHALL		3335-34135	Frequency (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.99:2017-05-01
outboundRelationship	0..1	MAY		3335-34488	
@typeCode	1..1	SHALL		3335-34489	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = REFR
observationCriteria	1..1	SHALL		3335-34490	Dosage (identifier: urn:hl7ii:2.16.840.1.113883.10. 20.28.4.125:2017-05-01

1. **SHALL** contain exactly one [1..1] **@classCode**="SBADM" Substance Administration (CONF:3335-32063).
2. **SHALL** contain exactly one [1..1] **@moodCode**="INT" Intent (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-32064).
3. **MAY** contain zero or one [0..1] **@actionNegationInd** (CONF:3335-32065).
Note: QDM Attribute: Negation Rationale
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-32066).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-32125).
 - i. This item **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.28.4.78" (CONF:3335-32126).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension**="2017-05-01" (CONF:3335-33693).
5. **SHALL** contain exactly one [1..1] **id** (CONF:3335-32067).
6. **SHALL** contain exactly one [1..1] **title** (CONF:3335-32069).
7. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-32070).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code**="active" Active (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-32071).
8. **MAY** contain zero or one [0..1] **repeatNumber** (CONF:3335-32121).
Note: QDM Attribute: Refills
9. **MAY** contain zero or one [0..1] **methodCode** (CONF:3335-32122).
Note: QDM Attribute: Method
 - a. The methodCode, if present, **SHALL** contain exactly one [1..1] **item** (CONF:3335-33198).
 - i. The item, if present, **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-33199).
10. **MAY** contain zero or one [0..1] **routeCode** (CONF:3335-32123).
Note: QDM Attribute: Route
 - a. The routeCode, if present, **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-33200).
11. **MAY** contain zero or one [0..1] **doseQuantity** (CONF:3335-32124).
Note: QDM Attribute: Supply
12. **SHALL** contain exactly one [1..1] **participation** (CONF:3335-32103) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode**="CSM" Consumable (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-32104).
 - b. **SHALL** contain exactly one [1..1] **role** (CONF:3335-32105).
 - i. This role **SHALL** contain exactly one [1..1] **@classCode**="MANU" Manufactured (CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110) (CONF:3335-32106).
 - ii. This role **SHALL** contain exactly one [1..1] **playingMaterial** (CONF:3335-32107).
 1. This playingMaterial **SHALL** contain exactly one [1..1] **@classCode**="MMAT" Manufactured Material (CodeSystem:

- HL7EntityClass urn:oid:2.16.840.1.113883.5.41)
(CONF:3335-32108).
2. This playingMaterial **SHALL** contain exactly one [1..1] @determinerCode="KIND" Kind (CodeSystem:
HL7EntityDeterminer urn:oid:2.16.840.1.113883.5.30)
(CONF:3335-32109).
 3. This playingMaterial **SHALL** contain exactly one [1..1] **code**
(CONF:3335-32110).
 - a. This code **SHOULD** contain zero or one [0..1] @valueSet
(CONF:3335-32111).
13. **MAY** contain zero or one [0..1] **participation** (CONF:3335-34473) such that it
- a. **SHALL** contain exactly one [1..1] @typeCode="AUT" Author (CodeSystem:
HL7ParticipationType urn:oid:2.16.840.1.113883.5.90) (CONF:3335-34476).
 - b. **SHALL** contain exactly one [1..1] **time** (CONF:3335-34474).
 - i. This time **SHALL** contain exactly one [1..1] **low** (CONF:3335-34477).
Note: QDM Attribute: Author Datetime (The time the recommendation is authored (i.e., provided to the patient))
 - c. **SHALL** contain exactly one [1..1] **role** (CONF:3335-34475).
 - i. This role **SHALL** contain exactly one [1..1] @classCode="ROL" Role
(CodeSystem: HL7RoleClass urn:oid:2.16.840.1.113883.5.110)
(CONF:3335-34478).
 - ii. This role **MAY** contain zero or one [0..1] **id** (CONF:3335-34479).
14. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-32112) such that it
Note: QDM Attribute: Reason
- a. **SHALL** contain exactly one [1..1] @typeCode="RSON" Has Reason (CodeSystem:
HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-32113).
 - b. **SHALL** contain exactly one [1..1] Reason (identifier:
urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01) (CONF:3335-32114).
15. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-34133) such that it
Note: QDM Attribute: Frequency
- a. **SHALL** contain exactly one [1..1] @typeCode="REFR" Refers To (CodeSystem:
HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-34472).
 - b. **SHALL** contain exactly one [1..1] Frequency (identifier:
urn:hl7ii:2.16.840.1.113883.10.20.28.4.99:2017-05-01) (CONF:3335-34135).
16. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-34488) such that it
Note: QDM Attribute: Dosage
- a. **SHALL** contain exactly one [1..1] @typeCode="REFR" Refers To (CodeSystem:
HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-34489).

- b. **SHALL** contain exactly one [1..1] **Dosage** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.125:2017-05-01) (CONF:3335-34490).

Figure 72: Substance, Recommended Example

```
<substanceAdministrationCriteria classCode="SBADM" moodCode="INT">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.78" extension="2017-05-01"/>
  </templateId>
  <id root="e208b889-30eb-4c2b-be1f-372084e98bbc"/>
  <title value="Substance, Recommended"/>
  <statusCode code="active"/>
  <participation typeCode="CSM">
    <role classCode="ADMM">
      <playingMaterial classCode="MAT" determinerCode="KIND">
        <code valueSet="{$QDMElementValueSetOID}" />
      </playingMaterial>
    </role>
  </participation>
</substanceAdministrationCriteria>
```

5.69 Symptom

[observationCriteria: identifier
urn:hl7ii:2.16.840.1.113883.10.20.28.4.116:2017-05-01 (open)]

Table 149: Symptom Contexts

Contained By:	Contains:
Data Criteria Section (optional)	Severity Observation

This template represents the QDM data type: Symptom.

A symptom is a patient's reported perception of departure from normal functioning that is present at the time indicated.

Timing: The Prevalence Period references the time from the onset date to the abatement date.

The onset datetime corresponds to the implicit start datetime of the datatype and the abatement datetime corresponds to the implicit stop datetime of the datatype. If the abatement datetime is null, then the symptom is considered to still be active. When this datatype is used with timing relationships, the criterion is looking for whether the symptom was active for the time frame indicated by the timing relationships.

Table 150: Symptom Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observationCriteria (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.116:2017-05-01)					
@classCode	1..1	SHALL		3335-34108	OBS
@moodCode	1..1	SHALL		3335-34109	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3335-34079	
item	1..1	SHALL		3335-34080	
@root	1..1	SHALL		3335-34093	2.16.840.1.113883.10.20.28.4.1 16
@extension	1..1	SHALL		3335-34480	2017-05-01
id	1..1	SHALL		3335-34112	
code	1..1	SHALL		3335-34081	
@code	1..1	SHALL		3335-34095	418799008
@codeSystem	1..1	SHALL		3335-34096	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 2.16.840.1.113883.6.96
title	1..1	SHALL		3335-34111	
statusCode	1..1	SHALL		3335-34082	
@code	1..1	SHALL		3335-34097	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
effectiveTime	0..1	MAY	IVL_TS	3335-34083	
low	0..1	MAY		3335-34098	
high	0..1	MAY		3335-34099	
value	1..1	SHALL	CD	3335-34088	
@valueSet	0..1	SHOULD		3335-34105	
outboundRelationship	0..1	MAY		3335-34078	
@typeCode	1..1	SHALL		3335-34092	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = REFR

observationCriteria	1..1	SHALL		3335-34091	Severity Observation (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.93:2017-05-01)
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1. **SHALL** contain exactly one [1..1] **@classCode**="OBS" Observation (CONF:3335-34108).
2. **SHALL** contain exactly one [1..1] **@moodCode**="EVN" Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001) (CONF:3335-34109).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:3335-34079).
 - a. This templateId **SHALL** contain exactly one [1..1] **item** (CONF:3335-34080).
 - i. This item **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.28.4.116" (CONF:3335-34093).
 - ii. This item **SHALL** contain exactly one [1..1] **@extension**="2017-05-01" (CONF:3335-34480).
4. **SHALL** contain exactly one [1..1] **id** (CONF:3335-34112).
5. **SHALL** contain exactly one [1..1] **code** (CONF:3335-34081).
 - a. This code **SHALL** contain exactly one [1..1] **@code**="418799008" Symptom (CONF:3335-34095).
 - b. This code **SHALL** contain exactly one [1..1] **@codeSystem**="2.16.840.1.113883.6.96" (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:3335-34096).
6. **SHALL** contain exactly one [1..1] **title** (CONF:3335-34111).
7. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3335-34082).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code**="completed" Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3335-34097).
8. **MAY** contain zero or one [0..1] **effectiveTime** (CONF:3335-34083).

Note: QDM Attribute: Prevalence Period (References the time from the onset date to the abatement date)

 - a. The effectiveTime, if present, **MAY** contain zero or one [0..1] **low** (CONF:3335-34098).

Note: Onset Datetime
 - b. The effectiveTime, if present, **MAY** contain zero or one [0..1] **high** (CONF:3335-34099).

Note: Abatement Datetime (If the abatement datetime is null, then the symptom is considered to still be active)
9. **SHALL** contain exactly one [1..1] **value** with @xsi:type="CD" (CONF:3335-34088).
 - a. This value **SHOULD** contain zero or one [0..1] **@valueSet** (CONF:3335-34105).
10. **MAY** contain zero or one [0..1] **outboundRelationship** (CONF:3335-34078) such that it

Note: QDM Attribute: Severity

 - a. **SHALL** contain exactly one [1..1] **@typeCode**="REFR" Refers To (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3335-34092).
 - b. **SHALL** contain exactly one [1..1] **Severity Observation** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.28.4.93:2017-05-01) (CONF:3335-34091).

Figure 73: Symptom Example

```
<observationCriteria classCode="OBS" moodCode="EVN">
  <templateId>
    <item root="2.16.840.1.113883.10.20.28.3.116" extension="2017-05-01"/>
  </templateId>
  <id root="9e4e810d-3c3e-461e-86f8-6fe7a0b1ca2b"/>
  <code code="418799008" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED CT">
    <displayName value="Symptom"/>
  </code>
  <title value="Symptom"/>
  <statusCode code="completed"/>
  <value xsi:type="CD" valueSet="${QDMElementValueSetOID}"/>
</observationCriteria>
```

6 TEMPLATE IDS IN THIS GUIDE

Table 151: Template List

Template Title	Template Type	templateId
QDM Templates for CQL-Based HQMF Header	Document	urn:hl7ii:2.16.840.1.113883.10.20.28.1.2:2017-05-01
Data Criteria Section	Section	urn:hl7ii:2.16.840.1.113883.10.20.28.2.6:2017-05-01
Measure Description Section	Section	urn:oid:2.16.840.1.113883.10.20.28.2.3
Measure Observations Section	Section	urn:oid:2.16.840.1.113883.10.20.28.2.4
Population Criteria Section	Section	urn:hl7ii:2.16.840.1.113883.10.20.28.2.7:2017-05-01
Admission Source	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.123:2017-05-01
Adverse Event	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.120:2017-05-01
Allergy/Intolerance	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.119:2017-05-01
Assessment, Performed	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.117:2017-05-01
Assessment, Recommended	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.118:2017-05-01
Care Goal	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.7:2017-05-01
Cause	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.105:2017-05-01
Communication: From Patient to Provider	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.8:2017-05-01
Communication: From Provider to Patient	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.9:2017-05-01
Communication: From Provider to Provider	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.10:2017-05-01
Component	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.121:2017-05-01
Device, Applied	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.13:2017-05-01
Device, Order	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.15:2017-05-01
Device, Recommended	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.16:2017-05-01
Diagnosis	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.110:2017-05-01
Diagnostic Study, Order	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.22:2017-05-01
Diagnostic Study, Performed	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.23:2017-05-01
Diagnostic Study, Recommended	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.24:2017-05-01

Template Title	Template Type	templateId
Dosage	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.125:2017-05-01
Encounter, Active	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.26:2017-05-01
Encounter, Order	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.27:2017-05-01
Encounter, Performed	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.5:2017-05-01
Encounter, Recommended	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.28:2017-05-01
Facility Location	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.92:2017-05-01
Family History	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.111:2017-05-01
Frequency	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.99:2017-05-01
Immunization, Administered	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.112:2017-05-01
Immunization, Order	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.113:2017-05-01
Incision Datetime	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.89:2017-05-01
Intervention, Order	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.35:2017-05-01
Intervention, Performed	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.36:2017-05-01
Intervention, Recommended	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.37:2017-05-01
Laboratory Test Component	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.3.126:2017-05-01
Laboratory Test Reference Range	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.124:2017-05-01
Laboratory Test, Order	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.41:2017-05-01
Laboratory Test, Performed	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.42:2017-05-01
Laboratory Test, Recommended	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.43:2017-05-01
Medication, Active	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.44:2017-05-01
Medication, Administered	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.45:2017-05-01
Medication, Discharge	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.48:2017-05-01
Medication, Dispensed	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.49:2017-05-01

Template Title	Template Type	templateId
Medication, Order	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.51:2017-05-01
Patient Care Experience	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.52:2017-05-01
Patient Characteristic	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.53:2017-05-01
Patient Characteristic Birth Date	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.54:2017-05-01
Patient Characteristic Clinical Trial Participant	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.6:2017-05-01
Patient Characteristic Ethnicity	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.56:2017-05-01
Patient Characteristic Expired	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.57:2017-05-01
Patient Characteristic Payer	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.58:2017-05-01
Patient Characteristic Race	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.59:2017-05-01
Patient Characteristic Sex	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.55:2017-05-01
Physical Exam, Order	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.61:2017-05-01
Physical Exam, Performed	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.62:2017-05-01
Physical Exam, Recommended	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.63:2017-05-01
Principal Diagnosis	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.122:2017-05-01
Procedure, Order	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.66:2017-05-01
Procedure, Performed	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.67:2017-05-01
Procedure, Recommended	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.68:2017-05-01
Provider Care Experience	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.70:2017-05-01
Provider Characteristic	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.71:2017-05-01
Radiation Dosage	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.106:2017-05-01
Radiation Duration	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.107:2017-05-01
Reason	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
Result	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.101:2017-05-01

Template Title	Template Type	templateId
<u>Severity Observation</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.93:2017-05-01
<u>Status</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.94:2017-05-01
<u>Substance, Administered</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.73:2017-05-01
<u>Substance, Order</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.77:2017-05-01
<u>Substance, Recommended</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.78:2017-05-01
<u>Symptom</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.116:2017-05-01

Table 152: Template Containments

Template Title	Template Type	templateId
QDM Templates for CQL-Based HQMF Header	Document	urn:hl7ii:2.16.840.1.113883.10.20.28.1.2:2017-05-01
Data Criteria Section	Section	urn:hl7ii:2.16.840.1.113883.10.20.28.2.6:2017-05-01
Adverse Event	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.120:2017-05-01
Facility Location	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.92:2017-05-01
Severity Observation	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.93:2017-05-01
Allergy/Intolerance	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.119:2017-05-01
Severity Observation	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.93:2017-05-01
Assessment, Performed	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.117:2017-05-01
Component	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.121:2017-05-01
Reason	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
Assessment, Recommended	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.118:2017-05-01
Reason	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
Care Goal	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.7:2017-05-01
Communication: From Patient to Provider	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.8:2017-05-01
Reason	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
Communication: From Provider to Patient	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.9:2017-05-01
Reason	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
Communication: From Provider to Provider	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.10:2017-05-01
Reason	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
Device, Applied	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.13:2017-05-01
Reason	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
Device, Order	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.15:2017-05-01
Reason	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01

Template Title	Template Type	templateId
Device, Recommended	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.16:2017-05-01
Reason	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
Diagnosis	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.110:2017-05-01
Severity Observation	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.93:2017-05-01
Diagnostic Study, Order	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.22:2017-05-01
Radiation Dosage	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.106:2017-05-01
Reason	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
Diagnostic Study, Performed	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.23:2017-05-01
Component	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.121:2017-05-01
Facility Location	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.92:2017-05-01
Radiation Dosage	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.106:2017-05-01
Radiation Duration	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.107:2017-05-01
Reason	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
Status	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.94:2017-05-01
Diagnostic Study, Recommended	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.24:2017-05-01
Radiation Dosage	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.106:2017-05-01
Radiation Duration	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.107:2017-05-01
Reason	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
Encounter, Active	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.26:2017-05-01
Facility Location	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.92:2017-05-01
Reason	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
Encounter, Order	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.27:2017-05-01
Facility Location	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.92:2017-05-01

Template Title	Template Type	templateId
<u>Reason</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
<u>Encounter, Performed</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.5:2017-05-01
<u>Admission Source</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.123:2017-05-01
<u>Diagnosis</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.110:2017-05-01
<u>Severity Observation</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.93:2017-05-01
<u>Facility Location</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.92:2017-05-01
<u>Principal Diagnosis</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.122:2017-05-01
<u>Reason</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
<u>Encounter, Recommended</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.28:2017-05-01
<u>Facility Location</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.92:2017-05-01
<u>Reason</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
<u>Family History</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.111:2017-05-01
<u>Immunization, Administered</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.112:2017-05-01
<u>Dosage</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.125:2017-05-01
<u>Reason</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
<u>Immunization, Order</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.113:2017-05-01
<u>Dosage</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.125:2017-05-01
<u>Reason</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
<u>Intervention, Order</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.35:2017-05-01
<u>Reason</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
<u>Intervention, Performed</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.36:2017-05-01
<u>Reason</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
<u>Result</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.101:2017-05-01

Template Title	Template Type	templateId
<u>Status</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.94:2017-05-01
<u>Intervention, Recommended</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.37:2017-05-01
<u>Reason</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
<u>Laboratory Test, Order</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.41:2017-05-01
<u>Reason</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
<u>Laboratory Test, Performed</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.42:2017-05-01
<u>Laboratory Test Component</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.3.126:2017-05-01
<u>Laboratory Test Reference Range</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.124:2017-05-01
<u>Laboratory Test Reference Range</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.124:2017-05-01
<u>Reason</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
<u>Status</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.94:2017-05-01
<u>Laboratory Test, Recommended</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.43:2017-05-01
<u>Reason</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
<u>Medication, Active</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.44:2017-05-01
<u>Dosage</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.125:2017-05-01
<u>Frequency</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.99:2017-05-01
<u>Medication, Administered</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.45:2017-05-01
<u>Dosage</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.125:2017-05-01
<u>Frequency</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.99:2017-05-01
<u>Reason</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
<u>Medication, Discharge</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.48:2017-05-01
<u>Dosage</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.125:2017-05-01
<u>Frequency</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.99:2017-05-01

Template Title	Template Type	templateId
<u>Reason</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
<u>Medication, Dispensed</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.49:2017-05-01
<u>Dosage</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.125:2017-05-01
<u>Frequency</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.99:2017-05-01
<u>Reason</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
<u>Medication, Order</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.51:2017-05-01
<u>Dosage</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.125:2017-05-01
<u>Frequency</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.99:2017-05-01
<u>Reason</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
<u>Patient Care Experience</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.52:2017-05-01
<u>Patient Characteristic</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.53:2017-05-01
<u>Patient Characteristic Birth Date</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.54:2017-05-01
<u>Patient Characteristic Clinical Trial Participant</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.6:2017-05-01
<u>Reason</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
<u>Patient Characteristic Ethnicity</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.56:2017-05-01
<u>Patient Characteristic Expired</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.57:2017-05-01
<u>Cause</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.105:2017-05-01
<u>Patient Characteristic Payer</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.58:2017-05-01
<u>Patient Characteristic Race</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.59:2017-05-01
<u>Patient Characteristic Sex</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.55:2017-05-01
<u>Physical Exam, Order</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.61:2017-05-01
<u>Reason</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
<u>Physical Exam, Performed</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.62:2017-05-01

Template Title	Template Type	templateId
<u>Component</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.121:2017-05-01
<u>Reason</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
<u>Result</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.101:2017-05-01
<u>Physical Exam, Recommended</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.63:2017-05-01
<u>Reason</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
<u>Procedure, Order</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.66:2017-05-01
<u>Radiation Duration</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.107:2017-05-01
<u>Reason</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
<u>Procedure, Performed</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.67:2017-05-01
<u>Component</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.121:2017-05-01
<u>Incision Datetime</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.89:2017-05-01
<u>Radiation Dosage</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.106:2017-05-01
<u>Radiation Duration</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.107:2017-05-01
<u>Reason</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
<u>Result</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.101:2017-05-01
<u>Status</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.94:2017-05-01
<u>Procedure, Recommended</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.68:2017-05-01
<u>Reason</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
<u>Provider Care Experience</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.70:2017-05-01
<u>Provider Characteristic</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.71:2017-05-01
<u>Substance, Administered</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.73:2017-05-01
<u>Dosage</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.125:2017-05-01
<u>Frequency</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.99:2017-05-01

Template Title	Template Type	templateId
<u>Reason</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
<u>Substance, Order</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.77:2017-05-01
<u>Dosage</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.125:2017-05-01
<u>Frequency</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.99:2017-05-01
<u>Reason</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
<u>Substance, Recommended</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.78:2017-05-01
<u>Dosage</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.125:2017-05-01
<u>Frequency</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.99:2017-05-01
<u>Reason</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.88:2017-05-01
<u>Symptom</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.116:2017-05-01
<u>Severity Observation</u>	Entry	urn:hl7ii:2.16.840.1.113883.10.20.28.4.93:2017-05-01
<u>Measure Description Section</u>	Section	urn:oid:2.16.840.1.113883.10.20.28.2.3
<u>Measure Observations Section</u>	Section	urn:oid:2.16.840.1.113883.10.20.28.2.4
<u>Population Criteria Section</u>	Section	urn:hl7ii:2.16.840.1.113883.10.20.28.2.7:2017-05-01

7 VALUE SETS IN THIS GUIDE

Table 153: ObservationMeasureScoring

Value Set: ObservationMeasureScoring urn:oid:2.16.840.1.113883.1.11.20367 Observation values used to indicate the type of scoring (e.g. proportion, ratio) used by a health quality measure.			
Code	Code System	Code System OID	Print Name
COHORT	HL7ObservationValue	urn:oid:2.16.840.1.11388 3.5.1063	cohort measure scoring
CONTVAR	HL7ObservationValue	urn:oid:2.16.840.1.11388 3.5.1063	continuous variable measure scoring
PROPOR	HL7ObservationValue	urn:oid:2.16.840.1.11388 3.5.1063	proportion measure scoring
RATIO	HL7ObservationValue	urn:oid:2.16.840.1.11388 3.5.1063	ratio measure scoring

Table 154: ObservationMeasureType

Value Set: ObservationMeasureType urn:oid:2.16.840.1.113883.1.11.20368 Observation values used to indicate whether a health quality measure is used to example a process or outcome over time.			
Code	Code System	Code System OID	Print Name
OUTCOME	HL7ObservationValue	urn:oid:2.16.840.1.11388 3.5.1063	outcome measure type
PROCESS	HL7ObservationValue	urn:oid:2.16.840.1.11388 3.5.1063	process measure type
COMPOSITE	HL7ObservationValue	urn:oid:2.16.840.1.11388 3.5.1063	composite measure type
RESOURCE	HL7ObservationValue	urn:oid:2.16.840.1.11388 3.5.1063	resource use measure type
EFFICIENCY	HL7ObservationValue	urn:oid:2.16.840.1.11388 3.5.1063	efficiency measure type
EXPERIENCE	HL7ObservationValue	urn:oid:2.16.840.1.11388 3.5.1063	experience measure type
STRUCTURE	HL7ObservationValue	urn:oid:2.16.840.1.11388 3.5.1063	structure measure type

Table 155: RoleClassServiceDeliveryLocation

Value Set: RoleClassServiceDeliveryLocation urn:oid:2.16.840.1.113883.1.11.16927 Location(s) in which care being measured is rendered.			
Code	Code System	Code System OID	Print Name
SDLOC	HL7RoleClass	urn:oid:2.16.840.1.11388 3.5.110	service delivery location
DSDLOC	HL7RoleClass	urn:oid:2.16.840.1.11388 3.5.110	dedicated service delivery location/health care facility
ISDLOC	HL7RoleClass	urn:oid:2.16.840.1.11388 3.5.110	incidental service delivery location

8 CODE SYSTEMS IN THIS GUIDE

Table 156: Code Systems

Name	OID
EntityDeterminer	urn:oid:2.16.840.1.113883.5.30
HL7ActClass	urn:oid:2.16.840.1.113883.5.6
HL7ActCode	urn:oid:2.16.840.1.113883.5.4
HL7ActMood	urn:oid:2.16.840.1.113883.5.1001
HL7ActRelationshipType	urn:oid:2.16.840.1.113883.5.1002
HL7ActStatus	urn:oid:2.16.840.1.113883.5.14
HL7EntityClass	urn:oid:2.16.840.1.113883.5.41
HL7EntityDeterminer	urn:oid:2.16.840.1.113883.5.30
HL7ObservationValue	urn:oid:2.16.840.1.113883.5.1063
HL7ParticipationType	urn:oid:2.16.840.1.113883.5.90
HL7RoleClass	urn:oid:2.16.840.1.113883.5.110
HL7RoleLinkType	urn:oid:2.16.840.1.113883.5.107
LOINC	urn:oid:2.16.840.1.113883.6.1
SNOMED CT	urn:oid:2.16.840.1.113883.6.96