



**HL7 Implementation Guide for CDA® Release 2:
Quality Reporting Document Architecture – Category III, STU
Release 2.1 - (US Realm)**

Standard for Trial Use

June 2017

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This specification is a set of constraints on existing work, and the extent to which it can accommodate the expressive requirements of quality reporting over time is a function of the richness of the model on which it is built, the HL7 Reference Information Model (RIM) and the RIM document standard, and the Clinical Document Architecture Release 2 (CDA R2). We thank all those who have worked for over a decade to produce these fundamental specifications; we especially thank the HL7 Structured Documents Working Group for their support of this project.

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1 INTRODUCTION

"If you cannot measure it, you cannot improve it."

Lord Kelvin (1824-1907)

1.1 Purpose

This document describes constraints on the Clinical Document Architecture Release 2 (CDA R2) header and body elements for Quality Reporting Document Architecture (QRDA) Category III documents. The Institute of Medicine (IOM) definition of quality is: "The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge."¹ For care quality to be evaluated, it must be standardized and communicated to the appropriate organizations.

QRDA Category III is a document format that provides a standard structure with which to report aggregated quality measure data to organizations that will analyze and interpret the data. Quality measurement in health care is complex. Accurate, interpretable data efficiently gathered and communicated is key in correctly assessing that quality care is delivered.

1.2 Audience

The audience for this document includes software developers and implementers with reporting capabilities within their electronic health record (EHR) systems; developers and analysts in receiving institutions; and local, regional, and national health information exchange networks which wish to create and/or process CDA reporting documents created according to this specification.

1.3 Approach

Overall, the approach taken here is consistent with balloted implementation guides (IGs) for CDA. These publications view the ultimate implementation specification as a series of layered constraints. CDA itself is a set of constraints on the Health Level Seven (HL7) Reference Information Model (RIM). Implementation guides such as this add constraints to CDA through conformance statements that further define and restrict the sequence and cardinality of CDA objects and the vocabulary sets for coded elements.

This implementation guide is the QRDA Category III Standard for Trial Use (STU) Release 2.1. The [Background](#) and [Current Project](#) sections describe the development of the STU.

¹ <http://www.nationalacademies.org/hmd/Global/News%20Announcements/Crossing-the-Quality-Chasm-The-IOM-Health-Care-Quality-Initiative.aspx>

1.4 CDA R2

CDA R2 is “... a document markup standard that specifies the structure and semantics of ‘clinical documents’ for the purpose of exchange” [CDA R2, Section 1.1; see [References](#)]. Clinical documents, according to CDA, have six characteristics:

- Persistence
- Stewardship
- Potential for authentication
- Context
- Wholeness
- Human readability

CDA defines a header for classification and management and a document body that carries the clinical record. While the header metadata are prescriptive and designed for consistency across all instances, the body is highly generic, leaving the designation of semantic requirements to implementation guides such as this one.

1.5 Background

In early pilots of the QRDA initiative, participating organizations confirmed the feasibility of using the HL7 Clinical Document Architecture (CDA) as the foundation for the QRDA specification. The participants concluded that CDA provided the technical underpinnings for communicating pediatric and adult quality measures for both inpatient and ambulatory care settings.

1.5.1 QRDA Category I – Single Patient Report

A QRDA Category I report is an individual-patient-level quality report. Each report contains quality data for one patient for one or more quality measures, where the data elements in the report are defined by the particular measure(s) being reported on. A QRDA Category I report contains raw applicable patient data. When pooled and analyzed, each report contributes the quality data necessary to calculate population measure metrics.

QRDA R1 defined the CDA framework for quality reports and a method for referencing a quality measure. The Standard for Trial Use (STU) recommended the re-use of Consolidated Continuity of Care Document (C-CDA)² clinical statements to send measure data elements.

QRDA Category I Release 2 uses the templates defined by HL7 Implementation Guide for CDA® Release 2: IHE Health Story Consolidation, Release 1.1³ to send measure data elements, and has substantial other changes from QRDA Category I Release 1. QRDA Category Release 1, DSTU Release 3 was published in June 2015. QRDA Category I R1

² HL7 Implementation Guide for CDA Release 2 – Consolidated CDA Templates for Clinical Notes. August, 2015. http://www.hl7.org/implement/standards/product_brief.cfm?product_id=379

³ http://www.hl7.org/implement/standards/product_brief.cfm?product_id=258

DSTU R3 incorporated errata changes approved in June 2014 and updated the templates to align with the templates from the *HL7 Implementation Guide for CDA® Release 2: Consolidated CDA Templates for Clinical Notes (US Realm), Draft Standard for Trial Use Release 2 (C-CDA R2)*⁴ where applicable. The QRDA Category I R1 DSTU R3 also made updates to align with the Quality Data Model (QDM) version 4.1.2. In April, 2016, QRDA Category Release 1, DSTU Release 3.1 was published. It included updates to align with the C-CDA Release 2.1 (August, 2015) changes and the QDM version 4.2. The latest update of QRDA Category I is the Release 1, STU Release 4, which was published in January 2017⁵. The updates include the alignment with the QDM version 4.3.

1.5.2 QRDA Category II – Patient List Report

A QRDA Category II report is a multi-patient-level quality data report. Each report contains quality data for a set of patients for one or more quality measures, where the data elements in the report are defined by the particular measure(s) being reported on.

Whereas a QRDA Category I report contains only raw applicable patient data, a QRDA Category II report includes flags for each patient indicating whether the patient qualifies for a measure's numerator, denominator, exclusion, or other aggregate data element. These qualifications can be pooled and counted to create the QRDA Category III report.

1.5.3 QRDA Category III – Calculated Report

A QRDA Category III report is an aggregate quality report. Each report contains calculated summary data for one or more measures for a specified population of patients within a particular health system over a specific period of time. The QRDA Category III DSTU Release 1 was first published in November 2012.⁶ An errata update to the QRDA Category III DSTU R1 was released in July 2014. QRDA Category III DSTU R1.1 was published in March 2016, which incorporated errata approved since July 2014. In December 2016, the STU Release 2 was published to support the need of reporting for improvement activities and advancing care information measures. This IG is the STU Release 2.1 of the QRDA Category III.

1.6 Current Project

1.6.1 QRDA Category III STU R2.1

Since the publication of QRDA Category I R1 DSTU in 2012, the standard has experienced very rapid adoption. The Meaningful Use Stage 2 rulemaking specifies it as the standard for reporting aggregate level data for clinical quality measures.⁷

⁴ HL7 C-CDA R2. http://www.hl7.org/implement/standards/product_brief.cfm?product_id=379

⁵ http://www.hl7.org/implement/standards/product_brief.cfm?product_id=35

⁶ http://www.hl7.org/implement/standards/product_brief.cfm?product_id=286

⁷ HIT: Standards, Implementation Specifications, and Certification Criteria for EHR Technology, 2014 Edition. <http://www.gpo.gov/fdsys/pkg/FR-2012-09-04/pdf/2012-20982.pdf>

On April 27, 2016, the Department of Health and Human Services issued a Notice of Proposed Rulemaking to implement key provisions of the bipartisan Medicare Access and CHIP Reauthorization Act of 2015 (MACRA), to modernize and streamline Medicare, and tie payment to quality patient care for hundreds of thousands of doctors and clinicians. The advancing care information and the improvement activities are two performance categories under the Merit-Based Incentive Payment System (MIPS).⁸ To support the need of reporting summary level data for improvement activities and advancing care information measures, the QRDA Category III STU Release 2 was developed based upon the existing QRDA Category III functionalities and was published in December 2016. The scope of this STU R2.1 is to address approved STU comments to the QRDA Category III STU Release 2⁹.

This implementation guide is a conformance profile, as described in the “Refinement, Constraint and Localization”¹⁰ section of the *HL7 Version 3 Interoperability Standards*. The base standard for this implementation guide is the *HL7 Clinical Document Architecture, Release 2.0*.¹¹ This implementation guide does not describe every aspect of CDA. Rather, it defines constraints on the base CDA used in a QRDA Category III document in the US realm. Additional optional CDA elements, not included here, can be included and the result will be compliant with the specifications in this guide.

Aggregate reports, such as the one detailed in this implementation guide, are used in several ways. Quality reporting gives organizations the statistical information needed to track diseases, monitor quality of healthcare delivery, track the results of particular measures over time, and determine results from specific populations for particular measures. Using quality query systems, researchers can ask questions of the data residing in health information systems and receive relevant data that are stripped of all patient identifiers, protecting patients and healthcare providers from the risks of inadvertent privacy loss.

This implementation guide has been designed to meet a large number of requirements from several organizations. It may not meet all the precise needs for each organization, since in some cases these are incompatible. For example, organizations may require data that other organizations either do not want to receive at all, or do not require. It is expected that organizations will create implementation guides derived from, and based on, this implementation guide to specify their precise data format requirements.

1.6.2 Relationship to Health Quality Measures Format: eMeasures

The HL7 Health Quality Measures Format (HQMF) is a standard for representing a health quality measure as an electronic document. Many of the concepts used in QRDA

⁸ Medicare Program; Merit-Based Incentive Payment System (MIPS) and Alternative Payment Model (APM) Incentive Under the Physician Fee Schedule, and Criteria for Physician-Focused Payment Models.

<https://www.federalregister.gov/documents/2016/11/04/2016-25240/medicare-program-merit-based-incentive-payment-system-mips-and-alternative-payment-model-apm>

⁹ <http://www.hl7.org/dstucomments/showdetail.cfm?dstuid=197>

¹⁰ <http://www.hl7.org/v3ballot/html/infrastructure/conformance/conformance.htm>

¹¹ HL7 CDA Release 2. http://www.hl7.org/implement/standards/product_brief.cfm?product_id=7

Category III are defined in the HQMF specification¹², and implementers using this implementation guide are expected to be familiar with that document.

A quality measure is a quantitative tool that provides an indication of the performance of an individual or organization in relation to a specified process or outcome via the measurement of an action, process, or outcome of clinical care. Quality measures are often derived from clinical guidelines and are designed to determine whether the appropriate care has been provided given a set of clinical criteria and an evidence base. Quality measures are also often referred to as performance measures or quality indicators. A quality measure expressed in HQMF format is referred to as an "eMeasure" or electronic Clinical Quality Measures (eCQMs).

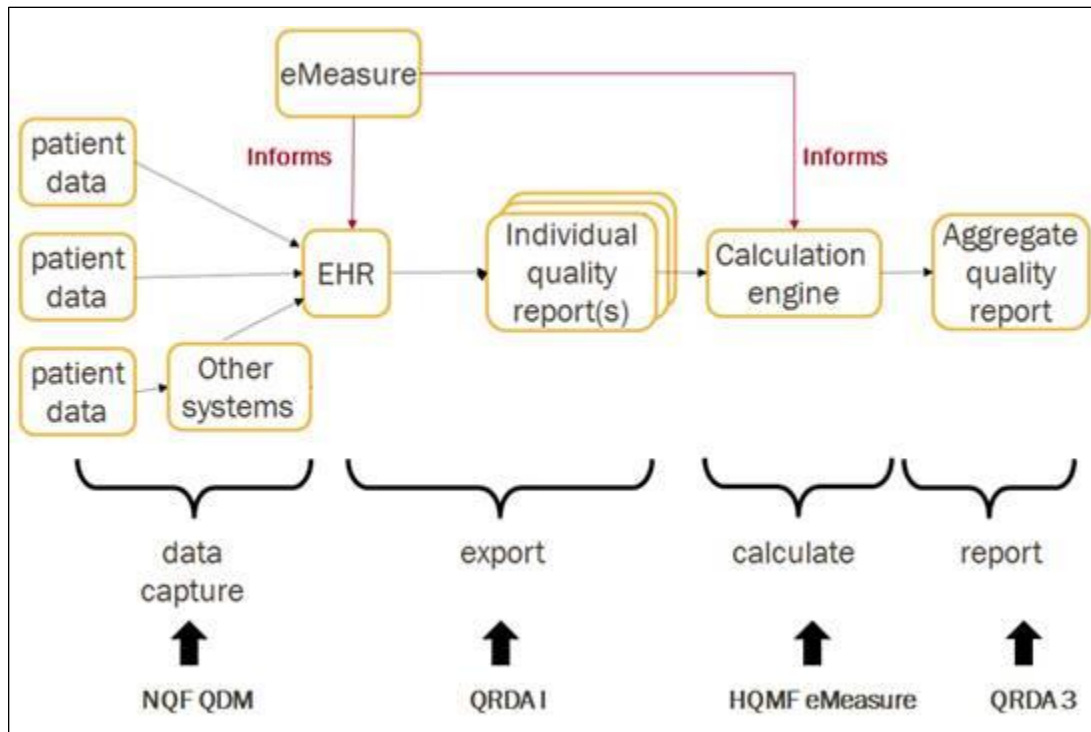
For the purposes of this implementation guide, the terms "eMeasure", "quality measure", and eCQMs are defined to include any document in HQMF that fulfills the necessary requirements. These may be eMeasures published by the National Quality Forum (NQF) or by the Centers for Medicare & Medicaid Services (CMS). The Measure Authoring Tool (MAT)¹³ is a web-based tool that allows measure developers to author eMeasures using the QDM and to auto generate HQMF representations for the eMeasures. Each eMeasure contains a version specific measure identifier that uniquely identifies the measure. QRDA Category III was designed to meet the needs for aggregate reporting of published HQMF eMeasures.

Other quality queries expressed in HQMF format may be generated at run-time and have no publication numbers. The QRDA Category III specification allows for this use case. As long as the queries fulfill the necessary requirements, such as being expressed in HQMF and ensuring that sections of the eMeasure have appropriate identifiers, a corresponding QRDA Category III aggregate report can be created that refers to these identifiers.

¹² HL7 Version 3 Standard: Representation of the Health Quality Measures Format (eMeasure), DSTU, Release 2.1. http://www.hl7.org/implement/standards/product_brief.cfm?product_id=97

¹³ Measure Authoring Tool. <https://www.emeasuretool.cms.gov/>

Figure 1: Quality reporting using HQMF and QRDA



1.7 Organization of This Guide

This guide includes a set of CDA templates and prescribes their use within a QRDA document. The main chapters are:

[Chapter 2. QRDA Category III](#) describes the overall structure of the QRDA Category III report.

[Chapter 3. Document Templates](#) defines the top-level structure of the document and the document header constraints that apply to QRDA Category III documents.

[Chapter 4. Section-Level Templates](#) defines the section templates in a QRDA Category III document.

[Chapter 5. Entry-Level Templates](#) defines the entry templates in a QRDA Category III document.

1.8 Conformance Conventions Used in This Guide

1.8.1 Templates and Conformance Statements

Conformance statements within this implementation guide are presented as constraints from Trifolia Workbench, a template repository.¹⁴ An algorithm converts constraints recorded in Trifolia to a printable presentation. Each constraint is uniquely identified by an identifier at or near the end of the constraint (e.g., CONF:23-14611). 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 (section, observation, act, procedure, 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 a @root value. Versioned 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:2.16.840.1.113883.10.20.27.1.1:2017-06-01).

Each section and entry template in this guide includes a context table. The "Contained By" column indicates which templates use this template, and if the template is optional or required in the containing template. The "Contains" column indicates any templates that the template uses.

A typical template, as presented in this guide, is shown in the figure. The next sections describe specific aspects of conformance statements—open vs. closed statements, conformance verbs, cardinality, vocabulary conformance, containment relationships, and null flavors.

¹⁴ Trifolia Workbench. <https://trifolia.lantanagroup.com/>

Figure 2: Constraints Format Example

5.10 Performance Rate

```
[observation: identifier
urn:hl7ii:2.16.840.1.113883.10.20.27.3.30:2016-09-01 (open)]
```

Table 44: Performance Rate Contexts

Contained By:	Contains:
Advancing Care Information Numerator Denominator Type Measure Reference and Results (required)	

Table 45: Performance Rate Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observation (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.30:2016-09-01)					
@classCode	1..1	SHALL		3259-21303	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = OBS
@moodCode	1..1	SHALL		3259-21304	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3259-21298	
@root	1..1	SHALL		3259-21310	2.16.840.1.113883.10.20.27.3.3 0
@extension	1..1	SHALL		3259-21441	2016-09-01
code	1..1	SHALL		3259-21294	
@code	1..1	SHALL		3259-21305	72510-1

1.8.2 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.

A revised version of a previously published template keeps the same `templateId/@root` as the previous version but is assigned a new

templateId/@extension. The notation “(Vn)” (V2, V3, etc.) is also added to the template name. Versions are not necessarily forward or backward compatible. A versioning may be due to substantive changes in the template or because a contained template has changed. The “(Vn)” designation is persistent; it appears with that template when it is used in subsequent guides. During a new ballot or update phase, “Draft” is appended to the main heading for the template to indicate that it may be voted on in the ballot or commented on in the update; the “Draft” designation is removed in the final publication versions.

1.8.3 Open and Closed Templates

In open templates, all of the features of the CDA R2 base specification are allowed except as constrained by the templates. By contrast, a closed template specifies everything that is allowed and nothing further may be included. Templates in a QRDA Category III document are open.

There are no closed templates in this guide.

Open templates allow HL7 implementers to develop additional structured content not constrained within this guide. HL7 encourages implementers to bring their use cases forward as candidate requirements to be formalized in a subsequent version of the standard to maximize the use of shared semantics.

1.8.4 Conformance Verbs (Keywords)

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*¹⁵:

- **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

The keyword "**SHALL**" allows the use of `nullFlavor` unless the requirement is on an attribute or the use of `nullFlavor` is explicitly precluded.

When conformance statements are nested (or have subordinate clauses) the conformance statements are to be read and interpreted in hierarchical order. These hierarchical clauses can be interpreted as "if then, else" clauses.

¹⁵ Publishing Facilitator's Guide. <http://www.hl7.org/v3ballot/html/help/pfg/pfg.htm>

1.8.5 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 or 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 participant is to be present. The subordinate constraint specifies some additional characteristics of that participant.

Figure 3: Constraints Format – Only One Allowed

- | |
|---|
| <ol style="list-style-type: none">1. SHALL contain exactly one [1..1] participant (CONF:2777).<ol style="list-style-type: none">a. This participant SHALL contain exactly one [1..1] @typeCode="LOC" (CodeSystem: 2.16.840.1.113883.5.90 HL7ParticipationType) (CONF:2230). |
|---|

In the next figure, the constraint says only one participant “like this” is to be present. Other participant elements are not precluded by this constraint.

Figure 4: Constraints Format – Only One Like This Allowed

- | |
|--|
| <ol style="list-style-type: none">1. SHALL contain exactly one [1..1] participant (CONF:2777) such that it<ol style="list-style-type: none">a. SHALL contain exactly one [1..1] @typeCode="LOC" (CodeSystem: 2.16.840.1.113883.5.90 HL7ParticipationType) (CONF:2230). |
|--|

1.8.6 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.

Note that value set identifiers (e.g., ValueSet 2.16.840.1.113883.1.11.78 Observation Interpretation (HL7) **DYNAMIC**) used in the binding definitions of template conformance statements do not appear in the XML instance of a CDA document. The definition of the template must be referenced to determine or validate the vocabulary conformance requirements of the template.

Value set bindings adhere to HL7 Vocabulary Working Group best practices, and include both an indication of stability and of coding strength for the binding. Value set bindings can be **STATIC**, meaning that they bind to a specified version of a value set, or **DYNAMIC**, meaning that they bind to the most current version of the value set. If a **STATIC** binding is specified, a date **SHALL** be included to indicate the value set version. If a

DYNAMIC binding is specified, the value set authority and link to the base definition of the value set **SHALL** be included, if available, so implementers can access the current version of the value set. When a vocabulary binding binds to a single code, the stability of the binding is implicitly **STATIC**.

Figure 5: Binding to a Single Code

- 2. SHALL** contain exactly one [1..1] **code** (CONF:15403).
- a) This code **SHALL** contain exactly one [1..1] **@code**="11450-4" Problem List (CONF:15408).
 - b) This code **SHALL** contain exactly one [1..1] **@codeSystem**="2.16.840.1.113883.6.1" (CodeSystem: LOINC 2.16.840.1.113883.6.1 **STATIC**) (CONF: 31141).

The notation conveys the actual code (11450-4), the code's `displayName` (Problem List), the OID of the `codeSystem` from which the code is drawn (2.16.840.1.113883.6.1), and the `codeSystemName` (LOINC).

HL7 Data Types Release 1 requires the `codeSystem` attribute unless the underlying data type is "Coded Simple" or "CS", in which case it is prohibited. The `displayName` and the `codeSystemName` are optional, but recommended, in all cases.

The above example would be properly expressed as follows.

Figure 6: XML Expression of a Single-code Binding

```
<code code="11450-4" codeSystem="2.16.840.1.113883.6.1"/>

<!-- or -->

<code code="11450-4" codeSystem="2.16.840.1.113883.6.1"
      displayName="Problem List"
      codeSystemName="LOINC"/>
```

A full discussion of the representation of vocabulary is outside the scope of this document; for more information, see the *HL7 Version 3 Interoperability Standards, Normative Edition 2010*¹⁶ sections on Abstract Data Types and XML Data Types R1.

When a template uses value set bindings, value set tables are presented below the template or are referenced if they occur elsewhere in the specification. The value set table provides the value set identifier, a description, and a link to the source of the value set when possible. Ellipses in the last row indicate the value set members shown are examples and the true source must be accessed to see all members.

If a value set binding has a **DYNAMIC** stability, implementers creating a CDA document must go to the location in the URL to check for the most current version of the value set expansion.

1.8.7 Null Flavor

Information technology solutions store and manage data, but sometimes data are not available; an item may be unknown, not relevant, or not computable or measureable. In HL7, a *flavor* of null, or `nullFlavor`, describes the reason for missing data.

¹⁶ <http://www.hl7.org/memonly/downloads/v3edition.cfm#V32010> (must be a member to view)

Figure 7: nullFlavor Example

```
<birthTime nullFlavor="NI"/>    <!--coding a birthdate when there is no  
birthdate available-->
```

Use null flavors for unknown, required, or optional attributes:

- NI No information. This is the most general and default null flavor.
- NA Not applicable. Known to have no proper value (e.g., last menstrual period for a male).
- UNK Unknown. A proper value is applicable, but is not known.
- ASKU Asked, but not known. Information was sought, but not found (e.g., the patient was asked but did not know).
- NAV Temporarily unavailable. The information is not available, but is expected to be available later.
- NASK Not asked. The patient was not asked.
- MSK There is information on this item available but it has not been provided by the sender due to security, privacy, or other reasons. There may be an alternate mechanism for gaining access to this information.
- OTH The actual value is not and will not be assigned a standard coded value. An example is the name or identifier of a clinical trial.

This list above contains those null flavors that are commonly used in clinical documents. For the full list and descriptions, see the `nullFlavor` vocabulary domain in the CDA normative edition.¹⁷

Any **SHALL**, **SHOULD** or **MAY** conformance statement may use `nullFlavor`, unless the `nullFlavor` is explicitly disallowed (e.g., through another conformance statement which includes a **SHALL** conformance for a vocabulary binding to the `@code` attribute, or through an explicit **SHALL NOT** allow use of `nullFlavor` conformance).

¹⁷ HL7 CDA Release 2. http://www.hl7.org/implement/standards/product_brief.cfm?product_id=7

Figure 8: Attribute Required (nullFlavor Not Allowed)

1. **SHALL** contain exactly one [1..1] `code` (CONF:15407).
 - a. This `code` **SHALL** contain exactly one [1..1] `@code="11450-4"` Problem List (CodeSystem: LOINC 2.16.840.1.113883.6.1) (CONF:15408).
- or
2. **SHALL** contain exactly one [1..1] `effectiveTime/@value` (CONF:5256).

Figure 9: Allowed nullFlavors when element is required (with xml examples)

1. **SHALL** contain at least one [1..*] `id`
2. **SHALL** contain exactly one [1..1] `code`
3. **SHALL** contain exactly one [1..1] `effectiveTime`

```
<entry>
  <observation classCode="OBS" moodCode="EVN">
    <id nullFlavor="NI"/>
    <code nullFlavor="OTH">
      <originalText>New Grading system</originalText>
    </code>
    <statusCode code="completed"/>
    <effectiveTime nullFlavor="UNK"/>
    <value xsi:type="CD" nullFlavor="OTH">
      <originalText>Spiculated mass grade 5</originalText>
    </value>
  </observation>
</entry>
```

1.8.8 Data Types

All data types used in a CDA document are described in the CDA R2 normative edition.¹⁷ All attributes of a data type are allowed unless explicitly prohibited by this specification.

1.9 XML Conventions Used in This Guide

1.9.1 XPath Notation

Instead of the traditional dotted notation used by HL7 to represent RIM classes, this document uses XML Path Language (XPath) notation¹⁸ in conformance statements and elsewhere to identify the Extensible Markup Language (XML) elements and attributes within the CDA 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.

¹⁸ XML Path Language (XPath) Version 1.0. <http://www.w3.org/TR/xpath/>

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.

Figure 10: XML Document Example

```
<author>
  <assignedAuthor>
    ...
    <code codeSystem='2.16.840.1.113883.6.96' codeSystemName='SNOMED CT'
      code='17561000' displayName='Cardiologist' />
    ...
  </assignedAuthor>
</author>
```

In the above example, the code attribute of the code could be selected with the XPath expression in the next figure.

Figure 11: XPath Expression Example

```
author/assignedAuthor/code/@code
```

1.9.2 XML Examples and Sample Documents

Extensible Mark-up Language (XML) examples appear in figures in this document in this monospace font. XML elements (code, assignedAuthor, etc.) and attribute names (SNOMED CT, 17561000, etc.) also appear in this monospace font. Portions of the XML content may be omitted from the content for brevity, marked by an ellipsis (...) as shown in the example below.

Figure 12: ClinicalDocument Example

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

1.10 Contents of the Package

The following files comprise this implementation guide package.

Table 1: Content of the Package

Filename	Description	Applicability
CDAR2_QRDAll_R1_STU_R2.1_2017JUN.docx	This guide	Normative
CDAR2_QRDAll_R1_STU_R2.1_2017JUN.xml	Sample QRDA category III file	Informative
QRDA.xsl	A CDA Stylesheet for display of QRDA instances	Informative
Schema	Folder containing updated CDA XML schemas	Informative

2 QRDA CATEGORY III

A QRDA Category III report is a summary report that contains aggregated data. Each report contains quality data for a number of patients for one or more quality measures. The particular measures being reported define the data elements and grouping or stratification levels in the report.

2.1 Major Components of a QRDA Category III Document

This section serves as a high-level introduction to the major components of a QRDA Category III document, all of which are described again and in greater detail later in this document. The intent here is to familiarize the reader with the high-level concepts in order to understand the sections and templates below.

Major components of a QRDA Category III document are shown in the following skeletal example. Note that many required components are missing to simplify the example.

A QRDA Category III document is wrapped by the `<ClinicalDocument>` element, and contains a header and a body. The header lies between the `<ClinicalDocument>` and the `<structuredBody>` elements, and identifies and classifies the document and provides information on authorship, authentication, involved providers, and more.

The body contains the clinical report, which is wrapped by the `<structuredBody>` element, and which is divided up into document sections.

Four sections are defined: The [QRDA Category III Reporting Parameters](#) section, which defines the reporting period; the [QRDA Category III Measure Section](#), which references the measures being reporting against and reports associated aggregate scores (both observed and predicted); the [Improvement Activity Section](#), which references the Improvement Activities being reported against and reports the responses (e.g., yes); and the [Advancing Care Information Section](#), which references the advancing care information measures being reported against and reports associated aggregated counts or the responses.

In the previous releases of the QRDA Category III, the [QRDA Category III Reporting Parameters](#) section is a required section, the performance period specified in this section would apply to the QRDA Category III document as a whole, which does not give the capability to allow different performance period to be specified within each of the [QRDA Category III Measure Section](#), [Improvement Activity Section](#), and the [Advancing Care Information Section](#). In this STU R2.1, each of the [QRDA Category III Measure Section](#), [Improvement Activity Section](#), and the [Advancing Care Information Section](#) now contains a required [Reporting Parameters Act](#). The [QRDA Category III Reporting Parameters](#) section becomes an optional section.

A QRDA Category III document must contain a Measure Section, an Improvement Activity Section, or an Advancing Care Information section.

Each section contains a single narrative block, and various CDA entries. Entries in the QRDA Category III Measure Section represent all reported data for each referenced

measure. The total number of patients in each population (both observed and, optionally, predicted) is reported, along with a breakdown of those numbers by strata and, for proportion measures, both the overall performance rate and reporting rate. Continuous variable values (both observed and predicted) can also be reported.

Figure 13: Skeletal QRDA Category III Document

```
<ClinicalDocument>
  <!--... CDA Header ...-->
  <structuredBody>
    <section>
      <!--QRDA Category III Measure Section -->
      <!-- Measure Reference and Results template -->
      <organizer>eMeasure 0436: Anticoagulation Therapy for A Fib

        <!-- Performance Rate for Proportion Measure template -->
        <observation>Performance Rate: 83% (62% predicted)</observation>

        <!-- Measure Data template -->
        <observation>Initial Patient Population
          <!-- Aggregate Count template -->
          <observation>Count = 1000</observation>
        </observation>

        <!-- Measure Data template -->
        <observation>Numerator
          <!-- Aggregate Count template -->
          <observation>Count = 400 (300 predicted)</observation>
        </observation>

        ...
      </organizer>
    </section>
    <section>
      <!-- Improvement Activity Section -->
      ...
    </section>
    <section>
      <!-- Advancing Care Information Section -->
      ...
    </section>
  </structuredBody>
</ClinicalDocument>
```

The image below is a partial rendering of a QRDA Category III sample document. Please compare with the above QRDA skeletal XML example to understand the structure and content of the QRDA Category III report that are described again and in greater detail later in this document. The rendering can also be viewed by placing the CDAR2_QRDAlII_R1_STU2.1_2017MAY.xml and the qrda.xsl files that are in this STU package in the same folder. Clicking on the CDAR2_QRDAlII_R1_STU2.1_2017MAY.xml will render the entire sample file in your browser.

Figure 14: QRDA Rendering

Example QRDA Calculated Summary Report

Document Id	adb27b69-9806-4ebd-8f5d-30f3ac777ad3	
Document Created:	January 1, 2018	
Performer	Person 111111111 - 2.16.840.1.113883.4.6 (NPI)	Organization Good Health Hospital 1234567 - 2.16.840.1.113883.4.2 (TIN)

Table of Contents

- [Measure Section](#)
- [Measure Section](#)
- [Measure Section](#)

Measure Section

- **Performance Period: 01/01/2017 - 12/31/2017**

eMeasure Title	Version neutral identifier	eMeasure Version Number	NQF eMeasure Number	eMeasure Identifier (MAT)	Version specific identifier
Anticoagulation Therapy for Atrial Fibrillation/Flutter	03876d69-085b-415c-ae9d-9924171040c2	5	0436	71	40280381-4b9a-3825-014b-db6ef30f0e2d

- **Performance Rate:** 83% (Predicted = 62%)
- **Reporting Rate:** 84%
- **Initial Patient Population:** 1000
 - **Male:** 400
 - **Female:** 600
 - **Not Hispanic or Latino:** 350
 - **Hispanic or Latino:** 650
 - **Black:** 300
 - **White:** 350
 - **Asian:** 350
 - **Payer - Medicare:** 250
 - **Payer - Medicaid:** 550
- **Denominator:** 500
 - **Male:** 200
 - **Female:** 300
 - **Not Hispanic or Latino:** 175
 - **Hispanic or Latino:** 325
 - **Black:** 150
 - **White:** 175
 - **Asian:** 175
 - **Payer - Medicare:** 125
 - **Payer - Medicaid:** 275
- **Numerator:** 400 (predicted=300)
 - **Male:** 100
 - **Female:** 300

Measure Section

- **Performance Period: 01/01/2017 - 03/31/2017**

Advancing Care Information Measure Title	Measure Identifier
Provide Patient Access	ACI_PEA_1

- **Denominator:** 800
- **Numerator:** 600

Measure Section

- **Performance Period: 01/01/2017 - 03/31/2017**

Improvement Activity	Activity Identifier	Question Answer Code
Use of telehealth services that expand practice access	IA_EPA_2	Y

(Note: A QRDA Category III report shall contain at least a QRDA Category III Measure Section, an Improvement Activity Section, or an Advancing Care Information Section.)

2.2 Report Format

The QRDA Category III report format matches the QRDA Category I report as closely as possible. The Category III header is similar to the Category I header, but the QRDA Category III header does not conform to the US Realm header. This is mainly because the US Realm Consolidation¹⁹ documents require `recordTarget` elements to contain address and name elements. The `recordTarget` element is designed for single patient data and is required in all CDA documents. In this case, the document does not contain results for a single patient, but rather for groups of patients, and thus the `recordTarget` ID in QRDA Category III documents contains a `nullFlavor` attribute (is nulled). By not conforming to the Consolidation US Realm header, the QRDA Category III documents can omit the `recordTarget`'s name and address sub-elements, rather than having to set them, along with the `recordTarget` ID, to null.

The QRDA Category III header is followed by a structured body that contains a reporting parameters section and may contain a QRDA Category III Measure Section, Improvement Activity section, or an Advancing Care Information section. Depending on the program or individual organization's reporting requirement, at least a QRDA Category III Measure Section, or an Improvement Activity section, or an Advancing Care Information section needs to be included in addition to the reporting parameters section. The QRDA Category III Measure Section contains the references and data for one or more eMeasures. These references refer to the identifiers in the corresponding HQMF document, which can be a published NQF or CMS eMeasure or a query. Advancing Care Information Section contains references (advancing care information measure identifiers) and data for one or more advancing care information measures. Improvement Activity Section contains references (improvement activity identifiers) and data for one or more improvement activities. There is no patient data section as there is in a QRDA Category I document because there are no raw patient data.

The data are reported in aggregate form, with no reference to any patient identifiers. The data can be reported according to strata that are identified in the corresponding HQMF document; in this case the QRDA report uses the HQMF strata identifiers to refer to the correct stratum definition. The data can further be stratified according to the optional supplemental data elements payer, sex, race, and ethnicity.

To ensure all data are consistently reported, all populations identified in an eMeasure should be reported, even when the number of patients in that population is zero. Likewise, all stratifications identified in an eMeasure should be reported, even when the number of patients in a stratum is zero, except for populations where the total count is zero. For the optional supplemental data elements, it is sufficient to report non-zero data, leaving out counts that are zero.

For programs that require Performance Rate for Proportion Measure in a QRDA Category III report, all Performance Rates called for in the eMeasure should be reported. Performance Rate for Proportion Measure is defined as (Numerator – Numerator Exclusions) / (Denominator – Denominator Exclusions – Denominator Exceptions). Where there are patients in the Denominator but none in the Numerator, the Performance Rate is zero. Where there are no patients in the Denominator (and

¹⁹ HL7, Consolidated CDA. http://www.hl7.org/implement/standards/product_brief.cfm?product_id=258

therefore no patients in the Denominator Exclusions, Denominator Exceptions, and Numerator populations), the Performance Rate is null (using a nullFlavor of “NA”).

Many of the conformance rules in this guide are recommended and optional. Organizations receiving reports may choose to define their own implementation guides, based on this one, that require data defined as recommended (**SHOULD**) or optional (**MAY**). They may also choose to place other requirements and constraints on the reporting institutions.

2.3 Organizational Roles

Organizational roles in QRDA Category III are defined as in QRDA Category I, where several CDA Header participations can be played by the same person. In such cases, the person should be identified as the player for each appropriate participation. For instance, if a person is both the author and the legal authenticator of a document, the CDA Header should identify that person as both the author participant and the legal authenticator participant.

On other occasions, CDA Header participants are played by different people. The following table shows a number of scenarios and the appropriate values for various participants. Where a QRDA Category III report is created by a registry or other intermediary, the author is the registry, whereas the organization that owns and reports the data to the registry is the custodian.

Table 2: Header Participant Scenarios

Scenario	Author	Custodian	Legal Authenticator
QRDA is wholly constructed automatically by device	Device	Organization that owns and reports the data (e.g., hospital)	A designated person in the organization (may be assigned to the report automatically)
QRDA is partially constructed automatically by device, partially constructed by quality manager	Device; Quality Manager	Organization that owns and reports the data (e.g., hospital)	A designated person in the organization (such as the Quality Manager)
QRDA is constructed manually (e.g., by an organization that doesn't have an EHR)	Quality Manager	Organization that owns and reports the data (e.g., hospital)	A designated person in the organization (such as the Quality Manager)
QRDA is constructed by a registry or other intermediary	Registry device or person	Organization that owns and reports the data to the registry (e.g., hospital)	A designated person in the registry

The following table shows two header relationship scenarios in QRDA CATEGORY III and the appropriate values.

Table 3: Header Relationship Scenarios

Scenario	DocumentationOf/ServiceEvent	AuthorizationOf/Consent
QRDA is wholly constructed by a registry	Captures the detail of the providers at the care providing institutions	Indicates the eligible professional has given the data submission vendor registry permission to submit data on their behalf
QRDA is wholly constructed by a provider/provider system	Captures the detail of the providers at the care providing institutions	Not Applicable

3 DOCUMENT

3.1 QRDA Category III Report (V4)

[ClinicalDocument: identifier
urn:hl7ii:2.16.840.1.113883.10.20.27.1.1:2017-06-01 (open)]

Table 4: QRDA Category III Report (V4) Contexts

Contained By:	Contains:
	Advancing Care Information Section (V2) Improvement Activity Section (V2) QRDA Category III Measure Section (V4) QRDA Category III Reporting Parameters Section

This template describes constraints that apply to the Quality Reporting Document Architecture (QRDA) Document Category III Report. Document-level templates describe the rules for constructing a conforming CDA document. Document templates include constraints on the CDA header and identify contained section-level templates.

The document-level template contains the following information:

- Description and explanatory narrative
- Template metadata (e.g., templateId, etc.)
- Header constraints
- Required section-level templates

A QRDA Category III Report must contain at least one QRDA Category III Measure Section, or an improvement activity Section, or an advancing care information Section.

Table 5: QRDA Category III Report (V4) Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
ClinicalDocument (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.1.1:2017-06-01)					
realmCode	1..1	SHALL		3338-17226	
@code	1..1	SHALL		3338-17227	US
typeId	1..1	SHALL		3338-18186	
@root	1..1	SHALL		3338-18187	2.16.840.1.113883.1.3
@extension	1..1	SHALL		3338-18188	POCD_HD000040
templateId	1..1	SHALL		3338-17208	
@root	1..1	SHALL		3338-17209	2.16.840.1.113883.10.20.27.1.1
@extension	1..1	SHALL		3338-21319	2017-06-01
id	1..1	SHALL		3338-17236	
code	1..1	SHALL		3338-17210	
@code	1..1	SHALL		3338-19549	55184-6
@codeSystem	1..1	SHALL		3338-21166	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 2.16.840.1.113883.6.1
title	1..1	SHALL		3338-17211	
effectiveTime	1..1	SHALL		3338-17237	
confidentialityCode	1..1	SHALL		3338-17238	urn:oid:2.16.840.1.113883.1.11.16926 (HL7 BasicConfidentialityKind)
languageCode	1..1	SHALL		3338-17239	
@code	1..1	SHALL		3338-19669	urn:oid:2.16.840.1.113883.1.11.11526 (Language)
versionNumber	0..1	SHOULD		3338-18260	
recordTarget	1..1	SHALL		3338-17212	

patientRole	1..1	SHALL		3338-17232	
id	1..1	SHALL		3338-17233	
@nullFlavor	1..1	SHALL		3338-17234	NA
author	1..*	SHALL		3338-18156	
time	1..1	SHALL		3338-18158	
assignedAuthor	1..1	SHALL		3338-18157	
assignedPerson	0..1	MAY		3338-18368	
assignedAuthoringDevice	0..1	MAY		3338-18162	
softwareName	1..1	SHALL		3338-18262	
representedOrganization	1..1	SHALL		3338-18163	
name	1..*	SHALL		3338-18265	
custodian	1..1	SHALL		3338-17213	
assignedCustodian	1..1	SHALL		3338-17214	
representedCustodianOrganization	1..1	SHALL		3338-17215	
id	1..*	SHALL		3338-18165	
name	0..1	SHOULD		3338-18166	
legalAuthenticator	1..1	SHALL		3338-17225	
time	1..1	SHALL		3338-18167	
signatureCode	1..1	SHALL		3338-18168	
@code	1..1	SHALL		3338-18169	S
assignedEntity	1..1	SHALL		3338-19670	
representedOrganization	0..1	MAY		3338-	

				19671	
id	1..*	SHALL		3338-19672	
name	0..1	SHOULD		3338-19673	
participant	0..*	MAY		3338-18300	
@typeCode	1..1	SHALL		3338-18301	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = DEV
associatedEntity	1..1	SHALL		3338-18302	
@classCode	1..1	SHALL		3338-18303	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = RGPR
id	0..1	MAY		3338-18304	
@root	1..1	SHALL		3338-18305	2.16.840.1.113883.3.2074.1
id	0..1	MAY		3338-18380	
@root	1..1	SHALL		3338-18381	2.16.840.1.113883.3.249.21
id	1..*	SHALL		3338-20954	
code	1..1	SHALL		3338-18308	
@code	1..1	SHALL		3338-18309	129465004
@codeSystem	1..1	SHALL		3338-21167	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 2.16.840.1.113883.6.96
documentationOf	0..1	MAY		3338-18170	
serviceEvent	1..1	SHALL		3338-18171	
@classCode	1..1	SHALL		3338-18172	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = PCPR
performer	1..*	SHALL		3338-18173	
@typeCode	1..1	SHALL		3338-18174	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = PRF
time	0..1	MAY		3338-18175	
assignedEntity	1..1	SHALL		3338-18176	

id	1..1	SHALL		3338-18177	
@root	0..1	MAY		3338-18178	2.16.840.1.113883.4.6
@extension	0..1	MAY		3338-18247	
id	1..*	SHALL		3338-19474	
telecom	0..*	MAY		3338-18310	
representedOrganization	1..1	SHALL		3338-18180	
id	0..1	MAY		3338-18181	
@root	1..1	SHALL		3338-18182	2.16.840.1.113883.4.2
@extension	1..1	SHALL		3338-18190	
id	0..1	MAY		3338-18183	
@root	1..1	SHALL		3338-18184	2.16.840.1.113883.4.336
@extension	1..1	SHALL		3338-18185	
name	0..*	SHOULD		3338-19659	
authorization	0..1	MAY		3338-18344	
consent	1..1	SHALL		3338-18360	
id	1..1	SHALL		3338-18361	
code	1..1	SHALL		3338-18363	
@code	1..1	SHALL		3338-19550	425691002
@codeSystem	1..1	SHALL		3338-21172	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 2.16.840.1.113883.6.96
statusCode	1..1	SHALL		3338-18364	
@code	1..1	SHALL		3338-19551	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
component	1..1	SHALL		3338-	

				17217	
structuredBody	1..1	SHALL		3338-17235	
component	0..1	MAY		3338-17281	
section	1..1	SHALL		3338-17282	QRDA Category III Reporting Parameters Section (identifier: urn:oid:2.16.840.1.113883.10.2.0.27.2.2)
component	0..1	MAY		3338-17283	
section	1..1	SHALL		3338-17301	QRDA Category III Measure Section (V4) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.2.1:2017-06-01)
component	0..1	MAY		3338-21173	
section	1..1	SHALL		3338-21174	Improvement Activity Section (V2) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.2.4:2017-06-01)
component	0..1	MAY		3338-21317	
section	1..1	SHALL		3338-21318	Advancing Care Information Section (V2) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.2.5:2017-06-01)

3.1.1 QRDA Category III Header Constraints

1. **SHALL** contain exactly one [1..1] **realmCode** (CONF:3338-17226).
 - a. This realmCode **SHALL** contain exactly one [1..1] **@code="US"** (CONF:3338-17227).
2. **SHALL** contain exactly one [1..1] **typeId** (CONF:3338-18186).
 - a. This typeId **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.1.3"** (CONF:3338-18187).
 - b. This typeId **SHALL** contain exactly one [1..1] **@extension="POCD_HD000040"** (CONF:3338-18188).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:3338-17208) such that it
 - a. **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.27.1.1"** (CONF:3338-17209).
 - b. **SHALL** contain exactly one [1..1] **@extension="2017-06-01"** (CONF:3338-21319).
4. **SHALL** contain exactly one [1..1] **id** (CONF:3338-17236).

- a. This id **SHALL** be a globally unique identifier for the document (CONF:3338-17242).
- 5. **SHALL** contain exactly one [1..1] **code** (CONF:3338-17210).
 - a. This code **SHALL** contain exactly one [1..1] **@code**="55184-6" Quality Reporting Document Architecture Calculated Summary Report (CONF:3338-19549).
 - 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:3338-21166).
- 6. **SHALL** contain exactly one [1..1] **title** (CONF:3338-17211).
- 7. **SHALL** contain exactly one [1..1] **effectiveTime** (CONF:3338-17237).
 - a. The content **SHALL** be a conformant US Realm Date and Time (DTM.US.FIELDDED) (2.16.840.1.113883.10.20.22.5.4) (CONF:3338-18189).

3.1.2 ConfidentialityCode

- 8. **SHALL** contain exactly one [1..1] **confidentialityCode**, which **SHOULD** be selected from ValueSet [HL7 BasicConfidentialityKind](#) urn:oid:2.16.840.1.113883.1.11.16926 **STATIC** (CONF:3338-17238).

3.1.3 LanguageCode

- 9. **SHALL** contain exactly one [1..1] **languageCode** (CONF:3338-17239).
 - a. This languageCode **SHALL** contain exactly one [1..1] **@code**, which **SHALL** be selected from ValueSet [Language](#) urn:oid:2.16.840.1.113883.1.11.11526 **DYNAMIC** (CONF:3338-19669).
- 10. **SHOULD** contain zero or one [0..1] **versionNumber** (CONF:3338-18260).

3.1.4 RecordTarget

QRDA III is an aggregate summary report. Therefore CDA's required recordTarget/id is nulled. The recordTarget element is designed for single patient data and is required in all CDA documents. In this case, the document does not contain results for a single patient, but rather for groups of patients, and thus the recordTarget ID in QRDA Category III documents contains a nullFlavor attribute (is nulled).

- 11. **SHALL** contain exactly one [1..1] **recordTarget** (CONF:3338-17212).
 - a. This recordTarget **SHALL** contain exactly one [1..1] **patientRole** (CONF:3338-17232) such that it
 - i. **SHALL** contain exactly one [1..1] **id** (CONF:3338-17233).
 - 1. This id **SHALL** contain exactly one [1..1] **@nullFlavor**="NA" (CONF:3338-17234).

Figure 15: recordTarget Nulled Id Example

```
<recordTarget>
  <patientRole>
    <id nullFlavor="NA"/>
  </patientRole>
</recordTarget>
```

3.1.5 Author

The CDA standard requires an author with an identifier. In addition, the QRDA Category III document type requires that the author be declared as a person or a device. The document can be authored solely by a person or by a device, or the document could be authored by a combination of one or more devices and/or one or more people.

12. **SHALL** contain at least one [1..*] **author** (CONF:3338-18156) such that it
- a. **SHALL** contain exactly one [1..1] **time** (CONF:3338-18158).
 - b. **SHALL** contain exactly one [1..1] **assignedAuthor** (CONF:3338-18157).
 - i. This **assignedAuthor** **MAY** contain zero or one [0..1] **assignedPerson** (CONF:3338-18368).
 - ii. This **assignedAuthor** **MAY** contain zero or one [0..1] **assignedAuthoringDevice** (CONF:3338-18162).
 1. The **assignedAuthoringDevice**, if present, **SHALL** contain exactly one [1..1] **softwareName** (CONF:3338-18262).
 - iii. This **assignedAuthor** **SHALL** contain exactly one [1..1] **representedOrganization** (CONF:3338-18163).
 1. This **representedOrganization** **SHALL** contain at least one [1..*] **name** (CONF:3338-18265).
 - c. There **SHALL** be exactly one **assignedAuthor/assignedPerson** or exactly one **assignedAuthor/assignedAuthoringDevice** (CONF:3338-19667).

Figure 16: Device Author Example

```
<author>
  <time value="20160201"/>
  <assignedAuthor>
    <!-- author ID. This may be an NPI, or any other type of ID. -->
    <id root="2.16.840.1.113883.4.6" extension="111111111"
      assigningAuthorityName="NPI"/>
    <assignedAuthoringDevice>
      <softwareName>SOME Data Aggregator Transform Tool KP00017dev
    </softwareName>
    </assignedAuthoringDevice>
    <representedOrganization>
      <!-- The organization id is optional, but the name is required -->
      <id root="2.16.840.1.113883.19.5" extension="98765"/>
      <name>Good Health Hospital</name>
    </representedOrganization>
  </assignedAuthor>
</author>
```

Figure 17: Person Author Example

```
<author>
  <time value="20160201224411+0500"/>
  <assignedAuthor>
    <!-- author ID. This may be an NPI, or any other type of ID. -->
    <id root="2.16.840.1.113883.4.6" extension="111111112"
      assigningAuthorityName="NPI"/>
    <assignedPerson>
      <name>
        <given>Henry</given>
        <family>Seven</family>
      </name>
    </assignedPerson>
    <representedOrganization>
      <!-- The organization id is optional -->
      <id root="2.16.840.1.113883.19.5" extension="5454545"/>
      <name>Good Health Hospital</name>
    </representedOrganization>
  </assignedAuthor>
</author>
```

3.1.6 Custodian

13. **SHALL** contain exactly one [1..1] **custodian** (CONF:3338-17213).
 - a. This custodian **SHALL** contain exactly one [1..1] **assignedCustodian** (CONF:3338-17214).
 - i. This assignedCustodian **SHALL** contain exactly one [1..1] **representedCustodianOrganization** (CONF:3338-17215).
 1. This representedCustodianOrganization **SHALL** contain at least one [1..*] **id** (CONF:3338-18165).
 2. This representedCustodianOrganization **SHOULD** contain zero or one [0..1] **name** (CONF:3338-18166).
 - b. This assignedCustodian **SHALL** represent the organization that owns and reports the data (CONF:3338-18246).

Figure 18: Custodian Example

```
<custodian>
  <assignedCustodian>
    <representedCustodianOrganization>
      <!-- This is an example root -->
      <id root="2.16.840.1.113883.19.5"/>
      <name>Good Health Hospital</name>
    </representedCustodianOrganization>
  </assignedCustodian>
</custodian>
```

3.1.7 legalAuthenticator

14. **SHALL** contain exactly one [1..1] **legalAuthenticator** (CONF:3338-17225).

- a. This legalAuthenticator **SHALL** contain exactly one [1..1] **time** (CONF:3338-18167).
- b. This legalAuthenticator **SHALL** contain exactly one [1..1] **signatureCode** (CONF:3338-18168).
 - i. This signatureCode **SHALL** contain exactly one [1..1] **@code="S"** (CONF:3338-18169).
- c. This legalAuthenticator **SHALL** contain exactly one [1..1] **assignedEntity** (CONF:3338-19670).
 - i. This assignedEntity **MAY** contain zero or one [0..1] **representedOrganization** (CONF:3338-19671).
 - 1. The representedOrganization, if present, **SHALL** contain at least one [1..*] **id** (CONF:3338-19672).
 - 2. The representedOrganization, if present, **SHOULD** contain zero or one [0..1] **name** (CONF:3338-19673).

Figure 19: LegalAuthenticator Example

```
<legalAuthenticator>
  <time value="20160201"/>
  <signatureCode code="S"/>
  <assignedEntity>
    <id root="bc01a5d1-3a34-4286-82cc-43eb04c972a7"/>
    <representedOrganization>
      <!-- example root -->
      <id root="2.16.840.1.113883.19.5"/>
      <name>Good Health Hospital</name>
    </representedOrganization>
  </assignedEntity>
</legalAuthenticator>
```

3.1.8 Participant

The generic participant with a participationType of device and an associatedEntity class code of RGPR (regulated product) is used to represent Electronic Health Record (EHR) government agency certification identifiers.

- 15. **MAY** contain zero or more [0..*] **participant** (CONF:3338-18300) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode="DEV"** device (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90 **STATIC**) (CONF:3338-18301).
 - b. **SHALL** contain exactly one [1..1] **associatedEntity** (CONF:3338-18302).
 - i. This associatedEntity **SHALL** contain exactly one [1..1] **@classCode="RGPR"** regulated product (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:3338-18303).

If the EHR has an ONC Certification Number, the value of the root attribute is as specified and the value of the extension attribute is the Certification Number.

- i. This associatedEntity **MAY** contain zero or one [0..1] **id** (CONF:3338-18304) such that it

1. **SHALL** contain exactly one [1..1]
`@root="2.16.840.1.113883.3.2074.1"` Office of the
National Coordinator Certification Number (CONF:3338-
18305).

If the EHR has a CMS Security Code (a unique identifier assigned by CMS for each qualified EHR vendor application), the value of the root attribute is as specified and the value of the extension attribute is the CMS Security Code.

- i. This associatedEntity **MAY** contain zero or one [0..1] **id** (CONF:3338-18380) such that it
 1. **SHALL** contain exactly one [1..1]
`@root="2.16.840.1.113883.3.249.21"` CMS Certified EHR
Security Code Identifier (CONF:3338-18381).
- ii. This associatedEntity **SHALL** contain at least one [1..*] **id** (CONF:3338-20954).
- iii. This associatedEntity **SHALL** contain exactly one [1..1] **code** (CONF:3338-18308).
 1. This code **SHALL** contain exactly one [1..1]
`@code="129465004"` medical record, device (CONF:3338-18309).
 2. 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:3338-21167).

Figure 20: Participant Example

```
<participant typeCode="DEV">
  <associatedEntity classCode="RGPR">
    <!-- SHALL have at least one id, form can vary -->
    <!-- if the EHR has an ONC certification number, SHOULD use it here -->
    <id root="2.16.840.1.113883.3.2074.1" extension="1a2b3c"
      assigningAuthorityName="ONC"/>
    <!-- if the EHR has a CMS Security Code, MAY use it here -->
    <id root="2.16.840.1.113883.3.249.21" extension="98765"/>
    <code code="129465004" displayName="medical record, device"
      codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED-CT"/>
  </associatedEntity>
</participant>
```

3.1.9 DocumentationOf

The aggregated data contained in a QRDA Category III report was provided by one or more providers. The documentationOf service event can contain identifiers for all of the (one or more) providers involved, using the serviceEvent/performer elements. A serviceEvent/performer element must be present for each performer reporting data to a quality organization.

16. **MAY** contain zero or one [0..1] **documentationOf** (CONF:3338-18170).

- a. The documentationOf, if present, **SHALL** contain exactly one [1..1] **serviceEvent** (CONF:3338-18171).
 - i. This serviceEvent **SHALL** contain exactly one [1..1] **@classCode="PCPR"** Care Provision (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:3338-18172).
 - ii. This serviceEvent **SHALL** contain at least one [1..*] **performer** (CONF:3338-18173).
 1. Such performers **SHALL** contain exactly one [1..1] **@typeCode="PRF"** Performer (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90 **STATIC**) (CONF:3338-18174).
 2. Such performers **MAY** contain zero or one [0..1] **time** (CONF:3338-18175).
 3. Such performers **SHALL** contain exactly one [1..1] **assignedEntity** (CONF:3338-18176).

This assignedEntity id/@root coupled with the id/@extension can be used to represent the individual provider's National Provider Identification number (NPI). Other assignedEntity ids may be present.

- a. This assignedEntity **SHALL** contain exactly one [1..1] **id** (CONF:3338-18177) such that it
 - i. **MAY** contain zero or one [0..1] **@root="2.16.840.1.113883.4.6"** National Provider ID (CONF:3338-18178).
 - ii. **MAY** contain zero or one [0..1] **@extension** (CONF:3338-18247).
- b. This assignedEntity **SHALL** contain at least one [1..*] **id** (CONF:3338-19474).
- c. This assignedEntity **MAY** contain zero or more [0..*] **telecom** (CONF:3338-18310).
- d. This assignedEntity **SHALL** contain exactly one [1..1] **representedOrganization** (CONF:3338-18180).

This representedOrganization id/@root coupled with the id/@extension can be used to represent the organization's Tax Identification Number (TIN). Other representedOrganization ids may be present.

- i. This representedOrganization **MAY** contain zero or one [0..1] **id** (CONF:3338-18181) such that it
 1. **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.4.2"** Tax ID Number (CONF:3338-18182).
 2. **SHALL** contain exactly one [1..1] **@extension** (CONF:3338-18190).

This representedOrganization id/@root coupled with the id/@extension represents the organization's Facility CMS Certification Number (CCN). Other representedOrganization ids may be present.

- i. This representedOrganization **MAY** contain zero or one [0..1] **id** (CONF:3338-18183) such that it
 1. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.4.336" Facility CMS Certification Number (CONF:3338-18184).
 2. **SHALL** contain exactly one [1..1] **@extension** (CONF:3338-18185).
- ii. This representedOrganization **SHOULD** contain zero or more [0..*] **name** (CONF:3338-19659).

Figure 21: documentationOf Example

```
<documentationOf typeCode="DOC">
  <serviceEvent classCode="PCPR">
    <!-- Multiple performers can be included with their TIN and/or NPI -->
    <performer typeCode="PRF">
      <assignedEntity>
        <!-- SHALL contain at least one id -->
        <!-- Optional Provider NPI -->
        <id root="2.16.840.1.113883.4.6"
          extension="111111111"
          assigningAuthorityName="NPI"/>
        <representedOrganization>
          <!-- Optional Organization TIN -->
          <id root="2.16.840.1.113883.4.2" extension="1234567"
            assigningAuthorityName="TIN"/>
        </representedOrganization>
      </assignedEntity>
    </performer>
  </serviceEvent>
</documentationOf>
```

3.1.10 Authorization

If the data is submitted through an intermediary such as a data submission vendor, this authorization represents that the eligible professional has given permission to release the report.

17. **MAY** contain zero or one [0..1] **authorization** (CONF:3338-18344).
 - a. The authorization, if present, **SHALL** contain exactly one [1..1] **consent** (CONF:3338-18360).

The consent/id is the identifier of the consent given by the eligible provider.

- i. This consent **SHALL** contain exactly one [1..1] **id** (CONF:3338-18361).
- ii. This consent **SHALL** contain exactly one [1..1] **code** (CONF:3338-18363).

1. This code **SHALL** contain exactly one [1..1]
@code="425691002" Consent given for electronic record sharing (CONF:3338-19550).
2. 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:3338-21172).
- iii. This consent **SHALL** contain exactly one [1..1] **statusCode** (CONF:3338-18364).
 1. This statusCode **SHALL** contain exactly one [1..1]
@code="completed" Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3338-19551).

Figure 22: Participation Waiver Example

```
<authorization>
  <consent>
    <id root="84613250-e75e-11e1-aff1-0800200c9a66"/>
    <code code="425691002"
      displayName="consent given for electronic record sharing"
      codeSystem="2.16.840.1.113883.6.96"
      codeSystemName="SNOMED-CT"/>
    <statusCode code="completed"/>
  </consent>
</authorization>
```

3.2 QRDA Category III Body Constraints

A QRDA Category III document may contain a Reporting Parameters Section and must contain at least a QRDA Category III Measure section, an Improvement Activity section, or an Advancing Care Information section.

18. **SHALL** contain exactly one [1..1] **component** (CONF:3338-17217).
 - a. This component **SHALL** contain exactly one [1..1] **structuredBody** (CONF:3338-17235).
 - i. This structuredBody **MAY** contain zero or one [0..1] **component** (CONF:3338-17281) such that it
 1. **SHALL** contain exactly one [1..1] [QRDA Category III Reporting Parameters Section](#) (identifier: urn:oid:2.16.840.1.113883.10.20.27.2.2) (CONF:3338-17282).
 - ii. This structuredBody **MAY** contain zero or one [0..1] **component** (CONF:3338-17283) such that it
 1. **SHALL** contain exactly one [1..1] [QRDA Category III Measure Section \(V4\)](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.2.1:2017-06-01) (CONF:3338-17301).
 - iii. This structuredBody **MAY** contain zero or one [0..1] **component** (CONF:3338-21173) such that it

1. **SHALL** contain exactly one [1..1] [Improvement Activity Section \(V2\)](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.2.4:2017-06-01) (CONF:3338-21174).
- iv. This structuredBody **MAY** contain zero or one [0..1] **component** (CONF:3338-21317) such that it
 1. **SHALL** contain exactly one [1..1] [Advancing Care Information Section \(V2\)](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.2.5:2017-06-01) (CONF:3338-21318).
- v. This structuredBody **SHALL** contain at least a QRDA Category III Measure Section (V4), or an Improvement Activity Section (V2), or an Advancing Care Information Section (V2) (CONF:3338-21394).

Figure 23: Body Example

```

<component>
  <structuredBody>
    <component>
      <section>
        ...
        <!-- Reporting Parameters -->
        ...
      </section>
    </component>
    <component>
      <section>
        ...
        <!-- QRDA Category III Measure Section -->
        ...
      </section>
    </component>
    <component>
      <section>
        ...
        <!-- Clinical Practice Improvement Activity Section -->
        ...
      </section>
    </component>
    <component>
      <section>
        ...
        <!-- Advancing Care Information Section -->
        ...
      </section>
    </component>
  </structuredBody>
</component>

```

4 SECTION-LEVEL TEMPLATES

This chapter contains the section-level templates. Section-level templates are always included in a document with a structured body.

Each section-level template contains the following:

- Template metadata (e.g., `templateId`)
- Description and explanatory narrative
- LOINC section code
- Section title
- Entry-level template names and `ids` for referenced templates.

The text element within the section stores the narrative to be rendered, as described in the CDA R2 specification, Section 4.3.5²⁰, and is referred to as the CDA narrative block.

The content model of the CDA narrative block schema is hand crafted to meet requirements of human readability and rendering. The schema is registered as a MIME type (`text/x-hl7-text+xml`), which is the fixed media type for the text element.

As noted in the CDA R2 specification, the document originator is responsible for ensuring that the narrative block contains the complete, human readable, attested content of the section. Structured entries support computer processing and computation and are not a replacement for the attestable, human-readable content of the CDA narrative block. The special case of structured entries with an entry relationship of "DRIV" (is derived from) indicates to the receiving application that the source of the narrative block is the structured entries, and that the narrative is wholly derived from the structured entries.

As for all CDA documents—even when a report consisting entirely of structured entries is transformed into CDA—the encoding application must ensure that the authenticated content (narrative plus multimedia) is a faithful and complete rendering of the clinical content of the structured source data. As a general guideline, a generated narrative block should include the same human readable content that would be available to users viewing that content in the originating system. Although content formatting in the narrative block need not be identical to that in the originating system, the narrative block should use elements from the CDA narrative block schema to provide sufficient formatting to support human readability when rendered according to the rules defined in Section Narrative Block (§ 4.3.5) of the CDA R2 specification.

By definition, a receiving application cannot assume that all clinical content in a section (i.e., in the narrative block and multimedia) is contained in the structured entries unless the entries in the section have an entry relationship of "DRIV".

Additional specification information for the CDA narrative block can be found in the CDA R2 specification in sections 1.2.1, 1.2.3, 1.3, 1.3.1, 1.3.2, 4.3.4.2, and 6.

²⁰ HL7 Clinical Document Architecture, Release 2 (April 21, 2005).
<http://www.hl7.org/v3ballot/html/infrastructure/cda/cda.htm>

4.1 Measure Section

[section: identifier urn:oid:2.16.840.1.113883.10.20.24.2.2 (open)]

Table 6: Measure Section Contexts

Contained By:	Contains:
	Measure Reference

This section contains information about the measure or measures being reported. This section references the measure through reference to an externalDocument. The externalDocument/ids and version numbers are used to reference the measure. The measure section must contain a reference to at least one externalDocument id of all the measures being reported in the QRDA instance.

Table 7: Measure Section Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
section (identifier: urn:oid:2.16.840.1.113883.10.20.24.2.2)					
templateId	1..1	SHALL		67-12801	
@root	1..1	SHALL		67-12802	2.16.840.1.113883.10.20.24.2.2
code	1..1	SHALL		67-12798	
@code	1..1	SHALL		67-19230	55186-1
@codeSystem	1..1	SHALL		67-27012	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 2.16.840.1.113883.6.1
title	1..1	SHALL		67-12799	Measure Section
text	1..1	SHALL		67-12800	
entry	1..*	SHALL		67-13003	
organizer	1..1	SHALL		67-16677	Measure Reference (identifier: urn:oid:2.16.840.1.113883.10.20.24.3.98)

1. **SHALL** contain exactly one [1..1] **templateId** (CONF:67-12801) such that it
 - a. **SHALL** contain exactly one [1..1]

 @root="2.16.840.1.113883.10.20.24.2.2" (CONF:67-12802).
2. **SHALL** contain exactly one [1..1] **code** (CONF:67-12798).

- a. This code **SHALL** contain exactly one [1..1] @code="55186-1" Measure Section (CONF:67-19230).
- 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:67-27012).
3. **SHALL** contain exactly one [1..1] title="Measure Section" (CONF:67-12799).
4. **SHALL** contain exactly one [1..1] text (CONF:67-12800).
5. **SHALL** contain at least one [1..*] entry (CONF:67-13003) such that it
 - a. Such entries **SHALL** contain exactly one [1..1] [Measure Reference](#) (identifier: urn:oid:2.16.840.1.113883.10.20.24.3.98) (CONF:67-16677).

4.1.1 Advancing Care Information Section (V2)

[section: identifier urn:hl7ii:2.16.840.1.113883.10.20.27.2.5:2017-06-01 (open)]

Table 8: Advancing Care Information Section (V2) Contexts

Contained By:	Contains:
QRDA Category III Report (V4) (optional)	Advancing Care Information Measure Performed Measure Reference and Results Advancing Care Information Numerator Denominator Type Measure Reference and Results (V2) Reporting Parameters Act

This section references the advancing care information measures being reported.

Table 9: Advancing Care Information Section (V2) Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
section (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.2.5:2017-06-01)					
templateId	1..1	SHALL		3338-21231	
@root	1..1	SHALL		3338-21233	2.16.840.1.113883.10.20.27.2.5
@extension	1..1	SHALL		3338-21395	2017-06-01
entry	0..*	MAY		3338-21380	
organizer	1..1	SHALL		3338-21381	Advancing Care Information Numerator Denominator Type Measure Reference and Results (V2) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.28:2017-06-01)
entry	0..*	MAY		3338-21315	
organizer	1..1	SHALL		3338-21437	Advancing Care Information Measure Performed Measure Reference and Results (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.29:2016-09-01)
entry	1..1	SHALL		3338-21440	
act	1..1	SHALL		3338-21441	Reporting Parameters Act (identifier: urn:oid:2.16.840.1.113883.10.20.17.3.8)
entry	1..*	SHALL		3338-21438	

1. Conforms to [Measure Section](#) template (identifier: urn:oid:2.16.840.1.113883.10.20.24.2.2).
2. **SHALL** contain exactly one [1..1] **templateId** (CONF:3338-21231) such that it
 - a. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.27.2.5" (CONF:3338-21233).
 - b. **SHALL** contain exactly one [1..1] **@extension**="2017-06-01" (CONF:3338-21395).
3. **MAY** contain zero or more [0..*] **entry** (CONF:3338-21380) such that it
 - a. **SHALL** contain exactly one [1..1] [Advancing Care Information Numerator Denominator Type Measure Reference and Results \(V2\)](#) (identifier:

- urn:hl7ii:2.16.840.1.113883.10.20.27.3.28:2017-06-01) (CONF:3338-21381).
4. **MAY** contain zero or more [0..*] **entry** (CONF:3338-21315) such that it
 - a. **SHALL** contain exactly one [1..1] [Advancing Care Information Measure Performed Measure Reference and Results](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.29:2016-09-01) (CONF:3338-21437).
 5. **SHALL** contain exactly one [1..1] **entry** (CONF:3338-21440) such that it
 - a. **SHALL** contain exactly one [1..1] [Reporting Parameters Act](#) (identifier: urn:oid:2.16.840.1.113883.10.20.17.3.8) (CONF:3338-21441).
 6. **SHALL** contain at least one [1..*] **entry** (CONF:3338-21438).
 - a. This advancing care information Section **SHALL** contain at least an Advancing Care Information Numerator Denominator Type Measure Reference and Results or an Advancing Care Information Measure Performed Reference and Results (CONF:3338-21439).

Figure 24: Advancing Care Information Section Example

```
<component>
  <!-- Measure Section -->
  <section>
    <templateId root="2.16.840.1.113883.10.20.24.2.2"/>
    <!-- Advancing Care Information Section templateId -->
    <templateId root="2.16.840.1.113883.10.20.27.2.5" extension="2017-06-01"/>
    <code code="55186-1" codeSystem="2.16.840.1.113883.6.1" displayName="Measure
Section"/>
    <title>Measure Section</title>
    <text>
...
  </text>
    <entry>
      <organizer>
        <!-- Advancing Care Information Numerator Denominator Type Measure
Reference and Results -->
        ...
      </organizer>
    </entry>
    <entry>
      <organizer>
        <!-- Advancing Care Information Measure Performed Measure Reference and
Result -->
        ...
      </organizer>
    </entry>
    <entry>
      <act>
        <!--Reporting Parameters Act -->
        ...
      </act>
    </entry>
  </section>
</component>
```

4.1.2 Improvement Activity Section (V2)

[section: identifier urn:hl7ii:2.16.840.1.113883.10.20.27.2.4:2017-06-01 (open)]

Table 10: Improvement Activity Section (V2) Contexts

Contained By:	Contains:
QRDA Category III Report (V4) (optional)	Improvement Activity Performed Measure Reference and Results Reporting Parameters Act

This section references the improvement activities being reported. Examples of activities may include care coordination, shared decision-making, safety checklists, expanded practice access. This section includes entries for reporting activities that are met (with yes answer).

Table 11: Improvement Activity Section (V2) Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
section (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.2.4:2017-06-01)					
templateId	1..1	SHALL		3338-21175	
@root	1..1	SHALL		3338-21177	2.16.840.1.113883.10.20.27.2.4
@extension	1..1	SHALL		3338-21398	2017-06-01
entry	1..*	SHALL		3338-21181	
organizer	1..1	SHALL		3338-21436	Improvement Activity Performed Measure Reference and Results (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.33:2016-09-01)
entry	1..1	SHALL		3338-21447	
act	1..1	SHALL		3338-21448	Reporting Parameters Act (identifier: urn:oid:2.16.840.1.113883.10.20.17.3.8)

1. Conforms to [Measure Section](#) template (identifier: urn:oid:2.16.840.1.113883.10.20.24.2.2).
2. **SHALL** contain exactly one [1..1] **templateId** (CONF:3338-21175) such that it
 - a. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.27.2.4" (CONF:3338-21177).
 - b. **SHALL** contain exactly one [1..1] **@extension**="2017-06-01" (CONF:3338-21398).
3. **SHALL** contain at least one [1..*] **entry** (CONF:3338-21181) such that it
 - a. **SHALL** contain exactly one [1..1] [Improvement Activity Performed Measure Reference and Results](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.33:2016-09-01) (CONF:3338-21436).
4. **SHALL** contain exactly one [1..1] **entry** (CONF:3338-21447) such that it
 - a. **SHALL** contain exactly one [1..1] [Reporting Parameters Act](#) (identifier: urn:oid:2.16.840.1.113883.10.20.17.3.8) (CONF:3338-21448).

Figure 25: Improvement Activity Section Example

```

<component>
  <section>
    <!-- Measure Section -->
    <templateId root="2.16.840.1.113883.10.20.24.2.2"/>
    <!-- Improvement Activity Section templateId -->
    <templateId root="2.16.840.1.113883.10.20.27.2.4" extension="2017-06-01"/>
    <code code="55186-1" codeSystem="2.16.840.1.113883.6.1" displayName="Measure
Section"/>
    <title>Measure Section</title>
    <text>
    ...
  </text>
  <entry>
    <!-- Improvement Activity Performed Reference and Results -->
    <organizer classCode="CLUSTER" moodCode="EVN">
      ...
    </organizer>
  </entry>
  <entry>
    <act>
      <!--Reporting Parameters Act -->
      ...
    </act>
  </entry>
</section>
</component>

```

4.1.3 QRDA Category III Measure Section (V4)

[section: identifier urn:hl7ii:2.16.840.1.113883.10.20.27.2.1:2017-06-01 (open)]

Table 12: QRDA Category III Measure Section (V4) Contexts

Contained By:	Contains:
QRDA Category III Report (V4) (optional)	Measure Reference and Results (V3) Reporting Parameters Act

This section references the measure(s) being reported. For each reported measure, this section includes entries for reporting various aggregate counts (e.g. number of patients in the measure’s denominator). For continuous variable measures, this section includes entries for reporting the continuous variables. This section can also include entries not only for aggregate counts, but stratified aggregate counts (e.g. not just total number of patients in the denominator, but also the number of males in the denominator).

Table 13: QRDA Category III Measure Section (V4) Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
section (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.2.1:2017-06-01)					
templateId	1..1	SHALL		3338-17284	
@root	1..1	SHALL		3338-17285	2.16.840.1.113883.10.20.27.2.1
@extension	1..1	SHALL		3338-21171	2017-06-01
entry	1..*	SHALL		3338-17906	
organizer	1..1	SHALL		3338-17907	Measure Reference and Results (V3) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.1:2016-09-01)
entry	1..1	SHALL		3338-21445	
act	1..1	SHALL		3338-21446	Reporting Parameters Act (identifier: urn:oid:2.16.840.1.113883.10.20.17.3.8)

1. Conforms to [Measure Section](#) template (identifier: urn:oid:2.16.840.1.113883.10.20.24.2.2).
2. **SHALL** contain exactly one [1..1] **templateId** (CONF:3338-17284) such that it
 - a. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.27.2.1" (CONF:3338-17285).
 - b. **SHALL** contain exactly one [1..1] **@extension**="2017-06-01" (CONF:3338-21171).
3. **SHALL** contain at least one [1..*] **entry** (CONF:3338-17906) such that it
 - a. **SHALL** contain exactly one [1..1] [Measure Reference and Results \(V3\)](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.1:2016-09-01) (CONF:3338-17907).
4. **SHALL** contain exactly one [1..1] **entry** (CONF:3338-21445) such that it
 - a. **SHALL** contain exactly one [1..1] [Reporting Parameters Act](#) (identifier: urn:oid:2.16.840.1.113883.10.20.17.3.8) (CONF:3338-21446).

Figure 26: QRDA Category III Measure Section (V4) Example

```

<component>
  <section>
    <!-- Implied template Measure Section templateId -->
    <templateId root="2.16.840.1.113883.10.20.24.2.2"/>
    <templateId root="2.16.840.1.113883.10.20.27.2.1" extension="2017-06-01"/>
    <code code="55186-1" codeSystem="2.16.840.1.113883.6.1"/>
    <title>Measure Section</title>
    <text>
      ...
    </text>
    <entry>
      <!-- Measure Reference and Results -->
      <organizer classCode="CLUSTER" moodCode="EVN">
        ...
      </organizer>
    </entry>
    <entry>
      <act>
        <!--Reporting Parameters Act -->
        ...
      </act>
    </entry>
  </section>
</component>

```

4.2 Reporting Parameters Section

[section: identifier urn:oid:2.16.840.1.113883.10.20.17.2.1 (open)]

Table 14: Reporting Parameters Section Contexts

Contained By:	Contains:
	Reporting Parameters Act

The Reporting Parameters Section provides information about the reporting time interval, and may contain other information that provides context for the data being reported. The receiving organization may tell the reporting institution what information is needed in this section. The reporting parameter time interval refers to the data being sent in the document and may differ from the quality measure's measurement period or valid dates for the data set.

Table 15: Reporting Parameters Section Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
section (identifier: urn:oid:2.16.840.1.113883.10.20.17.2.1)					
templateId	1..1	SHALL		23-14611	
@root	1..1	SHALL		23-14612	2.16.840.1.113883.10.20.17.2.1
code	1..1	SHALL		23-18191	
@code	1..1	SHALL		23-19229	55187-9
@codeSystem	1..1	SHALL		23-26552	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 2.16.840.1.113883.6.1
title	1..1	SHALL		23-4142	Reporting Parameters
text	1..1	SHALL		23-4143	
entry	1..1	SHALL		23-3277	
@typeCode	1..1	SHALL		23-3278	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = DRIV
act	1..1	SHALL		23-17496	Reporting Parameters Act (identifier: urn:oid:2.16.840.1.113883.10.20.17.3.8)

1. **SHALL** contain exactly one [1..1] **templateId** (CONF:23-14611) such that it
 - a. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.17.2.1" (CONF:23-14612).
2. **SHALL** contain exactly one [1..1] **code** (CONF:23-18191).
 - a. This code **SHALL** contain exactly one [1..1] **@code**="55187-9" Reporting Parameters (CONF:23-19229).
 - 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:23-26552).
3. **SHALL** contain exactly one [1..1] **title**="Reporting Parameters" (CONF:23-4142).
4. **SHALL** contain exactly one [1..1] **text** (CONF:23-4143).
5. **SHALL** contain exactly one [1..1] **entry** (CONF:23-3277) 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 **STATIC**) (CONF:23-3278).

- b. **SHALL** contain exactly one [1..1] [Reporting Parameters Act](#) (identifier: urn:oid:2.16.840.1.113883.10.20.17.3.8) (CONF:23-17496).

4.2.1 QRDA Category III Reporting Parameters Section

[section: identifier urn:oid:2.16.840.1.113883.10.20.27.2.2 (open)]

Table 16: QRDA Category III Reporting Parameters Section Contexts

Contained By:	Contains:
QRDA Category III Report (V4) (optional)	Reporting Parameters Act Service Encounter

The QRDA Category III Reporting Parameters Section provides information about the reporting time interval, and may contain other information that provides context for the data being reported. This template adds an optional Service Encounter template.

The QRDA Category III report contains data covering a single time period represented by the reporting parameters act.

Table 17: QRDA Category III Reporting Parameters Section Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
section (identifier: urn:oid:2.16.840.1.113883.10.20.27.2.2)					
templateId	1..1	SHALL		77-18323	
@root	1..1	SHALL		77-18324	2.16.840.1.113883.10.20.27.2.2
entry	1..1	SHALL		77-18325	
@typeCode	1..1	SHALL		77-18427	urn:oid:2.16.840.1.113883.5.10.02 (HL7ActRelationshipType) = DRIV
act	1..1	SHALL		77-18428	Reporting Parameters Act (identifier: urn:oid:2.16.840.1.113883.10.20.17.3.8)
entry	0..*	MAY		77-18328	
encounter	1..1	SHALL		77-18330	Service Encounter (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.11)

1. Conforms to [Reporting Parameters Section](#) template (identifier: urn:oid:2.16.840.1.113883.10.20.17.2.1).
2. **SHALL** contain exactly one [1..1] **templateId** (CONF:77-18323) such that it

- a. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.27.2.2" (CONF:77-18324).
3. **SHALL** contain exactly one [1..1] **entry** (CONF:77-18325) 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 **STATIC**) (CONF:77-18427).
 - b. **SHALL** contain exactly one [1..1] Reporting Parameters Act (identifier: urn:oid:2.16.840.1.113883.10.20.17.3.8) (CONF:77-18428).
4. **MAY** contain zero or more [0..*] **entry** (CONF:77-18328) such that it
 - a. **SHALL** contain exactly one [1..1] Service Encounter (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.11) (CONF:77-18330).

Figure 27: QRDA Category III Reporting Parameters Section Example

```

<component>
  <section>
    <!-- Reporting Parameters templateId -->
    <templateId root="2.16.840.1.113883.10.20.17.2.1"/>
    <!-- QRDA Category III Reporting Parameters templateId -->
    <templateId root="2.16.840.1.113883.10.20.27.2.2"/>
    <code code="55187-9" codeSystem="2.16.840.1.113883.6.1"/>
    <title>Reporting Parameters</title>
    <text>
      <list>
        <item>Reporting period: 01 Jan 2012 - 31 March 2012</item>
      </list>
    </text>
    <entry typeCode="DRIV">
      <!-- Reporting Parameters Act -->
      <act classCode="ACT" moodCode="EVN">
        ...
      </act>
    </entry>
    <!-- Optional Service Encounter -->
    <entry>
      <encounter classCode="ENC" moodCode="EVN">
        ...
      </encounter>
    </entry>
    <!-- Optional Service Encounter -->
    <entry>
      <encounter classCode="ENC" moodCode="EVN">
        ...
      </encounter>
    </entry>
  </section>
</component>

```

5 ENTRY

5.1 Advancing Care Information Numerator Denominator Type Measure Denominator Data

[observation: identifier
urn:hl7ii:2.16.840.1.113883.10.20.27.3.32:2016-09-01 (open)]

Table 18: Advancing Care Information Numerator Denominator Type Measure Denominator Data Contexts

Contained By:	Contains:
Advancing Care Information Numerator Denominator Type Measure Reference and Results (V2) (required)	Aggregate Count

This template is used for reporting aggregated denominator count for advancing care information numerator denominator type of measure.

Table 19: Advancing Care Information Numerator Denominator Type Measure Denominator Data Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observation (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.32:2016-09-01)					
@classCode	1..1	SHALL		3259-21378	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = OBS
@moodCode	1..1	SHALL		3259-21379	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3259-21366	
@root	1..1	SHALL		3259-21374	2.16.840.1.113883.10.20.27.3.3 2
@extension	1..1	SHALL		3259-21400	2016-09-01
code	1..1	SHALL		3259-21365	
@code	1..1	SHALL		3259-21372	ASSERTION
@codeSystem	1..1	SHALL		3259-21373	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode) = 2.16.840.1.113883.5.4
statusCode	1..1	SHALL		3259-21367	
@code	1..1	SHALL		3259-21375	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
value	1..1	SHALL	CD	3259-21368	
@code	1..1	SHALL		3259-21376	DENOM
@codeSystem	1..1	SHALL		3259-21377	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode) = 2.16.840.1.113883.5.4
entryRelationship	1..1	SHALL		3259-21364	
@typeCode	1..1	SHALL		3259-21370	SUBJ
@inversionInd	1..1	SHALL		3259-21371	true
observation	1..1	SHALL		3259-21369	Aggregate Count (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.3

1. **SHALL** contain exactly one [1..1] **@classCode="OBS"** (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:3259-21378).
2. **SHALL** contain exactly one [1..1] **@moodCode="EVN"** (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:3259-21379).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:3259-21366) such that it
 - a. **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.27.3.32"** (CONF:3259-21374).
 - b. **SHALL** contain exactly one [1..1] **@extension="2016-09-01"** (CONF:3259-21400).
4. **SHALL** contain exactly one [1..1] **code** (CONF:3259-21365).
 - a. This code **SHALL** contain exactly one [1..1] **@code="ASSERTION"** Assertion (CONF:3259-21372).
 - 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:3259-21373).
5. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3259-21367).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code="completed"** Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3259-21375).
6. **SHALL** contain exactly one [1..1] **value** with **@xsi:type="CD"** (CONF:3259-21368).
 - a. This value **SHALL** contain exactly one [1..1] **@code="DENOM"** Denominator (CONF:3259-21376).
 - b. This value **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 **STATIC**) (CONF:3259-21377).
7. **SHALL** contain exactly one [1..1] **entryRelationship** (CONF:3259-21364) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode="SUBJ"** (CONF:3259-21370).
 - b. **SHALL** contain exactly one [1..1] **@inversionInd="true"** (CONF:3259-21371).
 - c. **SHALL** contain exactly one [1..1] **Aggregate Count** (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.3) (CONF:3259-21369).

Figure 28: Advancing Care Information Numerator Denominator Type Measure Denominator Data Example

```
<observation classCode="OBS" moodCode="EVN">
  <templateId root="2.16.840.1.113883.10.20.27.3.32" extension="2016-09-01"/>
  <code code="ASSERTION" codeSystem="2.16.840.1.113883.5.4"
codeSystemName="ActCode" displayName="Assertion"/>
  <statusCode code="completed"/>
  <value xsi:type="CD" code="DENOM" codeSystem="2.16.840.1.113883.5.4"
codeSystemName="ActCode"/>
  <!-- Denominator Count-->
  <entryRelationship typeCode="SUBJ" inversionInd="true">
    <observation classCode="OBS" moodCode="EVN">
      <templateId root="2.16.840.1.113883.10.20.27.3.3"/>
      <code code="MSRAGG" codeSystem="2.16.840.1.113883.5.4"
codeSystemName="ActCode" displayName="rate aggregation"/>
      <statusCode code="completed"/>
      <value xsi:type="INT" value="800"/>
      <methodCode code="COUNT" codeSystem="2.16.840.1.113883.5.84"
codeSystemName="ObservationMethod" displayName="Count"/>
    </observation>
  </entryRelationship>
</observation>
```

5.2 Advancing Care Information Numerator Denominator Type Measure Numerator Data

```
[observation: identifier
urn:hl7ii:2.16.840.1.113883.10.20.27.3.31:2016-09-01 (open)]
```

Table 20: Advancing Care Information Numerator Denominator Type Measure Numerator Data Contexts

Contained By:	Contains:
Advancing Care Information Numerator Denominator Type Measure Reference and Results (V2) (required)	Aggregate Count

This template is used for reporting aggregated numerator count for advancing care information numerator denominator type of measure.

Table 21: Advancing Care Information Numerator Denominator Type Measure Numerator Data Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observation (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.31:2016-09-01)					
@classCode	1..1	SHALL		3259-21360	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = OBS
@moodCode	1..1	SHALL		3259-21361	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3259-21324	
@root	1..1	SHALL		3259-21342	2.16.840.1.113883.10.20.27.3.3 1
@extension	1..1	SHALL		3259-21401	2016-09-01
code	1..1	SHALL		3259-21323	
@code	1..1	SHALL		3259-21340	ASSERTION
@codeSystem	1..1	SHALL		3259-21341	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode) = 2.16.840.1.113883.5.4
statusCode	1..1	SHALL		3259-21332	
@code	1..1	SHALL		3259-21358	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
value	1..1	SHALL	CD	3259-21336	
@code	1..1	SHALL		3259-21362	NUMER
@codeSystem	1..1	SHALL		3259-21363	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode) = 2.16.840.1.113883.5.4
entryRelationship	1..1	SHALL		3259-21322	
@typeCode	1..1	SHALL		3259-21338	SUBJ
@inversionInd	1..1	SHALL		3259-21339	true
observation	1..1	SHALL		3259-21337	Aggregate Count (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.3

1. **SHALL** contain exactly one [1..1] **@classCode="OBS"** (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:3259-21360).
2. **SHALL** contain exactly one [1..1] **@moodCode="EVN"** (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:3259-21361).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:3259-21324) such that it
 - a. **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.27.3.31"** (CONF:3259-21342).
 - b. **SHALL** contain exactly one [1..1] **@extension="2016-09-01"** (CONF:3259-21401).
4. **SHALL** contain exactly one [1..1] **code** (CONF:3259-21323).
 - a. This code **SHALL** contain exactly one [1..1] **@code="ASSERTION"** Assertion (CONF:3259-21340).
 - 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:3259-21341).
5. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3259-21332).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code="completed"** Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3259-21358).
6. **SHALL** contain exactly one [1..1] **value** with **@xsi:type="CD"** (CONF:3259-21336).
 - a. This value **SHALL** contain exactly one [1..1] **@code="NUMER"** Numerator (CONF:3259-21362).
 - b. This value **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 **STATIC**) (CONF:3259-21363).
7. **SHALL** contain exactly one [1..1] **entryRelationship** (CONF:3259-21322) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode="SUBJ"** (CONF:3259-21338).
 - b. **SHALL** contain exactly one [1..1] **@inversionInd="true"** (CONF:3259-21339).
 - c. **SHALL** contain exactly one [1..1] **Aggregate Count** (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.3) (CONF:3259-21337).

Figure 29: Advancing Care Information Numerator Denominator Type Measure Numerator Data Example

```
<observation classCode="OBS" moodCode="EVN">
  <templateId root="2.16.840.1.113883.10.20.27.3.31" extension="2016-09-01"/>
  <code code="ASSERTION" codeSystem="2.16.840.1.113883.5.4"
codeSystemName="ActCode" displayName="Assertion"/>
  <statusCode code="completed"/>
  <value xsi:type="CD" code="NUM" codeSystem="2.16.840.1.113883.5.4"
codeSystemName="ActCode"/>
  <!-- Numerator Count-->
  <entryRelationship typeCode="SUBJ" inversionInd="true">
    <observation classCode="OBS" moodCode="EVN">
      <templateId root="2.16.840.1.113883.10.20.27.3.3"/>
      <code code="MSRAGG" codeSystem="2.16.840.1.113883.5.4"
codeSystemName="ActCode" displayName="rate aggregation"/>
      <statusCode code="completed"/>
      <value xsi:type="INT" value="600"/>
      <methodCode code="COUNT" codeSystem="2.16.840.1.113883.5.84"
codeSystemName="ObservationMethod" displayName="Count"/>
    </observation>
  </entryRelationship>
</observation>
```

5.3 Aggregate Count

[observation: identifier urn:oid:2.16.840.1.113883.10.20.27.3.3 (open)]

Table 22: Aggregate Count Contexts

Contained By:	Contains:
Reporting Stratum (required) Payer Supplemental Data Element (V2) (required) Advancing Care Information Numerator Denominator Type Measure Numerator Data (required) Advancing Care Information Numerator Denominator Type Measure Denominator Data (required) Sex Supplemental Data Element (V3) (required) Measure Data (V3) (required) Ethnicity Supplemental Data Element (V2) (required) Postal Code Supplemental Data Element (V2) (required) Race Supplemental Data Element (V2) (required)	

The Aggregate Count captures the number of items aggregated. This template is contained in a parent template that describes the item. If the parent template is a supplemental data element, the count is sent only when the number is not zero. Otherwise, the count is sent even if the number is zero. The predicted count (based on the measure's risk-adjustment model) can be captured in the reference range.

Table 23: Aggregate Count Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observation (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.3)					
@classCode	1..1	SHALL		77-17563	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = OBS
@moodCode	1..1	SHALL		77-17564	urn:oid:2.16.840.1.113883.5.1001 (HL7ActMood) = EVN
templateId	1..1	SHALL		77-17565	
@root	1..1	SHALL		77-18095	2.16.840.1.113883.10.20.27.3.3
code	1..1	SHALL		77-17566	
@code	1..1	SHALL		77-19508	MSRAGG
@codeSystem	1..1	SHALL		77-21160	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode) = 2.16.840.1.113883.5.4
value	1..1	SHALL	INT	77-17567	
@value	1..1	SHALL		77-17568	
methodCode	1..1	SHALL		77-19509	
@code	1..1	SHALL		77-19510	COUNT
@codeSystem	1..1	SHALL		77-21161	urn:oid:2.16.840.1.113883.5.84 (HL7ObservationMethod) = 2.16.840.1.113883.5.84
referenceRange	0..1	MAY		77-18392	
observationRange	1..1	SHALL		77-18393	
value	1..1	SHALL	INT	77-18394	

1. **SHALL** contain exactly one [1..1] @classCode="OBS" (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:77-17563).
2. **SHALL** contain exactly one [1..1] @moodCode="EVN" (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:77-17564).
3. **SHALL** contain exactly one [1..1] templateId (CONF:77-17565) such that it

- a. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.27.3.3" (CONF:77-18095).
- 4. **SHALL** contain exactly one [1..1] **code** (CONF:77-17566).
 - a. This code **SHALL** contain exactly one [1..1] **@code**="MSRAGG" rate aggregation (CONF:77-19508).
 - 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:77-21160).
- 5. **SHALL** contain exactly one [1..1] **value** with **@xsi:type**="INT" (CONF:77-17567).
 - a. This value **SHALL** contain exactly one [1..1] **@value** (CONF:77-17568).
- 6. **SHALL** contain exactly one [1..1] **methodCode** (CONF:77-19509).
 - a. This methodCode **SHALL** contain exactly one [1..1] **@code**="COUNT" Count (CONF:77-19510).
 - b. This methodCode **SHALL** contain exactly one [1..1] **@codeSystem**="2.16.840.1.113883.5.84" (CodeSystem: HL7ObservationMethod urn:oid:2.16.840.1.113883.5.84) (CONF:77-21161).

The reference range is optionally used to represent the predicted count based on the measure's risk-adjustment model.

- 7. **MAY** contain zero or one [0..1] **referenceRange** (CONF:77-18392).
 - a. The referenceRange, if present, **SHALL** contain exactly one [1..1] **observationRange** (CONF:77-18393).
 - i. This observationRange **SHALL** contain exactly one [1..1] **value** with **@xsi:type**="INT" (CONF:77-18394).

Figure 30: Aggregate Count Example

```
<observation classCode="OBS" moodCode="EVN">
  <templateId root="2.16.840.1.113883.10.20.27.3.3"/>
  <code code="MSRAGG"
    displayName="rate aggregation"
    codeSystem="2.16.840.1.113883.5.4"
    codeSystemName="ActCode"/>
  <value xsi:type="INT" value="1000"/>
  <methodCode code="COUNT"
    displayName="Count"
    codeSystem="2.16.840.1.113883.5.84"
    codeSystemName="ObservationMethod"/>
  <!-- MAY 0..1 Used to represent the predicted count based on the measure's risk-
adjustment model. -->
  <referenceRange>
    <observationRange>
      <value xsi:type="INT" value="300"/>
    </observationRange>
  </referenceRange>
</observation>
```

5.4 Continuous Variable Measure Value

[observation: identifier urn:oid:2.16.840.1.113883.10.20.27.3.2 (open)]

Table 24: Continuous Variable Measure Value Contexts

Contained By:	Contains:
Reporting Stratum (optional)	
Measure Data (V3) (optional)	

This observation represents the continuous variables found in quality measures that measure performance criteria by time spans, magnitude changes, etc. A continuous variable for a given patient might be the time spent waiting for a procedure. A continuous variable for a population might be the mean wait time. The type of aggregation (e.g. mean, median) is represented in the observation/methodCode. The predicted value (based on the measure's risk-adjustment model) can be captured in the reference range.

Table 25: Continuous Variable Measure Value Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observation (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.2)					
@classCode	1..1	SHALL		77-17569	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = OBS
@moodCode	1..1	SHALL		77-17570	urn:oid:2.16.840.1.113883.5.10.01 (HL7ActMood) = EVN
templateId	1..1	SHALL		77-18096	
@root	1..1	SHALL		77-18097	2.16.840.1.113883.10.20.27.3.2
code	1..1	SHALL		77-17571	
value	1..1	SHALL		77-17572	
methodCode	1..1	SHALL		77-18242	urn:oid:2.16.840.1.113883.1.11.20450 (ObservationMethodAggregate)
reference	1..1	SHALL		77-18243	
externalObservation	1..1	SHALL		77-18244	
id	1..1	SHALL		77-18245	
referenceRange	0..1	MAY		77-18389	
observationRange	1..1	SHALL		77-18390	
value	1..1	SHALL		77-18391	

1. **SHALL** contain exactly one [1..1] **@classCode="OBS"** (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:77-17569).
2. **SHALL** contain exactly one [1..1] **@moodCode="EVN"** (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:77-17570).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:77-18096) such that it
 - a. **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.27.3.2"** (CONF:77-18097).
4. **SHALL** contain exactly one [1..1] **code** (CONF:77-17571).
 - a. If this continuous variable measure references an eMeasure, this code element **SHALL** equal the code element in that eMeasure's measure observation definition (CONF:77-18256).

5. **SHALL** contain exactly one [1..1] **value** (CONF:77-17572).
6. **SHALL** contain exactly one [1..1] **methodCode**, which **SHALL** be selected from ValueSet [ObservationMethodAggregate](#) urn:oid:2.16.840.1.113883.1.11.20450 **DYNAMIC** (CONF:77-18242).
7. **SHALL** contain exactly one [1..1] **reference** (CONF:77-18243).
 - a. This reference **SHALL** contain exactly one [1..1] **externalObservation** (CONF:77-18244).
 - i. This externalObservation **SHALL** contain exactly one [1..1] **id** (CONF:77-18245).
 1. If this reference is to an eMeasure, this id **SHALL** equal the id in that eMeasure's measure observation definition (CONF:77-18255).

The reference range is optionally used to represent the predicted continuous variable value based on the measure's risk-adjustment model.

8. **MAY** contain zero or one [0..1] **referenceRange** (CONF:77-18389).
 - a. The referenceRange, if present, **SHALL** contain exactly one [1..1] **observationRange** (CONF:77-18390).
 - i. This observationRange **SHALL** contain exactly one [1..1] **value** (CONF:77-18391).

Figure 31: Continuous Variable Measure Example

```
<observation classCode="OBS" moodCode="EVN">
  <templateId root="2.16.840.1.113883.10.20.27.3.2"/>
  <code nullFlavor="OTH">
    <originalText>Time Difference</originalText>
  </code>
  <statusCode code="completed"/>
  <value xsi:type="PQ" value="55" unit="min"/>
  <methodCode code="MEDIAN"
    displayName="Median"
    codeSystem="2.16.840.1.113883.5.84"
    codeSystemName="ObservationMethod"/>
  <reference typeCode="REFR">
    <!-- reference to the relevant measure observation in the eMeasure -->
    <externalObservation classCode="OBS" moodCode="EVN">
      <id root="2D084067-703B-4072-9F43-D50F938F4F9C"/>
    </externalObservation>
  </reference>
  <!-- MAY 0..1 Used to represent the predicted continuous variable value based on
the measure's risk-adjustment model. -->
  <referenceRange>
    <observationRange>
      <value xsi:type="PQ" value="60" unit="min"/>
    </observationRange>
  </referenceRange>
</observation>
```

Figure 32: Corresponding eMeasure Example

```
<!-- Taken from CMS32v5_NQF0496 -->
<measureObservationDefinition classCode="OBS" moodCode="DEF">
  <id extension="MeasureObservation" root="2D084067-703B-4072-9F43-D50F938F4F9C"/>
  <code code="AGGREGATE" codeSystem="2.16.840.1.113883.5.4"/>
  <value xsi:type="PQ">
    <expression
value="OccurrenceAofEmergencyDepartmentVisit_EncounterPerformed_facilitylocationdepa
rturedatetime_CheckifPresent_dZ4gH.location.serviceProvider.effectiveTime.high -
OccurrenceAofEmergencyDepartmentVisit_EncounterPerformed_facilitylocationarrivaldate
time_CheckifPresent_By0dX.location.serviceProvider.effectiveTime.low"/>
    </value>
    <methodCode>
      <item code="MEDIAN" codeSystem="2.16.840.1.113883.5.84"/>
    </methodCode>
    <precondition typeCode="PRCN">
      <join classCode="OBS" moodCode="DEF">
        <value
value="OccurrenceAofEmergencyDepartmentVisit_EncounterPerformed_facilitylocationdepa
rturedatetime_CheckifPresent_dZ4gH.getPatient().id eql eql_
OccurrenceAofEmergencyDepartmentVisit_EncounterPerformed_facilitylocationarrivaldate
time_CheckifPresent_By0dX.getPatient().id"
          xsi:type="ED"/>
        </join>
      </precondition>
    </value>
  </measureObservationDefinition>
```

5.5 Ethnicity Supplemental Data Element (V2)

[observation: identifier urn:hl7ii:2.16.840.1.113883.10.20.27.3.7:2016-09-01 (open)]

Table 26: Ethnicity Supplemental Data Element (V2) Contexts

Contained By:	Contains:
Measure Data (V3) (optional)	Aggregate Count

This observation represents whether the patient is hispanic or not and provides the number of patients in the population that report that ethnicity.

Table 27: Ethnicity Supplemental Data Element (V2) Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observation (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.7:2016-09-01)					
@classCode	1..1	SHALL		3259-18216	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = OBS
@moodCode	1..1	SHALL		3259-18217	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3259-18218	
@root	1..1	SHALL		3259-18219	2.16.840.1.113883.10.20.27.3.7
@extension	1..1	SHALL		3259-21176	2016-09-01
code	1..1	SHALL		3259-18220	
@code	1..1	SHALL		3259-18221	69490-1
@codeSystem	1..1	SHALL		3259-21443	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 2.16.840.1.113883.6.1
statusCode	1..1	SHALL		3259-18118	
@code	1..1	SHALL		3259-18119	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
value	1..1	SHALL	CD	3259-18222	urn:oid:2.16.840.1.114222.4.11.837 (Ethnicity)
entryRelationship	1..1	SHALL		3259-18120	
@typeCode	1..1	SHALL		3259-18121	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = SUBJ
@inversionInd	1..1	SHALL		3259-18122	true
observation	1..1	SHALL		3259-18123	Aggregate Count (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.3)

1. **SHALL** contain exactly one [1..1] @classCode="OBS" (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:3259-18216).
2. **SHALL** contain exactly one [1..1] @moodCode="EVN" (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:3259-18217).
3. **SHALL** contain exactly one [1..1] templateId (CONF:3259-18218) such that it

- a. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.27.3.7" (CONF:3259-18219).
 - b. **SHALL** contain exactly one [1..1] **@extension**="2016-09-01" (CONF:3259-21176).
- 4. **SHALL** contain exactly one [1..1] **code** (CONF:3259-18220).
 - a. This code **SHALL** contain exactly one [1..1] **@code**="69490-1" Ethnic (CONF:3259-18221).
 - 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:3259-21443).
- 5. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3259-18118).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code**="completed" Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14 **STATIC**) (CONF:3259-18119).
- 6. **SHALL** contain exactly one [1..1] **value** with **@xsi:type**="CD", where the code **SHALL** be selected from ValueSet [Ethnicity](#) urn:oid:2.16.840.1.114222.4.11.837 **DYNAMIC** (CONF:3259-18222).
- 7. **SHALL** contain exactly one [1..1] **entryRelationship** (CONF:3259-18120) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode**="SUBJ" Has Subject (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002 **STATIC**) (CONF:3259-18121).
 - b. **SHALL** contain exactly one [1..1] **@inversionInd**="true" (CONF:3259-18122).
 - c. **SHALL** contain exactly one [1..1] [Aggregate Count](#) (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.3) (CONF:3259-18123).

Figure 33: Ethnicity Supplemental Data Element (V2) Example

```
<observation classCode="OBS" moodCode="EVN">
  <!-- Ethnicity Supplemental Data Element (V2) template ID -->
  <templateId root="2.16.840.1.113883.10.20.27.3.7" extension="2016-09-01"/>
  <code code="69490-1"
    displayName="Ethnic"
    codeSystem="2.16.840.1.113883.6.1"
    codeSystemName="LOINC"/>
  <statusCode code="completed"/>
  <value xsi:type="CD"
    code="2186-5"
    displayName="Not Hispanic or Latino"
    codeSystem="2.16.840.1.113883.6.238"
    codeSystemName="Race & Ethnicity - CDC"/>
  <!-- Aggregate Count template -->
  <entryRelationship typeCode="SUBJ" inversionInd="true">
    <observation classCode="OBS" moodCode="EVN">
      ...
    </observation>
  </entryRelationship>
</observation>
```

5.6 Measure Data (V3)

[observation: identifier urn:hl7ii:2.16.840.1.113883.10.20.27.3.5:2016-09-01 (open)]

Table 28: Measure Data (V3) Contexts

Contained By:	Contains:
Measure Reference and Results (V3) (required)	Aggregate Count Continuous Variable Measure Value Ethnicity Supplemental Data Element (V2) Payer Supplemental Data Element (V2) Postal Code Supplemental Data Element (V2) Race Supplemental Data Element (V2) Reporting Stratum Sex Supplemental Data Element (V3)

This observation asserts a population into which a subject falls and provides the number of patients in the population. It may also contain reporting stratum, supplemental data element counts, and continuous variables that are relevant to the population.

Additional supplemental data elements can be added if defined in the query or measure or requested by the recipient. The reporting stratum and various supplemental data templates provide examples that can be followed.

Populations that are used in eMeasures can be complicated. The simple case has one each of initial population (IPOP), numerator, and denominator, along with denominator exclusions and denominator exceptions. It is also possible to have eMeasures with

multiple population groups (a population group is a set of IPOP, numerator, denominator, etc), and eMeasures with multiple denominators and numerators (for example, an eMeasure with 3 denominators and 2 numerators will require a QRDA Category III report with 6 sets of data). QRDA Category III reports were designed to allow the representation of data sets that map to all of these types of multiple populations.

Table 29: Measure Data (V3) Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observation (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.5:2016-09-01)					
@classCode	1..1	SHALL		3259-17615	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = OBS
@moodCode	1..1	SHALL		3259-17616	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3259-17912	
@root	1..1	SHALL		3259-17913	2.16.840.1.113883.10.20.27.3.5
@extension	1..1	SHALL		3259-21161	2016-09-01
code	1..1	SHALL		3259-17617	
@code	1..1	SHALL		3259-18198	ASSERTION
@codeSystem	1..1	SHALL		3259-21164	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode) = 2.16.840.1.113883.5.4
statusCode	1..1	SHALL		3259-18199	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus)
@code	1..1	SHALL		3259-19555	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
value	1..1	SHALL	CD	3259-17618	
@code	1..1	SHALL		3259-21162	urn:oid:2.16.840.1.113883.1.11.20476 (PopulationInclusionObservation Type)
entryRelationship	1..1	SHALL		3259-17619	
@typeCode	1..1	SHALL		3259-17910	SUBJ
@inversionInd	1..1	SHALL		3259-17911	true
observation	1..1	SHALL		3259-17620	Aggregate Count (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.3)
entryRelationship	0..*	MAY		3259-17918	
@typeCode	1..1	SHALL		3259-17919	COMP

observation	1..1	SHALL		3259-17920	Reporting Stratum (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.4)
entryRelationship	0..*	MAY		3259-18136	
@typeCode	1..1	SHALL		3259-18137	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = COMP
observation	1..1	SHALL		3259-18138	Sex Supplemental Data Element (V3) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.6:2016-09-01)
entryRelationship	0..*	MAY		3259-18139	
@typeCode	1..1	SHALL		3259-18144	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = COMP
observation	1..1	SHALL		3259-18149	Ethnicity Supplemental Data Element (V2) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.7:2016-09-01)
entryRelationship	0..*	MAY		3259-18140	
@typeCode	1..1	SHALL		3259-18145	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = COMP
observation	1..1	SHALL		3259-18150	Race Supplemental Data Element (V2) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.8:2016-09-01)
entryRelationship	0..*	MAY		3259-18141	
@typeCode	1..1	SHALL		3259-18146	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = COMP
observation	1..1	SHALL		3259-18151	Payer Supplemental Data Element (V2) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.9:2016-02-01)
entryRelationship	0..*	MAY		3259-18142	
@typeCode	1..1	SHALL		3259-18147	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = COMP
observation	1..1	SHALL		3259-18152	Postal Code Supplemental Data Element (V2) (identifier: urn:hl7ii:2.16.840.1.113883.10.

					20.27.3.10:2016-09-01
entryRelationship	0..*	MAY		3259-18143	
@typeCode	1..1	SHALL		3259-18148	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = COMP
observation	1..1	SHALL		3259-18153	Continuous Variable Measure Value (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.2)
reference	1..1	SHALL		3259-18239	
externalObservation	1..1	SHALL		3259-18240	
id	1..1	SHALL		3259-18241	

1. **SHALL** contain exactly one [1..1] **@classCode="OBS"** (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:3259-17615).
2. **SHALL** contain exactly one [1..1] **@moodCode="EVN"** (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:3259-17616).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:3259-17912) such that it
 - a. **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.27.3.5"** (CONF:3259-17913).
 - b. **SHALL** contain exactly one [1..1] **@extension="2016-09-01"** (CONF:3259-21161).
4. **SHALL** contain exactly one [1..1] **code** (CONF:3259-17617).
 - a. This code **SHALL** contain exactly one [1..1] **@code="ASSERTION"** Assertion (CONF:3259-18198).
 - 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:3259-21164).
5. **SHALL** contain exactly one [1..1] **statusCode** (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14 **STATIC**) (CONF:3259-18199).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code="completed"** Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3259-19555).
6. **SHALL** contain exactly one [1..1] **value** with **@xsi:type="CD"** (CONF:3259-17618).
 - a. This value **SHALL** contain exactly one [1..1] **@code**, which **SHOULD** be selected from ValueSet [PopulationInclusionObservationType](#) urn:oid:2.16.840.1.113883.1.11.20476 **DYNAMIC** (CONF:3259-21162).
7. **SHALL** contain exactly one [1..1] **entryRelationship** (CONF:3259-17619) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode="SUBJ"** (CONF:3259-17910).
 - b. **SHALL** contain exactly one [1..1] **@inversionInd="true"** (CONF:3259-17911).
 - c. **SHALL** contain exactly one [1..1] [Aggregate Count](#) (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.3) (CONF:3259-17620).

8. **MAY** contain zero or more [0..*] **entryRelationship** (CONF:3259-17918) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode="COMP"** (CONF:3259-17919).
 - b. **SHALL** contain exactly one [1..1] [Reporting Stratum](#) (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.4) (CONF:3259-17920).
9. **MAY** contain zero or more [0..*] **entryRelationship** (CONF:3259-18136) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode="COMP"** (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002 **STATIC**) (CONF:3259-18137).
 - b. **SHALL** contain exactly one [1..1] [Sex Supplemental Data Element \(V3\)](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.6:2016-09-01) (CONF:3259-18138).
10. **MAY** contain zero or more [0..*] **entryRelationship** (CONF:3259-18139) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode="COMP"** (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002 **STATIC**) (CONF:3259-18144).
 - b. **SHALL** contain exactly one [1..1] [Ethnicity Supplemental Data Element \(V2\)](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.7:2016-09-01) (CONF:3259-18149).
11. **MAY** contain zero or more [0..*] **entryRelationship** (CONF:3259-18140) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode="COMP"** (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002 **STATIC**) (CONF:3259-18145).
 - b. **SHALL** contain exactly one [1..1] [Race Supplemental Data Element \(V2\)](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.8:2016-09-01) (CONF:3259-18150).
12. **MAY** contain zero or more [0..*] **entryRelationship** (CONF:3259-18141) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode="COMP"** (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002 **STATIC**) (CONF:3259-18146).
 - b. **SHALL** contain exactly one [1..1] [Payer Supplemental Data Element \(V2\)](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.9:2016-02-01) (CONF:3259-18151).
13. **MAY** contain zero or more [0..*] **entryRelationship** (CONF:3259-18142) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode="COMP"** (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002 **STATIC**) (CONF:3259-18147).
 - b. **SHALL** contain exactly one [1..1] [Postal Code Supplemental Data Element \(V2\)](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.10:2016-09-01) (CONF:3259-18152).

If observation/value/@code="MSRPOPL" then the following entryRelationship SHALL be present.

14. **MAY** contain zero or more [0..*] **entryRelationship** (CONF:3259-18143) such that it

- a. **SHALL** contain exactly one [1..1] **@typeCode="COMP"** (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002 **STATIC**) (CONF:3259-18148).
 - b. **SHALL** contain exactly one [1..1] [Continuous Variable Measure Value](#) (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.2) (CONF:3259-18153).
15. **SHALL** contain exactly one [1..1] **reference** (CONF:3259-18239) such that it
- a. **SHALL** contain exactly one [1..1] **externalObservation** (CONF:3259-18240).
 - i. This externalObservation **SHALL** contain exactly one [1..1] **id** (CONF:3259-18241).
 - 1. If this reference is to an eMeasure, this id **SHALL** equal the id defined in the corresponding eMeasure population criteria section (CONF:3259-18258).

Figure 34: Measure Data (V3) Example

```
<observation classCode="OBS" moodCode="EVN">
  <!-- Measure Data template -->
  <templateId root="2.16.840.1.113883.10.20.27.3.5" extension="2016-09-01"/>
  <code code="ASSERTION"
    codeSystem="2.16.840.1.113883.5.4"
    displayName="Assertion"
    codeSystemName="ActCode"/>
  <statusCode code="completed"/>
  <value xsi:type="CD" code="IPOP"
    codeSystem="2.16.840.1.113883.5.4"
    displayName="initial population"
    codeSystemName="ActCode"/>
  <!-- Aggregate Count template -->
  <entryRelationship typeCode="SUBJ" inversionInd="true">
    <observation classCode="OBS" moodCode="EVN">
      ...
    </observation>
  </entryRelationship>
  <entryRelationship typeCode="COMP">
    <!-- Sex Supplemental Data Element V2(2.16.840.1.113883.10.20.27.3.6:2016-
02-01) -->
    <observation classCode="OBS" moodCode="EVN">
      ...
    </observation>
  </entryRelationship>
  <entryRelationship typeCode="COMP">
    <!-- Ethnicity Supplemental Data Element (V2) -->
    <observation classCode="OBS" moodCode="EVN">
      ...
    </observation>
  </entryRelationship>
  <entryRelationship typeCode="COMP">
    <entryRelationship typeCode="COMP">
      <!-- Race Supplemental Data Element (V2) -->
      <observation classCode="OBS" moodCode="EVN">
        ...
      </observation>
    </entryRelationship>
  </entryRelationship>
  <entryRelationship typeCode="COMP">
    <!-- Payer Supplemental Data Element (V2) -->
    <observation classCode="OBS" moodCode="EVN">
      ...
    </observation>
  </entryRelationship>
  <reference typeCode="REFR">
    <!-- reference to the relevant population in the eMeasure -->
    <externalObservation classCode="OBS" moodCode="EVN">
      <id root="EAD808CB-A6FA-4824-A204-74F299839396"/>
    </externalObservation>
  </reference>
</observation>
```

Figure 35: Corresponding eMeasure Example

```
<!-- Taken from CMS32v5_NQF0436 -->
<initialPopulationCriteria classCode="OBS" moodCode="EVN">
  <id extension="initialPopulation" root="EAD808CB-A6FA-4824-A204-74F299839396"/>
  <code code="IPOP" codeSystem="2.16.840.1.113883.5.4"
    codeSystemName="ActCode">
    <displayName value="Initial Population"/>
  </code>
  <precondition typeCode="PRCN">
    <criteriaReference classCode="ENC" moodCode="EVN">
      <id extension="During_5724FA6B-7D2D-412D-84A1-9B71BDA36FF7"
        root="4EFC61A0-9CD9-4C25-A696-D2A8583A236F"/>
    </criteriaReference>
  </precondition>
</initialPopulationCriteria>
```

5.7 Measure Performed

[observation: identifier
urn:hl7ii:2.16.840.1.113883.10.20.27.3.27:2016-09-01 (open)]

Table 30: Measure Performed Contexts

Contained By:	Contains:
Advancing Care Information Measure Performed Measure Reference and Results (required) Improvement Activity Performed Measure Reference and Results (required)	

This template reports whether a measurement was performed or not.

Table 31: Measure Performed Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observation (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.27:2016-09-01)					
@classCode	1..1	SHALL		3259-21221	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = OBS
@moodCode	1..1	SHALL		3259-21222	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3259-21185	
@root	1..1	SHALL		3259-21203	2.16.840.1.113883.10.20.27.3.2 7
@extension	1..1	SHALL		3259-21399	2016-09-01
code	1..1	SHALL		3259-21382	
@code	1..1	SHALL		3259-21392	ASSERTION
@codeSystem	1..1	SHALL		3259-21393	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode) = 2.16.840.1.113883.5.4
statusCode	1..1	SHALL		3259-21440	
@code	1..1	SHALL		3259-21442	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
value	1..1	SHALL	CD	3259-21391	urn:oid:2.16.840.1.114222.4.11. 819 (Yes No Indicator (HL7))

1. **SHALL** contain exactly one [1..1] **@classCode**="OBS" (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:3259-21221).
2. **SHALL** contain exactly one [1..1] **@moodCode**="EVN" (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:3259-21222).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:3259-21185) such that it
 - a. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.27.3.27" (CONF:3259-21203).
 - b. **SHALL** contain exactly one [1..1] **@extension**="2016-09-01" (CONF:3259-21399).
4. **SHALL** contain exactly one [1..1] **code** (CONF:3259-21382).
 - a. This code **SHALL** contain exactly one [1..1] **@code**="ASSERTION" Assertion (CONF:3259-21392).
 - 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:3259-21393).
5. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3259-21440).

- a. This statusCode **SHALL** contain exactly one [1..1] @code="completed" Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:3259-21442).
6. **SHALL** contain exactly one [1..1] value with @xsi:type="CD", where the code **SHALL** be selected from ValueSet [Yes No Indicator \(HL7\)](#) urn:oid:2.16.840.1.114222.4.11.819 **DYNAMIC** (CONF:3259-21391).

Figure 36: Measure Performed Example

```
<observation classCode="OBS" moodCode="EVN">
  <!-- Measure Performed Reference and Result -->
  <templateId root="2.16.840.1.113883.10.20.27.3.27" extension="2016-09-01"/>
  <code code="ASSERTION" codeSystem="2.16.840.1.113883.5.4"
codeSystemName="ActCode" displayName="Assertion"/>
  <statusCode code="completed"/>
  <value xsi:type="CD" code="Y" displayName="Yes"
codeSystemName="Yes/no indicator (HL7 Table 0136)"
codeSystem="2.16.840.1.113883.12.136"/>
</observation>
```

5.8 Measure Reference

[organizer: identifier urn:oid:2.16.840.1.113883.10.20.24.3.98 (open)]

Table 32: Measure Reference Contexts

Contained By:	Contains:
Measure Section (required)	

This template defines the way that a Measure should be referenced. Measures are referenced through externalAct reference to an externalDocument. The externalDocument/ids and version numbers are used to reference the measure.

Table 33: Measure Reference Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
organizer (identifier: urn:oid:2.16.840.1.113883.10.20.24.3.98)					
@classCode	1..1	SHALL		67-12979	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = CLUSTER
@moodCode	1..1	SHALL		67-12980	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		67-19532	
@root	1..1	SHALL		67-19533	2.16.840.1.113883.10.20.24.3.9 8
id	1..*	SHALL		67-26992	
statusCode	1..1	SHALL		67-12981	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus)
@code	1..1	SHALL		67-27020	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
reference	1..1	SHALL		67-12982	
@typeCode	1..1	SHALL		67-12983	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = REFR
externalDocument	1..1	SHALL		67-12984	
@classCode	1..1	SHALL		67-19534	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = DOC
id	1..*	SHALL		67-12985	
@root	1..1	SHALL		67-12986	
@extension	0..1	MAY		67-27007	
text	0..1	SHOULD		67-12997	

1. **SHALL** contain exactly one [1..1] @classCode="CLUSTER" cluster (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:67-12979).
2. **SHALL** contain exactly one [1..1] @moodCode="EVN" event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:67-12980).
3. **SHALL** contain exactly one [1..1] templateId (CONF:67-19532) such that it
 - a. **SHALL** contain exactly one [1..1] @root="2.16.840.1.113883.10.20.24.3.98" (CONF:67-19533).

4. **SHALL** contain at least one [1..*] **id** (CONF:67-26992).
5. **SHALL** contain exactly one [1..1] **statusCode** (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:67-12981).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code**="completed" (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:67-27020).
6. **SHALL** contain exactly one [1..1] **reference** (CONF:67-12982) 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 **STATIC**) (CONF:67-12983).
 - b. **SHALL** contain exactly one [1..1] **externalDocument** (CONF:67-12984).
 - i. This externalDocument **SHALL** contain exactly one [1..1] **@classCode**="DOC" Document (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6) (CONF:67-19534).
 - ii. This externalDocument **SHALL** contain at least one [1..*] **id** (CONF:67-12985) such that it
 1. **SHALL** contain exactly one [1..1] **@root** (CONF:67-12986).
 2. **MAY** contain zero or one [0..1] **@extension** (CONF:67-27007).
 3. This ID references an ID of the Quality Measure (CONF:67-27008).
 - iii. This externalDocument **SHOULD** contain zero or one [0..1] **text** (CONF:67-12997).
 1. This text is the title of the Quality Measure (CONF:67-12998).

Figure 37: Measure Reference Example

```

<organizer classCode="CLUSTER" moodCode="EVN">
  <!-- Measure reference -->
  <templateId root="2.16.840.1.113883.10.20.24.3.98"/>
  <statusCode code="completed"/>
  <reference typeCode="REFR">
    <externalDocument classCode="DOC" moodCode="EVN">
      <!-- This is the id for a Quality Measure -->
      <id root="8a4d92b2-3512-a402-0135-53d2b0d27708"/>
      <!-- SHOULD This is the title of the eMeasure -->
      <text>Neonatal Admission Temperature</text>
    </externalDocument>
  </reference>
</organizer>

```

5.8.1 Advancing Care Information Measure Performed Measure Reference and Results

[organizer: identifier urn:hl7ii:2.16.840.1.113883.10.20.27.3.29:2016-09-01 (open)]

Table 34: ACI Measure Performed Measure Reference and Results Contexts

Contained By:	Contains:
Advancing Care Information Section (optional)	Measure Performed

This template defines the way that an advancing care information measure should be referenced and a measure performed type of advancing care information measure should be reported. Measures are referenced through externalAct reference to an externalDocument. The externalDocument/id is used to reference the measure.

Table 35: Advancing Care Information Measure Performed Measure Reference and Results Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
organizer (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.29:2016-09-01)					
@classCode	1..1	SHALL		3259-21419	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = CLUSTER
@moodCode	1..1	SHALL		3259-21420	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3259-21408	
@root	1..1	SHALL		3259-21417	2.16.840.1.113883.10.20.27.3.2 9
@extension	1..1	SHALL		3259-21418	2016-09-01
reference	1..1	SHALL		3259-21405	
@typeCode	1..1	SHALL		3259-21416	REFR
externalDocument	1..1	SHALL		3259-21406	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass)
@classCode	1..1	SHALL		3259-21415	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = DOC
id	1..1	SHALL		3259-21407	
@root	1..1	SHALL		3259-21412	2.16.840.1.113883.3.7031
@extension	1..1	SHALL		3259-21413	
text	0..1	SHOULD		3259-21414	
component	1..1	SHALL		3259-21404	
observation	1..1	SHALL		3259-21411	Measure Performed (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.27:2016-09-01

1. Conforms to [Measure Reference](#) template (identifier: urn:oid:2.16.840.1.113883.10.20.24.3.98).
2. **SHALL** contain exactly one [1..1] @classCode="CLUSTER" (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:3259-21419).
3. **SHALL** contain exactly one [1..1] @moodCode="EVN" (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:3259-21420).

4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3259-21408) such that it
 - a. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.27.3.29" (CONF:3259-21417).
 - b. **SHALL** contain exactly one [1..1] **@extension**="2016-09-01" (CONF:3259-21418).
5. **SHALL** contain exactly one [1..1] **reference** (CONF:3259-21405) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode**="REFR" (CONF:3259-21416).
 - b. **SHALL** contain exactly one [1..1] **externalDocument** (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:3259-21406).
 - i. This externalDocument **SHALL** contain exactly one [1..1] **@classCode**="DOC" Document (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6) (CONF:3259-21415).
 - ii. This externalDocument **SHALL** contain exactly one [1..1] **id** (CONF:3259-21407) such that it
 1. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.3.7031" (CONF:3259-21412).
Note: This OID indicates that the **@extension** contains advancing care information identifier
 2. **SHALL** contain exactly one [1..1] **@extension** (CONF:3259-21413).
Note: This **@extension** is the value of advancing care information identifier

This text is the title and optionally a brief description of the measure.

- iii. This externalDocument **SHOULD** contain zero or one [0..1] **text** (CONF:3259-21414).
6. **SHALL** contain exactly one [1..1] **component** (CONF:3259-21404) such that it
 - a. **SHALL** contain exactly one [1..1] **Measure Performed** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.27:2016-09-01) (CONF:3259-21411).

Figure 38: Advancing Care Information Measure Performed Measure Reference and Results Example

```
<organizer classCode="CLUSTER" moodCode="EVN">
  <!-- Measure Reference template -->
  <templateId root="2.16.840.1.113883.10.20.24.3.98"/>
  <!-- Advancing Care Information Measure Performed Measure Reference and Results -->
  <templateId root="2.16.840.1.113883.10.20.27.3.29" extension="2016-09-01"/>
  <id root="ac575aef-7062-4ea2-b723-df517cfa470a"/>
  <statusCode code="completed"/>
  <reference typeCode="REFR">
    <!-- Reference to a particular advancing care information measure unique identifier. -->
    <externalDocument classCode="DOC" moodCode="EVN">
      <!-- extension is the unique identifier for an advancing care informationmeasure. -->
      <id root="2.16.840.1.113883.3.7031" extension="ACI_PPHI_1"/>
      <!-- Advancing care information measure title -->
      <text>Patient Security Analysis</text>
    </externalDocument>
  </reference>
  <component>
    <!-- Measure Performed -->
    ...
  </component>
  <component>
    ...
  </component>
</organizer>
```

5.8.2 Advancing Care Information Numerator Denominator Type Measure Reference and Results (V2)

[organizer: identifier urn:hl7ii:2.16.840.1.113883.10.20.27.3.28:2017-06-01 (open)]

Table 36: Advancing Care Information Numerator Denominator Type Measure Reference and Results (V2) Contexts

Contained By:	Contains:
Advancing Care Information Section (V2) (optional)	Advancing Care Information Numerator Denominator Type Measure Denominator Data Advancing Care Information Numerator Denominator Type Measure Numerator Data Performance Rate

This template defines the way that an advancing care information measure should be referenced. Measures are referenced through externalAct reference to an externalDocument. The externalDocument/id is used to reference the measure.

Table 37: Advancing Care Information Numerator Denominator Type Measure Reference and Results (V2) Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
organizer (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.28:2017-06-01)					
@classCode	1..1	SHALL		3338-21273	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = CLUSTER
@moodCode	1..1	SHALL		3338-21274	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3338-21248	
@root	1..1	SHALL		3338-21266	2.16.840.1.113883.10.20.27.3.2 8
@extension	1..1	SHALL		3338-21396	2017-06-01
reference	1..1	SHALL		3338-21242	
@typeCode	1..1	SHALL		3338-21265	REFR
externalDocument	1..1	SHALL		3338-21243	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass)
@classCode	1..1	SHALL		3338-21264	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = DOC
id	1..1	SHALL		3338-21247	
@root	1..1	SHALL		3338-21402	2.16.840.1.113883.3.7031
@extension	1..1	SHALL		3338-21403	
text	0..1	SHOULD		3338-21263	
component	0..1	MAY		3338-21240	
observation	1..1	SHALL		3338-21311	Performance Rate (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.30:2016-09-01)
component	1..1	SHALL		3338-21312	
observation	1..1	SHALL		3338-21313	Advancing Care Information Numerator Denominator Type Measure Numerator Data (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.31:2016-09-01)

component	1..1	SHALL		3338-21320	
observation	1..1	SHALL		3338-21321	Advancing Care Information Numerator Denominator Type Measure Denominator Data (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.32:2016-09-01

1. Conforms to [Measure Reference](#) template (identifier: urn:oid:2.16.840.1.113883.10.20.24.3.98).
2. **SHALL** contain exactly one [1..1] **@classCode**="CLUSTER" (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:3338-21273).
3. **SHALL** contain exactly one [1..1] **@moodCode**="EVN" (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:3338-21274).
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3338-21248) such that it
 - a. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.27.3.28" (CONF:3338-21266).
 - b. **SHALL** contain exactly one [1..1] **@extension**="2017-06-01" (CONF:3338-21396).
5. **SHALL** contain exactly one [1..1] **reference** (CONF:3338-21242) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode**="REFR" (CONF:3338-21265).
 - b. **SHALL** contain exactly one [1..1] **externalDocument** (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:3338-21243).
 - i. This externalDocument **SHALL** contain exactly one [1..1] **@classCode**="DOC" Document (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6) (CONF:3338-21264).
 - ii. This externalDocument **SHALL** contain exactly one [1..1] **id** (CONF:3338-21247) such that it
 1. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.3.7031" (CONF:3338-21402).
Note: This OID indicates that the **@extension** contains advancing care information measure identifier
 2. **SHALL** contain exactly one [1..1] **@extension** (CONF:3338-21403).
Note: This **@extension** is the value of advancing care information identifier

This text is the title and optionally a brief description of the measure.

- iii. This externalDocument **SHOULD** contain zero or one [0..1] **text** (CONF:3338-21263).
6. **MAY** contain zero or one [0..1] **component** (CONF:3338-21240) such that it
 - a. **SHALL** contain exactly one [1..1] [Performance Rate](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.30:2016-09-01) (CONF:3338-21311).
7. **SHALL** contain exactly one [1..1] **component** (CONF:3338-21312) such that it

- a. **SHALL** contain exactly one [1..1] [Advancing Care Information Numerator Denominator Type Measure Numerator Data](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.31:2016-09-01) (CONF:3338-21313).
8. **SHALL** contain exactly one [1..1] **component** (CONF:3338-21320) such that it
 - a. **SHALL** contain exactly one [1..1] [Advancing Care Information Numerator Denominator Type Measure Denominator Data](#) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.32:2016-09-01) (CONF:3338-21321).

Figure 39: Advancing Care Information Numerator Denominator Type Measure Reference and Results (V2) Example

```
<organizer classCode="CLUSTER" moodCode="EVN">
  <!-- Measure Reference template -->
  <templateId root="2.16.840.1.113883.10.20.24.3.98"/>
  <!-- Advancing care information Numerator Denominator Type Measure Reference and
Results -->
  <templateId root="2.16.840.1.113883.10.20.27.3.28" extension="2017-06-01"/>
  <id root="ac575aef-7062-4ea2-b723-df517cfa470a"/>
  <statusCode code="completed"/>
  <reference typeCode="REFR">
    <!-- Reference to a particular advancing care information measure's unique
identifier. -->
    <externalDocument classCode="DOC" moodCode="EVN">
      <!-- extension is the unique identifier for an advancing care
information measure. -->
      <id root="2.16.840.1.113883.3.7031" extension="ACI_MOD_PEA_1"/>
      <!-- Advancing care information measure title -->
      <text>Patient Access</text>
    </externalDocument>
  </reference>
  <component>
    <!-- Performance Rate -->
    ...
  </component>
  <component>
    <!-- ACI Numerator Denominator Type Measure Denominator Data -->
    ...
  </component>
  <component>
    <!-- ACI Numerator Denominator Type Measure Numerator Data -->
    ...
  </component>
</organizer>
```

5.8.3 Improvement Activity Performed Measure Reference and Results

[organizer: identifier urn:hl7ii:2.16.840.1.113883.10.20.27.3.33:2016-09-01 (open)]

Table 38: Improvement Activity Performed Measure Reference and Results Contexts

Contained By:	Contains:
Improvement Activity Section (V2) (required)	Measure Performed

This template defines the way that an improvement activity should be referenced and reported. Improvement activity is referenced through externalAct reference to an externalDocument. The externalDocument/id is used to reference the improvement activity.

Table 39: Improvement Activity Performed Measure Reference and Results Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
organizer (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.33:2016-09-01)					
@classCode	1..1	SHALL		3259-21434	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = CLUSTER
@moodCode	1..1	SHALL		3259-21435	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3259-21425	
@root	1..1	SHALL		3259-21432	2.16.840.1.113883.10.20.27.3.3 3
@extension	1..1	SHALL		3259-21433	2016-09-01
reference	1..1	SHALL		3259-21422	
@typeCode	1..1	SHALL		3259-21431	REFR
externalDocument	1..1	SHALL		3259-21423	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass)
@classCode	1..1	SHALL		3259-21430	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = DOC
id	1..1	SHALL		3259-21424	
@root	1..1	SHALL		3259-21427	2.16.840.1.113883.3.7034
@extension	1..1	SHALL		3259-21428	
text	0..1	SHOULD		3259-21429	
component	1..1	SHALL		3259-21421	
observation	1..1	SHALL		3259-21426	Measure Performed (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.27:2016-09-01

1. Conforms to [Measure Reference](#) template (identifier: urn:oid:2.16.840.1.113883.10.20.24.3.98).
2. **SHALL** contain exactly one [1..1] @classCode="CLUSTER" (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:3259-21434).
3. **SHALL** contain exactly one [1..1] @moodCode="EVN" (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:3259-21435).
4. **SHALL** contain exactly one [1..1] templateId (CONF:3259-21425) such that it

- a. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.27.3.33" (CONF:3259-21432).
 - b. **SHALL** contain exactly one [1..1] **@extension**="2016-09-01" (CONF:3259-21433).
 - 5. **SHALL** contain exactly one [1..1] **reference** (CONF:3259-21422) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode**="REFR" (CONF:3259-21431).
 - b. **SHALL** contain exactly one [1..1] **externalDocument** (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:3259-21423).
 - i. This externalDocument **SHALL** contain exactly one [1..1] **@classCode**="DOC" Document (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6) (CONF:3259-21430).
 - ii. This externalDocument **SHALL** contain exactly one [1..1] **id** (CONF:3259-21424) such that it
 - 1. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.3.7034" (CONF:3259-21427).
Note: This OID indicates that the **@extension** contains improvement activity identifier
 - 2. **SHALL** contain exactly one [1..1] **@extension** (CONF:3259-21428).
Note: This **@extension** is the value of improvement activity identifier
- This text is the title and optionally a brief description of the improvement activity.
- iii. This externalDocument **SHOULD** contain zero or one [0..1] **text** (CONF:3259-21429).
6. **SHALL** contain exactly one [1..1] **component** (CONF:3259-21421) such that it
 - a. **SHALL** contain exactly one [1..1] Measure Performed (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.27:2016-09-01) (CONF:3259-21426).

Figure 40: Improvement Activity Performed Reference and Results Example

```
<organizer classCode="CLUSTER" moodCode="EVN">
  <!-- Measure Reference template -->
  <templateId root="2.16.840.1.113883.10.20.24.3.98"/>
  <!-- Improvement Activity Performed Reference and Results -->
  <templateId root="2.16.840.1.113883.10.20.27.3.33" extension="2016-09-01"/>
  <id root="ac575aef-7062-4ea2-b723-df517cfa470a"/>
  <statusCode code="completed"/>
  <reference typeCode="REFR">
    <!-- Reference to a particular improvement activity's unique identifier. -->
    <externalDocument classCode="DOC" moodCode="EVN">
      <!-- extension is the unique identifier for an improvement activity. --
    >
      <id root="2.16.840.1.113883.3.7034" extension="IA_EPA_2"/>
      <!-- improvement activity title -->
      <text>Use of telehealth services that expand practice access</text>
    </externalDocument>
  </reference>
  <component>
    <!-- Measure Performed -->
    ...
  </component>
</organizer>
```

5.8.4 Measure Reference and Results (V3)

[organizer: identifier urn:hl7ii:2.16.840.1.113883.10.20.27.3.1:2016-09-01 (open)]

Table 40: Measure Reference and Results (V3) Contexts

Contained By:	Contains:
QRDA Category III Measure Section (V3) (required)	Measure Data (V3) Performance Rate for Proportion Measure (V2) Reporting Rate for Proportion Measure

This template defines the way that a measure should be referenced. Measures are referenced through externalAct reference to an externalDocument. The externalDocument/ids and version numbers are used to reference the measure. Component entries can be used to report various rates, aggregate counts (e.g. number of patients in the measure's denominator); stratified aggregate counts (e.g. number of male patients in the measure's denominator); or continuous variables from continuous variable measures.

Table 41: Measure Reference and Results (V3) Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
organizer (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.1:2016-09-01)					
@classCode	1..1	SHALL		3259-17887	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = CLUSTER
@moodCode	1..1	SHALL		3259-17888	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3259-17908	
@root	1..1	SHALL		3259-17909	2.16.840.1.113883.10.20.27.3.1
@extension	1..1	SHALL		3259-21170	2016-09-01
reference	1..1	SHALL		3259-17890	
@typeCode	1..1	SHALL		3259-17891	REFR
externalDocument	1..1	SHALL		3259-17892	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass)
@classCode	1..1	SHALL		3259-19548	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = DOC
id	1..1	SHALL		3259-18192	
@root	1..1	SHALL		3259-18193	2.16.840.1.113883.4.738
@extension	1..1	SHALL		3259-21169	
code	0..1	SHOULD		3259-17896	urn:oid:2.16.840.1.113883.6.1 (LOINC)
@code	1..1	SHALL		3259-19553	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 57024-2
text	0..1	SHOULD		3259-17897	
setId	0..1	MAY		3259-17899	
versionNumber	0..1	MAY		3259-17901	
reference	1..1	SHOULD		3259-18353	
externalObservation	1..1	SHALL		3259-18354	
id	1..*	SHALL		3259-	

				18355	
code	1..1	SHALL		3259-18357	urn:oid:2.16.840.1.113883.6.1 (LOINC)
@code	1..1	SHALL		3259-19554	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 55185-3
text	1..1	SHALL		3259-18358	
component	0..*	MAY		3259-17903	
observation	1..1	SHALL		3259-17904	Performance Rate for Proportion Measure (V2) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.14:2016-09-01
component	0..*	MAY		3259-18423	
observation	1..1	SHALL		3259-18424	Reporting Rate for Proportion Measure (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.15
component	1..*	SHALL		3259-18425	
observation	1..1	SHALL		3259-18426	Measure Data (V3) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.5:2016-09-01

1. Conforms to [Measure Reference](#) template (identifier: urn:oid:2.16.840.1.113883.10.20.24.3.98).
2. **SHALL** contain exactly one [1..1] @classCode="CLUSTER" (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:3259-17887).
3. **SHALL** contain exactly one [1..1] @moodCode="EVN" (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:3259-17888).
4. **SHALL** contain exactly one [1..1] templateId (CONF:3259-17908) such that it
 - a. **SHALL** contain exactly one [1..1] @root="2.16.840.1.113883.10.20.27.3.1" (CONF:3259-17909).
 - b. **SHALL** contain exactly one [1..1] @extension="2016-09-01" (CONF:3259-21170).
5. **SHALL** contain exactly one [1..1] reference (CONF:3259-17890) such that it
 - a. **SHALL** contain exactly one [1..1] @typeCode="REFR" (CONF:3259-17891).
 - b. **SHALL** contain exactly one [1..1] externalDocument (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:3259-17892).
 - i. This externalDocument **SHALL** contain exactly one [1..1] @classCode="DOC" Document (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6) (CONF:3259-19548).
 - ii. This externalDocument **SHALL** contain exactly one [1..1] id (CONF:3259-18192) such that it

1. **SHALL** contain exactly one [1..1]
`@root="2.16.840.1.113883.4.738"` (CONF:3259-18193).
 Note: This OID indicates that the `@extension` contains the version specific identifier for the eMeasure
2. **SHALL** contain exactly one [1..1] `@extension` (CONF:3259-21169).
 Note: This `@extension` SHALL equal the version specific identifier for eMeasure (i.e. `QualityMeasureDocument/id`)
- iii. This externalDocument **SHOULD** contain zero or one [0..1] `code` (CodeSystem: LOINC `urn:oid:2.16.840.1.113883.6.1` **STATIC**) (CONF:3259-17896).
 1. The code, if present, **SHALL** contain exactly one [1..1] `@code="57024-2"` Health Quality Measure Document (CodeSystem: LOINC `urn:oid:2.16.840.1.113883.6.1`) (CONF:3259-19553).

This text is the title and optionally a brief description of the Quality Measure.

- iv. This externalDocument **SHOULD** contain zero or one [0..1] `text` (CONF:3259-17897).
- v. This externalDocument **MAY** contain zero or one [0..1] `setId` (CONF:3259-17899).
 1. If this reference is to an eMeasure, this `setId` **SHALL** equal the `QualityMeasureDocument/setId` which is the eMeasure version neutral id (CONF:3259-17900).
- vi. This externalDocument **MAY** contain zero or one [0..1] `versionNumber` (CONF:3259-17901).

There is a known data type mismatch issue between the CDA R2 and HQMF for the `versionNumber` attribute. This guide is based on CDA R2, which is derived from the HL7 Reference Information Model (RIM) Version 2.07. In RIM 2.07, the `versionNumber` attribute is specified as INT data type. HQMF, however, is derived from HL7 RIM, Version 2.44, where `versionNumber` is specified as ST data type. Since 2015, the MAT tool assigns a string value such as 4.0.000 as the version number for eMeasures that are authored by the MAT. If `versionNumber="4.0.000"` were sent in a QRDA Category III file, it will fail the CDA_SDTC.xsd schema validation.

To avoid this problem, since `versionNumber` is an optional data element (CONF:77-17901), this guide recommends eMeasure version number not be submitted in a QRDA Category III report. Version specific identifier for an eMeasure can be used to uniquely identify an eMeasure and it is a required data element for QRDA III.

1. If this reference is to an eMeasure this version number **SHALL** equal the sequential eMeasure Version number (CONF:3259-17902).

In the case that an eMeasure is part of a measure set or group, the following reference is used to identify that set or group. If the eMeasure is not part of a measure set, the following reference element should not be defined.

6. **SHOULD** contain exactly one [1..1] `reference` (CONF:3259-18353) such that it
 - a. **SHALL** contain exactly one [1..1] `externalObservation` (CONF:3259-18354).
 - i. This externalObservation **SHALL** contain at least one [1..*] `id` (CONF:3259-18355).

1. This id **SHALL** equal the id of the corresponding measure set definition within the eMeasure (CONF:3259-18356).
 - ii. This externalObservation **SHALL** contain exactly one [1..1] **code** (CodeSystem: LOINC urn:oid:2.16.840.1.113883.6.1 **STATIC**) (CONF:3259-18357).
 1. This code **SHALL** contain exactly one [1..1] **@code="55185-3"** measure set (CodeSystem: LOINC urn:oid:2.16.840.1.113883.6.1) (CONF:3259-19554).
 - iii. This externalObservation **SHALL** contain exactly one [1..1] **text** (CONF:3259-18358).
 1. This text **SHOULD** be the title of the corresponding measure set (CONF:3259-18359).
7. **MAY** contain zero or more [0..*] **component** (CONF:3259-17903) such that it
- a. **SHALL** contain exactly one [1..1] Performance Rate for Proportion Measure (V2) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.14:2016-09-01) (CONF:3259-17904).
8. **MAY** contain zero or more [0..*] **component** (CONF:3259-18423) such that it
- a. **SHALL** contain exactly one [1..1] Reporting Rate for Proportion Measure (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.15) (CONF:3259-18424).
9. **SHALL** contain at least one [1..*] **component** (CONF:3259-18425) such that it
- a. **SHALL** contain exactly one [1..1] Measure Data (V3) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.5:2016-09-01) (CONF:3259-18426).

Figure 41: Measure Reference and Results (V3) Example

```
<organizer classCode="CLUSTER" moodCode="EVN">
  <!-- Measure Reference template -->
  <templateId root="2.16.840.1.113883.10.20.24.3.98"/>
  <!-- Measure Reference and Results (V3) template -->
  <templateId root="2.16.840.1.113883.10.20.27.3.1" extension="2016-09-01"/>
  <statusCode code="completed"/>
  <reference typeCode="REFR">
    <externalDocument classCode="DOC" moodCode="EVN">
      <!-- The example eMeasure is 0496 -->
      <!-- This is the version specific identifier for eMeasure:
      QualityMeasureDocument/id - the OID in the @root indicates that
      the @extension (which is a GUID) contains the version specific
      identifier for eMeasure-->
      <id root="2.16.840.1.113883.4.738"
      extension="40280381-4c18-79df-014c-291ef3f90654"/>
      <!-- This is the NQF Number, root is an
      NQF OID and for eMeasure Number and extension
      is the eMeasure's NQF number -->
      <id root="2.16.840.1.113883.3.560.1" extension="0496"/>
      <!-- eMeasure Measure Authoring Tool Identifier -->
      <id root="2.16.840.1.113883.3.560.101.2" extension="32"/>
      <code code="57024-2"
      displayName="Health Quality Measure Document"
      codeSystemName="LOINC"
      codeSystem="2.16.840.1.113883.6.1" />
      <!-- This is the title of the eMeasure -->
      <text>Median Admit Decision Time to ED Departure Time
      for Admitted Patients</text>
    </externalDocument>
  </reference>
  <!-- SHOULD Reference the measure set it is a member of-->
  <reference typeCode="REFR">
    <externalObservation>
      <!-- SHALL contain at least one id -->
      <id root="b6ac13e2-beb8-4e4f-94ed-fcc397406cd8"/>
      <!-- SHALL single value binding -->
      <code code="55185-3" displayName="measure set"
      codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"/>
      <!-- SHALL text which should be the title of the measures set -->
      <text>Emergency Department</text>
    </externalObservation>
  </reference>
  <component>
    <!-- Optional Performance Rate for Proportion Measure (V2) template -->
    <observation classCode="OBS" moodCode="EVN">
      ...
    </observation>
  </component>
  <component>
    <!-- Optional Reporting Rate for Proportion Measure template -->
    <observation classCode="OBS" moodCode="EVN">
      ...
    </observation>
  </component>
</component>
```

```
        <!-- Measure Data -->
        <observation classCode="OBS" moodCode="EVN">
        ...
    </observation>
</component>
<component>
    <!-- Measure Data -->
    <observation classCode="OBS" moodCode="EVN">
    ...
</observation>
</component>
</organizer>
```


Figure 42: Corresponding eMeasure Example

```

<!-- This example taken from EH_CMS32v5_NQF0496_ED3_MedianTime -->
<!--
    *****
    Measure Header Section
    *****
-->
<typeId root="2.16.840.1.113883.1.3" extension="POQM_HD000001"/>
<templateId>
  <item extension="2014-11-24" root="2.16.840.1.113883.10.20.28.1.1"/>
</templateId>
<id root="40280381-4c18-79df-014c-291ef3f90654"/>
<code code="57024-2" codeSystem="2.16.840.1.113883.6.1" displayName="Health
  Quality Measure Document"/>
<title>Median Time from ED Arrival to ED Departure for Discharged ED
  Patients</title>
  ...
<setId root="3fd13096-2c8f-40b5-9297-b714e8de9133"/>
<versionNumber value="5.0.000"/>
  ...
<subjectOf>
  <measureAttribute>
    <code nullFlavor="OTH">
      <originalText>NQF ID Number</originalText>
    </code>
    <value xsi:type="II" root="2.16.840.1.113883.3.560.1" extension="0496"/>
  </measureAttribute>
</subjectOf>
  ...
<subjectOf>
  <measureAttribute>
    <code nullFlavor="OTH">
      <originalText>eMeasure Identifier</originalText>
    </code>
    <value xsi:type="ED" mediaType="text/plain">32</value>
  </measureAttribute>
</subjectOf>

```

5.9 Payer Supplemental Data Element (V2)

[observation: identifier urn:hl7ii:2.16.840.1.113883.10.20.27.3.9:2016-02-01 (open)]

Table 42: Payer Supplemental Data Element (V2) Contexts

Contained By:	Contains:
Measure Data (V3) (optional)	Aggregate Count

This observation represents the policy or program providing the coverage for the patients being reported on and provides the number of patients in the population that are covered by that policy or program.

Table 43: Payer Supplemental Data Element (V2) Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observation (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.9:2016-02-01)					
@classCode	1..1	SHALL		2226-21155	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = OBS
@moodCode	1..1	SHALL		2226-21156	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		2226-18237	
@root	1..1	SHALL		2226-18238	2.16.840.1.113883.10.20.27.3.9
@extension	1..1	SHALL		2226-21157	2016-02-01
code	1..1	SHALL		2226-21158	
@code	1..1	SHALL		2226-21159	48768-6
@codeSystem	1..1	SHALL		2226-21165	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 2.16.840.1.113883.6.1
statusCode	1..1	SHALL		2226-18106	
@code	1..1	SHALL		2226-18107	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
value	1..1	SHALL	CD	2226-18250	urn:oid:2.16.840.1.114222.4.11.3591 (Payer)
entryRelationship	1..1	SHALL		2226-18108	
@typeCode	1..1	SHALL		2226-18109	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = SUBJ
@inversionInd	1..1	SHALL		2226-18110	true
observation	1..1	SHALL		2226-18111	Aggregate Count (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.3

1. **SHALL** contain exactly one [1..1] @classCode="OBS" (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:2226-21155).
2. **SHALL** contain exactly one [1..1] @moodCode="EVN" (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:2226-21156).
3. **SHALL** contain exactly one [1..1] templateId (CONF:2226-18237) such that it

- a. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.27.3.9" (CONF:2226-18238).
 - b. **SHALL** contain exactly one [1..1] **@extension**="2016-02-01" (CONF:2226-21157).
- 4. **SHALL** contain exactly one [1..1] **code** (CONF:2226-21158).
 - a. This code **SHALL** contain exactly one [1..1] **@code**="48768-6" Payment source (CONF:2226-21159).
 - 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:2226-21165).
- 5. **SHALL** contain exactly one [1..1] **statusCode** (CONF:2226-18106).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code**="completed" Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14 **STATIC**) (CONF:2226-18107).
- 6. **SHALL** contain exactly one [1..1] **value** with **@xsi:type**="CD", where the code **SHOULD** be selected from ValueSet [Payer](#) urn:oid:2.16.840.1.114222.4.11.3591 **DYNAMIC** (CONF:2226-18250).
- 7. **SHALL** contain exactly one [1..1] **entryRelationship** (CONF:2226-18108) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode**="SUBJ" Has Subject (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002 **STATIC**) (CONF:2226-18109).
 - b. **SHALL** contain exactly one [1..1] **@inversionInd**="true" (CONF:2226-18110).
 - c. **SHALL** contain exactly one [1..1] [Aggregate Count](#) (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.3) (CONF:2226-18111).

Figure 43: Payer Supplemental Data Element (V2) Example

```
<observation classCode="OBS" moodCode="EVN">
  <!-- Payer Supplemental Data Element V2 template ID -->
  <templateId root="2.16.840.1.113883.10.20.27.3.9" extension="2016-02-01"/>
  <code code="48768-6"
    displayName="Payment source"
    codeSystem="2.16.840.1.113883.6.1"
    codeSystemName="LOINC"/>
  <statusCode code="completed"/>
  <value xsi:type="CD"
    code="1"
    codeSystem="2.16.840.1.113883.3.221.5"
    codeSystemName="Source of Payment Typology"
    displayName="Medicare"/>
  <entryRelationship typeCode="SUBJ" inversionInd="true">
    <!-- Aggregate Count template -->
    <observation classCode="OBS" moodCode="EVN">
      ...
    </observation>
  </entryRelationship>
</observation>
```

5.10 Performance Rate

[observation: identifier
urn:hl7ii:2.16.840.1.113883.10.20.27.3.30:2016-09-01 (open)]

Table 44: Performance Rate Contexts

Contained By:	Contains:
Advancing Care Information Numerator Denominator Type Measure Reference and Results (required)	

Table 45: Performance Rate Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observation (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.30:2016-09-01)					
@classCode	1..1	SHALL		3259-21303	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = OBS
@moodCode	1..1	SHALL		3259-21304	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3259-21298	
@root	1..1	SHALL		3259-21310	2.16.840.1.113883.10.20.27.3.3 0
@extension	1..1	SHALL		3259-21441	2016-09-01
code	1..1	SHALL		3259-21294	
@code	1..1	SHALL		3259-21305	72510-1
@codeSystem	1..1	SHALL		3259-21306	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 2.16.840.1.113883.6.1
statusCode	1..1	SHALL		3259-21297	
@code	1..1	SHALL		3259-21309	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
value	1..1	SHALL	REAL	3259-21307	

1. **SHALL** contain exactly one [1..1] @classCode="OBS" Observation (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:3259-21303).
2. **SHALL** contain exactly one [1..1] @moodCode="EVN" Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:3259-21304).
3. **SHALL** contain exactly one [1..1] templateId (CONF:3259-21298) such that it
 - a. **SHALL** contain exactly one [1..1] @root="2.16.840.1.113883.10.20.27.3.30" (CONF:3259-21310).
 - b. **SHALL** contain exactly one [1..1] @extension="2016-09-01" (CONF:3259-21441).
4. **SHALL** contain exactly one [1..1] code (CONF:3259-21294).
 - a. This code **SHALL** contain exactly one [1..1] @code="72510-1" Performance Rate (CONF:3259-21305).
 - 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:3259-21306).
5. **SHALL** contain exactly one [1..1] statusCode (CONF:3259-21297).

- a. This statusCode **SHALL** contain exactly one [1..1] @code="completed" Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14 **STATIC**) (CONF:3259-21309).
6. **SHALL** contain exactly one [1..1] value with @xsi:type="REAL" (CONF:3259-21307).

Figure 44: Performance Rate Example

```
<observation classCode="OBS" moodCode="EVN">
  <templateId root="2.16.840.1.113883.10.20.27.3.30" extension="2016-09-01"/>
  <code code="72510-1" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
  displayName="Performance Rate"/>
  <statusCode code="completed"/>
  <value xsi:type="REAL" value="0.750000"/>
</observation>
```

5.10.1 Performance Rate for Proportion Measure (V2)

```
[observation: identifier
urn:hl7ii:2.16.840.1.113883.10.20.27.3.14:2016-09-01 (open)]
```

Table 46: Performance Rate for Proportion Measure (V2) Contexts

Contained By:	Contains:
Measure Reference and Results (V3) (optional)	

This template is only used with proportion measures. The performance rate is a ratio of patients that meet the numerator criteria divided by patients in the denominator (after accounting for exclusions and exceptions). Performance Rate is calculated using this formula: Performance Rate = (Numerator – Numerator Exclusions) / (Denominator – Denominator Exclusions – Denominator Exceptions). The predicted rate (based on the measure's risk-adjustment model) can be captured in the reference range.

Table 47: Performance Rate for Proportion Measure (V2) Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observation (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.14:2016-09-01)					
@classCode	1..1	SHALL		3259-18395	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = OBS
@moodCode	1..1	SHALL		3259-18396	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3259-19649	
@root	1..1	SHALL		3259-19650	2.16.840.1.113883.10.20.27.3.1 4
@extension	1..1	SHALL		3259-21444	2016-09-01
reference	0..1	MAY		3259-19651	
@typeCode	1..1	SHALL		3259-19652	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = REFR
externalObservation	1..1	SHALL		3259-19653	
@classCode	1..1	SHALL		3259-19654	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass)
id	1..1	SHALL		3259-19655	
@root	1..1	SHALL		3259-19656	
code	1..1	SHALL		3259-19657	
@code	1..1	SHALL		3259-19658	NUMER
@codeSystem	1..1	SHALL		3259-21180	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode) = 2.16.840.1.113883.5.4
referenceRange	0..1	MAY		3259-18400	
observationRange	1..1	SHALL		3259-18401	
value	1..1	SHALL	REAL	3259-18402	

1. Conforms to [Performance Rate](#) template (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.30:2016-09-01).
2. **SHALL** contain exactly one [1..1] **@classCode**="OBS" Observation (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:3259-18395).
3. **SHALL** contain exactly one [1..1] **@moodCode**="EVN" Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:3259-18396).
4. **SHALL** contain exactly one [1..1] **templateId** (CONF:3259-19649) such that it
 - a. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.27.3.14" (CONF:3259-19650).
 - b. **SHALL** contain exactly one [1..1] **@extension**="2016-09-01" (CONF:3259-21444).

This is the optional reference to the specific Numerator included in the calculation.

5. **MAY** contain zero or one [0..1] **reference** (CONF:3259-19651).
 - a. The reference, if present, **SHALL** contain exactly one [1..1] **@typeCode**="REFR" refers to (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:3259-19652).
 - b. The reference, if present, **SHALL** contain exactly one [1..1] **externalObservation** (CONF:3259-19653).
 - i. This externalObservation **SHALL** contain exactly one [1..1] **@classCode** (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6) (CONF:3259-19654).

The externalObservationID contains the ID of the numerator in the referenced eMeasure.

- ii. This externalObservation **SHALL** contain exactly one [1..1] **id** (CONF:3259-19655).
 1. This id **SHALL** contain exactly one [1..1] **@root** (CONF:3259-19656).
- iii. This externalObservation **SHALL** contain exactly one [1..1] **code** (CONF:3259-19657).
 1. This code **SHALL** contain exactly one [1..1] **@code**="NUMER" Numerator (CONF:3259-19658).
 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:3259-21180).

The reference range is optionally used to represent the predicted rate based on the measure's risk-adjustment model.

6. **MAY** contain zero or one [0..1] **referenceRange** (CONF:3259-18400).
 - a. The referenceRange, if present, **SHALL** contain exactly one [1..1] **observationRange** (CONF:3259-18401).
 - i. This observationRange **SHALL** contain exactly one [1..1] **value** with **@xsi:type**="REAL" (CONF:3259-18402).

Figure 45: Performance Rate for Proportion Measure (V2) Example

```
<observation classCode="OBS" moodCode="EVN">
  <templateId root="2.16.840.1.113883.10.20.27.3.30" extension="2016-09-01"/>
  <!-- Performance Rate for Proportion Measure template (V2) -->
  <templateId root="2.16.840.1.113883.10.20.27.3.14" extension="2016-09-01"/>
  <!-- Performance Rate -->
  <templateId root="2.16.840.1.113883.10.20.27.3.30" extension="2016-09-01"/>
  <code code="72510-1" codeSystem="2.16.840.1.113883.6.1"
    displayName="Performance Rate"
    codeSystemName="2.16.840.1.113883.6.1"/>
  <statusCode code="completed"/>
  <value xsi:type="REAL" value="0.833"/>
  <!-- MAY 0..1 (Note: this is the reference to the specific Numerator included
in the calculation) -->
  <reference typeCode="REFR">
    <externalObservation classCode="OBS" moodCode="EVN">
      <!-- The externalObservationID contains the ID of the numerator in the
referenced eMeasure. -->
      <id root="3F385926-FFB0-40C9-B916-37827482C31E"/>
      <code code="NUMER" displayName="Numerator"
        codeSystem="2.16.840.1.113883.5.4"
        codeSystemName="ObservationValue"/>
    </externalObservation>
  </reference>
  <!-- MAY 0..1 Used to represent the predicted rate based on the measure's
risk-adjustment model. -->
  <referenceRange>
    <observationRange>
      <value xsi:type="REAL" value="0.625"/>
    </observationRange>
  </referenceRange>
</observation>
```

Figure 46: Corresponding eMeasure Example

```
<!-- This example is taken from CMS165v4_NQF0018, and is the specific reference
numerator -->
<numeratorCriteria classCode="OBS" moodCode="EVN">
  <id extension="numerator" root="3F385926-FFB0-40C9-B916-37827482C31E"/>
  <code code="NUMER" codeSystem="2.16.840.1.113883.5.4"
    codeSystemName="ActCode">
    <displayName value="numerator"/>
  </code>
  ...
```

5.11 Postal Code Supplemental Data Element (V2)

[observation: identifier
urn:hl7ii:2.16.840.1.113883.10.20.27.3.10:2016-09-01 (open)]

Table 48: Postal Code Supplemental Data Element (V2) Contexts

Contained By:	Contains:
Measure Data (V3) (optional)	Aggregate Count

This observation represents a postal code and provides the number of patients in the population that live in that postal code.

Table 49: Postal Code Supplemental Data Element (V2) Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observation (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.10:2016-09-01)					
@classCode	1..1	SHALL		3259-18209	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = OBS
@moodCode	1..1	SHALL		3259-18210	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3259-18211	
@root	1..1	SHALL		3259-18212	2.16.840.1.113883.10.20.27.3.1 0
@extension	1..1	SHALL		3259-21446	2016-09-01
code	1..1	SHALL		3259-18213	
@code	1..1	SHALL		3259-18214	45401-7
@codeSystem	1..1	SHALL		3259-21445	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 2.16.840.1.113883.6.1
statusCode	1..1	SHALL		3259-18100	
@code	1..1	SHALL		3259-18101	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
value	1..1	SHALL	ST	3259-18215	
entryRelationship	1..1	SHALL		3259-18102	
@typeCode	1..1	SHALL		3259-18103	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = SUBJ
@inversionInd	1..1	SHALL		3259-18104	true
observation	1..1	SHALL		3259-18105	Aggregate Count (identifier: urn:oid:2.16.840.1.113883.10.2 0.27.3.3

1. **SHALL** contain exactly one [1..1] @classCode="OBS" (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:3259-18209).
2. **SHALL** contain exactly one [1..1] @moodCode="EVN" (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:3259-18210).
3. **SHALL** contain exactly one [1..1] templateId (CONF:3259-18211) such that it

- a. **SHALL** contain exactly one [1..1] @root="2.16.840.1.113883.10.20.27.3.10" (CONF:3259-18212).
- b. **SHALL** contain exactly one [1..1] @extension="2016-09-01" (CONF:3259-21446).
- 4. **SHALL** contain exactly one [1..1] code (CONF:3259-18213).
 - a. This code **SHALL** contain exactly one [1..1] @code="45401-7" Zip code (CONF:3259-18214).
 - 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:3259-21445).
- 5. **SHALL** contain exactly one [1..1] statusCode (CONF:3259-18100).
 - a. This statusCode **SHALL** contain exactly one [1..1] @code="completed" Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14 **STATIC**) (CONF:3259-18101).
- 6. **SHALL** contain exactly one [1..1] value with @xsi:type="ST" (CONF:3259-18215).
- 7. **SHALL** contain exactly one [1..1] entryRelationship (CONF:3259-18102) such that it
 - a. **SHALL** contain exactly one [1..1] @typeCode="SUBJ" Has Subject (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002 **STATIC**) (CONF:3259-18103).
 - b. **SHALL** contain exactly one [1..1] @inversionInd="true" (CONF:3259-18104).
 - c. **SHALL** contain exactly one [1..1] Aggregate Count (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.3) (CONF:3259-18105).

Figure 47: Postal Code Supplemental Data Element (V2) Example

```
<observation classCode="OBS" moodCode="EVN">
  <!-- Postal Code Supplemental Data Element (V2) template ID -->
  <templateId root="2.16.840.1.113883.10.20.27.3.10" extension="2016-09-01"/>
  <code code="45401-7"
    displayName="Zip code"
    codeSystem="SNOMED-CT"
    codeSystemName="2.16.840.1.113883.6.1"/>
  <statusCode code="completed"/>
  <value xsi:type="ST">92543</value>
  <entryRelationship typeCode="SUBJ" inversionInd="true">
    <!-- Aggregate Count template -->
    <observation classCode="OBS" moodCode="EVN">
      ...
    </observation>
  </entryRelationship>
</observation>
```

5.12 Race Supplemental Data Element (V2)

[observation: identifier urn:hl7ii:2.16.840.1.113883.10.20.27.3.8:2016-09-01 (open)]

Table 50: Race Supplemental Data Element (V2) Contexts

Contained By:	Contains:
Measure Data (V3) (optional)	Aggregate Count

This observation represents the race category reported by patients and provides the number of patients in the population that report that race category.

Table 51: Race Supplemental Data Element (V2) Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observation (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.8:2016-09-01)					
@classCode	1..1	SHALL		3259-18223	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = OBS
@moodCode	1..1	SHALL		3259-18224	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3259-18225	
@root	1..1	SHALL		3259-18226	2.16.840.1.113883.10.20.27.3.8
@extension	1..1	SHALL		3259-21178	2016-09-01
code	1..1	SHALL		3259-18227	
@code	1..1	SHALL		3259-18228	72826-1
@codeSystem	1..1	SHALL		3259-21447	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 2.16.840.1.113883.6.1
statusCode	1..1	SHALL		3259-18112	
@code	1..1	SHALL		3259-18113	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
value	1..1	SHALL	CD	3259-18229	urn:oid:2.16.840.1.114222.4.11.836 (Race)
entryRelationship	1..1	SHALL		3259-18114	
@typeCode	1..1	SHALL		3259-18115	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = SUBJ
@inversionInd	1..1	SHALL		3259-18116	true
observation	1..1	SHALL		3259-18117	Aggregate Count (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.3)

1. **SHALL** contain exactly one [1..1] @classCode="OBS" (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:3259-18223).
2. **SHALL** contain exactly one [1..1] @moodCode="EVN" (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:3259-18224).
3. **SHALL** contain exactly one [1..1] templateId (CONF:3259-18225) such that it

- a. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.27.3.8" (CONF:3259-18226).
 - b. **SHALL** contain exactly one [1..1] **@extension**="2016-09-01" (CONF:3259-21178).
- 4. **SHALL** contain exactly one [1..1] **code** (CONF:3259-18227).
 - a. This code **SHALL** contain exactly one [1..1] **@code**="72826-1" Race (CONF:3259-18228).
 - 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:3259-21447).
- 5. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3259-18112).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code**="completed" Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14 **STATIC**) (CONF:3259-18113).
- 6. **SHALL** contain exactly one [1..1] **value** with **@xsi:type**="CD", where the code **SHALL** be selected from ValueSet [Race](#) urn:oid:2.16.840.1.114222.4.11.836 **DYNAMIC** (CONF:3259-18229).
- 7. **SHALL** contain exactly one [1..1] **entryRelationship** (CONF:3259-18114) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode**="SUBJ" Has Subject (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002 **STATIC**) (CONF:3259-18115).
 - b. **SHALL** contain exactly one [1..1] **@inversionInd**="true" (CONF:3259-18116).
 - c. **SHALL** contain exactly one [1..1] [Aggregate Count](#) (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.3) (CONF:3259-18117).

Figure 48: Race Supplemental Data Element (V2) Example

```
<observation classCode="OBS" moodCode="EVN">
  <!-- Race Supplemental Data Element (V2) template ID -->
  <templateId root="2.16.840.1.113883.10.20.27.3.8" extension="2016-09-01"/>
  <code code="72826-1"
    displayName="Race"
    codeSystem="2.16.840.1.113883.6.1"
    codeSystemName="LOINC"/>
  <statusCode code="completed"/>
  <value xsi:type="CD"
    code="2054-5"
    displayName="Black or African American"
    codeSystem="2.16.840.1.113883.6.238"
    codeSystemName="Race & Ethnicity - CDC"/>
  <entryRelationship typeCode="SUBJ" inversionInd="true">
    <!-- Aggregate Count template -->
    <observation classCode="OBS" moodCode="EVN">
      ...
    </observation>
  </entryRelationship>
</observation>
```

5.13 Reporting Parameters Act

[act: identifier urn:oid:2.16.840.1.113883.10.20.17.3.8 (open)]

Table 52: Reporting Parameters Act Contexts

Contained By:	Contains:
Reporting Parameters Section (required) QRDA Category III Reporting Parameters Section (required) Advancing Care Information Section (V2) (required) QRDA Category III Measure Section (V4) (required) Improvement Activity Section (V2) (required)	

This template provides information about the reporting time interval and context for the patient data being reported to the receiving organization. The receiving organization may tell the reporting hospitals what information to include, such as dates representing the quarters of the year for which data are desired. The reporting parameter time interval refers to the data being sent in the document and may differ from the quality measure's measurement period or valid dates for the data set.

Table 53: Reporting Parameters Act Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
act (identifier: urn:oid:2.16.840.1.113883.10.20.17.3.8)					
@classCode	1..1	SHALL		23-3269	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = ACT
@moodCode	1..1	SHALL		23-3270	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		23-18098	
@root	1..1	SHALL		23-18099	2.16.840.1.113883.10.20.17.3.8
id	1..*	SHALL		23-26549	
code	1..1	SHALL		23-3272	
@code	1..1	SHALL		23-26550	252116004
@codeSystem	1..1	SHALL		23-26551	urn:oid:2.16.840.1.113883.6.96 (SNOMED CT) = 2.16.840.1.113883.6.96
effectiveTime	1..1	SHALL		23-3273	
low	1..1	SHALL		23-3274	
high	1..1	SHALL		23-3275	

1. **SHALL** contain exactly one [1..1] **@classCode**="ACT" (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:23-3269).
2. **SHALL** contain exactly one [1..1] **@moodCode**="EVN" Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:23-3270).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:23-18098) such that it
 - a. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.17.3.8" (CONF:23-18099).
4. **SHALL** contain at least one [1..*] **id** (CONF:23-26549).
5. **SHALL** contain exactly one [1..1] **code** (CONF:23-3272).
 - a. This code **SHALL** contain exactly one [1..1] **@code**="252116004" Observation Parameters (CONF:23-26550).
 - 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:23-26551).
6. **SHALL** contain exactly one [1..1] **effectiveTime** (CONF:23-3273).

- a. This effectiveTime **SHALL** contain exactly one [1..1] **low** (CONF:23-3274).
- b. This effectiveTime **SHALL** contain exactly one [1..1] **high** (CONF:23-3275).

Figure 49: Reporting Parameters Act Example

```
<act classCode="ACT" moodCode="EVN">
  <templateId root="2.16.840.1.113883.10.20.17.3.8"/>
  <id root="55a43e20-6463-46eb-81c3-9a3a1ad41225"/>
  <code code="252116004"
    codeSystem="2.16.840.1.113883.6.96"
    displayName="Observation Parameters"/>
  <!-- This reporting period shows that Good Health Clinic is
    sending data for the first quarter of the year.
    The referenced measure definition may be valid for the
    entire year or more-->
  <effectiveTime>
    <low value="20170101"/>
    <!-- The first day of the period reported. -->
    <high value="20171231"/>
    <!-- The last day of the period reported. -->
  </effectiveTime>
</act>
```

5.14 Reporting Rate for Proportion Measure

[observation: identifier urn:oid:2.16.840.1.113883.10.20.27.3.15 (open)]

Table 54: Reporting Rate for Proportion Measure Contexts

Contained By:	Contains:
Measure Reference and Results (V3) (optional)	

This template is only used with proportion measures. This reporting rate represents the percentage of patients in the denominator who fall into one of the other sub-populations. The Reporting Rate is calculated using this formula: Reporting Rate = (Numerator + Numerator Exclusions + Denominator Exclusions + Denominator Exceptions)/(Denominator). The predicted rate (based on the measure's risk-adjustment model) can be captured in the reference range.

Table 55: Reporting Rate for Proportion Measure Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observation (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.15)					
@classCode	1..1	SHALL		77-18411	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = OBS
@moodCode	1..1	SHALL		77-18412	urn:oid:2.16.840.1.113883.5.1001 (HL7ActMood) = EVN
templateId	1..1	SHALL		77-21157	
@root	1..1	SHALL		77-21158	2.16.840.1.113883.10.20.27.3.15
code	1..1	SHALL		77-18413	
@code	1..1	SHALL		77-18414	72509-3
@codeSystem	1..1	SHALL		77-21168	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 2.16.840.1.113883.6.1
statusCode	1..1	SHALL		77-18419	
@code	1..1	SHALL		77-18420	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
value	1..1	SHALL	REAL	77-18415	
referenceRange	0..1	MAY		77-18416	
observationRange	1..1	SHALL		77-18417	
value	1..1	SHALL	REAL	77-18418	

1. **SHALL** contain exactly one [1..1] **@classCode="OBS"** Observation (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:77-18411).
2. **SHALL** contain exactly one [1..1] **@moodCode="EVN"** Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:77-18412).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:77-21157) such that it
 - a. **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.27.3.15"** (CONF:77-21158).
4. **SHALL** contain exactly one [1..1] **code** (CONF:77-18413).
 - a. This code **SHALL** contain exactly one [1..1] **@code="72509-3"** Reporting Rate (CONF:77-18414).

- 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:77-21168).
- 5. **SHALL** contain exactly one [1..1] `statusCode` (CONF:77-18419).
 - a. This `statusCode` **SHALL** contain exactly one [1..1] `@code="completed"` completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14 **STATIC**) (CONF:77-18420).
- 6. **SHALL** contain exactly one [1..1] `value` with `@xsi:type="REAL"` (CONF:77-18415).

The reference range is optionally used to represent the predicted rate based on the measure's risk-adjustment model.

- 7. **MAY** contain zero or one [0..1] `referenceRange` (CONF:77-18416).
 - a. The `referenceRange`, if present, **SHALL** contain exactly one [1..1] `observationRange` (CONF:77-18417).
 - i. This `observationRange` **SHALL** contain exactly one [1..1] `value` with `@xsi:type="REAL"` (CONF:77-18418).

Figure 50: Reporting Rate for Proportion Measure Example

```
<observation classCode="OBS" moodCode="EVN">
  <!-- MAY 0..1 Reporting Rate for Proportion Measure template -->
  <templateId root="2.16.840.1.113883.10.20.27.3.15"/>
  <code code="72509-3" codeSystem="2.16.840.1.113883.6.1"
    displayName="Reporting Rate"
    codeSystemName="LOINC"/>
  <statusCode code="completed"/>
  <value xsi:type="REAL" value="0.84"/>
</observation>
```

5.15 Reporting Stratum

[observation: identifier urn:oid:2.16.840.1.113883.10.20.27.3.4 (open)]

Table 56: Reporting Stratum Contexts

Contained By:	Contains:
Measure Data (V3) (optional)	Aggregate Count Continuous Variable Measure Value

This observation uses the reference/externalObservation element to reference the stratification used in the quality measure. The definition of the stratification is in the corresponding eMeasure. The Reporting Stratum also provides the number of patients in the referenced stratification. Stratifications are used to classify populations into one or more characteristics, variables, or other categories. As subsets of the overall population, they are used in risk adjustment, analysis and interpretation. Examples of stratification include age, discharge status for an inpatient stay, facility location within a hospital (e.g., ICU, Emergency Department), surgical procedures, and specific conditions.

Table 57: Reporting Stratum Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observation (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.4)					
@classCode	1..1	SHALL		77-17575	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = OBS
@moodCode	1..1	SHALL		77-17576	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		77-18093	
@root	1..1	SHALL		77-18094	2.16.840.1.113883.10.20.27.3.4
code	1..1	SHALL		77-17577	
@code	1..1	SHALL		77-17578	ASSERTION
@codeSystem	1..1	SHALL		77-21169	urn:oid:2.16.840.1.113883.5.4 (HL7ActCode) = 2.16.840.1.113883.5.4
statusCode	1..1	SHALL		77-17579	
@code	1..1	SHALL		77-18201	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
value	0..1	SHOULD		77-17580	
entryRelationship	1..1	SHALL		77-17581	
@typeCode	1..1	SHALL		77-17582	SUBJ
@inversionInd	1..1	SHALL		77-17583	true
observation	1..1	SHALL		77-17584	Aggregate Count (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.3)
entryRelationship	0..*	MAY		77-19511	
observation	1..1	SHALL		77-19513	Continuous Variable Measure Value (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.2)
reference	1..1	SHALL		77-18204	
@typeCode	1..1	SHALL		77-18205	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) =

					REFR
externalObservation	1..1	SHALL		77-18206	
id	1..1	SHALL		77-18207	

1. **SHALL** contain exactly one [1..1] **@classCode="OBS"** (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:77-17575).
2. **SHALL** contain exactly one [1..1] **@moodCode="EVN"** (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:77-17576).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:77-18093) such that it
 - a. **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.27.3.4"** (CONF:77-18094).
4. **SHALL** contain exactly one [1..1] **code** (CONF:77-17577).
 - a. This code **SHALL** contain exactly one [1..1] **@code="ASSERTION"** Assertion (CONF:77-17578).
 - 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:77-21169).
5. **SHALL** contain exactly one [1..1] **statusCode** (CONF:77-17579).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code="completed"** Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14 **STATIC**) (CONF:77-18201).
6. **SHOULD** contain zero or one [0..1] **value** (CONF:77-17580).
 - a. If this Reporting Stratum references an eMeasure, and the value of externalObservation/id equals the reference stratification id defined in the eMeasure, then this value **SHALL** be the same as the contents of the observation/code element in the eMeasure that is defined along with the observation/id element (CONF:77-18259).
7. **SHALL** contain exactly one [1..1] **entryRelationship** (CONF:77-17581) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode="SUBJ"** (CONF:77-17582).
 - b. **SHALL** contain exactly one [1..1] **@inversionInd="true"** (CONF:77-17583).
 - c. **SHALL** contain exactly one [1..1] **[Aggregate Count](#)** (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.3) (CONF:77-17584).

The Continuous Variable template may also be nested inside the Reporting Stratum Template to represent continuous variables found in quality measures for the various strata.

8. **MAY** contain zero or more [0..*] **entryRelationship** (CONF:77-19511) such that it
 - a. **SHALL** contain exactly one [1..1] **[Continuous Variable Measure Value](#)** (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.2) (CONF:77-19513).
9. **SHALL** contain exactly one [1..1] **reference** (CONF:77-18204).
 - a. This reference **SHALL** contain exactly one [1..1] **@typeCode="REFR"** (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002 **STATIC**) (CONF:77-18205).

- b. This reference **SHALL** contain exactly one [1..1] **externalObservation** (CONF:77-18206).

If this reference is to an eMeasure, this id equals the referenced stratification id defined in the eMeasure.

- i. This externalObservation **SHALL** contain exactly one [1..1] **id** (CONF:77-18207).

Figure 51: Reporting Stratum Example

```
<observation classCode="OBS" moodCode="EVN">
  <templateId root="2.16.840.1.113883.10.20.27.3.4"/>
  <code code="ASSERTION"
    codeSystem="2.16.840.1.113883.5.4"
    displayName="Assertion"
    codeSystemName="ActCode"/>
  <statusCode code="completed"/>
  <value xsi:type="CD" nullFlavor="OTH">
    <originalText>Stratum</originalText>
  </value>
  <entryRelationship typeCode="SUBJ" inversionInd="true">
    <!-- Aggregate Count template -->
    <observation classCode="OBS" moodCode="EVN">
      ...
    </observation>
  </entryRelationship>
  <reference typeCode="REFR">
    <!-- reference to the relevant strata in the eMeasure -->
    <externalObservation classCode="OBS" moodCode="EVN">
      <id root="35522F0F-879C-413E-BDF9-512EDA5D691A"/>
    </externalObservation>
  </reference>
</observation>
```

Figure 52: Corresponding eMeasure Example

```
<!-- This example taken from CMS32v5_NQF0496, and is the first referenced stratum -->
<stratifierCriteria>
  <id extension="Stratifiers" root="35522F0F-879C-413E-BDF9-512EDA5D691A"/>
  <code code="STRAT" codeSystem="2.16.840.1.113883.5.1063"
    codeSystemName="HL7 Observation Value">
    <displayName value="Stratification"/>
  </code>
  <precondition typeCode="PRCN">
    <allTrue>
      <precondition typeCode="PRCN">
        <criteriaReference classCode="OBS" moodCode="EVN">
          <id extension="StartsDuring_0C124270-F12D-4323-8970-E184FF749728"
            root="B767CA2B-EE59-4354-AE60-3F701A12700A"/>
          </criteriaReference>
        </precondition>
      </allTrue>
    </precondition>
  </stratifierCriteria>
```

5.16 Service Encounter

```
[encounter: identifier urn:oid:2.16.840.1.113883.10.20.27.3.11 (open)]
```

Table 58: Service Encounter Contexts

Contained By:	Contains:
QRDA Category III Reporting Parameters Section (optional)	

This optional template can be used to report on the first or last service encounter date(s) of the reporting period.

Table 59: Service Encounter Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
encounter (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.11)					
@classCode	1..1	SHALL		77-18312	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = ENC
@moodCode	1..1	SHALL		77-21154	urn:oid:2.16.840.1.113883.5.1001 (HL7ActMood) = EVN
templateId	1..1	SHALL		77-18369	
@root	1..1	SHALL		77-18370	2.16.840.1.113883.10.20.27.3.11
effectiveTime	1..1	SHALL		77-18314	

1. **SHALL** contain exactly one [1..1] @classCode="ENC" (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:77-18312).
2. **SHALL** contain exactly one [1..1] @moodCode="EVN" (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:77-21154).
3. **SHALL** contain exactly one [1..1] templateId (CONF:77-18369) such that it
 - a. **SHALL** contain exactly one [1..1] @root="2.16.840.1.113883.10.20.27.3.11" (CONF:77-18370).
4. **SHALL** contain exactly one [1..1] effectiveTime (CONF:77-18314).

Figure 53: Service Encounter Example

```

<entry>
  <encounter classCode="ENC" moodCode="EVN">
    <templateId root="2.16.840.1.113883.10.20.27.3.11"/>
    <!-- Id of the first service encounter of the reporting period-->
    <id root="8c39e898-8749-47dc-8fc5-7636a98a1151"/>
    <!-- The month, day and year of the first service
    encounter of the reporting period -->
    <effectiveTime value="20150105"/>
  </encounter>
</entry>

```

5.17 Sex Supplemental Data Element (V3)

[observation: identifier urn:hl7ii:2.16.840.1.113883.10.20.27.3.6:2016-09-01 (open)]

Table 60: Sex Supplemental Data Element (V3) Contexts

Contained By:	Contains:
Measure Data (V3) (optional)	Aggregate Count

This observation represents the sex of a person as used for administrative purposes (as opposed to clinical gender) and provides the number of patients in the population that are of that sex.

Table 61: Sex Supplemental Data Element (V3) Constraints Overview

XPath	Card.	Verb	Data Type	CONF #	Value
observation (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.6:2016-09-01)					
@classCode	1..1	SHALL		3259-18230	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = OBS
@moodCode	1..1	SHALL		3259-18231	urn:oid:2.16.840.1.113883.5.10 01 (HL7ActMood) = EVN
templateId	1..1	SHALL		3259-18232	
@root	1..1	SHALL		3259-18233	2.16.840.1.113883.10.20.27.3.6
@extension	1..1	SHALL		3259-21160	2016-09-01
code	1..1	SHALL		3259-18234	
@code	1..1	SHALL		3259-18235	76689-9
@codeSystem	1..1	SHALL		3259-21163	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 2.16.840.1.113883.6.1
statusCode	1..1	SHALL		3259-18124	
@code	1..1	SHALL		3259-18125	urn:oid:2.16.840.1.113883.5.14 (HL7ActStatus) = completed
value	1..1	SHALL	CD	3259-18236	urn:oid:2.16.840.1.113762.1.4.1 (ONC Administrative Sex)
entryRelationship	1..1	SHALL		3259-18126	
@typeCode	1..1	SHALL		3259-18127	urn:oid:2.16.840.1.113883.5.10 02 (HL7ActRelationshipType) = SUBJ
@inversionInd	1..1	SHALL		3259-18128	true
observation	1..1	SHALL		3259-18129	Aggregate Count (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.3)

1. **SHALL** contain exactly one [1..1] @classCode="OBS" (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:3259-18230).

2. **SHALL** contain exactly one [1..1] **@moodCode**="EVN" (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:3259-18231).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:3259-18232) such that it
 - a. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.27.3.6" (CONF:3259-18233).
 - b. **SHALL** contain exactly one [1..1] **@extension**="2016-09-01" (CONF:3259-21160).
4. **SHALL** contain exactly one [1..1] **code** (CONF:3259-18234).
 - a. This code **SHALL** contain exactly one [1..1] **@code**="76689-9" Sex assigned at birth (CONF:3259-18235).
 - 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 **STATIC**) (CONF:3259-21163).
5. **SHALL** contain exactly one [1..1] **statusCode** (CONF:3259-18124).
 - a. This statusCode **SHALL** contain exactly one [1..1] **@code**="completed" Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14 **STATIC**) (CONF:3259-18125).
6. **SHALL** contain exactly one [1..1] **value** with **@xsi:type**="CD", where the code **SHALL** be selected from ValueSet [ONC Administrative Sex](#) urn:oid:2.16.840.1.113762.1.4.1 **DYNAMIC** (CONF:3259-18236).
7. **SHALL** contain exactly one [1..1] **entryRelationship** (CONF:3259-18126) such that it
 - a. **SHALL** contain exactly one [1..1] **@typeCode**="SUBJ" Has Subject (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002 **STATIC**) (CONF:3259-18127).
 - b. **SHALL** contain exactly one [1..1] **@inversionInd**="true" (CONF:3259-18128).
 - c. **SHALL** contain exactly one [1..1] [Aggregate Count](#) (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.3) (CONF:3259-18129).

Figure 54: Sex Supplemental Data Element (V3) Example

```
<observation classCode="OBS" moodCode="EVN">
  <!-- Sex Supplemental Data Element (V3) template ID -->
  <templateId root="2.16.840.1.113883.10.20.27.3.6" extension="2016-09-01"/>
  <code code="76689-9"
    displayName="Sex assigned at birth"
    codeSystem="2.16.840.1.113883.6.1"
    codeSystemName="LOINC"/>
  <statusCode code="completed"/>
  <value xsi:type="CD"
    code="F"
    codeSystem="2.16.840.1.113883.5.1"
    codeSystemName="AdministrativeGender"/>
  <entryRelationship typeCode="SUBJ" inversionInd="true">
    <!-- Aggregate Count template -->
    <observation classCode="OBS" moodCode="EVN">
      ...
    </observation>
  </entryRelationship>
</observation>
```

6 TEMPLATE IDS IN THIS GUIDE

Table 62: Template List

Template Title	Template Type	templateId
QRDA Category III Report (V4)	document	urn:hl7ii:2.16.840.1.113883.10.20.27.1.1:2017-06-01
Advancing Care Information Section (V2)	section	urn:hl7ii:2.16.840.1.113883.10.20.27.2.5:2017-06-01
Improvement Activity Section (V2)	section	urn:hl7ii:2.16.840.1.113883.10.20.27.2.4:2017-06-01
Measure Section	section	urn:oid:2.16.840.1.113883.10.20.24.2.2
QRDA Category III Measure Section (V4)	section	urn:hl7ii:2.16.840.1.113883.10.20.27.2.1:2017-06-01
QRDA Category III Reporting Parameters Section	section	urn:oid:2.16.840.1.113883.10.20.27.2.2
Reporting Parameters Section	section	urn:oid:2.16.840.1.113883.10.20.17.2.1
Advancing Care Information Measure Performed Measure Reference and Results	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.29:2016-09-01
Advancing Care Information Numerator Denominator Type Measure Denominator Data	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.32:2016-09-01
Advancing Care Information Numerator Denominator Type Measure Numerator Data	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.31:2016-09-01
Advancing Care Information Numerator Denominator Type Measure Reference and Results (V2)	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.28:2017-06-01
Aggregate Count	entry	urn:oid:2.16.840.1.113883.10.20.27.3.3
Continuous Variable Measure Value	entry	urn:oid:2.16.840.1.113883.10.20.27.3.2
Ethnicity Supplemental Data Element (V2)	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.7:2016-09-01
Improvement Activity Performed Measure Reference and Results	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.33:2016-09-01
Measure Data (V3)	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.5:2016-09-01
Measure Performed	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.27:2016-09-01

Template Title	Template Type	templateId
Measure Reference	entry	urn:oid:2.16.840.1.113883.10.20.24.3.98
Measure Reference and Results (V3)	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.1:2016-09-01
Payer Supplemental Data Element (V2)	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.9:2016-02-01
Performance Rate	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.30:2016-09-01
Performance Rate for Proportion Measure (V2)	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.14:2016-09-01
Postal Code Supplemental Data Element (V2)	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.10:2016-09-01
Race Supplemental Data Element (V2)	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.8:2016-09-01
Reporting Parameters Act	entry	urn:oid:2.16.840.1.113883.10.20.17.3.8
Reporting Rate for Proportion Measure	entry	urn:oid:2.16.840.1.113883.10.20.27.3.15
Reporting Stratum	entry	urn:oid:2.16.840.1.113883.10.20.27.3.4
Service Encounter	entry	urn:oid:2.16.840.1.113883.10.20.27.3.11
Sex Supplemental Data Element (V3)	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.6:2016-09-01

Table 63: Template Containments

Template Title	Template Type	templateId
QRDA Category III Report (V4)	document	urn:hl7ii:2.16.840.1.113883.10.20.27.1.1:2017-06-01
Advancing Care Information Section (V2)	section	urn:hl7ii:2.16.840.1.113883.10.20.27.2.5:2017-06-01
Advancing Care Information Measure Performed Measure Reference and Results	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.29:2016-09-01
Measure Performed	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.27:2016-09-01
Advancing Care Information Numerator Denominator Type Measure Reference and Results (V2)	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.28:2017-06-01
Advancing Care Information Numerator Denominator Type Measure Denominator Data	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.32:2016-09-01

Template Title	Template Type	templateId
Aggregate Count	entry	urn:oid:2.16.840.1.113883.10.20.27.3.3
Advancing Care Information Numerator Denominator Type Measure Numerator Data	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.31:2016-09-01
Aggregate Count	entry	urn:oid:2.16.840.1.113883.10.20.27.3.3
Performance Rate	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.30:2016-09-01
Reporting Parameters Act	entry	urn:oid:2.16.840.1.113883.10.20.17.3.8
Improvement Activity Section (V2)	section	urn:hl7ii:2.16.840.1.113883.10.20.27.2.4:2017-06-01
Improvement Activity Performed Measure Reference and Results	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.33:2016-09-01
Measure Performed	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.27:2016-09-01
Reporting Parameters Act	entry	urn:oid:2.16.840.1.113883.10.20.17.3.8
QRDA Category III Measure Section (V4)	section	urn:hl7ii:2.16.840.1.113883.10.20.27.2.1:2017-06-01
Measure Reference and Results (V3)	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.1:2016-09-01
Measure Data (V3)	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.5:2016-09-01
Aggregate Count	entry	urn:oid:2.16.840.1.113883.10.20.27.3.3
Continuous Variable Measure Value	entry	urn:oid:2.16.840.1.113883.10.20.27.3.2
Ethnicity Supplemental Data Element (V2)	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.7:2016-09-01
Aggregate Count	entry	urn:oid:2.16.840.1.113883.10.20.27.3.3
Payer Supplemental Data Element (V2)	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.9:2016-02-01
Aggregate Count	entry	urn:oid:2.16.840.1.113883.10.20.27.3.3
Postal Code Supplemental Data Element (V2)	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.10:2016-09-01
Aggregate Count	entry	urn:oid:2.16.840.1.113883.10.20.27.3.3
Race Supplemental Data Element (V2)	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.8:2016-09-01

Template Title	Template Type	templateId
Aggregate Count	entry	urn:oid:2.16.840.1.113883.10.20.27.3.3
Reporting Stratum	entry	urn:oid:2.16.840.1.113883.10.20.27.3.4
Aggregate Count	entry	urn:oid:2.16.840.1.113883.10.20.27.3.3
Continuous Variable Measure Value	entry	urn:oid:2.16.840.1.113883.10.20.27.3.2
Sex Supplemental Data Element (V3)	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.6:2016-09-01
Aggregate Count	entry	urn:oid:2.16.840.1.113883.10.20.27.3.3
Performance Rate for Proportion Measure (V2)	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.14:2016-09-01
Reporting Rate for Proportion Measure	entry	urn:oid:2.16.840.1.113883.10.20.27.3.15
Reporting Parameters Act	entry	urn:oid:2.16.840.1.113883.10.20.17.3.8
QRDA Category III Reporting Parameters Section	section	urn:oid:2.16.840.1.113883.10.20.27.2.2
Reporting Parameters Act	entry	urn:oid:2.16.840.1.113883.10.20.17.3.8
Service Encounter	entry	urn:oid:2.16.840.1.113883.10.20.27.3.11

7 VALUE SETS IN THIS GUIDE

Table 64: Language

Value Set: Language urn:oid:2.16.840.1.113883.1.11.11526			
A value set of codes defined by Internet RFC 4646 (replacing RFC 3066). Please see ISO 639 language code set maintained by Library of Congress for enumeration of language codes.			
Value Set Source: http://www.loc.gov/standards/iso639-2/php/code_list.php			
Code	Code System	Code System OID	Print Name
aa	Language	urn:oid:2.16.840.1.113883.6.121	Afar
ab	Language	urn:oid:2.16.840.1.113883.6.121	Abkhazian
ace	Language	urn:oid:2.16.840.1.113883.6.121	Achinese
ach	Language	urn:oid:2.16.840.1.113883.6.121	Acoli
ada	Language	urn:oid:2.16.840.1.113883.6.121	Adangme
ady	Language	urn:oid:2.16.840.1.113883.6.121	Adyghe; Adygei
ae	Language	urn:oid:2.16.840.1.113883.6.121	Avestan
af	Language	urn:oid:2.16.840.1.113883.6.121	Afrikaans
afa	Language	urn:oid:2.16.840.1.113883.6.121	Afro-Asiatic (Other)
afh	Language	urn:oid:2.16.840.1.113883.6.121	Afrihili
...			

Table 65: HL7 BasicConfidentialityKind

Value Set: HL7 BasicConfidentialityKind urn:oid:2.16.840.1.113883.1.11.16926			
A value set of HL7 Code indication the level of confidentiality an act.			
Value Set Source: https://vsac.nlm.nih.gov/			
Code	Code System	Code System OID	Print Name
N	HL7Confidentiality	urn:oid:2.16.840.1.113883.5.25	normal
R	HL7Confidentiality	urn:oid:2.16.840.1.113883.5.25	restricted
V	HL7Confidentiality	urn:oid:2.16.840.1.113883.5.25	very restricted

Table 66: ObservationMethodAggregate

Value Set: ObservationMethodAggregate urn:oid:2.16.840.1.113883.1.11.20450			
Code	Code System	Code System OID	Print Name
AVERAGE	HL7ObservationMethod	urn:oid:2.16.840.1.113883.5.84	Average
COUNT	HL7ObservationMethod	urn:oid:2.16.840.1.113883.5.84	Count
MAX	HL7ObservationMethod	urn:oid:2.16.840.1.113883.5.84	Maxima
MEDIAN	HL7ObservationMethod	urn:oid:2.16.840.1.113883.5.84	Median
MIN	HL7ObservationMethod	urn:oid:2.16.840.1.113883.5.84	Minima
MODE	HL7ObservationMethod	urn:oid:2.16.840.1.113883.5.84	Mode
STDEV.P	HL7ObservationMethod	urn:oid:2.16.840.1.113883.5.84	Population Standard Deviation
STDEV.S	HL7ObservationMethod	urn:oid:2.16.840.1.113883.5.84	Sample Standard Deviation
SUM	HL7ObservationMethod	urn:oid:2.16.840.1.113883.5.84	Sum
VARIANCE.P	HL7ObservationMethod	urn:oid:2.16.840.1.113883.5.84	Population Variance
...			

Table 67: Ethnicity

Value Set: Ethnicity urn:oid:2.16.840.1.114222.4.11.837			
Code System: Race & Ethnicity - CDC 2.16.840.1.113883.6.238			
Value Set Source: https://vsac.nlm.nih.gov/			
Code	Code System	Code System OID	Print Name
2135-2	Race & Ethnicity - CDC	urn:oid:2.16.840.1.113883.6.238	Hispanic or Latino
2186-5	Race & Ethnicity - CDC	urn:oid:2.16.840.1.113883.6.238	Not Hispanic or Latino

Table 68: PopulationInclusionObservationType

Value Set: PopulationInclusionObservationType urn:oid:2.16.840.1.113883.1.11.20476			
Code	Code System	Code System OID	Print Name
DENEX	HL7ActCode	urn:oid:2.16.840.1.113883.5.4	denominator exclusions
DENEXCEP	HL7ActCode	urn:oid:2.16.840.1.113883.5.4	denominator exceptions
DENOM	HL7ActCode	urn:oid:2.16.840.1.113883.5.4	denominator
IPOP	HL7ActCode	urn:oid:2.16.840.1.113883.5.4	initial population
IPPOP	HL7ActCode	urn:oid:2.16.840.1.113883.5.4	initial patient population
MSRPOPL	HL7ActCode	urn:oid:2.16.840.1.113883.5.4	measure population
MSRPOPLEX	HL7ActCode	urn:oid:2.16.840.1.113883.5.4	measure population exclusions
NUMER	HL7ActCode	urn:oid:2.16.840.1.113883.5.4	numerator
NUMEX	HL7ActCode	urn:oid:2.16.840.1.113883.5.4	numerator exclusions
...			

Table 69: Yes No Indicator (HL7)

Value Set: Yes No Indicator (HL7) urn:oid:2.16.840.1.114222.4.11.819			
Value set used to respond to any question that can be answered only Yes or No.			
Value Set Source: https://phinvads.cdc.gov/vads/ViewValueSet.action?oid=2.16.840.1.114222.4.11.819			
Code	Code System	Code System OID	Print Name
Y	Yes/no indicator (HL7 Table 0136)	urn:oid:2.16.840.1.11388.3.12.136	Yes
N	Yes/no indicator (HL7 Table 0136)	urn:oid:2.16.840.1.11388.3.12.136	No

Table 70: Payer

Value Set: Payer urn:oid:2.16.840.1.114222.4.11.3591			
A value set of Public Health Data Standards Consortium Source of Payment Typology Version 3.0 Codes			
Value Set Source: https://vsac.nlm.nih.gov/			
Code	Code System	Code System OID	Print Name
1	Source of Payment Typology (PHDSC)	urn:oid:2.16.840.1.11388.3.3.221.5	Medicare
2	Source of Payment Typology (PHDSC)	urn:oid:2.16.840.1.11388.3.3.221.5	Medicaid
311	Source of Payment Typology (PHDSC)	urn:oid:2.16.840.1.11388.3.3.221.5	Tricare (CHAMPUS)
33	Source of Payment Typology (PHDSC)	urn:oid:2.16.840.1.11388.3.3.221.5	Indian Health Service or Tribe
62	Source of Payment Typology (PHDSC)	urn:oid:2.16.840.1.11388.3.3.221.5	BC Indemnity
61	Source of Payment Typology (PHDSC)	urn:oid:2.16.840.1.11388.3.3.221.5	BC Managed Care
611	Source of Payment Typology (PHDSC)	urn:oid:2.16.840.1.11388.3.3.221.5	BC Managed Care - HMO
619	Source of Payment Typology (PHDSC)	urn:oid:2.16.840.1.11388.3.3.221.5	BC Managed Care - Other
613	Source of Payment Typology (PHDSC)	urn:oid:2.16.840.1.11388.3.3.221.5	BC Managed Care - POS
612	Source of Payment Typology (PHDSC)	urn:oid:2.16.840.1.11388.3.3.221.5	BC Managed Care - PPO
...			

Table 71: Race

Value Set: Race urn:oid:2.16.840.1.114222.4.11.836			
Code System: Race & Ethnicity - CDC 2.16.840.1.113883.6.238			
Value Set Source: https://phinvads.cdc.gov/vads/ViewValueSet.action?id=67D34BBC-617F-DD11-B38D-00188B398520			
Code	Code System	Code System OID	Print Name
1002-5	Race & Ethnicity - CDC	urn:oid:2.16.840.1.113883.6.238	American Indian or Alaska Native
2028-9	Race & Ethnicity - CDC	urn:oid:2.16.840.1.113883.6.238	Asian
2054-5	Race & Ethnicity - CDC	urn:oid:2.16.840.1.113883.6.238	Black or African American
2076-8	Race & Ethnicity - CDC	urn:oid:2.16.840.1.113883.6.238	Native Hawaiian or Other Pacific Islander
2106-3	Race & Ethnicity - CDC	urn:oid:2.16.840.1.113883.6.238	White
2131-1	Race & Ethnicity - CDC	urn:oid:2.16.840.1.113883.6.238	Other Race

Table 72: ONC Administrative Sex

Value Set: ONC Administrative Sex urn:oid:2.16.840.1.113762.1.4.1			
ONC Administrative Sex.			
Code	Code System	Code System OID	Print Name
F	AdministrativeSex	urn:oid:2.16.840.1.113883.18.2	Female
M	AdministrativeSex	urn:oid:2.16.840.1.113883.18.2	Male

8 CODE SYSTEMS IN THIS GUIDE

Table 73: Code Systems

Name	OID
AdministrativeSex	urn:oid:2.16.840.1.113883.18.2
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
HL7Confidentiality	urn:oid:2.16.840.1.113883.5.25
HL7ObservationMethod	urn:oid:2.16.840.1.113883.5.84
HL7ObservationValue	urn:oid:2.16.840.1.113883.5.1063
HL7ParticipationType	urn:oid:2.16.840.1.113883.5.90
Language	urn:oid:2.16.840.1.113883.6.121
LOINC	urn:oid:2.16.840.1.113883.6.1
Race & Ethnicity - CDC	urn:oid:2.16.840.1.113883.6.238
SNOMED CT	urn:oid:2.16.840.1.113883.6.96
Source of Payment Typology (PHDSC)	urn:oid:2.16.840.1.113883.3.221.5
Yes/no indicator (HL7 Table 0136)	urn:oid:2.16.840.1.113883.12.136

9 CHANGES FROM PREVIOUS VERSION

9.1 QRDA Category III Report (V4)

QRDA Category III Report (V4) (urn:hl7ii:2.16.840.1.113883.10.20.27.1.1:2017-06-01)

Change	Old	New
Name	QRDA Category III Report (V3)	QRDA Category III Report (V4)
Oid	urn:hl7ii:2.16.840.1.113883.10.20.27.1.1:2016-09-01	urn:hl7ii:2.16.840.1.113883.10.20.27.1.1:2017-06-01
CONF #: 3338-17281 Modified	This structuredBody SHALL contain exactly one [1..1] component (CONF:3259-17281) such that it	This structuredBody MAY contain zero or one [0..1] component (CONF:3338-17281) such that it
CONF #: 3338-17301 Modified	SHALL contain exactly one [1..1] QRDA Category III Measure Section (V3) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.2.1:2016-09-01) (CONF:3259-17301).	SHALL contain exactly one [1..1] QRDA Category III Measure Section (V4) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.2.1:2017-06-01) (CONF:3338-17301).
CONF #: 3338-21174 Modified	SHALL contain exactly one [1..1] Improvement Activity Section (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.2.4:2016-09-01) (CONF:3259-21174).	SHALL contain exactly one [1..1] Improvement Activity Section (V2) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.2.4:2017-06-01) (CONF:3338-21174).
CONF #: 3338-21318 Modified	SHALL contain exactly one [1..1] Advancing Care Information Section (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.2.5:2016-09-01) (CONF:3259-21318).	SHALL contain exactly one [1..1] Advancing Care Information Section (V2) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.2.5:2017-06-01) (CONF:3338-21318).
CONF #: 3338-21319 Modified	SHALL contain exactly one [1..1] @extension="2016-09-01" (CONF:3259-21319).	SHALL contain exactly one [1..1] @extension="2017-06-01" (CONF:3338-21319).

9.2 Advancing Care Information Numerator Denominator Type Measure Reference and Results (V2)

Advancing Care Information Numerator Denominator Type Measure Reference and Results (V2) (urn:hl7ii:2.16.840.1.113883.10.20.27.3.28:2017-06-01)

Change	Old	New
Name	Advancing Care Information Numerator Denominator Type Measure Reference and Results	Advancing Care Information Numerator Denominator Type Measure Reference and Results (V2)
Oid	urn:hl7ii:2.16.840.1.113883.10.20.27.3.28:2016-09-01	urn:hl7ii:2.16.840.1.113883.10.20.27.3.28:2017-06-01
CONF #: 3338-21240 Modified	SHALL contain exactly one [1..1] component (CONF:3259-21240) such that it	MAY contain zero or one [0..1] component (CONF:3338-21240) such that it
CONF #: 3338-21396 Modified	SHALL contain exactly one [1..1] @extension="2016-09-01" (CONF:3259-21396).	SHALL contain exactly one [1..1] @extension="2017-06-01" (CONF:3338-21396).

9.3 Advancing Care Information Section (V2)

Advancing Care Information Section (V2) (urn:hl7ii:2.16.840.1.113883.10.20.27.2.5:2017-06-01)

Change	Old	New
Name	Advancing Care Information Section	Advancing Care Information Section (V2)
Oid	urn:hl7ii:2.16.840.1.113883.10.20.27.2.5:2016-09-01	urn:hl7ii:2.16.840.1.113883.10.20.27.2.5:2017-06-01
CONF #: 3338-21440 Added		SHALL contain exactly one [1..1] entry (CONF:3338-21440) such that it
CONF #: 3338-21441 Added		SHALL contain exactly one [1..1] Reporting Parameters Act (identifier: urn:oid:2.16.840.1.113883.10.20.17.3.8) (CONF:3338-21441).
CONF #: 3338-21381 Modified	SHALL contain exactly one [1..1] Advancing Care Information Numerator Denominator Type Measure Reference and Results (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.28:2016-09-01) (CONF:3259-21381).	SHALL contain exactly one [1..1] Advancing Care Information Numerator Denominator Type Measure Reference and Results (V2) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.28:2017-06-01) (CONF:3338-21381).

9.4 Improvement Activity Section (V2)

Improvement Activity Section (V2)

(urn:hl7ii:2.16.840.1.113883.10.20.27.2.4:2017-06-01)

Change	Old	New
Name	Improvement Activity Section	Improvement Activity Section (V2)
Oid	urn:hl7ii:2.16.840.1.113883.10.20.27.2.4:2016-09-01	urn:hl7ii:2.16.840.1.113883.10.20.27.2.4:2017-06-01
CONF #: 3338-21447 Added		SHALL contain exactly one [1..1] entry (CONF:3338-21447) such that it
CONF #: 3338-21448 Added		SHALL contain exactly one [1..1] Reporting Parameters Act (identifier: urn:oid:2.16.840.1.113883.10.20.17.3.8) (CONF:3338-21448).

9.5 QRDA Category III Measure Section (V4)

QRDA Category III Measure Section (V4)

(urn:hl7ii:2.16.840.1.113883.10.20.27.2.1:2017-06-01)

Change	Old	New
Name	QRDA Category III Measure Section (V3)	QRDA Category III Measure Section (V4)
Oid	urn:hl7ii:2.16.840.1.113883.10.20.27.2.1:2016-09-01	urn:hl7ii:2.16.840.1.113883.10.20.27.2.1:2017-06-01
CONF #: 3338-21445 Added		SHALL contain exactly one [1..1] entry (CONF:3338-21445) such that it
CONF #: 3338-21446 Added		SHALL contain exactly one [1..1] Reporting Parameters Act (identifier: urn:oid:2.16.840.1.113883.10.20.17.3.8) (CONF:3338-21446).

10 REFERENCES

- *HL7 Clinical Document Architecture (CDA Release 2).*
http://www.hl7.org/implement/standards/product_brief.cfm?product_id=7
- *HL7 Implementation Guide for CDA Release 2: IHE Health Story Consolidation, Release 1.1 - US Realm.* December 2011.
http://www.hl7.org/implement/standards/product_brief.cfm?product_id=258
- *HL7 Implementation Guide for CDA Release 2.0, Quality Reporting Document Architecture (QRDA) — Category 1 Release 1 DSTU Release 3.1* (March, 2016).
http://www.hl7.org/implement/standards/product_brief.cfm?product_id=35
- *HL7 Implementation Guide for CDA Release 2: Consolidated CDA Templates for Clinical Notes (US Realm),* August, 2015.
http://www.hl7.org/implement/standards/product_brief.cfm?product_id=379
- *HL7 Version 3 Interoperability Standards, Normative Edition 2010.*
<http://www.hl7.org/memonly/downloads/v3edition.cfm#V32010>
- *HL7 Version 3 Publishing Facilitator's Guide.*
<http://www.hl7.org/v3ballot/html/help/pfg/pfg.htm>
- *HL7 Version 3 Standard: Refinement, Constraint and Localization, Release 2.*
<http://www.hl7.org/v3ballot/html/infrastructure/conformance/conformance.htm>
- *HL7 Version 3 Standard: Representation of the Health Quality Measures Format (eMeasure), DSTU, Release 2.1*
http://www.hl7.org/implement/standards/product_brief.cfm?product_id=97
- Institute of Medicine of the National Academies, “Crossing the quality chasm: the IOM health care quality initiative,” announcement, July 5, 2011.
[http://www.iom.edu/Global/News Announcements/Crossing-the-Quality-Chasm-The-IOM-Health-Care-Quality-Initiative.aspx](http://www.iom.edu/Global/News%20Announcements/Crossing-the-Quality-Chasm-The-IOM-Health-Care-Quality-Initiative.aspx) (accessed April 2012).
- *Measure Authoring Tool.* <https://www.emeasuretool.cms.gov/>
- *Medicare Program; Merit-Based Incentive Payment System (MIPS) and Alternative Payment Model (APM) Incentive Under the Physician Fee Schedule, and Criteria for Physician-Focused Payment Models.*
<https://www.federalregister.gov/documents/2016/11/04/2016-25240/medicare-program-merit-based-incentive-payment-system-mips-and-alternative-payment-model-apm>
- Trifolia Workbench. <http://trifolia.lantanagroup.com>
- *XML Path Language (XPath) Version 1.0.* <http://www.w3.org/TR/xpath/>

APPENDIX A — ACRONYMS AND ABBREVIATIONS

CCN	CMS Certification Number
CDA	Clinical Document Architecture
C-CDA	Consolidated CDA
CDA R2	CDA Release 2
CDC	Centers for Disease Control and Prevention
CMS	Centers for Medicare & Medicaid Services
CQM	Clinical Quality Measure
DENOM	Denominator
DSTU	Draft Standard for Trial Use
EHR	Electronic Health Record
HHS	US Department of Health and Human Services
HL7	Health Level Seven
HQMF	Health Quality Measures Format
IG	Implementation Guide
IHTSDO	International Health Terminology Standard Development Organization
IOM	Institute of Medicine
IPOP	Initial Population
LOINC	Logical Observation Identifiers Names and Codes
MACRA	Medicare Access and CHIP Reauthorization Act of 2015
MAT	The Measure Authoring Tool
MIPS	Merit-based Incentive Payment System
NPI	National Provider Identification
NQF	National Quality Forum
NUMER	Numerator
OID	Object identifier
ONC	Office of the National Coordinator, HHS
QRDA	Quality Reporting Document Architecture
RIM	Reference Information Model
S&I	Standards and Interoperability Framework
SDWG	Structured Documents Working Group
SNOMED CT	Systematized Nomenclature of Medicine, Clinical Terms
STU	Standard for Trial Use

TIN	Tax Identification Number
UCUM	Unified Code for Units of Measure
XML	Extensible Mark-up Language
XPath	XML Path Language