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.
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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

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

Closed Issues
<table>
<thead>
<tr>
<th>Item</th>
<th>Issue Description</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The measure definition included in Volume 1, appendix C is version 3 of the CMS31 Newborn Hearing Screening Measure, not version 4</td>
<td>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.</td>
</tr>
<tr>
<td>2</td>
<td>The use of references to an external document for template conformance requirements in Volume 3 has not been authorized by IHE.</td>
<td>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.</td>
</tr>
<tr>
<td>3</td>
<td>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.</td>
<td>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.</td>
</tr>
</tbody>
</table>
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 placeholder to demonstrate the type of additional conformance that is 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.

| 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. |
| 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.

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.

| 5 | Will this profile deprecate the previous QME-EH Profile? |
| 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... |

| 5 | 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 | 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 |

Tabled on 5/8/2015 – Out of scope
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.

<table>
<thead>
<tr>
<th>7</th>
<th>Representation of derivation rules is an open issue.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>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</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8</th>
<th>Reduce the Actor Transaction Diagram to just two actors….</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. I still disagree with doing this. To be discussed further on Wednesday 2/25/2015</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>9</th>
<th>Determine if the use case where the QR Creator will read CDAs and only produce a QRDA level 3 document would be useful</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Adjust the content module specifications to align with the new actor options.</td>
</tr>
<tr>
<td></td>
<td>Add additional use case for scenarios to exercise the new options.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10</th>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2/25/2015 Done</td>
</tr>
</tbody>
</table>

---

Rev. 4.1 – 2016-08-10
<table>
<thead>
<tr>
<th></th>
<th>Consider using longer option names rather than using the abbreviated acronyms.</th>
<th>2/26/2015 The committee decided to go with the shorter option names.</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>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.</td>
<td>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.</td>
</tr>
<tr>
<td>12</td>
<td>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.</td>
<td>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.</td>
</tr>
<tr>
<td>13</td>
<td>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.</td>
<td>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.</td>
</tr>
</tbody>
</table>
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:

<table>
<thead>
<tr>
<th>Actor</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Report Assembler</td>
<td>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.</td>
</tr>
</tbody>
</table>

## 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:

<table>
<thead>
<tr>
<th>Glossary Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Run</td>
<td>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.</td>
</tr>
<tr>
<td>Assembler</td>
<td>A system that faithfully combines available information and does not create new information in the process of assembling the available data.</td>
</tr>
<tr>
<td>Composer</td>
<td>A system that creates new information about the patient. The new information may be introduced while assembling other available data.</td>
</tr>
<tr>
<td>Patient-level Quality Report</td>
<td>A quality report that includes data about a single patient.</td>
</tr>
<tr>
<td>Aggregate-level Quality Report</td>
<td>A quality report that includes data computed from a set of patients across a set of encounters or another measured item.</td>
</tr>
</tbody>
</table>
Volume 1 – Profiles

Copyright Licenses

None

Domain-specific additions

None

265 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 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

<table>
<thead>
<tr>
<th>Actors</th>
<th>Content Modules (See Note 1)</th>
<th>Optionality</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Report Assembler</td>
<td>EHDI Measure Definition</td>
<td>R</td>
<td>QRPH TF-1:Appendix C</td>
</tr>
</tbody>
</table>

(See Note 1)
<table>
<thead>
<tr>
<th>Actors</th>
<th>Content Modules (See Note 1)</th>
<th>Optionality</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content Consumer (See Note 1)</td>
<td>Summary of Care Document (SoCD)</td>
<td>O</td>
<td>A C-CDA Clinical summary.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>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)</td>
</tr>
<tr>
<td>Aggregate-Level Quality Report (ALQR)</td>
<td></td>
<td>O</td>
<td>For US Realm, see QRPH TF-4: R1.3.1.1.D2</td>
</tr>
<tr>
<td>Patient-Level Quality Report (PLQR)</td>
<td></td>
<td>O</td>
<td>For US Realm, see QRPH TF-4: R1.3.1.1.D1</td>
</tr>
<tr>
<td>Content Creator (See Note 1)</td>
<td>Summary of Care Document (SoCD)</td>
<td>O</td>
<td>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</td>
</tr>
<tr>
<td>Aggregate-Level Quality Report (ALQR)</td>
<td></td>
<td>O</td>
<td>For US Realm, see QRPH TF-4: R1.3.1.1.D2</td>
</tr>
<tr>
<td>Patient-Level Quality Report (PLQR)</td>
<td></td>
<td>O</td>
<td>For US Realm, see QRPH TF-4: R1.3.1.1.D1</td>
</tr>
</tbody>
</table>

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.

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Template Rev. 10.3
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>
<thead>
<tr>
<th>Actor</th>
<th>Option Name</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content Creator (See Note 1)</td>
<td>Aggregate-Level Quality Report (ALQR) Option</td>
<td>Section X.2.1</td>
</tr>
<tr>
<td></td>
<td>Patient-Level Quality Report (PLQR) Option</td>
<td>Section X.2.2</td>
</tr>
<tr>
<td></td>
<td>Summary of Care Document (SoCD) Option</td>
<td>Section X.2.3</td>
</tr>
<tr>
<td>Content Consumer</td>
<td>Aggregate-Level Quality Report (ALQR) Option (See Note 2)</td>
<td>Section X.2.1</td>
</tr>
<tr>
<td></td>
<td>Patient-Level Quality Report (PLQR) Option (See Note 2)</td>
<td>Section X.2.2</td>
</tr>
<tr>
<td></td>
<td>Summary of Care Document (SoCD) Option (See Note 3)</td>
<td>Section X.2.3</td>
</tr>
<tr>
<td>Report Assembler (See Note 3)</td>
<td>Assemble Patient-Level Quality Report from Summary of Care Document (SoCD to PLQR) Option</td>
<td>Section X.2.4</td>
</tr>
<tr>
<td></td>
<td>Assemble Aggregate-Level Quality Report from Patient-Level Quality Report (PLQR to ALQR) Option</td>
<td>Section X.2.5</td>
</tr>
</tbody>
</table>

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>
<thead>
<tr>
<th>QME-EH Actor</th>
<th>Actor to be grouped with</th>
<th>Reference</th>
<th>Content Bindings Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Report Assembler with Assemble PLQR from SoCD Option</td>
<td>Content Consumer (SoCD Option) and Content Creator (PLQR Option)</td>
<td>This grouping supports Use Case #3 See Section X.4.2.3</td>
<td></td>
</tr>
<tr>
<td>Report Assembler with Assemble ALQR from PLQR Option</td>
<td>Content Consumer (SoCD Option and PLQR Option) and Content Creator (ALQR Option)</td>
<td>This grouping supports Use Case #4 See Section X.4.2.4</td>
<td>--</td>
</tr>
</tbody>
</table>
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® 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.
**X.4.2.1.1 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**

![Process Flow Diagram](image)

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.

![Use Case #2 Specific Actor Transaction Diagram](image-url)
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.
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 include 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.

![Use Case #3 Specific Actor Transaction Diagram](image-url)
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.

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**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 include 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.
**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.
**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
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.
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 may 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

<table>
<thead>
<tr>
<th>Actor</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Report Assembler</td>
<td>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.</td>
</tr>
</tbody>
</table>
Appendix B – New Transactions

885  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.

<table>
<thead>
<tr>
<th>Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hearing Screening Prior To Hospital Discharge</td>
<td>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 <a href="http://ecqi.healthit.gov/eh">http://ecqi.healthit.gov/eh</a> under the 2014 eCQM Specifications for Eligible Hospitals Update June 2015.</td>
</tr>
</tbody>
</table>

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>
<thead>
<tr>
<th>eMeasure Title</th>
<th>1 Hearing Screening Prior To Hospital Discharge</th>
</tr>
</thead>
</table>
## QME-EH Early Hearing Detection and Intervention Program

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>eMeasure Identifier (Measure Authoring Tool)</td>
<td>31</td>
</tr>
<tr>
<td>eMeasure Version number</td>
<td>4.0.000</td>
</tr>
<tr>
<td>NQF Number</td>
<td>1354</td>
</tr>
<tr>
<td>GUID</td>
<td>0924fbae-3fd-b-4da-aab7-9f54e699fde</td>
</tr>
<tr>
<td>Measurement Period</td>
<td>January 1, 20XX through December 31, 20XX</td>
</tr>
<tr>
<td>Measure Steward</td>
<td>CDC National Center on Birth Defects and Developmental Disabilities</td>
</tr>
<tr>
<td>Measure Developer</td>
<td>CDC Early Hearing Detection and Intervention Program</td>
</tr>
<tr>
<td>Endorsed By</td>
<td>National Quality Forum</td>
</tr>
<tr>
<td>Description</td>
<td>This measure assesses the proportion of births that have been screened for hearing loss before hospital discharge.</td>
</tr>
<tr>
<td>Copyright</td>
<td>None</td>
</tr>
<tr>
<td>Disclaimer</td>
<td>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.</td>
</tr>
<tr>
<td>Measure Scoring</td>
<td>Proportion</td>
</tr>
<tr>
<td>Measure Type</td>
<td>Process</td>
</tr>
<tr>
<td>Measure Item Count</td>
<td>Encounter, Performed: Encounter Inpatient</td>
</tr>
<tr>
<td>Stratification</td>
<td>None</td>
</tr>
<tr>
<td>Risk Adjustment</td>
<td>None</td>
</tr>
<tr>
<td>Rate Aggregation</td>
<td>None</td>
</tr>
<tr>
<td>Rationale</td>
<td>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.</td>
</tr>
<tr>
<td>Clinical Recommendation Statement</td>
<td>None</td>
</tr>
<tr>
<td>Improvement Notation</td>
<td>Improvement noted as an increase in rate.</td>
</tr>
<tr>
<td>Reference</td>
<td>HRSA Title V Block Grant MCHB Performance Measure: Percentage of newborns who have been screened for hearing before hospital discharge.</td>
</tr>
<tr>
<td>-----------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Reference</td>
<td>HRSA Title V Block Grant MCHB Performance Measure: Percentage of newborns who have been screened for hearing before hospital discharge.</td>
</tr>
<tr>
<td>Definition</td>
<td>None</td>
</tr>
<tr>
<td>Guidance</td>
<td>The measurement period is one calendar year but the reporting period is jurisdictionally defined.</td>
</tr>
<tr>
<td>Initial Population</td>
<td>Live birth encounters at a hospital or birthing facility where the newborn was discharged during the measurement period.</td>
</tr>
<tr>
<td>Denominator</td>
<td>Denominator is equal to the Initial Population.</td>
</tr>
<tr>
<td>Denominator Exclusions</td>
<td>Live birth encounters where the patient expires prior to discharge and has not received hearing screening for the left or right ear.</td>
</tr>
<tr>
<td>Numerator</td>
<td>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.</td>
</tr>
<tr>
<td>Numerator Exclusions</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Denominator Exceptions</td>
<td>None</td>
</tr>
<tr>
<td>Measure Population</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Measure Population Exclusions</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Measure Observations</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Supplemental Data Elements</td>
<td>For every patient evaluated by this measure also identify payer, race, ethnicity and sex.</td>
</tr>
</tbody>
</table>
Table of Contents

- Population Criteria
- Data Criteria (QDM Variables)
- Data Criteria (QDM Data Elements)
- Supplemental Data Elements
- Risk Adjustment Variables

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

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

<table>
<thead>
<tr>
<th>Concept Variable Name</th>
<th>Description in terms of the QDM Data Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>SXXXXX (a variable name)</td>
<td>The description of this element’s QDM representation as it is used in the context of the CMS31 Newborn Hearing Screening measure definition.</td>
</tr>
<tr>
<td>SPATIENT</td>
<td>The person for whom the data in the report pertains.</td>
</tr>
<tr>
<td>SAUTHOR</td>
<td>The organization responsible for creating the document. The authoring device holds information about the system used by the organization to author the report.</td>
</tr>
<tr>
<td>SCUSTODIAN</td>
<td>The organization that is responsible for maintaining the Patient-level Quality Report document.</td>
</tr>
<tr>
<td>SLEGAL_AUTHENTICATOR</td>
<td>The organization that signs off on, and attests to the accuracy of the Patient-Level report.</td>
</tr>
<tr>
<td>SSERVICE_EVENT</td>
<td>The service event being measured and may include the clinician information for clinicians responsible for performing the event.</td>
</tr>
<tr>
<td>SENCECOMPASSING_ENCOUNTER</td>
<td>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.</td>
</tr>
<tr>
<td>SMEASURE_TITLE</td>
<td>The title of the measure for which the Patient-Level data was gathered.</td>
</tr>
<tr>
<td>SVERSION_SPECIFIC_IDENTIFIER</td>
<td>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.</td>
</tr>
<tr>
<td>SVERSION_NEUTRAL_IDENTIFIER</td>
<td>The id which identifies the electronic quality measure. It is a globally unique id which identifies a specific measure.</td>
</tr>
<tr>
<td>SMEASURE_VERSION_NUMBER</td>
<td>The id which identifies the version number associated with a specific measure. It is an integer.</td>
</tr>
<tr>
<td>Concept Variable Name</td>
<td>Description in terms of the QDM Data Model</td>
</tr>
<tr>
<td>-----------------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>$MEASUREPERIOD</td>
<td>The time interval applicable for the data collection. It is given by a start date and an end date.</td>
</tr>
<tr>
<td>$INPATIENT_ENCOUNTER</td>
<td>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.</td>
</tr>
<tr>
<td>$ETHNICITY</td>
<td>Data elements that meet criteria using this datatype should document that the patient has one or more of the ethnicities indicated by the QDM category and its corresponding value set.</td>
</tr>
<tr>
<td>$RACE</td>
<td>Data elements that meet criteria using this datatype should document the patient’s race.</td>
</tr>
<tr>
<td>$GENDER</td>
<td>Data elements that meet criteria using this datatype should document that the patient's sex matches the QDM category and its corresponding value set.</td>
</tr>
<tr>
<td>$PAYER</td>
<td>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.</td>
</tr>
<tr>
<td>$LIVEBORN_IN_HOSPITAL</td>
<td>To meet criteria using this datatype, the diagnosis indicated by the Condition/Diagnosis/Problem QDM category and its corresponding value set should reflect documentation of an active diagnosis. Keep in mind that when this datatype is used with timing relationships, the criterion is looking for an active diagnosis for the time frame indicated by the timing relationships.</td>
</tr>
<tr>
<td>$LIVEBIRTH</td>
<td>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.</td>
</tr>
<tr>
<td>$EXPIRED</td>
<td>The Patient Characteristic Expired data element should document that the patient is deceased. Note: Patient Characteristic Expired is fixed to SNOMED-CT® code 419099009 (Dead) and therefore cannot be further qualified with a value set.</td>
</tr>
<tr>
<td>$LEFT_EAR_SCREENED</td>
<td>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.</td>
</tr>
<tr>
<td>$LEFT_EAR_NOT_SCREENED_REASON</td>
<td>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.</td>
</tr>
</tbody>
</table>
# 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

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.
<table>
<thead>
<tr>
<th>Concept Variable Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$PATIENT</td>
<td>Individual patient information is not included in an Aggregate-Level Quality Report. The Aggregate-Level Quality Report does not include the concept of a patient. (In an implementation that uses a document standard requiring a patient to be included, the patient information is populated with a null value.)</td>
</tr>
<tr>
<td>$AUTHOR</td>
<td>The organization responsible for creating the document. The authoring device holds information about the system used by the organization to author the report.</td>
</tr>
<tr>
<td>$CUSTODIAN</td>
<td>The organization that is responsible for maintaining the Patient-level Quality Report document.</td>
</tr>
<tr>
<td>$LEGAL_AUTHENTICATOR</td>
<td>The organization that signs off on, and attests to the accuracy of the Patient-Level report.</td>
</tr>
<tr>
<td>$INFORMATION_RECIPIENT</td>
<td>The organization to whom the Aggregate-Level Quality Report will be submitted.</td>
</tr>
<tr>
<td>$SERVICE_EVENT</td>
<td>The service events which were measured and may include the clinician information for clinicians responsible for performing the each measured service event.</td>
</tr>
<tr>
<td>$C_MEASURE_PERIOD</td>
<td>The time interval applicable for the data collection. This is defined through a start time and an end time for the period.</td>
</tr>
<tr>
<td>$C_MEASURE_REFERENCE</td>
<td>The information which identifies the e-Measure definition and its version.</td>
</tr>
<tr>
<td>$C_MEASURE_RESULTS</td>
<td>The individual components of the measure, called “populations” and the corresponding result. Each population also includes the defined stratifications required by the measure definition.</td>
</tr>
<tr>
<td>$IPOP</td>
<td>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.</td>
</tr>
<tr>
<td>$DENOM</td>
<td>The Denominator is the same as the Initial Population or a subset of the Initial Population to further constrain the population for the purpose of the eMeasure.</td>
</tr>
<tr>
<td>$DENEX</td>
<td>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.</td>
</tr>
<tr>
<td>$NUMER</td>
<td>The process or outcome for each entity defined in the Denominator of a Proportion or Ratio measure.</td>
</tr>
<tr>
<td>$NUMEX</td>
<td>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).</td>
</tr>
<tr>
<td>$DENEXCEP</td>
<td>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.</td>
</tr>
</tbody>
</table>
Volume 2 – Transactions

This profile does not create any new transactions. It does not constrain or extend any previously defined transactions.
Volume 3 – UV Content Module Definitions
5 Namespaces and Vocabularies

Namespaces

<table>
<thead>
<tr>
<th>Profile</th>
<th>Association</th>
<th>OID</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHDI QME-EH</td>
<td>EHDI NHS QRDA Category I Report UV</td>
<td>1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.1</td>
</tr>
<tr>
<td>EHDI QME-EH</td>
<td>EHDI NHS QRDA Category III Report UV</td>
<td>1.3.6.1.4.1.19376.1.7.3.1.1.18.6.1.1</td>
</tr>
</tbody>
</table>

Vocabularies (Code Systems)

<table>
<thead>
<tr>
<th>codeSystem</th>
<th>codeSystemName</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.16.840.1.113883.6.96</td>
<td>SNOMED CT</td>
<td>Systemized Nomenclature for Medicine</td>
</tr>
<tr>
<td>2.16.840.1.113883.6.1</td>
<td>LOINC</td>
<td>Logical Observation Identifiers, Names and Codes</td>
</tr>
</tbody>
</table>

Add to Section 5.1.1 IHE Format Codes

<table>
<thead>
<tr>
<th>Profile</th>
<th>Format Code</th>
<th>Media Type</th>
<th>Template ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHDI QME-EH</td>
<td>urn:ihe:qrph:NHS-CatI-UV:2015</td>
<td>Text/XML</td>
<td>1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.1.1</td>
</tr>
<tr>
<td>EHDI QME-EH</td>
<td>urn:ihe:qrph:NHS-CatIII-UV:2015</td>
<td>Text/XML</td>
<td>1.3.6.1.4.1.19376.1.7.3.1.1.18.6.1.1.1</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Profile</th>
<th>Format Code</th>
<th>Media Type</th>
<th>Template ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHDI QME-EH</td>
<td>urn:ihe:qrph:NHS-CatI-UV:2015</td>
<td>Text/XML</td>
<td>1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.1.1</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Template Title</th>
<th>Template Type</th>
<th>templateId</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHDI NHS QRDA Category I Report UV</td>
<td>document</td>
<td>urn:hl7v2:ihe:ihe:ce:xform/1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.1.1:2016-09-01</td>
</tr>
<tr>
<td>EHDI NHS Measure Reference Section UV</td>
<td>section</td>
<td>urn:hl7v2:ihe:ihe:ce:xform/1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.3.1:2015-04-17</td>
</tr>
<tr>
<td>EHDI NHS Reporting Parameters Section UV</td>
<td>section</td>
<td>urn:hl7v2:ihe:ihe:ce:xform/1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.3.2:2015-04-17</td>
</tr>
</tbody>
</table>
6.3.1.D2 EHDI NHS QRDA Category III Report UV Document

6.3.1.D2.1 Format Code

```
<table>
<thead>
<tr>
<th>Profile</th>
<th>Format Code</th>
<th>Media Type</th>
<th>Template ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHDI QME-EH</td>
<td>urn:ihe:qroph:NHS-CatIII-UV:2015</td>
<td>Text/XML</td>
<td>1.3.6.1.4.1.19376.1.7.3.1.1.18.6.1.1.1</td>
</tr>
</tbody>
</table>
```

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

<table>
<thead>
<tr>
<th>Template Title</th>
<th>Template Type</th>
<th>templatedId</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHDI NHS QRDA Category III Report (V2)</td>
<td>document</td>
<td>urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.6.1.1.1:2016-09-01</td>
</tr>
<tr>
<td>EHDI NHS QRDA Category III Measure Reference and Results Section (V2)</td>
<td>section</td>
<td>urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.6.1.3.1:2016-09-01</td>
</tr>
<tr>
<td>Measure Reference and Results (V2)</td>
<td>entry</td>
<td>urn:hl7ii:2.16.840.1.113883.10.20.27.3.1:2016-02-01</td>
</tr>
<tr>
<td>Measure Data (V2)</td>
<td>entry</td>
<td>urn:hl7ii:2.16.840.1.113883.10.20.27.3.5:2016-02-01</td>
</tr>
<tr>
<td>Aggregate Count</td>
<td>entry</td>
<td>urn:oid:2.16.840.113883.10.20.27.3.3</td>
</tr>
<tr>
<td>Continuous Variable Measure Value</td>
<td>entry</td>
<td>urn:oid:2.16.840.113883.10.20.27.3.2</td>
</tr>
<tr>
<td>Postal Code Supplemental Data Element</td>
<td>entry</td>
<td>urn:oid:2.16.840.113883.10.20.27.3.10</td>
</tr>
<tr>
<td>Reporting Stratum</td>
<td>entry</td>
<td>urn:oid:2.16.840.113883.10.20.27.3.4</td>
</tr>
<tr>
<td>Performance Rate for Proportion Measure</td>
<td>entry</td>
<td>urn:oid:2.16.840.113883.10.20.27.3.14</td>
</tr>
<tr>
<td>Reporting Rate for Proportion Measure</td>
<td>entry</td>
<td>urn:oid:2.16.840.113883.10.20.27.3.15</td>
</tr>
<tr>
<td>EHDI NHS Reporting Parameters Section UV</td>
<td>section</td>
<td>urn:hl7ii:1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.3.2:2015-04-17</td>
</tr>
<tr>
<td>Reporting Parameters Act</td>
<td>entry</td>
<td>urn:oid:2.16.840.113883.10.20.17.3.8</td>
</tr>
<tr>
<td>Service Encounter</td>
<td>entry</td>
<td>urn:oid:2.16.840.113883.10.20.27.3.11</td>
</tr>
</tbody>
</table>
```

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

<table>
<thead>
<tr>
<th>Contained By:</th>
<th>Contains:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EHDI NHS Measure Reference Section UV</td>
</tr>
<tr>
<td></td>
<td>EHDI NHS Patient Data Section UV</td>
</tr>
<tr>
<td></td>
<td>EHDI NHS Reporting Parameters Section UV</td>
</tr>
</tbody>
</table>

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. **S**HALL contain exactly one [1..1] **realmCode** (CONF:1193-33427).
2. **S**HALL contain exactly one [1..1] **templateId** (CONF:1193-33404) such that it
   a. **S**HALL 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. **S**HALL contain exactly one [1..1] @extension="2016-09-01" (CONF:1193-33406).
3. **S**HALL contain exactly one [1..1] **id** (CONF:1193-33365).
   a. This id **S**HALL be a globally unique identifier for the document (CONF:1193-33402).
4. **S**HALL contain exactly one [1..1] **effectiveTime** (CONF:1193-33403).
5. **S**HALL contain exactly one [1..1] **languageCode**, which **S**HALL be selected from
6. **M**AY contain zero or one [0..1] **setId** (CONF:1193-33449).
7. **M**AY contain zero or one [0..1] **versionNumber** (CONF:1193-33364).
   a. If versionNumber is present, setId **S**HALL be present (CONF:1193-33401).

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

8. **S**HALL 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:1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.3.2:2
          015-04-17) (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:1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.3.1:2
          015-04-17) (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:1.3.6.1.4.1.19376.1.7.3.1.1.18.5.1.3.3:2
          016-09-01) (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

<table>
<thead>
<tr>
<th>Contained By:</th>
<th>Contains:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EHDI NHS QRDA Category III Measure Reference and Results Section (V2)</td>
</tr>
<tr>
<td></td>
<td>EHDI NHS QRDA Category III Reporting Parameters Section</td>
</tr>
</tbody>
</table>


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).

   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).

   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 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).


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: SNOEMD 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

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).
# Table 4: EHDI NHS Measure Reference Section UV Contexts

<table>
<thead>
<tr>
<th>Contained By:</th>
<th>Contains:</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHDI NHS QRDA Category I Report UV (required)</td>
<td></td>
</tr>
</tbody>
</table>

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).

## Table 5: EHDI NHS Patient Data Section UV Contexts

<table>
<thead>
<tr>
<th>Contained By:</th>
<th>Contains:</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHDI NHS QRDA Category I Report UV (required)</td>
<td></td>
</tr>
</tbody>
</table>
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)

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

<table>
<thead>
<tr>
<th>Contained By:</th>
<th>Contains:</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHDI NHS QRDA Category III Report (V2) (required)</td>
<td>Measure Reference and Results (V2)</td>
</tr>
</tbody>
</table>

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).
2.5 EHDi NHS QRDA Category III Reporting Parameters Section

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

<table>
<thead>
<tr>
<th>Contained By:</th>
<th>Contains:</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHDi NHS QRDA Category III Report (V2) (required)</td>
<td>Reporting Parameters Act</td>
</tr>
<tr>
<td></td>
<td>Service Encounter</td>
</tr>
</tbody>
</table>

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**

```xml
<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)]

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<table>
<thead>
<tr>
<th>Contained By:</th>
<th>Contains:</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHDI NHS QRDA Category I Report UV (required)</td>
<td></td>
</tr>
</tbody>
</table>

Table 8: EHDI NHS Reporting Parameters Section UV Contexts

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

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**

```xml
<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

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<table>
<thead>
<tr>
<th>Table 10: Continuous Variable Measure Value Contexts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contained By:</strong></td>
</tr>
<tr>
<td>Reporting Stratum (optional)</td>
</tr>
<tr>
<td>Measure Data (optional)</td>
</tr>
<tr>
<td>Measure Data [V2] (optional)</td>
</tr>
<tr>
<td><strong>Contains:</strong></td>
</tr>
</tbody>
</table>

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

```xml
<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"/>
  <referenceRange>
    <observationRange>
      <value xsi:type="PQ" value="60" unit="min"/>
    </observationRange>
  </referenceRange>
</observation>
```

Figure 5: Corresponding eMeasure Example

```xml
<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"/>
  <methodCode>
    <item code="MEDIAN" codeSystem="2.16.840.1.113883.5.84"/>
  </methodCode>
  <precondition typeCode="PRCN"/>
  <value value="OccurrenceAofEmergencyDepartmentVisit_EncounterPerformed_facilitylocationdeparaturedatetime_CheckifPresent_dZ4gH.getPatient().id eql_eql_
```
### 3.3 Ethnicity Supplemental Data Element

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

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<table>
<thead>
<tr>
<th>Table 11: Ethnicity Supplemental Data Element Contexts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contained By:</strong> Measure Data (optional)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>1780</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>This observation represents whether the patient is hispanic or not and provides the number of patients in the population that report that ethnicity.</td>
</tr>
</tbody>
</table>

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"
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

```xml
<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" display="Ethnic Group" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED-CT"/>
  <statusCode code="completed"/>
  <value xsi:type="CD" code="2186-5" display="Not Hispanic or Latino" codeSystem="2.16.840.1.113883.6.238" codeSystemName="Race & Ethnicity - CDC"/>
  <!-- Aggregate Count template -->
  <entryRelationship typeCode="SUBJ" inversionInd="true">
    <observation classCode="OBS" moodCode="EVN">
      ...
    </observation>
  </entryRelationship>
</observation>
```

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

<table>
<thead>
<tr>
<th>Contained By:</th>
<th>Contains:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measure Reference and Results (required)</td>
<td>Aggregate Count</td>
</tr>
<tr>
<td></td>
<td>Continuous Variable Measure Value</td>
</tr>
<tr>
<td></td>
<td>Ethnicity Supplemental Data Element</td>
</tr>
<tr>
<td></td>
<td>Payer Supplemental Data Element</td>
</tr>
<tr>
<td></td>
<td>Postal Code Supplemental Data Element</td>
</tr>
<tr>
<td></td>
<td>Race Supplemental Data Element</td>
</tr>
<tr>
<td></td>
<td>Reporting Stratum</td>
</tr>
<tr>
<td></td>
<td>Sex Supplemental Data Element</td>
</tr>
</tbody>
</table>

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).
   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>
<thead>
<tr>
<th>Contained By:</th>
<th>Contains:</th>
</tr>
</thead>
</table>
| **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)].


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).

   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">
    <!-- 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>
```
3.6 Measure Reference

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).


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).


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).
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

```xml
<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

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.


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"

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).


      i. This externalDocument SHALL contain exactly one [1..1]
         @classCode="DOC" Document (CodeSystem: HL7ActClass
         urn:oid:2.16.840.1.113883.5.6 STATIC) (CONF:77-17894).

      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

```xml
<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" codeSystemName="LOINC" codeSystem="2.16.840.1.113883.6.1"/>
      <!-- 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>
</organizer>
```
2325
</component>

2330
<component>
  <!-- Measure Data -->
  <observation classCode="OBS" moodCode="EVN">
    ...
  </observation>
  </component>

2335
</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

<table>
<thead>
<tr>
<th>Contained By:</th>
<th>Contains:</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHDI NHS QRDA Category III Measure Reference and Results Section [V2] (required)</td>
<td>Measure Data (V2)</td>
</tr>
<tr>
<td></td>
<td>Performance Rate for Proportion Measure</td>
</tr>
<tr>
<td></td>
<td>Reporting Rate for Proportion Measure</td>
</tr>
</tbody>
</table>
This template defines the way that a measure should be referenced. Measures are referenced through \texttt{externalAct} reference to an external \texttt{Document}. The externalDocument/\texttt{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. \textit{Conforms to Measure Reference template} (\texttt{identifier: urn:oid:2.16.840.1.113883.10.20.24.3.98}).

2. \texttt{SHALL} contain exactly one [1..1] \texttt{@classCode}="CLUSTER" (CodeSystem: HL7ActClass \texttt{urn:oid:2.16.840.1.113883.5.6 STATIC}) (CONF:2226-17887).

3. \texttt{SHALL} contain exactly one [1..1] \texttt{@moodCode}="EVN" (CodeSystem: ActMood \texttt{urn:oid:2.16.840.1.113883.5.1001 STATIC}) (CONF:2226-17888).

4. \texttt{SHALL} contain exactly one [1..1] \texttt{templateId} (CONF:2226-17908) such that it
   a. \texttt{SHALL} contain exactly one [1..1] \texttt{@root}="2.16.840.1.113883.10.20.27.3.1" (CONF:2226-17909).
   b. \texttt{SHALL} contain exactly one [1..1] \texttt{@extension}="2016-02-01" (CONF:2226-21170).

5. \texttt{SHALL} contain exactly one [1..1] \texttt{statusCode} (CONF:2226-17889).
   a. This \texttt{statusCode} \texttt{SHALL} contain exactly one [1..1] \texttt{@code}="completed" Completed (CodeSystem: ActStatus \texttt{urn:oid:2.16.840.1.113883.5.14}) (CONF:2226-19552).

6. \texttt{SHALL} contain exactly one [1..1] \texttt{reference} (CONF:2226-17890) such that it
   a. \texttt{SHALL} contain exactly one [1..1] \texttt{@typeCode}="REFR" (CONF:2226-17891).
   b. \texttt{SHALL} contain exactly one [1..1] \texttt{externalDocument} (CodeSystem: HL7ActClass \texttt{urn:oid:2.16.840.1.113883.5.6 STATIC}) (CONF:2226-17892).
      i. This \texttt{externalDocument} \texttt{SHALL} contain exactly one [1..1] \texttt{@classCode}="DOC" Document (CodeSystem: HL7ActClass \texttt{urn:oid:2.16.840.1.113883.5.6 STATIC}) (CONF:2226-19548).
      ii. This \texttt{externalDocument} \texttt{SHOULD} contain zero or one [0..1] \texttt{code} (CodeSystem: LOINC \texttt{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

```xml
<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="57024-2" display="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>
    <!-- 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" display="measure set" codeSystemName="LOINC" codeSystem="2.16.840.1.113883.6.1"/>
        <!-- SHALL text which should be the title of the measures set -->
        <text>Emergency Department</text>
      </externalObservation>
    </reference>
  </reference typeCode="REFR">
  <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>
</organizer>
```
<observation classCode="OBS" moodCode="EVN">
  ...
</observation>

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

<component>
  <!-- Measure Data -->
  <observation classCode="OBS" moodCode="EVN">
    ...
  </observation>
</component>
Figure 13: Corresponding eMeasure Example

```xml
<!-- 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).

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).

   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**

```xml
<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" display="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

<table>
<thead>
<tr>
<th>Contained By:</th>
<th>Contains:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measure Data (optional)</td>
<td>Aggregate Count</td>
</tr>
</tbody>
</table>

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.


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"

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).
2675  **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**

<table>
<thead>
<tr>
<th>Contained By:</th>
<th>Contains:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measure Data (V2) (optional)</td>
<td>Aggregate Count</td>
</tr>
</tbody>
</table>

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).


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).
   b. This code **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).

6. **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**

```xml
<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**

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) (CONF:77-18395).


---

**Table 18: Performance Rate for Proportion Measure Contexts**

<table>
<thead>
<tr>
<th>Contained By:</th>
<th>Contains:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measure Reference and Results (optional)</td>
<td></td>
</tr>
<tr>
<td>Measure Reference and Results (V2) (optional)</td>
<td></td>
</tr>
</tbody>
</table>
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).

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

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

```xml
<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**

```xml
<!-- 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>
</numeratorCriteria>
```

...
### 3.13 Postal Code Supplemental Data Element

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

```xml
<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>
</observation>
```

### 3.14 Race Supplemental Data Element

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

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#### Table 20: Race Supplemental Data Element Contexts

<table>
<thead>
<tr>
<th>Contained By:</th>
<th>Contains:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Measure Data</strong> (optional)</td>
<td><strong>Aggregate Count</strong></td>
</tr>
<tr>
<td><strong>Measure Data (V2)</strong> (optional)</td>
<td></td>
</tr>
</tbody>
</table>

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"

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" display="Race"
      codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED-CT"/>
  <statusCode code="completed"/>
  <value xsi:type="CD" code="2054-5" display="Black or African American"
      codeSystem="2.16.840.1.113883.6.238" codeSystemName="Race & Ethnicity - CDC"/>
  <entryRelationship typeCode="SUBJ" inversionInd="true">
    <!-- Aggregate Count template -->
    <observation classCode="OBS" moodCode="EVN">
      ...
    </observation>
  </entryRelationship>
</observation>

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

<table>
<thead>
<tr>
<th>Contained By:</th>
<th>Contains:</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHDI NHS ORDA Category III Reporting Parameters Section (required)</td>
<td></td>
</tr>
</tbody>
</table>
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).


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).

   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

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 = \frac{\text{Numerator} + \text{Numerator Exclusions} + \text{Denominator Exclusions} + \text{Denominator Exceptions}}{\text{Denominator}}. The predicted rate (based on the measure’s risk-adjustment model) can be captured in the reference range.

<table>
<thead>
<tr>
<th>Contained By:</th>
<th>Contains:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measure Reference and Results (optional)</td>
<td></td>
</tr>
<tr>
<td>Measure Reference and Results (V2) (optional)</td>
<td></td>
</tr>
</tbody>
</table>

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).


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).

5. **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).

6. **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).

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

```xml
<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

Published as part of QRDA Category III

#### Table 23: Reporting Stratum Contexts

<table>
<thead>
<tr>
<th>Contained By:</th>
<th>Contains:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measure Data (optional)</td>
<td>Aggregate Count</td>
</tr>
<tr>
<td>Measure Data (V2) (optional)</td>
<td>Continuous Variable Measure Value</td>
</tr>
</tbody>
</table>

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"

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:oaid: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:oaid: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"
   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**

```xml
<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**

```xml
<!-- 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>
            </allTrue>
        </precondition>
    </precondition>
</stratifierCriteria>
```
3.18 Service Encounter

Table 24: Service Encounter Contexts

<table>
<thead>
<tr>
<th>Contained By:</th>
<th>Contains:</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHDI NHS QRDA Category III Reporting Parameters Section (optional)</td>
<td></td>
</tr>
</tbody>
</table>

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

```xml
<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

Table 25: Sex Supplemental Data Element Contexts

<table>
<thead>
<tr>
<th>Contained By:</th>
<th>Contains:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measure Data  (optional)</td>
<td>Aggregate Count</td>
</tr>
</tbody>
</table>

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**

<table>
<thead>
<tr>
<th>Contained By:</th>
<th>Contains:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measure Data [V2] (optional)</td>
<td>Aggregate Count</td>
</tr>
</tbody>
</table>

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**

```xml
<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" 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"/>
</observation>
```

```xml
<entryRelationship typeCode="SUBJ" inversionInd="true">
  <!-- Aggregate Count template -->
  <observation classCode="OBS" moodCode="EVN">
    ...
  </observation>
</entryRelationship>
```
4 Template Ids in This Guide

Table 27: Template List

<table>
<thead>
<tr>
<th>Template Title</th>
<th>Template Type</th>
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<td>document</td>
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<tr>
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<td>document</td>
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**Table 28: Template Containments**

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Template Rev. 10.3
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5 Value Sets In This Guide

Table 29: Language

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Table 30: HL7 BasicConfidentialityKind

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### Table 31: ObservationMethodAggregate

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### Table 32: Ethnicity

<table>
<thead>
<tr>
<th>Code</th>
<th>Code System</th>
<th>Code System OID</th>
<th>Print Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>2135-2</td>
<td>Race &amp; Ethnicity - CDC</td>
<td>urn:oid:2.16.840.1.11388.3.6.238</td>
<td>Hispanic or Latino</td>
</tr>
<tr>
<td>2186-5</td>
<td>Race &amp; Ethnicity - CDC</td>
<td>urn:oid:2.16.840.1.11388.3.6.238</td>
<td>Not Hispanic or Latino</td>
</tr>
</tbody>
</table>

### Table 33: ObservationPopulationInclusion

<table>
<thead>
<tr>
<th>Code</th>
<th>Code System</th>
<th>Code System OID</th>
<th>Print Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>DENEX</td>
<td>ObservationValue</td>
<td>urn:oid:2.16.840.1.11388.3.5.1063</td>
<td>Denominator Exclusions</td>
</tr>
<tr>
<td>DENOM</td>
<td>ObservationValue</td>
<td>urn:oid:2.16.840.1.11388.3.5.1063</td>
<td>Denominator</td>
</tr>
</tbody>
</table>
DENEXCEP ObservationValue urn:oid:2.16.840.1.11388 3.5.1063 Denominator Exceptions
IPPObservationValue urn:oid:2.16.840.1.11388 3.5.1063 Initial Patient Population
MSRPOPL ObservationValue urn:oid:2.16.840.1.11388 3.5.1063 Measure Population
NUMER ObservationValue urn:oid:2.16.840.1.11388 3.5.1063 Numerator
NUMEX ObservationValue urn:oid:2.16.840.1.11388 3.5.1063 Numerator Exclusions

Table 34: PopulationInclusionObservationType
Value Set: PopulationInclusionObservationType urn:oid:2.16.840.1.113883.1.11.20476

<table>
<thead>
<tr>
<th>Code</th>
<th>Code System</th>
<th>Code System OID</th>
<th>Print Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>DENEX</td>
<td>ActCode</td>
<td>urn:oid:2.16.840.1.11388 3.5.4</td>
<td>denominator exclusions</td>
</tr>
<tr>
<td>DENEXCEP</td>
<td>ActCode</td>
<td>urn:oid:2.16.840.1.11388 3.5.4</td>
<td>denominator exceptions</td>
</tr>
<tr>
<td>DENOM</td>
<td>ActCode</td>
<td>urn:oid:2.16.840.1.11388 3.5.4</td>
<td>denominator</td>
</tr>
<tr>
<td>IPOP</td>
<td>ActCode</td>
<td>urn:oid:2.16.840.1.11388 3.5.4</td>
<td>initial population</td>
</tr>
<tr>
<td>IPPPOP</td>
<td>ActCode</td>
<td>urn:oid:2.16.840.1.11388 3.5.4</td>
<td>initial patient population</td>
</tr>
<tr>
<td>MSRPOPL</td>
<td>ActCode</td>
<td>urn:oid:2.16.840.1.11388 3.5.4</td>
<td>measure population</td>
</tr>
<tr>
<td>MSRPOPLEX</td>
<td>ActCode</td>
<td>urn:oid:2.16.840.1.11388 3.5.4</td>
<td>measure population exclusions</td>
</tr>
<tr>
<td>NUMER</td>
<td>ActCode</td>
<td>urn:oid:2.16.840.1.11388 3.5.4</td>
<td>numerator</td>
</tr>
<tr>
<td>NUMEX</td>
<td>ActCode</td>
<td>urn:oid:2.16.840.1.11388 3.5.4</td>
<td>numerator exclusions</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Code System</th>
<th>Code System OID</th>
<th>Print Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Source of Payment Typology (PHDSC)</td>
<td>urn:oid:2.16.840.1.11388 3.3.221.5</td>
<td>Medicare</td>
</tr>
<tr>
<td>2</td>
<td>Source of Payment</td>
<td>urn:oid:2.16.840.1.11388</td>
<td>Medicaid</td>
</tr>
</tbody>
</table>
### 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  

<table>
<thead>
<tr>
<th>Code</th>
<th>Code System</th>
<th>Code System OID</th>
<th>Print Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1002-5</td>
<td>Race &amp; Ethnicity - CDC</td>
<td>urn:oid:2.16.840.1.11388 3.6.238</td>
<td>American Indian or Alaska Native</td>
</tr>
<tr>
<td>2028-9</td>
<td>Race &amp; Ethnicity - CDC</td>
<td>urn:oid:2.16.840.1.11388 3.6.238</td>
<td>Asian</td>
</tr>
<tr>
<td>2054-5</td>
<td>Race &amp; Ethnicity - CDC</td>
<td>urn:oid:2.16.840.1.11388 3.6.238</td>
<td>Black or African American</td>
</tr>
<tr>
<td>2076-8</td>
<td>Race &amp; Ethnicity - CDC</td>
<td>urn:oid:2.16.840.1.11388 3.6.238</td>
<td>Native Hawaiian or Other Pacific Islander</td>
</tr>
<tr>
<td>2106-3</td>
<td>Race &amp; Ethnicity - CDC</td>
<td>urn:oid:2.16.840.1.11388 3.6.238</td>
<td>White</td>
</tr>
<tr>
<td>2131-1</td>
<td>Race &amp; Ethnicity - CDC</td>
<td>urn:oid:2.16.840.1.11388 3.6.238</td>
<td>Other Race</td>
</tr>
</tbody>
</table>

### 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:
Table 38: ONC Administrative Sex

<table>
<thead>
<tr>
<th>Code</th>
<th>Code System</th>
<th>Code System OID</th>
<th>Print Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>AdministrativeSex</td>
<td>urn:oid:2.16.840.1.11388</td>
<td>Female</td>
</tr>
<tr>
<td>M</td>
<td>AdministrativeSex</td>
<td>urn:oid:2.16.840.1.11388</td>
<td>Male</td>
</tr>
<tr>
<td>U</td>
<td>AdministrativeSex</td>
<td>urn:oid:2.16.840.1.11388</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

Value Set: ONC Administrative Sex urn:oid:2.16.840.1.113762.1.4.1
ONC Administrative Sex.
### 6 Code Systems in This Guide

**Table 39: Code Systems**

<table>
<thead>
<tr>
<th>Name</th>
<th>OID</th>
</tr>
</thead>
<tbody>
<tr>
<td>ActCode</td>
<td>urn:oid:2.16.840.1.113883.5.4</td>
</tr>
<tr>
<td>ActMood</td>
<td>urn:oid:2.16.840.1.113883.5.1001</td>
</tr>
<tr>
<td>ActStatus</td>
<td>urn:oid:2.16.840.1.113883.5.14</td>
</tr>
<tr>
<td>AdministrativeGender</td>
<td>urn:oid:2.16.840.1.113883.5.1</td>
</tr>
<tr>
<td>AdministrativeSex</td>
<td>urn:oid:2.16.840.1.113883.18.2</td>
</tr>
<tr>
<td>ConfidentialityCode</td>
<td>urn:oid:2.16.840.1.113883.5.25</td>
</tr>
<tr>
<td>HL7ActClass</td>
<td>urn:oid:2.16.840.1.113883.5.6</td>
</tr>
<tr>
<td>HL7ActRelationshipType</td>
<td>urn:oid:2.16.840.1.113883.5.1002</td>
</tr>
<tr>
<td>HL7ParticipationType</td>
<td>urn:oid:2.16.840.1.113883.5.90</td>
</tr>
<tr>
<td>Language</td>
<td>urn:oid:2.16.840.1.113883.6.121</td>
</tr>
<tr>
<td>LOINC</td>
<td>urn:oid:2.16.840.1.113883.6.1</td>
</tr>
<tr>
<td>ObservationMethod</td>
<td>urn:oid:2.16.840.1.113883.5.84</td>
</tr>
<tr>
<td>ObservationValue</td>
<td>urn:oid:2.16.840.1.113883.5.1063</td>
</tr>
<tr>
<td>Race &amp; Ethnicity - CDC</td>
<td>urn:oid:2.16.840.1.113883.6.238</td>
</tr>
<tr>
<td>SNOMED CT</td>
<td>urn:oid:2.16.840.1.113883.6.96</td>
</tr>
<tr>
<td>Source of Payment Typology (PHDSC)</td>
<td>urn:oid:2.16.840.1.113883.3.221.5</td>
</tr>
</tbody>
</table>
Volume 4 – National Extensions
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.

<table>
<thead>
<tr>
<th>eCQM Reference Information Repository</th>
<th>Link Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>eCQI Resource Center (CMS)</td>
<td><a href="https://ecqi.healthit.gov/">https://ecqi.healthit.gov/</a></td>
</tr>
<tr>
<td>National Quality Forum (NQF)</td>
<td><a href="http://www.qualityforum.org/">http://www.qualityforum.org/</a></td>
</tr>
<tr>
<td>The Joint Commission (TJC)</td>
<td><a href="http://www.jointcommission.org/">http://www.jointcommission.org/</a></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Measure number/version</th>
<th>Annual Update completes</th>
<th>Measure Period (year of data collection)</th>
<th>Reporting Period (year of reporting submission)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMS31 v4</td>
<td>AU 2015 (201505)</td>
<td>2016</td>
<td>2017</td>
</tr>
<tr>
<td>CMS31 v5</td>
<td>AU 2016 (201604)</td>
<td>2017</td>
<td>2018</td>
</tr>
<tr>
<td>CMS31 v6</td>
<td>AU 2017 (201705)</td>
<td>2018</td>
<td>2019</td>
</tr>
</tbody>
</table>

## NQF

<table>
<thead>
<tr>
<th>Measure number/version</th>
<th>Annual Update completes</th>
<th>Measure Period (year of data collection)</th>
<th>Reporting Period (year of reporting submission)</th>
</tr>
</thead>
<tbody>
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<td>TBD</td>
<td>2017</td>
<td>2018</td>
</tr>
<tr>
<td>TBD</td>
<td>TBD</td>
<td>2018</td>
<td>2019</td>
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</tbody>
</table>

## TJC

<table>
<thead>
<tr>
<th>Measure number/version</th>
<th>Annual Update completes</th>
<th>Measure Period (year of data collection)</th>
<th>Reporting Period (year of reporting submission)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHDI-1a v4</td>
<td>June, 2015</td>
<td>2016</td>
<td>2017</td>
</tr>
<tr>
<td>EHDI-1a v5</td>
<td>April, 2016</td>
<td>2017</td>
<td>2018</td>
</tr>
<tr>
<td>TBD</td>
<td>TBD</td>
<td>2018</td>
<td>2019</td>
</tr>
</tbody>
</table>

### Applicable Standards for Measure Definitions

<table>
<thead>
<tr>
<th>Measure number/version</th>
<th>QDM</th>
<th>HQMF</th>
<th>QDM-Based HQMF</th>
<th>eCQM Blueprint</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMS31 v4</td>
<td>4.1.2</td>
<td>2.1</td>
<td>1.2</td>
<td>11.1</td>
</tr>
<tr>
<td>CMS31 v5</td>
<td>4.2.1</td>
<td>2.1</td>
<td>1.3</td>
<td>11.2</td>
</tr>
<tr>
<td>CMS31 v6</td>
<td>TBD (Fall 2016)</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
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</table>

### Applicable Code System Versions for Measure Data Element Value Sets

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<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AdministrativeSex</td>
<td>HL7V2.5</td>
</tr>
<tr>
<td>CDCCREC</td>
<td>1.0</td>
</tr>
<tr>
<td>CDT</td>
<td>2015</td>
</tr>
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</table>
### Code System Versions for 2015 EH and EP Release

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CPT</td>
<td>2015</td>
</tr>
<tr>
<td>CVX</td>
<td>2015</td>
</tr>
<tr>
<td>DischargeDisposition</td>
<td>HL7V2.5</td>
</tr>
<tr>
<td>HCPCS</td>
<td>2015</td>
</tr>
<tr>
<td>HSLOC</td>
<td>2010</td>
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<tr>
<td>ICD10CM</td>
<td>2014</td>
</tr>
<tr>
<td>ICD10PCS</td>
<td>2014</td>
</tr>
<tr>
<td>ICD9CM</td>
<td>2013</td>
</tr>
<tr>
<td>LOINC</td>
<td>2.50</td>
</tr>
<tr>
<td>RXNORM</td>
<td>2015-01</td>
</tr>
<tr>
<td>SNOMEDCT</td>
<td>2014-09</td>
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<tr>
<td>SOP</td>
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</table>

### Code System Versions in VSAC for 2016 eCQM Annual Update

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

<table>
<thead>
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<th>Code System</th>
<th>Version</th>
</tr>
</thead>
<tbody>
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<td>2016-01</td>
</tr>
<tr>
<td>SNOMED CT</td>
<td>2015-09</td>
</tr>
<tr>
<td>LOINC</td>
<td>2.54</td>
</tr>
<tr>
<td>CPT</td>
<td>2016</td>
</tr>
<tr>
<td>CDT</td>
<td>2016</td>
</tr>
<tr>
<td>CVX</td>
<td>2016</td>
</tr>
<tr>
<td>HCPCS</td>
<td>2016</td>
</tr>
<tr>
<td>ICD-10-CM</td>
<td>2016</td>
</tr>
<tr>
<td>ICD-10-PCS</td>
<td>2016</td>
</tr>
</tbody>
</table>

**NLM expects the following code systems to remain the same:**

<table>
<thead>
<tr>
<th>Code System</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>AdministrativeSex</td>
<td>HL7V2.5</td>
</tr>
<tr>
<td>CDREC</td>
<td>1.0</td>
</tr>
<tr>
<td>DischargeDisposition</td>
<td>HL7V2.5</td>
</tr>
<tr>
<td>HSLOC</td>
<td>2010</td>
</tr>
<tr>
<td>ICD9CM</td>
<td>2013</td>
</tr>
<tr>
<td>SOP</td>
<td>5.0</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Measure number/version</th>
<th>QDM-Based HQMF</th>
<th>C-CDA</th>
<th>QRDA Cat I</th>
<th>QRDA Cat III</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMS31 v4</td>
<td>1.2</td>
<td>2.0</td>
<td>3.0</td>
<td>R1 errata 2014</td>
</tr>
<tr>
<td>CMS31 v5</td>
<td>1.3</td>
<td>2.1</td>
<td>3.1</td>
<td>R1 errata 2014</td>
</tr>
<tr>
<td>CMS31 v6</td>
<td>TBD (Fall 2016)</td>
<td>TBD (Fall 2016)</td>
<td>TBD (Fall 2016)</td>
<td>TBD (Fall 2016)</td>
</tr>
</tbody>
</table>
### Appendix C – Code Systems for US National Extension

#### Table C-1: Code Systems

<table>
<thead>
<tr>
<th>Name</th>
<th>OID</th>
</tr>
</thead>
<tbody>
<tr>
<td>ActCode</td>
<td>urn:oids:2.16.840.1.113883.5.4</td>
</tr>
<tr>
<td>ActMood</td>
<td>urn:oids:2.16.840.1.113883.5.1001</td>
</tr>
<tr>
<td>ActStatus</td>
<td>urn:oids:2.16.840.1.113883.5.14</td>
</tr>
<tr>
<td>AdministrativeGender</td>
<td>urn:oids:2.16.840.1.113883.5.1</td>
</tr>
<tr>
<td>CMS Program</td>
<td>urn:oids:2.16.840.1.113883.3.249.7</td>
</tr>
<tr>
<td>ConfidentialityCode</td>
<td>urn:oids:2.16.840.1.113883.5.25</td>
</tr>
<tr>
<td>Healthcare Provider Taxonomy (HIPAA)</td>
<td>urn:oids:2.16.840.1.113883.6.101</td>
</tr>
<tr>
<td>HL7ActClass</td>
<td>urn:oids:2.16.840.1.113883.6.6</td>
</tr>
<tr>
<td>HL7ActRelationshipType</td>
<td>urn:oids:2.16.840.1.113883.5.1002</td>
</tr>
<tr>
<td>HL7ParticipationType</td>
<td>urn:oids:2.16.840.1.113883.5.90</td>
</tr>
<tr>
<td>ICD10CM</td>
<td>urn:oids:2.16.840.1.113883.6.90</td>
</tr>
<tr>
<td>ICD-9-CM, Volume 1&amp;2</td>
<td>urn:oids:2.16.840.1.113883.6.103</td>
</tr>
<tr>
<td>Language</td>
<td>urn:oids:2.16.840.1.113883.6.121</td>
</tr>
<tr>
<td>LOINC</td>
<td>urn:oids:2.16.840.1.113883.6.1</td>
</tr>
<tr>
<td>ObservationMethod</td>
<td>urn:oids:2.16.840.1.113883.5.84</td>
</tr>
<tr>
<td>ObservationValue</td>
<td>urn:oids:2.16.840.1.113883.5.1063</td>
</tr>
<tr>
<td>Race &amp; Ethnicity - CDC</td>
<td>urn:oids:2.16.840.1.113883.6.238</td>
</tr>
<tr>
<td>RoleClass</td>
<td>urn:oids:2.16.840.1.113883.5.110</td>
</tr>
<tr>
<td>RoleCode</td>
<td>urn:oids:2.16.840.1.113883.5.111</td>
</tr>
<tr>
<td>SNOMED CT</td>
<td>urn:oids:2.16.840.1.113883.6.96</td>
</tr>
<tr>
<td>Source of Payment Typology (PHDSC)</td>
<td>urn:oids:2.16.840.1.113883.3.221.5</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Concept Variable Name</th>
<th>Description</th>
<th>QDM/CDA Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>$PATIENT</td>
<td>The person who the document is about</td>
<td>The recordTarget</td>
</tr>
<tr>
<td>$AUTHOR</td>
<td>The person or organization authoring the document</td>
<td>Author</td>
</tr>
<tr>
<td>$CUSTODIAN</td>
<td>The organization responsible for keeping/maintaining the document as a persistent/unaltered artifact</td>
<td>Custodian</td>
</tr>
<tr>
<td>$LEGAL_AUTHENTICATOR</td>
<td>The person (an associated organization) who is legally accountable for the document</td>
<td>legalAuthenticator</td>
</tr>
<tr>
<td>$SERVICE_EVENT</td>
<td>The service event that the document is about.</td>
<td>This identifies the specific service performed within the encounter.</td>
</tr>
<tr>
<td>Concept Variable Name</td>
<td>Description</td>
<td>QDM/CDA Definition</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>$EMEASURE_TITLE</td>
<td>The title of the measure</td>
<td>The title used when referencing the measure.</td>
</tr>
<tr>
<td>$VERSION_NEUTRAL_IDENTIFIER</td>
<td>An identifier for the measure which does not change even when the version of the measure changes</td>
<td>The setId</td>
</tr>
<tr>
<td>$EMEASURE_VERSION_NUMBER</td>
<td>The version number of the Measure Definition</td>
<td>The versionNumber</td>
</tr>
<tr>
<td>$VERSION_SPECIFIC_IDENTIFIER</td>
<td>An identifier for the measure which does change when the version changes.</td>
<td>The clinicalDocument/id</td>
</tr>
<tr>
<td>$MEASUREPERIOD</td>
<td>The time interval applicable for the data collection.</td>
<td></td>
</tr>
</tbody>
</table>
| $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) |
| $PAYER                | Data elements that meet criteria using this datatype should document that the patient has one or more of the payers indicated by the QDM category and its corresponding value set | Individual Characteristic
Patient Characteristic Payer
Value Set:
Payer SOP Value Set (2.16.840.1.114222.4.11.3591) |
<table>
<thead>
<tr>
<th>Concept Variable Name</th>
<th>Description</th>
<th>QDM/CDA Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>$LIVEBORN_IN_HOSPITAL</td>
<td>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.</td>
<td>Condition/Diagnosis/Problem Diagnosis, Active Starts during &quot;Occurrence A of Encounter, Performed: Encounter Inpatient&quot; Value set: Liveborn Newborn Born in Hospital Grouping Value Set (2.16.840.1.113762.1.4.1046.6)</td>
</tr>
<tr>
<td>$LIVEBIRTH</td>
<td>To meet criteria using this datatype, the diagnosis indicated by the Condition/Diagnosis/Problem QDM category and its corresponding value set should reflect documentation of an active diagnosis. Keep in mind that when this datatype is used with timing relationships, the criterion is looking for an active diagnosis for the time frame indicated by the timing relationships.</td>
<td>Condition/Diagnosis/Problem Diagnosis, Active Starts during &quot;Occurrence A of Encounter, Performed: Encounter Inpatient&quot; Value set: Livebirth SNOMEDCT Value Set (2.16.840.1.114222.4.1.214079.1.1.1)</td>
</tr>
<tr>
<td>$EXPIRED</td>
<td>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.</td>
<td>Individual Characteristic Patient Characteristic Expired During &quot;Occurrence A of Encounter, Performed: Encounter Inpatient&quot; 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.</td>
</tr>
<tr>
<td>$LEFT_EAR_SCREENED</td>
<td>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.</td>
<td>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.</td>
</tr>
<tr>
<td>Concept Variable Name</td>
<td>Description</td>
<td>QDM/CDA Definition</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| $\text{LEFT\_EAR\_NOT\_SCREENED\_D\_REASON}$ | 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) |
| $\text{LEFT\_EAR\_NOT\_SCREENED\_D\_NEGATION\_RATIONALE}$ | 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 |
| $\text{LEFT\_EAR\_NOT\_SCREENED\_D\_PATIENT\_PREFERENCE}$ | 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) |
| $\text{LEFT\_EAR\_NOT\_SCREENED\_D\_PHYSICIAN\_PREFERENCE}$ | 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) |
| $\text{RIGHT\_EAR\_SCREENED}$ | 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) |
| $\text{RIGHT\_EAR\_NOT\_SCREENED\_REASON}$ | 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 |
### 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.

<table>
<thead>
<tr>
<th>Concept Variable Name</th>
<th>Description</th>
<th>QDM/CDA Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>$XXXXX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$PATIENT</td>
<td>Individual patient information is not included in an Aggregate-Level Quality Report.</td>
<td></td>
</tr>
<tr>
<td>$AUTHOR</td>
<td>The organization responsible for creating the document. The authoring device holds information about the system used by the organization to author the report.</td>
<td></td>
</tr>
<tr>
<td>$CUSTODIAN</td>
<td>The organization that is responsible for maintaining the Patient-level Quality Report document.</td>
<td></td>
</tr>
<tr>
<td>Concept Variable Name</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>----------------------</td>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td>$LEGAL_AUTHENTICATOR</td>
<td>The organization that signs off on, and attests to the accuracy of the Patient-Level report.</td>
<td></td>
</tr>
<tr>
<td>$INFORMATION_RECIPIENT</td>
<td>The organization to whom the Aggregate-Level Quality Report will be submitted.</td>
<td></td>
</tr>
<tr>
<td>$SERVICE_EVENT</td>
<td>The service events which were measured and may include the clinician information for clinicians responsible for performing the each measured service event.</td>
<td></td>
</tr>
<tr>
<td>$C_MEASURE_PERIOD</td>
<td>The time interval applicable for the data collection. This is defined through a start time and an end time for the period.</td>
<td></td>
</tr>
<tr>
<td>$C_MEASURE_REFERENCE</td>
<td>The information which identifies the e-Measure definition and its version.</td>
<td></td>
</tr>
<tr>
<td>$C_MEASURE_RESULTS</td>
<td>The individual components of the measure, called “populations” and the corresponding result. Each population also includes the defined stratifications required by the measure definition.</td>
<td></td>
</tr>
<tr>
<td>$IPOP</td>
<td>The Initial Population which includes all entities to be evaluated by an eMeasure which may but are not required to share a common set of specified characteristics within a named measurement set to which the eMeasure belongs.</td>
<td></td>
</tr>
<tr>
<td>$DENOM</td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>$DENEX</td>
<td>Entities to be removed from the Initial Population and Denominator before determining if the Numerator Criteria are met. Denominator Exclusions are used in Proportion and Ration Measures to help narrow the Denominator.</td>
<td></td>
</tr>
<tr>
<td>$NUMER</td>
<td>The process or outcome for each entity defined in the Denominator of a Proportion or Ratio measure.</td>
<td></td>
</tr>
<tr>
<td>$NUMEX</td>
<td>Entities that should be removed from the eMeasure’s Numerator. Numerator exclusions are used in Proportion and Ratio measures to help narrow the Numerator (for inverted measures which show improvement as they decrease).</td>
<td></td>
</tr>
<tr>
<td>$DENEXCEP</td>
<td>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.</td>
<td></td>
</tr>
</tbody>
</table>