Integrating the Healthcare Enterprise

IHE Quality, Research and Public Health Technical Framework Supplement

Quality Measure Execution – Early Hearing (QME-EH)

Rev. 4.1 – Trial Implementation

Date: August 10, 2016

Author: QRPH Technical Committee

Email: qrph@ihe.net

Please verify you have the most recent version of this document. See here for Trial Implementation and Final Text versions and here for Public Comment versions.

Foreword

This is a supplement to the IHE Quality, Research and Public Health (QRPH) Technical Framework. Each supplement undergoes a process of public comment and trial implementation before being incorporated into the volumes of the Technical Frameworks.

This supplement is published on August 10, 2016 for trial implementation and may be available for testing at subsequent IHE Connectathons. The supplement may be amended based on the results of testing. Following successful testing it will be incorporated into the QRPH Technical Framework. Comments are invited and may be submitted at http://www.ihe.net/QRPH_Public_Comments.

This supplement describes changes to the existing technical framework documents.

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

Amend Section X.X by the following:

Where the amendment adds text, make the added text **bold underline**. Where the amendment removes text, make the removed text **~~bold strikethrough~~**. When entire new sections are added, introduce with editor's instructions to "add new text" or similar, which for readability are not bolded or underlined.

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

Information about the IHE Quality Research and Public Health domain can be found at http://www.ihe.net/IHE_Domains.

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

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

55 **CONTENTS**

Introduction to this Supplement

Quality Measure Execution-Early Hearing (QME-EH) is a content profile that defines the patient-level quality report needed for the Newborn Hearing Screening (CMS31v4, NQF1354) electronic clinical quality measure (eCQM) defined by the Centers for Disease Control and Prevention's Early Hearing Detection and Intervention program. The measure is used to assess the quality of the process of hearing screening for newborns. To support all realms, the profile uses generalized content modules (documents) which are then bound to specific content documents in the realm specific sections of Volume 4.

The US Realm section of Volume 4 contains mapping information that relates the data elements used for the Newborn Hearing Screening measure to the templates used in the Quality Reporting Document Architecture patient-level quality report. If use of the Newborn Hearing Screening measure spreads to additional realms, realm-specific content modules, vocabulary bindings, and derivation rules can be added to Volume 4.

Use cases documented in Section X.4 should be reviewed as a prerequisite for understanding the material in Volume 1. Although complete understanding of the use cases requires a detailed understanding of the technical definitions established in this profile, familiarity with the use case descriptions provides a contextual foundation that facilitates an understanding of the technical definitions for the actors, options, and transactions.

Open Issues and Questions

Item	Issue Description	Status
1	Creation and maintenance of template definitions is moving to the use of template tooling systems.	Seeking Public Comment feedback on the usability of the new approach to include template definitions in a separate, machine generated file.
2	Version information for the newborn hearing screening Measure Definition identification is incomplete for NQF and TJC.	This information needs to be collected from NQF and TJC during Public Comment.

Closed Issues

Item	Issue Description	Status
1	The measure definition included in Volume 1, appendix C is version 3 of the CMS31 Newborn Hearing Screening Measure, not version 4	The 2015 annual update for this measure will not be available from CMS until after May 30, 2015. Resolved – Published on May 1st and is included.
2	The use of references to an external document for template conformance requirements in Volume 3 has not been authorized by IHE.	IHE guideline for how to reference conformance information generated by template management tools will not be available from IHE until after April 27th. Resolved – content moved into this one Profile Tech Supplement.
3	QRDA Category I is in the process of being versioned. We decided to work with the currently balloted version of these standards, QRDA Category I, so as to absorb as many of the changes as were available at the time of ballot. THIS WAS A KNOWN RISK. Presently, the changes expected to be released following ballot reconciliation will be significant. The Diagnosis Active and Diagnostic Study Performed data type are both undergoing major revisions in QRDA Cat I. THE DSTU is projected to be released after May 15th, 2015. We are also working with the current version of the EHDI Newborn Hearing Screening measure (result of the 2015 Annual Update process) CMS31 v4. This measure definition will be released to the general public on May 1st, 2015.	Closed on 4/25/2015-Eric Larsen has proposed moving the entire profile to public comment knowing that due to other content dependencies the profile will not be voted 'yes' to go Trial Implementation status at the July 2015 F2F. A "contingent approval" with specific content updates listed will be discussed with Co-chairs, or other available process options will be explored to re-submit the updated profile for approval in September. John Eichwald approved this approach. This issue requires re-assessment. The changing specifications are creating sizable differences. Significant re-work will be required to incorporate changes in the new standards which will not be finished until after the IHE Public Comment period closes. Recommendation: 1. Release Volume 1 for public comment.

	A new dependency was discovered which involves assertion of an additional layer of specifications which tighten the content requirements for the US Realm to conform to the CMS EH quality reporting program. The profile utilized the 2014 CMS specification as a place-holder to demonstrate the type of additional conformances that are added by this layer of specification. New CMS 2015 specifications are expected by the end of July, 2015. We WILL need to incorporate significant changes into the Volume 4 of this profile to adopt these newer versions of the underlying standards and intermediate standards affecting the US Realm. We also face new challenges to incorporate use of template tooling with the development and publishing of the profile for Public Comment. Technical and process oriented details on how to utilize the tooling in conjunction with the current IHE publishing process remain to be worked out.	2. Include Volume 3 and Volume 4 as an "informative" aspect of the specification, but limit public comment feedback to specific question about the format and process of include content module specifications created with new template management tools. 3. Schedule an out of cycle Public Comment period in September or October on the update content modules in Volume 3 and Volume 4. 4. Continue to work with IHE to evolve the IHE Profile development process to clarify the use and inclusion of sample snippets, document instances, schematron validation modules, integration with the IHE Technical Supplement template, on-line access to template definitions and potential use of on-line html-based publishing of template IGs. Recommendation modified on 5/5/2015. All content will be copied into the IHE TS Template.
4	Public Comment input may be desirable as a way to gathering feedback on new publishing methods and formats which support the use of automated tooling for template creation and management.	Specific questions relating to the use of template tooling may need to be developed by QRPH or IHE and included as a part of what goes to public comment. The Public Comment spreadsheet for this Profile could be seeded with the identified question in order to solicit feedback on key aspects

	This profile has taken an approach which uses the IHE TF structure in Volume 3 to identify the IHE universal realm Content Modules by name within the IHE numbered chapter heading framework, then points by OID reference to the defined template for the Content Module. Content Module names and template names match exactly by convention. In keeping with the existing IHE Technical Supplement Volume 3 template, references are included for document-, section-, and entry-level templates. In Volume 4 where the IHE Technical Supplement is less specific, references are included for document-level templates only.	of the new documentation process and output. Tabled on 5/8/2015 – Out of scope
5	Will this profile deprecate the previous QME-EH Profile? No, the QME-EH Profile is in Trial Implementation, which is a state where updates and major revisions are planned. This work will be applied as a large CP to update profile.	Closed. As of discussion at the February F2F review session, 2015. This work will be treated as a CP for the whole specification. It fully supports but replaces the prior specification for the QME-EH actors and the defined content modules.
6	Need to determine where to document that it is outside the scope of this profile to address the mechanism for establishing the queue of documents to be processed in a "run". A run is the set of summary of care documents to be processed. In this profile there is a run of clinical summary documents and then a run of patient-level quality reports. It is possible that the run	Definition of a "run" has been added to the glossary and a statement has been added to the description of the measure to explain that this profile does not address how to determine if the set of documents supplied in a run is the complete/correct set of records that should be processed. Closed on 2/21/2015

	of documents would be all summary of care documents that are being submitted as relevant for the initial patient population (IPP). This is more of a policy/business practice decision and is not within the scope of the technical specification. This specification focuses only on documenting how to process the files in the run.	
7	Representation of derivation rules is an open issue.	Mappings between the summary of care document named in volume 4 and the data elements of the patient-level quality report will be defined using CQL syntax. Closed on 2/21/2015
8	Reduce the Actor Transaction Diagram to just two actors….	No. I still disagree with doing this. To be discussed further on Wednesday 2/25/2015
9	Determine if the use case where the QR Creator will read CDAs and only produce a QRDA level 3 document would be useful Adjust the content module specifications to align with the new actor options. Add additional use case for scenarios to exercise the new options.	Closed – 1/15/2015 version now covers the additional use cases where Content Creator has options to produce a patient-level, aggregate-level, or summary of care document.
10	Rename the LHS Option to be a described capability of the actor that is not named and is not required. Refer to it as an "exception report" that can be used to provide "closed loop" communication with the Content Creator supplying the SoCD.	2/25/2015 Done

11	Consider using longer option names rather than using the abbreviated acronyms.	2/26/2015 The committee decided to go with the shorter option names.
12	The header constraints for the Patient-level and Aggregate-level reports in Volume 4 may not have the correct information that will be required by CMS for the 2015 Reporting Year measures.	The July 2015 version of the CMS Implementation Guide for Quality Reporting Document Architecture Category I and Category III, Eligible Professional Programs and Hospital Quality Reporting (HQR), Supplementary Implementation Guide for 2016 was reviewed and compared to the constraints in the profile. In some cases this CMS IG provides more specific information for encoding header items. The guidance in these templates may be less specific for the document headers and will be more specific for the document body. The two specifications are aligned. They are intended to be used together.
13	Approach of creating additional IHE templates for EHDI CMS31 measure created additional burden for implementers. Including new TemplateID's is a barrier to implementation we were asked to remove. In rethinking the approach due to the overhead of maintaining brittle templates that changed any time one of many dependent standards changed was determined to be an effective approach.	Volume 4 will now focus on providing guidance to implementers to explain what all the moving parts are and which versions are relevant for different versions of the measure definition.
14	Dependent on PCC implementing CP-PCC-211 which provided definitions of the Content Creator and Content Consumer Actors without any requirements on the transport mechanism.	In progress. It has gone through Public Comment and is in the process of being published. Need to get a status on this from Patient Care.

General Introduction

Update the following Appendices to the General Introduction as indicated below. Note that these are not appendices to Volume 1.

This supplement is written as an addition to the Quality, Research and Public Health Technical Framework.

This supplement also references the following documents. The reader should review these documents as needed:

- PCC Technical Framework, Volume 1
- PCC Technical Framework, Volume 2
- PCC Technical Framework Supplement: CDA®[3] Content Modules
- IT Infrastructure Technical Framework Volume 1
- IT Infrastructure Technical Framework Volume 2
- IT Infrastructure Technical Framework Volume 3

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

Appendix A – Actor Summary Definitions

Add the following actors to the IHE Technical Frameworks General Introduction list of actors:

Actor	Definition
Report Assembler	This actor consumes standard CDA summary of care documents and creates standard patient level quality reports. Additionally, this actor may consume patient-level quality reports and produce the corresponding aggregate-level quality report for an electronic clinical quality measure.

Appendix B – Transaction Summary Definitions

Add the following transactions to the IHE Technical Frameworks General Introduction list of Transactions:

No new transactions

Glossary

Add the following glossary terms to the IHE Technical Frameworks General Introduction Glossary:

Glossary Term	Definition
Run	A "run" is a set of documents to be processed. There can be a run of summary of care documents or a run of patient-level quality report documents. When validating a document produced from a run of documents, the content in that resulting document must demonstrate proper processing of the content in all documents with the run of incoming.
Assembler	A system that faithfully combines available information and does not create new information in the process of assembling the available data.
Composer	A system that creates new information about the patient. The new information may be introduced while assembling other available data.
Patient-level Quality Report	A quality report that includes data about a single patient.
Aggregate-level Quality Report	A quality report that includes data computed from a set of patients across a set of encounters or another measured item.

Volume 1 – Profiles

Copyright Licenses

None

Domain-specific additions

None

Add Section X

X Quality Measure Execution-Early Hearing (QME-EH) Profile

The Quality Measure Execution-Early Hearing (QME-EH) Content Profile specifies how to create and consume standard electronic patient-level and aggregate-level quality reports for the Newborn Hearing Screening (CMS31) electronic clinical quality measure (eCQM). It also specifies how to reuse data from a standard summary of care document generated by an EHR to create a patient-level quality report. Additionally it specifies how to create an aggregate-level quality report for the Newborn Hearing Screening quality measure from multiple patient-level quality reports.

The Newborn Hearing Screening measure is a process measure conducted as a part of the U.S. Centers for Disease Control and Prevention (CDC) Early Hearing Detection and Intervention (EHDI) public health program. It measures the proportion of newborns who receive hearing screening prior to discharge at birth.

This profile specifies information exchange methods which permit greater data transparency and consistency for the quality measurement process and which reduce the burden of compliance with quality measurement programs.

This profile does not specify how to determine if the set of documents (clinical summary documents or patient-level quality reports) supplied for processing is the correct and complete set of documents to be processed for the measure. Actors creating quality reports need to determine if a document that is supplied in the run meets the measure definition's criteria for the initial population of the measure before processing the rest of the data. Data in documents which meet the initial population (IP) criteria should be included in the quality report. Refer to Section X.6.3 for considerations regarding the use of a mechanisms defined within the QRPH Newborn Admission Notification Information (NANI) Profile to confirm if the run of documents processed for the quality measure is complete.

X.1 Actors, Transactions, and Content Modules

This section defines the actors, transactions, and/or content modules in this profile. General definitions of actors are given in the Technical Frameworks General Introduction Appendix A at http://www.ihe.net/Technical_Framework/index.cfm.

Figure X.1-1 shows the actors directly involved in the QME-EH Profile and the direction that the content is exchanged. Actors which have a mandatory grouping are shown in conjoined boxes. For details, see Section X.3 Required Actor Groupings.

A product implementation using this profile must group actors from this profile with actors from a workflow or transport profile to be functional. See Section X.6 Cross-Profile Considerations. The grouping of the content modules to specific actors is described in more detail in Table X.1-1.

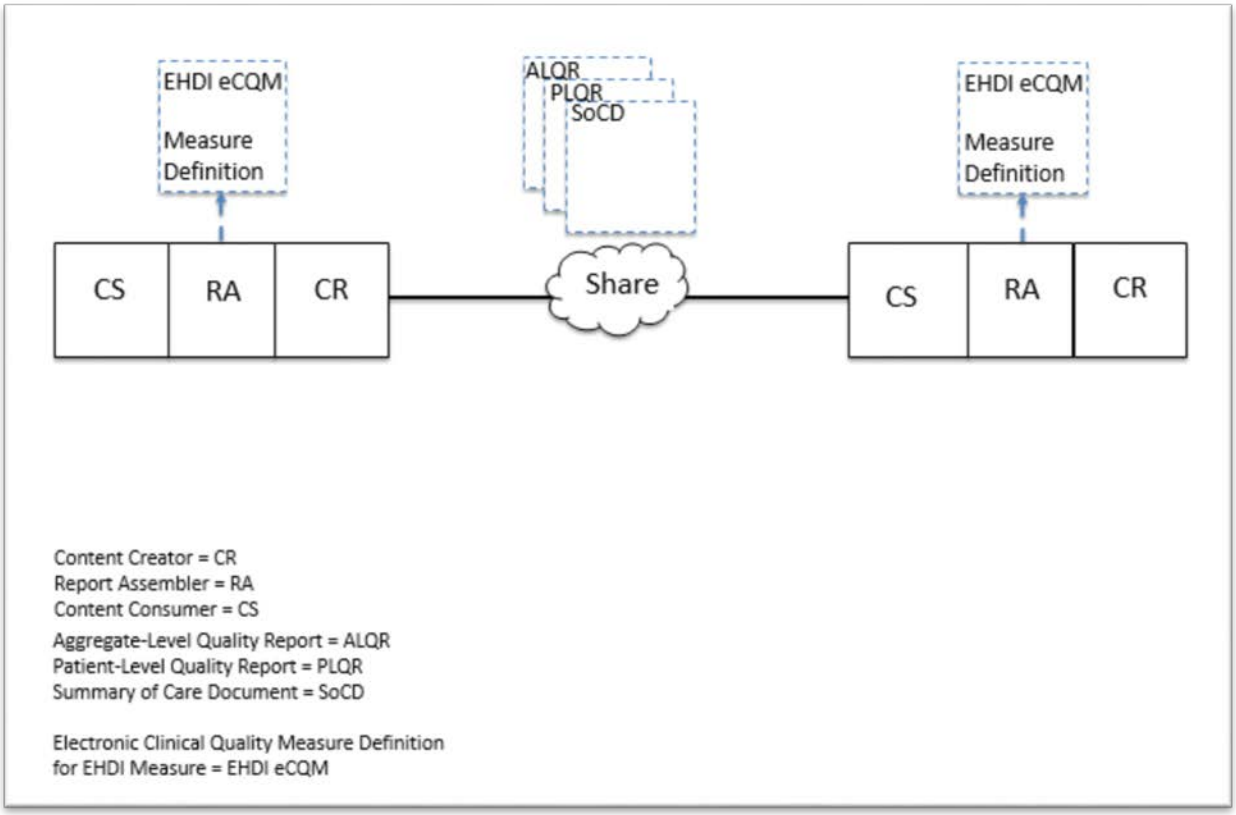

Figure X.1-1: Quality Measure Execution-Early Hearing Actor Diagram

Note: Actor options are used to indicate the Required Groupings for a system performing a particular role. The actor options for a participating system are determined by the role the system intends to play in a particular use case for this profile (see Sections X.2 and X.3). Use Cases in Section X.4 include customized diagrams which specify the actor options needed to support the various use cases. Section X.4.1 contains additional information about the concepts behind the modular grouping options in this profile. Appendix C provides an example of the EHDI eCQM Measure Definition. Appendix D includes a listing of the data elements in a Patient-level and Aggregate-level Quality Report.

Table X.1-1 lists the content module(s) defined in the QME-EH Profile. To claim support with this profile, an actor shall support all required content modules (labeled "R") and may support optional content modules (labeled "O").

Table X.1-1: QME-EH - Actors and Content Modules

Actors	Content Modules (See Note 1)	Optionality	Reference
Report Assembler	EHDI Measure Definition (eCQM EDHI)	R	QRPH TF-1:Appendix C

Actors	Content Modules (See Note 1)	Optionality	Reference
Content Consumer (See Note 1)	Summary of Care Document (SoCD)	O	A C-CDA Clinical summary. For the US Realm this is a CCD®[4] or Discharge Summary which includes information needed to populate the data elements defined for a PLQR.(See QRPH TF-4: Appendix D.1.1)
	Aggregate-Level Quality Report (ALQR)	O	For US Realm, see QRPH TF-4: R1.3.1.1.D2
	Patient-Level Quality Report (PLQR)	O	For US Realm, see QRPH TF-4: R1.3.1.1.D1
Content Creator (See Note 1)	Summary of Care Document (SoCD)	O	Any C-CDA clinical summary such as a CCD or Discharge Summary which includes information needed to populate the data elements defined for a PLQR. For US Realm, see QRPH TF-4: Appendix D.1.1
	Aggregate-Level Quality Report (ALQR)	O	For US Realm, see QRPH TF-4: R1.3.1.1.D2
	Patient-Level Quality Report (PLQR)	O	For US Realm, see QRPH TF-4: R1.3.1.1.D1

Note 1: Actor options and groupings contain further details on content module requirements; see Sections X.2 and X.3. Universal (UV) Realm definitions in Volume 3 are generalizations that provide a starting point for any realms to reference. The UV Realm definitions ensure a level of consistency but lack enough specificity to be useful. An implementation needs specifics to be implemented, thus implementers must look to realm-specific content modules to have something to actually implement.

[4] CCD is the registered trademark of Health Level Seven International.

X.1.1 Actor Descriptions and Actor Profile Requirements

Most requirements are documented Content Modules (Volume 3). This section documents any additional requirements on profile's actors.

X.1.1.1 Report Assembler

A Report Assembler shall be able to process an eMeasure Definition for the Newborn Hearing Screening measure is an assumed capability.

This profile does not place requirements on how the measure's definition is consumed. The Report Assembler implements the data element processing, logic criteria assessment capabilities, and computational functionality required to execute the defined Newborn Hearing Screening quality measure.

An example of the measure definition is included in QRPH TF-1: Appendix C. Appendix C also provides a link to access the current Newborn Hearing Screening measure definition for the US Realm. UV Realm definitions in this profile are generalizations that provide a starting point for any realms to reference. The UV Realm definitions ensure a level of consistency by lack enough specificity to be useful. An implementation needs specifics to be implemented, thus you must look to realm-specific content modules to have something to actually implement. The UV Realm templates provide a general "framework" for a Newborn Hearing Screening measure, but for an implementation, a realm needs to "fill in" their specifics to make the specification useful.

See Section X.2 for options that may be supported by the Report Assembler, enabling it to assemble Patient-Level and Aggregate-Level Quality Reports.

The Report Assembler MAY implement an exception reporting function. The exception report may document data element processing errors detected while processing incoming documents. For example, when a data element in the Patient-Level Quality Report specified by this profile cannot be populated, the Report Assembler would report this as an exception. Formatting of the exception information is not specified by this profile. The exception report MAY include information such as an identifier for the Summary of Care Document and the data elements that could not be populated in the corresponding Patient-Level Quality Report.

X.1.1.2 Content Consumer

See Section X.2 for options that may be supported by the Content Consumer, enabling it to consume Summary of Care Documents or Patient-Level or Aggregate-Level Quality Reports.

The Content Consumer SHALL support Viewing and Discrete Data Import for the Summary of Care Documents or Patient-Level or Aggregate-Level Quality Reports it consumes.

X.1.1.3 Content Creator

See Section X.2 for options that may be supported by the Content Creator, enabling it to create Summary of Care Documents or Patient-Level or Aggregate-Level Quality Reports.

X.2 Actor Options

Options that may be selected for each actor in this profile, if any, are listed in Table X.2-1. Dependencies between options when applicable are specified in notes.

Table X.2-1: QME-EH – Actors and Options

Actor	Option Name	Reference
Content Creator (See Note 1)	Aggregate-Level Quality Report (ALQR) Option	Section X.2.1
	Patient-Level Quality Report (PLQR) Option	Section X.2.2
	Summary of Care Document (SoCD) Option	Section X.2.3
Content Consumer	Aggregate-Level Quality Report (ALQR) Option (See Note 2)	Section X.2.1
	Patient-Level Quality Report (PLQR) Option (See Note 2)	Section X.2.2
	Summary of Care Document (SoCD) Option (See Note 3)	Section X.2.3
Report Assembler (See Note 3)	Assemble Patient-Level Quality Report from Summary of Care Document (SoCD to PLQR) Option	Section X.2.4
	Assemble Aggregate-Level Quality Report from Patient-Level Quality Report (PLQR to ALQR) Option	Section X.2.5

Note 1: A Content Creator SHALL implement one or more of the following options: Aggregate-Level Quality Report Option, Patient-Level Quality Report Option, or Summary of Care Document Option.

Note 2: A Content Consumer SHALL implement one or more of the following options: Aggregate-Level Quality Report Option or Patient-Level Quality Report Option

Note 3: A Report Assembler SHALL implement one or more of the following options: Assemble PLQR from SoCD, or Assemble ALQR from PLQR.

X.2.1 Aggregate-Level Quality Report Option

This option enables creation and consumption of an Aggregate-Level Quality Report.

- A Content Creator that supports this option SHALL create and share valid Aggregate-Level Quality Report documents
- A Content Consumer that supports this option SHALL consume and process Aggregate-Level Quality Report documents and SHALL support the View Option for these documents.

X.2.2 Patient-Level Quality Report Option

This option enables creation and consumption of a Patient-Level Quality Report.

- A Content Creator that supports this option SHALL create and share valid Patient-Level Quality Report documents
- A Content Consumer that supports this option SHALL consume and process Patient-Level Quality Report documents and SHALL support both the View Option and Discrete Data Import Option for these documents.

X.2.3 Summary of Care Document Option

This option enables creation and consumption of a Summary of Care Document.

- A Content Creator that supports this option SHALL create and share valid Summary of Care Documents.
- A Content Consumer that supports this option SHALL consume and process valid Summary of Care Documents and SHALL support both the View Option and Discrete Data Import Option for these documents.

X.2.4 Assemble Aggregate-Level Quality Report from Patient-Level Quality Report Option

This option enables a Report Assembler to consume a set of Patient-Level Quality Reports and use them as input to create an Aggregate-Level Quality Report. This option supports Use Case #4 in Section X.4.2.4.

A Report Assembler that supports this option SHALL:

- be grouped with a Content Consumer with the Patient-Level Quality Report Option. See Section X.2.2.
- be grouped with a Content Creator with the Aggregate-Level Quality Report Option. See Section X.2.1.

The mechanism for establishing the set of Patient-Level Quality Reports to be consumed is outside the scope of this profile. For the provided set of Patient-Level Quality Report (PLQR) documents, the Report Assembler SHALL determine which PLQRs match the criteria for the initial population, given the measure definition for the Newborn Hearing Screening measure. The Report Assembler SHALL create a valid Aggregate-level quality report (ALQR) for that set of PLQR documents. The Report Assembler SHALL consume and process Patient-Level Quality Report (PLQR) documents by utilizing the realm-assigned document type. The Report Assembler SHALL create Aggregate-Level Quality Report (ALQR) documents by utilizing the realm-assigned document type.

X.2.5 Assemble Patient-Level Quality Report from Summary of Care Document Option

This option enables a Report Assembler to consume one or more Summary of Care Documents for the Newborn Hearing Screening measure and use them as input to create a Patient-Level Quality Report according to this measure's definition. This option supports Use Case #3, #4, and #5 in Sections X.4.2.3, X.4.2.4, and X.4.2.5.

A Report Assembler that supports this option SHALL:

- be grouped with a Content Consumer of a Summary of Care Document with both View and Discrete Data Import implemented in order to view and process the information documented in the eMeasure Definition file for the Newborn Hearing Screening quality measure.
- be grouped with a Content Creator with the Patient-Level Quality Report Option. See Section X.2.2.

The mechanism for establishing the set of Summary of Care Documents to be consumed is outside the scope of this profile. For each Summary of Care Document, the Report Assembler SHALL determine if the information in the file matches the criteria for the initial population, given the measure definition for the Newborn Hearing Screening measure. The Report Assembler SHALL consume and process Summary of Care (SoCD) documents by utilizing an accepted Summary of Care document for the realm. The Report Assembler SHALL create Patient-Level Quality Report (PLQR) documents by utilizing the realm-assigned document type.

X.3 Required Actor Groupings

An actor from this profile (Column 1) shall implement all of the required transactions and/or content modules in this profile ***in addition to*** all of the transactions/content required for the grouped actor (Column 2).

Section X.5 describes some optional groupings that may be of interest for security considerations and Section X.6 describes some optional groupings in other related profiles.

Table X.3-1: QME-EH - Required Actor Groupings

QME-EH Actor	Actor to be grouped with	Reference	Content Bindings Reference
Report Assembler with Assemble PLQR from SoCD Option	Content Consumer (SoCD Option) and Content Creator (PLQR Option)	This grouping supports Use Case #3 See Section X.4.2.3	
Report Assembler with Assemble ALQR from PLQR Option	Content Consumer (SoCD Option and PLQR Option) and Content Creator (ALQR Option)	This grouping supports Use Case #4 See Section X.4.2.4	--

X.4 Overview

X.4.1 Concepts

In the context of quality measure reporting, two or more systems share reports that summarize data, or they share data that can be summarized into reports. The information can be shared as an aggregate-level quality report (ALQR) where computation has already been applied to compute the measure. The information can be supplied as a patient-level quality report (PLQR) to support computation of an aggregate-level report from a set of PLQRs. The information can also be supplied in the form of a clinical summary (also called a Summary of Care Document (SoCD). A SoCD can be processed to determine the data needed to populate the data elements in a PLQR. Examples of SoCDs include an HL7®[5] Continuity of Care Document, and HL7 Discharge Summary Document, or possibly an epSOS (European Patient Smart open Services) Patient Summary Document (a European version of the US-Realm CCD)

ALQR – Aggregate-Level Quality Report

PLQR – Patient-Level Quality Report

SoCD – Summary of Care Document

Systems that act as a Report Assembler include the functionality needed to process externally defined electronic quality measure definitions (eMeasure Definitions). The eMeasure Definition is not defined in the QME-EH Profile. It is defined using a supported standard for expressing quality measure definitions. Processing of an eMeasure Definition for the Newborn Hearing Screening measure is an assumed capability by this profile for systems that act as the Report Assembler. An eMeasure Definition is specific to a particular realm because the quality measure definition is established for or adopted by a specific jurisdiction. For example, the Newborn Hearing Screening measure definition for the US Realm is defined using the HL7 Healthcare Quality Measure Format standard (HQMF) and has been endorsed by the National Quality Forum (NQF) for the United States.

When a system is involved in quality measure reporting it may have varying levels of capability to support quality report assembly. A system that can perform report assembly tasks needs to read or be informed by the quality measure definition file to apply the defined logic for the measure's definition. A system that does not have direct access to patient EHR data needs to process input documents to get the needed data the input may come as a Patient-Level Quality Report or as a Summary of Care Document, depending on the capabilities of the system providing the input.

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

A system that shares information with another system (Content Creator) needs to create documents in a standard format. Depending on the expected level of participation in the quality report creation process and the inherent access to data, the system participating in the flow of information will need different levels of Content Creator capabilities. In cases where other systems do more of the processing, the system may only need to create a Summary of Care Document. For example, when a "middle-man system" handles the creation of the PLQR from an SoCD and creates the ALQR from the set of created PLQRs, then the system originating the data needs only to create the SoCD input file used by the "middle-man" system. In this case, the ultimate consumer system, such as a Public Health system, needs only to consume the ALQR output by the "middle-man" system.

Over time, to support scalability of quality measurement capabilities, all systems involved in quality reporting will likely aim to develop the ability to read and process data based on a standard eMeasure Definition. Along the way, they may just get started by implementing options that allow them to contribute or consume quality measure information in these less sophisticated ways. The modular "option-based" definition of the actors in the QME-EH Profile is designed to support an "evolution" of various Use Cases and is achieved by "mixing and matching" systems with various levels of information processing capability.

X.4.2 Use Cases

X.4.2.1 Use Case #1: Two-system Aggregate-Level Reporting

A birthing facility participates in a quality measurement program that assesses the quality of the process used to perform hearing screening for newborns. The facility employs a system capable of producing an aggregate-level quality report for the Newborn Hearing Screening measure (EHDI eCQM) defined by the program. The system assembles the final aggregate-level quality report based on data available in the system. It shares the report so that an organization, such as the Centers for Medicaid and Medicare Services (CMS) or a Public Health Agency, can access the information. No patient-level information is supplied to support validation of the computation used to generate the aggregate report or to provide patient-level insight information that might be used to do risk adjustment.

This Use Case represents the simplest form of electronic sharing of clinical quality measure results. However, it offers low transparency for information receivers and puts a high processing burden on senders.

X.4.2.1.1 Use Case Description

A system that includes functionality to compute the EHDI eCQM produces a valid aggregate-level report for the Newborn Hearing Screening measure and supplies it for consumption. The shared aggregate-level report is consumed by another system.

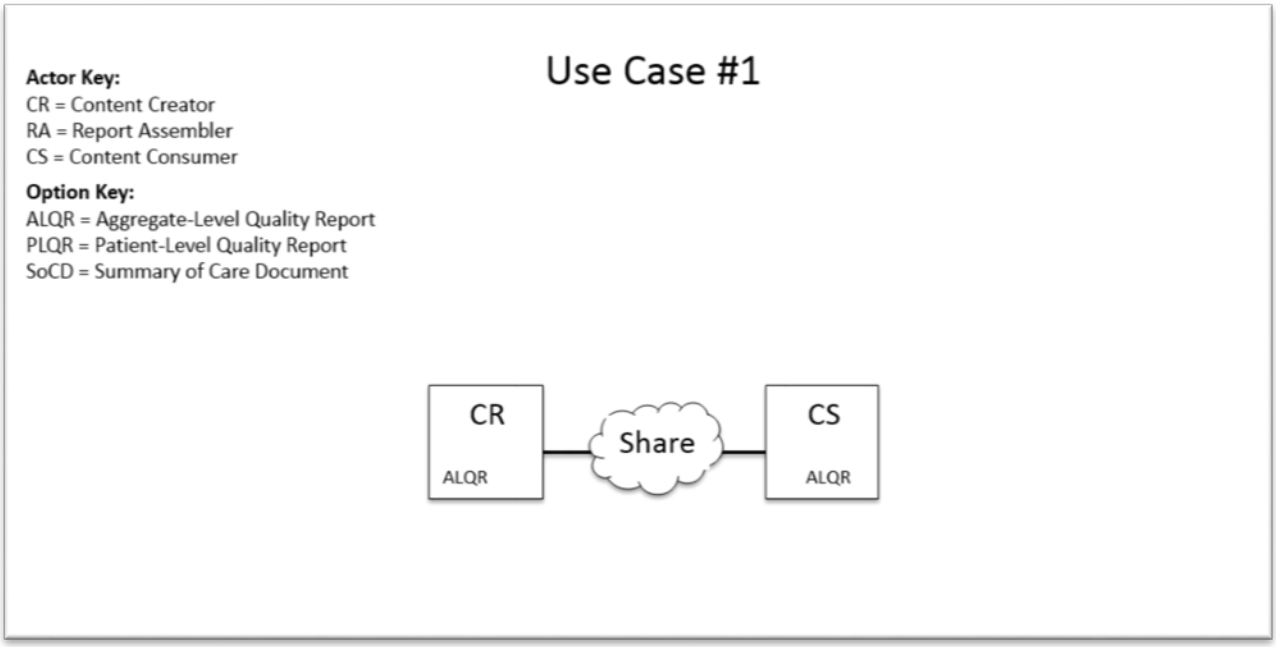

Figure X.4.2.1.1-1: Use Case 1 Specific Actor Transaction Diagram

X.4.2.1.1.1 Pre-conditions

None

X.4.2.1.1.2 Main Flow

A birthing facility participates in a quality measurement program that assesses the quality of the process used to perform hearing screening for newborns. The facility employs a system capable of producing an aggregate-level quality report for the Newborn Hearing Screening measure (EHDI eCQM) defined by the program.

Based on the EHDI eCQM definition, a system uses internally defined methods and internally available data to generate an aggregate-level quality report for the EHDI eCQM.

Another system accesses the aggregate-level quality report and processes it. The receiving system is operated by an organization like CMS or a Public Health Agency.

X.4.2.1.1.3 Post-conditions

The organization accessing the aggregate-level report receives the measure performance result, but gains no insight about patient-level information aggregated in the report. Consequently, the receiving system cannot validate the computation used to generate the report, nor can it compute

any risk adjustments for the result. Results reported may be based on data extraction and computation practices that are not consistent with other facilities practices.

X.4.2.1.2 Processing Steps

Step 1 – A Content Creator with the ALQR Option produces an aggregate-level quality report and shares the document.

Step 2 – A Content Consumer with the ALQR Option accesses the Newborn Hearing Screening measure aggregate-level quality report and consumes it for processing.

X.4.2.1.3 Process Flow

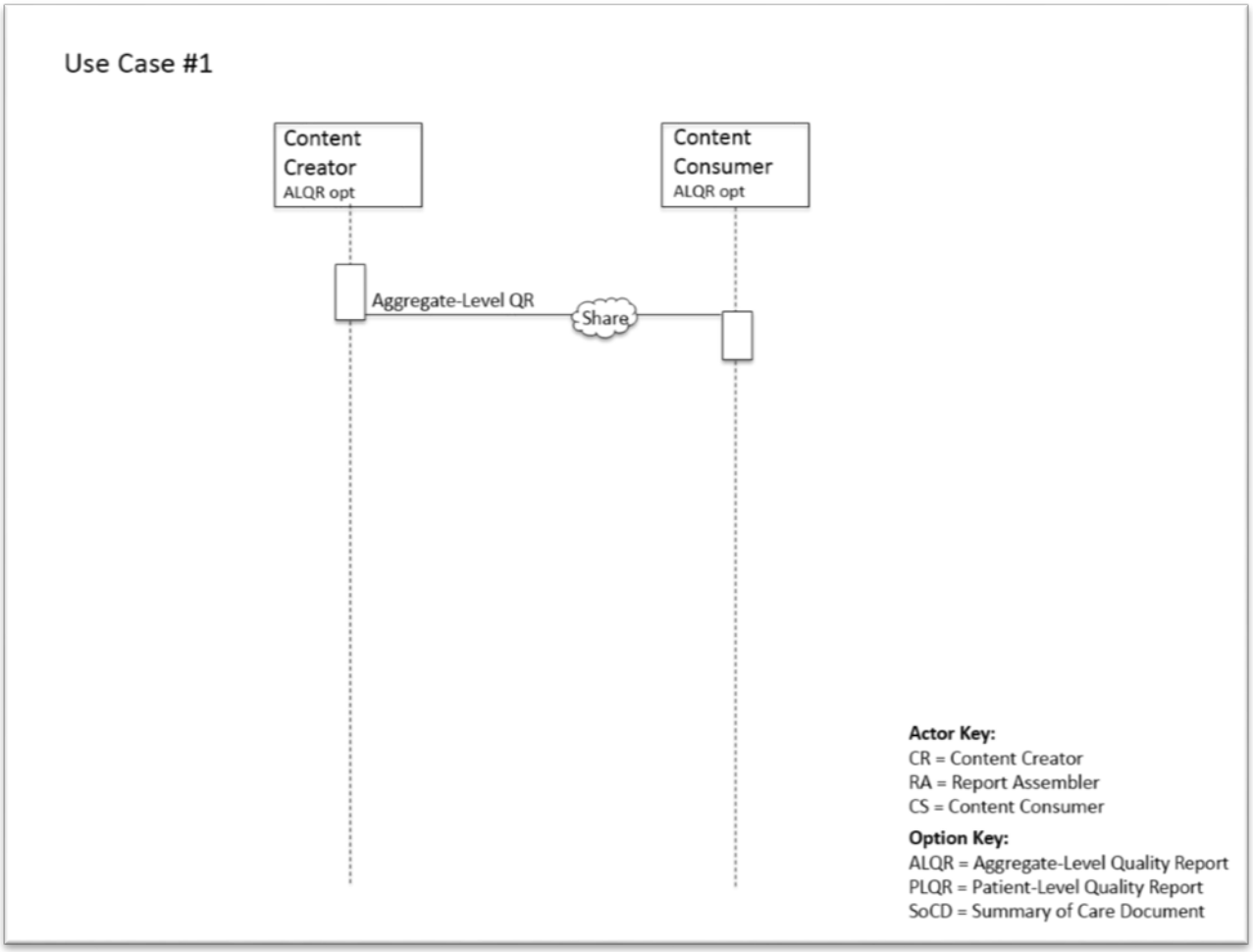

Figure X.4.2.1.3-1: Process Flow Diagram

X.4.2.2 Use Case #2: Two-system Patient-Level Reporting

A birthing facility participates in a quality measurement program that assesses the quality of the process used to perform hearing screening for newborns. The facility employs a system capable of producing patient-level quality reports for the Newborn Hearing Screening measure as defined by the eMeasure Definition. The system assembles patient-level quality reports based on data available in the system. It shares the reports with an organization, such as CMS, a Public Health Agency, or a company that offers quality measurement and assessment services.

This Use Case spreads the processing burden across information senders and receivers. Senders only need to submit Patient-Level Quality Reports. Receivers process the Patient-Level Quality Reports to determine the Aggregate-Level results. It offers better transparency for information receivers but an increased burden because they must process Patient-Level Quality Reports to get the needed results.

X.4.2.2.1 Use Case Description

A system that includes functionality to produce patient-level reports for the Newborn Hearing Screening measure creates these reports and supplies them for consumption. The shared patient-level reports are consumed by another system.

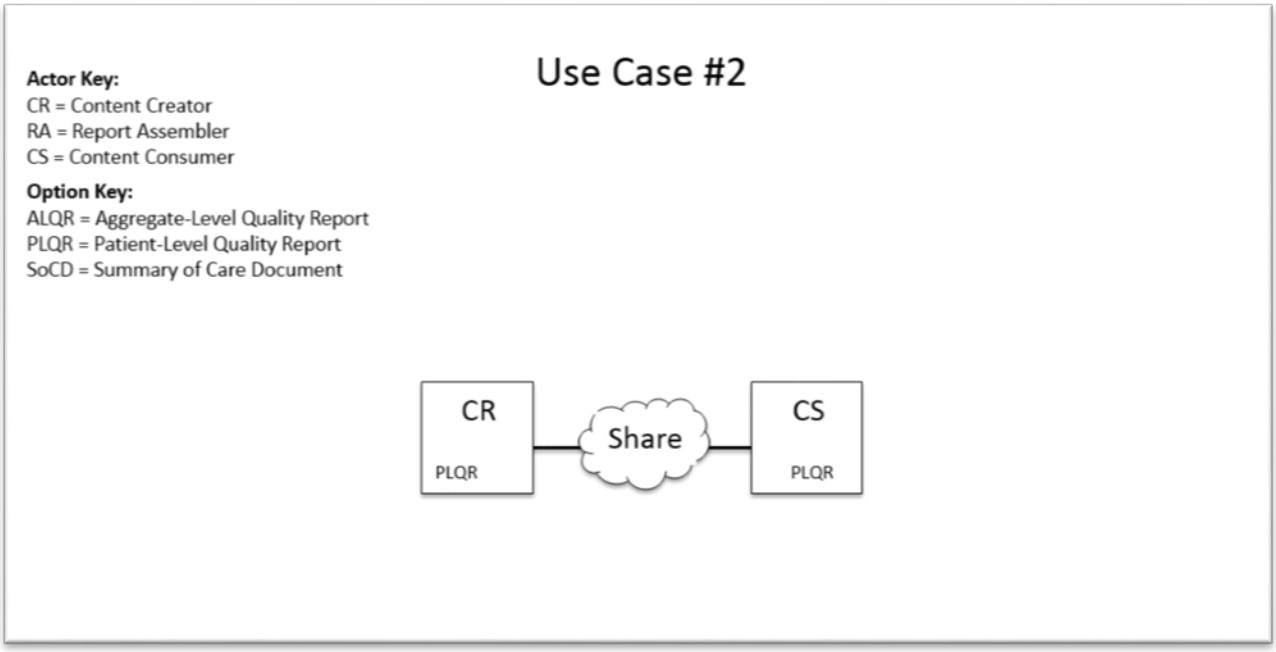

Figure X.4.2.2.1-1: Use Case 2 Specific Actor Transaction Diagram

X.4.2.2.1.1 Pre-conditions

None

X.4.2.2.1.2 Main Flow

A birthing facility participates in a quality measurement program that assesses the quality of the process used to perform hearing screening for newborns. The facility employs a system capable of producing a patient-level quality reports for the Newborn Hearing Screening measure.

Based on the Newborn Hearing Screening eMeasure Definition, a system uses internally defined methods and internally available data to generate patient-level quality reports for the EHDI eCQM.

Another system accesses the patient-level quality reports and processes them. The receiving system is operated by an organization like CMS or a Public Health Agency or an organization that provides quality measure services. The receiving system consumes and processes the patient-level reports. The QME-EH Profile does not specify the mechanisms used for any subsequent processing of the PLQR documents.

X.4.2.2.1.3 Post-conditions

The organization receiving the patient-level reports receives data that can be used to compute measure performance results as defined by the eMeasure Definition or using the organization's own methods. Risk adjustments can be applied and are transparent for the receiving organization. Data extraction practices may vary across organizations. Submitting patient-level reports allows for validation of measure computation. Performance results can be computed consistently across different facilities when the same eMeasure Definition is applied.

X.4.2.2.2 Processing Steps

Step 1 – A Content Creator with the PLQR Option produces patient-level quality report as defined by the Newborn Hearing Screening eMeasure Definition and shares the documents.

Step 2 – A Content Consumer with the PLQR Option accesses the Newborn Hearing Screening measure patient-level quality reports and consumes them for processing.

X.4.2.2.3 Process Flow

A loop is used to indicate iterative processing of the set of PLQR documents shared with the Content Consumer.

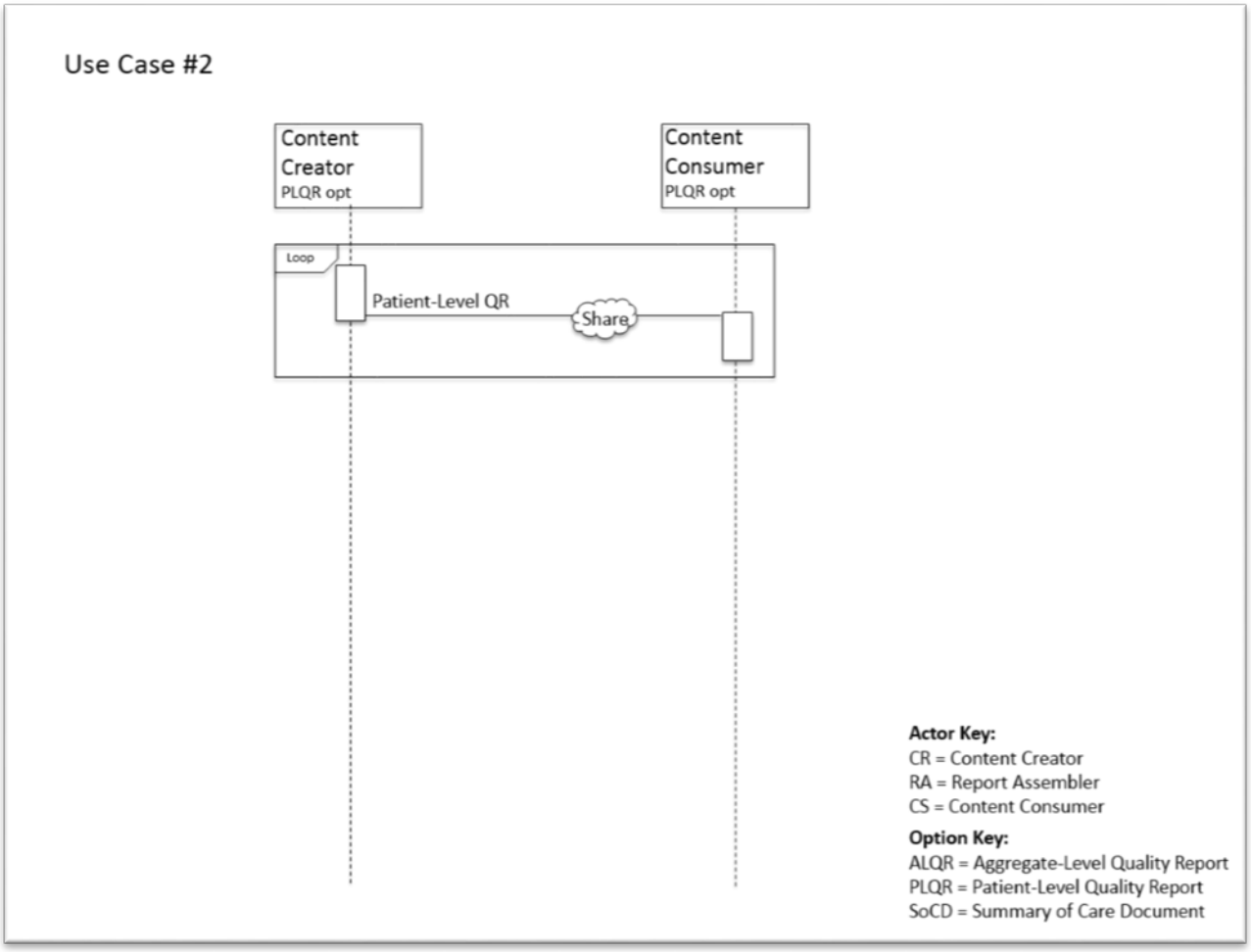

Figure X.4.2.2.3-1: Process Flow Diagram

X.4.2.3 Use Case #3: Three-system Patient-Level Reporting from Summary of Care Documents

A birthing facility participates in a quality measurement program that assesses the quality of the process used to perform hearing screening for newborns. The facility does not employ a system capable of producing patient-level quality reports for the Newborn Hearing Screening measure as defined by the eMeasure Definition. The system creates summary of care documents based on data available in the system to facilitate continuity of care.

Information available in the summary of care document is shared with a “middle-man” system which processes the summaries of care to produce the patient-level quality reports defined by the eMeasure Definition. The “middle-man” system assembles the patient-level reports and shares them for subsequent processing by recipient systems.

The "middle-man" system may produce an exception report as it produces the patient-level quality reports. The exception report can be used to create a feedback loop to improve the quality of the data in the care summary records being produced by the birthing facility.

A third system at an organization such as CMS or a Public Health Agency accesses the patient-level quality reports.

This Use Case shifts data processing burden off the information senders. It offers greater transparency for information receivers because they receive patient-level quality reports, but information receivers carry the burden of processing the patient-level quality reports.

X.4.2.3.1 Use Case Description

A system that does not includes functionality to create aggregate- or patient-level quality report documents for the EHDI eCQM produces and shares valid summary of care documents. The shared summary of care documents are consumed by a second "middle-man" system. The "middle-man" system assembles patient-level quality report documents based on the Newborn Hearing Screening eMeasure Definition and then shares them. The shared patient-level reports are consumed by another system.

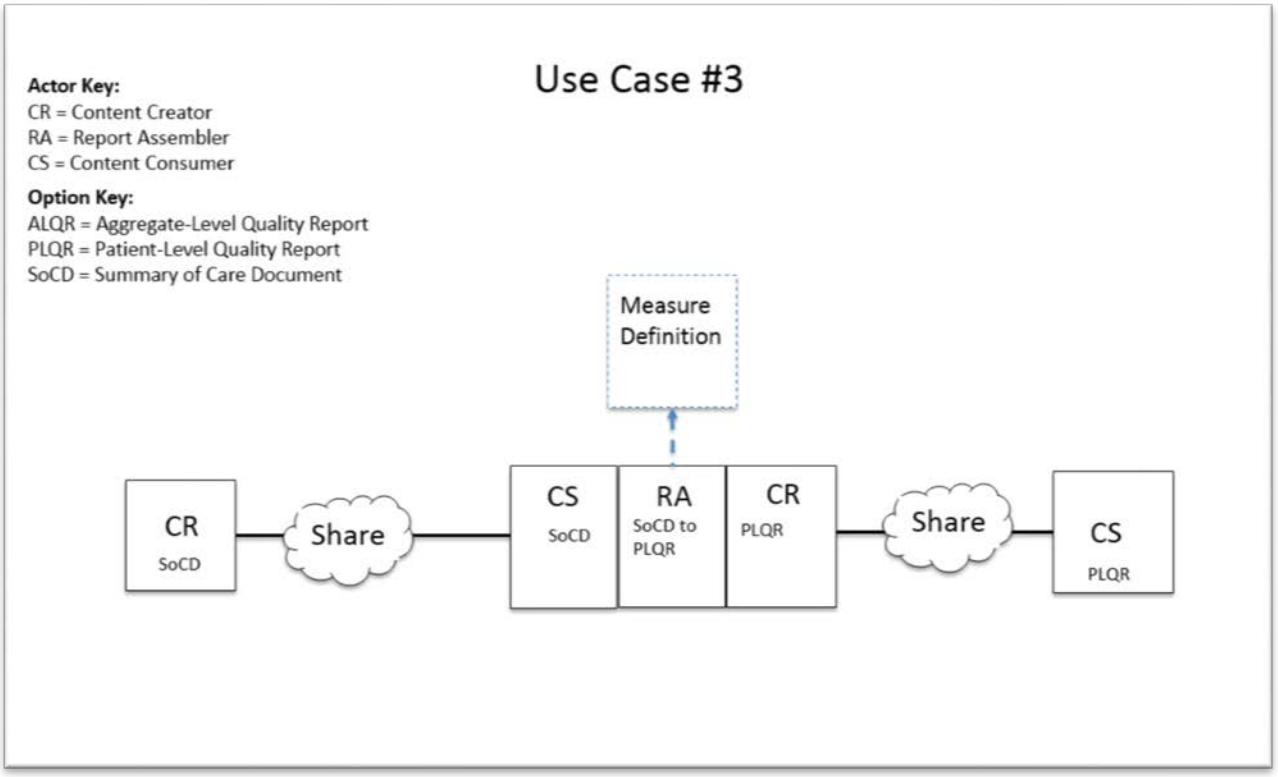

Figure X.4.2.3.1-1: Use Case 3 Specific Actor Transaction Diagram

X.4.2.3.1.1 Pre-conditions

Summary of Care Documents generated by the birthing facility includes the data elements required the patient-level quality report associated with the Newborn Hearing Screening eMeasure Definition.

X.4.2.3.1.2 Main Flow

A birthing facility participates in a quality measurement program that assesses the quality of the process used to perform hearing screening for newborns. The facility does not employ a system capable of producing aggregate- or patient-level quality reports for the Newborn Hearing Screening eMeasure Definition. The facility produces and shares summary of care documents to support continuity of care and business operations.

A "middle-man" system accesses the summary of care documents and processes them. Based on the EHDI eCQM definition, the system uses internally defined methods to generate patient-level quality reports for the data supplied in the summary of care documents. The patient-level quality reports are shared for subsequent processing.

An organization such as CMS or a Public Health Agency consumes the patient-level quality reports in order to assess the original organization's Newborn Hearing Screening process performance or to facility coordination of care.

X.4.2.3.1.3 Post-conditions

In this use case, the birthing facility reporting the Newborn Hearing Screening measure does not produce any quality reports. The birthing facility simply focuses on producing high quality interoperable clinical summary of care documents for each newborn.

The middle-man system contains all the information needed to validate and verify that quality measure computations and assessments were performed accurately and consistently, assuming the summary of care documents were accurate and included all relevant information needed for computing the quality measure as defined in the eMeasure Definition.

The organization receiving the patient-level reports receives data that can be used to compute measure performance results as defined by the eMeasure Definition or using the organization's own methods. Risk adjustments can be applied and are transparent for the receiving organization. Although data extraction practices may vary across organizations, submitting the patient-level reports allows validation that performance results can be computed consistently across different facilities when the same eMeasure Definition is applied.

X.4.2.3.2 Processing Steps

Step 1 – A Content Creator with the SoCD Option produces summary of care documents for newborns in support of continuity of care and makes them available for sharing.

Step 2 – A Report Assembler with the SoCD to PLQR Option accesses the summary of care documents. It assembles the Newborn Hearing Screening patient-level quality reports as defined

by the eMeasure Definition. The patient-level quality reports are shared for subsequent processing.

Step 3 – A Content Consumer with the PLQR Option accesses the Newborn Hearing Screening measure patient-level quality reports and consumes them for processing.

X.4.2.3.3 Process Flow

Loops are used to show iterative processing of the set of SoCD and the set of PLQR documents.

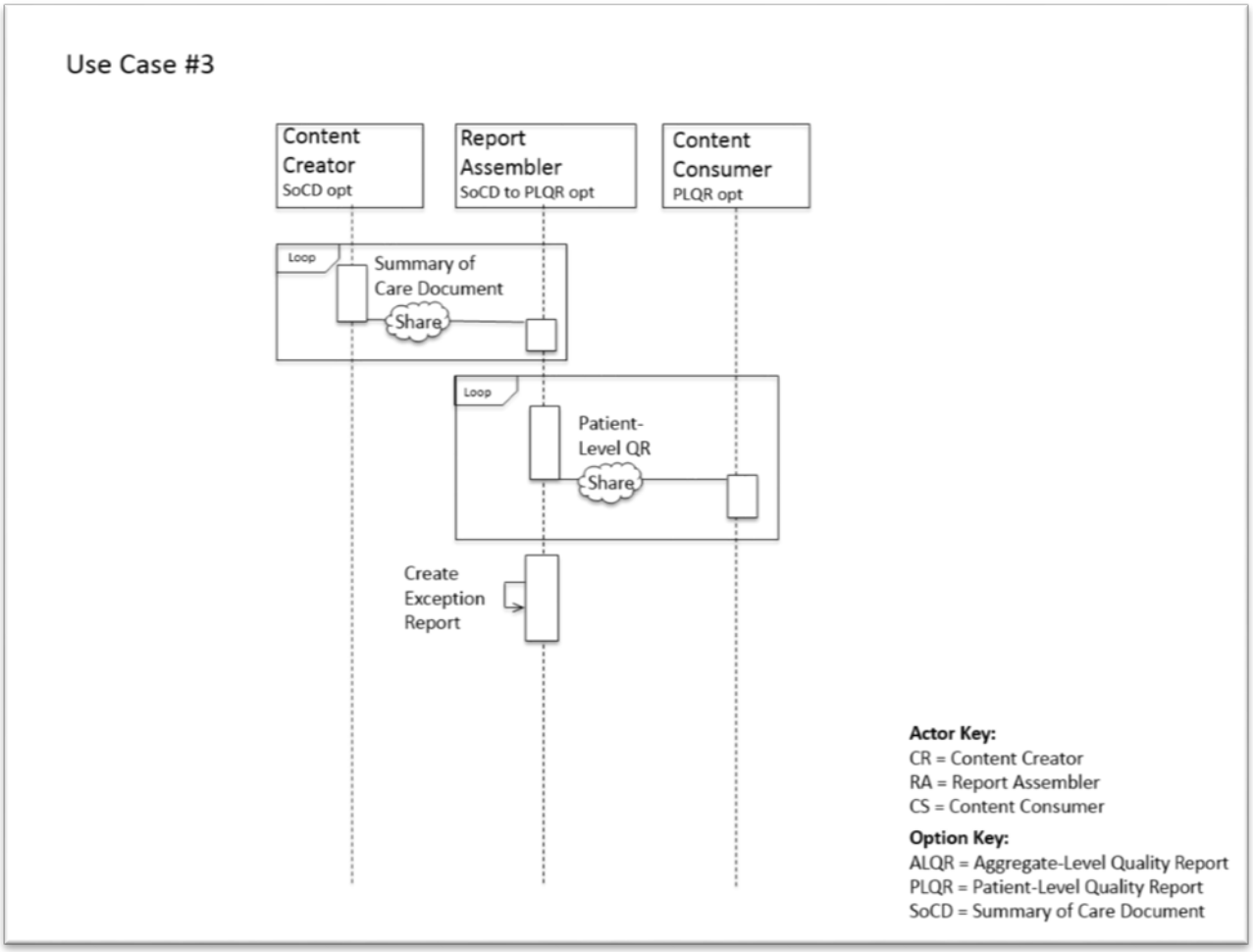

Figure X.4.2.3.3-1: Process Flow Diagram

X.4.2.4 Use Case #4: Three-system Aggregate-Level Reporting from Summary of Care Documents

A birthing facility participates in a quality measurement program that assesses the quality of the process used to perform hearing screening for newborns. The facility does not employ a system capable of producing patient-level quality reports for the Newborn Hearing Screening measure as defined by the eMeasure Definition. The system creates summary of care documents based on data available in the system to facilitate continuity of care.

Information available in the summary of care document is shared with a "middle-man" system which processes the summaries of care to produce the patient-level quality reports defined by the eMeasure Definition. The "middle-man" system assembles the patient-level reports and then processes them to produce the aggregate-level quality report as defined by the eMeasure definition. The aggregate-level quality report is shared for subsequent access.

The "middle-man" system may produce an exception report as it produces the patient-level quality reports. The exception report can be used to create a feedback loop to improve the quality of the data in the care summary records being produced by the birthing facility.

A third system at an organization such as CMS or a Public Health Agency accesses the aggregate-level quality reports in order to track and monitor process performance against the Newborn Hearing Screening measure.

This Use Case shifts data processing burden off the information senders and the information receivers. A new "middle-man" system absorbs the work of processing data already produced by the information sender and does the work of putting the result in a format that can be consumed by the information receiver. Information recipients who do not need transparency into the underlying details may benefit from simply receiving the aggregate-level quality report.

X.4.2.4.1 Use Case Description

A system that does not includes functionality to create aggregate- or patient-level quality report documents for the EHDI eCQM produces and shares valid summary of care documents. The shared summary of care documents are consumed by a second "middle-man" system. The "middle-man" system assembles patient-level quality report documents based on the Newborn Hearing Screening eMeasure Definition. It processes the patient-level quality reports to produce the aggregate-level quality report as defined by the eMeasure definition. The aggregate-level quality report is shared for subsequent access by another system supporting an organization such as CMS or a Public Health agency.

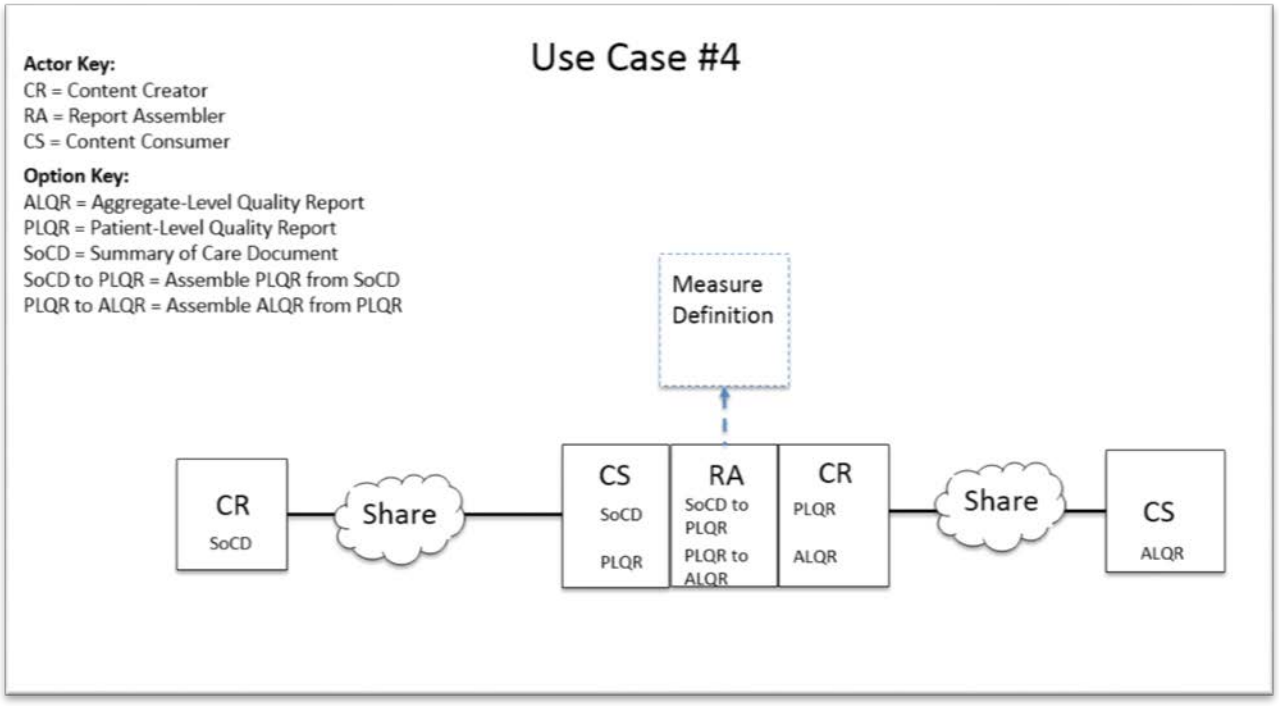

Figure X.4.2.4.1-1: Use Case 4 Specific Actor Transaction Diagram

X.4.2.4.1.1 Pre-conditions

Summary of Care Documents generated by the birthing facility included the data elements required the patient-level quality report associated with the Newborn Hearing Screening eMeasure Definition.

X.4.2.4.1.2 Main Flow

The birthing facility participating in the quality measurement program does not need to employ a system capable of producing quality reports. It simply produces the summary of care documents required to support continuity of care. This system acts as the Content Creator.

The Report Assembler extracts data available in the care summary and transforms it to meet the requirements of the patient-level quality measure report. While processing the data, the Report Assembler may produce a report which details and summarizes any problems with the data provided in the care summary reports. The set of patient-level reports are then processed and a single aggregate-level quality report is created. The aggregate-level report is shared with an organization such as CMS or a Public Health agency which receives performance measure information. This system only needs to process aggregate-level quality reports.

X.4.2.4.1.3 Post-conditions

In this use case, the birthing facility reporting the Newborn Hearing Screening measure does not produce any quality reports. The birthing facility simply focuses on producing high quality interoperable clinical summary of care documents for each newborn.

The middle-man organization receiving the summary of care documents is responsible for computing the measured performance result. The organization gains insight into the summary of care data and the patient-level information used to compute the measure, but no aggregate-level report is generated. Computation is performed for the aggregate-level report document and the information is shared. This can be used to deliver a completed aggregate-level report to the quality program.

The receiving organization, such as CMS or a Public Health agency, is relieved of the burden of computing the performance result for the quality measure.

X.4.2.4.2 Processing Steps

Step 1 – A Content Creator with the SoCD Option produces summary of care documents for newborns in support of continuity of care and makes them available for sharing.

Step 2 – A Report Assembler with the SoCD to PLQR Option and with the PLQR to ALQR Option accesses the summary of care documents. It assembles the Newborn Hearing Screening patient-level quality reports as defined by the eMeasure Definition.

Step 3 – The Report Assembler processes the patient-level quality reports. It assembles the Newborn Hearing Screening aggregate-level quality report as defined by the eMeasure Definition and shares the report.

Step 4 – The Report Assembler may produce an exception report which describes processing problems for care summary reports.

Step 5 – A Content Consumer with the ALQR Option accesses the Newborn Hearing Screening measure aggregate-level quality reports and consumes it for processing.

X.4.2.4.3 Process Flow

Loops are used to show iterative processing the set of SoCD and PLQR documents.

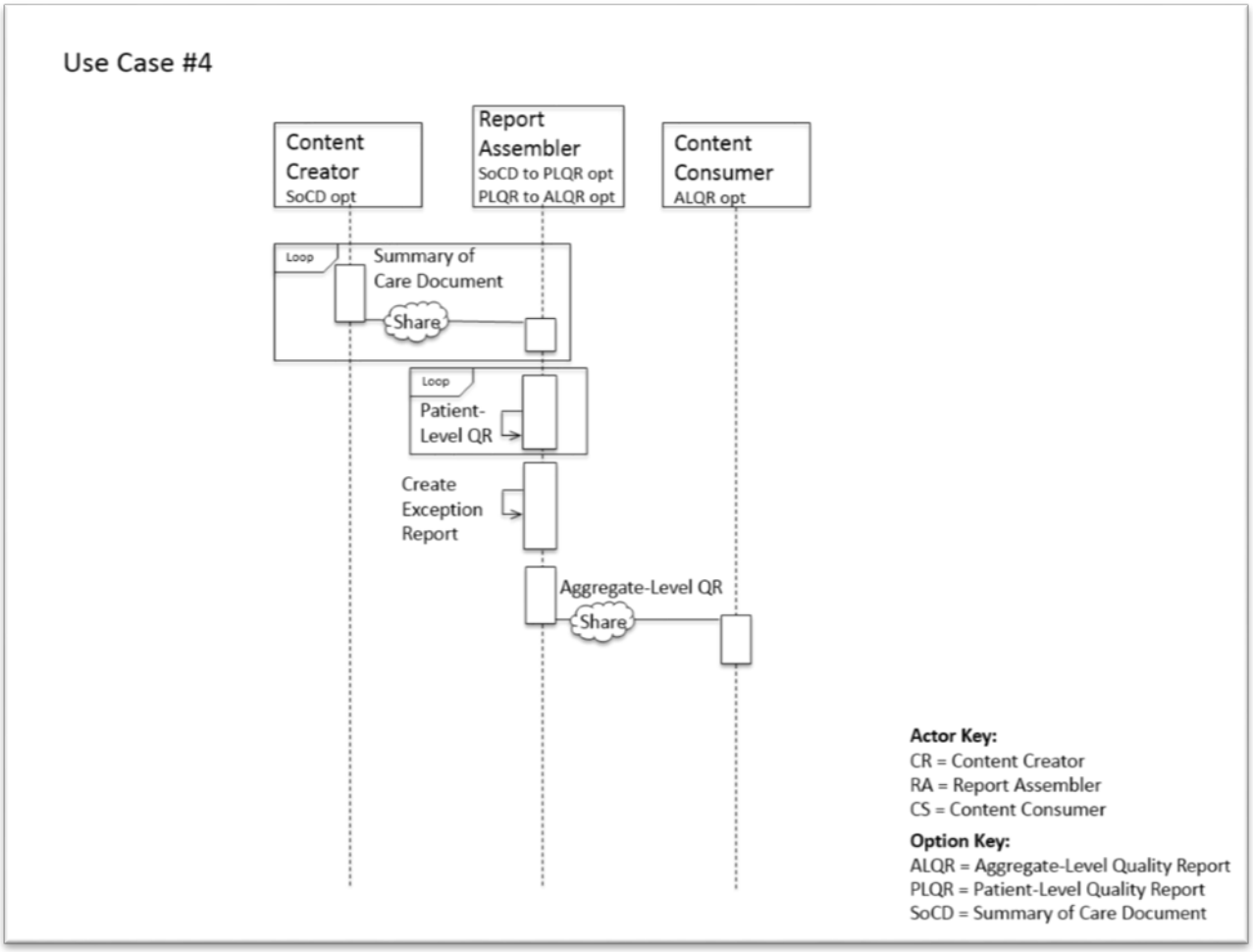

Figure X.4.2.4.3-1: Process Flow Diagram

X.4.2.5 Use Case #5: Two-system Closed Loop

This Use Case is a variation for Use Case #4. It shows that the system which does the work of producing the Aggregate-Level Quality Report can share the quality measure results back with the information sender of the original clinical summary data. It shows how closed-loop information sharing can be created for quality reporting.

A birthing facility participates in a quality measurement program that assesses the quality of the process used to perform hearing screening for newborns. The facility does not employ a system capable of producing patient-level quality reports for the Newborn Hearing Screening measure as defined by the eMeasure Definition. The system creates summary of care documents based on data available in the system to facilitate continuity of care.

Information available in the summary of care document is shared with a "middle-man" system which processes the summaries of care to produce the patient-level quality reports defined by the eMeasure Definition. The "middle-man" system assembles the patient-level reports and then processes them to produce the aggregate-level quality report as defined by the eMeasure Definition. The aggregate-level quality report is shared for subsequent access.

The "middle-man" system may produce an exception report as it produces the patient-level quality reports. The exception report can be used to create a feedback loop to improve the quality of the data in the care summary records being produced by the birthing facility.

This Use Case does not focus on sharing the aggregate-level quality report with a third system at an organization such as CMS or a Public Health Agency. Rather, it focuses on creating a closed loop communication with the system providing the summary of care documents. The system at the birthing facility accesses the aggregate-level quality reports in order to track and monitor their process performance against the Newborn Hearing Screening measure.

This Use Case shifts data processing burden off the information senders and the information receivers. A new "middle-man" system absorbs the work of processing data already produced by the information sender and does the work of putting the result in a format that can be consumed by the information receiver. Information recipients who do not need transparency into the underlying details may benefit from simply receiving the aggregate-level quality report, but more importantly, aggregate-level quality reports are made available to the organization participating in the quality program.

X.4.2.5.1 Use Case Description

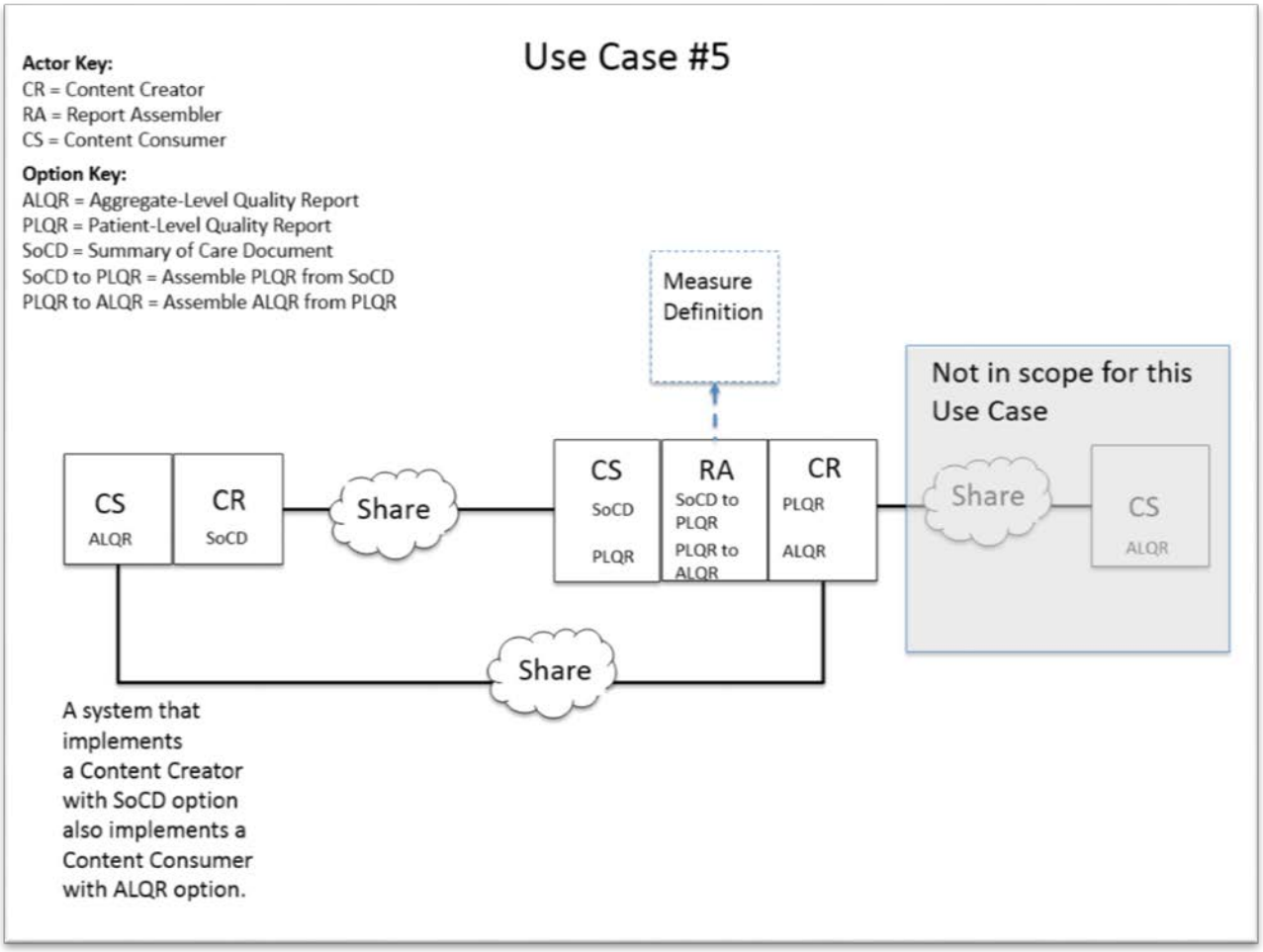

Figure X.4.2.5.1-1: Use Case 5 Specific Actor Transaction Diagram

X.4.2.5.1.1 Pre-conditions

Summary of Care Documents generated by the birthing facility included the data elements required the patient-level quality report associated with the Newborn Hearing Screening eMeasure Definition.

A system supports both Content Creator with SoCD Option and also supports Content Consumer with ALQR Option.

X.4.2.5.1.2 Main Flow

The birthing facility participating in the quality measurement program does not need to employ a system capable of producing quality reports. It simply produces the summary of care documents required to support continuity of care. This system acts as the Content Creator.

The Report Assembler extracts data available in the care summary and transforms it to meet the requirements of the patient-level quality measure report. While processing the data, the Report Assembler may produce a report which details and summarizes any problems with the data provided in the care summary reports. The set of patient-level reports are then processed and a single aggregate-level quality report is created. While the aggregate-level report may be shared with an organization such as CMS or a Public Health agency which receives performance measure information, this Use Case shows the aggregate-level quality report information flowing back to the birthing facility system to create a closed-loop communication.

X.4.2.5.1.3 Post-conditions

The organization participating in the quality program receives the aggregate-level quality report so that they can track and monitor their performance for the Newborn Hearing Screening process.

X.4.2.5.2 Processing Steps

Step 1 – A Content Creator with the SoCD Option produces summary of care documents for newborns in support of continuity of care and makes them available for sharing.

Step 2 – A Report Assembler with the SoCD to PLQR Option and with the PLQR to ALQR Option accesses the summary of care documents. It assembles the Newborn Hearing Screening patient-level quality reports as defined by the eMeasure Definition.

Step 3 – The Report Assembler processes the patient-level quality reports. It assembles the Newborn Hearing Screening aggregate-level quality report as defined by the eMeasure Definition and shares the report.

Step 4 – The Report Assembler may produce an exception report which describes processing problems for care summary reports.

Step 5 – The Content Creator involved in Step 1 accesses the Newborn Hearing Screening measure aggregate-level quality reports (as a Content Consumer) and consumes it for processing (see Section 4.2.5.1.1 Precondition).

X.4.2.5.3 Process Flow

Loops are used to show iterative processing the set of SoCD and the set of PLQR documents.

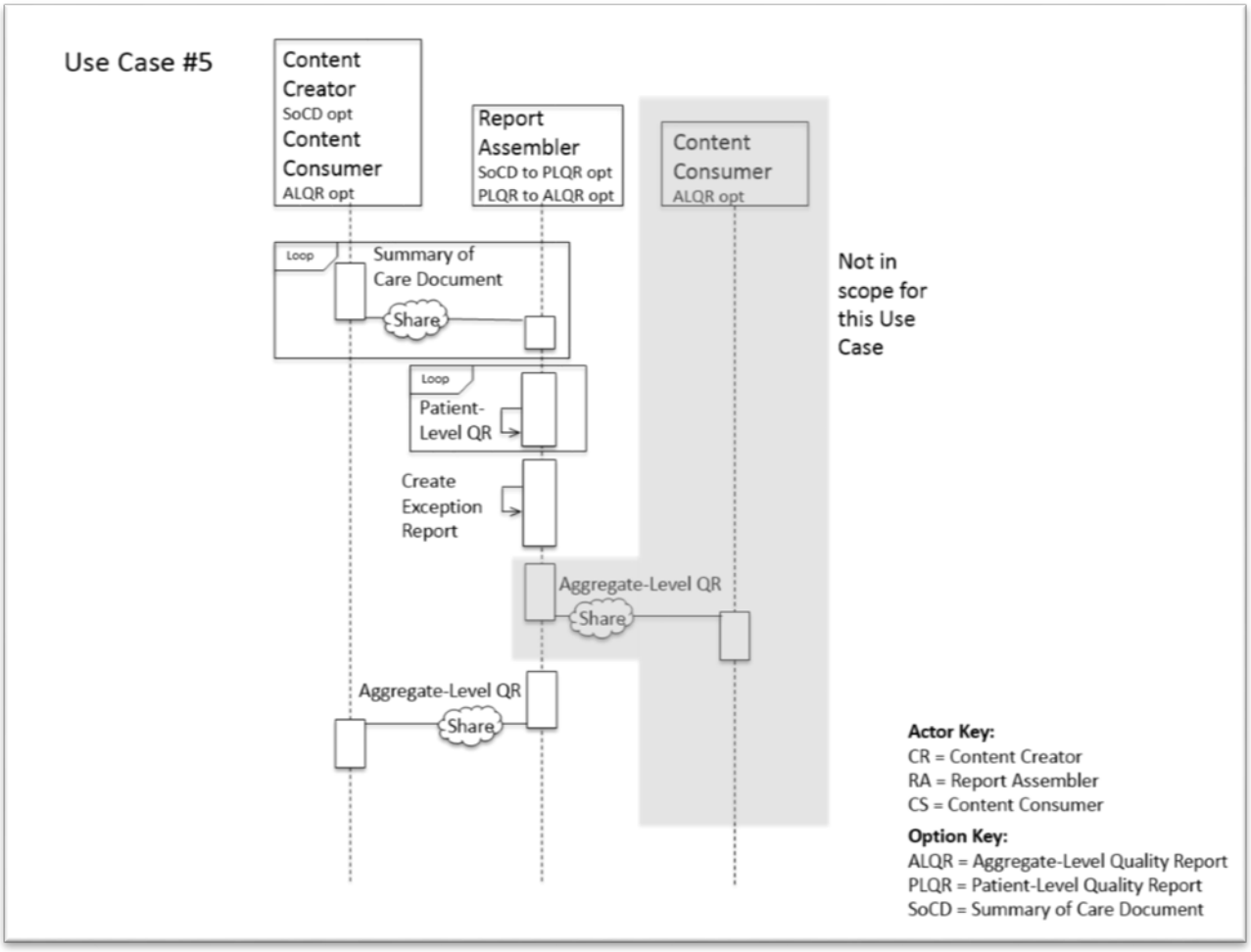

Figure X.4.2.5.3-1: Process Flow Diagram

X.5 Security Considerations

Patient-level quality report and summary of care documents include protected health information (PHI) and clinical content related to the record target for the document. As such, it is anticipated that the transfers of PHI SHOULD be processed using best practices.

Other security mechanisms MAY be used to secure content within enterprise managed systems. Review of the de-identification requirements also should be performed as described in the IHE ITI Handbook – De-Identification. Note that development of a de-identification strategy my reduce risks but also may increase the implementation requirements for this profile.

Actors responsible for creating persistent content, in the form of a saved form or CDA document, MAY include a digital signature using the ITI Digital Signature (DSG) Profile to assure that the document contains the same content attested to by the document creator.

For security purposes, when sending information to Public Health, specifically to vital records Electronic Registration Systems, systems will also may need to know the identity of the user and the location to identify the of the data source. In this case, the Cross-Enterprise User Assertion (XUA) and Audit Trail and Node Authentication (ATNA) Profiles MAY be utilized to support this functionality.

X.6 Cross Profile Considerations

The following informative narrative is offered as implementation guidance.

X.6.1 Document Sharing and Security Profiles

The use of the IHE family of Profiles for cross-enterprise document sharing is encouraged to support standards-based interoperability between systems acting as Content Creator and Content Consumer. Below is a summary of recommended IHE profiles that MAY be utilized by systems playing the roles of Content Creator or Content Consumer to support the use cases defined in this profile:

- A Document Source in XDS.b, a Portable Media Creator in XDM, or a Document Source in XDR might be grouped with the Content Creator. A Document Consumer in XDS.b, a Portable Media Importer in XDM, or a Document Recipient in XDR might be grouped with the Content Consumer.
- A reliable messaging-based infrastructure is defined by the IHE Cross Enterprise Document Reliable Interchange (XDR) Profile. Document Source in XDR might be grouped with the Content Creator. A Document Recipient in XDR might be grouped with the Content Consumer,
- All of these infrastructures support security and privacy using the Audit Trail and Node Authentication (ATNA) Profile. A Secure Node and/or a Secure Application in ATNA might be grouped with the Content Creator, Content Consumer, or Report Assembler.

These profiles are defined in the IHE IT Infrastructure Technical Framework.

X.6.2 Sharing Value Set (SVS)

Actors in the QME-EH Profile may support the Value Set Consumer in the ITI Sharing Value Set (SVS) Profile in order to use a common uniform managed vocabulary for dynamic use of value sets in the eCQM definitions.

X.6.3 Newborn Admission Notification Information (NANI)

Actors in the QME-EH Profile may support functionality defined in the Newborn Admission Notification Information Profile in order to establish an expectation of the total number of births recorded at a hospital. This information can be used to determine if the run of documents processed for the quality measure is complete. This profile also may supply discharge information which can be used to improve the quality of the available patient-level data and may be used to trigger production of the Patient-Level Quality Report.

X.6.4 Early Hearing Detection and Intervention (EHDI)

Actors in the QME-EH Profile may support functionality defined in the Early Hearing Detection and Intervention Profile in order to gather data elements used in computing the quality EHDI process quality measure for newborn hearing screening. The EHDI Profile actors responsible for creating the Hearing Plan of Care document have all the data needed to generate the patient-level data and may be used to trigger production of the Patient-Level Quality Report.

Appendices

Appendix A – New Actors

This Appendix A includes the brief definitions of any new IHE actors being defined for the first time in this profile.

A.1 Brief Actor Definitions for New Actors

Actor	Definition
Report Assembler	This actor consumes standard CDA summary of care documents and creates standard Patient-level Quality Reports by re-using the available data. Optionally, the Report Assembler consumes Patient-level Quality Reports and generates an Aggregate-level report for the quality measure.

Appendix B – New Transactions

No new transaction defined.

Appendix C – Quality Measure Definitions

This appendix includes an example of an electronic definition for the Newborn Hearing Screening quality measure for the QME-EH Profile. It provides as illustration of the type of eMeasure Definition that a Report Assembler would need to have the capability to process in order to correctly process data according to this quality measure definition. Access to this type of eMeasure Definition is assumed for use cases where a Report Assembler processes information to produce either a Patient-Level Quality Report or an Aggregate-Level Quality Report.

Title	Description
Hearing Screening Prior To Hospital Discharge	This measure assesses the proportion of births that have been screened for hearing loss before hospital discharge. Hearing Screening Prior to Discharge quality measure Definition, CMS #31 version 4.0, NQF #1354. This measure definition is available at http://ecqi.healthit.gov/eh under the 2014 eCQM Specifications for Eligible Hospitals Update June 2015.

The measure definition is included with the QME-EH Profile as illustrative material. Note that the current version of the measure is located on the CMS website in the CQI Resource Center https://ecqi.healthit.gov/eh.

In the US Realm, Implementers of the Report Assembler need to be able to support assembling of Patient-Level Quality Reports and Aggregate-Level Quality Reports using the Newborn Hearing Screening Measure definition file as defined for the Centers for Medicaid and Medicare Services (CMS) quality program 2016 Reporting Year.

Value sets used in this profile for US Realm documents are defined and maintained in the Value Set Authority Center (VSAC). They are included below as illustrative examples. Implementers should retrieve current value set definitions and expansions (the full set of coded concepts) directly from the VSAC when implementing this profile (https://vsac.nlm.nih.gov/). The correct versions of the value sets used in this profile are referenced in the Measure Definition package. The value set spreadsheet included in the package lists the value set OID (column B) and Revision Date (column C).

Figure C-1 (following) shows a rendering of the Hearing Screening eCQM Measure Definition.

Table C-1: Example electronic definition for the Newborn Hearing Screening quality measure

eMeasure Title	1 Hearing Screening Prior To Hospital Discharge

eMeasure Identifier (Measure Authoring Tool)	31	**eMeasure Version number**	4.0.000
NQF Number	1354	**GUID**	0924fbae-3fdb-4d0a-aab7-9f354e699fde
Measurement Period	January 1, 20XX through December 31, 20XX		
Measure Steward	CDC National Center on Birth Defects and Developmental Disabilities		
Measure Developer	CDC Early Hearing Detection and Intervention Program		
Endorsed By	National Quality Forum		
Description	This measure assesses the proportion of births that have been screened for hearing loss before hospital discharge.		
Copyright	None		
Disclaimer	These performance measures are not clinical guidelines and do not establish a standard of medical care, and have not been tested for all potential applications. The measures and specifications are provided without warranty. CMS has contracted with Mathematica Policy Research and its subcontractors, Lantana and Telligen, for the continued maintenance of this electronic measure.		
Measure Scoring	Proportion		
Measure Type	Process		
Measure Item Count	Encounter, Performed: Encounter Inpatient		
Stratification	None		
Risk Adjustment	None		
Rate Aggregation	None		
Rationale	Birthing facility staff should review the effectiveness and timeliness of screening relative to nursery discharge. Benchmarks set within the EHCP may trigger hospital or jurisdictional compliance activities, such as re-writing of procedural guidelines or re-training of screening staff.		
Clinical Recommendation Statement	None		
Improvement Notation	Improvement noted as an increase in rate.		
Reference	HRSA Title V Block Grant MCHB Performance Measure: Percentage of newborns who have been screened for hearing before hospital discharge.		

Reference	U.S. Preventive Services Task Force (http://www.ahrq.gov/clinic/uspstf/uspsnbhr.htm) Year 2007 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs. Joint Committee on Infant Hearing. Pediatrics 2007;120;898-921 (http://pediatrics.aappublications.org/cgi/content/full/120/4/898?ijkey=oj9BAleq21OlA&keytype=ref&siteid=aapjournals)
Reference	HRSA Title V Block Grant MCHB Performance Measure: Percentage of newborns who have been screened for hearing before hospital discharge.
Definition	None
Guidance	The measurement period is one calendar year but the reporting period is jurisdictionally defined.
Initial Population	Live birth encounters at a hospital or birthing facility where the newborn was discharged during the measurement period.
Denominator	Denominator is equal to the Initial Population.
Denominator Exclusions	Live birth encounters where the patient expires prior to discharge and has not received hearing screening for the left or right ear.
Numerator	Live birth encounters during the measurement period where a patient born at the facility is screened for hearing loss prior to discharge or not screened due to medical reasons.
Numerator Exclusions	Not applicable
Denominator Exceptions	None
Measure Population	Not applicable
Measure Population Exclusions	Not applicable
Measure Observations	Not applicable
Supplemental Data Elements	For every patient evaluated by this measure also identify payer, race, ethnicity and sex.

920

Table of Contents

Population Criteria

- Initial Population =
  - AND: Occurrence A of $EncounterInpatient ends during "Measurement Period"
  - AND: Union of:
    - "Diagnosis, Active: Liveborn Newborn Born in Hospital"
    - "Diagnosis, Active: Livebirth"
    - starts during Occurrence A of $EncounterInpatient
- Denominator =
  - AND: Initial Population
- Denominator Exclusions =
  - OR:
    - AND: Intersection of:
      - Occurrence A of $EncounterInpatient
      - "Encounter, Performed: Encounter Inpatient (discharge status: Patient Expired)"
    - AND NOT: Union of:
    - "Diagnostic Study, Performed: Newborn Hearing Screen Left (result: Pass Or Refer)"
    - "Diagnostic Study, Performed: Newborn Hearing Screen Right (result: Pass Or Refer)"
    - during Occurrence A of $EncounterInpatient
- Numerator =
  - AND: Union of:

- "Diagnostic Study, Performed: Newborn Hearing Screen Left (result: Pass Or Refer)"
- "Diagnostic Study, Performed not done: Medical Reasons" for "Newborn Hearing Screen Left"
- during Occurrence A of $EncounterInpatient

- AND: Union of:
  - "Diagnostic Study, Performed: Newborn Hearing Screen Right (result: Pass Or Refer)"
  - "Diagnostic Study, Performed not done: Medical Reasons" for "Newborn Hearing Screen Right"
  - during Occurrence A of $EncounterInpatient

- Numerator Exclusions =

  None

- Denominator Exceptions =
  - None
- Stratification =
  - None

Data Criteria (QDM Variables)

- $EncounterInpatient =
  - "Encounter, Performed: Encounter Inpatient" satisfies all
    - (length of stay <= 120 day(s))
    - ends during "Measurement Period"

Data Criteria (QDM Data Elements)

- "Diagnosis, Active: Livebirth" using "Livebirth SNOMEDCT Value Set (2.16.840.1.114222.4.1.214079.1.1.1)"
- "Diagnosis, Active: Liveborn Newborn Born in Hospital" using "Liveborn Newborn Born in Hospital Grouping Value Set (2.16.840.1.113762.1.4.1046.6)"
- "Diagnostic Study, Performed: Newborn Hearing Screen Left" using "Newborn Hearing Screen Left LOINC Value Set (2.16.840.1.114222.4.1.214079.1.1.3)"
- "Diagnostic Study, Performed: Newborn Hearing Screen Right" using "Newborn Hearing Screen Right LOINC Value Set (2.16.840.1.114222.4.1.214079.1.1.4)"

- "Diagnostic Study, Performed not done: Medical Reasons" using "Medical Reasons SNOMEDCT Value Set (2.16.840.1.114222.4.1.214079.1.1.7)"
- "Encounter, Performed: Encounter Inpatient" using "Encounter Inpatient SNOMEDCT Value Set (2.16.840.1.113883.3.666.5.307)"
- Attribute: "Result: Pass Or Refer" using "Pass Or Refer SNOMEDCT Value Set (2.16.840.1.114222.4.1.214079.1.1.6)"
- Attribute: "Discharge status: Patient Expired" using "Patient Expired SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.309)"

Supplemental Data Elements

- "Patient Characteristic Ethnicity: Ethnicity" using "Ethnicity CDCREC Value Set (2.16.840.1.114222.4.11.837)"
- "Patient Characteristic Payer: Payer" using "Payer SOP Value Set (2.16.840.1.114222.4.11.3591)"
- "Patient Characteristic Race: Race" using "Race CDCREC Value Set (2.16.840.1.114222.4.11.836)"
- "Patient Characteristic Sex: ONC Administrative Sex" using "ONC Administrative Sex AdministrativeGender Value Set (2.16.840.1.113762.1.4.1)"

Risk Adjustment Variables

- None

Measure Set Early Hearing Detection and Intervention (EHDI)

930 **Figure C-1: Rendering of the US eMeasure Definition for Newborn Hearing Screening (CMS31, NQF1354)**

Appendix D – Data Element Concepts

This appendix defines the set of data element concepts used in the Newborn Hearing Screening quality measure for the QME-EH Profile in terms of the NQF Quality Data Model (QDM) standard.

These data element concepts are included to help implementers of a QME-EH Content Creator or Content Consumer. The mappings to the reference quality data model clarify the meaning of the information used in the content modules. Value set bindings for these concepts will be realm specific. See the National Extensions in Volume 4 of the QRPH Technical Framework for specific value set bindings.

D.1 Summary of Care Document Data Element Concepts

The Summary of Care Document needs to include, as a minimum, data elements used to populate the Patient-Level Quality Report (PLQR) data elements. The clinical summary may include additional information to summarize a patient encounter or set of encounters. See D.2 for details.

D.2 Patient-Level Quality Report Data Element Concepts

Concept Variable Name	Description in terms of the QDM Data Model
$XXXX (a variable name)	The description of this element's QDM representation as it is used in the context of the CMS31 Newborn Hearing Screening measure definition.
$PATIENT	The person for whom the data in the report pertains.
$AUTHOR	The organization responsible for creating the document. The authoring device holds information about the system used by the organization to author the report.
$CUSTODIAN	The organization that is responsible for maintaining the Patient-level Quality Report document.
$LEGAL_AUTHENTICATOR	The organization that signs off on, and attests to the accuracy of the Patient-Level report.
$SERVICE_EVENT	The service event being measured and may include the clinician information for clinicians responsible for performing the event.
$ENCOMPASSING_ENCOUNTER	The encompassing encounter in which the service event being measured occurred and may include the clinician information for clinicians responsible for the encounter as well as the healthcare facility information for the facility where the encounter was performed.
$EMEASURE_TITLE	The title of the measure for which the Patient-Level data was gathered.
$VERSION_SPECIFIC_IDENTIFIER	The id which identifies the version specific instance of the measure. This is a globally unique id that changes each time the setId and versionNumber change for the measure.
$VERSION_NEUTRAL_IDENTIFIER	The id which identifies the electronic quality measure. It is a globally unique id which identifies a specific measure.
$EMEASURE_VERSION_NUMBER	The id which identifies the version number associated with a specific measure. It is an integer.

Concept Variable Name	Description in terms of the QDM Data Model
$MEASUREPERIOD	The time interval applicable for the data collection. It is given by a start date and an end date.
$INPATIENT_ENCOUNTER	Data elements that meet criteria using this datatype should document that the encounter indicated by the QDM category and its corresponding value set has been completed.
$ETHNICITY	Data elements that meet criteria using this datatype should document that the patient has one or more of the ethnicities indicated by the QDM category and its corresponding value set.
$RACE	Data elements that meet criteria using this datatype should document the patient's race.
$GENDER	Data elements that meet criteria using this datatype should document that the patient's sex matches the QDM category and its corresponding value set.
$PAYER	Data elements that meet criteria using this datatype should document that the patient has one or more of the payers indicated by the QDM category and its corresponding value set
$LIVEBORN_IN_HOSPITAL	To meet criteria using this datatype, the diagnosis indicated by the Condition/Diagnosis/Problem QDM category and its corresponding value set should reflect documentation of an active diagnosis. Keep in mind that when this datatype is used with timing relationships, the criterion is looking for an active diagnosis for the time frame indicated by the timing relationships.
$LIVEBIRTH	To meet criteria using this datatype, the diagnosis indicated by the Condition/Diagnosis/Problem QDM category and its corresponding value set should reflect documentation of an active diagnosis. Keep in mind that when this datatype is used with timing relationships, the criterion is looking for an active diagnosis for the time frame indicated by the timing relationships.
$EXPIRED	The *Patient Characteristic Expired* data element should document that the patient is deceased. Note: *Patient Characteristic Expired* is fixed to SNOMED-CT® code 419099009 (Dead) and therefore cannot be further qualified with a value set.
$LEFT_EAR_SCREENED	Data elements that meet criteria using this datatype should document the completion of the diagnostic study indicated by the QDM category and its corresponding value set.
$LEFT_EAR_NOT_SCREENED_REASON	Data elements that meet criteria using this datatype should document the completion of the diagnostic study indicated by the QDM category and its corresponding value set.

Concept Variable Name	Description in terms of the QDM Data Model
$LEFT_EAR_NOT_SCREENED_NEGATION_RATIONALE	Data elements that meet criteria using this datatype should document the completion of the diagnostic study indicated by the QDM category and its corresponding value set.
$LEFT_EAR_NOT_SCREENED_PATIENT_PREFERENCE	Data elements that meet criteria using this datatype should document the completion of the diagnostic study indicated by the QDM category and its corresponding value set.
$LEFT_EAR_NOT_SCREENED_PHYSICIAN_PREFERENCE	Data elements that meet criteria using this datatype should document the completion of the diagnostic study indicated by the QDM category and its corresponding value set.
$RIGHT_EAR_SCREENED	Data elements that meet criteria using this datatype should document the completion of the diagnostic study indicated by the QDM category and its corresponding value set.
$RIGHT_EAR_NOT_SCREENED_REASON	Data elements that meet criteria using this datatype should document the completion of the diagnostic study indicated by the QDM category and its corresponding value set.
$RIGHT_EAR_NOT_SCREENED_NEGATION_RATIONALE	Data elements that meet criteria using this datatype should document the completion of the diagnostic study indicated by the QDM category and its corresponding value set.
$C_RIGHT_EAR_NOT_SCREENED_PATIENT_PREFERENCE	Data elements that meet criteria using this datatype should document the completion of the diagnostic study indicated by the QDM category and its corresponding value set.
$C_RIGHT_EAR_NOT_SCREENED_PHYSICIAN_PREFERENCE	Data elements that meet criteria using this datatype should document the completion of the diagnostic study indicated by the QDM category and its corresponding value set.

D.3 Aggregate-Level Quality Report Data Element Concepts

950 The data elements used in an Aggregate-Level Quality Report are determined in the HQMF and QRDA Category III standards. They depend on the type of measure being reported. The Newborn Hearing Screening measure is a Proportional Measure and does not include any stratification or rate adjustment.

Concept Variable Name	Description
$XXXX	The description of this element as it is used in the context of this quality measure.

Concept Variable Name	Description
$PATIENT	Individual patient information is not included in an Aggregate-Level Quality Report. The Aggregate-Level Quality Report does not include the concept of a patient. (In an implementation that uses a document standard requiring a patient to be included, the patient information is populated with a null value.)
$AUTHOR	The organization responsible for creating the document. The authoring device holds information about the system used by the organization to author the report.
$CUSTODIAN	The organization that is responsible for maintaining the Patient-level Quality Report document.
$LEGAL_AUTHENTICATOR	The organization that signs off on, and attests to the accuracy of the Patient-Level report.
$INFORMATION_RECIPIENT	The organization to whom the Aggregate-Level Quality Report will be submitted.
$SERVICE_EVENT	The service events which were measured and may include the clinician information for clinicians responsible for performing the each measured service event.
$C_MEASURE_PERIOD	The time interval applicable for the data collection. This is defined through a start time and an end time for the period.
$C_MEASURE_REFERENCE	The information which identifies the e-Measure definition and its version.
$C_MEASURE_RESULTS	The individual components of the measure, called “populations” and the corresponding result. Each population also includes the defined stratifications required by the measure definition.
$IPOP	The Initial Population which includes all entities to be evaluated by an eMeasure which may but are not required to share a common set of specified characteristics within a named measurement set to which the eMeasure belongs.
$DENOM	The Denominator is the same as the Initial Population or a subset of the Initial Population to further constrain the population for the purpose of the eMeasure.
$DENEX	Entities to be removed from the Initial Population and Denominator before determining if the Numerator Criteria are met. Denominator Exclusions are used in Proportion and Ration Measures to help narrow the Denominator
$NUMER	The process or outcome for each entity defined in the Denominator of a Proportion or Ratio measure.
$NUMEX	Entities that should be removed from the eMeasure’s Numerator. Numerator exclusions are used in Proportion and Ratio measures to help narrow the Numerator (for inverted measures which show improvement as they decrease).
$DENEXCEP	Those conditions that should remove a patient, procedure, or unit of measurement from the Denominator only if the Numerator criteria are not met. Denominator exceptions allow for adjustment of the calculated score for example to account for a higher risk population.

955

Volume 2 – Transactions

This profile does not create any new transactions. It does not constrain or extend any previously defined transactions.

960

Volume 3 – UV Content Module Definitions

5 Namespaces and Vocabularies

Namespaces

Profile	Association	OID
EHDI QME-EH	EHDI NHS QRDA Category I Report UV	1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.1
EHDI QME-EH	EHDI NHS QRDA Category III Report UV	1.3.6.1.4.1.19376.1.7.3.1.1.18.6.1.1

Vocabularies (Code Systems)

codeSystem	codeSystemName	Description
2.16.840.1.113883.6.96	SNOMED CT	Systemized Nomenclature for Medicine
2.16.840.1.113883.6.1	LOINC	Logical Observation Identifiers, Names and Codes

Add to Section 5.1.1 IHE Format Codes

Profile	Format Code	Media Type	Template ID
EHDI QME-EH	urn:ihe:qrph:NHS-CatI-UV:2015	Text/XML	1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.1.1
EHDI QME-EH	urn:ihe:qrph:NHS-CatIII-UV:2015	Text/XML	1.3.6.1.4.1.19376.1.7.3.1.1.18.6.1.1.1

Add to Section 5.1.2 IHE ActCode Vocabulary

NA

Add to Section 5.1.3 IHE RoleCode Vocabulary

NA

6 UV Realm Content Modules

Universal (UV) Realm content modules are a generalization of the content modules used in the US Realm so as to provide the high level of structural and semantic commonality that other realms can reference when defining their realm Specific implementation of the Newborn Hearing Screening measure.

6.1 Conventions

Intentionally left blank

6.2 Folders

Intentionally left blank

6.3 Content Modules

UV Realm Template definitions associated with this profile have been defined using the Trifolia CDA Template Tool. See Appendix X for the associated template definition export file for complete template definitions.

6.3.1 CDA Document Content Modules

6.3.1.D1 EHDI NHS QRDA Category I Report UV Document

6.3.1.D1.1 Format Code

Profile	Format Code	Media Type	Template ID
EHDI QME-EH	urn:ihe:qrph:NHS-CatI-UV:2015	Text/XML	1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.1.1

6.3.1.D1.2 Document Template Containment

The UV Realm Category I Report defines a document template and three section templates. It does not define any entry-level templates. Entry-level templates are defined within realm-specific implementations. See Volume 4 for realm-specific guidance.

Table 6.3.1.D1.2-1: CMS31v5, NQF1354, Document Template Containment

Templates referenced below are defined in: (Add document name here with link to the document)		
Template Title	**Template Type**	**templateId**
EHDI NHS QRDA Category I Report UV	document	urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.1.1:2016-09-01
EHDI NHS Measure Reference Section UV	section	urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.3.1:2015-04-17
EHDI NHS Reporting Parameters Section UV	section	urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.3.2:2015-04-17

Templates referenced below are defined in: (Add document name here with link to the document)		
Template Title	**Template Type**	**templateId**
.EHDI NHS Patient Data Section UV	section	urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.3.3:2016-09-01

6.3.1.D2 EHDI NHS QRDA Category III Report UV Document

6.3.1.D2.1 Format Code

Profile	Format Code	Media Type	Template ID
EHDI QME-EH	urn:ihe:qrph:NHS-CatIII-UV:2015	Text/XML	1.3.6.1.4.1.19376.1.7.3.1.1.18.6.1.1.1

6.3.1.D2.2 Document Template Containment

The UV Realm Category III Report defines a document template and two section templates with corresponding entry templates. See Volume 4 for realm-specific guidance.

Table 6.3.1.D2.2-1: Document Template Containment

Template Title	Template Type	templateId
EHDI NHS QRDA Category III Report (V2)	document	urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.6.1.1.1:2016-09-01
.EHDI NHS QRDA Category III Measure Reference and Results Section (V2)	section	urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.6.1.3.1:2016-09-01
..Measure Reference and Results (V2)	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.1:2016-02-01
...Measure Data (V2)	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.5:2016-02-01
….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
….Postal Code Supplemental Data Element	entry	urn:oid:2.16.840.1.113883.10.20.27.3.10
….Reporting Stratum	entry	urn:oid:2.16.840.1.113883.10.20.27.3.4
…Performance Rate for Proportion Measure	entry	urn:oid:2.16.840.1.113883.10.20.27.3.14
…Reporting Rate for Proportion Measure	entry	urn:oid:2.16.840.1.113883.10.20.27.3.15
.EHDI NHS Reporting Parameters Section UV	section	urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.3.2:2015-04-17
..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

6.3.2 CDA Document Header Content Modules

Intentionally blank.

6.3.3 CDA Section Content Modules

Intentionally blank.

6.3.4 CDA Entry Content Modules

Intentionally blank.

6.4 Section not applicable

This heading of the Technical Framework is not currently used when defining CDA templates.

6.5 Value Sets

Intentionally left blank

Appendices

Appendix X – UV Realm Tool Generated Content

The content below is generated by Trifolia. These templates have been constructed using the Trifolia template management tool; thus, the section numbering do not follow IHE Technical Framework conventions.

1 Document

1.1 EHDI NHS QRDA Category I Report UV

[ClinicalDocument: identifier
urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.1.1:2016-09-01 (open)]

Draft as part of EHDI Quality Measure Execution for Early Hearing - UV Realm

Table 1: EHDI NHS QRDA Category I Report UV Contexts

Contained By:	Contains:
	EHDI NHS Measure Reference Section UV EHDI NHS Patient Data Section UV EHDI NHS Reporting Parameters Section UV

This template describes Universal Realm header constraints that apply to the Quality Reporting Document

Architecture (QRDA) Category I document for measuring assesses the proportion of births that have been screened for hearing loss before hospital discharge.

The UV realmCode template is generalized at the highest level to create a reference model which permits documents of the same type, specified in different realms, to be similar in the places determined by the UV model.

1. **SHALL** contain exactly one [1..1] **realmCode** (CONF:1193-33427).
2. **SHALL** contain exactly one [1..1] **templateId** (CONF:1193-33404) such that it
    a. **SHALL** contain exactly one [1..1] **@root**="1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.1.1" EHDI NHS QRDA Category I Report UV (CONF:1193-33405).
    b. **SHALL** contain exactly one [1..1] **@extension**="2016-09-01" (CONF:1193-33406).
3. **SHALL** contain exactly one [1..1] **id** (CONF:1193-33365).
    a. This id **SHALL** be a globally unique identifier for the document (CONF:1193-33402).
4. **SHALL** contain exactly one [1..1] **effectiveTime** (CONF:1193-33403).
5. **SHALL** contain exactly one [1..1] **languageCode**, which **SHALL** be selected from CodeSystem Language (urn:oid:2.16.840.1.113883.6.121) **DYNAMIC** (CONF:1193-33313).
6. **MAY** contain zero or one [0..1] **setId** (CONF:1193-33449).
7. **MAY** contain zero or one [0..1] **versionNumber** (CONF:1193-33364).
    a. If versionNumber is present, setId **SHALL** be present (CONF:1193-33401).

Note: The NHS Category I QRDA includes information about a single patient.

8. **SHALL** contain exactly one [1..1] **recordTarget** (CONF:1193-33317).

a. This recordTarget **SHALL** contain exactly one [1..1] **patientRole** (CONF:1193-33318).
    i. This patientRole **SHALL** contain exactly one [1..1] **id** (CONF:1193-33319) such that it
        1. **SHALL** contain exactly one [1..1] **@root** (CONF:1193-33439).
            a. The root attribute **SHALL** represent the organization at which the patient is referenced by the id specified in the associated extension attribute (CONF:1193-33440).
        2. **SHALL** contain exactly one [1..1] **@extension** (CONF:1193-33441).
            a. The extension attribute **SHALL** represent the id by which the person is referenced within the organization specified in the associated root attribute (CONF:1193-33442).
        3. The combination of root and extension for the id **SHALL** be a unique identifier that is registered to the person through the organization represented in the root attribute of the id (CONF:1193-33371).
    ii. This patientRole **SHALL** contain exactly one [1..1] **patient** (CONF:1193-33320).
        1. This patient **MAY** contain zero or one [0..1] **administrativeGenderCode** (CONF:1193-33321).
            a. When the patient's administrative sex is unknown, nullFlavor="UNK" **SHALL** be submitted (CONF:1193-33443).
        2. This patient **MAY** contain zero or one [0..1] **birthTime** (CONF:1193-33322).
        3. This patient **MAY** contain zero or one [0..1] **sdtc:deceasedInd** (CONF:1193-33450).
        4. This patient **MAY** contain zero or one [0..1] **sdtc:deceasedTime** (CONF:1193-33451).
        5. This patient **MAY** contain zero or one [0..1] **sdtc:multipleBirthInd** (CONF:1193-33452).
        6. This patient **MAY** contain zero or one [0..1] **sdtc:multipleBirthOrderNumber** (CONF:1193-33453).

Note: The custodian is responsible for maintaining the persistent document instance created according to this specification, thus the custodian's copy of this instance of the document is the "original" document.

9. **SHALL** contain exactly one [1..1] **custodian** (CONF:1193-33326).

a. This custodian **SHALL** contain exactly one [1..1] **assignedCustodian** (CONF:1193-33428).
    i. This assignedCustodian **SHALL** contain exactly one [1..1] **representedCustodianOrganization** (CONF:1193-33429).
        1. This representedCustodianOrganization **SHALL** contain exactly one [1..1] **id** (CONF:1193-33430) such that it
            a. **SHALL** contain exactly one [1..1] **@root** (CONF:1193-33431).
                i. The combination of root and extension for the id **SHALL** be a globally unique identifier that is registered to the entity and can be used to determine the identity of the entity (CONF:1193-33433).

Note: An information recipient is an organization which is intended to receive a copy of this document.

10. **SHALL** contain at least one [1..*] **informationRecipient** (CONF:1193-33338).
    a. Such informationRecipients **SHALL** contain exactly one [1..1] **intendedRecipient** (CONF:1193-33339).
        i. This intendedRecipient **SHALL** contain exactly one [1..1] **id** (CONF:1193-33340) such that it
            1. **SHALL** contain exactly one [1..1] **@root** (CONF:1193-33434).
                a. The combination of root and extension for the id **SHALL** be a globally unique identifier that is registered to the entity and can be used to determine the identity of the entity (CONF:1193-33435).

Note: A participant role may be used to identify the EHR system used to collect the clinical data for which this Patient-level Quality Report is being produced.

11. **MAY** contain zero or more [0..*] **participant** (CONF:1193-33314).

Note: Service Event information is used to categorize the type of care provided.

12. **SHALL** contain exactly one [1..1] **documentationOf** (CONF:1193-33330) such that it
    a. **SHALL** contain exactly one [1..1] **serviceEvent** (CONF:1193-33331).
        i. This serviceEvent **MAY** contain zero or more [0..*] **performer** (CONF:1193-33437).

Note: Encounter information is used to record information about the encounter such as the type of encounter, the facility where the encounter occurred, the discharge disposition, and entities responsible for or involved in the encounter.

13. **MAY** contain zero or one [0..1] **componentOf** (CONF:1193-33436).
    a. The componentOf, if present, **SHALL** contain exactly one [1..1] **encompassingEncounter** (CONF:1193-33438).
14. **SHALL** contain exactly one [1..1] **component** (CONF:1193-33410).

a. This component **SHALL** contain exactly one [1..1] **structuredBody** (CONF:1193-33411).
   i. This structuredBody **SHALL** contain exactly one [1..1] **component** (CONF:1193-33412) such that it
      1. **SHALL** contain exactly one [1..1] **EHDI NHS Reporting Parameters Section UV** (identifier: urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.3.2:2015-04-17) (CONF:1193-33413).
   ii. This structuredBody **SHALL** contain exactly one [1..1] **component** (CONF:1193-33414) such that it
      1. **SHALL** contain exactly one [1..1] **EHDI NHS Measure Reference Section UV** (identifier: urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.3.1:2015-04-17) (CONF:1193-33416).
   iii. This structuredBody **SHALL** contain exactly one [1..1] **component** (CONF:1193-33415) such that it
      1. **SHALL** contain exactly one [1..1] **EHDI NHS Patient Data Section UV** (identifier: urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.3.3:2016-09-01) (CONF:1193-33417).

1.2 EHDI NHS QRDA Category III Report (V2)

[ClinicalDocument: identifier urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.6.1.1.1:2016-09-01 (open)]

Draft as part of EHDI Quality Measure Execution for Early Hearing - UV Realm

Table 2: EHDI NHS QRDA Category III Report (V2) Contexts

Contained By:	Contains:
	EHDI NHS QRDA Category III Measure Reference and Results Section (V2) EHDI NHS 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

1. **SHALL** contain exactly one [1..1] **realmCode** (CONF:1193-33470).
    a. This realmCode **SHALL** contain exactly one [1..1] **@code**="US" (CONF:1193-33510).
2. **SHALL** contain exactly one [1..1] **typeId** (CONF:1193-33486).
    a. This typeId **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.1.3" (CONF:1193-33531).
    b. This typeId **SHALL** contain exactly one [1..1] **@extension**="POCD_HD000040" (CONF:1193-33532).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:1193-33454) such that it
    a. **SHALL** contain exactly one [1..1] **@root**="1.3.6.1.4.1.19376.1.7.3.1.1.18.6.1.1.1" (CONF:1193-33497).
    b. **SHALL** contain exactly one [1..1] **@extension**="2016-09-01" (CONF:1193-33498).
4. **SHALL** contain exactly one [1..1] **id** (CONF:1193-33471).
    a. This id **SHALL** be a globally unique identifier for the document (CONF:1193-33511).
5. **SHALL** contain exactly one [1..1] **code** (CONF:1193-33455).
    a. This code **SHALL** contain exactly one [1..1] **@code**="55184-6" Quality Reporting Document Architecture Calculated Summary Report (CONF:1193-33499).
    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:1193-33500).
6. **SHALL** contain exactly one [1..1] **title** (CONF:1193-33544).
7. **SHALL** contain exactly one [1..1] **effectiveTime** (CONF:1193-33472).
    a. The content **SHALL** be a conformant US Realm Date and Time (DTM.US.FIELDED) (2.16.840.1.113883.10.20.22.5.4) (CONF:1193-33512).
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:1193-33545).
9. **SHALL** contain exactly one [1..1] **languageCode** (CONF:1193-33473).
    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:1193-33513).
10. **SHOULD** contain zero or one [0..1] **versionNumber** (CONF:1193-33546).

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:1193-33456).
    a. This recordTarget **SHALL** contain exactly one [1..1] **patientRole** (CONF:1193-33457) such that it
        i. **SHALL** contain exactly one [1..1] **id** (CONF:1193-33458).
            1. This id **SHALL** contain exactly one [1..1] **@nullFlavor**="NA" (CONF:1193-33501).

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:1193-33474) such that it
    a. **SHALL** contain exactly one [1..1] **time** (CONF:1193-33517).
    b. **SHALL** contain exactly one [1..1] **assignedAuthor** (CONF:1193-33475).
        i. This assignedAuthor **MAY** contain zero or one [0..1] **assignedPerson** (CONF:1193-33516).
        ii. This assignedAuthor **MAY** contain zero or one [0..1] **assignedAuthoringDevice** (CONF:1193-33476).
            1. The assignedAuthoringDevice, if present, **SHALL** contain exactly one [1..1] **softwareName** (CONF:1193-33514).
        iii. This assignedAuthor **SHALL** contain exactly one [1..1] **representedOrganization** (CONF:1193-33477).
            1. This representedOrganization **SHALL** contain at least one [1..*] **name** (CONF:1193-33515).
    c. There **SHALL** be exactly one assignedAuthor/assignedPerson or exactly one assignedAuthor/assignedAuthoringDevice (CONF:1193-33518).

13. **SHALL** contain exactly one [1..1] **custodian** (CONF:1193-33459).
    a. This custodian **SHALL** contain exactly one [1..1] **assignedCustodian** (CONF:1193-33460).
        i. This assignedCustodian **SHALL** contain exactly one [1..1] **representedCustodianOrganization** (CONF:1193-33461).
            1. This representedCustodianOrganization **SHALL** contain at least one [1..*] **id** (CONF:1193-33502).
            2. This representedCustodianOrganization **SHOULD** contain zero or one [0..1] **name** (CONF:1193-33503).
    b. This assignedCustodian **SHALL** represent the organization that owns and reports the data (CONF:1193-33504).

14. **SHALL** contain exactly one [1..1] **legalAuthenticator** (CONF:1193-33466).
    a. This legalAuthenticator **SHALL** contain exactly one [1..1] **time** (CONF:1193-33509).

b. This legalAuthenticator **SHALL** contain exactly one [1..1] **signatureCode** (CONF:1193-33467).
    i. This signatureCode **SHALL** contain exactly one [1..1] **@code**="S" (CONF:1193-33506).
c. This legalAuthenticator **SHALL** contain exactly one [1..1] **assignedEntity** (CONF:1193-33468).
    i. This assignedEntity **MAY** contain zero or one [0..1] **representedOrganization** (CONF:1193-33469).
        1. The representedOrganization, if present, **SHALL** contain at least one [1..*] **id** (CONF:1193-33507).
        2. The representedOrganization, if present, **SHOULD** contain zero or one [0..1] **name** (CONF:1193-33508).

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:1193-33487) 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:1193-33539).
    b. **SHALL** contain exactly one [1..1] **associatedEntity** (CONF:1193-33488).
        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:1193-33537).

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.

        ii. This associatedEntity **MAY** contain zero or one [0..1] **id** (CONF:1193-33489) 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:1193-33533).

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.

        iii. This associatedEntity **MAY** contain zero or one [0..1] **id** (CONF:1193-33491) 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:1193-33536).
        iv. This associatedEntity **SHALL** contain at least one [1..*] **id** (CONF:1193-33538).

v. This associatedEntity **SHALL** contain exactly one [1..1] **code** (CONF:1193-33490).

1. This code **SHALL** contain exactly one [1..1] **@code**="129465004" medical record, device (CONF:1193-33534).
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:1193-33535).

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:1193-33478).
    a. The documentationOf, if present, **SHALL** contain exactly one [1..1] **serviceEvent** (CONF:1193-33479).
        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:1193-33530).
        ii. This serviceEvent **SHALL** contain at least one [1..*] **performer** (CONF:1193-33480).
            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:1193-33528).
            2. Such performers **MAY** contain zero or one [0..1] **time** (CONF:1193-33529).
            3. Such performers **SHALL** contain exactly one [1..1] **assignedEntity** (CONF:1193-33481).

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:1193-33482) such that it
    i. **MAY** contain zero or one [0..1] **@root**="2.16.840.1.113883.4.6" National Provider ID (CONF:1193-33519).
    ii. **MAY** contain zero or one [0..1] **@extension** (CONF:1193-33520).

b. This assignedEntity **SHALL** contain at least one [1..*] **id** (CONF:1193-33527).
c. This assignedEntity **MAY** contain zero or more [0..*] **telecom** (CONF:1193-33526).
d. This assignedEntity **SHALL** contain exactly one [1..1] **representedOrganization** (CONF:1193-33483).

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:1193-33484) such that it
1. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.4.2" Tax ID Number (CONF:1193-33521).
2. **SHALL** contain exactly one [1..1] **@extension** (CONF:1193-33522).

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

ii. This representedOrganization **MAY** contain zero or one [0..1] **id** (CONF:1193-33485) such that it
1. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.4.336" Facility CMS Certification Number (CONF:1193-33523).
2. **SHALL** contain exactly one [1..1] **@extension** (CONF:1193-33524).

iii. This representedOrganization **SHOULD** contain zero or more [0..*] **name** (CONF:1193-33525).

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:1193-33492).
    a. The authorization, if present, **SHALL** contain exactly one [1..1] **consent** (CONF:1193-33493).

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:1193-33543).

ii. This consent **SHALL** contain exactly one [1..1] **code** (CONF:1193-33494).
    1. This code **SHALL** contain exactly one [1..1] **@code**="425691002" Consent given for electronic record sharing (CONF:1193-33540).
    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:1193-33541).
iii. This consent **SHALL** contain exactly one [1..1] **statusCode** (CONF:1193-33495).
    1. This statusCode **SHALL** contain exactly one [1..1] **@code**="completed" Completed (CodeSystem: ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:1193-33542).

A QRDA Category III document contains a Reporting Parameters Section and a Measure section.

18. **SHALL** contain exactly one [1..1] **component** (CONF:1193-33462).
    a. This component **SHALL** contain exactly one [1..1] **structuredBody** (CONF:1193-33463).
        i. This structuredBody **SHALL** contain exactly one [1..1] **component** (CONF:1193-33464) such that it
            1. **SHALL** contain exactly one [1..1] **EHDI NHS QRDA Category III Reporting Parameters Section** (identifier: urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.3.2:2016-09-01) (CONF:1193-33496).
        ii. This structuredBody **SHALL** contain exactly one [1..1] **component** (CONF:1193-33465) such that it
            1. **SHALL** contain exactly one [1..1] **EHDI NHS QRDA Category III Measure Reference and Results Section (V2)** (identifier: urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.6.1.3.1:2016-09-01) (CONF:1193-33505).

2 Section

2.1 EHDI CMS31 QRDA III Measure Reference and Results Section

[section: identifier urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.6.2.3.1:2016-09-01 (open)]

Draft as part of EHDI Quality Measure Execution for Early Hearing - UV Realm

Table 3: EHDI CMS31 QRDA III Measure Reference and Results Section Contexts

Contained By:	Contains:
	Measure Reference and Results

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).

1. **SHALL** contain exactly one [1..1] **templateId** (CONF:1193-33421) such that it
    a. **SHALL** contain exactly one [1..1] **@root**="1.3.6.1.4.1.19376.1.7.3.1.1.18.6.2.3.1" Measure Section (CONF:1193-33422).
2. **SHALL** contain exactly one [1..1] **templateId** (CONF:1193-33423) such that it
    a. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.27.2.1" QRDA Category III Measure (CONF:1193-33424).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:1193-33418) such that it
    a. **SHALL** contain exactly one [1..1] **@root**="1.3.6.1.4.1.19376.1.7.3.1.1.18.6.2.3.1" EHDI CMS31 QRDA III Measure Reference and Results (CONF:1193-33419).
    b. **SHALL** contain exactly one [1..1] **@extension**="2015-04-07" (CONF:1193-33420).
4. **SHALL** contain at least one [1..*] **entry** (CONF:1193-33200) such that it
    a. **SHALL** contain exactly one [1..1] **Measure Reference and Results** (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.1) (CONF:1193-33202).

2.2 EHDI NHS Measure Reference Section UV

`[section: identifier urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.3.1:2015-04-17 (open)]`

`Draft as part of EHDI Quality Measure Execution for Early Hearing - UV Realm`

Table 4: EHDI NHS Measure Reference Section UV Contexts

Contained By:	Contains:
EHDI NHS QRDA Category I Report UV (required)	

This section contains measure reference information about the Newborn Hearing Screening eMeasure being reported. It contains a machine readable entry for the identifier of the eMeasures. The measure's definition indicates the QRDA data element entry templates to be used when representing the data elements in the Patient Data Section. Each eMeasure for which QRDA data elements are being sent must reference the eMeasure's act/id. Other eMeasure identifiers that could be referenced are the eMeasure Identifier (Measure Authoring Tool), eMeasure Version Number, eMeasure Title and other identifying numbers.

1. **SHALL** contain exactly one [1..1] **templateId** (CONF:1193-296) such that it
   a. **SHALL** contain exactly one [1..1] **@root**="1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.3.1" EHDI NHS Measure Reference Section UV (CONF:1193-298).
   b. **SHALL** contain exactly one [1..1] **@extension**="2015-03-31" (CONF:1193-32910).
2. **SHALL** contain exactly one [1..1] **entry** (CONF:1193-295).
   a. SHALL contain an organizer to encode information about the eMeasure Definition used to specify the Newborn Hearing Screening clinical quality measure (CONF:1193-33423).

Note: Realm specific implementation guidance is required to define the specification for the organizer based on the Realm's choice of eCQM representation.

   b. The definition of the organizer **SHALL** be based on the format used to create the eMeasure Definition (CONF:1193-33446).

2.3 EHDI NHS Patient Data Section UV

`[section: identifier urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.3.3:2016-09-01 (open)]`

`Draft as part of EHDI Quality Measure Execution for Early Hearing - UV Realm`

Table 5: EHDI NHS Patient Data Section UV Contexts

Contained By:	Contains:
EHDI NHS QRDA Category I Report UV (required)	

The EHDI NHS Patient Data Section contains entries specified by an EHDI Newborn Hearing Screening eCQM.

All patient data entries required to support the measure computation defined by the CMS31v5 eCQM.

1. **SHALL** contain exactly one [1..1] **templateId** (CONF:1193-60) such that it
    a. **SHALL** contain exactly one [1..1] **@root**="1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.3.3" EHDI NHS Patient Data Section UV (CONF:1193-128).
    b. **SHALL** contain exactly one [1..1] **@extension**="2015-03-31" (CONF:1193-32971).

2.4 EHDI NHS QRDA Category III Measure Reference and Results Section (V2)

[section: identifier urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.6.1.3.1:2016-09-01 (open)]

Draft as part of EHDI Quality Measure Execution for Early Hearing - UV Realm

Table 6: EHDI NHS QRDA Category III Measure Reference and Results Section (V2) Contexts

Contained By:	Contains:
EHDI NHS QRDA Category III Report (V2) (required)	Measure Reference and Results (V2)

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).

1. **SHALL** contain exactly one [1..1] **templateId** (CONF:1193-33556) such that it
    a. **SHALL** contain exactly one [1..1] **@root**="1.3.6.1.4.1.19376.1.7.3.1.1.18.6.1.3.1" (CONF:1193-33558).
    b. **SHALL** contain exactly one [1..1] **@extension**="2016-09-01" (CONF:1193-33559).
2. **SHALL** contain at least one [1..*] **entry** (CONF:1193-33555) such that it
    a. **SHALL** contain exactly one [1..1] **Measure Reference and Results (V2)** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.1:2016-02-01) (CONF:1193-33557).

Figure 1: QRDA Category III Measure Section (V2) 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=”2016-02-01”/>
        <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>
    </section>
</component>
```

2.5 EHDI NHS QRDA Category III Reporting Parameters Section

`[section: identifier urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.3.2:2016-09-01 (open)]`

`Draft as part of EHDI Quality Measure Execution for Early Hearing - UV Realm`

Table 7: EHDI NHS QRDA Category III Reporting Parameters Section Contexts

Contained By:	Contains:
EHDI NHS QRDA Category III Report (V2) (required)	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. It is not possible in the current QRDA Category III to include multiple reporting periods.

1. **SHALL** contain exactly one [1..1] **templateId** (CONF:1193-33548) such that it
    a. **SHALL** contain exactly one [1..1] **@root**="1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.3.2" (CONF:1193-33551).
    b. **MAY** contain zero or one [0..1] **@extension** (CONF:1193-33554).
2. **SHALL** contain exactly one [1..1] **entry** (CONF:1193-33547) 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:1193-33552).
b. **SHALL** contain exactly one [1..1] **Reporting Parameters Act** (identifier: urn:oid:2.16.840.1.113883.10.20.17.3.8) (CONF:1193-33550).

3. **MAY** contain zero or more [0..*] **entry** (CONF:1193-33549) 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:1193-33553).

Figure 2: 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 ServiceEncounter -->
        <entry>
            <encounter classCode="ENC" moodCode="EVN">
        ...
      </encounter>
        </entry>
        <!-- Optional Service Encounter -->
        <entry>
            <encounter classCode="ENC" moodCode="EVN">
        ...
      </encounter>
        </entry>
    </section>
</component>
```


2.6 EHDI NHS Reporting Parameters Section UV

`[section: identifier urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.3.2:2015-04-17 (open)]`

`Draft as part of EHDI Quality Measure Execution for Early Hearing - UV Realm`

Table 8: EHDI NHS Reporting Parameters Section UV Contexts

Contained By:	Contains:
EHDI NHS QRDA Category I Report UV (required)	

The QRDA 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 includes an optional Service Encounter template which enables specific performers of the encounters included within the reporting parameters to be listed.

QRDA reports contain data covering a single time interval represented by a low and high time value in the reporting parameters act. It is not possible in the current QRDA reporting paradigm to include multiple reporting periods.

1. **SHALL** contain exactly one [1..1] **templateId** (CONF:1193-32992) such that it
    a. **SHALL** contain exactly one [1..1] **@root**="1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.3.2" (CONF:1193-32995).
    b. **SHALL** contain exactly one [1..1] **@extension**="2015-04-07" (CONF:1193-32998).
2. **SHALL** contain exactly one [1..1] **entry** (CONF:1193-32991) 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:1193-32996).
    b. SHALL Represent the reporting parameter time interval for the report and may additionally represent the performer of the "measured item" being evaluated by the measure (CONF:1193-33418).

3 Entry

3.1 Aggregate Count

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

Published as part of QRDA Category III

Table 9: Aggregate Count Contexts

Contained By:	Contains:
Reporting Stratum (required) Measure Data (required) Postal Code Supplemental Data Element (required) Payer Supplemental Data Element (required) Race Supplemental Data Element (required) Ethnicity Supplemental Data Element (required) Sex Supplemental Data Element (required) Payer Supplemental Data Element (V2) (required) Sex Supplemental Data Element (V2) (required) Measure Data (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.

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: ActMood 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: ActCode 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: `ObservationMethod 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 3: 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>
```

3.2 Continuous Variable Measure Value

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

`Published as part of QRDA Category III`

Table 10: Continuous Variable Measure Value Contexts

Contained By:	Contains:
Reporting Stratum (optional) Measure Data (optional) Measure Data (V2) (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.

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: ActMood 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 4: 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 5: 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>
</measureObservationDefinition>
```

3.3 Ethnicity Supplemental Data Element

`[observation: identifier urn:oid:2.16.840.1.113883.10.20.27.3.7 (open)]`

`Published as part of QRDA Category III`

Table 11: Ethnicity Supplemental Data Element Contexts

Contained By:	Contains:
Measure Data (optional) Measure Data (V2) (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.

1. **SHALL** contain exactly one [1..1] **@classCode**="OBS" (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:77-18216).
2. **SHALL** contain exactly one [1..1] **@moodCode**="EVN" (CodeSystem: ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:77-18217).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:77-18218) such that it
    a. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.27.3.7" (CONF:77-18219).
4. **SHALL** contain exactly one [1..1] **code** (CONF:77-18220).
    a. This code **SHALL** contain exactly one [1..1] **@code**="364699009" Ethnic Group (CONF:77-18221).
    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:77-21164).
5. **SHALL** contain exactly one [1..1] **statusCode** (CONF:77-18118).
    a. This statusCode **SHALL** contain exactly one [1..1] **@code**="completed" Completed (CodeSystem: ActStatus urn:oid:2.16.840.1.113883.5.14 **STATIC**) (CONF:77-18119).
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:77-18222).
7. **SHALL** contain exactly one [1..1] **entryRelationship** (CONF:77-18120) 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:77-18121).
b. **SHALL** contain exactly one [1..1] **@inversionInd**="true" (CONF:77-18122).
c. **SHALL** contain exactly one [1..1] **Aggregate Count** (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.3) (CONF:77-18123).

Figure 6: Ethnicity Supplemental Data Element Example

```
<observation classCode="OBS" moodCode="EVN">
    <!-- Ethnicity Supplemental Data Element template ID -->
    <templateId root="2.16.840.1.113883.10.20.27.3.7"/>
    <code code="364699009"
        displayName="Ethnic Group"
        codeSystem="2.16.840.1.113883.6.96"
        codeSystemName="SNOMED-CT"/>
    <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 &amp;amp; Ethnicity - CDC"/>
    <!-- Aggregate Count template -->
    <entryRelationship typeCode="SUBJ" inversionInd="true">
        <observation classCode="OBS" moodCode="EVN">
      ...
    </observation>
    </entryRelationship>
</observation>
```

3.4 Measure Data

[observation: identifier urn:oid:2.16.840.1.113883.10.20.27.3.5 (open)]

Published as part of QRDA Category III

Table 12: Measure Data Contexts

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

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 patient population (IPP), 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 IPP, 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.

1. **SHALL** contain exactly one [1..1] **@classCode**="OBS" (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:77-17615).
2. **SHALL** contain exactly one [1..1] **@moodCode**="EVN" (CodeSystem: ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:77-17616).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:77-17912) such that it
    a. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.27.3.5" (CONF:77-17913).
4. **SHALL** contain exactly one [1..1] **code** (CONF:77-17617).
    a. This code **SHALL** contain exactly one [1..1] **@code**="ASSERTION" Assertion (CodeSystem: ActCode urn:oid:2.16.840.1.113883.5.4 **STATIC**) (CONF:77-18198).
5. **SHALL** contain exactly one [1..1] **statusCode** (CodeSystem: ActStatus urn:oid:2.16.840.1.113883.5.14 **STATIC**) (CONF:77-18199).
    a. This statusCode **SHALL** contain exactly one [1..1] **@code**="completed" Completed (CodeSystem: ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:77-19555).
6. **SHALL** contain exactly one [1..1] **value** with @xsi:type="CD", where the code **SHOULD** be selected from ValueSet **ObservationPopulationInclusion** urn:oid:2.16.840.1.113883.1.11.20369 **DYNAMIC** (CONF:77-17618).
7. **SHALL** contain exactly one [1..1] **entryRelationship** (CONF:77-17619) such that it
    a. **SHALL** contain exactly one [1..1] **@typeCode**="SUBJ" (CONF:77-17910).
    b. **SHALL** contain exactly one [1..1] **@inversionInd**="true" (CONF:77-17911).
    c. **SHALL** contain exactly one [1..1] **Aggregate Count** (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.3) (CONF:77-17620).
8. **MAY** contain zero or more [0..*] **entryRelationship** (CONF:77-17918) such that it
    a. **SHALL** contain exactly one [1..1] **@typeCode**="COMP" (CONF:77-17919).
    b. **SHALL** contain exactly one [1..1] **Reporting Stratum** (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.4) (CONF:77-17920).

9. **MAY** contain zero or more [0..*] **entryRelationship** (CONF:77-18136) 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:77-18137).
    b. **SHALL** contain exactly one [1..1] **Sex Supplemental Data Element** (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.6) (CONF:77-18138).
10. **MAY** contain zero or more [0..*] **entryRelationship** (CONF:77-18139) 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:77-18144).
    b. **SHALL** contain exactly one [1..1] **Ethnicity Supplemental Data Element** (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.7) (CONF:77-18149).
11. **MAY** contain zero or more [0..*] **entryRelationship** (CONF:77-18140) 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:77-18145).
    b. **SHALL** contain exactly one [1..1] **Race Supplemental Data Element** (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.8) (CONF:77-18150).
12. **MAY** contain zero or more [0..*] **entryRelationship** (CONF:77-18141) 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:77-18146).
    b. **SHALL** contain exactly one [1..1] **Payer Supplemental Data Element** (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.9) (CONF:77-18151).
13. **MAY** contain zero or more [0..*] **entryRelationship** (CONF:77-18142) 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:77-18147).
    b. **SHALL** contain exactly one [1..1] **Postal Code Supplemental Data Element** (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.10) (CONF:77-18152).

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

14. **MAY** contain zero or more [0..*] **entryRelationship** (CONF:77-18143) 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:77-18148).

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:77-18153).

15. **SHALL** contain exactly one [1..1] **reference** (CONF:77-18239) such that it
    a. **SHALL** contain exactly one [1..1] **externalObservation** (CONF:77-18240).
        i. This externalObservation **SHALL** contain exactly one [1..1] **id** (CONF:77-18241).
            1. If this reference is to an eMeasure, this id **SHALL** equal the id defined in the corresponding eMeasure population criteria section (CONF:77-18258).

3.5 Measure Data (V2)

[observation: identifier urn:hl7ii:2.16.840.1.113883.10.20.27.3.5:2016-02-01 (open)]

Published as part of QRDA Category III STU R1.1

Table 13: Measure Data (V2) Contexts

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

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.

1. **SHALL** contain exactly one [1..1] **@classCode**="OBS" (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:2226-17615).
2. **SHALL** contain exactly one [1..1] **@moodCode**="EVN" (CodeSystem: ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:2226-17616).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:2226-17912) such that it
    a. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.27.3.5" (CONF:2226-17913).
    b. **SHALL** contain exactly one [1..1] **@extension**="2016-02-01" (CONF:2226-21161).
4. **SHALL** contain exactly one [1..1] **code** (CONF:2226-17617).
    a. This code **SHALL** contain exactly one [1..1] **@code**="ASSERTION" Assertion (CONF:2226-18198).
    b. This code **SHALL** contain exactly one [1..1] **@codeSystem**="2.16.840.1.113883.5.4" (CodeSystem: ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:2226-21164).
5. **SHALL** contain exactly one [1..1] **statusCode** (CodeSystem: ActStatus urn:oid:2.16.840.1.113883.5.14 **STATIC**) (CONF:2226-18199).
    a. This statusCode **SHALL** contain exactly one [1..1] **@code**="completed" Completed (CodeSystem: ActStatus urn:oid:2.16.840.1.113883.5.14) (CONF:2226-19555).
6. **SHALL** contain exactly one [1..1] **value** with @xsi:type="CD" (CONF:2226-17618).
    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:2226-21162).
7. **SHALL** contain exactly one [1..1] **entryRelationship** (CONF:2226-17619) such that it
    a. **SHALL** contain exactly one [1..1] **@typeCode**="SUBJ" (CONF:2226-17910).
    b. **SHALL** contain exactly one [1..1] **@inversionInd**="true" (CONF:2226-17911).
    c. **SHALL** contain exactly one [1..1] **Aggregate Count** (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.3) (CONF:2226-17620).
8. **MAY** contain zero or more [0..*] **entryRelationship** (CONF:2226-17918) such that it
    a. **SHALL** contain exactly one [1..1] **@typeCode**="COMP" (CONF:2226-17919).
    b. **SHALL** contain exactly one [1..1] **Reporting Stratum** (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.4) (CONF:2226-17920).
9. **MAY** contain zero or more [0..*] **entryRelationship** (CONF:2226-18136) 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:2226-18137).

b. **SHALL** contain exactly one [1..1] **Sex Supplemental Data Element (V2)** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.6:2016-02-01) (CONF:2226-18138).

10. **MAY** contain zero or more [0..*] **entryRelationship** (CONF:2226-18139) 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:2226-18144).
    b. **SHALL** contain exactly one [1..1] **Ethnicity Supplemental Data Element** (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.7) (CONF:2226-18149).
11. **MAY** contain zero or more [0..*] **entryRelationship** (CONF:2226-18140) 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:2226-18145).
    b. **SHALL** contain exactly one [1..1] **Race Supplemental Data Element** (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.8) (CONF:2226-18150).
12. **MAY** contain zero or more [0..*] **entryRelationship** (CONF:2226-18141) 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:2226-18146).
    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:2226-18151).
13. **MAY** contain zero or more [0..*] **entryRelationship** (CONF:2226-18142) 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:2226-18147).
    b. **SHALL** contain exactly one [1..1] **Postal Code Supplemental Data Element** (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.10) (CONF:2226-18152).

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

14. **MAY** contain zero or more [0..*] **entryRelationship** (CONF:2226-18143) 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:2226-18148).

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:2226-18153).

15. **SHALL** contain exactly one [1..1] **reference** (CONF:2226-18239) such that it

a. **SHALL** contain exactly one [1..1] **externalObservation** (CONF:2226-18240).

i. This externalObservation **SHALL** contain exactly one [1..1] **id** (CONF:2226-18241).

1. If this reference is to an eMeasure, this id **SHALL** equal the id defined in the corresponding eMeasure population criteria section (CONF:2226-18258).

Figure 7: Measure Data (V2) Example

```
<observation classCode="OBS" moodCode="EVN">
    <!-- Measure Data template -->
    <templateId root="2.16.840.1.113883.10.20.27.3.5"/>
    <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 (2.16.840.1.113883.10.20.27.3.7) --
>
        <observation classCode="OBS" moodCode="EVN">
      ...
    </observation>
    </entryRelationship>
    <entryRelationship typeCode="COMP">
        <entryRelationship typeCode="COMP">
            <!-- Race Supplemental Data Element (2.16.840.1.113883.10.20.27.3.8) -->
            <observation classCode="OBS" moodCode="EVN">
      ...
    </observation>
        </entryRelationship>
        <entryRelationship typeCode="COMP">
            <!-- Payer Supplemental Data
ElementV2(2.16.840.1.113883.10.20.27.3.9:2016-02-01) -->
            <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 8: 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>
```

3.6 Measure Reference

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

`Published as part of Quality Reporting Document Architecture Category I (QRDA I), Release 1,  DSTU Release 2, US Realm`

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.

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: ActMood 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**="completed" completed (CodeSystem: ActStatus urn:oid:2.16.840.1.113883.5.14 **STATIC**) (CONF:67-12981).
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 eMeasure (CONF:67-12998).

Figure 9: 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>
```

3.7 Measure Reference and Results

[organizer: identifier urn:oid:2.16.840.1.113883.10.20.27.3.1 (open)]

Published as part of QRDA Category III

Table 14: Measure Reference and Results Contexts

Contained By:	Contains:
EHDI CMS31 QRDA III Measure Reference and Results Section (required)	Measure Data Performance Rate for Proportion Measure 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.

7. Conforms to **Measure Reference** template (`identifier: urn:oid:2.16.840.1.113883.10.20.24.3.98`).
8. **SHALL** contain exactly one [1..1] **`@classCode`**="`CLUSTER`" (CodeSystem: `HL7ActClass urn:oid:2.16.840.1.113883.5.6` **STATIC**) (CONF:77-17887).
9. **SHALL** contain exactly one [1..1] **`@moodCode`**="`EVN`" (CodeSystem: `ActMood urn:oid:2.16.840.1.113883.5.1001` **STATIC**) (CONF:77-17888).
10. **SHALL** contain exactly one [1..1] **`templateId`** (CONF:77-17908) such that it
    a. **SHALL** contain exactly one [1..1] **`@root`**="`2.16.840.1.113883.10.20.27.3.1`" (CONF:77-17909).
11. **SHALL** contain exactly one [1..1] **`statusCode`** (CONF:77-17889).
    a. This statusCode **SHALL** contain exactly one [1..1] **`@code`**="`completed`" Completed (CodeSystem: `ActStatus urn:oid:2.16.840.1.113883.5.14`) (CONF:77-19552).
12. **SHALL** contain exactly one [1..1] **`reference`** (CONF:77-17890) such that it
    a. **SHALL** contain exactly one [1..1] **`@typeCode`**="`REFR`" (CONF:77-17891).
    b. **SHALL** contain exactly one [1..1] **`externalDocument`** (CodeSystem: `HL7ActClass urn:oid:2.16.840.1.113883.5.6` **STATIC**) (CONF:77-17892).
        i. This externalDocument **SHALL** contain exactly one [1..1] **`@classCode`**="`DOC`" Document (CodeSystem: `HL7ActClass urn:oid:2.16.840.1.113883.5.6`) (CONF:77-19548).
        ii. This externalDocument **SHALL** contain exactly one [1..1] **`id`** (CONF:77-18192) such that it
            1. **SHALL** contain exactly one [1..1] **`@root`**="`2.16.840.1.113883.4.738`" (CONF:77-18193). Note: This OID indicates that the @extension contains the version specific identifier for the eMeasure
            2. **SHALL** contain exactly one [1..1] **`@extension`** (CONF:77-21159). 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:77-17896).
            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:77-19553).

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:77-17897).

v. This externalDocument **MAY** contain zero or one [0..1] **setId** (CONF:77-17899).

1. If this reference is to an eMeasure, this setId **SHALL** equal the QualityMeasureDocument/setId which is the eMeasure version neutral id (CONF:77-17900).

vi. This externalDocument **MAY** contain zero or one [0..1] **versionNumber** (CONF:77-17901).

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:77-17902).

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.

13. **SHOULD** contain exactly one [1..1] **reference** (CONF:77-18353) such that it

a. **SHALL** contain exactly one [1..1] **externalObservation** (CONF:77-18354).

i. This externalObservation **SHALL** contain at least one [1..*] **id** (CONF:77-18355).

1. This id **SHALL** equal the id of the corresponding measure set definition within the eMeasure (CONF:77-18356).

ii. This externalObservation **SHALL** contain exactly one [1..1] **code** (CodeSystem: `LOINC urn:oid:2.16.840.1.113883.6.1` **STATIC**) (CONF:77-18357).

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:77-19554).

iii. This externalObservation **SHALL** contain exactly one [1..1] **text** (CONF:77-18358).

1. This text **SHOULD** be the title of the corresponding measure set (CONF:77-18359).

14. **MAY** contain zero or more [0..*] **component** (CONF:77-17903) such that it
    a. **SHALL** contain exactly one [1..1] **Performance Rate for Proportion Measure** (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.14) (CONF:77-17904).
15. **MAY** contain zero or more [0..*] **component** (CONF:77-18423) 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:77-18424).
16. **SHALL** contain at least one [1..*] **component** (CONF:77-18425) such that it
    a. **SHALL** contain exactly one [1..1] **Measure Data** (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.5) (CONF:77-18426).

Figure 10: 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"/>
    <!-- Measure Reference and Results template -->
    <templateId root="2.16.840.1.113883.10.20.27.3.1"/>
    <statusCode code="completed"/>
    <reference typeCode="REFR">
        <externalDocument classCode="DOC" moodCode="EVN">
            <!-- The example eMeasure is CMS32v5_NQF0496 -->
            <!--  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 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 11: 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>
```

3.8 Measure Reference and Results (V2)

[organizer: identifier urn:hl7ii:2.16.840.1.113883.10.20.27.3.1:2016-02-01 (open)]

Published as part of QRDA Category III STU R1.1

Table 15: Measure Reference and Results (V2) Contexts

Contained By:	Contains:
EHDI NHS QRDA Category III Measure Reference and Results Section (V2) (required)	Measure Data (V2) Performance Rate for Proportion Measure 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.

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:2226-17887).
3. **SHALL** contain exactly one [1..1] **`@moodCode`**="`EVN`" (CodeSystem: `ActMood urn:oid:2.16.840.1.113883.5.1001` **STATIC**) (CONF:2226-17888).
4. **SHALL** contain exactly one [1..1] **`templateId`** (CONF:2226-17908) such that it
   a. **SHALL** contain exactly one [1..1] **`@root`**="`2.16.840.1.113883.10.20.27.3.1`" (CONF:2226-17909).
   b. **SHALL** contain exactly one [1..1] **`@extension`**="`2016-02-01`" (CONF:2226-21170).
5. **SHALL** contain exactly one [1..1] **`statusCode`** (CONF:2226-17889).
   a. This statusCode **SHALL** contain exactly one [1..1] **`@code`**="`completed`" Completed (CodeSystem: `ActStatus urn:oid:2.16.840.1.113883.5.14`) (CONF:2226-19552).
6. **SHALL** contain exactly one [1..1] **`reference`** (CONF:2226-17890) such that it
   a. **SHALL** contain exactly one [1..1] **`@typeCode`**="`REFR`" (CONF:2226-17891).
   b. **SHALL** contain exactly one [1..1] **`externalDocument`** (CodeSystem: `HL7ActClass urn:oid:2.16.840.1.113883.5.6` **STATIC**) (CONF:2226-17892).
      i. This externalDocument **SHALL** contain exactly one [1..1] **`@classCode`**="`DOC`" Document (CodeSystem: `HL7ActClass urn:oid:2.16.840.1.113883.5.6`) (CONF:2226-19548).
      ii. This externalDocument **SHALL** contain exactly one [1..1] **`id`** (CONF:2226-18192) such that it
         1. **SHALL** contain exactly one [1..1] **`@root`**="`2.16.840.1.113883.4.738`" (CONF:2226-18193). Note: This OID indicates that the @extension contains the version specific identifier for the eMeasure
         2. **SHALL** contain exactly one [1..1] **`@extension`** (CONF:2226-21169). 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:2226-17896).

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:2226-19553).

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:2226-17897).

v. This externalDocument **MAY** contain zero or one [0..1] **setId** (CONF:2226-17899).

1. If this reference is to an eMeasure, this setId **SHALL** equal the QualityMeasureDocument/setId which is the eMeasure version neutral id (CONF:2226-17900).

vi. This externalDocument **MAY** contain zero or one [0..1] **versionNumber** (CONF:2226-17901).

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:2226-17902).

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.

7. **SHOULD** contain exactly one [1..1] **reference** (CONF:2226-18353) such that it

a. **SHALL** contain exactly one [1..1] **externalObservation** (CONF:2226-18354).

i. This externalObservation **SHALL** contain at least one [1..*] **id** (CONF:2226-18355).

1. This id **SHALL** equal the id of the corresponding measure set definition within the eMeasure (CONF:2226-18356).

ii. This externalObservation **SHALL** contain exactly one [1..1] **code** (CodeSystem: LOINC urn:oid:2.16.840.1.113883.6.1 **STATIC**) (CONF:2226-18357).

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:2226-19554).

iii. This externalObservation **SHALL** contain exactly one [1..1] **text** (CONF:2226-18358).

1. This text **SHOULD** be the title of the corresponding measure set (CONF:2226-18359).

8. **MAY** contain zero or more [0..*] **component** (CONF:2226-17903) such that it
   a. **SHALL** contain exactly one [1..1] **Performance Rate for Proportion Measure** (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.14) (CONF:2226-17904).
9. **MAY** contain zero or more [0..*] **component** (CONF:2226-18423) 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:2226-18424).
10. **SHALL** contain at least one [1..*] **component** (CONF:2226-18425) such that it
    a. **SHALL** contain exactly one [1..1] **Measure Data (V2)** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.27.3.5:2016-02-01) (CONF:2226-18426).

Figure 12: 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"/>
    <!-- Measure Reference and Results template -->
    <templateId root="2.16.840.1.113883.10.20.27.3.1" extension=”2016-02-01”/>
    <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 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 13: 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>
```

3.9 Patient Characteristic Payer

[observation: identifier urn:oid:2.16.840.1.113883.10.20.24.3.55 (open)]

Published as part of Quality Reporting Document Architecture Category I (QRDA I), Release 1, DSTU Release 2, US Realm

This template represents the QDM Datatype: Patient Characteristic, Payer. This datatype represents the policy or program providing the coverage for the patient.

1. **SHALL** contain exactly one [1..1] **@classCode**="OBS" (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:67-14213).

2. **SHALL** contain exactly one [1..1] **@moodCode**="EVN" (CodeSystem: ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:67-14214).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:67-12561) such that it
   a. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.24.3.55" (CONF:67-12562).
4. **SHALL** contain at least one [1..*] **id** (CONF:67-12564).
5. **SHALL** contain exactly one [1..1] **code** (CONF:67-12565).
   a. This code **SHALL** contain exactly one [1..1] **@code**="48768-6" Payment source (CONF:67-14029).
   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:67-27009).
6. **SHALL** contain exactly one [1..1] **effectiveTime** (CONF:67-26933).
   a. This effectiveTime **SHALL** contain exactly one [1..1] **low** (CONF:67-26934).
   b. This effectiveTime **SHOULD** contain zero or one [0..1] **high** (CONF:67-26935).
7. **SHALL** contain exactly one [1..1] **value** with @xsi:type="CD", where the code **SHALL** be selected from ValueSet **Payer** urn:oid:2.16.840.1.114222.4.11.3591 **DYNAMIC** (CONF:67-16710).

Figure 14: Patient Characteristic Payer Example

```
<observation classCode="OBS" moodCode="EVN">
  <!-- Patient Characteristic Payer -->
  <templateId root="2.16.840.1.113883.10.20.24.3.55" />
  <id root="4ddf1cc3-e325-472e-ad76-b2c66a5ee164" />
  <code code="48768-6" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
    displayName="Payment source" />
  <statusCode code="completed" />
  <effectiveTime>
    <!-- QDM Attribute: Start Datetime -->
    <low value="20110303" />
    <!-- QDM Attribute: Stop Datetime -->
    <high value="20160303" />
  </effectiveTime>
  <!-- Payer -->
  <value xsi:type="CD" code="1" codeSystem="2.16.840.1.113883.3.221.5"
    codeSystemName="Source of Payment Typology" displayName="Medicare"
    sdtc:valueSet="{$QDMElementValueSetOID}" />
</observation>
```


3.10 Payer Supplemental Data Element

`[observation: identifier urn:oid:2.16.840.1.113883.10.20.27.3.9 (open)]`

`Published as part of QRDA Category III`

Table 16: Payer Supplemental Data Element Contexts

Contained By:	Contains:
Measure Data (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.

This template was designed for use with HQMF Release 1, and is not currently recommended for use with HQMF Release 2. Use the Reporting Stratum template instead with HQMF Release 2.

1. Conforms to **`Patient Characteristic Payer`** template (`identifier: urn:oid:2.16.840.1.113883.10.20.24.3.55`).
2. **SHALL** contain exactly one [1..1] **`@classCode`**="`OBS`" (CodeSystem: `HL7ActClass urn:oid:2.16.840.1.113883.5.6` **STATIC**) (CONF:77-21155).
3. **SHALL** contain exactly one [1..1] **`@moodCode`**="`EVN`" (CodeSystem: `ActMood urn:oid:2.16.840.1.113883.5.1001` **STATIC**) (CONF:77-21156).
4. **SHALL** contain exactly one [1..1] **`templateId`** (CONF:77-18237) such that it
   a. **SHALL** contain exactly one [1..1] **`@root`**="`2.16.840.1.113883.10.20.27.3.9`" (CONF:77-18238).
5. **SHALL** contain exactly one [1..1] **`statusCode`** (CONF:77-18106).
   a. This statusCode **SHALL** contain exactly one [1..1] **`@code`**="`completed`" Completed (CodeSystem: `ActStatus urn:oid:2.16.840.1.113883.5.14` **STATIC**) (CONF:77-18107).
6. **SHALL** contain exactly one [1..1] **`value`** with @xsi:type="CD", where the code **SHALL** be selected from ValueSet **`Payer`** `urn:oid:2.16.840.1.114222.4.11.3591` **DYNAMIC** (CONF:77-18250).
7. **SHALL** contain exactly one [1..1] **`entryRelationship`** (CONF:77-18108) 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:77-18109).
   b. **SHALL** contain exactly one [1..1] **`@inversionInd`**="`true`" (CONF:77-18110).
   c. **SHALL** contain exactly one [1..1] **`Aggregate Count`** (`identifier: urn:oid:2.16.840.1.113883.10.20.27.3.3`) (CONF:77-18111).

3.11 Payer Supplemental Data Element (V2)

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

Published as part of QRDA Category III STU R1.1

Table 17: Payer Supplemental Data Element (V2) Contexts

Contained By:	Contains:
Measure Data (V2) (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.

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: ActMood 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: ActStatus 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 15: 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>
```

3.12 Performance Rate for Proportion Measure

[observation: identifier urn:oid:2.16.840.1.113883.10.20.27.3.14 (open)]

Published as part of QRDA Category III

Table 18: Performance Rate for Proportion Measure Contexts

Contained By:	Contains:
Measure Reference and Results (optional) Measure Reference and Results (V2) (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.

1. **SHALL** contain exactly one [1..1] **@classCode**="OBS" Observation (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:77-18395).
2. **SHALL** contain exactly one [1..1] **@moodCode**="EVN" Event (CodeSystem: ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:77-18396).

3. **SHALL** contain exactly one [1..1] **templateId** (CONF:77-19649) such that it
    a. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.27.3.14" (CONF:77-19650).
4. **SHALL** contain exactly one [1..1] **code** (CONF:77-18397).
    a. This code **SHALL** contain exactly one [1..1] **@code**="72510-1" Performance Rate (CONF:77-18398).
    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:77-21170).
5. **SHALL** contain exactly one [1..1] **statusCode** (CONF:77-18421).
    a. This statusCode **SHALL** contain exactly one [1..1] **@code**="completed" completed (CodeSystem: ActStatus urn:oid:2.16.840.1.113883.5.14 **STATIC**) (CONF:77-18422).
6. **SHALL** contain exactly one [1..1] **value** with @xsi:type="REAL" (CONF:77-18399).

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

7. **MAY** contain zero or one [0..1] **reference** (CONF:77-19651).
    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:77-19652).
    b. The reference, if present, **SHALL** contain exactly one [1..1] **externalObservation** (CONF:77-19653).
        i. This externalObservation **SHALL** contain exactly one [1..1] **@classCode** (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6) (CONF:77-19654).

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

        ii. This externalObservation **SHALL** contain exactly one [1..1] **id** (CONF:77-19655).
            1. This id **SHALL** contain exactly one [1..1] **@root** (CONF:77-19656).
        iii. This externalObservation **SHALL** contain exactly one [1..1] **code** (CONF:77-19657).
            1. This code **SHALL** contain exactly one [1..1] **@code**="NUMER" Numerator (CONF:77-19658).
            2. This code **SHALL** contain exactly one [1..1] **@codeSystem**="2.16.840.1.113883.5.4" (CodeSystem: ActCode urn:oid:2.16.840.1.113883.5.4) (CONF:77-21165).

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

8. **MAY** contain zero or one [0..1] **referenceRange** (CONF:77-18400).

a. The referenceRange, if present, **SHALL** contain exactly one [1..1] **observationRange** (CONF:77-18401).
    i. This observationRange **SHALL** contain exactly one [1..1] **value** with @xsi:type="REAL" (CONF:77-18402).

Figure 16: Performance Rate for Proportion Measure Example

```
<observation classCode="OBS" moodCode="EVN">
  <!-- MAY 0..1 Performance Rate for Proportion Measure template -->
  <templateId root="2.16.840.1.113883.10.20.27.3.14"/>
  <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 17: 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>
...
```


3.13 Postal Code Supplemental Data Element

[observation: identifier urn:oid:2.16.840.1.113883.10.20.27.3.10 (open)]

Published as part of QRDA Category III

Table 19: Postal Code Supplemental Data Element Contexts

Contained By:	Contains:
Measure Data (optional) Measure Data (V2) (optional)	Aggregate Count

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

1. **SHALL** contain exactly one [1..1] **@classCode**="OBS" (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:77-18209).
2. **SHALL** contain exactly one [1..1] **@moodCode**="EVN" (CodeSystem: ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:77-18210).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:77-18211) such that it
    a. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.27.3.10" (CONF:77-18212).
4. **SHALL** contain exactly one [1..1] **code** (CONF:77-18213).
    a. This code **SHALL** contain exactly one [1..1] **@code**="184102003" Patient postal code (CONF:77-18214).
    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:77-21166).
5. **SHALL** contain exactly one [1..1] **statusCode** (CONF:77-18100).
    a. This statusCode **SHALL** contain exactly one [1..1] **@code**="completed" Completed (CodeSystem: ActStatus urn:oid:2.16.840.1.113883.5.14 **STATIC**) (CONF:77-18101).
6. **SHALL** contain exactly one [1..1] **value** with @xsi:type="ST" (CONF:77-18215).
7. **SHALL** contain exactly one [1..1] **entryRelationship** (CONF:77-18102) 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:77-18103).
    b. **SHALL** contain exactly one [1..1] **@inversionInd**="true" (CONF:77-18104).
    c. **SHALL** contain exactly one [1..1] **Aggregate Count** (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.3) (CONF:77-18105).

Figure 18: Postal Code Supplemental Data Element Example

```
<observation classCode="OBS" moodCode="EVN">
    <!-- Postal Code Supplemental Data Element template ID -->
    <templateId root="2.16.840.1.113883.10.20.27.3.10"/>
    <code code="184102003"
        displayName="patient postal code"
        codeSystem="SNOMED-CT"
        codeSystemName="2.16.840.1.113883.6.96"/>
    <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>
```

3.14 Race Supplemental Data Element

[observation: identifier urn:oid:2.16.840.1.113883.10.20.27.3.8 (open)]

Published as part of QRDA Category III

Table 20: Race Supplemental Data Element Contexts

Contained By:	Contains:
Measure Data (optional) Measure Data (V2) (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.

1. **SHALL** contain exactly one [1..1] **@classCode**="OBS" (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:77-18223).
2. **SHALL** contain exactly one [1..1] **@moodCode**="EVN" (CodeSystem: ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:77-18224).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:77-18225) such that it
    a. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.27.3.8" (CONF:77-18226).
4. **SHALL** contain exactly one [1..1] **code** (CONF:77-18227).
    a. This code **SHALL** contain exactly one [1..1] **@code**="103579009" Race (CONF:77-18228).
    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:77-21167).
5. **SHALL** contain exactly one [1..1] **statusCode** (CONF:77-18112).

a. This statusCode **SHALL** contain exactly one [1..1] **@code**="completed" Completed (CodeSystem: ActStatus urn:oid:2.16.840.1.113883.5.14 **STATIC**) (CONF:77-18113).

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:77-18229).
7. **SHALL** contain exactly one [1..1] **entryRelationship** (CONF:77-18114) 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:77-18115).
   b. **SHALL** contain exactly one [1..1] **@inversionInd**="true" (CONF:77-18116).
   c. **SHALL** contain exactly one [1..1] **Aggregate Count** (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.3) (CONF:77-18117).

Figure 19: Race Supplemental Data Element Example

```
<observation classCode="OBS" moodCode="EVN">
    <!-- Race Supplemental Data Element template ID -->
    <templateId root="2.16.840.1.113883.10.20.27.3.8"/>
    <code code="103579009"
        displayName="Race"
        codeSystem="2.16.840.1.113883.6.96"
        codeSystemName="SNOMED-CT"/>
    <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 &amp;amp; Ethnicity - CDC"/>
    <entryRelationship typeCode="SUBJ" inversionInd="true">
        <!-- Aggregate Count template -->
        <observation classCode="OBS" moodCode="EVN">
      ...
    </observation>
    </entryRelationship>
</observation>
```

3.15 Reporting Parameters Act

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

Draft as part of Neonatal Care Report Release 1

Table 21: Reporting Parameters Act Contexts

Contained By:	Contains:
EHDI NHS QRDA Category III Reporting Parameters Section (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.

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: ActMood 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 20: 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="20160101"/>
        <!-- The first day of the period reported. -->
        <high value="20161231"/>
        <!-- The last day of the period reported. -->
    </effectiveTime>
</act>
```


3.16 Reporting Rate for Proportion Measure

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

`Published as part of QRDA Category III`

Table 22: Reporting Rate for Proportion Measure Contexts

Contained By:	Contains:
Measure Reference and Results (optional) Measure Reference and Results (V2) (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.

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: ActMood 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: ActStatus 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 21: 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>
```

3.17 Reporting Stratum

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

Published as part of QRDA Category III

Table 23: Reporting Stratum Contexts

Contained By:	Contains:
Measure Data (optional) Measure Data (V2) (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.

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: ActMood 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: ActCode 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: ActStatus 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 22: 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 23: 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>
```


3.18 Service Encounter

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

`Published as part of QRDA Category III`

Table 24: Service Encounter Contexts

Contained By:	Contains:
EHDI NHS 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.

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: ActMood 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 24: 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>
```

3.19 Sex Supplemental Data Element

`[observation: identifier urn:oid:2.16.840.1.113883.10.20.27.3.6 (open)]`

`Published as part of QRDA Category III`

Table 25: Sex Supplemental Data Element Contexts

Contained By:	Contains:
Measure Data (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.

This template was designed for use with HQMF Release 1, and is not currently recommended for use with HQMF Release 2. Use the Reporting Stratum template instead with HQMF Release 2.

1. **SHALL** contain exactly one [1..1] **@classCode**="OBS" (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:77-18230).
2. **SHALL** contain exactly one [1..1] **@moodCode**="EVN" (CodeSystem: ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:77-18231).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:77-18232) such that it
    a. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.27.3.6" (CONF:77-18233).
4. **SHALL** contain exactly one [1..1] **code** (CONF:77-18234).
    a. This code **SHALL** contain exactly one [1..1] **@code**="184100006" Patient sex (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96 **STATIC**) (CONF:77-18235).
5. **SHALL** contain exactly one [1..1] **statusCode** (CONF:77-18124).
    a. This statusCode **SHALL** contain exactly one [1..1] **@code**="completed" Completed (CodeSystem: ActStatus urn:oid:2.16.840.1.113883.5.14 **STATIC**) (CONF:77-18125).
6. **SHALL** contain exactly one [1..1] **value** with @xsi:type="CD", where the code **SHALL** be selected from ValueSet **Administrative Gender (HL7 V3)** urn:oid:2.16.840.1.113883.1.11.1 **DYNAMIC** (CONF:77-18236).
7. **SHALL** contain exactly one [1..1] **entryRelationship** (CONF:77-18126) 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:77-18127).
    b. **SHALL** contain exactly one [1..1] **@inversionInd**="true" (CONF:77-18128).
    c. **SHALL** contain exactly one [1..1] **Aggregate Count** (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.3) (CONF:77-18129).

3.20 Sex Supplemental Data Element (V2)

[observation: identifier urn:hl7ii:2.16.840.1.113883.10.20.27.3.6:2016-02-01 (open)]

Published as part of QRDA Category III STU R1.1

Table 26: Sex Supplemental Data Element (V2) Contexts

Contained By:	Contains:
Measure Data (V2) (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.

1. **SHALL** contain exactly one [1..1] **@classCode**="OBS" (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:2226-18230).
2. **SHALL** contain exactly one [1..1] **@moodCode**="EVN" (CodeSystem: ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:2226-18231).
3. **SHALL** contain exactly one [1..1] **templateId** (CONF:2226-18232) such that it
    a. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.27.3.6" (CONF:2226-18233).
    b. **SHALL** contain exactly one [1..1] **@extension**="2016-02-01" (CONF:2226-21160).
4. **SHALL** contain exactly one [1..1] **code** (CONF:2226-18234).
    a. This code **SHALL** contain exactly one [1..1] **@code**="184100006" Patient sex (CONF:2226-18235).
    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 **STATIC**) (CONF:2226-21163).
5. **SHALL** contain exactly one [1..1] **statusCode** (CONF:2226-18124).
    a. This statusCode **SHALL** contain exactly one [1..1] **@code**="completed" Completed (CodeSystem: ActStatus urn:oid:2.16.840.1.113883.5.14 **STATIC**) (CONF:2226-18125).
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:2226-18236).
7. **SHALL** contain exactly one [1..1] **entryRelationship** (CONF:2226-18126) 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:2226-18127).
    b. **SHALL** contain exactly one [1..1] **@inversionInd**="true" (CONF:2226-18128).
    c. **SHALL** contain exactly one [1..1] **Aggregate Count** (identifier: urn:oid:2.16.840.1.113883.10.20.27.3.3) (CONF:2226-18129).

Figure 25: Sex Supplemental Data Element Example

```
<observation classCode="OBS" moodCode="EVN">
    <!-- Sex Supplemental Data Element template ID -->
    <templateId root="2.16.840.1.113883.10.20.27.3.6" extension=”2016-02-01”/>
    <code code="184100006"
        displayName="patient sex"
        codeSystem="2.16.840.1.113883.6.96"
        codeSystemName="SNOMED-CT"/>
    <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>
```


4 Template Ids in This Guide

Table 27: Template List

Template Title	Template Type	templateId
EHDI NHS QRDA Category I Report UV	document	urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.1.1:2016-09-01
EHDI NHS QRDA Category III Report (V2)	document	urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.6.1.1.1:2016-09-01
EHDI CMS31 QRDA III Measure Reference and Results Section	section	urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.6.2.3.1:2016-09-01
EHDI NHS Measure Reference Section UV	section	urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.3.1:2015-04-17
EHDI NHS Patient Data Section UV	section	urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.3.3:2016-09-01
EHDI NHS QRDA Category III Measure Reference and Results Section (V2)	section	urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.6.1.3.1:2016-09-01
EHDI NHS QRDA Category III Reporting Parameters Section	section	urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.3.2:2016-09-01
EHDI NHS Reporting Parameters Section UV	section	urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.3.2:2015-04-17
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	entry	urn:oid:2.16.840.1.113883.10.20.27.3.7
Measure Data	entry	urn:oid:2.16.840.1.113883.10.20.27.3.5
Measure Data (V2)	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.5:2016-02-01
Measure Reference	entry	urn:oid:2.16.840.1.113883.10.20.24.3.98
Measure Reference and Results	entry	urn:oid:2.16.840.1.113883.10.20.27.3.1
Measure Reference and Results (V2)	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.1:2016-02-01
Patient Characteristic Payer	entry	urn:oid:2.16.840.1.113883.10.20.24.3.55
Payer Supplemental Data Element	entry	urn:oid:2.16.840.1.113883.10.20.27.3.9
Payer Supplemental Data Element (V2)	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.9:2016-02-01
Performance Rate for Proportion Measure	entry	urn:oid:2.16.840.1.113883.10.20.27.3.14

Template Title	Template Type	templateId
Postal Code Supplemental Data Element	entry	urn:oid:2.16.840.1.113883.10.20.27.3.10
Race Supplemental Data Element	entry	urn:oid:2.16.840.1.113883.10.20.27.3.8
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	entry	urn:oid:2.16.840.1.113883.10.20.27.3.6
Sex Supplemental Data Element (V2)	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.6:2016-02-01

Table 28: Template Containments

Template Title	Template Type	templateId
EHDI NHS QRDA Category I Report UV	document	urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.1.1:2016-09-01
EHDI NHS Measure Reference Section UV	section	urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.3.1:2015-04-17
EHDI NHS Patient Data Section UV	section	urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.3.3:2016-09-01
EHDI NHS Reporting Parameters Section UV	section	urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.3.2:2015-04-17
EHDI NHS QRDA Category III Report (V2)	document	urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.6.1.1.1:2016-09-01
EHDI NHS QRDA Category III Measure Reference and Results Section (V2)	section	urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.6.1.3.1:2016-09-01
Measure Reference and Results (V2)	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.1:2016-02-01
Measure Data (V2)	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.5:2016-02-01
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	entry	urn:oid:2.16.840.1.113883.10.20.27.3.7

Template Title	Template Type	templateId
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	entry	urn:oid:2.16.840.1.113883.10.20.27.3.10
Aggregate Count	entry	urn:oid:2.16.840.1.113883.10.20.27.3.3
Race Supplemental Data Element	entry	urn:oid:2.16.840.1.113883.10.20.27.3.8
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 (V2)	entry	urn:hl7ii:2.16.840.1.113883.10.20.27.3.6:2016-02-01
Aggregate Count	entry	urn:oid:2.16.840.1.113883.10.20.27.3.3
Performance Rate for Proportion Measure	entry	urn:oid:2.16.840.1.113883.10.20.27.3.14
Reporting Rate for Proportion Measure	entry	urn:oid:2.16.840.1.113883.10.20.27.3.15
EHDI NHS QRDA Category III Reporting Parameters Section	section	urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.3.2:2016-09-01
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

3275

5 Value Sets In This Guide

Table 29: 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 30: 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:
http://www.hl7.org/documentcenter/public/standards/vocabulary/vocabulary_tables/infrastructure/vocabulary/vocabulary.html

Code	Code System	Code System OID	Print Name
N	ConfidentialityCode	urn:oid:2.16.840.1.113883.5.25	normal
R	ConfidentialityCode	urn:oid:2.16.840.1.113883.5.25	restricted
V	ConfidentialityCode	urn:oid:2.16.840.1.113883.5.25	very restricted

3280

Table 31: ObservationMethodAggregate

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

Table 32: 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 33: ObservationPopulationInclusion

Value Set: ObservationPopulationInclusion urn:oid:2.16.840.1.113883.1.11.20369			
Code	**Code System**	**Code System OID**	**Print Name**
DENEX	ObservationValue	urn:oid:2.16.840.1.113883.5.1063	Denominator Exclusions
DENOM	ObservationValue	urn:oid:2.16.840.1.113883.5.1063	Denominator

DENEXCEP	ObservationValue	urn:oid:2.16.840.1.113883.5.1063	Denominator Exceptions
IPP	ObservationValue	urn:oid:2.16.840.1.113883.5.1063	Initial Patient Population
MSRPOPL	ObservationValue	urn:oid:2.16.840.1.113883.5.1063	Measure Population
NUMER	ObservationValue	urn:oid:2.16.840.1.113883.5.1063	Numerator
NUMEX	ObservationValue	urn:oid:2.16.840.1.113883.5.1063	Numerator Exclusions

Table 34: PopulationInclusionObservationType

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

Table 35: 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: http://www.phdsc.org/standards/payer-typology.asp			
Code	**Code System**	**Code System OID**	**Print Name**
1	Source of Payment Typology (PHDSC)	urn:oid:2.16.840.1.113883.3.3.221.5	Medicare
2	Source of Payment	urn:oid:2.16.840.1.113883	Medicaid

	Typology (PHDSC)	3.3.221.5	
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
…			

3290

Table 36: 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:2.16.840.1.11388 3.6.238	American Indian or Alaska Native
2028-9	Race & Ethnicity - CDC	urn:oid:2.16.840.1.11388 3.6.238	Asian
2054-5	Race & Ethnicity - CDC	urn:oid:2.16.840.1.11388 3.6.238	Black or African American
2076-8	Race & Ethnicity - CDC	urn:oid:2.16.840.1.11388 3.6.238	Native Hawaiian or Other Pacific Islander
2106-3	Race & Ethnicity - CDC	urn:oid:2.16.840.1.11388 3.6.238	White
2131-1	Race & Ethnicity - CDC	urn:oid:2.16.840.1.11388 3.6.238	Other Race

Table 37: Administrative Gender (HL7 V3)

Value Set: Administrative Gender (HL7 V3) urn:oid:2.16.840.1.113883.1.11.1
Administrative Gender based upon HL7 V3 vocabulary. This value set contains only male, female and undifferentiated concepts.
Value Set Source:

http://www.hl7.org/documentcenter/public/standards/vocabulary/vocabulary_tables/infrastructure/vocabulary/vocabulary.html			
Code	**Code System**	**Code System OID**	**Print Name**
F	AdministrativeGender	urn:oid:2.16.840.1.113883.5.1	Female
M	AdministrativeGender	urn:oid:2.16.840.1.113883.5.1	Male
UN	AdministrativeGender	urn:oid:2.16.840.1.113883.5.1	Undifferentiated

Table 38: 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
U	AdministrativeSex	urn:oid:2.16.840.1.113883.18.2	Unknown

6 Code Systems in This Guide

Table 39: Code Systems

Name	OID
ActCode	urn:oid:2.16.840.1.113883.5.4
ActMood	urn:oid:2.16.840.1.113883.5.1001
ActStatus	urn:oid:2.16.840.1.113883.5.14
AdministrativeGender	urn:oid:2.16.840.1.113883.5.1
AdministrativeSex	urn:oid:2.16.840.1.113883.18.2
ConfidentialityCode	urn:oid:2.16.840.1.113883.5.25
HL7ActClass	urn:oid:2.16.840.1.113883.5.6
HL7ActRelationshipType	urn:oid:2.16.840.1.113883.5.1002
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
ObservationMethod	urn:oid:2.16.840.1.113883.5.84
ObservationValue	urn:oid:2.16.840.1.113883.5.1063
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

3300

Volume 4 – National Extensions

Add appropriate Country section

R1 Quality Measure Execution for Early Hearing - US National Extension

This information contains implementer guidance for the Quality Measure Execution for Early Hearing (QME-EH) Profile when used in the US Realm.

R1.1 Comment Submission

This national extension document was authored under the sponsorship and supervision of HIMSS and RSNA, who welcome comments on this document and the IHE USA initiative. Comments should be directed to:

IHE USA, Secretariat

Email: iheusa@himss.org

R1.2 Overview

This will provide a paragraph or two describing the eCQM space for the EHDI-1a measure in the US. It will provide a pointer to the eCQI Resource Center, the NQF site, and the TJC site.

As part of its Congressional authority to develop standardized procedures for data management, the Centers for Disease Control and Prevention (CDC) Early Hearing Detection and Intervention (EHDI) program has actively participated in national and international semantic, technical and process interoperability standards development efforts related to newborn hearing screening and short term follow-up. Use of these standards is designed to speed the delivery of newborn screening reports, facilitate the care and follow-up of infants, enable the use of data from different sources, and support the development of strategies for improving the newborn hearing screening process. The goal is to ensure newborn infants screened with hearing related problems receive timely and appropriate follow-up care by improving the infrastructure that will enable the electronic data exchanges between clinical care and public health agency information systems. Establishing interoperable electronic information exchanges increase the likelihood that the needs of public health state EHDI programs, clinical care providers, deaf and hard of hearing infants, and their families will be fulfilled.

EHDI systems depend on the quality, availability, and equity of care and services provided at sequential points of screening and subsequent follow-up. Much of the information required to measure performance of the EHDI process, such as infant hearing screening and audiology diagnostic evaluation, is collected in the process of routine clinical care and is available in the EHR systems of the healthcare providers. This information has not, however, been routinely used for quality reporting to state EHDI programs. Taking advantage of comprehensive clinical data contained in EHRs requires that standards and applications applied to patient care data that in many cases have never existed in the past.

In August of 2011, the National Quality Forum (NQF) officially endorsed several measures related to EHDI as Child Health Quality Measures. These measures are now coded as standardized electronic measures (eMeasures) that are compatible with or ‘readable’ by EHR

systems and other clinical IT systems. Recent progress on EHR system interoperability standards is providing a great opportunity for EHDI programs to address the needs of meaningful quality data collection and reporting.

The Newborn Hearing Screening measure is part of the quality program for the Centers for Medicaid and Medicare Services (CMS), the National Quality Forum (NQF), and The Joint Commission (TJC). Each of these organizations provide implementers with specific guidance for the creation of Patient Level (QRDA Cat I) and Aggregate Level (QRDA Cat III) report files. The websites provided below house the documentation on how to create the needed information exchange files for their respective programs.

eCQM Reference Information Repository	Link Location
eCQI Resource Center (CMS)	https://ecqi.healthit.gov/
National Quality Forum (NQF)	http://www.qualityforum.org/Home.aspx
The Joint Commission (TJC)	http://www.jointcommission.org/

Due to the complex nature of the quality measure programs and the eCQM process, participation requires a significant amount of specialized knowledge and a continuous commitment to change management.

R1.3 Measure Definitions

The Newborn Hearing Screening Measure is expressed as an electronic Clinical Quality Measure (eCQM). The measure definition is expressed using a standards called Health Quality Measure Format (HQMF) which has been tailored to meet the quality data concepts expressed in a model managed by NQF called Quality Data Model (QDM). The version of HQMF that is based on QDM is called QDM-based HQMF. The dependency of QDM-based HQMF means that changes to QDM may require changes to the QDM-Based HQMF standard. Further, changes to the QDM-based HQMF standard can cause the Newborn Hearing Screening definition to be adjusted to use new concepts or new syntax that is introduced.

The definition for the Newborn Hearing Screening Measure also may change to incorporate revisions needed to address implementation issues. Each year, lessons learned from use of the measure during the prior year are applied.

Value sets used to define data elements used in the measure logic can change because the underlying code systems have changed, or because concepts need to be added or removed to refine the way the measure works.

While the EHDI Measure is identified by each quality organization using a unique number, the version of the measure definition changes each time the underlying definition undergoes a revision.

CMS			
Measure number/version	**Annual Update completes**	**Measure Period (year of data collection)**	**Reporting Period (year of reporting submission)**
CMS31 v4	AU 2015 (201505)	2016	2017
CMS31 v5	AU 2016 (201604)	2017	2018
CMS31 v6	AU 2017 (201705)	2018	2019

NQF			
Measure number/version	**Annual Update completes**	**Measure Period (year of data collection)**	**Reporting Period (year of reporting submission)**
NQF1354 (December 3, 2015)	December, 2015	2016	2017
TBD	TBD	2017	2018
TBD	TBD	2018	2019

TJC			
Measure number/version	**Annual Update completes**	**Measure Period (year of data collection)**	**Reporting Period (year of reporting submission)**
EHDI-1a v4	June, 2015	2016	2017
EHDI-1a v5	April, 2016	2017	2018
TBD	TBD	2018	2019

Applicable Standards for Measure Definitions

Measure number/version	QDM	HQMF	QDM-Based HQMF	eCQM Blueprint
CMS31 v4	4.1.2	2.1	1.2	11.1
CMS31 v5	4.2.1	2.1	1.3	11.2
CMS31 v6	TBD (Fall 2016)	TBD	TBD	TBD

Applicable Code System Versions for Measure Data Element Value Sets

Code System Versions for 2015 EH and EP Updates

Code System	Versions for 2015 EH and EP Release
AdministrativeSex	HL7V2.5
CDCREC	1.0
CDT	2015

Code System	Versions for 2015 EH and EP Release
CPT	2015
CVX	2015
DischargeDisposition	HL7V2.5
HCPCS	2015
HSLOC	2010
ICD10CM	2014
ICD10PCS	2014
ICD9CM	2013
LOINC	2.50
RXNORM	2015-01
SNOMEDCT	2014-09
SOP	5.0

Code System Versions in VSAC for 2016 eCQM Annual Update

*This date assumes code systems deliver their updates to NLM on time.

Available in VSAC January 18, 2016*
RxNorm 2016-01
SNOMED CT 2015-09
LOINC 2.54
CPT 2016
CDT 2016
CVX 2016
HCPCS 2016
ICD-10-CM 2016
ICD-10-PCS 2016

NLM expects the following code systems to remain the same:

AdministrativeSex	HL7V2.5
CDCREC	1.0
DischargeDisposition	HL7V2.5
HSLOC	2010
ICD9CM	2013
SOP	5.0

R1.4 Patient Level and Aggregate Level Quality Reports

The creation of Patient Level and Aggregate Level quality reports depends not only on the specifics of the measure definition. It also depends on the version of QDM-based HQMF used to express its definition and on the underlying Consolidated CDA templates used to express the collected data. The structure and syntax of the Patient Level report then depends on the QRDA Cat I standard and the structure and syntax of the Aggregate Level report then depends on the QRDA Cat III standard. Patient Level and Aggregate Level quality reports.

Applicable Standards for Patient Level and Aggregate Level quality reports.

Measure number/version	QDM-Based HQMF	C-CDA	QRDA Cat I	QRDA Cat III
CMS31 v4	1.2	2.0	3.0	R1 errata 2014
CMS31 v5	1.3	2.1	3.1	R1 errata 2014
CMS31 v6	TBD (Fall 2016)	TBD (Fall 2016)	TBD (Fall 2016)	TBD (Fall 2016)

Appendix C – Code Systems for US National Extension

3395

Table C-1: Code Systems

Name	OID
ActCode	urn:oid:2.16.840.1.113883.5.4
ActMood	urn:oid:2.16.840.1.113883.5.1001
ActStatus	urn:oid:2.16.840.1.113883.5.14
AdministrativeGender	urn:oid:2.16.840.1.113883.5.1
CMS Program	urn:oid:2.16.840.1.113883.3.249.7
ConfidentialityCode	urn:oid:2.16.840.1.113883.5.25
Healthcare Provider Taxonomy (HIPAA)	urn:oid:2.16.840.1.113883.6.101
HL7ActClass	urn:oid:2.16.840.1.113883.5.6
HL7ActRelationshipType	urn:oid:2.16.840.1.113883.5.1002
HL7ParticipationType	urn:oid:2.16.840.1.113883.5.90
ICD10CM	urn:oid:2.16.840.1.113883.6.90
ICD-9-CM, Volume 1&2	urn:oid:2.16.840.1.113883.6.103
Language	urn:oid:2.16.840.1.113883.6.121
LOINC	urn:oid:2.16.840.1.113883.6.1
ObservationMethod	urn:oid:2.16.840.1.113883.5.84
ObservationValue	urn:oid:2.16.840.1.113883.5.1063
Race & Ethnicity - CDC	urn:oid:2.16.840.1.113883.6.238
RoleClass	urn:oid:2.16.840.1.113883.5.110
RoleCode	urn:oid:2.16.840.1.113883.5.111
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

Appendix D – Data Element Concepts Mapping for US National Extension

This appendix defines the set of data element concepts used in the Newborn Hearing Screening quality measure in terms of the NQF Quality Data Model (QDM) standard.

These data element concepts are included to help implementers of actors that do content creation or content consumption. The mappings to the reference quality data model help to clarify the underlying meaning of the information used in the content modules.

For the US Realm, the CMS Implementation Guide for Quality Reporting Document Architecture Category I and Category III, Eligible Professional Programs and Hospital Quality Reporting (HQR), Supplementary Implementation Guide for 2016 establishes the criteria for representing quality measure submitting organizations in the Patient-Level Quality Report and Aggregate-Level Quality Report documents. This guidance includes specific value sets used in US Implementations. Implementers should consult that Implementation Guide first, then use information from this profile for additional guidance specific to the Newborn Hearing Screening Measure.

The Newborn Hearing Screening Measure measures a hospital's process quality for screening newborn's hearing. The organization referenced in the measure is identified with a unique id that is relevant for reporting. In the US Realm, this is the CMS Certification Number (CCN) assigned by CMS.

D.1 Summary of Care Document Data Element Concepts

The Summary of Care Document needs to include, as a minimum, data elements used to populate the Patient-Level Quality Report (PLQR) data elements. The clinical summary may include additional information to summarize a patient encounter or set of encounters. See D1.1.2 for details.

D.2 Patient-Level Data Element Concepts

Concept Variable Name	Description	QDM/CDA Definition
$PATIENT	The person who the document is about	The recordTarget
$AUTHOR	The person or organization authoring the document	Author
$CUSTODIAN	The organization responsible for keeping/maintaining the document as a persistent/unaltered artifact	Custodian
$LEGAL_AUTHENTICATOR	The person (an associated organization) who is legally accountable for the document	legalAuthenticator
$SERVICE_EVENT	The service event that the document is about.	This identifies the specific service performed within the encounter.

Concept Variable Name	Description	QDM/CDA Definition
$EMEASURE_TITLE	The title of the measure	The title used when referencing the measure.
$VERSION NEUTRAL_IDENTIFIER	An identifier for the measure which does not change even when the version of the measure changes	The setId
$EMEASURE VERSION_NUMBER	The version number of the Measure Definition	The versionNumber
$VERSION_SPECIFIC_IDENTIFIER	An identifier for the measure which does change when the version changes.	The clinicalDocument/id
$MEASUREPERIOD	The time interval applicable for the data collection.	
$INPATIENT_ENCOUNTER	Data elements that meet criteria using this datatype should document that the encounter indicated by the QDM category and its corresponding value set has been completed.	Encounter Encounter, Performed Encounter Inpatient Value Set: Encounter Inpatient SNOMEDCT Value Set (2.16.840.1.113883.3.666.5.307)
$ETHNICITY	Data elements that meet criteria using this datatype should document that the patient has one or more of the ethnicities indicated by the QDM category and its corresponding value set.	Individual Characteristic Patient Characteristic Ethnicity Value Set: Ethnicity CDCREC Value Set (2.16.840.1.114222.4.11.837)
$RACE	Data elements that meet criteria using this datatype should document the patient's race.	Individual Characteristic Patient Characteristic Race Value Set: Race CDCREC Value Set (2.16.840.1.114222.4.11.836)
$GENDER	Data elements that meet criteria using this datatype should document that the patient's sex matches the QDM category and its corresponding value set.	Individual Characteristic Patient Characteristic Sex Value Set: ONC Administrative Sex AdministrativeSex Value Set (2.16.840.1.113762.1.4.1)
$PAYER	Data elements that meet criteria using this datatype should document that the patient has one or more of the payers indicated by the QDM category and its corresponding value set	Individual Characteristic Patient Characteristic Payer Value Set: Payer SOP Value Set (2.16.840.1.114222.4.11.3591)

Concept Variable Name	Description	QDM/CDA Definition
$LIVEBORN_IN_HOSPITAL	To meet criteria using this datatype, the diagnosis indicated by the Condition/Diagnosis/Problem QDM category and its corresponding value set should reflect documentation of an active diagnosis. Keep in mind that when this datatype is used with timing relationships, the criterion is looking for an active diagnosis for the time frame indicated by the timing relationships.	Condition/Diagnosis/Problem Diagnosis, Active Starts during "Occurrence A of Encounter, Performed: Encounter Inpatient" Value set: Liveborn Newborn Born in Hospital Grouping Value Set (2.16.840.1.113762.1.4.1046.6)
$LIVEBIRTH	To meet criteria using this datatype, the diagnosis indicated by the Condition/Diagnosis/Problem QDM category and its corresponding value set should reflect documentation of an active diagnosis. Keep in mind that when this datatype is used with timing relationships, the criterion is looking for an active diagnosis for the time frame indicated by the timing relationships.	Condition/Diagnosis/Problem Diagnosis, Active Starts during "Occurrence A of Encounter, Performed: Encounter Inpatient" Value set: Livebirth SNOMEDCT Value Set (2.16.840.1.114222.4.1.214079.1.1.1)
$EXPIRED	The Patient Characteristic Expired data element should document that the patient is deceased. Note: Patient Characteristic Expired is fixed to SNOMED-CT® code 419099009 (Dead) and therefore cannot be further qualified with a value set.	Individual Characteristic Patient Characteristic Expired During "Occurrence A of Encounter, Performed: Encounter Inpatient" Value set: see note. Note: *Patient Characteristic Expired* is fixed to SNOMED-CT® code 419099009 (Dead) and therefore cannot be further qualified with a value set.
$LEFT_EAR_SCREENED	Data elements that meet criteria using this datatype should document the completion of the diagnostic study indicated by the QDM category and its corresponding value set.	Diagnostic Study Diagnostic Study, Performed Result (exists) Newborn Hearing Screen Left Value set: Pass Or Refer SNOMEDCT Value Set (2.16.840.1.114222.4.1.214079.1.1.6) Note: the result only needs to exist for this data element as it is evaluated here. The concept of PASS or REFER would be represented in different data elements.

Concept Variable Name	Description	QDM/CDA Definition
$LEFT_EAR_NOT_SCREENED_REASON	Data elements that meet criteria using this datatype should document the completion of the diagnostic study indicated by the QDM category and its corresponding value set.	Diagnostic Study Diagnostic Study, Performed Reason Value Set: Medical Reasons SNOMEDCT Value Set (2.16.840.1.114222.4.1.214079.1.1.7)
$LEFT_EAR_NOT_SCREENED_NEGATION_RATIONALE	Data elements that meet criteria using this datatype should document the completion of the diagnostic study indicated by the QDM category and its corresponding value set.	Diagnostic Study Diagnostic Study, Performed Negation Rationale NegationInd = True
$LEFT_EAR_NOT_SCREENED_PATIENT_PREFERENCE	Data elements that meet criteria using this datatype should document the completion of the diagnostic study indicated by the QDM category and its corresponding value set.	Diagnostic Study Diagnostic Study, Performed Patient Preference Value Set: Medical Reasons SNOMEDCT Value Set (2.16.840.1.114222.4.1.214079.1.1.7)
$LEFT_EAR_NOT_SCREENED_PHYSICIAN_PREFERENCE	Data elements that meet criteria using this datatype should document the completion of the diagnostic study indicated by the QDM category and its corresponding value set.	Diagnostic Study Diagnostic Study, Performed Physician Preference Value Set: Medical Reasons SNOMEDCT Value Set (2.16.840.1.114222.4.1.214079.1.1.7)
$RIGHT_EAR_SCREENED	Data elements that meet criteria using this datatype should document the completion of the diagnostic study indicated by the QDM category and its corresponding value set.	Diagnostic Study Diagnostic Study, Performed Result (exists) Newborn Hearing Screen Right Value set: Pass Or Refer SNOMEDCT Value Set (2.16.840.1.114222.4.1.214079.1.1.6)
$RIGHT_EAR_NOT_SCREENED_REASON	Data elements that meet criteria using this datatype should document the completion of the diagnostic study indicated by the QDM category and its corresponding value set.	Diagnostic Study Diagnostic Study, Performed Reason NegationInd = True

Concept Variable Name	Description	QDM/CDA Definition
$RIGHT_EAR_NOT_SCREENED_NEGATION_RATIONALE	Data elements that meet criteria using this datatype should document the completion of the diagnostic study indicated by the QDM category and its corresponding value set.	Diagnostic Study Diagnostic Study, Performed Negation Rationale Value Set: Medical Reasons SNOMEDCT Value Set (2.16.840.1.114222.4.1.214079.1.1.7)
$C_RIGHT_EAR_NOT_SCREENED_PATIENT_PREFERENCE	Data elements that meet criteria using this datatype should document the completion of the diagnostic study indicated by the QDM category and its corresponding value set.	Diagnostic Study Diagnostic Study, Performed Patient Preference Value Set: Medical Reasons SNOMEDCT Value Set (2.16.840.1.114222.4.1.214079.1.1.7)
$C_RIGHT_EAR_NOT_SCREENED_PHYSICIAN_PREFERENCE	Data elements that meet criteria using this datatype should document the completion of the diagnostic study indicated by the QDM category and its corresponding value set.	Diagnostic Study Diagnostic Study, Performed Physician Preference Value Set: Medical Reasons SNOMEDCT Value Set (2.16.840.1.114222.4.1.214079.1.1.7)

D.3 Aggregate-Level Quality Report Data Element Concepts

The data elements used in an Aggregate-Level Quality Report are determined in the HQMF and QRDA Category III standards. They depend on the type of measure being reported. The Newborn Hearing Screening measure is a Proportional Measure and does not include any stratification or rate adjustment.

Concept Variable Name	Description
$XXXX	The description of this element as it is used in the context of this quality measure.
$PATIENT	Individual patient information is not included in an Aggregate-Level Quality Report.
$AUTHOR	The organization responsible for creating the document. The authoring device holds information about the system used by the organization to author the report.
$CUSTODIAN	The organization that is responsible for maintaining the Patient-level Quality Report document.

Concept Variable Name	Description
$LEGAL_AUTHENTICATOR	The organization that signs off on, and attests to the accuracy of the Patient-Level report.
$INFORMATION_RECIPIENT	The organization to whom the Aggregate-Level Quality Report will be submitted.
$SERVICE_EVENT	The service events which were measured and may include the clinician information for clinicians responsible for performing the each measured service event.
$C_MEASURE_PERIOD	The time interval applicable for the data collection. This is defined through a start time and an end time for the period.
$C_MEASURE_REFERENCE	The information which identifies the e-Measure definition and its version.
$C_MEASURE_RESULTS	The individual components of the measure, called “populations” and the corresponding result. Each population also includes the defined stratifications required by the measure definition.
$IPOP	The Initial Population which includes all entities to be evaluated by an eMeasure which may but are not required to share a common set of specified characteristics within a named measurement set to which the eMeasure belongs.
$DENOM	The Denominator is the same as the Initial Population or a subset of the Initial Population to further constrain the population for the purpose of the eMeasure.
$DENEX	Entities to be removed from the Initial Population and Denominator before determining if the Numerator Criteria are met. Denominator Exclusions are used in Proportion and Ration Measures to help narrow the Denominator
$NUMER	The process or outcome for each entity defined in the Denominator of a Proportion or Ratio measure.
$NUMEX	Entities that should be removed from the eMeasure’s Numerator. Numerator exclusions are used in Proportion and Ratio measures to help narrow the Numerator (for inverted measures which show improvement as they decrease).
$DENEXCEP	Those conditions that should remove a patient, procedure, or unit of measurement from the Denominator only if the Numerator criteria are not met. Denominator exceptions allow for adjustment of the calculated score for example to account for a higher risk population.

