Centers for Medicare & Medicaid Services

Office of the National Coordinator for Health Information Technology

Electronic Clinical Quality Measure Logic and Implementation Guidance and Technical Release Notes

Version 1.9

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1 Introduction

This guidance document is for use with the 2014 Eligible Professional and Eligible Hospital electronic Clinical Quality Measures (eCQMs) released on December 21, 2012, the updated Eligible Hospital measures released on April 1, 2014, and the updated Eligible Professional measures released in June 2013.

This document provides guidance for those interested in understanding, using, and/or implementing the clinical quality measure electronic specifications. These specifications are released for eCQM reporting for the year 2015 under the Meaningful Use (MU) Electronic Health Record (EHR) Incentive Program of the Centers for Medicare & Medicaid Services (CMS). We recommend that you review this document along with the electronic specifications for the eCQMs, which include human-readable descriptions and XML files, to build a complete understanding of each measure's intent and operation prior to any implementation. Updates to the information in this document and additional help can be found on the CMS website.

This document provides the following information:

1. Sections 2 through 5 provide general implementation guidance, including defining how specific logic and data elements should be conceptualized and addressed during eCQM implementation.

2. Section 6.1 provides detailed guidance for individual Eligible Hospital measures.

3. Section 6.2 provides detailed guidance for individual Eligible Professional measures.

4. The appendices provide additional detail on the technical release notes for the 2014 update, measure versioning, time interval calculations, and documentation for the calculation in CMS179.

For more information regarding measure titles, endorsement, and versioning, please see "Appendix A. Versioning and Endorsement" or refer to the CMS website.

CMS and the Office of the National Coordinator for Health Information Technology (ONC) have implemented a system to allow vendors, implementers, providers, and other stakeholders to report issues or ask questions about the measure intent, specifications, certification, reporting, standards, and policy related to the EHR Incentive Program. Users can use the system to search for existing issues and questions or report new issues directly to the agencies through the website http://oncprojectracking.org/. A free username is required for most issue reporting to ensure that users may track the progress of their issue as it is resolved. A homepage with some resources for new users is available at http://oncprojectracking.org/.

For additional information that is directly relevant to implementing the 2014 eCQM updates, please refer to the following resources:

1. CMS 2014 Clinical Quality Measures on the CMS Website

2. CMS eCQM Library

3. Quality Data Model

4. Measure Authoring Tool

2 Electronic Clinical Quality Measure Types

Measures can be classified based on the unit of scoring—patients or episodes—and how the score is computed—proportion or continuous variable. This section describes these classifications, and subsequent sections provide more detail on how these measures are computed.

2.1 Patient-Based Measures

Measures that evaluate the care of a patient and assign the patient to membership in one or more populations are called patient-based measures. The vast majority (56 out of 64) of the eligible professional eCQMs are patient-based. All of the information in the patient record referenced in the measure must be considered when computing a patient-based measure. The criteria for inclusion of a patient in a measure population may require that conditions be satisfied during multiple episodes of care—for example, a diagnosis occurring in one episode of care and treatment happening in a subsequent episode of care.

2.2 Episode-of-Care Measures

Measures that evaluate the care during a patient-provider encounter, sometimes called an episode of care, and assign the episode of care to one or more populations are called episode-of-care measures. All of the Eligible Hospital measures are episode-of-care measures, as are 8 of the 64 of the Eligible Professional measures. In an episode-of-care measure, the episodes of care are identified in the Initial Patient Population (IPP) and are always designated by a specific occurrence. For example, in measure CMS55/NQF0495 the IPP identifies all inpatient encounters that are to be scored as "Occurrence A of Encounter, Performed: Encounter Inpatient." The Measure Population identifies the associated emergency department (ED) visits that led to inpatient encounters as "Occurrence A of Encounter, Performed: Emergency Department Visit." The measure observations average over these ED visits.

There is no clear indication within the Health Quality Measures Format (HQMF) XML file that specifies whether a measure is patient-based or episode-of-care (see Table 1 and Table 2).

2.3 Proportion Measures

Most of the 2014 eCQMs are proportion measures. In a proportion measure, the scored entities (either patients or episodes) for a collection of patients are assigned to the populations and strata defined by an eCQM, and the appropriate "rates" are computed. For example, if one of the MU2 Eligible Hospital eCQMs (all of which are episode-of-care) is computed for a collection of 100 patients with a total of 132 episodes of care (as defined by the measure), each population defined by the measure can contain between 0 and 132 episodes.

The populations defined by a proportion measure are:

- **Initial Patient Population** (IPP): The set of patients (or episodes of care) to be evaluated by the measure
- **Denominator** (D): A subset of the IPP

- **Denominator Exclusions** (DExclusion): A subset of the Denominator that should not be considered for inclusion in the Numerator

- **Denominator Exceptions** (DException): A subset of the Denominator. Only those members of the Denominator that are considered for Numerator membership and are not included are considered for membership in the Denominator Exceptions.

- **Numerator** (N): A subset of the Denominator. The Numerator criteria are the processes or outcomes expected for each patient, procedure, or other unit of measurement defined in the Denominator.

The computation of a proportion measure proceeds as follows:

1. Patients or episodes of care are classified using the IPP criteria, and those satisfying the criteria are included in the IPP.

2. The members of the IPP are classified using the Denominator criteria, and those satisfying the criteria are included in the Denominator.

3. The members of the Denominator are classified using the Denominator Exclusion criteria, and those satisfying the criteria are included in the Denominator Exclusions.

4. The members of the Denominator that are not in the Denominator Exclusion population are classified using the Numerator criteria, and those satisfying the criteria are included in the Numerator.

5. Those members of the Denominator that were considered for membership in the Numerator, but were rejected, are classified using the Denominator Exceptions criteria, and those satisfying the criteria are included in the Denominator Exceptions.

For eCQMs with multiple numerators and/or strata, each patient/episode must be scored for inclusion/exclusion to *every* population. For example, if an eCQM has three numerators and the patient is included in the first numerator, the patient should be scored for inclusion/exclusion from the populations related to the other numerators as well. When the measure definition includes stratification, each population in the measure definition should be reported both *without* stratification and *stratified* by each stratification criteria.

Specific programs may require reporting of performance rates, but these are not required for certification. The performance rate is defined as:

$$\text{Rate} = N/(D - \text{DExclusion} - \text{DException})$$

2.4 Continuous Variable Measures

Continuous variable measures can be either episode or patient-based. They include the following elements:

- **Initial Patient Population** (of patients or episodes), roughly analogous to the Denominator in proportion measures

- **Measure Population** (subset of Initial Patient Population), roughly analogous to the Numerator in proportion measures

- **Measure Observations** describe the computation to be performed over the members of the Measure Population. For example, measure CMS55/NQF0495 computes the median for the difference between the Emergency Department arrival and departure over all ED visits in the Measure Population.

The computation of a continuous variable measure proceeds as follows:

1. Patients or episodes of care are classified using the IPP criteria, and those satisfying the criteria are included in the IPP.

2. The members of the IPP are classified using the Measure Population criteria, and those satisfying the criteria are included in the Measure Population.

3. Each member of the Measure Population is evaluated according to the criteria defined in the Measure Observations criteria, and all of these results are aggregated using the specified operator.

Results should be reported for each population without stratification, as well as for each defined stratum separately. For a continuous variable measure, for the IPP and Measure Population, results are required specifying the number of patients or episodes that fall into each of these populations without stratification, as well as stratified by any defined strata. The aggregated continuous variable computed, defined by the Measure Observation, should be reported for the unaggregated Measure Population, as well as for each stratum of the Measure Population.

Specific programs may require reporting of specific reporting and performance rates, but these are not required for certification. Table 1 lists the Eligible Professional eCQMs, and Table 2 lists the Eligible Hospital eCQMs.

Table 1. Eligible Professional eCQM Types and Versions

eCQM ID#	NQF #	Title	Type	Patient/ Episode	Version
2	0418	Preventive Care and Screening: Screening for Clinical Depression and Follow-Up Plan	Proportion	Patient	4
22	Not Applicable	Preventive Care and Screening: Screening for High Blood Pressure and Follow-Up Documented	Proportion	Patient	3
50	Not Applicable	Closing the Referral Loop: Receipt of Specialist Report	Proportion	Patient	3
52	0405	HIV/AIDS: Pneumocystis Jiroveci Pneumonia (PCP) Prophylaxis	Proportion	Patient	3
56	Not Applicable	Functional Status Assessment for Hip Replacement	Proportion	Patient	3
61	Not Applicable	Preventive Care and Screening: Cholesterol – Fasting Low Density Lipoprotein (LDL-C) Test Performed	Proportion	Patient	4
62	Not Applicable	HIV/AIDS: Medical Visit	Proportion	Patient	3

eCQM ID#	NQF #	Title	Type	Patient/ Episode	Version
64	Not Applicable	Preventive Care and Screening: Risk-Stratified Cholesterol – Fasting Low Density Lipoprotein (LDL-C)	Proportion	Patient	4
65	Not Applicable	Hypertension: Improvement in Blood Pressure	Proportion	Patient	4
66	Not Applicable	Functional Status Assessment for Knee Replacement	Proportion	Patient	3
68	0419	Documentation of Current Medications in the Medical Record	Proportion	Episode	4
69	0421	Preventive Care and Screening: Body Mass Index (BMI) Screening and Follow-Up Plan	Proportion	Patient	3
74	Not Applicable	Primary Caries Prevention Intervention as Offered by Primary Care Providers, including Dentists	Proportion	Patient	4
75	Not Applicable	Children Who Have Dental Decay or Cavities	Proportion	Patient	3
77	Not Applicable	HIV/AIDS: RNA Control for Patients with HIV	Proportion	Patient	3
82	1401	Maternal Depression Screening	Proportion	Patient	2
90	Not Applicable	Functional Status Assessment for Complex Chronic Conditions	Proportion	Patient	4
117	0038	Childhood Immunization Status	Proportion	Patient	3
122	0059	Diabetes: Hemoglobin A1c Poor Control	Proportion	Patient	3
123	0056	Diabetes: Foot Exam	Proportion	Patient	3
124	0032	Cervical Cancer Screening	Proportion	Patient	3
125	Not Applicable	Breast Cancer Screening	Proportion	Patient	3
126	0036	Use of Appropriate Medications for Asthma	Proportion	Patient	3
127	0043	Pneumonia Vaccination Status for Older Adults	Proportion	Patient	3
128	0105	Anti-depressant Medication Management	Proportion	Patient	3
129	0389	Prostate Cancer: Avoidance of Overuse of Bone Scan for Staging Low Risk Prostate Cancer Patients	Proportion	Patient	4
130	0034	Colorectal Cancer Screening	Proportion	Patient	3
131	0055	Diabetes: Eye Exam	Proportion	Patient	3
132	0564	Cataracts: Complications within 30 Days Following Cataract Surgery Requiring Additional Surgical Procedures	Proportion	Episode	3
133	0565	Cataracts: 20/40 or Better Visual Acuity within 90 Days Following Cataract Surgery	Proportion	Episode	3

eCQM ID#	NQF #	Title	Type	Patient/ Episode	Version
134	0062	Diabetes: Urine Protein Screening	Proportion	Patient	3
135	0081	Heart Failure (HF): Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) Therapy for Left Ventricular Systolic Dysfunction (LVSD)	Proportion	Patient	3
136	0108	ADHD: Follow-Up Care for Children Prescribed Attention-Deficit/Hyperactivity Disorder (ADHD) Medication	Proportion	Patient	4
137	0004	Initiation and Engagement of Alcohol and Other Drug Dependence Treatment	Proportion	Patient	3
138	0028	Preventive Care and Screening: Tobacco Use: Screening and Cessation Intervention	Proportion	Patient	3
139	0101	Falls: Screening for Future Fall Risk	Proportion	Patient	3
140	0387	Breast Cancer: Hormonal Therapy for Stage IC-IIIC Estrogen Receptor/ Progesterone Receptor (ER/PR) Positive Breast Cancer	Proportion	Patient	3
141	0385	Colon Cancer: Chemotherapy for AJCC Stage III Colon Cancer Patients	Proportion	Patient	4
142	0089	Diabetic Retinopathy: Communication with the Physician Managing Ongoing Diabetes Care	Proportion	Patient	3
143	0086	Primary Open-Angle Glaucoma (POAG): Optic Nerve Evaluation	Proportion	Patient	3
144	0083	Heart Failure (HF): Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction (LVSD)	Proportion	Patient	3
145	0070	Coronary Artery Disease (CAD): Beta-Blocker Therapy–Prior Myocardial Infarction (MI) or Left Ventricular Systolic Dysfunction (LVEF < 40%)	Proportion	Patient	3
146	0002	Appropriate Testing for Children with Pharyngitis	Proportion	Episode	3
147	0041	Preventive Care and Screening: Influenza Immunization	Proportion	Patient	4
148	0060	Hemoglobin A1c Test for Pediatric Patients	Proportion	Patient	3
149	Not Applicable	Dementia: Cognitive Assessment	Proportion	Patient	3
153	0033	Chlamydia Screening for Women	Proportion	Patient	3
154	0069	Appropriate Treatment for Children with Upper Respiratory Infection (URI)	Proportion	Episode	3
155	0024	Weight Assessment and Counseling for Nutrition and Physical Activity for Children and Adolescents	Proportion	Patient	3
156	0022	Use of High-Risk Medications in the Elderly	Proportion	Patient	3
157	0384	Oncology: Medical and Radiation – Pain Intensity Quantified	Proportion	Episode	3

eCQM ID#	NQF #	Title	Type	Patient/ Episode	Version
158	Not Applicable	Pregnant women that had HBsAg testing	Proportion	Patient	3
159	0710	Depression Remission at Twelve Months	Proportion	Patient	3
160	0712	Depression Utilization of the PHQ-9 Tool	Proportion	Patient	3
161	0104	Adult Major Depressive Disorder (MDD): Suicide Risk Assessment	Proportion	Episode	3
163	0064	Diabetes: Low Density Lipoprotein (LDL) Management	Proportion	Patient	3
164	0068	Ischemic Vascular Disease (IVD): Use of Aspirin or Another Antithrombotic	Proportion	Patient	3
165	0018	Controlling High Blood Pressure	Proportion	Patient	3
166	0052	Use of Imaging Studies for Low Back Pain	Proportion	Patient	4
167	0088	Diabetic Retinopathy: Documentation of Presence or Absence of Macular Edema and Level of Severity of Retinopathy	Proportion	Patient	3
169	0110	Bipolar Disorder and Major Depression: Appraisal for alcohol or chemical substance use	Proportion	Patient	3
177	1365	Child and Adolescent Major Depressive Disorder (MDD): Suicide Risk Assessment	Proportion	Episode	3
179	Not Applicable	ADE Prevention and Monitoring: Warfarin Time in Therapeutic Range.	Continuous Variable	Patient	3
182	0075	Ischemic Vascular Disease (IVD): Complete Lipid Panel and LDL Control	Proportion	Patient	4

Table 2. Eligible Hospital eCQM Types and Versions

eCQM ID #	NQF #	Title	Type	Patient/ Episode	Version
9	0480	Exclusive Breast Milk Feeding	Proportion	Episode	3
26	Not Applicable	Home Management Plan of Care (HMPC) Document Given to Patient/Caregiver	Proportion	Episode	2
30	0639	AMI-10: Statin Prescribed at Discharge	Proportion	Episode	4
31	1354	Hearing Screening Prior to Hospital Discharge (EHDI-1a)	Proportion	Episode	3
32	0496	ED-3: Median Time from ED Arrival to ED Departure for Discharged ED Patients	Continuous Variable	Episode	4
53	0163	AMI-8a: Primary PCI Received within 90 Minutes of Hospital Arrival	Proportion	Episode	3
55	0495	ED-1: Median Time from ED Arrival to ED Departure for Admitted ED Patients	Continuous Variable	Episode	3

eCQM ID #	NQF #	Title	Type	Patient/ Episode	Version
60	0164	AMI-7a: Fibrinolytic Therapy Received within 30 Minutes of Hospital Arrival	Proportion	Episode	3
71	0436	STK-3: Anticoagulation Therapy for Atrial Fibrillation/Flutter	Proportion	Episode	4
72	0438	STK-5: Antithrombotic Therapy By End of Hospital Day 2	Proportion	Episode	3
73	0373	VTE-4: Venous Thromboembolism Patients with Anticoagulation Overlap Therapy	Proportion	Episode	3
91	0437	STK-4: Thrombolytic Therapy	Proportion	Episode	4
100	0142	AMI-2- Aspirin Prescribed at Discharge	Proportion	Episode	3
102	0441	STK-10: Assessed for Rehabilitation	Proportion	Episode	3
104	0435	STK-2: Discharged on Antithrombotic Therapy	Proportion	Episode	3
105	0439	STK-6: Discharged on Statin Medication	Proportion	Episode	3
107	Not Applicable	STK-8: Stroke Education	Proportion	Episode	3
108	0371	VTE-1: Venous Thromboembolism Prophylaxis	Proportion	Episode	3
109	Not Applicable	VTE-4: Venous Thromboembolism Patients Receiving Unfractionated Heparin with Dosages/Platelet Count Monitoring by Protocol or Nomogram	Proportion	Episode	3
110	Not Applicable	VTE-5: Venous Thromboembolism Discharge Instructions	Proportion	Episode	3
111	0497	ED-2: Median Admit Decision Time to ED Departure Time for Admitted Patients	Continuous Variable	Episode	3
113	0469	Elective Delivery	Proportion	Episode	3
114	Not Applicable	VTE-6: Incidence of Potentially-Preventable Venous Thromboembolism	Proportion	Episode	3
171	0527	SCIP-INF-1: Prophylactic Antibiotic Received Within One Hour Prior to Surgical Incision	Proportion	Episode	4
172	0528	SCIP-INF-1: Prophylactic Antibiotic Selection for Surgical Patients	Proportion	Episode	4
178	0453	SCIP-INF-9: Urinary Catheter Removed on Postoperative Day 1 (POD 1) or Postoperative Day 2 (POD 2) with Day of Surgery Being Day Zero	Proportion	Episode	4
185	0716	Healthy Term Newborn	Proportion	Episode	3
188	0147	PN-6: Initial Antibiotic Selection for Community-Acquired Pneumonia (CAP) in Immunocompetent Patients	Proportion	Episode	4

eCQM ID #	NQF #	Title	Type	Patient/ Episode	Version
190	0372	VTE-2: Intensive Care Unit Venous Thromboembolism Prophylaxis	Proportion	Episode	3

3 Measure Logic

The posted HQMF artifacts for the 2014 eCQMs, together with the documentation provided here, have a single, correct interpretation that will be assessed as part of the certification process. This section provides clarification and guidance on the correct interpretation of the eCQMs and their implementation. The eCQMs have been carefully reviewed so that the intent of the measure stewards is accurately reflected when the measures are interpreted according to the guidance in this document. The logic and data elements for the eCQMs are specified using the Quality Data Model (QDM) published in December 2013. The December 2013 QDM introduced changes that are not implemented in the current MAT version. They are listed in Table 3.

Table 3: December 2013 QDM Changes Not Implemented in Current MAT Version

Removed from the QDM - Dec 2013	Added in the QDM - Dec 2013	
Diagnostic Study, Result	Result	Diagnostic Study, Performed
Functional Status, Result		Functional Status, Performed
Intervention, Result		Intervention, Performed
Laboratory Test, Result		Laboratory Test, Performed
Physical Exam, Finding		Physical Exam, Performed
Procedure, Result	Status	Diagnostic Study, Performed
		Intervention, Performed
		Laboratory Test, Performed
		Procedure, Performed
Anatomical structure, from: • Device, Applied • Physical Exam, Order • Physical Exam, Performed • Physical Exam, Recommended	Anatomical approach site and Anatomical location site to: • Procedure, Order • Procedure, Performed • Procedure, Recommended	
	Anatomical location site to: • Diagnosis, Active • Diagnosis, Inactive • Diagnosis, Resolved	

Removed from the QDM - Dec 2013	Added in the QDM - Dec 2013
	Admission datetime and Discharge datetime to: • Encounter, Active • Encounter, Performed
	Method and ordinality to: • Procedure, Intolerance
	Cumulative Medication Duration to: • Medication, Administered
	Negation rationale to: • Medication, Discharge

The measures using attributes no longer supported in the QDM Dec 2013 release are listed in Table 4.

Table 4: Measures with Attributes Not Supported in December 2013 QDM

Measure attribute	Measure type	Measure
Diagnostic Study, Result	EH	CMS31v3, CMS53v3, CMS60v3, CMS73v3, CMS109v3, CMS110v3, CMS114v3, CMS188v4
Functional Status, Result		None
Intervention, Result		None
Laboratory Test, Result	EH	CMS30v3, CMS73v3, CMS91v3, CMS105v3, CMS108v3, CMS188v3, CMS190
	EP	CMS52v3, CMS61v4, CMS64v4, CMS77v3, CMS117v3, CMS122v3, CMS124v3, CMS129v4, CMS130v3, CMS134v3, CMS146v3, CMS148v3, CMS153v3, CMS163v3, CMS179v3, CMS182v4
Physical Exam, Finding	EH	CMS9v3, CMS91v4, CMS113v3, CMS178v4, CMS185v3
	EP	CMS22v3, CMS65v4, CMS69v3, CMS131v3, CMS133v3, CMS144v3, CMS145v3, CMS155v3, CMS165v3
Procedure, Result	EP	CMS129v4, CMS140v3, CMS141v4

3.1 Evaluating QDM Logic

The measure specifications are evaluated in a manner that differs from a typical procedural specification. A measure is composed of populations (e.g., Denominator, Numerator, etc.), and each population is composed from "lines" of logic that comprise a single AND/OR statement. The order of the lines within a population does not determine the computed result. Within a line, logic is evaluated according to the order of operations described in the following subsections. The only way to link the events described in one line of logic with those in another line of logic is through the use of specific occurrences, described subsection 3.3.

3.2 Operator Precedence

Within a single AND/OR statement, the precedence of operators is as follows:

1. Event code matches value set code. (Select procedures from patient based on matching code as defined by the value set.)
2. Events filtered by an element's data type (active, ordered, resolved)
3. Events filtered by negation rationale (i.e., Not done: reason not done)
4. Events filtered by attribute value set criteria (source, severity, facility location …)
5. Event filtered by temporal constraints (i.e., Starts After Start, During …)
6. Events filtered by value restriction (i.e., Ejection Fraction > 40%)
7. Event filtered by subset operator (FIRST, SECOND, MOST RECENT)
8. "Assign" the specific occurrence

The order of applying the subset operators is *critical*, since the order in which subset operators are applied can change the results of execution. For instance, the result of selecting the first procedure and then restricting temporally to "during the measurement period" could produce a different result than restricting procedures temporally to "during the measurement period" and then selecting the first such procedure.

3.3 Specific Occurrences

Specific occurrences are the most challenging aspect of the QDM logic from an implementation perspective. This subsection describes the use and computation of specific occurrences informally. Section 4 describes QDM idioms that incorporate specific occurrences. The document "Implementing Computation of Specific Occurrences," available via the Cypress testing tool website, provides additional detail.

3.3.1 Simple Usage of Specific Occurrences

In the measure logic for 2014 eCQMs, some occurrences will be labeled as specific occurrences (e.g., "Occurrence A of Diagnosis, Active: Diabetes"). When an occurrence is not specified (e.g., "Diagnosis, Active: Diabetes"), the measure refers to any instance of that event. When a specific occurrence of an event is specified in multiple clauses linked by AND logic, the logic is only satisfied if the ANDed logical statements evaluate to true using a specific (single) instance of the event.

In the following example (from CMS169/NQF0110), there must be at least one instance of "`BH Outpatient Encounter`" that satisfies both clauses, falling between the measurement start date and 42 days before the measurement end date:

```
AND: "Occurrence A of Encounter, Performed: BH Outpatient
encounter" >= 42 day(s) starts before start of "Measurement
End Date"

AND: "Occurrence A of Encounter, Performed: BH Outpatient
encounter" starts after start of "Measurement Start Date"
```

3.3.2 Multiple Specific Occurrences of the Same Event Type

A logical clause may reference other (distinct) specific occurrences of a particular type or specific occurrences of a different type. The following example from NQF0405 references two specific occurrences of type "`Encounter, Performed: HIV Visit`":

```
AND: "Occurrence A of Encounter, Performed: HIV Visit"
during

"Measurement Period"

AND: "Occurrence B of Encounter, Performed: HIV Visit"
during

"Measurement Period"

AND: "Occurrence B of Encounter, Performed: HIV Visit" >=
90 day(s) starts after end of "Occurrence A of Encounter,
Performed: HIV Visit"
```

Specific occurrences of the same type will be referenced with an alphabetically incrementing label (e.g., "Occurrence B"). The order of the labeling does not have *any* significance other than indicating that they represent different instances. Specifically, no temporal relationship is implied by the alphabetical ordering of the occurrences; Occurrence A does not necessarily occur prior to Occurrence B. When a measure references Occurrence A and Occurrence B of an event type (i.e., `Encounter, Performed: HIV Visit`), the logic of the measure will evaluate true when Occurrence A and Occurrence B reference *distinct* instances of an event type. In the previous example, the logic is looking for two *different* HIV Visits. Both visits must occur during the measurement period as defined in the first two statements, and one visit ("Occurrence B") must start 90 days or more after an initial visit ("Occurrence A"), as defined in the last statement.

3.3.3 Multiple Specific Occurrences of the Different Event Types

Logic clauses can also reference occurrences of different types. The following example, also from NQF0405, has specific occurrences referencing two different medications and a laboratory test result:

```
AND: "Occurrence A of Medication, Order: Dapsone and
pyrimethamine" <=
```

```
3 month(s) starts after end of "Occurrence A of Laboratory
Test,

Result: CD4+ Count"

AND: "Occurrence A of Medication, Order: Leucovorin" <= 3
month(s) starts after end of "Occurrence A of Laboratory
Test, Result: CD4+ Count"
```

This logic will evaluate to true when a Laboratory Test, Result: CD4+ Count exists such that there are medication orders for "Dapsone and pyrimethamine" and "Leucovorin," and both start within 3 months of the end of the lab test.

3.3.4 Specific Occurrences in OR Clauses and Negations

When multiple logical statements referencing a specific occurrence are joined by an OR clause, the logic can evaluate to true if there is an event that satisfies the specific occurrence that satisfies the logic in *at least one* of the branches of the OR clause. When logical statements containing specific occurrences are used as part of a negated clause (e.g., "AND NOT"), the specific occurrence of the event must either evaluate to false for the negated logic clause, or a viable specific occurrence for the event must not exist. In other words, in a negated clause, the specific occurrence must not evaluate to true, or the event must not exist. The case where an event does not exist is important where a specific occurrence is only referenced in negated clauses within a measure. If a specific occurrence is referenced by both negated and non-negated clauses, then it must exist for the logic of the measure to hold, and it must evaluate to false for the negated logic.

3.3.5 Specific Occurrences between Populations

Conditions applied to specific occurrences carry forward from one population to the next, in the order they are calculated. See Section 2.3 for details on the calculation order of the measures.

For instance, consider an encounter with "Occurrence A" restricted to the Measurement Period in the "Initial Patient Population." That occurrence will carry into the "Denominator," thus restricting it to the Measurement Period as well. Similarly, occurrences in the "Denominator" will carry into the "Numerator."

For "Denominator Exclusions," it is the negation of the specific occurrence conditions that is carried forward into the "Numerator." Consider an episode-of-care measure where an episode is excluded if the patient is pregnant during the encounter. In this case the encounters where the patient was NOT pregnant will be considered for the Numerator.

Similarly, the negation of the conditions applied to the specific occurrences in the "Numerator" carry forward into the "Denominator Exceptions." This allows the "Denominator Exceptions" to only consider occurrences that did not evaluate to true in the "Numerator."

3.4 Computing Time Intervals

Assessing the relative timing of events within a patient's medical record is an essential part of computing eCQMs. To enable unambiguous interpretation of the eCQMs, clear definition of the computation of time intervals is required. A simple expression such as "the treatment must occur

within 3 days of the diagnosis" has a number of possible interpretations, including "the treatment must occur within 72 hours of the diagnosis" and "the treatment must happen within 3 business days of the diagnosis." A mathematical definition of the computation of time durations in conjunction with the temporal operators used in the eCQMs is required to support consistent interpretation. This definition is provided in Appendix C and should be strictly implemented.

3.5 Subset Operators

Subset operators (e.g., FIRST) require a temporally sorted set of events. Timestamps are determined for each event by first looking for an event start time and then looking for an event end time. FIRST extracts the events with the earliest timestamp, and MOST RECENT extracts the event with the latest timestamp. When a subset operator is applied to more than one data criteria, then all events are unioned regardless of the conjunction operator. In other words:

```
FIRST:

        AND Diagnosis A

        AND Diagnosis B
```

Is equivalent to

```
FIRST:

        OR Diagnosis A

        OR Diagnosis B
```

The subset operators strictly apply to left-most events in the logic they encompass. For example:

```
MOST RECENT:

        OR Diagnosis A starts after start of Procedure X

        OR Diagnosis A starts after start of Procedure Y

        OR Procedure Z starts after start of Diagnosis A
```

This would return the most recent "Diagnosis A" or "Procedure Z" that meets the given temporal criteria. To instead get the most recent "Diagnosis A" that meets the given criteria, the logic could be restructured as:

```
MOST RECENT:

        OR Diagnosis A starts after start of Procedure X

        OR Diagnosis A starts after start of Procedure Y

        OR Diagnosis A starts before start of Procedure Z
```

This now returns the only "Diagnosis A" events and ensures they meet the temporal limitations.

Additionally, subset operators are non-associative operations with respect to other operations used within the QDM. Therefore, the order that subset operators are applied will impact the

result of the calculation. Section 3.2 outlines operator precedence in the QDM. Applying subset operators in a different order can change the results of the calculation.

3.5.1 Subset Operators and Specific Occurrences

Applying subset operators to specific occurrences is awkward. Specific occurrences represent a single instance of an event, and all conditions logically bound to a specific occurrence must apply to that instance. The single-instance nature of specific occurrences is at odds with subset operators such as FIRST, SECOND, MOST RECENT, etc. which act upon sets of events. Essentially, this forces specific occurrences to be treated as both a single instance and a set of events as part of measure calculation.

However, subset operators are applied to specific occurrences almost exclusively within the context of a single logical statement. This allows the specific occurrence to be constrained to a single event before calculation progresses beyond the evaluation of a single statement, limiting the impact of having to treat specific occurrences as both a set of events and a single event. The following example shows a specific occurrence with a subset operator applied:

```
AND: FIRST: Occurrence A of X during "Measurement Period"

AND: Occurrence A of X starts after start of Encounter
Performed Y
```

In this example, the defined order of operations restricts "Occurrence A of X" to the first event X during the measurement period, and that first event X must have an encounter of type Y that starts after the start of it.

3.6 COUNT Operator Usage

When the COUNT operator is applied to a disjunction of events, it will assess the size of the set of events reflecting the union of the ORed events. In this example, COUNT is used to assess whether there were more than two encounters of types A-D.

```
COUNT > 2

    OR:    Encounter performed: A

    OR:    Encounter performed: B

    OR:    Encounter performed: C

    OR:    Encounter performed: D
```

In some eCQMs (e.g., the denominator of Eligible Professional measure CMS64), COUNT will be applied to determine how many of the OR branches are true. In these cases, the logic has been constructed with a subset operator in each OR branch and assesses the number of encounter types, not the total number of encounters.

```
COUNT > 2

    OR:    FIRST: Encounter performed: A

    OR:    FIRST: Encounter performed: B
```

```
        OR:    FIRST: Encounter performed: C

        OR:    FIRST: Encounter performed: D
```

3.7 Temporal Logic Operators

Within the QDM, events (e.g., "Diagnosis, Active") have start and end times. Some events have attributes that include start and end time (e.g., facility location). The QDM temporal operators are statements that relate the intervals defined by these start and end times to each other. Some intervals may only have start or end times specified. An interval with a "null" start time is considered to have started at the beginning of time, whereas an interval with a "null" end time is considered to end in the future.
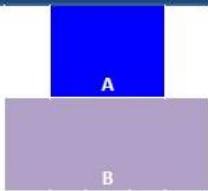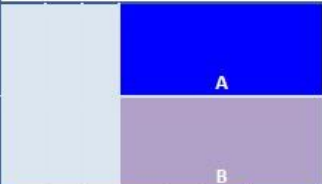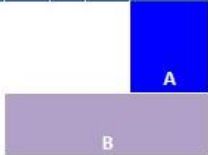
The temporal logic operators in the MU eCQMs have strict definitions that differ from standard English usage. For the term "A during B," the definition of during requires that event A start after or concurrent with B, and end before or concurrent with B. In other words, the time interval of event A is *fully contained* within the time interval of B. If A starts before B and ends during or after B, it is not "during" B. To express that "A overlaps B,"—that is, the time intervals of events A and B intersect—multiple lines of logic are required (see Section 4.1).

Note that for "A during B" to be true, A must have specified start and end times. Some data elements in medical records, for example diagnoses of chronic conditions, can be open-ended. Such an event can neither contain another event temporally or be contained. In other words, if a chronic condition represented without a stop date is event A, there is no event B such that "A During B" or "B During A" is true.

Two events are considered "concurrent with" each other only if their start and end times are the same, ignoring seconds (i.e., within one minute of each other). This level of time resolution is too precise for most related events in the MU2 eCQMs, and thus, the "concurrent with" operator is rarely used.

"During," and all other temporal relationships such as "starts before the start of" and "starts after the start of," are defined in the Health Level Seven International (HL7) version 3 Vocabulary Standard. Table 5 provides examples of some of these relationships.

Table 5. Definitions for During and Concurrent With

Time Relationships	Illustration	Time Relationships Corresponding to Timeline	Time Relationships Indicator Description
		DURING	A relationship in which the source act's effective time is wholly within the target act's effective time.
		STARTS DURING	A relationship in which the source act's effective time begins within the target act's effective time.
		ENDS DURING	A relationship in which the source act terminates within the target act's effective time.
		DURING	A relationship in which the source act's effective time is wholly within the target act's effective time.
		CONCURRENT WITH	A relationship in which the source act's effective time is the same as the target act's effective time.
		DURING	A relationship in which the source act's effective time is wholly within the target act's effective time.
		STARTS AFTER START OF	A relationship in which the source act starts after the start of the target Act
		ENDS CONCURRENT WITH	A relationship in which the source act's effective time ends with the end of the target act's effective time.

Temporal logic operators can also be applied to a series of logical statements. For example:

```
AND:
    OR: Medication A starts after start of Procedure X
    OR: Diagnosis B starts after start of Procedure X
    OR: Procedure C starts after start of Procedure X
```

Notice that all of the statements have the same temporal constraint of "starts after start of Procedure X." To help simplify the logic, we can move this to its own statement. The constraint will then apply to all other logic statements at the same indentation level, regardless of the ordering. The following example is logically equivalent to the original logic:

```
AND:
    OR: Medication A
    OR: Diagnosis B
    OR: Procedure C
```

```
        starts after start of Procedure X
```

Also note that the temporal constraint can only be applied once per indentation level. For example, if we wanted to further limit all events to "start before start of Procedure Y," the logic would need multiple levels of hierarchy and would look like:

```
AND:

    AND:

        OR: Medication A

        OR: Diagnosis B

        OR: Procedure C

        starts after start of Procedure X

    starts before start of Procedure Y
```

This now has the effect of limiting events to those that start after "Procedure X" but before "Procedure Y."

It is also important to recognize that the temporal constraints only apply to left-most data elements in the statements they encompass. Consider the following logic:

```
AND:

    OR: Medication A during Encounter Y

    OR: Diagnosis B

    OR: Procedure C

    starts after start of Procedure X
```

The "starts after start of Procedure X" constraint only applies to "Medication A," "Diagnosis B," and "Procedure C," but does not constrain "Encounter Y." Therefore, "Medication A" must be during "Encounter Y" and start after "Procedure X," but "Encounter Y" does not necessarily have to start after "Procedure X."

4 Common Logic Idioms and Their Significance

4.1 A Overlaps B

The "During" operator is defined as a strict containment of the time interval of event A within the time interval of event B. Fairly frequently within the MU2 eCQMs, the logic needs to specify that events A and B overlap temporally.[1] In the current collection of eCQMs, this is accomplished as follows:

```
AND:      A starts before or during B
AND NOT:  A ends before start of B
```

Here is an example from CMS188/NQF0147:

- ```
  AND NOT: "Patient Characteristic: Clinical Trial
  Participant" ends before start of "Occurrence A of
  Encounter, Performed: Encounter Inpatient"
  ```
- ```
  AND: "Patient Characteristic: Clinical Trial Participant"
  starts before or during "Occurrence A of Encounter,
  Performed: Encounter Inpatient"
  ```

4.2 Any Past Diagnosis

The presence of a "Diagnosis, Active" at any time prior to an event can be used as an indication of "any past diagnosis." Measure developers used this idiom to detect the presence of some chronic conditions in the medical record prior to the beginning of the measurement period or prior to an episode of care. Other developers looked for the presence of "Diagnosis, Active" at the start of the measurement period or episode of care (see Section 4.3). If B is some event of interest, to specify a Diagnosis of A that preceded B would be written:

```
AND: Diagnosis, Active: A starts before B
```

4.3 Diagnosis Active at a Particular Time

To detect that a Diagnosis D was active at the start of event E (e.g., the start of the measurement period) requires two QDM logic statements and a specific occurrence. The first statement specifies that the diagnosis started prior to T, and the second statement indicates that the diagnosis did not end prior to T. Similar logic could be used to detect that D started during E and continued through the end of D.

- ```
  AND: "Occurrence A of Diagnosis, Active: D" starts before E
  ```
- ```
  AND NOT: "Occurrence A of Diagnosis, Active: D" ends before
  start of E
  ```

---

[1] The overlap operator is an obvious candidate for future extension of the operators used within CQMs.

4.4 Use of Specific Occurrences to Achieve Filtering by Value and Subset

Operator precedence specifies that value restriction filtering precedes the application of subset operators. This introduces some subtlety in interpreting the eCQM logic. Let's compare these two pieces of logic:

```
A. MOST RECENT: Lab Result X (result: > 10)

B. AND:  Occurrence A of Lab Result X (result > 10)

   AND:  MOST RECENT: Occurrence A of Lab Result X
```

The statement A will find all Lab Result Xs with result >10 and select the most recent instance, whereas statement B will find the most recent Lab Result X and return true if its result is > 10.

5 Data Elements and Value Sets

The data elements used in the 2014 eCQMs are derived from the Quality Data Model (QDM), December 2013, located at: http://www.healthit.gov/quality-data-model. Further explanation and description of the elements contained in the QDM can be found on that site.

Value Sets – Value Set Authority Center

The National Library of Medicine (NLM), in collaboration with ONC and CMS, maintains the NLM Value Set Authority Center (VSAC) (https://vsac.nlm.nih.gov). The VSAC provides downloadable access to all official versions of vocabulary value sets contained in the 2014 Clinical Quality Measures. The value sets provide lists of the numerical value identifiers and individual names from standard vocabularies used to define the clinical concepts (e.g., diabetes, clinical visit) used in the Clinical Quality Measures. The VSAC also provides value set authoring capabilities for registered value set authors. The VSAC Authoring Tool includes internal code validation algorithms to ensure correct code assignments in value sets for the desired code system version.

NLM has an application programming interface (API) to the VSAC content in addition to a web interface. The API documentation is accessible from the Help tab of the VSAC Web page (https://vsac.nlm.nih.gov). The VSAC also offers a Downloadable Resource Table, accessible from the Download tab on the VSAC Web page, that provides links to the most recently updated and released 2014 eCQM Value Sets as well as to previously released versions. This Downloadable Resource Table provides links to Excel and Sharing Value Sets (SVS)-compliant XML for all Eligible Hospital and all Eligible Professional value sets.

Access to the VSAC requires a free Unified Medical Language System® Metathesaurus License (available at https://uts.nlm.nih.gov/license.html). It is expected that any use of value sets is consistent with these licensing requirements and copyright protections.

Metadata Portal – United States Health Information Knowledgebase

The Agency for Healthcare Research and Quality (AHRQ), in collaboration with CMS, NLM, and ONC, maintains the Meaningful Use Portal in the United States Health Information Knowledgebase (USHIK) (http://ushik.ahrq.gov/mdr/portals/mu). USHIK presents the 2014 clinical quality measures, data elements, and their value sets, including versions from December 2012, April 2013, June 2013, and April 2014. The 2014 eCQMs may be downloaded in HL7's HQMF format (xml), Adobe (pdf), Excel (xls), and comma-separated value (csv) format. The value sets may be downloaded in several formats, including Integrating the Healthcare Enterprise's Sharing Value Sets format (xml), Adobe (pdf), Excel (xls), and comma separated value (csv). USHIK also allows for comparisons between measure versions and provides a single flat-file format containing all the 2014 eCQM clinical data elements and their value sets, organized by eCQM name and ID as well as by vocabulary code system (such as ICD-9-CM, SNOMED CT, RxNORM). This flat file is available for download in xml format (with schema), comma-separated value format (csv), and as an Excel spreadsheet (xls).

Using AHRQ's USHIK website to receive public comment, CMS, along with ONC, is releasing draft CQMs that may be used in federal programs. To access and comment on these draft measures, select the "Draft Measures" tab in USHIK and then select the individual measure you

would like to view. To submit suggestions, questions, or other information about a specific measure, select the "Provide Feedback" button located at the top of the Quality Measures page, fill out the form on the screen, and submit. All feedback is sent to CMS and ONC for review.

5.1 QDM Category and Code System

The "QDM Category and Code System" section of the Measure Authoring Tool User Guide describes the recommended code system for each QDM category. Most data elements are linked to a value set or grouping value set that complies with these recommendations. A small number of data elements could not be represented successfully in the recommended vocabulary due to gaps in the vocabulary or other problems with implementing the recommendations into the measures. Efforts will continue to bring the published eCQMs into line with the recommendations by either amending the value sets or the recommendations. Downloadable resources of value sets by QDM datatype are also available on the VSAC website at the "Download" tab.

A significant number of data elements are represented by extensional value sets in a single code system. This occurs most frequently with encounters, where the measure developer has chosen to use "OR" subclauses rather than use a grouping value set. An example can be found in the Initial Patient Population for CMS131/NQF0055, where six distinct types of encounter, each linked to a grouped value set supporting a single code system, are ORed together. Together, these six types of encounter provide codes that cover the recommended code system, SNOMED, as well as the transitional code systems (CPT and HCPCS).

A small number of data elements could not be accurately represented across multiple code systems due to inherent representational differences between code systems. This may require an alternate mapping approach to fully represent the logic intent. For example, eCQM CMS185/ NQF0716 intends the logic phrase "AND: "Occurrence A of Encounter, Performed: Inpatient Encounter (reason: 'Birth')" to capture admission type of the newborn for the encounter. The available SNOMED and supporting ICD9 and ICD10 codes do not clearly represent this concept, and guidance is provided to use existing EHR structured fields (e.g., data that is fed to UB:04, field location 14) to map the specific criterion.

Users of the 2014 eCQMs are encouraged to report suggested additions and deletions to data elements both within value sets and between code systems using the JIRA Clinical Quality Measures Feedback System (homepage link) at http://jira.oncprojecttracking.org/ (direct link to issue tracking).

5.2 Drug Representations Used in Value Sets

In the 2014 eCQMs, all value sets referring to specific medications use generalized drug concepts (for example, RxNorm semantic clinical drugs). It is expected that vendors/providers will report drug entities using generalized drug concepts included in the defined value sets. This is in accordance with guidance from CMS about the preferred use of generalized drug concepts. Implementers should use RxNorm relationships to support mapping between specific drug entities found in patient records to those found in the value sets provided.

5.3 Discharge Medications

The use of "Medication, Discharge" has a very specific meaning in the 2014 Eligible Hospital measures. This designation refers to medications that are on the patient's Discharge Medication List. It should not be confused with medications that are active at the time of discharge. "Medication, Discharge" events should start and end within the time duration of the episode of care, even though the medication itself may not be started until after the episode ends. It is expected that, at the time of discharge, discharge medications will be the same as the subsequent home medication lists for those medications that are germane to the quality measure, but this cannot be assumed at the time of admission as changes may have occurred since the prior episode of care.

> Example logic:

> "Medication, Discharge: value set 'during' Occurrence A of Encounter, Performed: value set"

Vendors/providers generating Quality Reporting Document Architecture (QRDA)-1 output will need to generate "Medication, Discharge" events for all medications on the discharge list with appropriate time stamps to enable the correct function of measure logic.

(See http://www.hl7.org/documentcenter/public/standards/dstu/CDAR2_QRDA_DSTUR2_2012JUL.zip.)

5.4 Medication Allergy

In the initial publication of the 2012 eCQMs, medications were coded using generic terms for specific drug entities. There are a variety of ways to capture medications for allergies in the field. Vendor and implementer feedback has indicated that medication concepts used to represent allergy and intolerance data in EHR records are typically based on ingredient or equivalent types of concept and not the more detailed "prescribable" representations using discrete drug concepts that include form and strength. In addition, hospital inpatient medications may not be as specified as specific drug entities for reasons related to inpatient pharmacy substitutions. Despite being frequently captured using drug ingredients or other concepts, previously published 2012 eCQMs contained specific medication entities in the value sets used to represent allergies and hospital inpatient medications.

Specifically, in the 2012 eCQMs, measure clauses used to identify patients with an allergy/intolerance to medication agents use the same value sets as clauses that identify medication orders and administration (i.e., specific drug entities). For eCQMs updated in April and June 2013, measures that previously contained allergy and intolerance measure clauses now reference value sets that contain the ingredient-type RxNorm medication concepts appropriate for each measure in the same clauses.

With this updated annual release, which includes updated allergy-focused value sets and updated measures that reference those value sets, CMS/ONC has implemented the following:

1. All measures that reference allergy value sets have been be updated to reference newly created value sets that contain appropriate codes from RxNorm that align to ingredient-level concepts. Users can utilize RxNorm relationships to link ingredients to the specific drug entities that may occur in patient records. The reactions to substances are findings and should be expressed using diagnosis codes, usually SNOMED CT.

2. Test cases developed by ONC to test vendor systems will have codes from the published value sets that are appropriate to the measure version. Therefore, systems conformant to the original version 1 measures published in December 2012 will retain detailed medications as a description of the specific drug entity to which the patient is allergic/intolerant. For systems conformant to the versions released with April and June 2013 annual updates, drug allergy concepts will be defined as ingredient-level concepts, and the value sets will reflect codes that identify drug ingredients.

These changes in the updated value sets and measures should resolve the need for implementers to map patent allergy data to concepts to a more specific drug concept.

5.5 Principal Diagnosis in Inpatient Encounters

The use of "Diagnosis, Active (ordinality: Principal)" has a specific meaning in the 2014 measures for hospitals and should be consistent with its definition in the Uniform Hospital Discharge Data Set (UHDDS) as "that condition established after study to be chiefly responsible for occasioning the admission of the patient to the hospital for care." The designation refers to the Principal Diagnosis of an episode of care, as in the previous definition. This is typically determined at or after discharge time by a coder and is used for the billing transaction. In EHRs, the Principal Diagnosis is typically chosen from among the diagnoses that were active during the encounter and, if consistent with the UHDDS definition, should be labeled as "Principal." For the purpose of measure computation, the principal diagnosis should be considered to start during the episode of care.

Admission and discharge diagnoses cannot be expressed using current data elements and will be expressed using timing of active diagnoses at the start or end of the episode of care. The admission or discharge diagnoses recorded by the provider should not be used as a substitute for the principal diagnosis unless they are concordant with the principal diagnosis as defined by CMS.

Vendors and providers generating QRDA-1 output will need to label diagnoses appropriately to enable the measure logic to function correctly. Although it is clinically possible for the principal diagnosis to commence prior to the episode of care, the principal diagnosis should **always** be reported with a QRDA-I entry that starts **during** the episode of care.

5.6 Principal Procedure in Inpatient Encounters

The use of "Procedure, Performed (ordinality: Principal)" has a very specific meaning in the 2014 Eligible Hospital measures. This designation refers to the principal procedure during an episode of care, as defined by CMS. This is typically determined at or after discharge time and is used for the billing transaction. The principal procedure is typically chosen from among the procedures performed during the encounter. The procedure that is chosen (post-discharge) as the principal procedure should be labeled as "Principal," and the timing should reflect the timing of the actual procedure.

Vendors/providers generating QRDA-1 output will need to label procedures appropriate to enable the measure logic to function correctly.

5.7 Medical Reason, Patient Reason, System Reason

Because of limitations in EHRs and use of free text in some record systems, it may be difficult to capture certain data elements that should exclude patients or components of care (e.g., medication administration, physician order not done) from a measure. The use of negation to identify these exclusions is modeled using the concepts of medical reason, patient reason, and system reason and, when deemed appropriate by providers, is selected to attest to the reason for the exclusion. For example, a rare but relevant comorbidity would be a medical reason for exclusion, whereas a patient's religious preference would be a patient reason for exclusion. It is intended that these concepts be used only when the record has a documented reason for exclusion. Although it is not necessary to report that reason electronically, it is expected that there is a legitimate medical, patient, or system reason for exclusion. A negation attribute may be used to identify situations where an action did not occur or was not observed for a documented reason. Modeling of negation uses AND NOT to identify NULL values when an action was not performed for a medical, patient, or system reason.

Prior to the April 2014 eCQM release, implementers representing that a therapy was not done due to a medical, patient, or system reason were expected to use the same detail-level value sets for the noted "not done" therapy. This raised issues given that for medications, it was rare that a specific drug was noted as "not given." With the April 2014 release, documentation of "medication, ordered not done" and "medication, discharge not done" are now associated with ingredient-level RxNorm value sets so that specific prescribable drugs are no longer used to document these "not done" events. It is still expected that "Medication, administered not done" events will use a prescribable drug (the original value sets) because this would occur with a particular prescribable drug available. These changes in the "term type" used for the value sets were only made for the data types noted. No change was made to non-medication therapies "not done."

Vendors/providers using these concepts are expected to have a documented reason for these exclusions and could be expected to demonstrate the relevant documentation if audited.

5.8 Clinical Trial Participation

Participation in a clinical trial may be a clinical reason to exclude a patient from an expected course of action in some eCQMs; however, only participation in certain types of trials may be relevant based on the steward's intent. Due to limitations in data from EHRs, the specific nature of clinical trial participation cannot be captured in the 2014 eCQMs. Therefore, in the 2014 eCQMs, the code "clinical trial participant" refers to any participation in a clinical trial, and thus all trial participants of any type should be excluded when this term is present. An alternative method of expressing clinical trial participant exclusions via the terms "medical reason" or "patient reason" should be used as exclusions only when providers deem that clinical trial participation is relevant to their exclusion from the measure.

Where the measure steward requested "clinical trial participant" remain in the electronic specifications, the eCQM intends to exclude any patient participating in any clinical trial. The 2014 eCQMs will not certify to clinical trial participation type; therefore, this information is not expected to be captured unless used as a medical reason for exclusion (see Section 5.7).

5.9 Newborn/Gestational Age

Three of the 2014 measures are designed to be used in the encounter including delivery, birth, or

immediately after birth. In the 2014 specifications, a newborn at term indicates the gestational age is ≥ 37 weeks.

For the Eligible Hospital update published in 2013, systems were asked to capture gestational age using the gestational age codes from SNOMED CT; however, this created a QRDA standard violation. This problem has been corrected for the 2014 annual update such that vendors/ providers generating QRDA-1 must now use the "physical exam finding" QDM element with a scalar value in weeks to codify the gestational age.

5.10 Source

Current attributes in the 2014 measures do not allow the electronic expression of the source of a diagnosis (e.g., a nurse versus a physician), and the measures have been structured so that this information is not required at this time for certification. Although the intent of some measures is to use information from a specific source, this is not captured in the 2014 stage of eCQMs and will not be included in certification. It is expected that the ability to electronically capture the source of a data element will be incorporated into future stages of eCQMs.

5.11 Supplemental Value Sets Representing Race

The Meaningful Use 2 rule objectives state:

> *Objective § 170.314 (a)(3) an EHR should be able to record that a patient declined to specify his/her race and ethnicity.*

However, the Centers for Disease Control and Prevention (CDC) value sets for race and ethnicity do not contain code(s) for "Patient Decline," and QRDA-1 rules based on Clinical Document Architecture requirements limit the value set to the CDC value set "Race" 2.16.840.1.113883.1.11.14914 containing the following codes:

Code	Description
1002-5	American Indian or Alaska Native
2028-9	Asian
2054-5	Black or African American
2076-8	Native Hawaiian or Other Pacific Islander
2106-3	White
2131-1	Other Race

Because it is not possible to explicitly include codes in the eCQMs for "Unknown" and "Patient Decline," the CDC "Race" value set will remain for the time being as the only supplemental value set representing race for all 2014 CMS eCQMs: 2.16.840.1.113883.1.11.14914. An alternate method of capturing "Unknown" or race that cannot be captured can be performed using the following "nullFlavor" feature.

To communicate that a demographic element is unknown or that the patient declined to provide the information, use the built in "nullFlavor" feature of QRDA designed for this purpose. The

nullFlavor feature works for race, ethnicity, preferred language, and other cases where the QRDA calls for a value from a value set.

Normally, one would communicate race in a QRDA like this:

```
<raceCode code="2106-3"
displayName="White"codeSystem="2.16.840.1.113883.6.238"/>
```

Where the value is unknown, QRDA allows for a "nullFlavor," which can be used for any coded value, like this:

```
<raceCode nullFlavor="UNK"/>
```

Future updates to the eCQM specifications will attempt to improve alignment of this data element with other incentive programs such as the Physician Quality Reporting Program, in an effort to reduce the burden on providers reporting on multiple programs using quality measures.

6 2014 Measure Guidance by CMS ID Measure Number

6.1 Eligible Hospital Measures

6.1.1 Measure 9v3: Exclusive Breast Milk Feeding, NQF 0480, PC-05 Exclusive Breast Milk Feeding and the subset measure PC-05a Exclusive Breast Milk Feeding Considering Mother´s Choice

The intent of Measure 9 is to apply the measure only to single newborns born in the hospital and at term, defined as gestational age $\geq$ 37 weeks.

A discharge to a designated cancer center or children's hospital should be captured as a discharge to another hospital.

The unit of measurement for this measure is an inpatient episode of care. Each distinct hospitalization should be reported, regardless of whether the same patient is admitted for inpatient care more than once during the measurement period. In addition, the eCQM logic intends to represent events within or surrounding a single occurrence of an inpatient hospitalization.

The logic phrase `AND: OR: "Diagnosis, Active: Single Live Birth" starts during "Occurrence A of Encounter, Performed: Inpatient Encounter"` intends to capture admission type of newborn for the encounter. Where this information is available in existing EHR structured fields (e.g., data that is fed to UB-04, field location 14), it can be used to map the criterion specified in the logic.

The logic phrase `AND: OR: "Diagnosis, Active: Liveborn Born In Hospital" starts during "Occurrence A of Encounter, Performed: Inpatient Encounter"` intends to capture the point of origin for the inpatient admission. Where this information is available in existing EHR structured fields (e.g., data that is fed to UB-04, field location 15), it can be used to map the criterion specified in the logic.

6.1.2 Measure 26v2: Home Management Plan of Care (HMPC) Document Given to Patient/Caregiver

The HMPC document should be a separate and patient-specific written instruction. The document must be present in the form of an explicit and separate document specific to the patient rather than components or segments of the plan spread across discharge instruction sheets, discharge orders, education sheets, or other instruction sheets.

The HMPC is represented in the eCQM logic by a LOINC code for an asthma action plan document. This form, or equivalent, contains most components required for the HMPC, including information on:

- Methods and timing of rescue actions: The HMPC addresses what to do if asthma symptoms worsen after discharge, including all of the following:
    1. When to take action—i.e., assessment of severity (e.g., peak flow meter reading, signs and symptoms to watch for)

2. What specific steps to take—i.e., initial treatment instructions (e.g., inhaled relievers up to three treatments of 2-4 puffs by MDI at 20-minute intervals or single nebulizer treatment)

3. Contact information to be used when an asthma attack occurs or is about to occur

- Appropriate use of long-term asthma medications (controllers), including the medication name, dose, frequency, and method of administration.

- Appropriate use of rescue, quick-relief, or short acting medications of choice to quickly relieve asthma exacerbations (relievers), including the medication name, dose, frequency, and method of administration.

- Environmental control and control of other triggers: information on avoidance or mitigation of environmental and other triggers.

- In addition to the information outlined in the asthma action plan form (or equivalent document), the HMPC is required to include information about arrangements for referral or follow-up care with a healthcare provider, namely:

  o If an appointment for referral or follow-up care with a healthcare provider has been made, the HMPC is required to include the provider/clinic/office name as well as the date and time of the appointment.

  o If an appointment for referral of follow-up care with a healthcare provider has NOT been made, the HMPC is required to include information for the patient/ caregiver to be able to make arrangements for follow-up care—i.e., provider/ clinic/office name, telephone number, and time frame for appointment for follow-up care (e.g., 7–10 days).

The HMPC can only be considered to comply with the criteria outlined in the measure logic if it meets the requirements outlined above and is appropriately filled out with information specific to the patient.

Patient refusal includes refusal by a caregiver. The caregiver is defined as the patient's family or any other person (e.g., home health, visiting nurse association, provider, prison official, or other law enforcement personnel) who will be responsible for care of the patient after discharge.

The "Discharge To Home Or Police Custody" value set also intends to capture the following discharge disposition values:

- Assisted Living Facilities
- Court/Law Enforcement – includes detention facilities, jails, and prison
- Home – includes board and care, foster or residential care, group or personal care homes, and homeless shelters
- Home with Home Health Services
- Outpatient Services, including outpatient procedures at another hospital, Outpatient Chemical Dependency Programs, and Partial Hospitalization

The unit of measurement for this measure is an inpatient episode of care. Each distinct hospitalization should be reported, regardless of whether the same patient is admitted for inpatient care more than once during the measurement period. In addition, the eMeasure logic

intends to represent events within or surrounding a single occurrence of an inpatient hospitalization.

6.1.3 Measure 30v4: Statin Prescribed at Discharge, NQF 0639, Statin Prescribed at Discharge

The measurement period is one calendar year, but the reporting period is 3 months as a calendar quarter: Q1 is Jan – Mar, Q2 is Apr – Jun, Q3 is Jul – Sep, and Q4 is Oct – Dec.

Exclusion element guidance:

The intent for the exclusion for patients who are clinical trial participants was to be limited to patients participating in a clinical trial for acute myocardial infarction (AMI), ST elevation myocardial infarction (STEMI), non-ST elevation myocardial infarction (non-STEMI), heart attack, or acute coronary syndrome (ACS)—the same conditions covered by the measure. However, the value set specifying clinical trial participation is not limited to a specific type of trial; therefore, this piece of logic will not be included in certification testing or reviewed on audit at this time.

Medical, patient, or system reasons for not performing a test or giving a medication are categories for valid medical, patient, or system reasons that are not specifically listed in the exclusion section of the measure. Each is expected to be captured and made available for measurement or clinical decision support within the EHR workflow, but the exact method or location of capture is a local or vendor decision.

6.1.4 Measure 31v3: Hearing Screening Prior to Hospital Discharge, NQF 1354, Hearing screening prior to hospital discharge

The measurement period is one calendar year, but the reporting period is jurisdictionally defined.

The logic phrase `AND: "Diagnosis, Active: Livebirth" starts during "Occurrence A of Encounter, Performed: Encounter Inpatient"` intends to capture admission type of newborn for the encounter. Where this information is available in existing EHR structured fields (e.g., data that is fed to UB 04, field location 14), it can be used to map the criterion specified in the logic.

The logic phrase `AND: OR: "Diagnosis, Active: Liveborn Born In Hospital" starts during "Occurrence A of Encounter, Performed: Inpatient Encounter"` intends to capture the point of origin for the inpatient admission. Where this information is available in existing EHR structured fields (e.g., data that is fed to UB-04, field location 15), it can be used to map the criterion specified in the logic.

6.1.5 Measure 32v4: Median Time from ED Arrival to ED Departure for Discharged ED Patients, NQF 0496, Median Time from ED Arrival to ED Departure for Discharged ED Patients

This measure uses a continuous variable. The specification provides elements from the clinical electronic record required to calculate for each ED encounter—i.e., the length of time the patient was in the Emergency Department, also stated as: the Emergency Department departure time minus the Emergency Department arrival time. The calculation requires the median of all ED

encounter durations. This measure specification defines how to determine an individual Emergency Department stay. Reporting requires the median of all patient stays ([Encounter: encounter ED].departuredatetime – [Encounter: encounter ED].arrivaldatetime).

The measurement period is one calendar year, but the reporting period is 3 months as a calendar quarter: Q1 = Jan – Mar, Q2 = Apr – Jun, Q3 = Jul – Sep, and Q4 is Oct – Dec.

Additional guidance on ED Throughput is available on the CMS website at:
http://www.cms.gov/Medicare/QualityInitiatives-Patient-Assessment-Instruments/QualityMeasures/downloads/EH_EDThroughputStratificationTable.pdf

6.1.6 Measure 53v3: Primary PCI Received within 90 Minutes of Hospital Arrival, NQF 0163, Primary PCI Received within 90 Minutes of Hospital

Because of QDM limitations for identifying the closest event to another event, the denominator will identify the last ECG performed within 1 hour prior to hospital arrival OR the first ECG performed after hospital arrival.

For the denominator data element "Diagnostic Study, Result: Hospital Measures-ECG Impression," EHR implementations will need to develop mechanisms to capture ECG findings to support denominator criteria for this measure. The measure specification indicates allowable findings. The source of the ECG results should be a physician/APN/PA (rather than the ECG machine's computerized results).

Numerator element guidance:

This measure expects a PCI procedure within 90 minutes of hospital arrival. Patients receiving PCI procedures greater than 90 minutes after arrival may be excluded from the denominator only if there is a documented reason for a delay or documented occurrence of intubation, cardiopulmonary arrest, or mechanical circulatory assist device placement within the first 90 minutes after arrival. Patients receiving PCI procedures greater than 90 minutes after arrival and with no reason provided are not compliant with the numerator criteria and will remain in the denominator.

Denominator and Numerator element guidance:

For the denominator and numerator data element "Occurrence A of Procedure, Performed: Hospital Measures-PCI" and time of start, EHR implementations will need to develop mechanisms to capture the time the balloon was inflated, the time the stent was deployed, or the time a thrombectomy device was used to treat the lesion, whichever is earliest.

Exclusion element guidance:

The intent for the exclusion for patients who are clinical trial participants was to be limited to patients participating in a clinical trial for acute myocardial infarction (AMI), ST elevation myocardial infarction (STEMI), non-ST elevation myocardial infarction (non-STEMI), heart attack, or acute coronary syndrome (ACS)—the same conditions covered by the measure. However, the value set specifying clinical trial participation is not limited to a specific type of trial.

Transfers from another hospital are excluded since care may have been delivered in the other setting. Transfers from those hospitals are considered exclusions regardless of whether the receiving hospital has the same or different hospital unique identifier as the transferring hospital.

PCI procedures analyzed in this measure must be primary procedures. Primary includes emergent or urgent PCI procedures and not those described by the physician/APN/PA anywhere in the record as elective, not emergent, not immediate, not primary, not urgent, or secondary.

From a clinical standpoint, Primary PCI is loosely defined as percutaneous coronary intervention performed in the acute setting in patients with ST segment elevation MI, which is intended to restore perfusion in the infarct-related artery. In randomized trials and observational studies, this therapy is associated with significant reductions in the risks of adverse events, including death, in selected patients with STEMI.

Exception element guidance:

Medical or patient reasons for not performing a procedure or giving a medication are categories for valid medical or patient reasons that are not specifically listed in the exclusion section of the measure. Each is expected to be captured and made available for measurement or clinical decision support within the EHR workflow, but the exact method or location of capture is a local or vendor decision.

Denominator, Numerator, Exclusion, and Exception element guidance:

The criteria indicate scenarios in which the patient is admitted to the hospital directly or the patient is admitted from the Emergency Department (ED). The calculation is to indicate the timing from arrival at the facility to the occurrence of an event.

6.1.7   Measure 55v3: Median Time from ED Arrival to ED Departure for Admitted Patients, NQF 0495, Median Time from ED Arrival to ED Departure for Admitted ED Patients

This measure specification defines how to determine an individual Emergency Department stay. Reporting requires the median of all patient stays: [Encounter: encounter ED]*arrival date and time – [Encounter: encounter ED]*ED departure date and time.

Calculate the ED time in minutes for each person in the measure population; report the median time for all calculations performed. The specification provides elements from the clinical electronic record required to calculate for each ED encounter—i.e., the length of time the patient was in the Emergency Department, also stated as: the TIMEDIFF for the Emergency Department departure time minus the Emergency Department arrival time. The calculation requires the median across all ED encounter durations.

Additional guidance on ED Throughput is available on the CMS website at: http://www.cms.gov/Medicare/QualityInitiatives-Patient-Assessment-Instruments/QualityMeasures/downloads/EH_EDThroughputStratificationTable.pdf

6.1.8   Measure 60v3: Fibrinolytic Therapy Received within 30 Minutes of Hospital Arrival, NQF 0164, Fibrinolytic Therapy Received within 30 Minutes of Hospital Arrival

Because of QDM limitations for identifying the closest event to another event, the denominator will identify the last ECG performed within 1 hour prior to hospital arrival OR the first ECG performed after hospital arrival.

Denominator element guidance:

The denominator and numerator criteria indicate scenarios in which the patient is admitted to the hospital directly or the patient is admitted from the Emergency Department (ED). The calculation is to indicate the timing from arrival at the facility to the occurrence of an event.

For the denominator data element "Diagnostic Study, Result: Hospital Measures-ECG Impression," EHR implementations will need to develop mechanisms to capture ECG findings to support denominator criteria for this measure. The measure specification indicates allowable findings. The source of the ECG results should be a physician/APN/PA (rather than the ECG machine's computerized results).

Numerator element guidance:

This measure expects fibrinolytic therapy within 30 minutes of hospital arrival. Those patients receiving fibrinolysis greater than 30 minutes after arrival may be excluded from the denominator only if there is a documented reason for a delay or documented occurrence of intubation, cardiopulmonary arrest, or mechanical circulatory assist device placement within the first 30 minutes after arrival. Patients receiving fibrinolysis greater than 30 minutes after arrival, with no reason provided, are not compliant with the numerator criteria and will remain in the denominator.

Exclusion element guidance:

The intent for the exclusion of patients who are clinical trial participants was to be limited to patients participating in a clinical trial for acute myocardial infarction (AMI), ST elevation myocardial infarction (STEMI), non-ST elevation myocardial infarction (non-STEMI), heart attack, or acute coronary syndrome (ACS)—the same conditions as covered by the measure. However, the value set specifying clinical trial participation is not limited to a specific type of trial.

Transfers from another hospital are excluded since care may have been delivered in the other setting. Transfers from those hospitals are considered exclusions regardless of whether the receiving hospital has the same or different hospital unique identifier as the transferring hospital.

Denominator, Numerator, Exclusion and Exception element guidance:

The criteria indicate scenarios in which the patient is admitted to the hospital directly or the patient is admitted from the Emergency Department (ED). The calculation is to indicate the timing from arrival at the facility to the occurrence of an event.

6.1.9 Measure 71v4: Anticoagulation Therapy for Atrial Fibrillation/Flutter, NQF 0436, STK-03: Anticoagulation Therapy for Atrial Fibrillation/Flutter

The unit of measurement for this measure is an inpatient episode of care. Each distinct hospitalization should be reported, regardless of whether the same patient is admitted for inpatient care more than once during the measurement period. In addition, the eCQM logic

intends to represent events within or surrounding a single occurrence of an inpatient hospitalization.

The "Non-elective admissions" value set intends to capture all non-scheduled hospitalizations. This value set is a subset of the "Inpatient Encounter" value set, excluding concepts that specifically refer to elective hospital admissions. Non-elective admissions include emergency, urgent, and unplanned admissions, including patients admitted for observation.

6.1.10 Measure 72v3: Antithrombotic Therapy by End of Hospital Day 2, NQF 0438, STK 05: Antithrombotic Therapy by End of Hospital Day 2

The unit of measurement for this measure is an inpatient episode of care. Each distinct hospitalization should be reported, regardless of whether the same patient is admitted for inpatient care more than once during the measurement period. In addition, the eCQM logic intends to represent events within or surrounding a single occurrence of an inpatient hospitalization.

The "Non-elective admissions" value set intends to capture all non-scheduled hospitalizations. This value set is a subset of the "Inpatient Encounter" value set, excluding concepts that specifically refer to elective hospital admissions. Non-elective admissions include emergency, urgent, and unplanned admissions, including patients admitted for observation.

6.1.11 Measure 73v3: Venous Thromboembolism Patients with Anticoagulation Overlap Therapy, NQF 0373, Venous Thromboembolism Patients with Anticoagulant Overlap Therapy

The unit of measurement for this measure is an inpatient episode of care. Each distinct hospitalization should be reported, regardless of whether the same patient is admitted for inpatient care more than once during the measurement period. In addition, the eCQM logic intends to represent events within or surrounding a single occurrence of an inpatient hospitalization.

For date difference calculations, use the LAST (most recent) of the alternative dates as the end date and the EARLIEST of the alternative dates as the start date. The calculation should be performed as end date minus start date.

6.1.12 Measure 91v4: Thrombolytic Therapy NQF 0437, STK 04: Thrombolytic Therapy

The unit of measurement for this measure is an inpatient episode of care. Each distinct hospitalization should be reported, regardless of whether the same patient is admitted for inpatient care more than once during the measurement period. In addition, the eMeasure logic intends to represent events within or surrounding a single occurrence of an inpatient hospitalization.

The "baseline state" value set and its associated effectiveTime intend to capture the date and time prior to hospital arrival at which it was witnessed or reported that the patient was last known to be without the signs and symptoms of the current stroke or at his or her baseline state of health. The "Time of Symptom Onset" value set and its associated effectiveTime are intended to capture the date and time at which symptoms started if symptom onset was witnessed. Since

none of the value sets make any specific reference to stroke, their use is only meaningful in the context of stroke-specific documentation, such as a stroke assessment form or template.

The "Non-elective Inpatient Encounter" value set intends to capture all non-scheduled hospitalizations. This value set is a subset of the "Inpatient Encounter" value set, excluding concepts that specifically refer to elective hospital admissions. Non-elective admissions include emergency, urgent, and unplanned admissions, including patients admitted for observation.

6.1.13 Measure 100v3: Aspirin Prescribed at Discharge, NQF 0142, AMI2 Aspirin Prescribed at Discharge for AMI

Exclusion element guidance:

The intent for the exclusion for patients who are clinical trial participants was to be limited to patients participating in a clinical trial for acute myocardial infarction (AMI), ST elevation myocardial infarction (STEMI), non-ST elevation myocardial infarction (non-STEMI), heart attack, or acute coronary syndrome (ACS)—the same conditions as covered by the measure. However, the value set specifying clinical trial participation is not limited to a specific type of trial; therefore, this piece of logic will not be included in certification testing or reviewed on audit at this time.

Medical or patient reasons for not performing a test or giving a medication are categories for valid medical or patient reasons that are not specifically listed in the exclusion section of the measure. Each is expected to be captured and made available for measurement or clinical decision support within the EHR workflow, but the exact method or location of capture is a local or vendor decision.

6.1.14 Measure 102v3: Assessed for Rehabilitation, NQF 0441, STK-10: Assessed for Rehabilitation

The unit of measurement for this measure is an inpatient episode of care. Each distinct hospitalization should be reported, regardless of whether the same patient is admitted for inpatient care more than once during the measurement period. In addition, the eCQM logic intends to represent events within or surrounding a single occurrence of an inpatient hospitalization.

The "Non-elective Inpatient Encounter" value set intends to capture all non-scheduled hospitalizations. This value set is a subset of the "Inpatient Encounter" value set, excluding concepts that specifically refer to elective hospital admissions. Non-elective admissions include emergency, urgent, and unplanned admissions, including patients admitted for observation.

6.1.15 Measure 104v3: Discharged on Antithrombotic Therapy, NQF 0435, STK 02: Discharged on Antithrombotic Therapy

The unit of measurement for this measure is an inpatient episode of care. Each distinct hospitalization should be reported, regardless of whether the same patient is admitted for inpatient care more than once during the measurement period. In addition, the eCQM logic intends to represent events within or surrounding a single occurrence of an inpatient hospitalization.

The "Non-elective Admissions" value set intends to capture all non-scheduled hospitalizations. This value set is a subset of the "Inpatient Encounter" value set, excluding concepts that specifically refer to elective hospital admissions. Non-elective admissions include emergency, urgent, and unplanned admissions, including patients admitted for observation.

6.1.16 Measure 105v3: Discharged on Statin Medication, NQF 0439, STK-06: Discharged on Statin Medication

The unit of measurement for this measure is an inpatient episode of care. Each distinct hospitalization should be reported, regardless of whether the same patient is admitted for inpatient care more than once during the measurement period. In addition, the eCQM logic intends to represent events within or surrounding a single occurrence of an inpatient hospitalization.

Lipid-lowering medications are intended as active home medications that the patient may or may not continue to take during hospitalization.

The "Non-elective Admissions" value set intends to capture all non-scheduled hospitalizations. This value set is a subset of the "Inpatient Encounter" value set, excluding concepts that specifically refer to elective hospital admissions. Non-elective admissions include emergency, urgent, and unplanned admissions, including patients admitted for observation.

6.1.17 Measure 107v3: Stroke Education

The unit of measurement for this measure is an inpatient episode of care. Each distinct hospitalization should be reported, regardless of whether the same patient is admitted for inpatient care more than once during the measurement period. In addition, the eCQM logic intends to represent events within or surrounding a single occurrence of an inpatient hospitalization.

Written information given to the patient is required to address every one of the educational components. These components are modeled in the population criteria and data criteria as communication from provider to patient (e.g., activation of emergency medical system, follow-up after discharge, medications prescribed at discharge, risk factors, and signs and symptoms) and are intended to be specific to stroke.

The "Non-elective Admissions" value set intends to capture all non-scheduled hospitalizations. This value set is a subset of the "Inpatient Encounter" value set, excluding concepts that specifically refer to elective hospital admissions. Non-elective admissions include emergency, urgent, and unplanned admissions, including patients admitted for observation.

6.1.18 Measure 108v3: Venous Thromboembolism Prophylaxis, NQF 0371, Venous Thromboembolism Prophylaxis

The unit of measurement for this measure is an inpatient episode of care. Each distinct hospitalization should be reported, regardless of whether the same patient is admitted for inpatient care more than once during the measurement period. In addition, the eMeasure logic intends to represent events within or surrounding a single occurrence of an inpatient hospitalization.

When low-dose unfractionated heparin is not administered due to medical reasons, the intended administration route is subcutaneous.

The construct of Unfractionated Heparin (route: 'Intravenous route') intends to capture continually infused heparin rather than heparin flushes or pushes.

6.1.19 Measure 109v3: Venous Thromboembolism Patients Receiving Unfractionated Heparin with Dosages/Platelet Count Monitoring by Protocol or Nomogram

The unit of measurement for this measure is an inpatient episode of care. Each distinct hospitalization should be reported, regardless of whether the same patient is admitted for inpatient care more than once during the measurement period. In addition, the eCQM logic intends to represent events within or surrounding a single occurrence of an inpatient hospitalization.

Treatment adjustment by protocol and/or use of a clinical pathway must be specific to unfractionated heparin therapy. Heparin protocols and clinical pathways may include use of a nomogram.

The construct of Unfractionated Heparin (route: 'Intravenous route') intends to capture continually infused heparin rather than heparin flushes or pushes.

6.1.20 Measure 110v3: Venous Thromboembolism Discharge Instructions

The unit of measurement for this measure is an inpatient episode of care. Each distinct hospitalization should be reported, regardless of whether the same patient is admitted for inpatient care more than once during the measurement period. In addition, the eCQM logic intends to represent events within or surrounding a single occurrence of an inpatient hospitalization.

Written information given to the patient is required to address every one of the educational components. These components are modeled in the population criteria and data criteria as communications from provider to patient (e.g., adverse reactions and interactions, International Normalized Ratio [INR] monitoring and medication compliance, and dietary advice and follow-up monitoring) and are intended to be specific to discharge instructions for warfarin therapy. The educational components are intended as discharge instructions and not as verbal education.

6.1.21 Measure 111v3: Median Admit Decision Time to ED Departure Time for Admitted Patients, NQF 0497, Admit Decision Time to ED Departure Time for Admitted Patients

This measure specification defines how to determine an individual Emergency Department stay. Reporting requires the median of all patient stays [Encounter: encounter ED]. decisiontoadmitdateandtime − [Encounter: encounter ED]. EDdeparturedateandtime.

Calculate the ED time in minutes for each person in the measure population; report the median time for all calculations performed. The specification provides elements from the clinical electronic record required to calculate for each ED encounter—i.e., the length of time the patient was in the Emergency Department from the time of decision to admit, also stated as: the

TIMEDIFF for the Emergency Department departure time minus the Decision to Admit Time. The calculation requires the median across all ED encounter durations.

Additional guidance on ED Throughput is available on the CMS website at: http://www.cms.gov/Medicare/Quality-Initiatives-PatientAssessment-Instruments/QualityMeasures/downloads/EH_EDThroughputStratificationTable.pdf

6.1.22 Measure 113v3: Elective Delivery, NQF 0469, PC-01 Elective Delivery

The unit of measurement for this measure is an inpatient episode of care. Each distinct hospitalization should be reported, regardless of whether the same patient is admitted for inpatient care more than once during the measurement period. In addition, the eCQM logic intends to represent events within or surrounding a single occurrence of an inpatient hospitalization.

Wherever the gestational age is mentioned with relative timing to delivery, the intent is to capture gestational age documented on the day of delivery.

Gestational age should be rounded off to the nearest completed week, not the following week. For example, an infant born on the 5th day of the 36th week (35 weeks and 5/7 days) is at a gestational age of 35 weeks, not 36 weeks.

6.1.23 Measure 114v3: Incidence of Potentially Preventable Venous Thromboembolism

The unit of measurement for this measure is an inpatient episode of care. Each distinct hospitalization should be reported, regardless of whether the same patient is admitted for inpatient care more than once during the measurement period. In addition, the eCQM logic intends to represent events within or surrounding a single occurrence of an inpatient hospitalization.

When unfractionated heparin is not administered due to medical reasons, the intended administration route is subcutaneous.

The construct of Unfractionated Heparin (route: 'Intravenous route') intends to capture continually infused heparin rather than heparin flushes or pushes.

6.1.24 Measure 171v4: Prophylactic Antibiotic Received within One Hour of Surgical Incision, NQF 0527, Prophylactic Antibiotic Received within One Hour Prior to Surgical Incision

The measurement period is one calendar year, but the reporting period is 3 months as a calendar quarter: Q1 = Jan – Mar, Q2 = Apr – Jun, Q3 = Jul – Sep, and Q4 is Oct – Dec.

Denominator Exclusion guidance:

The exclusion for patients who are clinical trial participants is limited to patients participating in a clinical trial for the same conditions as covered by the measure. Other clinical trials are not valid reasons for exclusions.

6.1.25 Measure 172v4: Prophylactic Antibiotic Selection for Surgical Patients, NQF 0528, Prophylactic Antibiotic Selection for Surgical Patients

The measurement period is one calendar year, but the reporting period is 3 months as a calendar quarter: Q1 = Jan – Mar, Q2 = Apr – Jun, Q3 = Jul – Sep, and Q4 is Oct – Dec.

Denominator Exclusion guidance

The exclusion for patients who are clinical trial participants is limited to patients participating in a clinical trial for the same conditions as covered by the measure. Other clinical trials are not valid reasons for exclusions.

Numerator element guidance:

Vancomycin is acceptable for CABG, other cardiac procedures, hip arthroplasty, knee arthroplasty, and vascular surgery if there is an increased MRSA rate facility-wide or operation-specific. For the purpose of using vancomycin for prophylaxis, it is expected that vancomycin is given ONLY if one of the allowable conditions is TRUE.

6.1.26 Measure 178v4: Urinary Catheter Removed on Postoperative Day 1 (POD1) or Postoperative Day 2 (POD2) with Day of Surgery Being Zero, NQF 0453, Urinary Catheter Removed on Postoperative Day 1 (POD1) or Postoperative Day 2 (POD2) with Day of Surgery Being Day Zero

The measurement period is one calendar year, but the reporting period is 3 months as a calendar quarter: Q1 = Jan – Mar, Q2 = Apr – Jun, Q3 = Jul – Sep, and Q4 is Oct – Dec.

General guidance:

In this measure, the code lists that describe types of surgical procedures remain only in ICD-9 or ICD-10 because the concepts that apply are limited to a very specific subset of all surgical procedures.

Denominator element guidance:

The denominator in this measure specifically excludes surgical procedures that may be associated with postoperative indwelling urinary catheter usage and that occur in close time proximity to the index major surgical procedure.

Exclusion element guidance:

The exclusion for patients who are clinical trial participants is limited to patients participating in a clinical trial for the same conditions covered by the measure. Other clinical trials are not valid reasons for exclusions.

By convention, discharge date post "Encounter Inpatient" is used to describe the hospital discharge date. Where logic needs to indicate discharge (or transfer) from one inpatient location to another, the logic uses "Transfer From" or "Transfer To" as the QDM data type.

6.1.27 Measure 185v3: Healthy Term Newborn, NQF 0716, Healthy Term Newborn

CMS suggests eligible hospitals participating in the Medicare & Medicaid EHR Incentive Programs <u>not</u> select NQF CMS185/NQF0716: Healthy Term Newborn as one of their additional

electronic clinical quality measures (eCQMs) for meaningful use. The measure will no longer be maintained since the measure steward has submitted a substantially changed measure to NQF for endorsement.

The very first step for this measure, identifying all term singleton infants, can be surprisingly challenging. Some hospitals do not do a good job of using the proper v-codes or DRGs so that clinical information such as birth weight and gestational age need to be used in the first step.

The logic phrase AND: "Occurrence A of Encounter, Performed: Inpatient Encounter (reason: 'Birth')" intends to capture admission type of newborn for the encounter. Where this information is available in existing EHR structured fields (e.g., data that is fed to UB-04, field location 14), it can be used to map the criterion specified in the logic.

The logic phrase AND: "Diagnosis, Active: Liveborn Born In Hospital" starts during "Occurrence A of Encounter, Performed: Inpatient Encounter" intends to capture the point of origin for the inpatient admission. Where this information is available in existing EHR structured fields (e.g., data that is fed to UB-04, field location 15), it can be used to map the criterion specified in the logic.

6.1.28 Measure 188v4: Initial Antibiotic Selection for Community-Acquired Pneumonia (CAP) for Immunocompetent Patients, NQF 0147, Initial Antibiotic Selection for Community-Acquired Pneumonia (CAP) in Immunocompetent Patients

General guidance:

The measure criteria indicate scenarios in which the patient is admitted to the hospital directly (to ICU or Non-ICU locations) or the patient is admitted to one of these locations from the Emergency Department (ED).

The calculation is to indicate the timing from arrival at the facility to the occurrence of an event. The arrival, therefore, can be determined from the Emergency Department, the Non-ICU location, or the ICU location, whichever is the first location of contact between the patient and the facility.

Exclusion element guidance:

The exclusion for patients who are clinical trial participants is limited to patients participating in a clinical trial for pneumonia, the same condition covered by the measure. Other clinical trials are not valid reasons for exclusions.

Transfers from another hospital that is not part of the hospital's organization are excluded since care may have been delivered in the other setting. The measure as specified for abstraction allowed determination of other hospital by hospital billing number.

Transfers within 1 day from those hospitals using the same facility number are not considered transfers for the exclusion section of this measure; those using other facility numbers are considered exclusions.

For the Respiratory Infection exclusion, the logic indicates that the patient is included if they have a respiratory infection but excluded for any other infection unless the encounter ends ≤ 24 hours after the start.

The exclusion for absolute neutrophil count < 500 may require calculation. The absolute neutrophil count (ANC) = Total WBC × (% "Segs" + % "Bands"), OR WBC × [(Segs/100) + (Bands/100)].

Additional information on medications cited in this measure is available on the QualityNet website in the measure table titled "Measure Information Form, Measure Set: Pneumonia (PN), Pneumonia Antibiotic Consensus Recommendations":
http://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2F
Page%2FQnetTier4&cid=1228772433589

6.1.29 Measure 190v3: Intensive Care Unit Venous Thromboembolism Prophylaxis, NQF 0372, Intensive Care Unit Venous Thromboembolism Prophylaxis

The unit of measurement for this measure is an inpatient episode of care. Each distinct hospitalization should be reported, regardless of whether the same patient is admitted for inpatient care more than once during the measurement period. In addition, the eCQM logic intends to represent events within or surrounding a single occurrence of an inpatient hospitalization.

The definition of an ICU for the purpose of the measures noted above is that used by the CDC in the National Healthcare Safety Network Patient Safety Project. An intensive care unit can be defined as a nursing care area that provides intensive observation, diagnosis, and therapeutic procedures for adults and/or children who are critically ill. An ICU excludes nursing areas that provide step-down, intermediate, or telemetry-only care and specialty care areas.

Numerator criteria for this measure do not exclusively provide the standard of care for VTE prophylaxis. In addition to recommended forms of VTE prophylaxis, numerator criteria include a number of clinical scenarios where the administration of the recommended forms of prophylaxis would not be needed or appropriate.

The construct of Unfractionated Heparin (route: 'Intravenous route') intends to capture continually infused heparin rather than heparin flushes or pushes.

6.2 Eligible Professional Measures

6.2.1 Measure 2v4: Preventive Care and Screening: Screening for Clinical Depression and Follow-Up Plan, NQF 0418, Depression_Screening

A clinical depression screen is completed on the date of the encounter using an age-appropriate standardized depression screening tool. If the result of the screen is positive, a follow-up plan is documented on the day of the positive screen.

Screening Tools:

- The name of the age-appropriate standardized depression screening tool utilized must be documented in the medical record.
- The depression screening must be reviewed and addressed in the office of the provider filing the code, on the date of the encounter.
- The screening and encounter must occur on the same date.

- Standardized Depression Screening Tools should be normalized and validated for the age-appropriate patient population in which they are used and must be documented in the medical record.

Follow-Up Plan:

- The follow-up plan must be related to a positive depression screening; for example: "Patient referred for psychiatric evaluation due to positive depression screening."

6.2.2 Measure 22v3: Preventive Care and Screening: Screening for High Blood Pressure and Follow-Up Documented, NQF Not Applicable, BP_Screening_and_Follow_Up

Both the systolic and diastolic blood pressure measurements are required for inclusion. If there are multiple blood pressure readings on the same date of service, use the lowest systolic and lowest diastolic blood pressure on that date as the representative blood pressure.

Eligible professionals who report the measure must perform the blood pressure screening at the time of a qualifying visit and may not obtain measurements from external sources.

The documented-follow up plan must be related to the current BP reading as indicated; for example: "Patient referred to primary care provider for BP management."

6.2.3 Measure 50v3: Closing the Referral Loop: Receipt of Specialist Report, NQF Not Applicable, Closing_Referral_Loop

The provider to whom the patient was referred should be the same provider that sends the report.

The unit of analysis for this measure is at the patient level. Therefore, in cases where a patient has multiple qualifying referrals during the measurement period, only the first referral should be used for the IPP and denominator count.

6.2.4 Measure 52v3: HIV/AIDS: Pneumocystis Jiroveci Pneumonia (PCP) Prophylaxis, NQF 0405, HIVAIDS_PCP_Prophylaxis

Denominator 1: The CD4 count below 200 cells/mm3 must occur during the first nine months of the year.

Denominator 2: The CD4 count below 500 cells/mm3 or the CD4 percentage below 15% must occur during the first nine months of the year.

Once all denominators and numerators are calculated, a total rate should be calculated using the sum of the three denominators and the sum of the three numerators.

6.2.5 Measure 56v3: Functional Status Assessment for Hip Replacement, NQF Not Applicable, FSA_Hip_Replacement

A Functional Status Assessment (FSA) is based on administration of a validated instrument to eligible patients that asks patients to answer questions related to various domains, including pain, physical function, emotional well-being, health-related quality of life, and symptom acuity.

The use of patient-reported outcomes data in eMeasures – such as this measure of functional status – demonstrates the need for the Quality Reporting Data Architecture (QRDA) to support a data attribute that indicates that the patient provided the information.

6.2.6 Measure 61v4: Preventive Care and Screening: Cholesterol – Fasting Low Density Lipoprotein (LDL-C) Test Performed, NQF Not Applicable, Cholesterol_ScreeningA

This is part of a two-part measure that is paired with CMS64 Preventive Care and Screening: Cholesterol – Risk-Stratified Fasting LDL-C. If the fasting LDL-C test is performed, measure CMS64 should also be reported.

To be eligible for performance calculations, patients must have at least one face-to-face visit with the eligible professional during the measurement period. To meet the numerator criterion for this measure, the patient will have one fasting LDL-C performed during the same measurement period with the exception of patients with 0 or 1 risk factors who may have a fasting LDL-C performed up to four years prior to the current measurement period.

6.2.7 Measure 62v3: HIV/AIDS: Medical Visit, NQF Not Applicable, HIVAIDS_Medical_Visit

A medical visit is any visit with a health care professional who provides routine primary care for the patient with HIV/AIDS (may be but is not limited to a primary care clinician, ob/gyn, pediatrician, or infectious disease specialist).

6.2.8 Measure 64v4: Preventive Care and Screening: Risk-Stratified Cholesterol – Fasting Low Density Lipoprotein (LDL-C), NQF Not Applicable, Cholesterol_ScreeningB

This is a two-part measure that is paired with CMS61: Preventive Care and Screening: Cholesterol – Fasting Low Density Lipoprotein (LDL-C) Test Performed. If the fasting LDL-C results are documented this measure, CMS64 should also be reported.

To be eligible for performance calculations, patients must have at least one face-to-face visit with the eligible professional during the measurement period and have one fasting LDL-C performed during the same measurement period, with the exception of patients with 0 or 1 risk factors who may have a fasting LDL-C performed up to four years prior to the current measurement period. To meet the numerator criteria for this measure, the patient's fasting LDL-C (low density lipoprotein) meets or exceeds the recommended LDL-C goal.

6.2.9 Measure 65v4: Hypertension: Improvement in Blood Pressure, NQF Not Applicable, Hypertension_BP_Improve

Blood pressure readings must be taken while the patient is sitting. If multiple measurements occur on the same date, the last systolic and diastolic readings should be used.

"Occurrence A of Physical Exam, Finding: Systolic Blood Pressure (result)" represents the baseline blood pressure, which must occur prior to "Occurrence B of Physical Exam, Finding: Systolic Blood Pressure (result)," which represents the follow-up blood pressure.

To calculate the "Physical Exam, Finding: Delta systolic blood pressure (result)" data element, subtract the value of "Occurrence B of Physical Exam, Finding: Systolic Blood Pressure (result)" from the value of "Occurrence A of Physical Exam, Finding: Systolic Blood Pressure (result)."

The data element "Physical Exam, Finding: Delta systolic blood pressure (result)" is intended to represent the result of the mathematic comparison between systolic blood pressures taken during two separate visits. This is a calculation artifact, and there is no requirement to document the delta data element in the medical record.

6.2.10 Measure 66v3: Functional Status Assessment for Knee Replacement, NQF Not Applicable, FSA_Knee_Replacement

A Functional Status Assessment (FSA) is based on administration of a validated instrument to eligible patients that asks patients to answer questions related to various domains, including pain, physical function, emotional well-being, health-related quality of life, and symptom acuity.

The use of patient-reported outcomes data in eMeasures – such as this measure of functional status – demonstrates the need for the Quality Reporting Data Architecture (QRDA) to support a data attribute that indicates that the patient provided the information.

6.2.11 Measure 68v4: Documentation of Current Medications in the Medical Record, NQF 0419, Current_Meds_Documented

This measure is to be reported for every encounter during the measurement period. Eligible professionals reporting this measure may document medication information received from the patient, authorized representative(s), caregiver(s), or other available healthcare resources.

This list must include all prescriptions, over-the-counter (OTC) products, herbals, vitamins, minerals, and dietary (nutritional) supplements AND must contain the medications' names, dosage, frequency, and route of administration.

This measure should also be reported if the eligible professional documented that the patient is not currently taking any medications.

By reporting the action described in this measure, the provider attests to having documented a list of current medications using all immediate resources available at the time of the encounter.

6.2.12 Measure 69v3: Preventive Care and Screening: Body Mass Index (BMI) Screening and Follow-Up Plan, NQF 0421, BMI_and_Follow_Up

- There is no diagnosis associated with this measure.
- This measure is to be reported a minimum of once per reporting period for patients seen during the reporting period.
- This measure may be reported by eligible professionals who perform the quality actions described in the measure based on the services provided at the time of the qualifying visit and the measure-specific denominator coding.

BMI Measurement Guidance:

- Height and Weight – An eligible professional or his or her staff is required to measure both height and weight within six months of the current encounter. Height and weight may be obtained from separate encounters. Self-reported values cannot be used.

- The BMI may be documented in the medical record of the provider or in outside medical records obtained by the provider.

- If the most recent documented BMI is outside of normal parameters, then a follow-up plan is documented during the encounter or during the previous six months of the current encounter.

- The documented follow-up plan must be based on the most recent documented BMI, outside of normal parameters; for example, "Patient referred to nutrition counseling for BMI above normal parameters." (See Definitions for examples of follow-up plan treatments.)

- If more than one BMI is reported during the measurement period, the most recent BMI will be used to determine if the performance criteria have been met.

6.2.13 Measure 74v4: Primary Caries Prevention Intervention as Offered by Primary Care Providers, including Dentists, NQF Not Applicable, Primary_Caries_Prevention

No additional guidance is provided.

6.2.14 Measure 75v3: Children Who Have Dental Decay or Cavities, NQF Not Applicable, Children_Dental_Decay

No additional guidance is provided.

This is an inverse measure that tracks the percent of children with dental decay; a lower score indicates better quality and a higher score indicates lower quality. It is expected that the score will approach 0% to indicate better quality, but it is recognized that a score of 0% is unlikely.

6.2.15 Measure 77v3: HIV/AIDS: RNA Control for Patients with HIV, NQF Not Applicable, RNA_Control_HIV

No additional guidance is provided.

6.2.16 Measure 82v2: Maternal Depression Screening, NQF 1401, Maternal_Dep_Screening

The eMeasure specifies only the patient's record, looking for the newly allocated SNOMED codes that allow providers to record the screening and treatment of the mother, but the endorsed measure relies on notes from the patient's and mother's charts.

6.2.17 Measure 90v4: Functional Status Assessment for Complex Chronic Conditions, NQF Not Applicable, FSA_Complex_Chronic_Cond

Initial Encounter: The first encounter during the first 185 days of the measurement year.

Follow-up Encounter: The last encounter that is at least 30 days but no more than 180 days after the initial encounter.

A Functional Status Assessment (FSA) is based on administration of a validated instrument to eligible patients that asks patients to answer questions related to various domains, including pain, physical function, emotional well-being, health-related quality of life, and symptom acuity.

The use of patient-reported outcomes data in eMeasures – such as this measure of functional status – demonstrates the need for the Quality Reporting Data Architecture (QRDA) to support a data attribute that indicates that the patient provided the information.

6.2.18 Measure 117v3: Childhood Immunization Status, NQF 0038, Child_Imm_Status

For the MMR, hepatitis B, VZV, and hepatitis A vaccines, numerator inclusion criteria include evidence of receipt of recommended vaccine, documented history of the illness, or a seropositive test result for the antigen. For the DTaP, IPV, HiB, pneumococcal conjugate, rotavirus, and influenza vaccines, numerator inclusion criteria include only evidence of the receipt of the recommended vaccine. Patients may be excepted from a particular antigen if they had an anaphylactic reaction to the vaccine. Patients may be excepted from the DTaP vaccine if they have encephalopathy. Patients may be excepted from the IPV vaccine if they have had an anaphylactic reaction to streptomycin, polymyxin B, or neomycin. Patients may be excepted from the influenza vaccines if they have cancer of lymphoreticular or histiocytic tissue, multiple myeloma, or leukemia, or have had an anaphylactic reaction to neomycin. Patients may be excepted from the MMR or VZV vaccines if they have cancer of lymphoreticular or histiocytic tissue, multiple myeloma, or leukemia, or have had an anaphlyactic reaction to neomycin. Patients may be excepted from the hepatitis B vaccine if they have had an anaphylactic reaction to common baker's yeast.

The measure allows a grace period by measuring compliance with these recommendations between birth and age two. Depending on when a patient was born, the number of days between birth dates will vary and, as most immunizations are due by 18 months, shorten the grace period by a day. For example if there is a leap year between the patient's first and second birthday, the grace period will not include the second birthday.

The measure logic does not include the booster dose for the Hemophilus Influenza B (HiB) vaccine. The Clinical Recommendation Statement in the header describes the schedule for administering the Rotavirus (RV) vaccine. Measure implementers should refer to the logic for the allowable scenarios for the minimum number of doses.

The measure logic uses data types of "resolved" and "inactive" for history of illness differently across the vaccines in this measure, depending on the characteristics of the illness.

6.2.19 Measure 122v3: Diabetes: Hemoglobin A1c Poor Control, NQF 0059, Diab_HbA1c_Ctrl

Patient is numerator-compliant if most recent HbA1c level is > 9%, the most recent HbA1c result is missing, or if there are no HbA1c tests performed and results documented during the measurement period.

Only patients with a diagnosis of Type 1 or Type 2 diabetes should be included in the denominator of this measure; patients with a diagnosis of secondary diabetes due to another condition should not be included.

This is an inverse measure that tracks the percent of diabetics with poor hemoglobin A1c management; therefore, a lower score indicates better quality and a higher score indicates lower quality. It is expected that the score will approach 0% to indicate better quality, but it is recognized that a score of 0% is unlikely.

6.2.20 Measure 123v3: Diabetes: Foot Exam, NQF 0056, Diab_Foot

Only patients with a diagnosis of Type 1 or Type 2 diabetes should be included in the denominator of this measure; patients with a diagnosis of secondary diabetes due to another condition should not be included.

6.2.21 Measure 124v3: Cervical Cancer Screening, NQF 0032, Cervical_Cancer_Screen

No additional guidance is provided.

6.2.22 Measure 125v3: Breast Cancer Screening, NQF Not Applicable, Breast_Cancer_Screen

No additional guidance is provided.

6.2.23 Measure 126v3: Use of Appropriate Medications for Asthma, NQF 0036, Med_for_Asthma

No additional guidance is provided.

6.2.24 Measure 127v3: Pneumonia Vaccination Status for Older Adults, NQF 0043, Pneu_Vacc_Status

It is recommended that patients 65 years of age or older receive one pneumococcal vaccination in their lifetime.

6.2.25 Measure 128v3: Anti-depressant Medication Management, NQF 0105, Antidep_Med_Mgmt

To identify new treatment episodes for major depression, there must be a 90-day negative medication history (a period during which the patient was not taking antidepressant medication) prior to the first dispensing event associated with the Index Episode Start Date (Index Prescription Start Date).

CUMULATIVE MEDICATION DURATION is an individual's total number of medication days over a specific period; the period counts multiple prescriptions with gaps in between, but does not count the gaps during which a medication was not dispensed.

To determine the cumulative medication duration, determine first the number of the Medication Days for each prescription in the period: the number of doses divided by the dose frequency per day. Then add the Medication Days for each prescription without counting any days between the prescriptions.

For example, there is an original prescription for 30 days with two refills for 30 days each. After a gap of three months, the medication was prescribed again for 60 days with one refill for 60

days. The cumulative medication duration is $(30 \times 3) + (60 \times 2) = 210$ days over the 10 month period.

6.2.26 Measure 129v4: Prostate Cancer: Avoidance of Overuse of Bone Scan for Staging of Low Risk Prostate Cancer Patients, NQF 0389, PrCA_OveruseBoneScan

A higher score indicates appropriate treatment of patients with prostate cancer at low risk of recurrence.

Only patients with prostate cancer with low risk of recurrence will be counted in the performance denominator of this measure.

A higher score indicates appropriate treatment of patients with prostate cancer at low risk of recurrence.

The data element of 'Patient Characteristic: Male' is included in the IPP logic, which is not stated in the measure language but is in alignment with the intent of the measure.

Only patients with prostate cancer with low risk of recurrence will be counted in the performance denominator of this measure.

6.2.27 Measure 130v3: Colorectal Cancer Screening, NQF 0034, Colorectal_Cancer_Screen

No additional guidance is provided.

6.2.28 Measure 131v3: Diabetes: Eye Exam, NQF 0055, Diab_Eye

Only patients with a diagnosis of Type 1 or Type 2 diabetes should be included in the denominator of this measure; patients with a diagnosis of secondary diabetes due to another condition should not be included.

The eye exam must be performed by an ophthalmologist or optometrist.

6.2.29 Measure 132v3: Cataracts: Complications within 30 Days Following Cataract Surgery Requiring Additional Surgical Procedures, NQF 0564, CATARACTS_30daycomp

This is an episode-based measure, meaning there may be more than one reportable event for a given patient during the measurement period.

The level of analysis for this measure is each cataract surgery during the measurement period. Every cataract surgery during the measurement period should be counted as a measurable denominator event for the measure calculation.

The measure, as written, does not specifically require documentation of laterality. Coding limitations, in particular clinical terminologies, do not currently allow for that level of specificity. (ICD-10-CM includes laterality, but ICD-9-CM and SNOMED-CT do not uniformly include this distinction.) Therefore, at this time, it is not a requirement of this measure to indicate laterality of the diagnoses, findings, or procedures. Available coding to capture the data elements specified in this measure has been provided. It is assumed that the eligible professional will

record laterality in the patient medical record, as quality care and clinical documentation should include laterality.

This is an inverse measure that tracks complications that result in additional surgical procedures; therefore, a lower score indicates better quality and a higher score indicates lower quality. It is expected that the score will approach 0% to indicate better quality, but it is recognized that a score of 0% is unlikely.

6.2.30 Measure 133v3: Cataracts: 20/40 or Better Visual Acuity within 90 Days Following Cataract Surgery, NQF 0565, CATARACTS_2040

This is an episode-based measure, meaning there may be more than one reportable event for a given patient during the measurement period. The level of analysis for this measure is each cataract surgery during the measurement period, including instances where more than one cataract procedure was performed during the measurement period. Every cataract surgery during the measurement period should be counted as a measurable denominator event for the measure calculation.

Only procedures performed during January 1 - September 30 of the reporting period will be considered for this measure, in order to determine if 20/40 or better visual acuity has been achieved within the 90 days following the cataract procedure. Cataract procedures performed during October 1 - December 31 are excluded from the initial patient population.

The measure, as written, does not specifically require documentation of laterality. Coding limitations, in particular clinical terminologies, do not currently allow for that level of specificity. (ICD-10-CM includes laterality, but ICD-9-CM and SNOMED-CT do not uniformly include this distinction.) Therefore, at this time, it is not a requirement of this measure to indicate laterality of the diagnoses, findings, or procedures. Available coding to capture the data elements specified in this measure has been provided. It is assumed that the eligible professional will record laterality in the patient medical record, as quality care and clinical documentation should include laterality.

6.2.31 Measure 134v3: Diabetes: Urine Protein Screening, NQF 0062, Diab_Urine

Only patients with a diagnosis of Type 1 or Type 2 diabetes should be included in the denominator of this measure; patients with a diagnosis of secondary diabetes due to another condition should not be included.

6.2.32 Measure 135v3: Heart Failure (HF): Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) Therapy for Left Ventricular Systolic Dysfunction (LVSD), NQF 0081, HF_ACEARB

To satisfy this measure, it must be reported for all heart failure patients at least once during the measurement period if seen in the outpatient setting. If the patient has an inpatient encounter during the measurement period, it is expected to be reported at each hospital discharge.

The requirement of "Count >=2 of Encounter, Performed" is to establish that the eligible professional has an existing relationship with the patient.

Due to current limitations in the standards, when using occurencing across measure components, a patient may erroneously meet the requirements for a component of the measure using a different occurrence of Encounter than used to qualify in the IPP. As a result, the measure calculation may indicate a higher or lower rate of success.

6.2.33 Measure 136v4: ADHD: Follow-Up Care for Children Prescribed Attention-Deficit/ Hyperactivity Disorder (ADHD) Medication, NQF 0108, ADHD_FollowUp

CUMULATIVE MEDICATION DURATION is an individual's total number of medication days over a specific period; the period counts multiple prescriptions with gaps in between, but does not count the gaps during which a medication was not dispensed.

To determine the cumulative medication duration, determine first the number of Medication Days for each prescription in the period: the number of doses divided by the dose frequency per day. Then add the Medication Days for each prescription without counting any days between the prescriptions.

For example, there is an original prescription for 30 days with two refills for thirty days each. After a gap of three months, the medication was prescribed again for 60 days, with one refill for 60 days. The cumulative medication duration is $(30 \times 3) + (60 \times 2) = 210$ days over the 10-month period.

6.2.34 Measure 137v3: Initiation and Engagement of Alcohol and Other Drug Dependence Treatment, NQF 0004, Ini_Eng_Alc_Drug_Dep

The new episode of alcohol and other drug dependence should be the first episode of the measurement period that is not preceded in the 60 days prior by another episode of alcohol or other drug dependence.

6.2.35 Measure 138v3: Preventive Care and Screening: Tobacco Use: Screening and Cessation Intervention, NQF 0028, PREV_Tobacco

If a patient uses any type of tobacco (i.e., smokes or uses smokeless tobacco), the expectation is that he or she should receive treatment to encourage tobacco cessation – either counseling and/or pharmacotherapy.

If the tobacco use status of a patient is unknown, the patient does not meet the screening component required to be counted in the numerator and should be considered a measure failure. Instances where tobacco use status of "unknown" is recorded include: 1) the patient was not screened; or 2) the patient was screened and the patient (or caregiver) was unable to provide a definitive answer. If the patient does not meet the screening component of the numerator but has an allowable medical exception, then the patient should be removed from the denominator of the measure and reported as a valid exception.

Exceptions only apply to the screening data element of the measure; once a patient has been screened, there are no allowable exceptions for not providing the intervention.

6.2.36 Measure 139v3: Falls: Screening for Future Fall Risk, NQF 0101, Falls_Screening

No additional guidance is provided.

6.2.37 Measure 140v3: Breast Cancer: Hormonal Therapy for Stage IC-IIIC Estrogen Receptor/Progesterone Receptor (ER/PR) Positive Breast Cancer, NQF 0387, BrCA_HormonalTherapy

For the eCQM version of this measure, the initial patient population for this measure has been limited to patients with a first recorded breast cancer diagnosis within the past five years, as opposed to accounting for that patient population through the use of an exception (as is the case for claims implementation). The numerator captures patients who are prescribed adjuvant tamoxifen or AI, or received adjuvant tamoxifen or AI during the 12-month period. Date of breast cancer diagnosis is defined as date of pathologic diagnosis.

The requirement of "Count >=2 of Encounter, Performed" is to establish that the eligible professional has an existing relationship with the patient.

Due to current limitations in the standards, when using occurencing across measure components, a patient may erroneously meet the requirements for a component of the measure using a different occurrence of Encounter than used to qualify in the IPP. As a result, the measure calculation may indicate a higher or lower rate of success.

6.2.38 Measure 141v4: Colon Cancer: Chemotherapy for AJCC Stage III Colon Cancer Patients, NQF 0385, ColonCA_ChemoStageIII

The measure logic includes the combination of 5-FU/LV/oxaliplatin, which will capture either mFOLFOX6 or FLOX, category 1, as referenced in the definitions section.

The denominator for this measure has been limited to patients with a first recorded colon cancer diagnosis during the 12-month reporting period. The numerator captures patients who are prescribed adjuvant chemotherapy or received adjuvant chemotherapy during the 12-month period. "Referred for Chemotherapy" is not separately specified, as this option can be captured either through the "Medication Order: Chemotherapy for Colon Cancer" numerator option or the patient reason exception: "Medication, Administered not done: Patient reason" for "Chemotherapy for Colon Cancer." Additional valid medical reason exceptions might include acute renal insufficiency, neutropenia, or leukopenia. Date of diagnosis is defined as the date of pathologic diagnosis.

The requirement of "Count >=2 of Encounter, Performed" is to establish that the eligible professional has an existing relationship with the patient.

Due to current limitations in the standards, when using occurencing across measure components, a patient may erroneously meet the requirements for a component of the measure using a different occurrence of Encounter than used to qualify in the IPP. As a result, the measure calculation may indicate a higher or lower rate of success.

6.2.39 Measure 142v3: Diabetic Retinopathy: Communication with the Physician Managing Ongoing Diabetes Care, NQF 0089, DR_Communication

The measure, as written, does not specifically require documentation of laterality. Coding limitations in particular clinical terminologies do not currently allow for that level of specificity.

(ICD-10-CM includes laterality, but ICD-9-CM and SNOMED-CT do not uniformly include this distinction.) Therefore, at this time, it is not a requirement of this measure to indicate laterality of the diagnoses, findings, or procedures. Available coding to capture the data elements specified in this measure has been provided. It is assumed that the eligible professional will record laterality in the patient medical record, as quality care and clinical documentation should include laterality.

The communication of results to the physician providing ongoing care of a patient's diabetes should be completed soon after the dilated exam is performed. Eligible professionals reporting on this measure should note that all data for the reporting year is to be submitted by the deadline established by CMS. Therefore, eligible professionals who see patients towards the end of the reporting period (December in particular) should communicate the results of the dilated macular exam as soon as possible in order for those patients to be counted in the measure numerator. Communicating the results as soon as possible after the date of the exam will ensure that the data are included in the submission to CMS.

Due to current limitations in the standards, when using occurencing across measure components, a patient may erroneously meet the requirements for a component of the measure using a different occurrence of Encounter than used to qualify in the IPP. As a result, the measure calculation may indicate a higher or lower rate of success.

6.2.40 Measure 143v3: Primary Open-Angle Glaucoma (POAG): Optic Nerve Evaluation, NQF 0086, POAG_OpticNerve

Optic nerve head evaluation includes examination of the cup-to-disc ratio and identification of optic disc or retinal nerve abnormalities. Both of these components of the optic nerve head evaluation are examined using ophthalmoscopy.

The measure, as written, does not specifically require documentation of laterality. Coding limitations, in particular clinical terminologies, do not currently allow for that level of specificity. (ICD-10-CM includes laterality, but ICD-9-CM and SNOMED-CT do not uniformly include this distinction.) Therefore, at this time, it is not a requirement of this measure to indicate laterality of the diagnoses, findings, or procedures. Available coding to capture the data elements specified in this measure has been provided. It is assumed that the eligible professional will record laterality in the patient medical record, as quality care and clinical documentation should include laterality.

Due to current limitations in the standards, when using occurencing across measure components, a patient may erroneously meet the requirements for a component of the measure using a different occurrence of Encounter than used to qualify in the IPP. As a result, the measure calculation may indicate a higher or lower rate of success.

6.2.41 Measure 144v3: Heart Failure (HF): Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction (LVSD), NQF 0083, HF_BB

LVEF < 40% corresponds to qualitative documentation of moderate dysfunction or severe dysfunction.

To satisfy this measure, it must be reported for all heart failure patients at least once during the measurement period if seen in the outpatient setting. If the patient has an inpatient encounter during the measurement period, it is expected to be reported at each hospital discharge.

Beta-blocker therapy:

- For patients with prior LVEF < 40%, beta-blocker therapy should include bisoprolol, carvedilol, or sustained-release metoprolol succinate.

The requirement of "Count >=2 of Encounter, Performed" is to establish that the eligible professional has an existing relationship with the patient.

Due to current limitations in the standards, when using occurencing across measure components, a patient may erroneously meet the requirements for a component of the measure using a different occurrence of Encounter than used to qualify in the IPP. As a result, the measure calculation may indicate a higher or lower rate of success.

6.2.42 Measure 145v3: Coronary Artery Disease (CAD): Beta-Blocker Therapy – Prior Myocardial Infarction (MI) or Left Ventricular Systolic Dysfunction (LVEF < 40%), NQF 0070, CAD_BB

Beta-blocker therapy:

- For patients with prior MI, beta-blocker therapy includes any agent within the beta-blocker drug class. As of 2011, during the development process, no recommendations or evidence are cited in current chronic stable angina guidelines for preferential use of specific agents.
- For patients with prior LVEF < 40%, beta-blocker therapy includes bisoprolol, carvedilol, or sustained-release metoprolol succinate.

The requirement of "Count >=2 of Encounter, Performed" is to establish that the eligible professional has an existing relationship with the patient.

Due to current limitations in the standards, when using occurencing across measure components, a patient may erroneously meet the requirements for a component of the measure using a different occurrence of Encounter than used to qualify in the IPP. As a result, the measure calculation may indicate a higher or lower rate of success.

6.2.43 Measure 146v3: Appropriate Testing for Children with Pharyngitis, NQF 0002, Pharyngitis

This is an episode of care measure that examines all eligible episodes for the patient during the measurement period. If the patient has more than one episode, include all episodes in the measure.

6.2.44 Measure 147v4: Preventive Care and Screening: Influenza Immunization, NQF 0041, PREV_Influenza

The timeframe for the visit during the "Encounter, Performed: Encounter-Influenza," or "Procedure, Performed: Peritoneal Dialysis" or "Procedure, Performed: Hemodialysis" in the Population Criteria-Denominator refers to the influenza season defined by the measure: October through March (October 1 for the year prior to the start of the reporting period through March 31 during the reporting period). The "Encounter-Influenza" Grouping OID detailed in the data criteria section below comprises several individual OIDs of different encounter types. The individual OIDs are included in the value set and should be reviewed to determine that an

applicable visit occurred during the timeframe for "Encounter, Performed: Encounter-Influenza" as specified in the denominator.

To enable reporting of this measure at the close of the reporting period, this measure will only assess the influenza season that ends in March of the reporting period. The subsequent influenza season (ending March of the following year) will be measured and reported in the following year.

6.2.45 Measure 148v3: Hemoglobin A1c Test for Pediatric Patients, NQF 0060, HbA1c_Test_Ped

Only patients with a diagnosis of Type 1 or Type 2 diabetes should be included in the denominator of this measure; patients with a diagnosis of secondary diabetes due to another condition should not be included.

6.2.46 Measure 149v3: Dementia: Cognitive Assessment, NQF Not Applicable, DEMENTIA_Cognitive

Use of a standardized tool or instrument to assess cognition other than those listed will meet numerator performance. Standardized tools can be mapped to the concept "Intervention, Performed: Cognitive Assessment" included in the numerator logic below.

The requirement of "Count >=2 of Encounter, Performed" is to establish that the eligible professional has an existing relationship with the patient.

6.2.47 Measure 153v3: Chlamydia Screening for Women, NQF 0033, Chlamydia_Screen

Codes to identify sexually active women include codes for: pregnancy, sexually transmitted infections, contraceptives or contraceptive devices, and infertility treatments.

The denominator exclusion does not apply to patients who qualify for the initial patient population based on services other than the pregnancy test alone.

6.2.48 Measure 154v3: Appropriate Treatment for Children with Upper Respiratory Infection (URI), NQF 0069, URI

This is an episode of care measure that examines all eligible episodes for the patient during the measurement period. If the patient has more than one episode, include all episodes in the measure.

6.2.49 Measure 155v3: Weight Assessment and Counseling for Nutrition and Physical Activity for Children and Adolescents, NQF 0024, Weight_Assess_Counseling

The visit must be performed by a PCP or OB/GYN.

Because BMI norms for youth vary with age and gender, this measure evaluates whether BMI percentile is assessed rather than an absolute BMI value.

6.2.50 Measure 156v3: Use of High-Risk Medications in the Elderly, NQF 0022, HighRisk_Med_Elderly

The intent of Numerator 1 of the measure is to assess if the patient has been prescribed at least one high-risk medication. The intent of Numerator 2 of the measure is to assess if the patient has been prescribed at least two different high-risk medications.

CUMULATIVE MEDICATION DURATION is an individual's total number of medication days over a specific period; the period counts multiple prescriptions with gaps in between, but does not count the gaps during which a medication was not dispensed.

To determine the cumulative medication duration, determine first the number of the Medication Days for each prescription in the period: the number of doses divided by the dose frequency per day. Then add the Medication Days for each prescription without counting any days between the prescriptions.

For example, there is an original prescription for 30 days with two refills for 30 days each. After a gap of three months, the medication was prescribed again for 60 days with one refill for 60 days. The cumulative medication duration is $(30 \times 3) + (60 \times 2) = 210$ days over the 10 month period.

This is an inverse measure that tracks high-risk medication usage among the elderly; therefore, a lower score indicates better quality and a higher score indicates lower quality. It is expected that the score will approach 0% to indicate better quality, but it is recognized that a score of 0% is unlikely.

6.2.51 Measure 157v3: Oncology: Medical and Radiation – Pain Intensity Quantified, NQF 0384, ONC_PainQuantified

This measure is an episode-of-care measure; the level of analysis for this measure is every visit for patients with a diagnosis of cancer who are also receiving chemotherapy or radiation therapy during the measurement period. For patients receiving radiation therapy, pain intensity should be quantified at each radiation treatment management encounter. For patients receiving chemotherapy, pain intensity should be quantified at each face-to-face encounter with the physician while the patient is receiving treatment. For purposes of calculating this measure, eligible encounters for patients receiving chemotherapy will include encounters where the patient has been administered chemotherapy within 30 days prior to the encounter and also been administered chemotherapy within 30 days after the date of the encounter. For example, at every visit for patients with a diagnosis of cancer who are also receiving chemotherapy or radiation therapy, the patient should have pain intensity quantified.

Pain intensity should be quantified using a standard instrument, such as a 0-10 numeric rating scale, a categorical scale, or the pictorial scale.

6.2.52 Measure 158v3: Pregnant women that had HBsAg testing, NQF Not Applicable, Preg_HBsAg

No additional guidance is provided.

6.2.53 Measure 159v3: Depression Remission at Twelve Months, NQF 0710, Dep_Rem_12

No additional guidance is provided.

6.2.54 Measure 160v3: Depression Utilization of the PHQ-9 Tool, NQF 0712, Dep_PHQ9

No additional guidance is provided.

6.2.55 Measure 161v3: Adult Major Depressive Disorder (MDD): Suicide Risk Assessment, NQF 0104, MMD_Suicide Risk

It is expected that a suicide risk assessment will be completed at the visit during which a new diagnosis is made or at the visit during which a recurrent episode is first identified (i.e., at the initial evaluation). This measure is an episode-of-care measure and should be reported for each instance of a new or recurrent episode of MDD; every new or recurrent episode will count separately in the Initial Patient Population.

Use of a standardized tool or instrument to assess suicide risk will meet numerator performance. Standardized tools can be mapped to the concept "Intervention, Performed: Suicide Risk Assessment" included in the numerator logic below.

The measure description outlined in the header for this measure states "patients aged 18 years and older" while the logic statement states, ">= 17 year(s) starts before start of 'Measurement Period.'" The logic statement, as written, captures patients who turn 18 years old during the measurement period so that these patients are included in the measure. To ensure that all patients with major depressive disorder (MDD) are assessed for suicide risk, there are two clinical quality measures addressing suicide risk assessment: CMS 177 covers children and adolescents aged 6 through 17 and CMS 161 covers the adult population aged 18 years and older.

Due to current limitations in the standards, when using occurencing across measure components, a patient may erroneously meet the requirements for a component of the measure using a different occurrence of Encounter than used to qualify in the IPP. As a result, the measure calculation may indicate a higher or lower rate of success.

6.2.56 Measure 163v3: Diabetes: Low Density Lipoprotein (LDL) Management, NQF 0064, Diab_LDL

The patient is not numerator-compliant if the result for the most recent LDL-C test during the measurement period is ≥ 100 mg/dL, or is missing, or if an LDL-C test was not performed during the measurement period.

Only patients with a diagnosis of Type 1 or Type 2 diabetes should be included in the denominator of this measure; patients with a diagnosis of secondary diabetes due to another condition should not be included.

6.2.57 Measure 164v3: Ischemic Vascular Disease (IVD): Use of Aspirin or Another Antithrombotic, NQF 0068, IVD_Aspirin

Only patients who were discharged alive for acute myocardial infarction (AMI), coronary artery bypass graft (CABG), or percutaneous coronary interventions (PCI) should be included in the measure.

6.2.58 Measure 165v3: Controlling High Blood Pressure, NQF 0018, High_Blood_Pressure

In reference to the numerator element, only blood pressure readings performed by a clinician in the provider office are acceptable for numerator compliance with this measure. Blood pressure readings from the patient's home (including readings directly from monitoring devices) are not acceptable.

If no blood pressure is recorded during the measurement period, the patient's blood pressure is assumed "not controlled."

6.2.59 Measure 166v4: Use of Imaging Studies for Low Back Pain, NQF 0052, Low_Back_Pain

The outpatient or emergency department visit in the Initial Patient Population needs to occur during the first 337 days of the measurement period (337 days allows 28 days for the numerator event). This visit must be the first visit for low back pain during the measurement period.

6.2.60 Measure 167v3: Diabetic Retinopathy: Documentation of Presence or Absence of Macular Edema and Level of Severity of Retinopathy, NQF 0088, DR_MacularEdema

The measure, as written, does not specifically require documentation of laterality. Coding limitations in particular clinical terminologies do not currently allow for that level of specificity. (ICD-10-CM includes laterality, but ICD-9-CM and SNOMED-CT do not uniformly include this distinction.) Therefore, at this time, it is not a requirement of this measure to indicate laterality of the diagnoses, findings, or procedures. Available coding to capture the data elements specified in this measure has been provided. It is assumed that the eligible professional will record laterality in the patient medical record, as quality care and clinical documentation should include laterality.

Due to current limitations in the standards, when using occurencing across measure components, a patient may erroneously meet the requirements for a component of the measure using a different occurrence of Encounter than used to qualify in the IPP. As a result, the measure calculation may indicate a higher or lower rate of success.

6.2.61 Measure 169v3: Bipolar Disorder and Major Depression: Appraisal for alcohol or chemical substance use, NQF 0110, Bipolar_Dep_Substance_Use

The intent of the measure is that the assessment be performed for a single episode for each patient. Due to current limitations of the eMeasure specification system, it is possible for there to be up to two treatment episodes per patient, identified through up to two index episodes. As a result, the numerator criteria of this measure can be satisfied if a substance use assessment is performed within either treatment episode. Future versions of the measure should address this issue.

6.2.62 Measure 177v3: Child and Adolescent Major Depressive Disorder (MDD): Suicide Risk Assessment, NQF 1365, CAMDD_SuicideRisk

A suicide risk assessment should be performed at every visit for major depressive disorder during the measurement period.

This measure is an episode-of-care measure; the level of analysis for this measure is every visit for major depressive disorder during the measurement period. A minimum of two encounters are required during the measurement period for a patient to be included in this measure to establish that the eligible professional has an existing relationship with the patient; if the patient is only seen once by the eligible professional, the patient is not included in the measure. Once it has been established that the patient has been seen at least twice by the eligible professional, every visit for major depressive disorder should be counted as a measurable episode for the measure calculation. For example, at every visit for MDD, the patient should have a suicide risk assessment.

Use of a standardized tool or instrument to assess suicide risk will meet numerator performance. Standardized tools can be mapped to the concept "Intervention, Performed: Suicide Risk Assessment" included in the numerator logic.

Due to current limitations in the standards, when using occurencing across measure components, a patient may erroneously meet the requirements for a component of the measure using a different occurrence of Encounter than used to qualify in the IPP. As a result, the measure calculation may indicate a higher or lower rate of success.

6.2.63 Measure 179v3: ADE Prevention and Monitoring: Warfarin Time in Therapeutic Range, NQF Not Applicable, ADE_TTR

Please note that the logic expressions in the body section of the HQMF file should not be used to calculate this clinical quality measure. They are only provided to represent the data elements needed for the calculation. In order to calculate this clinical quality measure correctly, only use the narrative sections contained in the header section of the HQMF file and the annotated database query found in Appendix E.

INR values must be at least 0.8. Values less than 0.8 may represent aberrant results. INR values greater than 10 (i.e., outliers) must be replaced with a value of 10. An INR of 10 represents an abnormally high INR and would skew the results of the calculated TTR less than extreme values would (i.e., INR > 10).

Include the INR value closest to "2.5" when there is more than one INR result on a single date.

To be excluded from the denominator, patient must have an active diagnosis of valvular heart disease during the measurement period.

To determine the proportion of patients with atrial fibrillation who are on chronic warfarin therapy and have sufficient INR monitoring to calculate a TTR, the reporting provider can divide the Measure Population by the Initial Patient Population.

The calculation for the TTR for each patient is provided below in Appendix E.

The Measure Observation is the average of all patients' percent TTR, which can be calculated by dividing the sum of all patients' percent TTR by the number of patients in the Measure Population.

Supplemental SQL Logic Reference: This document contains the logic provided by Veterans Affairs (VA) collaborators to calculate patients' percent time in therapeutic range (TTR). This is intended to support the implementation of the clinical quality measure "ADE Prevention and Monitoring: Warfarin Time in Therapeutic Range" by providing an example of the structured query language (SQL) currently in use at VA sites. The complete VA SQL logic has been included to provide a full view of its content; however, the specifications in the header section of the Health Quality Measure Format (HQMF)-based specifications of the clinical quality measure should be the primary basis for implementation of the measure. The header section of the HQMF file for this clinical quality measure contains instructions in the Definitions and Guidance sections that indicate which parts of the VA SQL logic should be used. Since the VA electronic health record (EHR) system has a different table structure and different data definitions than other EHR systems, EHR system programmers and vendors should replace the fieldnames and tablenames as needed based on their knowledge of their EHR systems.

6.2.64 Measure 182v4: Ischemic Vascular Disease (IVD): Complete Lipid Panel and LDL Control, NQF 0075, IVD_Lipid_LDL

Only patients who were discharged alive for acute myocardial infarction (AMI), coronary artery bypass graft (CABG), or percutaneous coronary interventions (PCI) are included in this measure

7 JIRA – Clinical Quality Measure Feedback System

CMS and ONC will be using JIRA to track issues or bugs associated with the electronic Clinical Quality Measures.

The JIRA software program allows end users to report on new identified issues and/or quickly search issues that have been resolved or are currently being addressed.

Access JIRA at: jira.oncprojectracking.org.

Appendix A. Versioning and Endorsement

The 2014 eCQMs are labeled in a standard fashion. The names of the measure directories and Health Quality Measure Format (HQMF)[1] files are assigned automatically using the following conventions:

HQMF files are identified by the CMS eCQM identifier. This is a unique number that refers only to eCQMs recommended by CMS. The eCQMs released with the 2014 Stage 2 Meaningful Use incentive Program are appended with the label "v1" or "v2". The measures labeled v2 were part of the December update. Measures that have had changes since the most recent publication will be labeled as v2, v3, and so on as updates are released.

File name structure: CMS eCQM ID + extension

Example: CMS130v1.xml, CMS130v1.html

Names of measure directories contain additional information so that users can search measures by care setting, National Quality Forum (NQF) ID (when applicable), and short description. Here is an illustration of the naming conventions for the measure directories and HQMF files, using measure CMS130v1 (Eligible Professional measure, with NQF ID = 0034, and short description =Colorectal_Cancer_Screen) as an example:

For the entire collection of Eligible Professional (EP) and Eligible Hospital (EH) measures

Directory name structure: <EP|EH>_<Hospital|Professional>_eMeasures_<date>

Example: EH_Hospital_eMeasures_2012_10_17 (assuming the release date for these EH measures is 10/17/2012)

Individual measure directories

Directory name structure: <EP|EH>_<CMSeMeasureID>_<NQFID>_<shortDescription>
Example: EP_CMS130v1_NQF0034_Colorectal_Cancer_Screen

Note: The NQF ID reads NQF NOT APPLICABLE when it has not been endorsed by the NQF.

All measures have been recommended by CMS but not all have yet been endorsed by the NQF. We recommend use of the CMS eCQM ID to identify measures and their versions.

HQMF is an HL7 standard for representing a health quality measure as an electronic document.

Appendix B. Time Unit and Time Interval Definitions

ISO 8601:2004 defines data elements and interchange formats for the representation of dates and times, including time intervals. Table 6 summarizes important terms defined in the standard that are of particular importance and can be drawn upon to be used in time interval calculations for eCQMs.

Table 6. Time Unit and Interval Definitions

Term	ISO Definition	ISO Notes
Time interval	Part of the time axis limited by two instants	• A time interval comprises all instants between the two limiting instants and, unless otherwise stated, the limiting instants themselves.
Duration	Non-negative quantity attributed to a time interval, the value of which is equal to the difference between the time points of the final instant and the initial instant of the time interval, when the time points are quantitative marks	• In case of discontinuities in the time scale, such as a leap second or the change from winter time to summer time and back, the computation of the duration requires the subtraction or addition of the change of duration of the discontinuity. • The SI unit of duration is the second.
Nominal duration	Duration expressed among others in years, months, weeks, or days.	• The duration of a calendar year, a calendar month, a calendar week, or a calendar day depends on its position in the calendar. Therefore, the exact duration of a nominal duration can only be evaluated if the duration of the calendar years, calendar months, calendar weeks, or calendar days used is known.
Second	Base unit of measurement of time in the International System of Units (SI) as defined by the International Committee of Weights and Measures	
Minute	Unit of time equal to 60 seconds	
Hour	Unit of time equal to 60 minutes	
Day <unit of time>	Unit of time equal to 24 hours	

Calendar day	Time interval starting at midnight and ending at the next midnight, the latter being also the starting instant of the next calendar day	• A calendar day is often also referred to as a day.
		• The duration of a calendar day is 24 hours, except if modified by:
		   – The insertion or deletion of leap seconds, by decision of the International Earth Rotation Service (IERS), or
		   – The insertion or deletion of other time intervals, as may be prescribed by local authorities to alter the time scale of local time.

Day <duration>	Duration of a calendar day.	• The term "day" applies also to the duration of any time interval which starts at a certain time of day at a certain calendar day and ends at the same time of day at the next calendar day.

Term	ISO Definition	ISO Notes
Calendar week	Time interval of seven calendar days starting with a Monday.	• A calendar week is also referred to as a week.
• Week	Duration of a calendar week.	• The term "week" also applies to the duration of any time interval which starts at a certain time of day at a certain calendar day and ends at the same time of day at the same calendar day if the next calendar week.
Calendar month	Time interval resulting from the division of a calendar year in 12 time intervals, each with a specific name and containing a specific number of calendar days.	• A calendar month is often referred to as a month.
Month	Duration of 28, 29, 30, or 31 calendar days depending on the start and/or the end of the corresponding time interval within the specific calendar month.	• The term "month" applies also to the duration of any time interval which starts at a certain time of day at a certain calendar day of the calendar month and ends at the same time of day at the same calendar day of the next calendar month, if it exists. In other cases, the ending calendar day has to be agreed on. • In certain applications a month is considered as a duration of 30 calendar days.
Calendar year	Cyclic time interval in a calendar which is required for one revolution of the Earth around the Sun and approximated to an integral number of calendar days.	• A calendar year is also referred to as a year. • Unless otherwise specified, the term designates in this International Standard a calendar year in the Gregorian calendar.
Year	Duration of 365 or 366 calendar days depending on the start and/or the end of the corresponding time interval within the specific calendar year.	• The term "year" applies also to the duration of any time interval which starts at a certain time of day at a certain calendar date of the calendar year and ends at the same time of day at the same calendar date of the next calendar year, if it exists. In other cases, the ending calendar day has to be agreed on.
Common year	Calendar year in the Gregorian calendar that has 365 calendar days.	
Leap year	Calendar year in the Gregorian calendar that has 366 days.	

The standard also defines multiple formats for the representation of date and time as well as time intervals and durations. ISO 8601 postulates that duration can be expressed by a combination of components with accurate duration (hour, minute, and second) and components with nominal duration (year, month, week, and day). The standard allows for the omission of lower-level components for "reduced accuracy" applications.

Appendix C. Time Interval Calculation Conventions

The unit in which a time interval (or its duration) is expressed may depend on the necessary level of accuracy for the purposes of measurement. As such, the selection of the time unit to be used should be made according to the level of granularity needed to meet the intent of the measure.

These conventions are intended to standardize the interpretation of time calculation units for durations (i.e., difference between two date/time elements), typically with time relationships defined in the QDM, such as "starts after start of" and "ends before start of."

Table 7. Time Interval Calculations

Calculation Unit	Definition	Calculation[2,3,4]
Year	Duration of any time interval which starts at a certain time of day at a certain calendar date of the calendar year and ends at: • The same time of day at the same calendar date of the next calendar year, if it exists • The same time of day at the immediately following calendar date of the ending calendar year, if the same calendar date of the ending calendar year does not exist **Notes:** 1. When in the next calendar year the same calendar date does not exist, the ISO states that the ending calendar day has to be agreed upon. The above convention is proposed as a resolution to this issue. 2. The ISO permits the representation of dates and times with "reduced accuracy", when necessary. <u>For the purposes of quality measures, duration expressed in years ignores</u> the time of day associated with the date/time stamps used in the calculation—i.e., the number of years will not change until the month and day of date 2 reach (or surpass) the month and day of date 1; time of day should be ignored or set to 00:00:00 for this calculation.	**1. Month (date 2) < month (date 1):** Duration (years) = year (date 2) – year (date 1) – 1 **Example 1:** Date 1: 2012-**03**-10 22:05:09 Date 2: 2013-**02**-18 19:10:03 Duration = year (date 2) – year (date 1) – 1 = 2013 – 2012 – 1 **= 0 years** **2. Month (date 2) = month (date 1) <u>and</u> day (date 2) >= day (date 1)** Duration (years) = year (date 2) – year (date 1) **Example 2.a:** day (date 1) = day (date 2) Date 1: 2012-03-**10** 22:05:09 Date 2: 2013-03-**10** 08:01:59 Duration = year (date 2) – year (date 1) = 2013 – 2012 **= 1 year** **Note:** Time of day is ignored in this calculation. If time of day were to be considered for the calculation, the duration of the time interval would be 0 years according to the definition. **Example 2.b:** day (date 2) > day (date 1) Date 1: 2012-03-**10** 22:05:09 Date 2: 2013-03-**20** 04:01:30 Duration = year (date 2) – year (date 1) = 2013 – 2012 **= 1 year** **3. Month (date 2) = month (date 1) <u>and</u> day (date 2) < day (date 1)** Duration (years) = year (date 2) – year (date 1) – 1 **Example 3.a:** Date 1: 2012-02-**29** Date 2: 2014-02-**28** Duration = year (date 2) – year (date 1) – 1 = 2014 – 2012 – 1 = **1 year**

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[2] For the purposes of this document, date 2 is assumed to be more recent than date 1.

[3] All dates are represented according to the extended formatted designated in ISO 8601: YYYY-MM-DD HH:MM:SS and a 24 hour timekeeping system.

[4] The result of the calculation is always an integer; if the result includes decimals, it should be truncated (rounded down) to the unit.

Calculation Unit	Definition	Calculation[2,3,4]
Year (continued)		**4. Month (date 2) > month (date 1)** Duration (years) = year (date 2) – year (date 1) **Example 4.a:** Date 1: 2012-**03**-10 11:16:02 Date 2: 2013-**08**-15 21:34:16 Duration = year (date 2) – year (date 1) = 2013 – 2012 **= 1 year** **Example 4.b:** Date 1: 2012-**02**-29 10:18:56 Date 2: 2014-**03**-01 19:02:34 Duration = year (date 2) – year (date 1) = 2014 – 2012 **= 2 years** **Note:** Because there is no February 29 in 2014, the number of years can only change when the date reaches March 1, the first date in 2014 that surpasses the month and day of date 1 (February 29).

Calculation Unit	Definition	Calculation[2,3,4]
Month	Duration of any time interval which starts at a certain time of day at a certain calendar day of the calendar month and ends at: • The same time of day at the same calendar day of the ending calendar month, if it exists • The same time of day at the immediately following calendar date of the ending calendar month, if the same calendar date of the ending month year does not exist **Notes:** 1. When in the next calendar year the same calendar date does not exist, the ISO states that the ending calendar day has to be agreed upon. The above convention is proposed as a resolution to this issue. 2. The ISO permits the representation of dates and times with "reduced accuracy," when necessary. <u>For the purposes of quality measures, duration expressed in months ignores the time of day associated with the date/time stamps used in the calculation</u>—i.e., the number of months will not change until the month and day of date 2 reach (or surpass) the month and day of date 1; time of day should be ignored or set to 00:00:00 for this calculation.	**1. Day (date 2) >= day (date 1)** Duration (months) = (year (date 2) – year (date 1))*12 + (month (date 2) – (month date 1)) **Example 1.a:** Date 1: 2012-03-01 14:05:45 Date 2: 2012-03-31 23:01:49 Duration = (year (date 2) – year (date 1))*12 + (month (date 2) – (month date 1)) = (2012 – 2012)*12 + (3 – 3) **= 0 months** **Example 1.b:** Date 1: 2012-03-10 22:05:09 Date 2: 2013-06-30 13:00:23 Duration = (year (date 2) – year (date 1))*12 + (month (date 2) – (month date 1)) = (2013 – 2012)*12 + (6 – 3) = 12 + 3 **= 15 months** 2. **Day (date 2) < day (date 1)** Duration (months) = (year(date 2) – year(date 1))*12 + (month(date 2) – month (date 1)) – 1 **Example 2:** Date 1: 2012-03-10 22:05:09 Date 2: 2013-01-09 07:19:33 (currently the date is 2013-01-29, so 29 isn't less than 10) Duration = (year(date 2) – year(date 1))*12 + (month (date 2) – (month date 1)) – 1 = (2013 – 2012)*12 + (1 – 3) - 1 = 12 – 2 - 1 = 9 months (missing -1)

Calculation Unit	Definition	Calculation[2,3,4]
Week	Duration of any time interval which starts at a certain time of day at a certain calendar day at a certain calendar week and ends at the same time of day at the same calendar day of the ending calendar week. **Notes:** 1. The ISO permits the representation of dates and times with "reduced accuracy," when necessary. <u>For the purposes of quality measures, duration expressed in weeks ignores the time of day associated with the date/time stamps used in the calculation</u>—i.e., a complete week is always seven days long: a week has passed when the same weekday in the following week is reached; time of day should be ignored or set to 00:00:00 for this calculation.	**1. Duration = [date 2 – date 1 (days[5])]/7** **Example 1:** Date 1: 2012-03-10 22:05:09 Date 2: 2012-03-20 07:19:33 Duration = [# days (month (date 1)) – day (date 1) + # days (month (date 1) + 1) + # days (month (date 1) + 2) + … + # days (month (date 2) – 1) + day (date 2)]/7 = (20 – 10)/7 = 10/7 **= 1 week** (result truncated to integer).
Day	Duration of any time interval which starts at a certain calendar day and ends at the next calendar day (1 second to 47 hours, 59 minutes and 59 seconds); the number of times midnight is crossed. **Notes:** 1. The ISO permits the representation of dates and times with "reduced accuracy," when necessary. <u>For the purposes of quality measures, duration expressed in days ignores the time of day associated with the date/time stamps used in the calculation</u>— i.e., the number of days will not change until the month and day of date 2 surpasses the month and day of date 1..	The duration in days between two dates will be generally given by subtracting the start calendar date to the end calendar date, regardless of the time of day between the two dates. **Example 1:** Date 1: 2012-01-31 12:30:00 Date 2: 2012-02-01 09:00:00 Duration = 02-01 – 01-31 **= 1 day** **Example 2:** Date 1: 2012-01-31 12:30:00 Date 2: 2012-02-01 14:00:00 Duration = 02-01 – 01-31 **= 1 day**

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[5] For information on how to calculate the duration, in days, of a time interval, please see "day".

Calculation Unit	Definition	Calculation[2,3,4]

Hours	The number of 60-minute cycles between two given dates.
	
	Notes:
	
	1. Use the date, hour, and minute of the date/time stamps to compute the interval.
	2. Seconds are not used in the calculation.
		The duration in hours between two dates is the number of minutes between the two dates, divided by 60. The result is truncated to the unit.
		
		Example 1:
		   Date/Time 1: 2012-03-01 03:10
		   Date/Time 2: 2012-03-01 05:09
		   Duration **= 1 hour**
		
		Example 2:
		   Date/Time 1: 2012-02-29 23:10
		   Date/Time 2: 2012-03-01 00:10
		   Duration **= 1 hour**
		
		Example 3:
		   Date/Time 1: 2012-03-01 03:10
		   Date/Time 2: 2012-03-01 04:00
		   Duration = **0 hours**

Minutes	The number of minutes between two given dates.
	
	Notes:
	
	1. Seconds are **not** used in the calculation.
		Example 1:
		   Date/Time 1: 2012-03-01 03:10
		   Date/Time 2: 2012-03-01 05:20
		   Duration **= 130 minutes**
		
		Example 2:
		   Date/Time 1: 2012-02-29 23:10
		   Date/Time 2: 2012-03-01 00:20
		   Duration **= 70 minutes**

Timing relationships with no calculation unit defined

When no threshold is defined in a measure phrase that compares timing between two elements, a common level of granularity needs to be established for comparisons within and across EHRs. For instance, the criterion:

> A starts before start of B

Depending on the level of granularity of the data (e.g., HH:MM:SS vs. HH:MM), the result of the timing comparison may vary if no comparison unit is defined:

Example 1

A: 2012-01-01 11:00:01

B: 2012-01-01
11:00:02

A starts before B = TRUE

Example 2

A: 2012-01-01
11:00

B: 2012-01-01
11:00

A starts before B = FALSE

To resolve this type of issue, calculations should be performed with dates represented with reduced accuracy to the minute (date/time truncated to minute prior to calculation—i.e., seconds not used in calculation):

Example 3

A: 2012-01-01
11:00:01

B: 2012-01-01
11:00:02

A starts before B = FALSE

Note: Seconds are not used in the calculation.

Example 4

A: 2012-01-01
11:00

B: 2012-01-01
11:00

A starts before B = FALSE

If no unit of comparison has been defined in the logic (e.g., A starts before start of B), minutes will be used as the default unit for the calculation. This convention effectively renders the following criteria equivalent:

- A starts before start of B
- A > 0 minute(s) starts before start of B
- A > 1 minute(s) starts before start of B

If another unit is intended, it should be specified in the criterion, for instance:

- If the intended unit of comparison is the second:
    o A starts before start of B would "default" to comparison in minutes.

- o A > 1 second(s) starts before start of B would explicitly refer the granularity intended for the calculation of duration between the two date/time stamps.
  (Criterion would be true if A started at least one second before B.)
- If the intended unit of comparison is the day:
  - o A > 1 day(s) starts before start of B
    (Criterion would be true if A started at least one day before B.)

The best practice is to always explicitly define the unit of calculation, as this shows intent on the part of the measure developer and provides a completely unambiguous interpretation of the level of granularity with which the computation should be performed. However, if no unit is defined, the above convention determines that the computation unit should be minutes.

Other date/time-related calculations using QDM functions

The above definitions focus on the calculation of durations. However, for certain applications it may be necessary to compare portions of the date/time elements directly—e.g., comparing years or months. This can be achieved by using existing QDM/MAT functions that allow the extraction of specific portions of date/time elements. A complete list of these functions is available on the Measure Authoring Tool User Guide.

Appendix D. Clinical Quality Measures for CMS's 2014 EHR Incentive Program for Eligible Hospitals – Release Notes, April 1, 2014

Version 3.0

In August 2012, the Centers for Medicare & Medicaid Services (CMS) finalized the clinical quality measures (CQMs) for the 2014 Medicare and Medicaid Electronic Health Record (EHR) Incentive Program for Eligible Hospitals, also known as Meaningful Use Stage 2 (MU2) for Eligible Hospitals. This list of CQMs for 2014 have been updated based on advances in technology and tools for eMeasure development, comments from stakeholders, changes initiated by measure developers, and CMS's standards as defined in the agency's Measures Management System Blueprint, Version 9 (Blueprint).

CMS recognizes the importance of providing support, training, and information to MU stakeholders, particularly as the EHR Incentive Programs transition to the 2014 measures. The purpose of this document is to inform eligible hospitals and the vendor community about updated program requirements related to the 2014 CQMs. This update includes information about global changes incorporated across all measures as well as specific changes to select measures. Global changes are listed first and include structural modifications; updates to value sets; and data elements and standards revised in accordance with the Blueprint. Specific changes to measures include changes to measure components, such as initial patient populations, denominators, numerators, exclusions, and exceptions, as well as logic changes that affect how data elements interrelate during the measurement period. This document is intended for readers who are familiar with electronic clinical quality measure (eCQM) components and the current standards for construction an eCQM. For more information on eCQMs, please visit the CMS website (http://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/ClinicalQualityMeasures.html)

Please note that this document is to be used in conjunction with the newly published 2015 eCQMs for Eligible Hospitals, published on April 1, 2014 as an update to the eCQMs released on April 1, 2013.

Global Edits

- Versioned the eCQM Version ID Number up by one version for measures incorporating updates.
- Updated the eCQM logic to correlate with revisions in the Quality Data Model (QDM) for consistent use of relative timing across measures, occurrencing, and denominator exclusions.
- Revised eCQM logic to clarify measure intent and consolidate logic sequencing.
- Removed redundant logic and Header statements to reduce confusion and enhance eCQM clarity.
- Removed NQF numbers when measure was de-endorsed.
- Updated existing value sets to create harmonization between similar value set concepts across eCQMs.

- Incorporated SNOMED CT®, ICD-9, and ICD-10 terminologies in the eCQMs where gaps previously existed.
- Versioned value sets when content was expanded with the latest terminology updates or to accommodate inactive codes.
- Provided additional guidance to help implementers interpret the calculation requirements for the measures as well as instructional and clarifying notes.

<u>CMS 100/NQF 0142</u> AMI-2-Aspirin Prescribed at Discharge

- Measure versioned to v3.
- Header updates
  - o Rationale updated
  - o References updated
  - o Guidance updated
  - o Denominator updated
  - o Denominator Exclusions updated
  - o Denominator Exceptions updated
- Removed "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient" and replaced it with the harmonized encounter QDM Encounter Inpatient.
- Initial Patient Population: attribute "Principal" harmonized with other measures for diagnosis QDM in "Diagnosis, Active: Hospital Measures-AMI (ordinality: 'Principal') starts during "Occurrence A of Encounter, Performed: Encounter Inpatient.
- Initial Patient Population: attribute "discharge datetime" removed from encounter QDM in "Occurrence A of Encounter, Performed: Encounter Inpatient" during "Measurement Period". This harmonizes encounter logic to use the default attribute.
- Denominator Exclusions: Added Comfort Measures for hospital arrival in ED

  AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

  AND: "Occurrence A of Intervention, Performed: Comfort Measures" starts after start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

- Denominator Exclusion: Added Clinical Trial Participant for hospital arrival in ED

  AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

  AND NOT: "Occurrence A of Patient Characteristic Clinical Trial Participant: Clinical Trial Participant" ends before start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

AND: "Occurrence A of Patient Characteristic Clinical Trial Participant: Clinical Trial Participant" starts before or during "Occurrence A of Encounter, Performed: Emergency Department Visit"

- Denominator Exclusion: removed the following Medication phrases

OR: "Medication, Adverse Effects: Aspirin Allergen" starts before or during "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

OR: "Medication, Intolerance: Aspirin Allergen" starts before or during "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

- Denominator Exclusion: moved the following phrases from Denominator Exclusions to Denominator Exceptions

OR: "Medication, Administered not done: Hospital Measures-Hold" for "Hospital Measures-Aspirin RxNorm Value Set" during "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

OR: "Medication, Allergy: Aspirin Allergen" starts before or during "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

OR: "Medication, Discharge not done: Medical Reason" for "Hospital Measures-Aspirin RxNorm Value Set" during "Occurrence A of Encounter, Performed: hospital Measures-Encounter Inpatient"

OR: "Medication, Discharge not done: Patient Reason" for "Hospital Measures-Aspirin RxNorm Value Set" during "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

OR: "Medication, Order not done: Medical Reason" for "Hospital Measures-Aspirin RxNorm Value Set" during "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

OR: "Medication, Order not done: Patient Reason" for "Hospital Measures-Aspirin RxNorm Value Set" during "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

- Denominator Exclusion: removed Transfer To phrases

OR: "Transfer To: Hospital Measures – Home Hospice Care" < 1 day(s) starts after end of "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

OR: "Transfer To: Hospital Measures-Inpatient Hospice Care" < 1 day(s) starts after start of "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

- Denominator Exclusions: updated the following logic phrases

OR: "Transfer To: Hospital Measures-Home Hospice Care" < 1 day(s) starts after end of "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

OR: "Transfer To: Hospital Measures-Inpatient Hospice Care" < 1 day(s) starts after end of "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

Revision:

OR: "Occurrence A of Encounter, Performed: Encounter Inpatient (discharge status: 'Discharged to Home for Hospice Care')"

OR: "Occurrence A of Encounter, Performed: Encounter Inpatient (discharge status: 'Discharged to Health Care Facility for Hospice Care')"

- Denominator Exceptions: added and revised the logic for the following phrases from the denominator exclusions

    AND: "Medication, Administered not done: Hospital Measures-Hold" for "Hospital Measures-Aspirin" starts during "Occurrence A of Encounter, Performed: Encounter Inpatient"

    AND NOT: "Occurrence A of Encounter, Performed: emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

    AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

    AND: "Medication, Administered not done: Hospital Measures-Hold" for "Hospital Measures-Aspirin" starts after start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

    OR: "Medication, Allergy: Aspirin Allergen"

    OR: "Medication, Order not done: Medical Reason" for "Aspirin ingredient specific"

    OR: "Medication, Discharge not done: Medical Reason" for "Aspirin ingredient specific"

    OR: "Medication, Order not done: Patient Refusal" for "Aspirin ingredient specific"

    OR: "Medication, Discharge not done: Patient Refusal" for "Aspirin ingredient specific"

    starts before or during "Occurrence A of Encounter, Performed: Encounter Inpatient"

    OR: "Medication, Discharge: Warfarin" starts during "Occurrence A of Encounter, Performed: Encounter Inpatient"

- Denominator Exceptions: added the following logic phrase

    OR: "Medication, Discharge: Other Anticoagulants for AMI" starts during "Occurrence A of Encounter, Performed: Encounter Inpatient"

- Value Set Updates
    o Current Value Sets were revised to include additional codes and/or addition of ICD-9, ICD-10, and SNOMED-CT terminologies when appropriate. Grouping Value Sets were created to group the additional terminologies together, therefore value set OIDs attached to measure phrases were revised.
    o Value set content has been updated to reflect current measure specifications including medication value sets.
- Added the following value sets

- o Discharged to Health Care Facility for Hospice Care SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.207)
- o Discharged to Home for Hospice Care SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.209)"
- o Aspirin ingredient specific RXNORM Value Set (2.16.840.1.113762.1.4.1021.3)
- o Other Anticoagulants for AMI RXNORM Value Set (2.16.840.1.113762.1.4.1045.31)
- o Emergency Department Visit SNOMED-CT Value Set (2.16.840.1.113883.3.117.1.7.1.292)

- • Updated the following value sets
  - o Original Value Set
    - ♦ Hospital Measures-Principal SNOMED-CT Value Set (2.16.840.1.113883.3.666.5.3010)
  - o Replaced with
    - ♦ Principal SNOMED-CT Value Set (2.16.840.1.113883.3.117.1.7.1.14)
  - o Original Value Set
    - ♦ Hospital Measures-Expired Grouping Value Set (2.16.840.1.113883.3.666.5.1146)
  - o Replaced with
    - ♦ Patient Expired SNOMED-CT Value Set (2.16.840.1.113883.3.117.1.7.1.309)
  - o Original Value Set
    - ♦ Hospital Measures-Encounter Inpatient SNOMED-CT Value Set (2.16.840.1.113883.3.666.5.625)
  - o Replaced with
    - ♦ Encounter Inpatient SNOMED-CT Value Set (2.16.840.1.113883.3.666.5.307)
  - o Original Value Set
    - ♦ Medical Reason SNOMED-CT Value Set (2.16.840.1.113883.3.526.2.313)
  - o Replaced with
    - ♦ Medical Reason SNOMED-CT Value Set (2.16.840.1.113883.3.117.1.7.1.473)
  - o Original Value Set
    - ♦ Patient Reason SNOMED-CT Value Set (2.16.840.1.113883.3.526.2.311)
  - o Replaced with
    - ♦ Patient Refusal SNOMED-CT Value Set (2.16.840.1.113883.3.117.1.7.1.93)
  - o Original Value Set
    - ♦ Left Against Medical Advice SNOMED-CT Value Set (2.16.840.1.113883.3.666.5.1106)
  - o Replaced with
    - ♦ Left Against Medical Advice SNOMED-CT Value Set (2.16.840.1.113883.3.117.1.7.1.308)

o Original Value Set

♦ Warfarin Anticoagulants RxNorm Value Set (2.16.840.1.113883.3.666.5.636)

o Replaced with

♦ Warfarin RXNORM Value Set (2.16.840.1.113883.3.117.1.7.1.232)

- Deleted the following value sets

o Hospital Measures - Home Hospice Care SNOMED-CT Value Set (2.16.840.1.113883.3.666.5.3008)

o Hospital Measures - Inpatient Hospice Care SNOMED-CT Value Set (2.16.840.1.113883.3.666.5.3007)

CMS 188/NQF 0147 PN-6 Initial Antibiotic Selection for Community-Acquired Pneumonia (CAP) in Immunocompetent Patients

Header Changes

- Guidance updated

Logic Changes

- Removed 'arrival/discharge datetime' and 'facility location' references unless an integral to logic
- IPP

o Revised logic to include patient's discharged during 'Measurement Period' to harmonize eCQMs:

Original:

AND: "Occurrence A of Encounter, Performed: Encounter Inpatient (discharge datetime)" during "Measurement Period"

Remodeled:

AND: "Occurrence A of Encounter, Performed: Encounter Inpatient" ends during "Measurement Period"

- IPP/Den

o The IPP/Den have been simplified due to updates to the data elements, clarification of ICU/NonICU populations, and to prevent redundant logic repetition throughout the measure.

o The concept of occurrencing was added to both the IPP and Den to include two patient pathways; an inpatient path and an emergency> inpatient path. The establishment of occurrence A (inpatient) and occurrence B (emergency department> inpatient) will be referenced throughout the measure to replace the redundant logic.

o The use of attribute 'facility location' has been removed and replaced with the new ICU/NonICU pathways and the use of "ICU Admission or Transfer"

- Denominator
  - Added data element "Reason for Admission to ICU due to Pneumonia" to constrain the reasons for transfer to ICU and incorporated the AND/AND NOT structure to ensure the 'Diagnosis, Active: Reason for Admission…' is active during the inpatient encounter
- Denominator Exclusions 1 and 2:
  - Technical updates and corrections to address timing, revised data elements, and updated value sets
  - The order of the data elements were aligned with the Measure Information Form.
  - Logic Changes
  - Revised logic to remove data element "Hospital Measures - Any infection" <= 24 hour(s)…"

    Original:

      OR:

      - AND NOT: "Diagnosis, Active: Hospital Measures-Respiratory infection" starts before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"
      - AND NOT: "Diagnosis, Active: Hospital Measures - Any infection" <= 24 hour(s) ends after start of "Occurrence A of Encounter, Performed: Encounter Inpatient"
      - AND: "Diagnosis, Active: Hospital Measures - Any infection" starts before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

    Revision:

      OR:

      - AND: "Diagnosis, Active: Hospital Measures - Any infection"
      - AND NOT: "Diagnosis, Active: Hospital Measures-Respiratory infection"
      - <= 24 hour(s) starts after start of

  - Data element for "Hospital Measures-Immunocompromised Conditions" timing relationship updated to "<=90 day(s) or during…" to align with intent and incorporated the AND/AND NOT structure to ensure the "Diagnosis, Active: Hospital Measures-Immunocompromised Conditions" occurs before or during the inpatient encounter:

    Remodeled:

      OR:

      - OR:
        - AND: "Diagnosis, Active: Hospital Measures-Immunocompromised Conditions" <= 90 day(s) starts before or during "Occurrence A of Encounter, Performed: Encounter Inpatient"

- AND NOT: "Diagnosis, Active: Hospital Measures-Immunocompromised Conditions" ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

  - OR:

    - AND: "Diagnosis, Active: Hospital Measures-Immunocompromised Conditions" <= 90 day(s) starts before or during "Occurrence B of Encounter, Performed: Encounter Inpatient"
    - AND NOT: "Diagnosis, Active: Hospital Measures-Immunocompromised Conditions" ends before start of "Occurrence B of Encounter, Performed: Encounter Inpatient"

- Data element for "Hospital Measures-Neutrophil count (result < 500 per mm3)" timing relationship updated to "<=90 day(s) or during…" to align with intent and incorporated the AND/AND NOT structure to ensure the "Hospital Measures-Neutrophil count (result < 500 per mm3)" occurs before or during the inpatient encounter.

  Remodeled:

    OR:

    - OR:

      - AND: "Laboratory Test, Result: Hospital Measures-Neutrophil count (result < 500 per mm3)" <= 90 day(s) starts before or during "Occurrence A of Encounter, Performed: Encounter Inpatient"
      - • AND NOT: "Laboratory Test, Result: Hospital Measures-Neutrophil count (result < 500 per mm3)" ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

    - OR:

      - AND: "Laboratory Test, Result: Hospital Measures-Neutrophil count (result < 500 per mm3)" <= 90 day(s) starts before or during "Occurrence B of Encounter, Performed: Encounter Inpatient"
      - AND NOT: "Laboratory Test, Result: Hospital Measures-Neutrophil count (result < 500 per mm3)" ends before start of "Occurrence B of Encounter, Performed: Encounter Inpatient"

- Data element "Hospital Measures-Comfort Measures Only Intervention" <= 24 hours" timing operator was changed to constrain the time interval to "<= 1 day(s)" to align with intent:

  Original:

  AND: "Intervention, Performed: Hospital Measures-Comfort Measures Only Intervention" <= 24 hour(s) starts after start of "Occurrence A of Encounter…

  Remodeled:

    OR: "Intervention, Performed: Comfort Measures" <= 1 day(s) starts after start of …

- o Data element " Hospital Measures-Healthcare associated pneumonia" timing relationship updated from "starts before or during" to "<= 30 day(s) starts before start of" with the addition of a timing operator.

  Original:

  OR: "Diagnosis, Active: Hospital Measures-Healthcare associated pneumonia"

  - ♦ starts before or during "Occurrence A of Encounter, Performed: Encounter Inpatient"

  Remodeled:

  OR: "Diagnosis, Active: Hospital Measures-Healthcare associated pneumonia"

  - ♦ <= 30 day(s) starts before start of ….

- •Numerator 1 and 2:
  - o Logic was simplified (see IPP/Den for details) incorporating occurrence A and B
  - o Order of data element medication regimens were aligned with Measure Information Form

- Numerator 2
  - o Antipseudomonal Quinolones value set is currently "Hospital Measures-IV Antipseudomonal quinolones" (2.16.840.1.113883.3.666.5.896). The value set should be "Hospital Measures-IV PO AntiPseudomonal Quinolones" (2.16.840.1.113883.3.666.5.804)

    AND:

    - ♦ OR:

- AND: FIRST:"Medication, Administered: Hospital Measures-IV Antipneumococcal/antipseudomonal beta lactams (route: 'Hospital measures-Route IV')"

- AND: FIRST:"Medication, Administered: Hospital Measures-IV Antipseudomonal quinolones (route: 'Hospital Measures-Route IV or PO')"

- <= 1440 minute(s) starts after start of
  - o OR: "Occurrence A of Encounter, Performed: Emergency Department Visit"
  - o OR: "Occurrence A of Encounter, Performed: Encounter Inpatient"

- Value Set Changes
  - o Updated the following value sets:
    - ♦ Comfort Measures (1.3.6.1.4.1.33895.1.3.0.45)
    - ♦ Encounter Inpatient (2.16.840.1.113883.3.666.5.307)
    - ♦ Hospital Measures - Any infection (2.16.840.1.113883.3.666.5.696)
    - ♦ Hospital Measures - Any Infection (ICD-10-CM) (2.16.840.1.113883.3.666.5.903)
    - ♦ Hospital measures - any infection SNOMED (2.16.840.1.113883.3.666.5.2316)

- Hospital Measures-Beta lactams for allergy determination
  (2.16.840.1.113883.3.666.5.1058)
- Hospital Measures-Bronchiectasis (2.16.840.1.113883.3.666.5.959)
- Hospital Measures-Bronchiectasis (2.16.840.1.113883.3.666.5.960)
- Hospital Measures-Bronchiectasis SM-CT
  (2.16.840.1.113883.3.666.5.2131)
- Hospital Measures-Chest xray SM-CT (2.16.840.1.113883.3.666.5.678)
- Hospital Measures-Chronic bronchitis (2.16.840.1.113883.3.666.5.915)
- Hospital Measures-Chronic bronchitis (2.16.840.1.113883.3.666.5.931)
- Hospital Measures-Chronic bronchitis SM-CT
  (2.16.840.1.113883.3.666.5.2133)
- Hospital Measures-COPD (2.16.840.1.113883.3.666.5.909)
- Hospital Measures-COPD (2.16.840.1.113883.3.666.5.918)
- Hospital Measures-COPD SM-CT (2.16.840.1.113883.3.666.5.2135)
- Hospital Measures-Francisella Tularensis or Yersinia pestis I10
  (2.16.840.1.113883.3.666.5.2206)
- Hospital Measures-Francisella Tularensis or Yersinia pestis I9
  (2.16.840.1.113883.3.666.5.2207)
- Hospital Measures-Francisella Tularensis or Yersinia pestis SM-CT
  (2.16.840.1.113883.3.666.5.2208)
- Hospital Measures-Healthcare associated pneumonia SM-CT
  (2.16.840.1.113883.3.666.5.2138)
- Hospital Measures-Immunodeficient Conditions I9
  (2.16.840.1.113883.3.666.5.2345)
- Hospital Measures-Interstitial lung disease
  (2.16.840.1.113883.3.666.5.1079)
- Hospital Measures-Interstitial lung disease SM-CT
  (2.16.840.1.113883.3.666.5.2137)
- Hospital Measures-IV Aminoglycosides (2.16.840.1.113883.3.666.5.727)
- Hospital Measures-IV Macrolides ICU (2.16.840.1.113883.3.666.5.758)
- Hospital Measures-IV or IM Beta lactams (2.16.840.1.113883.3.666.5.720)
- Hospital Measures-IV or PO Macrolides Non-ICU
  (2.16.840.1.113883.3.666.5.772)
- Hospital Measures-IV, IM, or PO Antimicrobial Medications
  (2.16.840.1.113883.3.666.5.843)
- Hospital Measures-Organ Transplant I9 (2.16.840.1.113883.3.666.5.912)
- Hospital Measures-Pneumonia ICD-10 (2.16.840.1.113883.3.666.5.2161)
- Hospital Measures-Pneumonia (2.16.840.1.113883.3.666.5.756)
- Hospital Measures-Pneumonia SM-CT (2.16.840.1.113883.3.666.5.2152)

- ♦ Hospital Measures-Respiratory failure acute or chronic (2.16.840.1.113883.3.666.5.673)
- ♦ Hospital Measures-Respiratory failure acute or chronic I10 (2.16.840.1.113883.3.666.5.2320)
- ♦ Hospital Measures-Restrictive lung disease I10 (2.16.840.1.113883.3.666.5.2158)
- ♦ Hospital Measures-Restrictive lung disease I9 (2.16.840.1.113883.3.666.5.2166)
- ♦ Hospital Measures-Septicemia I10 (2.16.840.1.113883.3.666.5.954)
- ♦ Hospital Measures-Septicemia SM-CT (2.16.840.1.113883.3.666.5.2318)
- ♦ Hospital Measures-Structural lung disease (2.16.840.1.113883.3.666.5.1141)
- ♦ Hospital Measures-Structural lung disease (2.16.840.1.113883.3.666.5.1142)
- ♦ Hospital Measures-Structural lung disease SM-CT (2.16.840.1.113883.3.666.5.2153)
- ♦ Hospital Measures-Systemic corticosteroid/prednisone therapy (2.16.840.1.113883.3.666.5.805)
- ♦ Hospital Measures-Systemic immunosuppressive therapy (2.16.840.1.113883.3.666.5.803)
- ♦ Hospital Measures-Wound Care SM-CT (2.16.840.1.113883.3.666.5.2196)
- ♦ Immunocompromised Conditions (2.16.840.1.113883.3.666.5.1740)
- ♦ Immunocompromised Conditions (2.16.840.1.113883.3.666.5.2328)
- ♦ Immunocompromised Conditions (2.16.840.1.113883.3.666.5.2343)
- ♦ Immunodeficient Conditions (2.16.840.1.113883.3.666.5.2342)
- ♦ Immunodeficient Conditions (2.16.840.1.113883.3.666.5.2344)
- ♦ Respiratory Infection (2.16.840.1.113883.3.666.5.1057)
- ♦ Respiratory Infection (2.16.840.1.113883.3.666.5.2165)
- ♦ Respiratory infection (2.16.840.1.113883.3.666.5.2157)
- ♦ Wound Care I9 (2.16.840.1.113883.3.666.5.2194)
  - o Renamed value set:
    - ♦ Immunocompromised Conditions (2.16.840.1.113883.3.666.5.1740)
    - ♦ Immunocompromised Conditions (2.16.840.1.113883.3.666.5.2328)
    - ♦ Immunocompromised Conditions (2.16.840.1.113883.3.666.5.2343)
    - ♦ Immunodeficient Conditions (2.16.840.1.113883.3.666.5.2342)
    - ♦ Immunodeficient Conditions (2.16.840.1.113883.3.666.5.2344)
    - ♦ Respiratory Infection (2.16.840.1.113883.3.666.5.1057)
    - ♦ Respiratory Infection (2.16.840.1.113883.3.666.5.2165)

- ♦ Respiratory infection (2.16.840.1.113883.3.666.5.2157)
- ♦ Wound Care I9 (2.16.840.1.113883.3.666.5.2194)
- o Added the following value sets:
  - ♦ Reason For Admission to ICU due to Pneumonia (2.16.840.1.113762.1.4.1045.84)
  - ♦ Emergency Department (2.16.840.1.113883.3.117.1.7.1.292)
  - ♦ ICU Admission or Transfer (2.16.840.1.113883.3.117.1.7.1.305)
  - ♦ Tracheostomy care (2.16.840.1.113762.1.4.1045.77)
  - ♦ IV, IM, PO Antimicrobial Medications (2.16.840.1.113883.3.666.5.693)
  - ♦ Principal (2.16.840.1.113883.3.117.1.7.1.14)
- o Removed the following value sets:
  - ♦ Hospital Measures - Encounter ED (2.16.840.1.113883.3.666.5.900)
  - ♦ Hospital Measures-Presumptive Pneumonia (2.16.840.1.113883.3.666.5.2323)
  - ♦ Hospital Measures-IV, IM, or PO Antimicrobial Medications (2.16.840.1.113883.3.666.5.843)
  - ♦ Hospital Measures – Principal (2.16.840.1.113883.3.526.2.8001)
- o Missing value set- see Numerator explanation
  - ♦ Hospital Measures-IV PO AntiPseudomonal Quinolones" (2.16.840.1.113883.3.666.5.804)

CMS 53/NQF 0163 AMI-8a- Primary PCI Received Within 90 Minutes of Hospital Arrival

- Measure versioned to v3.
- Header updates
  - o Rationale updated
  - o References updated
  - o Guidance updated
  - o Denominator updated
  - o Denominator Exclusions updated
  - o Denominator Exceptions updated
- Because of QDM limitations to identify the closest event to another event, the denominator will identify the last ECG performed within 1 hour prior to hospital arrival OR the first ECG performed after hospital arrival.
- Removed "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient" and replaced it with the harmonized encounter QDM Encounter Inpatient.
- Initial Patient Population: attribute "Principal" harmonized with other measures for diagnosis QDM in "Diagnosis, Active: Hospital Measures-AMI (ordinality: 'Principal') starts during "Occurrence A of Encounter, Performed: Encounter Inpatient.

- Initial Patient Population: attribute "discharge datetime" removed from encounter QDM in "Occurrence A of Encounter, Performed: Encounter Inpatient" during "Measurement Period". This harmonizes encounter logic to use the default attribute.
- Denominator: Removed LBBB phrases due to specification update

> OR: "Occurrence A of Diagnostic Study, Result: Hospital Measures-ECG Impression (result: 'Hospital Measures-LBBB')"

- Denominator: Revised phrases to identify the last ECG performed within 1 hour prior to hospital arrival OR the first ECG performed after hospital arrival

> AND: FIRST: "Occurrence A of Diagnostic Study, Result: Hospital Measures-ECG Impression" during

>> OR: "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

>> OR: "Occurrence A of Encounter, Performed: Hospital Measures - Encounter ED" <= 1 day(s) starts before start of "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

> AND:

>> OR: "Occurrence A of Diagnostic Study, Result: Hospital Measures-ECG Impression (result: 'Hospital Measures-LBBB')"

>> OR: "Occurrence A of Diagnostic Study, Result: Hospital Measures-ECG Impression (result: 'Hospital Measures-Acute or Evolving MI')"

> Revised:

> AND:

>> OR: MOST RECENT: "Occurrence A of Diagnostic Study, Performed: Hospital Measures-ECG" <= 1 hour(s) starts before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

>> OR: FIRST:"Occurrence A of Diagnostic Study, Performed: Hospital Measures-ECG" starts after start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

> AND: "Occurrence A of Diagnostic Study, Result: Hospital Measures-ECG (result: 'Hospital Measures-Acute or Evolving MI')"

- Denominator: Revised phrases identifying ED arrival leading to inpatient admission

AND: FIRST:"Occurrence A of Diagnostic Study, Result: Hospital Measures-ECG Impression" during

OR: "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

OR: "Occurrence A of Encounter, Performed: Hospital Measures - Encounter ED" <= 1 day(s) starts before start of "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

Revised:

AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

AND:

OR: MOST RECENT:"Occurrence A of Diagnostic Study, Performed: Hospital Measures-ECG" <= 1 hour(s) starts before start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

OR: FIRST:"Occurrence A of Diagnostic Study, Performed: Hospital Measures-ECG" starts after start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

- Denominator: Added AND NOT phrases to further differentiate acute or evolving MI results
  AND NOT:

    AND: "Occurrence A of Diagnostic Study, Result: Hospital Measures-ECG (result: 'Hospital Measures-Acute or Evolving MI')"

    AND: "Occurrence A of Diagnostic Study, Result: Hospital Measures-ECG (result: 'NSTEMI')"

  AND NOT: "Occurrence A of Diagnostic Study, Result: Hospital Measures-ECG (result: 'NSTEMI')"

- Denominator: Revised phrases indicating PCI performed within 24 hours of hospital arrival including PCI as primary reperfusion therapy
  AND: FIRST: "Occurrence A of Procedure, Performed: Hospital Measures-PCI" during

    OR: "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

OR: "Occurrence A of Encounter, Performed: Hospital Measures - Encounter ED" <= 1 day(s) starts before start of "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

AND: "Occurrence A of Procedure, Performed: Hospital Measures-PCI" <= 24 hour(s) starts after start of FIRST :

OR: "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

OR: "Occurrence A of Encounter, Performed: Hospital Measures - Encounter ED" <= 1 day(s) starts before start of "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

Revised:

OR:

AND: FIRST: "Occurrence A of Procedure, Performed: PCI" <= 24 hour(s) starts after start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

AND NOT: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

AND NOT: "Occurrence A of Procedure, Performed: PCI" starts after start of ("Occurrence A of Medication, Administered: Hospital Measures-Fibrinolytic Therapy" during "Occurrence A of Encounter, Performed: Encounter Inpatient")

OR:

AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

AND: FIRST: "Occurrence A of Procedure, Performed: PCI" <= 24 hour(s) starts after start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

AND NOT: "Occurrence A of Procedure, Performed: PCI" starts after start of ("Occurrence A of Medication, Administered: Hospital Measures-Fibrinolytic Therapy" starts after start of "Occurrence A of Encounter, Performed: Emergency Department Visit")

- Denominator Exclusions: Added Clinical Trial Participant for ED arrival

OR:

AND NOT: "Occurrence A of Patient Characteristic Clinical Trial Participant: Clinical Trial Participant" ends before start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

AND: "Occurrence A of Patient Characteristic Clinical Trial Participant: Clinical Trial Participant" starts before or during "Occurrence A of Encounter, Performed: Emergency Department Visit"

- Denominator Exclusions: Added Transfer From other locations for ED arrival

    OR:

        AND:

            OR: "Transfer From: Hospital Measures-Ambulatory surgical center"

            OR: "Transfer From: Hospital Measures-Hospital outpatient department"

            OR: "Transfer From: Hospital Measures-ED Locations"

            OR: "Transfer From: Hospital Measures-Acute care hospital"

            <= 1 day(s) starts before start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

        AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

- Numerator: Revised phrases to clarify both ED and Inpatient arrival

    AND: "Occurrence A of Procedure, Performed: Hospital Measures-PCI" <= 90 minute(s) starts after start of FIRST :

        OR: "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

        OR: "Occurrence A of Encounter, Performed: Hospital Measures - Encounter ED" <= 1 day(s) starts before start of "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

    Revised:

AND:

OR:

AND: "Occurrence A of Procedure, Performed: PCI" <= 90 minute(s) starts after start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

AND NOT: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

OR:

AND: "Occurrence A of Procedure, Performed: PCI" <= 90 minute(s) starts after start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

- Denominator Exceptions: Removed redundant AND NOT phrase for PCI

  AND NOT: "Occurrence A of Procedure, Performed: Hospital Measures-PCI" <= 90 minute(s) starts after start of FIRST :

  OR: "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

  OR: "Occurrence A of Encounter, Performed: Hospital Measures - Encounter ED" <= 1 day(s) starts before start of "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

- Denominator Exceptions: Revised ED and Inpatient arrival phrases for Reason for PCI delay

  AND:

  OR: "Diagnosis, Active: Hospital Measures-Cardiopulmonary arrest"

  OR: "Procedure, Performed: Hospital Measures-Endotrachael intubation"

  OR: "Procedure, Performed: Hospital Measures-Aortic balloon pump insertion"

  OR: "Procedure, Performed not done: Medical Reason" for "Hospital Measures-PCI SNOMED-CT Value Set"

OR: "Procedure, Performed not done: Patient Reason" for "Hospital Measures-PCI SNOMED-CT Value Set"

OR: "Procedure, Performed: Hospital Measures-Ventricular Assist Device placement"

<= 90 minute(s) starts after start of FIRST:

OR: "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

OR: "Occurrence A of Encounter, Performed: Hospital Measures - Encounter ED" <= 1 day(s) starts before start of "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

Revised:

AND:

OR:

AND:

OR: "Diagnosis, Active: Hospital Measures-Cardiopulmonary arrest"

OR: "Procedure, Performed: Endotrachael Intubation"

OR: "Procedure, Performed: Hospital Measures-Aortic balloon pump insertion"

OR: "Procedure, Performed not done: Medical Reason" for "PCI"

OR: "Procedure, Performed not done: Patient Refusal" for "PCI"

OR: "Procedure, Performed: Hospital Measures-Ventricular Assist Device placement"

<= 90 minute(s) starts after start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

OR:

AND:

OR: "Diagnosis, Active: Hospital Measures-Cardiopulmonary arrest"

OR: "Procedure, Performed: Endotrachael Intubation"

OR: "Procedure, Performed: Hospital Measures-Aortic balloon pump insertion"

OR: "Procedure, Performed not done: Medical Reason" for "PCI"

OR: "Procedure, Performed not done: Patient Refusal" for "PCI"

OR: "Procedure, Performed: Hospital Measures-Ventricular Assist Device placement"

<= 90 minute(s) starts after start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

AND NOT: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

- Value Set Updates
  - Current Value Sets were revised to include additional codes and/or addition of ICD-9, ICD-10, and SNOMED-CT terminologies when appropriate. Grouping Value Sets were created to group the additional terminologies together, therefore value set OIDs attached to measure phrases were revised.
  - Value set content has been updated to reflect current measure specifications including medication value sets.
  - Added the following value sets
    - Emergency Department Visit SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.292)
    - Encounter Inpatient SNOMEDCT Value Set (2.16.840.1.113883.3.666.5.307)
    - NSTEMI Grouping Value Set (2.16.840.1.113762.1.4.1045.36)
- Updated the following value sets
  - Original value set
    - Medical Reason SNOMED-CT Value Set (2.16.840.1.113883.3.526.2.313)
  - Replaced with
    - Medical Reason SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.473)"
  - Original value set
    - Patient Reason SNOMED-CT Value Set (2.16.840.1.113883.3.526.2.311)

- o Replaced with
  - ♦ Patient Refusal SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.93)"
- o Original value set
  - ♦ Hospital Measures-PCI SNOMED-CT Value Set (2.16.840.1.113883.3.666.5.737)
- o Replaced with
  - ♦ PCI Grouping Value Set (2.16.840.1.113762.1.4.1045.67)
- o Original value set
  - ♦ Hospital Measures - Principal SNOMED-CT Value Set (2.16.840.1.113883.3.666.5.3010)
- o Replaced with
  - ♦ Principal SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.14)
- o Original value set
  - ♦ Hospital Measures-Endotrachael intubation SNOMED-CT Value Set (2.16.840.1.113883.3.666.5.747)
- o Replaced with
  - ♦ Endotrachael Intubation Grouping Value Set (2.16.840.1.113762.1.4.1045.69)
- o Original value set
  - ♦ Hospital Measures-ECG Impression LOINC Value Set (2.16.840.1.113883.3.666.5.3018)
- o Replaced with
  - ♦ Hospital Measures-ECG Grouping Value Set (2.16.840.1.113883.3.666.5.735)

CMS60/NQF 0164 AMI-7a- Fibrinolytic Therapy Received Within 30 Minutes of Hospital Arrival

- Measure versioned to v3.
- Header updates
  - o Rationale updated
  - o References updated
  - o Guidance updated
  - o Denominator updated
  - o Denominator Exclusions updated
  - o Denominator Exceptions updated
- Because of QDM limitations to identify the closest event to another event, the denominator will identify the last ECG performed within 1 hour prior to hospital arrival OR the first ECG performed after hospital arrival.
- Removed "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient" and replaced it with the harmonized encounter QDM Encounter Inpatient.

- Initial Patient Population: attribute "Principal" harmonized with other measures for diagnosis QDM in "Diagnosis, Active: Hospital Measures-AMI (ordinality: 'Principal') starts during "Occurrence A of Encounter, Performed: Encounter Inpatient.

- Initial Patient Population: attribute "discharge datetime" removed from encounter QDM in "Occurrence A of Encounter, Performed: Encounter Inpatient" during "Measurement Period". This harmonizes encounter logic to use the default attribute.

- Denominator: Removed LBBB phrases due to specification update

    OR: "Occurrence A of Diagnostic Study, Result: Hospital Measures-ECG Impression (result: 'Hospital Measures-LBBB')"

- Denominator: Revised phrases to identify the last ECG performed within 1 hour prior to hospital arrival OR the first ECG performed after hospital arrival

    AND: FIRST: "Occurrence A of Diagnostic Study, Result: Hospital Measures-ECG Impression" during

    OR: "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

    OR: "Occurrence A of Encounter, Performed: Hospital Measures - Encounter ED" <= 1 day(s) starts before start of "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

    AND:

    OR: "Occurrence A of Diagnostic Study, Result: Hospital Measures-ECG Impression (result: 'Hospital Measures-LBBB')"

    OR: "Occurrence A of Diagnostic Study, Result: Hospital Measures-ECG Impression (result: 'Hospital Measures-Acute or Evolving MI')"

    Revised:

    AND:

    OR: MOST RECENT:"Occurrence A of Diagnostic Study, Performed: Hospital Measures-ECG" <= 1 hour(s) starts before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

    OR: FIRST:"Occurrence A of Diagnostic Study, Performed: Hospital Measures-ECG" starts after start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

    AND: "Occurrence A of Diagnostic Study, Result: Hospital Measures-ECG (result: 'Hospital Measures-Acute or Evolving MI')"

- Denominator: Revised phrases identifying ED arrival leading to inpatient admission

  AND: FIRST:"Occurrence A of Diagnostic Study, Result: Hospital Measures-ECG Impression" during

    OR: "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

    OR: "Occurrence A of Encounter, Performed: Hospital Measures - Encounter ED" <= 1 day(s) starts before start of "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

  Revised:

  AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

  AND:

    OR: MOST RECENT:"Occurrence A of Diagnostic Study, Performed: Hospital Measures-ECG" <= 1 hour(s) starts before start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

    OR: FIRST:"Occurrence A of Diagnostic Study, Performed: Hospital Measures-ECG" starts after start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

- Denominator: Added AND NOT phrases to further differentiate acute or evolving MI results

  AND NOT:

    AND: "Occurrence A of Diagnostic Study, Result: Hospital Measures-ECG (result: 'Hospital Measures-Acute or Evolving MI')"

    AND: "Occurrence A of Diagnostic Study, Result: Hospital Measures-ECG (result: 'NSTEMI')"

  AND NOT: "Occurrence A of Diagnostic Study, Result: Hospital Measures-ECG (result: 'NSTEMI')"

- Denominator: Revised phrases indicating Fibrinolytic Therapy administered within 6 hours of hospital arrival including Fibrinolytic Therapy as primary reperfusion therapy

  AND: FIRST:"Occurrence A of Medication, Administered: Hospital Measures-Fibrinolytic Therapy" during

OR: "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

OR: "Occurrence A of Encounter, Performed: Hospital Measures-Encounter ED" <= 1 day(s) starts before start of "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

AND NOT:

AND: "Occurrence A of Medication, Administered: Hospital Measures-Fibrinolytic Therapy" starts after start of "Occurrence A of Procedure, Performed: Hospital Measures-PCI"

AND: "Occurrence A of Procedure, Performed: Hospital Measures-PCI" during

OR: "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

OR: "Occurrence A of Encounter, Performed: Hospital Measures-Encounter ED" <= 1 day(s) starts before start of "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

AND: "Occurrence A of Medication, Administered: Hospital Measures-Fibrinolytic Therapy" <= 6 hour(s) starts after start of FIRST :

OR: "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

OR: "Occurrence A of Encounter, Performed: Hospital Measures-Encounter ED" <= 1 day(s) starts before start of "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

Revised:

OR:

AND: FIRST:"Occurrence A of Medication, Administered: Hospital Measures-Fibrinolytic Therapy" <= 6 hour(s) starts after start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

AND NOT: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

AND NOT: "Occurrence A of Medication, Administered: Hospital Measures-Fibrinolytic Therapy" starts after start of ("Occurrence A of Procedure, Performed: PCI" during "Occurrence A of Encounter, Performed: Encounter Inpatient")

OR:

AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

AND: FIRST:"Occurrence A of Medication, Administered: Hospital Measures-Fibrinolytic Therapy" <= 6 hour(s) starts after start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

AND NOT: "Occurrence A of Medication, Administered: Hospital Measures-Fibrinolytic Therapy" starts after start of ("Occurrence A of Procedure, Performed: PCI" starts after start of "Occurrence A of Encounter, Performed: Emergency Department Visit")

- Denominator Exclusions: Added Clinical Trial Participant for ED arrival

    OR:

    AND NOT: "Occurrence A of Patient Characteristic Clinical Trial Participant: Clinical Trial Participant" ends before start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

    AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

    AND: "Occurrence A of Patient Characteristic Clinical Trial Participant: Clinical Trial Participant" starts before or during "Occurrence A of Encounter, Performed: Emergency Department Visit"

- Denominator Exclusions: Added Transfer From other locations for ED arrival

    OR:

    AND:

        OR: "Transfer From: Hospital Measures-Ambulatory surgical center"

        OR: "Transfer From: Hospital Measures-Hospital outpatient department"

        OR: "Transfer From: Hospital Measures-ED Locations"

OR: "Transfer From: Hospital Measures-Acute care hospital"

<= 1 day(s) starts before start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

- Numerator: Revised phrases to clarify both ED and Inpatient arrival

    AND: "Occurrence A of Medication, Administered: Hospital Measures-Fibrinolytic Therapy" <= 30 minute(s) starts after start of FIRST :

    OR: "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

    OR: "Occurrence A of Encounter, Performed: Hospital Measures-Encounter ED" <= 1 day(s) starts before start of "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

    Revised:

    AND:

        OR:

            AND: "Medication, Administered: Hospital Measures-Fibrinolytic Therapy" <= 30 minute(s) starts after start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

            AND NOT: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

        OR:

            AND: "Medication, Administered: Hospital Measures-Fibrinolytic Therapy" <= 30 minute(s) starts after start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

            AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

- Denominator Exceptions: Removed redundant AND NOT phrase for Fibrinolytic Therapy

AND NOT: "Occurrence A of Medication, Administered: Hospital Measures-Fibrinolytic Therapy" <= 30 minute(s) starts after start of FIRST :

> OR: "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

> OR: "Occurrence A of Encounter, Performed: Hospital Measures-Encounter ED" <= 1 day(s) starts before start of "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

- Denominator Exceptions: Revised ED and Inpatient arrival phrases for Reason for Fibrinolytic Therapy delay

  OR: "Medication, Administered not done: Medical Reason" for "Hospital Measures-Fibrinolytic Therapy RxNorm Value Set"

  OR: "Medication, Administered not done: Patient Reason" for "Hospital Measures-Fibrinolytic Therapy RxNorm Value Set"

  OR: "Procedure, Performed: Hospital Measures-Aortic balloon pump insertion"

  OR: "Procedure, Performed: Hospital Measures-Endotrachael intubation"

  OR: "Procedure, Performed: Hospital Measures-Ventricular Assist Device placement"

  OR: "Diagnosis, Active: Hospital Measures-Cardiopulmonary arrest"

  <= 30 minute(s) starts after start of FIRST:

  > OR: "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

  > OR: "Occurrence A of Encounter, Performed: Hospital Measures-Encounter ED" <= 1 day(s) starts before start of "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient"

  Revised:

  OR:

  > AND:

  > > OR: "Medication, Administered not done: Medical Reason" for "Hospital Measures-Fibrinolytic Therapy "

  > > OR: "Medication, Administered not done: Patient Refusal" for "Hospital Measures-Fibrinolytic Therapy "

OR: "Procedure, Performed: Hospital Measures-Aortic balloon pump insertion"

OR: "Procedure, Performed: Endotrachael Intubation"

OR: "Procedure, Performed: Hospital Measures-Ventricular Assist Device placement"

OR: "Diagnosis, Active: Hospital Measures-Cardiopulmonary arrest"

<= 30 minute(s) starts after start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

OR:

AND:

OR: "Medication, Administered not done: Medical Reason" for "Hospital Measures-Fibrinolytic Therapy "

OR: "Medication, Administered not done: Patient Refusal" for "Hospital Measures-Fibrinolytic Therapy "

OR: "Procedure, Performed: Hospital Measures-Aortic balloon pump insertion"

OR: "Procedure, Performed: Endotrachael Intubation"

OR: "Procedure, Performed: Hospital Measures-Ventricular Assist Device placement"

OR: "Diagnosis, Active: Hospital Measures-Cardiopulmonary arrest"

<= 30 minute(s) starts after start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

AND NOT: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

- Value Set Updates
- Current Value Sets were revised to include additional codes and/or addition of ICD-9, ICD-10, and SNOMED-CT terminologies when appropriate. Grouping Value Sets were created to

group the additional terminologies together, therefore value set OIDs attached to measure phrases were revised.

- Value set content has been updated to reflect current measure specifications including medication value sets.

- Added the following value sets

  o Emergency Department Visit SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.292)

  o Encounter Inpatient SNOMEDCT Value Set (2.16.840.1.113883.3.666.5.307)

  o NSTEMI Grouping Value Set (2.16.840.1.113762.1.4.1045.36)

- Updated the following value sets

  o Original value set

    ♦ Medical Reason SNOMED-CT Value Set (2.16.840.1.113883.3.526.2.313)

  o Replaced with

    ♦ Medical Reason SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.473)"

  o Original value set

    ♦ Patient Reason SNOMED-CT Value Set (2.16.840.1.113883.3.526.2.311)

  o Replaced with

    ♦ Patient Refusal SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.93)"

  o Original value set

    ♦ Hospital Measures-PCI SNOMED-CT Value Set (2.16.840.1.113883.3.666.5.737)

  o Replaced with

    ♦ PCI Grouping Value Set (2.16.840.1.113762.1.4.1045.67)

  o Original value set

    ♦ Hospital Measures - Principal SNOMED-CT Value Set (2.16.840.1.113883.3.666.5.3010)

  o Replaced with

    ♦ Principal SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.14)

  o Original value set

    ♦ Hospital Measures-Endotrachael intubation SNOMED-CT Value Set (2.16.840.1.113883.3.666.5.747)

  o Replaced with

    ♦ Endotrachael Intubation Grouping Value Set (2.16.840.1.113762.1.4.1045.69)

  o Original value set

    ♦ Hospital Measures-ECG Impression LOINC Value Set (2.16.840.1.113883.3.666.5.3018)

  o Replaced with

    ♦ Hospital Measures-ECG Grouping Value Set (2.16.840.1.113883.3.666.5.735)

<u>**CMS 26/NQF 0338**</u> **Home Management Plan of Care (HMPC) Document Given to Patient/Caregiver Measure**

- Measure versioned to v2
- NQF Number is removed
- Endorsed by is updated
- Disclaimer is updated
- Rationale is updated
- References are updated
- IPP is updated
  - The attribute of discharge datetime is removed from encounter and ends during is used instead.
- Data criteria is updated
  - Harmonize encounter value set from "Inpatient Encounter SNOMED-CT Value Set (2.16.840.1.113883.3.117.1.7.1.23)" to "Encounter Inpatient SNOMEDCT Value Set (2.16.840.1.113883.3.666.5.307)"
  - Harmonize "Principal Diagnosis SNOMED-CT Value Set (2.16.840.1.113883.3.117.2.7.1.14)" to "Principal SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.14)"

<u>**CMS 108/NQF 0371**</u> **VTE-1 Venous Thromboembolism Prophylaxis**

Measure versioned to v3

Metadata updates

- A disclaimer was added.
- The rationale was updated based on updated measure specifications.
- References were updated.
- The phrase describing use of "facility location arrival datetime and facility location departure datetime with the emergency department value set was removed from the guidance.
- The following sentence was added to the guidance: "The construct of Unfractionated Heparin (route: 'Intravenous route') intends to capture continually infused heparin rather than heparin flushes or pushes."
- The Initial Patient Population description was rewritten to more closely align with the measure specifications.
- In the Denominator Exclusions guidance, the wording for comfort measures was rewritten to match the timing as described in the measure specification.

Logic combined and condensed when possible for simplicity and reordered for consistency.

When appropriate, the attributes "admission datetime" and "facility location departure datetime" were removed:

- Current logic example:
  - "Occurrence A of Encounter, Performed: Inpatient Encounter (admission datetime)" <= 1 hour(s) starts after end of "Occurrence A of Encounter, Performed: Emergency Department Visit (facility location departure datetime)"
- Revised logic example:
- "Occurrence A of Encounter, Performed: Encounter Inpatient" <= 1 hour(s) starts after end of "Occurrence A of Encounter, Performed: Emergency Department Visit"

Initial Patient Population:

Change to Initial Patient Population (IPP) logic to remove discharge datetime attribute and change timing relationship:

- Current logic:
  - AND: "Occurrence A of Encounter, Performed: Encounter Inpatient (discharge datetime)" *during* "Measurement Period"
- Revised logic:
  - AND: "Occurrence A of Encounter, Performed: Encounter Inpatient" *ends during* "Measurement Period"

Denominator Exclusions:

> The value set for the "Comfort Measures Only" data element was changed from Palliative care (2.16.840.1.113883.3.526.2.1076) to Comfort Measures SNOMEDCT Value Set (1.3.6.1.4.1.33895.1.3.0.45) to more closely harmonize with other inpatient quality reporting measures using this data element.

> The timing sequences for "Comfort measures" was changed for the Inpatient Encounter and the Emergency Department sequences to align with the paper-measure specifications; changed to "less than or equal to 1 day starts after the start of".

- Current logic example:
  - OR: "Intervention, Order: Palliative Care"
  - OR: "Intervention, Performed: Palliative Care"
  - *starts during* "Occurrence A of Encounter, Performed: Inpatient Encounter"
- Revised logic example:
  - OR: "Intervention, Order: Comfort Measures"
  - OR: "Intervention, Performed: Comfort Measures"
  - *<= 1 day(s) starts after start* of "Occurrence A of Encounter, Performed: Encounter Inpatient"

In the denominator exclusions, the logic to exclude a patient with a principal diagnosis of a mental disorder was rewritten to represent that the diagnosis had to start during the inpatient encounter.

- Current logic:
  - o AND: "Diagnosis, Active: Mental Disorders (ordinality: 'Principal Diagnosis')" starts before or during "Occurrence A of Encounter, Performed: Inpatient Encounter"
  - o AND NOT: "Diagnosis, Active: Mental Disorders (ordinality: 'Principal Diagnosis')" ends before start of "Occurrence A of Encounter, Performed…
- Revised logic:
  - o OR: "Diagnosis, Active: Mental Disorders (ordinality: 'Principal')" starts during "Occurrence A of Encounter, Performed…

Numerator:

Logic statements in the numerator were condensed and reordered for simplicity and consistency. Checks for appropriate VTE prophylaxis or reasons for not doing appropriate VTE prophylaxis were grouped into those done with the proper timing for the inpatient encounter (direct admit), for timing when a patient has surgery which ends within 1 day after arrival to the hospital, and when a patient is seen in the ED before the inpatient encounter.

In the numerator logic phrases were added to represent a "medication, order not done" or a "device, order not done" for each of the above scenarios.

- Logic examples:
  - o OR: "Medication, Order not done: Medical Reason" for "Warfarin-only ingredient specific"
  - o OR: "Device, Order not done: Medical Reason" for "Graduated compression stockings (GCS)"

Value set changes:

- Original value set:
  - o Palliative care (2.16.840.1.113883.3.526.2.1076)
- Replaced by:
  - o Comfort Measures SNOMEDCT Value Set (1.3.6.1.4.1.33895.1.3.0.45)
- Original value set:
  - o Inpatient Encounter SNOMED-CT Value Set (2.16.840.1.113883.3.117.1.7.1.23)
- Replaced by:
  - o Encounter Inpatient SNOMEDCT Value Set (2.16.840.1.113883.3.666.5.307)
- Original value set:
  - o General or Neuraxial Anesthesia Grouping Value Set (2.16.840.1.113883.3.117.1.7.1.254)
- Replaced by:

- o General or Neuraxial Anesthesia Grouping Value Set (2.16.840.1.113883.3.666.5.1743)
- New value sets containing ingredient-specific codes to be used with "Medication, Order not done":
  - o Low Molecular Weight Heparin for VTE prophylaxis ingredient specific RXNORM Value Set (2.16.840.1.113762.1.4.1021.12)
  - o Injectable factor Xa inhibitor for VTE prophylaxis ingredient specific RXNORM Value Set (2.16.840.1.113762.1.4.1021.11)
  - o Warfarin-only ingredient specific RXNORM Value Set (2.16.840.1.113762.1.4.1021.10)
  - o Unfractionated Heparin for VTE prophylaxis ingredient specific RXNORM Value Set (2.16.840.1.113762.1.4.1021.13)
- Value sets renamed:
  - o Low Molecular Weight Heparin RXNORM Value Set (2.16.840.1.113883.3.117.1.7.1.219)
  - o Injectable Factor Xa Inhibitor RXNORM Value Set (2.16.840.1.113883.3.117.1.7.1.211)
  - o Renamed:
    - ♦ Low Molecular Weight Heparin for VTE prophylaxis RXNORM Value Set (2.16.840.1.113883.3.117.1.7.1.219)
    - ♦ Injectable Factor Xa Inhibitor for VTE prophylaxis RXNORM Value Set (2.16.840.1.113883.3.117.1.7.1.211)
- New value set:
  - o Low Dose Unfractionated Heparin for VTE Prophylaxis RXNORM Value Set (2.16.840.1.113762.1.4.1045.39)

Value set updates:

- ICD10
  - o Gynecological Surgery (2.16.840.1.113883.3.117.1.7.1.313)
  - o Knee Replacement Surgery (2.16.840.1.113883.3.117.1.7.1.317)
  - o Hip Replacement Surgery (2.16.840.1.113883.3.117.1.7.1.321)
  - o Hip Fracture Surgery (2.16.840.1.113883.3.117.1.7.1.3250
  - o Urological Surgery (2.16.840.1.113883.3.117.1.7.1.331)
  - o Intracranial Neurosurgery (2.16.840.1.113883.3.117.1.7.1.344)
  - o General Surgery (2.16.840.1.113883.3.117.1.7.1.361)
- SNOMED CT
  - o Obstetrics VTE (2.16.840.1.113883.3.117.1.7.1.340)
  - o Obstetrics (2.16.840.1.113883.3.117.1.7.1.337

CMS 190/NQF 0372 VTE-2 Intensive Care Unit (ICU) Venous Thromboembolism Prophylaxis

Measure versioned to v3

Metadata updates

- Disclaimer added.
- Rationale updated based on updated measure specifications.
- References updated.
- Guidance revisions
  - Removed from guidance: phrase describing use of "facility location arrival datetime and facility location departure datetime with the emergency department value set
  - Added to guidance: "The construct of Unfractionated Heparin (route: 'Intravenous route') intends to capture continually infused heparin rather than heparin flushes or pushes."
- The Initial Patient Population rewritten to more closely align with the paper-measure specifications.
- Denominator exclusions: wording for the first exclusion for comfort measures only, rewritten to match the timing as described in the paper-measure specification.

Logic was combined and condensed when possible for simplicity and reordered for consistency.

Initial Patient Population (IPP):

Change to Initial Patient Population (IPP) logic to remove discharge datetime attribute and change timing relationship:

- Current logic:
  - AND: "Occurrence A of Encounter, Performed: Encounter Inpatient (*discharge datetime*)" *during* "Measurement Period"
- Revised logic:
  - AND: "Occurrence A of Encounter, Performed: Encounter Inpatient" *ends during* "Measurement Period"

The attributes "admission datetime" and "facility location departure datetime" were removed throughout the measure.

- Current logic example:
  - "Occurrence A of Encounter, Performed: Inpatient Encounter (admission datetime)" <= 1 hour(s) starts after end of "Occurrence A of Encounter, Performed: Emergency Department Visit (facility location departure datetime)"
- Revised logic example:
  - "Occurrence A of Encounter, Performed: Encounter Inpatient" <= 1 hour(s) starts after end of "Occurrence A of Encounter, Performed: Emergency Department Visit"

Denominator:

FIRST was added to the phrase:

- AND: FIRST: "Occurrence A of Encounter, Performed: ICU Admission or Transfer" during "Occurrence A of Encounter, Performed: Encounter Inpatient"

  Only the first ICU admission or transfer should be counted during an episode of care.

Denominator Exclusions:

The value set in the logic for the "Comfort Measures Only" data element was changed from Palliative care (2.16.840.1.113883.3.526.2.1076) to Comfort Measures SNOMEDCT Value Set (1.3.6.1.4.1.33895.1.3.0.45) to more closely harmonize with other inpatient quality reporting measures that use this data element.

The timing in the logic sequences for "Comfort measures" was changed to better represent the measure specifications for Comfort measures begun after ICU admission or transfer and also after Emergency Department admission associated with the current episode of care. It was changed to "less than or equal to 1 day starts after the start of" for both the ICU admission and the ED encounter.

- Current logic example:
    - AND:
        - OR: "Occurrence A of Intervention, Order: Palliative Care"
        - OR: "Occurrence A of Intervention, Performed: Palliative Care"
        - starts after start of "Occurrence A of Encounter, Performed: Inpatient Encounter"
    - AND:
        - OR: "Occurrence A of Intervention, Order: Palliative Care"
        - OR: "Occurrence A of Intervention, Performed: Palliative Care"
        - starts before start of "Occurrence A of Encounter, Performed: ICU…
    - OR:
        - OR: "Intervention, Order: Palliative Care"
        - OR: "Intervention, Performed: Palliative Care"
        - *starts during* "Occurrence A of Encounter, Performed: ICU…
- Revised logic example:
    1. AND:

       OR: "Intervention, Order: Comfort Measures"

       OR: "Intervention, Performed: Comfort Measures"

starts after start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

2. AND:

OR: "Intervention, Order: Comfort Measures"

OR: "Intervention, Performed: Comfort Measures"

<= 1 day(s) starts after start of "Occurrence A of Encounter, Performed: ICU…"

Numerator:

Logic condensed and reordered for simplicity and consistency.

Checks for appropriate VTE prophylaxis or reasons for not doing appropriate VTE prophylaxis grouped with those done and proper timing for the inpatient encounter (direct admit), for timing when a patient has surgery ending within 1 day after arrival to the hospital, and when a patient is seen in the ED before the inpatient encounter.

Logic phrases added to represent a "medication, order not done" or a "device, order not done" for each of the above scenarios.

- Logic examples:
  - OR: "Medication, Order not done: Medical Reason" for "Warfarin-only ingredient specific "
  - OR: "Device, Order not done: Medical Reason" for "Graduated compression stockings (GCS)

All logic phrases representing reasons why VTE prophylaxis was not administered in the Emergency Department removed from the e-specifications to meet the intent of the paper-measure. Reasons must be documented when a patient is admitted or transferred to ICU, negating the ED phrases.

Value set changes:

- Original value set:
  - Palliative care (2.16.840.1.113883.3.526.2.1076)
- Replaced by:
  - Comfort Measures SNOMEDCT Value Set (1.3.6.1.4.1.33895.1.3.0.45)
- Original value set:
  - Inpatient Encounter SNOMED-CT Value Set (2.16.840.1.113883.3.117.1.7.1.23)
- Replaced by:
  Encounter Inpatient SNOMEDCT Value Set (2.16.840.1.113883.3.666.5.307)

- Original value set:
  - General or Neuraxial Anesthesia Grouping Value Set (2.16.840.1.113883.3.117.1.7.1.254)
- Replaced by:
  - General or Neuraxial Anesthesia Grouping Value Set (2.16.840.1.113883.3.666.5.1743)
  - New value sets containing ingredient-specific codes to be used with "Medication, Order not done":
  - Low Molecular Weight Heparin for VTE prophylaxis ingredient specific RXNORM Value Set (2.16.840.1.113762.1.4.1021.12)
  - Injectable factor Xa inhibitor for VTE prophylaxis ingredient specific RXNORM Value Set (2.16.840.1.113762.1.4.1021.11)
  - Warfarin-only ingredient specific RXNORM Value Set (2.16.840.1.113762.1.4.1021.10)
  - Unfractionated Heparin for VTE prophylaxis ingredient specific RXNORM Value Set (2.16.840.1.113762.1.4.1021.13)
- Value sets renamed:
  - Low Molecular Weight Heparin RXNORM Value Set (2.16.840.1.113883.3.117.1.7.1.219)
  - Injectable Factor Xa Inhibitor RXNORM Value Set (2.16.840.1.113883.3.117.1.7.1.211)
- Renamed:
  - Low Molecular Weight Heparin for VTE prophylaxis RXNORM Value Set (2.16.840.1.113883.3.117.1.7.1.219)
  - Injectable Factor Xa Inhibitor for VTE prophylaxis RXNORM Value Set (2.16.840.1.113883.3.117.1.7.1.211)
- New value set:
  - Low Dose Unfractionated Heparin for VTE Prophylaxis RXNORM Value Set (2.16.840.1.113762.1.4.1045.39)

Value set updates:

- ICD10
  - Gynecological Surgery (2.16.840.1.113883.3.117.1.7.1.313)
  - Knee Replacement Surgery (2.16.840.1.113883.3.117.1.7.1.317)
  - Hip Replacement Surgery (2.16.840.1.113883.3.117.1.7.1.321)
  - Hip Fracture Surgery (2.16.840.1.113883.3.117.1.7.1.3250
  - Urological Surgery (2.16.840.1.113883.3.117.1.7.1.331)
  - Intracranial Neurosurgery (2.16.840.1.113883.3.117.1.7.1.344)
  - General Surgery (2.16.840.1.113883.3.117.1.7.1.361)

- SNOMED CT
  - Obstetrics VTE (2.16.840.1.113883.3.117.1.7.1.340)
  - Obstetrics (2.16.840.1.113883.3.117.1.7.1.337)

<u>CMS 73/NQF 0373</u> VTE-3 Venous Thromboembolism Patients with Overlap of Anticoagulation Therapy

Measure versioned to v3

Metadata updates

- A disclaimer was added.
- The rationale was updated based on updated measure specifications.
- References were updated.
- The phrase describing use of "facility location arrival datetime and facility location departure datetime with the emergency department value set was removed from the guidance.

Measure logic was combined and condensed when possible for simplicity and reordered for consistency.

Initial Patient Population (IPP):

Change to Initial Patient Population (IPP) logic to remove discharge datetime attribute and change timing relationship:

- Current logic:
  - AND: "Occurrence A of Encounter, Performed: Encounter Inpatient (discharge datetime)" *during* "Measurement Period"
- Revised logic:
  - AND: "Occurrence A of Encounter, Performed: Encounter Inpatient" *ends during* "Measurement Period"

When appropriate, attributes "admission datetime" and "facility location departure datetime" removed throughout the measure.

- Current logic:
  - "Occurrence A of Encounter, Performed: Inpatient Encounter (admission datetime)" <= 1 hour(s) starts after end of "Occurrence A of Encounter, Performed: Emergency Department Visit (facility location departure datetime)"
- Revised logic:
  - "Occurrence A of Encounter, Performed: Encounter Inpatient" <= 1 hour(s) starts after end of "Occurrence A of Encounter, Performed: Emergency Department Visit"

Denominator:

Logic was reorganized and condensed for simplicity. All references to Warfarin administered before the encounter were removed.

Timing for the beginning of VTE prophylaxis is based on the <u>first</u> VTE Diagnostic Test with a VTE Confirmed. In the denominator, FIRST was added to the grouping of phrases representing the VTE Diagnostic Test with a result of VTE Confirmed. VTE diagnostic test with a VTE confirmed must occur within 4 days instead of within 2 days of the Inpatient Encounter or the ED encounter which is followed by an Inpatient Encounter.

- Current logic (partial):
  AND:

    OR: "Diagnostic Study, Result: VTE Diagnostic Test (result: 'VTE Confirmed')" during "Occurrence A of Encounter, Performed: Inpatient Encounter"

    OR: "Diagnostic Study, Result: VTE Diagnostic Test (result: 'VTE Confirmed')" <= *2 day(s)* starts before start of "Occurrence A of Encounter, Performed: Inpatient Encounter"

- Revised logic (partial list of phrase grouping):
  AND: FIRST:

    OR: "Occurrence A of Diagnostic Study, Result: VTE Diagnostic Test (result: 'VTE Confirmed')" during "Occurrence A of Encounter, Performed: Encounter Inpatient"

    OR: "Occurrence A of Diagnostic Study, Result: VTE Diagnostic Test (result: 'VTE Confirmed')" <= *4 day(s)* starts before start of "Occurrence A of Encounter, Performed…

Denominator exclusions:

The value set in the logic for the "Comfort Measures Only" data element changed from Palliative care (2.16.840.1.113883.3.526.2.1076) to Comfort Measures SNOMEDCT Value Set (1.3.6.1.4.1.33895.1.3.0.45) to more closely harmonize with other inpatient quality reporting measures using this data element.

Numerator:

All logic representing warfarin given before arrival to the hospital removed from the numerator.

Logic referring to the INR result changed to match specification updates. INR data element now looks for the INR which is the day of or day after the last administration of the parenteral anticoagulant.

Representation of result value was changed to 2.0. MOST RECENT added to represent the last administration of the parenteral anticoagulant. Occurrence A added to this instance of administration of the parenteral anticoagulant.

- Current logic:

    OR: "Laboratory Test, Result: INR (result >= 2)" <= 1 day(s) *starts before start of* ("Medication, Administered: Parenteral Anticoagulant" during "Occurrence A of Encounter, Performed: Inpatient Encounter")

    OR:

    AND: "Laboratory Test, Result: INR (result < 2)" <= 1 day(s) *starts before start of* ("Medication, Administered: Parenteral Anticoagulant" during "Occurrence A of Encounter, Performed: Inpatient Encounter")

- Revised logic:

    OR: "Laboratory Test, Result: INR (result >= 2.0)" *<= 1 day(s) starts after start of MOST RECENT :"Occurrence A* of Medication, Administered: Parenteral Anticoagulant"

    OR:

    AND: "Laboratory Test, Result: INR (result < 2.0)" *<= 1 day(s) starts after start of MOST RECENT :"Occurrence A* of Medication, Administered: Parenteral Anticoagulant"

The relative timing operator for phrases using "Medication, Discharge" was changed from "during" to "starts during".

- Current logic (partial list of phrase grouping):
    OR: Medication, Discharge Patient Refusal" for "Parenteral anticoagulant"

    During "Occurrence A of Encounter, Performed…

- Revised logic (partial list of phrase grouping):
    OR: Medication, Discharge Patient Refusal" for "Parenteral anticoagulant ingredient specific"

    Starts during "Occurrence A of Encounter, Performed…

A new value set for "Parenteral anticoagulant ingredient specific" developed to use with "Medication, Discharge Not Done" and "Medication, Order Not Done" data types.

- Current logic:
    OR: "Medication, Discharge not done: Medical Reason" for "Parenteral Anticoagulant "

OR: "Medication, Discharge not done: Patient Refusal" for "Parenteral Anticoagulant "

during "Occurrence A of Encounter, Performed: Inpatient Encounter"

- Revised logic:

  OR: "Medication, Discharge not done: Medical Reason" for "*Parenteral anticoagulant ingredient specific* "

  OR: "Medication, Discharge not done: Patient Refusal" for "*Parenteral anticoagulant ingredient specific* "

  starts during "Occurrence A of Encounter, Performed: Encounter Inpatient"

Logic addition for reason for discontinuation of overlap therapy:

"Diagnosis, Active: Thrombocytopenia" <= 1 day(s) starts after start of MOST RECENT: "Occurrence A of Medication, Administered: Parenteral Anticoagulant"

The logic sequence representing the "Reason for No Overlap Therapy" was reorganized and updated to more closely match the measure specifications. Changes in the data element "Reason for No Overlap Therapy" require provider documentation on the day of or the day after the VTE Diagnostic Test. This was added to this logic. Logic was grouped for Inpatient Encounter and also for Emergency Department.

- Revised logic (partial-Inpatient Encounter):

  OR:

  OR: "Medication, Order not done: Medical Reason" for "Parenteral anticoagulant ingredient specific "

  OR: "Medication, Order not done: Patient Refusal" for "Parenteral anticoagulant ingredient specific "

  OR: "Medication, Administered not done: Medical Reason" for "Parenteral Anticoagulant "

  OR: "Medication, Administered not done: Patient Refusal" for "Parenteral Anticoagulant "

  <= 1 day(s) starts after start of ("Occurrence A of Diagnostic Study, Result: VTE Diagnostic Test" during "Occurrence A of Encounter, Performed: Encounter Inpatient")

Logic was added for the "reason for no overlap therapy" when a patient has a VTE diagnostic test with VTE confirmed within 4 days prior to arrival at the hospital. Documentation must be the day of or the day after arrival.

- Revised logic (partial-Inpatient Encounter):

  AND: "Occurrence A of Diagnostic Study, Result: VTE Diagnostic Test" *<= 4 day(s) starts before start of* "Occurrence A of Encounter, Performed: Inpatient Encounter"

  AND:

  OR: "Medication, Order not done: Medical Reason" for "Parenteral anticoagulant ingredient specific "

  OR: "Medication, Order not done: Patient Refusal" for "Parenteral anticoagulant ingredient specific "

  OR: "Medication, Administered not done: Medical Reason" for "Parenteral Anticoagulant "

  OR: "Medication, Administered not done: Patient Refusal" for "Parenteral Anticoagulant "

  <= 1 day(s) starts after start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

Value set changes:

- Original value set:
  - Palliative care (2.16.840.1.113883.3.526.2.1076)
- Replaced by:
  - Comfort Measures SNOMEDCT Value Set (1.3.6.1.4.1.33895.1.3.0.45)
- Original value set:
  - Inpatient Encounter SNOMED-CT Value Set (2.16.840.1.113883.3.117.1.7.1.23)
- Replaced by:
  - Encounter Inpatient SNOMEDCT Value Set (2.16.840.1.113883.3.666.5.307)

New value sets:

- Parenteral anticoagulant ingredient specific RXNORM Value Set (2.16.840.1.113762.1.4.1021.4)
- Thrombocytopenia Grouping Value Set (2.16.840.1.113762.1.4.1045.45)

CMS 109/NQF 0374 VTE-4 Patients Unfractionated Heparin (UFH) Dosages/Platelet Count Monitoring by Protocol (or Nomogram) Receiving

Unfractionated Heparin (UFH) with Dosages/Platelet Count
Monitored by Protocol (or Nomogram)

- Measure versioned to v3
- NQF Number is removed
- Endorsed by is updated
- Disclaimer is updated
- Rationale is updated
- References are updated
- Guidance is updated
- IPP is updated
  - The attribute of discharge datetime is removed from encounter and ends during is used instead.
- Denominator is updated
  - VTE Diagnostic Test Result starts within 2 days of start of Encounter Inpatient is updated to 4 days
  - VTE Diagnostic Test Result starts within 2 days of start of Emergency Department Encounter is updated to 4 days
  - The phrase of VTE Diagnostic Test Result done during Encounter Inpatient is removed from the ED scenario
  - Harmonize the phrases with ED encounter before inpatient encounter as
  - AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"
- Denominator Exclusions is updated
  - Harmonize the phrases with ED encounter before inpatient encounter as
  - AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"
  - The pattern of Palliative Care has been harmonized by using Comfort Measures, the logic phrases are same but the value set has been updated
- Numerator is updated
  - Numerator is completely re-written. The scenario of the duration of heparin less than 24 hours is removed. Instead, the scenarios are differentiated by inpatient or Ed encounters.
- Data criteria is updated
  - Harmonize encounter value set from "Inpatient Encounter SNOMED-CT Value Set (2.16.840.1.113883.3.117.1.7.1.23)" to "Encounter Inpatient SNOMEDCT Value Set (2.16.840.1.113883.3.666.5.307)"

o Harmonize "Emergency Department Visit Grouping Value Set (2.16.840.1.113883.3.117.1.7.1.293)" to "Emergency Department Visit SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.292)"

o Harmonize "Palliative Care SNOMED-CT Value Set (2.16.840.1.113883.3.526.2.1076)" to "Comfort Measures SNOMEDCT Value Set (1.3.6.1.4.1.33895.1.3.0.45)"

o Codes are updated in "Unfractionated Heparin RXNORM Value Set (2.16.840.1.113883.3.117.1.7.1.218)"

o Codes are updated in "Comfort Measures SNOMEDCT Value Set (1.3.6.1.4.1.33895.1.3.0.45)"

o Codes are updated in "Obstetrics VTE Grouping Value Set (2.16.840.1.113883.3.117.1.7.1.264)"

o Codes are updated in "VTE Confirmed SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.407)"

<u>CMS 110/NQF 0375</u> **VTE-5 VTE discharge instructions**

- Measure versioned to v3
- NQF Number is removed
- Endorsed by is updated
- Disclaimer is updated
- Rationale is updated
- References are updated
- IPP is updated

    o The attribute of discharge datetime is removed from encounter and ends during is used instead.

    o Harmonize the phrases with ED encounter before inpatient encounter as

    o AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

- Denominator is updated

    o "Medication, Discharge: Warfarin" is changed from during to starts during.

    o VTE Diagnostic Test Result starts within 2 days of start of Encounter Inpatient is updated to 4 days

    o VTE Diagnostic Test Result starts within 2 days of start of Emergency Department Encounter is updated to 4 days

    o The phrase of VTE Diagnostic Test Result done during Encounter Inpatient is removed from the ED scenario

    o Harmonize the phrases with ED encounter before inpatient encounter as

- o AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"
- Data criteria is updated
    - o Harmonize encounter value set from "Inpatient Encounter SNOMED-CT Value Set (2.16.840.1.113883.3.117.1.7.1.23)" to "Encounter Inpatient SNOMEDCT Value Set (2.16.840.1.113883.3.666.5.307)"
    - o Harmonize "Emergency Department Visit Grouping Value Set (2.16.840.1.113883.3.117.1.7.1.293)" to "Emergency Department Visit SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.292)"
    - o Codes are updated in "Warfarin RXNORM Value Set (2.16.840.1.113883.3.117.1.7.1.232)"
    - o Codes are updated in "Obstetrics VTE Grouping Value Set (2.16.840.1.113883.3.117.1.7.1.264)"
    - o Codes are updated in "VTE Confirmed SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.407)"

NQF 0376/CMS 114 VTE-6 Incidence of Potentially-Preventable Venous Thromboembolism

- Measure versioned to v3
- NQF Number is removed
- Endorsed by is updated
- Disclaimer is updated
- Rationale is updated
- References are updated
- Guidance is updated
- Initial Patient Population in header is updated
- IPP is updated
    - o The attribute of discharge datetime is removed from encounter and ends during is used instead.
    - o The pattern of Venous Thromboembolism and Obstetrics VTE has been completely re-written
- Denominator is updated
    - o VTE Diagnostic Test is simplified to only order starts during Encounter Inpatient.
    - o VTE Diagnostic Test Result is simplified to the first occurrence and only result starts during Encounter Inpatient.
- Denominator Exclusions is updated
    - o Harmonize the phrases with ED encounter before inpatient encounter as

- AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"
- The pattern of Palliative Care has been harmonized by using Comfort Measures, the logic phrases are same but the value set has been updated
- VTE Diagnostic Test doesn't need constraint of during Encounter Inpatient.
- The Medication Administered not done: Medical Contraindication, Device Applied not done: Medical Contraindication, Medication Administered not done: Patient Refusal, and Device Applied not done: Patient Refusal have been completely re-rewritten.

- Numerator is updated
  - Numerator is completely re-written. The same QDMs are used but are organized individually to ensure each QDM is not the scenario of starts before start of VTE test more than 1 day and also starts during Encounter inpatient.
  - Unfractionated Heparin (route: 'Intravenous route') is changed to Low Dose Unfractionated Heparin for VTE Prophylaxis (route: 'Subcutaneous route').

- Data criteria is updated
  - Harmonize encounter value set from "Inpatient Encounter SNOMED-CT Value Set (2.16.840.1.113883.3.117.1.7.1.23)" to "Encounter Inpatient SNOMEDCT Value Set (2.16.840.1.113883.3.666.5.307)"
  - Harmonize "Emergency Department Visit Grouping Value Set (2.16.840.1.113883.3.117.1.7.1.293)" to "Emergency Department Visit SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.292)"
  - Harmonize "Palliative Care SNOMED-CT Value Set (2.16.840.1.113883.3.526.2.1076)" to "Comfort Measures SNOMEDCT Value Set (1.3.6.1.4.1.33895.1.3.0.45)"
  - Codes are updated in "Unfractionated Heparin RXNORM Value Set (2.16.840.1.113883.3.117.1.7.1.218)"
  - Harmonize "Principal Diagnosis SNOMED-CT Value Set (2.16.840.1.113883.3.117.2.7.1.14)" to "Principal SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.14)"
  - Codes are updated in "Comfort Measures SNOMEDCT Value Set (1.3.6.1.4.1.33895.1.3.0.45)"
  - Codes are updated in "Low Dose Unfractionated Heparin for VTE Prophylaxis RXNORM Value Set (2.16.840.1.113762.1.4.1045.39)"
  - Codes are updated in "Oral Factor Xa Inhibitor for VTE Prophylaxis RXNORM Value Set (2.16.840.1.113883.3.117.1.7.1.134)"
  - Codes are updated in "Injectable Factor Xa Inhibitor for VTE Prophylaxis RXNORM Value Set (2.16.840.1.113883.3.117.1.7.1.211)"
  - Codes are updated in "Unfractionated Heparin RXNORM Value Set (2.16.840.1.113883.3.117.1.7.1.218)"

- o Codes are updated in "Low Molecular Weight Heparin for VTE Prophylaxis RXNORM Value Set (2.16.840.1.113883.3.117.1.7.1.219)"
- o Codes are updated in "Warfarin RXNORM Value Set (2.16.840.1.113883.3.117.1.7.1.232)"
- o Codes are updated in "Obstetrics VTE Grouping Value Set (2.16.840.1.113883.3.117.1.7.1.264)"

CMS 114/NQF 0376 VTE-6 Incidence of Potentially-Preventable Venous Thromboembolism

- Measure versioned to v3
- NQF Number is removed
- Endorsed by is updated
- Disclaimer is updated
- Rationale is updated
- References are updated
- Guidance is updated
- Initial Patient Population in header is updated
- IPP is updated
  - o The attribute of discharge datetime is removed from encounter and ends during is used instead.
  - o The pattern of Venous Thromboembolism and Obstetrics VTE has been completely re-written
- Denominator is updated
  - o VTE Diagnostic Test is simplified to only order starts during Encounter Inpatient.
  - o VTE Diagnostic Test Result is simplified to the first occurrence and only result starts during Encounter Inpatient.
- Denominator Exclusions is updated
  - o Harmonize the phrases with ED encounter before inpatient encounter as
  - o AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"
  - o The pattern of Palliative Care has been harmonized by using Comfort Measures, the logic phrases are same but the value set has been updated
  - o VTE Diagnostic Test doesn't need constraint of during Encounter Inpatient.
  - o The Medication Administered not done: Medical Contraindication, Device Applied not done: Medical Contraindication, Medication Administered not done: Patient Refusal, and Device Applied not done: Patient Refusal have been completely re-rewritten.
- Numerator is updated

- o Numerator is completely re-written. The same QDMs are used but are organized individually to ensure each QDM is not the scenario of starts before start of VTE test more than 1 day and also starts during Encounter inpatient.
  - o Unfractionated Heparin (route: 'Intravenous route') is changed to Low Dose Unfractionated Heparin for VTE Prophylaxis (route: 'Subcutaneous route').
- Data criteria is updated
  - o Harmonize encounter value set from "Inpatient Encounter SNOMED-CT Value Set (2.16.840.1.113883.3.117.1.7.1.23)" to "Encounter Inpatient SNOMEDCT Value Set (2.16.840.1.113883.3.666.5.307)"
  - o Harmonize "Emergency Department Visit Grouping Value Set (2.16.840.1.113883.3.117.1.7.1.293)" to "Emergency Department Visit SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.292)"
  - o Harmonize "Palliative Care SNOMED-CT Value Set (2.16.840.1.113883.3.526.2.1076)" to "Comfort Measures SNOMEDCT Value Set (1.3.6.1.4.1.33895.1.3.0.45)"
  - o Codes are updated in "Unfractionated Heparin RXNORM Value Set (2.16.840.1.113883.3.117.1.7.1.218)"
  - o Harmonize "Principal Diagnosis SNOMED-CT Value Set (2.16.840.1.113883.3.117.2.7.1.14)" to "Principal SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.14)"
  - o Codes are updated in "Comfort Measures SNOMEDCT Value Set (1.3.6.1.4.1.33895.1.3.0.45)"
  - o Codes are updated in "Low Dose Unfractionated Heparin for VTE Prophylaxis RXNORM Value Set (2.16.840.1.113762.1.4.1045.39)"
  - o Codes are updated in "Oral Factor Xa Inhibitor for VTE Prophylaxis RXNORM Value Set (2.16.840.1.113883.3.117.1.7.1.134)"
  - o Codes are updated in "Injectable Factor Xa Inhibitor for VTE Prophylaxis RXNORM Value Set (2.16.840.1.113883.3.117.1.7.1.211)"
  - o Codes are updated in "Unfractionated Heparin RXNORM Value Set (2.16.840.1.113883.3.117.1.7.1.218)"
  - o Codes are updated in "Low Molecular Weight Heparin for VTE Prophylaxis RXNORM Value Set (2.16.840.1.113883.3.117.1.7.1.219)"
  - o Codes are updated in "Warfarin RXNORM Value Set (2.16.840.1.113883.3.117.1.7.1.232)"
  - o Codes are updated in "Obstetrics VTE Grouping Value Set (2.16.840.1.113883.3.117.1.7.1.264)"

CMS 104/NQF 0435 Stroke-2 Ischemic stroke – Discharged on Antithrombotic Therapy

- Measure versioned to v3
- Header updates

- o Disclaimer updated
- o Guidance updated
- o Initial Patient Population updated
- o Denominator updated
- o Denominator Exclusions updated
- o Numerator updated
- o Denominator Exceptions updated

- Initial Patient Population: attribute "Principal" harmonized with other measures for diagnosis QDM

    OR: "Diagnosis, Active: Hemorrhagic Stroke (ordinality: 'Principal')"

    OR: "Diagnosis, Active: Ischemic Stroke (ordinality: 'Principal')"

    starts during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- Initial Patient Population: attribute "discharge datetime" removed from encounter QDM in "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter" during "Measurement Period". This harmonizes encounter logic to use the default attribute.

- Denominator: attribute "Principal" harmonized with other measures for diagnosis QDM

    AND: "Diagnosis, Active: Ischemic Stroke (ordinality: 'Principal')" starts during Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- Denominator Exclusions: Removed Palliative Care

    OR: "Intervention, Order: Palliative Care"

    OR: "Intervention, Performed: Palliative Care"

    starts during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

    AND: "Occurrence A of Intervention, Order: Palliative Care" starts after start of "Occurrence A of Encounter, Performed: Emergency Department Visit (facility location arrival datetime)"

    AND: "Occurrence A of Intervention, Order: Palliative Care" starts before or during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

    AND: "Occurrence A of Intervention, Performed: Palliative Care" starts after start of "Occurrence A of Encounter, Performed: Emergency Department Visit (facility location arrival datetime)"

    AND: "Occurrence A of Intervention, Performed: Palliative Care" starts before or during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- Denominator Exclusions: Added Comfort Care

OR: "Intervention, Order: Comfort Measures"

OR: "Intervention, Performed: Comfort Measures"

starts during "Occurrence A of Encounter, Performed: Emergency Department Visit"

OR: "Intervention, Order: Comfort Measures"

OR: "Intervention, Performed: Comfort Measures"

starts during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- Numerator: Revised timing relationship

  AND: "Medication, Discharge: Antithrombotic Therapy" during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

  Revision:

  > AND: "Medication, Discharge: Antithrombotic Therapy" starts during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- Denominator Exceptions: Removed Medication, Order not done

  OR: "Medication, Order not done: Medical Reason" for "Antithrombotic Therapy RxNorm Value Set"

  OR: "Medication, Order not done: Patient Refusal" for "Antithrombotic Therapy RxNorm Value Set"

  starts during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- Denominator Exceptions: Added Medication, Discharge not done

  OR: "Medication, Discharge not done: Medical Reason" for "Antithrombotic ingredient specific"

  OR: "Medication, Discharge not done: Patient Refusal" for "Antithrombotic ingredient specific"

  starts during "Occurrence A of Encounter, Performed: Non-Elective inpatient Encounter"

- Value Set Updates
- Current Value Sets were revised to include additional codes and/or addition of ICD-9, ICD-10, and SNOMED-CT terminologies when appropriate. Grouping Value Sets were created to group the additional terminologies together, therefore value set OIDs attached to measure phrases were revised.
- Value set content has been updated to reflect current measure specifications including medication value sets.

- Added the following value sets

    Antithrombotic ingredient specific RXNORM Value Set (2.16.840.1.113762.1.4.1021.8)

    Comfort Measures SNOMEDCT Value Set (1.3.6.1.4.1.33895.1.3.0.45)

- Updated the following value sets
    - o Original value set
        - ♦ Principal Diagnosis SNOMED-CT Value Set (2.16.840.1.113883.3.117.2.7.1.14)
    - o Replaced with
        - ♦ Principal SNOMED-CT Value Set (2.16.840.1.113883.3.117.1.7.1.14)
- Deleted the following value sets
    - o Palliative Care SNOMED-CT Value Set (2.16.840.1.113883.3.526.2.1076)

<u>CMS 71/NQF 0436</u> Stroke-3 Ischemic stroke – Anticoagulation Therapy for Atrial Fibrillation/Flutter

- Measure versioned to v4
- Header updates
    - o Disclaimer updated
    - o References updated
    - o Guidance updated
    - o Initial Patient Population updated
    - o Denominator updated
    - o Denominator Exclusions updated
    - o Numerator updated
- Initial Patient Population: attribute "Principal" harmonized with other measures for diagnosis QDM

    OR: "Diagnosis, Active: Hemorrhagic Stroke (ordinality: 'Principal')"

    OR: "Diagnosis, Active: Ischemic Stroke (ordinality: 'Principal')"

    starts during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- Initial Patient Population: attribute "discharge datetime" removed from encounter QDM in "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter" during "Measurement Period". This harmonizes encounter logic to use the default attribute.
- Denominator: attribute "Principal" harmonized with other measures for diagnosis QDM

    AND: "Diagnosis, Active: Ischemic Stroke (ordinality: 'Principal')" starts during Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- Denominator Exclusions: Removed Palliative Care

OR: "Intervention, Order: Palliative Care"

OR: "Intervention, Performed: Palliative Care"

starts during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

AND: "Occurrence A of Intervention, Order: Palliative Care" starts after start of "Occurrence A of Encounter, Performed: Emergency Department Visit (facility location arrival datetime)"

AND: "Occurrence A of Intervention, Order: Palliative Care" starts before or during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

AND: "Occurrence A of Intervention, Performed: Palliative Care" starts after start of "Occurrence A of Encounter, Performed: Emergency Department Visit (facility location arrival datetime)"

AND: "Occurrence A of Intervention, Performed: Palliative Care" starts before or during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- Denominator Exclusions: Added Comfort Care

    OR: "Intervention, Order: Comfort Measures"

    OR: "Intervention, Performed: Comfort Measures"

    starts during "Occurrence A of Encounter, Performed: Emergency Department Visit"

    OR: "Intervention, Order: Comfort Measures"

    OR: "Intervention, Performed: Comfort Measures"

    Starts during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- Numerator: Revised timing relationship

    AND: "Medication, Discharge: Anticoagulant Therapy" during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

    Revision:

    AND: "Medication, Discharge: Anticoagulant Therapy" starts during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- Denominator Exceptions: Revised Medication, Discharge not done

OR: "Medication, Discharge not done: Medical Reason" for "Anticoagulant Therapy RxNorm Value Set"

OR: "Medication, Discharge not done: Patient Refusal" for "Anticoagulant Therapy RxNorm Value Set"

during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

Revision:

OR: "Medication, Discharge not done: Medical Reason" for "Anticoagulant ingredient specific"

OR: "Medication, Discharge not done: Patient Refusal" for "Anticoagulant ingredient specific"

starts during "Occurrence A of Encounter, Performed: non-Elective Inpatient Encounter"

- Value Set Updates
  - Current Value Sets were revised to include additional codes and/or addition of ICD-9, ICD-10, and SNOMED-CT terminologies when appropriate. Grouping Value Sets were created to group the additional terminologies together, therefore value set OIDs attached to measure phrases were revised.
  - Value set content has been updated to reflect current measure specifications including medication value sets.
  - Added the following value sets
    - Anticoagulant ingredient specific RXNORM Value Set (2.16.840.1.113762.1.4.1021.9)
    - Comfort Measures SNOMEDCT Value Set (1.3.6.1.4.1.33895.1.3.0.45)
  - Updated the following value sets
    - Original value set
    - Principal Diagnosis SNOMED-CT Value Set (2.16.840.1.113883.3.117.2.7.1.14)
  - Replaced with
    - Principal SNOMED-CT Value Set (2.16.840.1.113883.3.117.1.7.1.14)
  - Deleted the following value sets
    - Palliative Care SNOMED-CT Value Set (2.16.840.1.113883.3.526.2.1076)

CMS 91/NQF 0437 Stroke-4 Ischemic stroke – Thrombolytic Therapy

Header Changes

- Disclaimer added to measure
- Rationale updated
- References updated
- Guidance updated
- IPP updated
- Denominator updated
- Denominator Exclusions updated
- Numerator updated
- Denominator Exceptions updated

Logic Changes

- Removed arrival/discharge datetime unless an integral to logic
- ED visit modeling changed to harmonize across all EH measures
  - AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"
- IPP
  - Revised logic to include patient's discharged during 'Measurement Period' to harmonize eCQMs
- Denominator
  - Removed data element "Baseline State" as a 'Symptom, Active'

    Original:

    OR: "Occurrence A of Symptom, Active: Neurologic Symptoms of Stroke (start datetime)"

    Remodeled:

    OR: "Occurrence A of Physical Exam, Finding: Time of Symptom Onset" <= 120 minute(s) starts before start of "Occurrence A of Encounter, Performed: Emergency"

  - Remove data element "Baseline State" as a 'Symptom, Active'

    OR: "Occurrence A of Symptom, Active: Baseline State (stop datetime)"

  - Modeled data element "Baseline State" as a 'Physical Exam, Finding'

    Original:

OR: "Occurrence A of Symptom, Active: Neurologic Symptoms of Stroke (start datetime)"

Remodeled:

OR: "Occurrence A of Physical Exam, Finding: Baseline State" <= 120 minute(s) ends before start of "Occurrence A of Encounter, Performed: Emergency Department…"

- Denominator Exclusions
- Moved the following logic to Den Exceptions

AND:

OR: "Risk Category Assessment: National Institute of Health Stroke Scale (result = 0)" <= 180 minute(s) starts after start of

OR: "Occurrence A of Symptom, Active: Neurologic Symptoms of Stroke (start datetime)"

OR: "Occurrence A of Symptom, Active: Baseline State (stop datetime)"

OR: "Medication, Administered: Thrombolytic (t-PA) Therapy" <= 2 day(s) starts before start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

OR:

OR: "Medication, Order not done: Medical Reason" for "Thrombolytic (t-PA) Therapy RxNorm Value Set"

OR: "Medication, Order not done: Patient Refusal" for "Thrombolytic (t-PA) Therapy RxNorm Value Set"

OR: "Medication, Administered not done: Medical Reason" for "Thrombolytic (t-PA) Therapy RxNorm Value Set"

OR: "Medication, Administered not done: Patient Refusal" for "Thrombolytic (t-PA) Therapy RxNorm Value Set"

<= 180 minute(s) starts after start of "Occurrence A of Symptom, Active: Baseline State (stop datetime)"

OR:

OR: "Medication, Order not done: Medical Reason" for "Thrombolytic (t-PA) Therapy RxNorm Value Set"

OR: "Medication, Order not done: Patient Refusal" for "Thrombolytic (t-PA) Therapy RxNorm Value Set"

OR: "Medication, Administered not done: Medical Reason" for "Thrombolytic (t-PA) Therapy RxNorm Value Set"

OR: "Medication, Administered not done: Patient Refusal" for "Thrombolytic (t-PA) Therapy RxNorm Value Set"

<= 180 minute(s) starts after start of "Occurrence A of Symptom, Active: Neurologic Symptoms of Stroke (start datetime)"

- Numerator
  - Data element/logic removed: "Symptom, Active: Baseline State"
  - Data element/logic removed: "Symptom, Active: Neurologic Symptoms of Stroke"

    AND:

      OR: "Medication, Administered: Thrombolytic (t-PA) Therapy" <= 180 minute(s) starts after start of "Occurrence A of Symptom, Active: Baseline State (stop datetime)"

      OR: "Medication, Administered: Thrombolytic (t-PA) Therapy" <= 180 minute(s) starts after start of "Occurrence A of Symptom, Active: Neurologic Symptoms of Stroke…"

  - Data element/logic added: "Physical Exam, Finding: Baseline State"
  - Data element/logic added: "Physical Exam, Finding: Time of Symptom Onset"

    AND:

      OR: "Medication, Administered: Thrombolytic (t-PA) Therapy (route: 'Intravenous route')" <= 180 minute(s) starts after end of "Occurrence A of Physical Exam, Finding: Baseline State"

      OR: "Medication, Administered: Thrombolytic (t-PA) Therapy (route: 'Intravenous route')" <= 180 minute(s) starts after start of "Occurrence A of Physical Exam, Finding: Time of Symptom Onset"

- Denominator Exceptions
  - Extensive changes to logic, see updated measure logic for details
  - Data elements updated:

Original:

OR: "Risk Category Assessment: National Institute of Health Stroke Scale (result = 0)" <= 180 minute(s) starts after start of

OR: "Occurrence A of Symptom, Active: Neurologic Symptoms of Stroke (start datetime)"

OR: "Occurrence A of Symptom, Active: Baseline State (stop datetime)"

Updated:

"Risk Category Assessment: National Institute of Health Stroke Scale (result > 22)"

Original:

OR: "Medication, Order not done: Medical Reason" for "Thrombolytic (t-PA) Therapy RxNorm Value Set"

Updated:

"Medication, Order not done: Medical Reason" for "t-PA ingredient specific"

Original:

OR: "Medication, Order not done: Patient Refusal" for "Thrombolytic (t-PA) Therapy RxNorm Value Set"

Updated:

o "Medication, Order not done: Patient Refusal" for "t-PA ingredient specific "

- Remodeled logic to add lab tests, "Medication, Administered, and update "Medication,Order"

AND:

OR:

OR: "Laboratory Test, Result: Prothrombin Time (result > 15 second(s))"

OR: "Laboratory Test, Result: INR (result > 1.7)"

OR: "Laboratory Test, Result: Platelet Count (result < 100000)"

OR: "Laboratory Test, Result: Partial Thromboplastin Time (result > 40 second(s))"

OR: "Physical Exam, Finding: Systolic Blood Pressure (result > 185 mmHg)"

OR: "Physical Exam, Finding: Diastolic Blood Pressure (result > 110 mmHg)"

OR: "Risk Category Assessment: National Institute of Health Stroke Scale (result = 0)"

OR: "Risk Category Assessment: National Institute of Health Stroke Scale (result > 22)"

OR: "Medication, Order not done: Medical Reason" for "t-PA ingredient specific "

OR: "Medication, Order not done: Patient Refusal" for "t-PA ingredient specific "

OR: "Medication, Administered not done: Medical Reason" for "Thrombolytic (t-PA) Therapy "

OR: "Medication, Administered not done: Patient Refusal" for "Thrombolytic (t-PA) Therapy "

<= 180 minute(s) starts after end of "Occurrence A of Physical Exam, Finding: Baseline State"

OR:

OR: "Laboratory Test, Result: Prothrombin Time (result > 15 second(s))"

OR: "Laboratory Test, Result: INR (result > 1.7)"

OR: "Laboratory Test, Result: Platelet Count (result < 100000)"

OR: "Laboratory Test, Result: Partial Thromboplastin Time (result > 40 second(s))"

OR: "Physical Exam, Finding: Systolic Blood Pressure (result > 185 mmHg)"

OR: "Physical Exam, Finding: Diastolic Blood Pressure (result > 110 mmHg)"

OR: "Risk Category Assessment: National Institute of Health Stroke Scale (result = 0)"

OR: "Risk Category Assessment: National Institute of Health Stroke Scale (result > 22)"

OR: "Medication, Order not done: Medical Reason" for "t-PA ingredient specific "

OR: "Medication, Order not done: Patient Refusal" for "t-PA ingredient specific "

OR: "Medication, Administered not done: Medical Reason" for "Thrombolytic (t-PA) Therapy "

OR: "Medication, Administered not done: Patient Refusal" for "Thrombolytic (t-PA) Therapy "

<= 180 minute(s) starts after start of "Occurrence A of Physical Exam, Finding: Time of Symptom Onset"

o Remodeled to add route attribute and identify additional Thrombolytic (t-PA) Therapy Procedure

OR:

OR: "Medication, Administered: Thrombolytic (t-PA) Therapy (route: 'Intravenous route')"

OR: "Procedure, Performed: Intravenous Thrombolytic (t-PA) Therapy"

<= 2 day(s) starts before start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

- Value Set Changes
  - o Updated the following value sets:
    - ♦ Medical Reason: 2.16.840.1.113883.3.117.1.7.1.473
    - ♦ Non-elective encounter: 2.16.840.1.113883.3.117.1.7.1.424
  - o Added the following value sets:
    - ♦ Principal 2.16.840.1.113883.3.117.1.7.1.14
    - ♦ INR (2.16.840.1.113883.3.117.1.7.1.213)

- Partial Thromboplastin Time (2.16.840.1.113762.1.4.1045.25)
- Platelet Count (2.16.840.1.113883.3.117.1.7.1.267)
- Prothrombin Time (2.16.840.1.113762.1.4.1045.24)
- Diastolic Blood Pressure (2.16.840.1.113883.3.526.2.1045)
- Systolic Blood Pressure (2.16.840.1.113883.3.526.2.1044)
- Time of Symptom Onset (2.16.840.1.113762.1.4.1045.14)
- Intravenous Thrombolytic (t-PA) Therapy (2.16.840.1.113762.1.4.1045.15)
- Intravenous route (2.16.840.1.113883.3.117.1.7.1.222)
- t-PA ingredient specific RXNORM Value Set (2.16.840.1.113762.1.4.1021.6)
  - o Removed the following value sets:
    - Principal Diagnosis (2.16.840.1.113883.3.117.2.7.1.14)
    - Neurologic Symptoms of Stroke (2.16.840.1.113883.3.117.1.7.1.399)

NQF 0438/CMS 72 **Stroke-5 Ischemic stroke – Antithrombotic Therapy by End of Hospital Day Two**

Header Changes

- Disclaimer added to measure
- References updated
- Guidance updated
- IPP updated
- Denominator updated
- Denominator Exclusions updated
- Numerator updated
- Denominator Exceptions updated

Logic Changes

- Removed arrival/discharge datetime unless an integral to logic
- IPP
  - o Revised logic to include patient's discharged during 'Measurement Period' to harmonize eCQMs
- Denominator Exclusions
  - o Extensive changes review measure logic document for details
  - o ED visit modeling changed to harmonize across all EH measures

    AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

o   Remodeled timing operator

Original:

OR: "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter (length of stay <= 2 day(s))"

Remodeled:

AND: "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter (length of stay < 2 day(s))"

o   Added function: Difference between dates of

AND: Difference between dates < 2 days of:

AND: "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter (discharge datetime)"

AND: "Occurrence A of Encounter, Performed: Emergency Department Visit (admission datetime)"

- Addition to logic phrases identifying Thrombolytic (t-PA) Therapy Procedure

OR: "Procedure, Performed: Intravenous or Intra-arterial Thrombolytic (t-PA) Therapy"

- Revise Comfort Measures modeling updated to harmonize STK measures
  Original:

OR:

OR: "Intervention, Order: Palliative Care"

OR: "Intervention, Performed: Palliative Care"

<= 1 day(s) starts after start of "Occurrence A of Encounter, Performed: Emergency Department Visit (facility location arrival datetime)"

Remodeled:

OR:

AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

AND:

OR: "Intervention, Order: Comfort Measures"

OR: "Intervention, Performed: Comfort Measures"

<= 1 day(s) starts after start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

OR:

OR: "Intervention, Order: Comfort Measures"

OR: "Intervention, Performed: Comfort Measures"

<= 1 day(s) starts after start of "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

o Denominator Exceptions
♦ ED visit modeling changed to harmonize across all EH measures

AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

o Add data element "Medication, Order not done…"

AND

OR: "Medication, Order not done: Medical Reason" for "Antithrombotic ingredient specific"

OR: "Medication, Order not done: Patient Refusal" for "Antithrombotic ingredient specific"

o Remodeled timing operator

Original

AND:

OR: "Medication, Administered not done: Medical Reason" for "Antithrombotic…"

OR: "Medication, Administered not done: Patient Refusal" for "Antithrombotic…"

during "Occurrence A of Encounter, Performed: Emergency Department Visit"

Remodeled:

OR:

… OR: "Medication, Administered not done: Medical Reason" for "Antithrombotic Therapy"

OR: "Medication, Administered not done: Patient Refusal" for "Antithrombotic Therapy "

<= 1 day(s) starts after start of "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- Value Set Changes
    - Updated the following value sets:
        - Medical Reason: (2.16.840.1.113883.3.117.1.7.1.473)
        - Non-elective encounter: (2.16.840.1.113883.3.117.1.7.1.424)
        - Antithrombotic Therapy (2.16.840.1.113883.3.117.1.7.1.201)
        - Thrombolytic (t-PA) Therapy (2.16.840.1.113883.3.117.1.7.1.226)
    - Added the following value sets:
        - Antithrombotic ingredient specific (2.16.840.1.113762.1.4.1021.8)
        - Intravenous or Intra-arterial Thrombolytic (t-PA) Therapy (2.16.840.1.113762.1.4.1045.21)
        - Comfort Measures (1.3.6.1.4.1.33895.1.3.0.45)
        - Principal (2.16.840.1.113883.3.117.1.7.1.14)
    - Removed the following value sets:
        - Palliative Care (2.16.840.1.113883.3.526.2.1076)
        - Principal Diagnosis (2.16.840.1.113883.3.117.2.7.1.14)

CMS 72/NQF 0438 Stroke-5 Ischemic stroke – Antithrombotic Therapy by End of Hospital Day Two

Measure versioned to v3

Header updates

- Disclaimer updated
- References updated
- Guidance updated
- Initial Patient Population updated

- Denominator updated
- Denominator Exclusions updated
- Numerator updated
- Initial Patient Population: attribute "Principal" harmonized with other measures for diagnosis QDM

> OR: "Diagnosis, Active: Hemorrhagic Stroke (ordinality: 'Principal')"

> OR: "Diagnosis, Active: Ischemic Stroke (ordinality: 'Principal')"

> starts during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- Initial Patient Population: attribute "discharge datetime" removed from encounter QDM in "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter" during "Measurement Period". This harmonizes encounter logic to use the default attribute.

  Denominator: attribute "Principal" harmonized with other measures for diagnosis QDM

> AND: "Diagnosis, Active: Ischemic Stroke (ordinality: 'Principal')" starts during Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- Denominator: Revised LDL-c ED hospital arrival to focus timing on the lab measurement and not the result of the measurement

> AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

> AND:

>> OR: "Occurrence A of Laboratory Test, Performed: LDL-c" <= 30 day(s) ends before start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

>> OR: "Occurrence A of Laboratory Test, Performed: LDL-c" <= 48 hour(s) starts after start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

>> AND: "Occurrence A of Laboratory Test, Result: LDL-c (result >= 100 mg/dL)"

- Denominator: Revised LDL-c Inpatient hospital arrival to focus timing on the lab measurement and not the result of the measurement

> AND:

OR: "Occurrence A of Laboratory Test, Performed: LDL-c" <= 30 day(s) ends before start of "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

OR: "Occurrence A of Laboratory Test, Performed: LDL-c" <= 48 hour(s) starts after start of "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

AND: "Occurrence A of Laboratory Test, Result: LDL-c (result >= 100 mg/dL)"

AND NOT: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- Denominator: Revised Lipid-lowering agent phrases

AND NOT: "Occurrence A of Medication, Active: Lipid-lowering Agent" ends before start of

OR: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

OR: "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

AND: "Occurrence A of Medication, Active: Lipid-lowering Agent" starts before or during

OR: "Occurrence A of Encounter, Performed: Emergency Department Visit"

OR: "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- Denominator: Revised LDL-c not measured phrases

OR:

AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

AND NOT:

OR: "Occurrence A of Laboratory Test, Performed: LDL-c" <= 30 day(s) ends before start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

OR: "Occurrence A of Laboratory Test, Performed: LDL-c" <= 48 hour(s) starts after start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

OR:

AND NOT:

OR: "Occurrence A of Laboratory Test, Performed: LDL-c" <= 30 day(s) ends before start of "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

OR: "Occurrence A of Laboratory Test, Performed: LDL-c" <= 48 hour(s) starts after start of "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

AND NOT: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- Denominator Exclusions: Removed Palliative Care

OR: "Intervention, Order: Palliative Care"

OR: "Intervention, Performed: Palliative Care"

starts during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

AND: "Occurrence A of Intervention, Order: Palliative Care" starts after start of "Occurrence A of Encounter, Performed: Emergency Department Visit (facility location arrival datetime)"

AND: "Occurrence A of Intervention, Order: Palliative Care" starts before or during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

AND: "Occurrence A of Intervention, Performed: Palliative Care" starts after start of "Occurrence A of Encounter, Performed: Emergency Department Visit (facility location arrival datetime)"

AND: "Occurrence A of Intervention, Performed: Palliative Care" starts before or during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- Denominator Exclusions: Added Comfort Care

    OR: "Intervention, Order: Comfort Measures"

    OR: "Intervention, Performed: Comfort Measures"

    starts during "Occurrence A of Encounter, Performed: Emergency Department Visit"

    OR: "Intervention, Order: Comfort Measures"

    OR: "Intervention, Performed: Comfort Measures"

    starts during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- Numerator: Revised timing relationship

    AND: "Medication, Discharge: Statin" during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

  Revised:

    AND: "Medication, Discharge: Statin" starts during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- Denominator Exceptions: Revised Medication, Discharge not done

    OR: "Medication, Discharge not done: Patient Refusal" for "Statin RxNorm Value Set"

    OR: "Medication, Discharge not done: Medical Reason" for "Statin RxNorm Value Set"

    during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

  Revised:

    OR: "Medication, Discharge not done: Patient Refusal" for "Statin ingredient specific"

    OR: "Medication, Discharge not done: Medical Reason" for "Statin ingredient specific"

    starts during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- Value Set Updates
- Current Value Sets were revised to include additional codes and/or addition of ICD-9, ICD-10, and SNOMED-CT terminologies when appropriate. Grouping Value Sets were created to group the additional terminologies together, therefore value set OIDs attached to measure phrases were revised.
- Value set content has been updated to reflect current measure specifications including medication value sets.
- Added the following value sets
    - Statin ingredient specific RXNORM Value Set (2.16.840.1.113762.1.4.1021.7)
    - Comfort Measures SNOMEDCT Value Set (1.3.6.1.4.1.33895.1.3.0.45)
- Updated the following value sets
    - Original value set
        - Principal Diagnosis SNOMED-CT Value Set (2.16.840.1.113883.3.117.2.7.1.14)
    - Replaced with
        - Principal SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.14)
- Deleted the following value sets
    - Palliative Care SNOMED-CT Value Set (2.16.840.1.113883.3.526.2.1076)

CMS 105/NQF 0439 Stroke-6 Ischemic stroke – Discharged on Statin Medication

- Measure versioned to v3
- Header updates
    - Disclaimer updated
    - References updated
    - Guidance updated
    - Initial Patient Population updated
    - Denominator updated
    - Denominator Exclusions updated
    - Numerator updated
- Initial Patient Population: attribute "Principal" harmonized with other measures for diagnosis QDM

    OR: "Diagnosis, Active: Hemorrhagic Stroke (ordinality: 'Principal')"

    OR: "Diagnosis, Active: Ischemic Stroke (ordinality: 'Principal')"

    starts during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- Initial Patient Population: attribute "discharge datetime" removed from encounter QDM in "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter" during "Measurement Period". This harmonizes encounter logic to use the default attribute.

- Denominator: attribute "Principal" harmonized with other measures for diagnosis QDM

> AND: "Diagnosis, Active: Ischemic Stroke (ordinality: 'Principal')" starts during Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- Denominator: Revised LDL-c ED hospital arrival to focus timing on the lab measurement and not the result of the measurement

> AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

> AND:

>> OR: "Occurrence A of Laboratory Test, Performed: LDL-c" <= 30 day(s) ends before start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

>> OR: "Occurrence A of Laboratory Test, Performed: LDL-c" <= 48 hour(s) starts after start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

> AND: "Occurrence A of Laboratory Test, Result: LDL-c (result >= 100 mg/dL)"

- Denominator: Revised LDL-c Inpatient hospital arrival to focus timing on the lab measurement and not the result of the measurement

> AND:

>> OR: "Occurrence A of Laboratory Test, Performed: LDL-c" <= 30 day(s) ends before start of "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

>> OR: "Occurrence A of Laboratory Test, Performed: LDL-c" <= 48 hour(s) starts after start of "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

> AND: "Occurrence A of Laboratory Test, Result: LDL-c (result >= 100 mg/dL)"

> AND NOT: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- Denominator: Revised Lipid-lowering agent phrases

    AND NOT: "Occurrence A of Medication, Active: Lipid-lowering Agent" ends before start of

        OR: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

        OR: "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

    AND: "Occurrence A of Medication, Active: Lipid-lowering Agent" starts before or during

        OR: "Occurrence A of Encounter, Performed: Emergency Department Visit"

        OR: "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- Denominator: Revised LDL-c not measured phrases

    OR:

        AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

        AND NOT:

            OR: "Occurrence A of Laboratory Test, Performed: LDL-c" <= 30 day(s) ends before start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

            OR: "Occurrence A of Laboratory Test, Performed: LDL-c" <= 48 hour(s) starts after start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

    OR:

        AND NOT:

            OR: "Occurrence A of Laboratory Test, Performed: LDL-c" <= 30 day(s) ends before start of "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

OR: "Occurrence A of Laboratory Test, Performed: LDL-c" <= 48 hour(s) starts after start of "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

AND NOT: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- Denominator Exclusions: Removed Palliative Care

OR: "Intervention, Order: Palliative Care"

OR: "Intervention, Performed: Palliative Care"

starts during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

AND: "Occurrence A of Intervention, Order: Palliative Care" starts after start of "Occurrence A of Encounter, Performed: Emergency Department Visit (facility location arrival datetime)"

AND: "Occurrence A of Intervention, Order: Palliative Care" starts before or during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

AND: "Occurrence A of Intervention, Performed: Palliative Care" starts after start of "Occurrence A of Encounter, Performed: Emergency Department Visit (facility location arrival datetime)"

AND: "Occurrence A of Intervention, Performed: Palliative Care" starts before or during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- Denominator Exclusions: Added Comfort Care

OR: "Intervention, Order: Comfort Measures"

OR: "Intervention, Performed: Comfort Measures"

starts during "Occurrence A of Encounter, Performed: Emergency Department Visit"

OR: "Intervention, Order: Comfort Measures"

OR: "Intervention, Performed: Comfort Measures"

starts during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- Numerator: Revised timing relationship

  AND: "Medication, Discharge: Statin" during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

  Revised:

  AND: "Medication, Discharge: Statin" starts during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- Denominator Exceptions: Revised Medication, Discharge not done

  OR: "Medication, Discharge not done: Patient Refusal" for "Statin RxNorm Value Set"

  OR: "Medication, Discharge not done: Medical Reason" for "Statin RxNorm Value Set"

  during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

  Revised:

  OR: "Medication, Discharge not done: Patient Refusal" for "Statin ingredient specific"

  OR: "Medication, Discharge not done: Medical Reason" for "Statin ingredient specific"

  starts during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- Value Set Updates
  - Current Value Sets were revised to include additional codes and/or addition of ICD-9, ICD-10, and SNOMED-CT terminologies when appropriate. Grouping Value Sets were created to group the additional terminologies together, therefore value set OIDs attached to measure phrases were revised.
  - Value set content has been updated to reflect current measure specifications including medication value sets.
  - Added the following value sets
    - Statin ingredient specific RXNORM Value Set (2.16.840.1.113762.1.4.1021.7)
    - Comfort Measures SNOMEDCT Value Set (1.3.6.1.4.1.33895.1.3.0.45)
  - Updated the following value sets
    - Original value set
    - Principal Diagnosis SNOMED-CT Value Set (2.16.840.1.113883.3.117.2.7.1.14)

- o Replaced with
  - ♦ Principal SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.14)
- o Deleted the following value sets
  - ♦ Palliative Care SNOMED-CT Value Set (2.16.840.1.113883.3.526.2.1076)

CMS 107/NQF 0440 Stroke-8 Ischemic or Hemorrhagic Stroke – Stroke Education

Header Changes

- Disclaimer added to measure
- Reference Update
- Guidance updated
- IPP updated
- Denominator updated
- Denominator Exclusions updated

Logic Changes

- Removed arrival/discharge datetime unless an integral to logic
- IPP
  - o Revised logic to include patient's discharged during 'Measurement Period' to harmonize eCQMs
- Denominator Exclusions
  - o ED visit modeling changed to harmonize across all EH measures

    AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

  - o Remodeled Comfort Measures- modeling updated to harmonize STK measures

    Original:

    OR:

    OR: "Intervention, Order: Palliative Care"

    OR: "Intervention, Performed: Palliative Care"

    starts during "Occurrence A of Encounter, Performed: Emergency Department Visit (facility location arrival datetime)"

    Remodeled:

OR:

AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

AND:

OR: "Intervention, Order: Comfort Measures"

OR: "Intervention, Performed: Comfort Measures"

starts during "Occurrence A of Encounter, Performed: Emergency Department Visit"

OR:

OR: "Intervention, Order: Comfort Measures"

OR: "Intervention, Performed: Comfort Measures"

starts during of "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- Numerator
  - o Remodeled logic to indicate communication from patient to provider

    Original:

    OR: "Communication: From Provider to Patient not done: Patient Refusal" for "Written Information Given SNOMED-CT Value Set"

    Remodeled:

    OR: "Communication: From Patient to Provider not done: Patient Refusal" for "Written Information Given"

- Value Set Changes
  - o Updated the following value sets:
    - ♦ Medical Reason: 2.16.840.1.113883.3.117.1.7.1.473
    - ♦ Non-elective encounter: 2.16.840.1.113883.3.117.1.7.1.424
  - o Added the following value sets:
    - ♦ Comfort Measures 1.3.6.1.4.1.33895.1.3.0.45
    - ♦ Principal 2.16.840.1.113883.3.117.1.7.1.14

- o Removed the following value sets:
  - ♦ Palliative Care (2.16.840.1.113883.3.526.2.1076)
  - ♦ Principal Diagnosis (2.16.840.1.113883.3.117.2.7.1.14)

CMS 102/NQF 0441 **Stroke-10 Ischemic or Hemorrhagic Stroke – Assessed for Rehabilitation**

Header Changes

- Disclaimer added to measure
- References updates
- Guidance updated
- IPP updated
- Denominator updated
- Denominator Exclusions updated
- Numerator updated

Logic Changes

- Removed arrival/discharge datetime unless an integral to logic
- IPP
  - o Revised logic to include patient's discharged during 'Measurement Period' to harmonize eCQMs
- Denominator Exclusions
  - o ED visit modeling changed to harmonize across all EH measures

    AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

  - o Revise Comfort Measures- modeling updated to harmonize STK measures

    Original:

    OR:

    OR: "Intervention, Order: Palliative Care"

    OR: "Intervention, Performed: Palliative Care"

    Starts during "Occurrence A of Encounter, Performed: Emergency Department Visit (facility location arrival datetime)"

    Revised:

OR:

OR:

AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

AND:

OR: "Intervention, Order: Comfort Measures"

OR: "Intervention, Performed: Comfort Measures"

starts during "Occurrence A of Encounter, Performed: Emergency Department Visit"

OR:

OR: "Intervention, Order: Comfort Measures"

OR: "Intervention, Performed: Comfort Measures"

starts during "Occurrence A of Encounter, Performed: Non-Elective Inpatient Encounter"

- o Numerator
  - ♦ Removed data element "Rehabilitation Services"
  - ♦ Add data element "Rehabilitation Assessment" and "Rehabilitation Therapy" by splitting "Rehabilitation Services"

  OR:

  OR: "Procedure, Performed: Rehabilitation Assessment"

  OR: "Procedure, Performed: Rehabilitation Therapy"

- Value Set Changes
  - o Updated the following value sets:
    - ♦ Medical Reason: 2.16.840.1.113883.3.117.1.7.1.473
    - ♦ Non-elective encounter: 2.16.840.1.113883.3.117.1.7.1.424
  - o Added the following value sets:
    - ♦ Rehabilitation Assessment (2.16.840.1.113762.1.4.1045.18)
    - ♦ Rehabilitation Therapy (2.16.840.1.113762.1.4.1045.19)

- Comfort Measures 1.3.6.1.4.1.33895.1.3.0.45
- Principal 2.16.840.1.113883.3.117.1.7.1.14
  o Removed the following value sets:
    - Palliative Care (2.16.840.1.113883.3.526.2.1076)
    - Rehabilitation Services (2.16.840.1.113883.3.117.1.7.1.221)
    - Principal Diagnosis (2.16.840.1.113883.3.117.2.7.1.14)

CMS 178/NQF 0453 SCIP-INF-9 Urinary Catheter Removed on Postoperative Day 1 (POD1) or Postoperative Day 2 (POD2) with Day of Surgery Being Day Zero

- Measure versioned to v4
- Initial Patient Population: Added logic phrases and clarified specification requirements; moved surgical procedure phrases from Denominator to IPP; harmonized attribute "Principal"

> AND: "Occurrence A of Procedure, Performed: General or Neuraxial Anesthesia" during "Occurrence A of Encounter, Performed: Encounter Inpatient"

> AND: "Occurrence A of Procedure, Performed: SCIP Major Surgical Procedure (ordinality: 'Principal')" during "Occurrence A of Procedure, Performed: General or Neuraxial Anesthesia

- Denominator: Removed data type Device, Applied for Indwelling urinary catheter and replaced with data type Procedure, Performed

> AND: "Occurrence A of Device, Applied: Hospital Measures-Indwelling urinary catheter (start datetime, anatomical structure: 'Hospital Measures-Urethra')" during "Occurrence A of Encounter, Performed:

Revised:

> AND: "Occurrence A of Procedure, Performed: Indwelling urinary catheter" during "Occurrence A of Encounter, Performed: Encounter Inpatient"

- Denominator: Updated logic phrases clarifying catheter placement and removal for inclusion in measure population

> OR: "Occurrence A of Procedure, Performed: Indwelling urinary catheter" ends after end of "Occurrence A of Encounter, Performed: Encounter Inpatient (facility location: 'ICU Locations')"

OR: "Occurrence A of Procedure, Performed: Indwelling urinary catheter" ends after end of "Occurrence A of Encounter, Performed: Encounter Inpatient (facility location: 'Hospital Measures-PACU')"

- Denominator Exclusions: revised timing relationship for SCIP urinary diversion

    OR: "Physical Exam, Finding: Hospital Measures-SCIP urinary diversion" >= 1 minute(s) starts before start of ("Occurrence A of Procedure, Performed: SCIP Major Surgical Procedure" during "Occurrence A of Encounter, Performed: Encounter Inpatient")

  Revised:

    OR: "Physical Exam, Finding: Hospital Measures-SCIP urinary diversion" starts during "Occurrence A of Encounter, Performed: Encounter Inpatient"

- Denominator Exclusions: revised timing relationship for SCIP Urological/Perineal procedures with potential need of indwelling catheters

    OR: "Procedure, Performed: Hospital Measures-SCIP Urological/Perineal procedures with potential need of indwelling catheters (ordinality: 'Hospital Measures - Principal')" during "Occurrence A of Encounter, Performed: Encounter Inpatient"

  Revised:

    OR: "Procedure, Performed: Hospital Measures-SCIP Urological/Perineal procedures with potential need of indwelling catheters (ordinality: 'Principal')" starts during "Occurrence A of Encounter, Performed: Encounter Inpatient"

Denominator Exclusions: revised logic phrases indicating indwelling urinary catheter placement occurred before the encounter; data type change from Device, Applied to Procedure, Performed for Indwelling urinary catheter

    OR: "Device, Applied: Hospital Measures-Indwelling urinary catheter (anatomical structure: 'Hospital Measures-Urethra')" >= 1 minute(s) starts before start of "Occurrence A of Encounter, Performed: Encounter Inpatient (admission datetime)"

  Revised:

    AND NOT: "Occurrence A of Procedure, Performed: Indwelling urinary catheter" ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

    AND: "Occurrence A of Procedure, Performed: Indwelling urinary catheter" starts before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

- Denominator Exclusions: revised logic grouping similar phrases with exact timing relationship

  OR: "Procedure, Performed: Hospital Measures-SCIP urinary diversion procedures" >= 1 minute(s) starts before start of ("Occurrence A of Procedure, Performed: SCIP Major Surgical Procedure" during "Occurrence A of Encounter, Performed: Encounter Inpatient")

  OR: "Intervention, Performed: Hospital Measures-Intermittent Catheterization" >= 1 minute(s) starts before start of ("Occurrence A of Procedure, Performed: SCIP Major Surgical Procedure" during "Occurrence A of Encounter, Performed: Encounter Inpatient")

  OR: "Device, Applied: Hospital Measures-Suprapubic catheter" >= 1 minute(s) starts before start of ("Occurrence A of Procedure, Performed: SCIP Major Surgical Procedure" during "Occurrence A of Encounter, Performed: Encounter Inpatient")

  Revised:

  OR: "Procedure, Performed: Hospital Measures-SCIP urinary diversion procedures"

  OR: "Intervention, Performed: Hospital Measures-Intermittent Catheterization"

  OR: "Device, Applied: Hospital Measures-Suprapubic catheter"

  >= 1 minute(s) starts before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

- Denominator Exclusions: revised logic for expired patients to clarify specification expectation

  AND: "Patient Characteristic Expired: Expired" starts after start of "Occurrence A of Procedure, Performed: SCIP Major Surgical Procedure (ordinality: 'Hospital Measures - Principal', incision datetime)"

  AND: "Patient Characteristic Expired: Expired" <= 6 hour(s) starts after start of "Occurrence A of Procedure, Performed: SCIP Major Surgical Procedure (stop datetime)"

  Revised:

  AND: "Patient Characteristic Expired: Expired" starts after start of "Occurrence A of Procedure, Performed: SCIP Major Surgical Procedure (incision datetime)"

  AND NOT: "Patient Characteristic Expired: Expired" >= 6 hour(s) starts after end of "Occurrence A of Procedure, Performed: General or Neuraxial Anesthesia"

- Denominator Exclusions: revised logic for Medical Reason to not remove the Indwelling urinary catheter; revised data type for Indwelling urinary catheter to Procedure, Performed

    AND NOT: "Occurrence A of Device, Applied: Hospital Measures-Indwelling urinary catheter (removal datetime, anatomical structure: 'Hospital Measures-Urethra')" <= 2 day(s) starts after end of "Occurrence A of Procedure, Performed: SCIP Major Surgical Procedure"

    AND: "Device, Applied not done: Medical Reasons" for "Hospital Measures-Indwelling urinary catheter SNOMED-CT Value Set" <= 2 day(s) starts after end of "Occurrence A of Procedure, Performed: SCIP Major Surgical Procedure"

  Revised:

    AND NOT: "Occurrence A of Procedure, Performed: Indwelling urinary catheter" <= 2 day(s) ends after end of "Occurrence A of Procedure, Performed: SCIP Major Surgical Procedure"

    AND: "Procedure, Performed not done: Medical Reason" for "Indwelling urinary catheter" <= 2 day(s) starts after end of "Occurrence A of Procedure, Performed: SCIP Major Surgical Procedure"

- Denominator Exclusions: revised data type for Clinical Trial Participant

    AND NOT: "Patient Characteristic: Clinical Trial Participant" ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

    AND: "Patient Characteristic: Clinical Trial Participant" starts before or during "Occurrence A of Encounter, Performed: Encounter Inpatient"

  Revised:

    AND NOT: "Occurrence A of Patient Characteristic Clinical Trial Participant: Clinical Trial Participant" ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

    AND: "Occurrence A of Patient Characteristic Clinical Trial Participant: Clinical Trial Participant" starts before or during "Occurrence A of Encounter, Performed: Encounter Inpatient"

- Numerator: revised timing relationship; revised data type for Indwelling urinary catheter

    AND: "Occurrence A of Device, Applied: Hospital Measures-Indwelling urinary catheter (removal datetime, anatomical structure: 'Hospital Measures-Urethra')" <= 2 day(s) starts after end of "Occurrence A of Procedure, Performed: SCIP Major Surgical Procedure"

Revised:

AND: "Occurrence A of Procedure, Performed: Indwelling urinary catheter" <= 2 day(s) ends after end of "Occurrence A of Procedure, Performed: SCIP Major Surgical Procedure"

Value Set Updates

- Current Value Sets were revised to include additional codes and/or addition of ICD-9, ICD-10, and SNOMED-CT terminologies when appropriate. Grouping Value Sets were created to group the additional terminologies together, therefore value set OIDs attached to measure phrases were revised.
- Value set content has been updated to reflect current measure specifications including medication value sets.
- Added the following value sets

    Hospital Measures-PACU SNOMEDCT Value Set (2.16.840.1.113762.1.4.1045.32)

- Updated the following value sets
    - o Original value set
        - ♦ Medical Reasons SNOMED-CT Value Set (2.16.840.1.113883.3.117.1.7.1.18)
    - o Replaced with
        - ♦ Medical Reason SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.473)
    - o Original value set
        - ♦ Hospital measures-Joint Commission evidence of a surgical procedure requiring general or neuraxial anesthesia Grouping Value Set (2.16.840.1.113883.3.666.5.1743)
    - o Replaced with
        - ♦ General or Neuraxial Anesthesia Grouping Value Set (2.16.840.1.113883.3.666.5.1743)
    - o Original value set
        - ♦ Hospital Measures - Principal SNOMED-CT Value Set (2.16.840.1.113883.3.526.2.8001)
    - o Replaced with
        - ♦ Principal SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.14)

CMS 113/NQF 0469 PC-01 Elective Delivery Prior to 39 Completed Weeks Gestation

Header Changes

- Disclaimer- added to measure
- Guidance updated

- IPP Updated

- Denominator Exclusion Updated

- Numerator Updated

- Removed arrival/discharge datetime unless an integral to logic

- IPP

    o Revised logic to include patient's discharged during 'Measurement Period' to harmonize eCQMs

    o Add logic block to define delivery

      AND:

          OR: "Procedure, Performed: Delivery Procedures"

          OR: "Diagnosis, Active: Normal Delivery and Other Indications for Care"

          OR: "Diagnosis, Active: Complication Mainly Related to Pregnancy"

          OR: "Diagnosis, Active: Complication Mainly in the Course of Labor and Delivery"

          OR: "Diagnosis, Active: Complication of the Puerperium"

          starts during "Occurrence A of Encounter, Performed: Encounter Inpatient"

- Denominator

    o Added Data element "Estimated Gestational Age at Delivery" and "Time of Delivery"

      AND: "Physical Exam, Finding: Estimated Gestational Age at Delivery (result >= 37 week(s))" < 1 day(s) starts before start of ("Physical Exam, Finding: Time of Delivery" starts during "Occurrence A of Encounter, Performed: Encounter Inpatient")

- Denominator Exclusions

    o Removed data elements "Patient Characteristic: Gestational Age" due to updated measure specifications:

    o Moved logic block to Numerator with remodeling as negated statements:

      OR:

          OR: "Procedure, Performed: Classical Cesarean Section"

          OR: "Procedure, Performed: Myomectomy"

OR: "Diagnosis, Resolved: Perforation of Uterus"

OR: "Diagnosis, Resolved: Uterine Window"

OR: "Diagnosis, Resolved: Uterine Rupture"

starts before start of "Occurrence A of Encounter, Performed: Inpatient Encounter"

- Numerator
  - Removed all references to data element "Patient Characteristic: Gestational Age" due to updated measure specifications (see Den Exclusion above)
  - Removed Data element "Spontaneous Rupture of Membranes" not supported in specifications
  - Moved logic block from Den Exclusion. Added data element "Cornual Ectopic Pregnancy" to phrase.

    OR:

    AND NOT: "Procedure, Performed: Classical Cesarean Section"

    AND NOT: "Procedure, Performed: Myomectomy"

    AND NOT: "Diagnosis, Resolved: Perforation of Uterus"

    AND NOT: "Diagnosis, Resolved: Uterine Window"

    AND NOT: "Diagnosis, Resolved: Uterine Rupture"

    AND NOT: "Diagnosis: Inactive: Cornual Ectopic Pregnancy

    starts before start of "Occurrence A of Encounter, Performed: Inpatient Encounter"

  - Added data element "Cesarean Section"

    AND: "Procedure, Performed: Cesarean Section" during "Occurrence A of Encounter, Performed: Encounter Inpatient"

  - Remodeled data element Active Labor to an 'AND NOT statement' and added 'Occurrence' to data element "Cesarean Section" to bind to inpatient encounter

    AND NOT: "Physical Exam, Finding: Active Labor" starts before start of "Occurrence A of Procedure, Performed: Cesarean Section"

     o Added logic block as follows to model medical induction:

       OR:

          OR: "Medication, Administered: Oxytocin"

          OR: "Medication, Administered: Dinoprostone"

          OR: "Procedure, Performed: Artificial Rupture of Membranes"

          starts before start of "Physical Exam, Finding: Labor"

- Value Set Changes
  - Updated the following value sets:
    - Conditions Possibly Justifying Elective Delivery Prior to 39 Weeks Gestation Grouping Value Set (2.16.840.1.113883.3.117.1.7.1.286)
    - "Active Labor" name changed to "Labor"
  - Added the following value sets:
    - Encounter Inpatient (2.16.840.1.113883.3.666.5.307)
    - Estimated Gestational Age at Delivery (2.16.840.1.113762.1.4.1045.26)
    - Normal Delivery and Other Indications for Care (2.16.840.1.113883.3.117.1.7.1.391)
    - Complication Mainly Related to Pregnancy (2.16.840.1.113883.3.117.1.7.1.372)
    - Complication Mainly in the Course of Labor and Delivery (2.16.840.1.113883.3.117.1.7.1.397)
    - Complication of the Puerperium (2.16.840.1.113883.3.117.1.7.1.375)
    - Time of Delivery (2.16.840.1.113762.1.4.1045.28
    - Cornual Ectopic Pregnancy (2.16.840.1.113762.1.4.1045.27)
    - Oxytocin t (2.16.840.1.113762.1.4.1045.55)
    - Dinoprostone Set (2.16.840.1.113762.1.4.1045.56)
    - Artificial Rupture of Membranes (2.16.840.1.113762.1.4.1045.57)
  - Removed the following value sets:
    - Inpatient Encounter 2.16.840.1.113883.3.117.1.7.1.23
    - Spontaneous Rupture of Membranes 2.16.840.1.113883.3.117.1.7.1.300
    - Gestational Age <37 weeks 2.16.840.1.113883.3.117.1.7.1.402
    - Gestational Age 37-38 weeks 2.16.840.1.113883.3.117.1.7.1.287
    - Gestational Age >38 weeks (2.16.840.1.113883.3.117.1.7.1.403)
    - Gestational Age Unknown 2.16.840.1.113883.3.117.1.7.1.307

CMS 9/NQF 0480 PC-05 Exclusive Breast Milk Feeding

Header Changes

- Disclaimer added to measure
- Guidance updated
- IPP updated
- Denominator updated
- Denominator Exclusions updated
- Numerator updated

Logic Changes

- IPP 1 and **2**
  - Revised logic to include patient's discharged during 'Measurement Period' to harmonize eCQMs
  - Removed data element "Liveborn Born In Hospital" and attribute "reason: 'Birth'".

    AND: "Diagnosis, Active: Gestational age >= 37 weeks" starts during "Occurrence A of Encounter…."

    AND:

    > OR: "Diagnosis, Active: Single Liveborn Newborn Born in Hospital" starts during "Occurrence A …"

    > OR:

    >> AND: "Diagnosis, Active: Single Live Birth" starts during "Occurrence A of Encounter…"

    >> AND: "Diagnosis, Active: Liveborn Born In Hospital" starts during "Occurrence A of Encounter…

    >> AND: "Occurrence A of Encounter, Performed: Inpatient Encounter (reason: 'Birth')"

    Remodeled phrase:

    AND:

    > AND: "Physical Exam, Finding: Estimated Gestational Age at Birth (result >= 37 week(s))" < 1 day(s) starts during "Occurrence A of Encounter…"

    > AND:

OR: "Diagnosis, Active: Single Live Birth" starts during "Occurrence A of Encounter…"

OR: "Diagnosis, Active: Single Liveborn Newborn Born in Hospital" starts during "Occurrence A… "

- o Remodeled data element "Gestational Age at Birth" from 'diagnosis, active' to 'Physical Exam, Finding".
  - ♦ Original:

    AND: "Diagnosis, Active: Gestational age >= 37 weeks" starts during "Occurrence A of Encounter, Performed: Inpatient Encounter"

  - ♦ Remodeled:

    AND: "Physical Exam, Finding: Estimated Gestational Age at Birth (result >= 37 week(s))" < 1 day(s) starts during "Occurrence A…"

- Denominator Exclusion 2
  - o Removed data element "Breast Milk"

    OR: "Substance, Administered not done: Parental Refusal" for " SNOMED-CT Value Set" <= 4 hour(s) starts after start of "Occurrence A.."

- Denominator Exclusion 2
  - o Added data elements "Feeding Intention-Breast" and "Birth" as follows:

    OR NOT: "Communication: From Patient to Provider: Feeding Intention-Breast" <= 1 hour(s) starts after start of "Patient Characteristic: Birth"

- Denominator Exceptions 1 and 2
  - o Removed data element "Breast Milk "

    "AND: "Substance, Administered not done: Maternal Reason" for "Breast Milk"…"

- Value Set Changes
  - o Added the following value sets:
    - ♦ Estimated Gestational Age at Birth (2.16.840.1.113762.1.4.1045.47)
    - ♦ Inpatient Encounter: 2.16.840.1.113883.3.666.5.307
    - ♦ Feeding Intention-Breast SNOMEDCT Value Set (2.16.840.1.113762.1.4.1045.29)
  - o Removed the following value sets:

- ♦ Gestational age >= 37 weeks Grouping Value Set (2.16.840.1.113883.3.666.5.1596)
- ♦ Single Liveborn Newborn Born in Hospital (2.16.840.1.113883.3.117.1.7.1.26)
- ♦ Inpatient Encounter (2.16.840.1.113883.3.117.1.7.1.23)
- ♦ Maternal Reason (2.16.840.1.113883.3.117.1.7.1.84)
- ♦ Parental Refusal (2.16.840.1.113883.3.117.1.7.1.133)

CMS 55/NQF 0495 ED-1 Emergency Department Throughput – Median time from ED arrival to ED departure for admitted ED patients

- Measure versioned to v3
- Data criteria is updated
  - o Update ICD9-CM, ICD10-CM, and SNOMED-CT codes in "Psychiatric/Mental Health Patient Value Set"
  - o Update SNOMED-CT codes in "Encounter Inpatient SNOMED-CT Value Set (2.16.840.1.113883.3.666.5.307)"
  - o Harmonize "Principal Diagnosis SNOMED-CT Value Set (2.16.840.1.113883.3.117.2.7.1.14)" to "Principal SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.14)"

CMS 32/NQF 0496 ED-3- Median Time from ED Arrival to ED departure for Discharged ED patients

- Measure versioned to v4
- Data criteria is updated
  - o Update ICD9-CM, ICD10-CM, and SNOMED-CT codes in "Psychiatric/Mental Health Patient Value Set"
  - o Update SNOMED-CT codes in "Encounter Inpatient SNOMED-CT Value Set (2.16.840.1.113883.3.666.5.307)"
  - o Harmonize "Hospital Measures - Principal SNOMED-CT Value Set (2.16.840.1.113883.3.666.5.3010)" to "Principal SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.14)"
  - o Harmonize "Hospital Measures-Acute care hospital SNOMED-CT Value Set (2.16.840.1.113883.3.666.5.3013)" to "Hospital Measures-Acute care hospital SNOMEDCT Value Set (2.16.840.1.113883.3.666.5.684)"
  - o Harmonize expired value set from "Hospital Measures - Expired Grouping Value Set (2.16.840.1.113883.3.666.5.1146)" to "Expired Grouping Value Set (2.16.840.1.113883.3.666.5.730)"

CMS 111/NQF 0497 ED-2 Emergency Department Throughput – admitted patients – Admit decision time to ED departure time for admitted patients

- Measure versioned to v3
- Data criteria is updated
    - Update ICD9-CM, ICD10-CM, and SNOMED-CT codes in "Psychiatric/Mental Health Patient Value Set"
    - Update SNOMED-CT codes in "Encounter Inpatient SNOMED-CT Value Set (2.16.840.1.113883.3.666.5.307)"
    - Harmonize "Principal Diagnosis SNOMED-CT Value Set (2.16.840.1.113883.3.117.2.7.1.14)" to "Principal SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.14)"

CMS 171/NQF 0527 SCIP-INF-1 Prophylactic Antibiotic Received within 1 Hour Prior to Surgical Incision

- Measure versioned to v4
- Metadata updates:
    - Removed reference to ICD9 terminology in the denominator guidance.
    - Removed reference to the ICD9 Table 5.09 in Appendix A in the denominator exclusions guidance.
    - Removed the following two sentences from denominator exclusion guidance in the metadata. No longer supported in specification requirements as a way to determine if a patient has an infection:
        - Patients who were receiving antibiotics more than 24 hours prior to surgery
        - Patients who were receiving antibiotics within 24 hours prior to arrival (except colon surgery patients taking oral prophylactic antibiotics)

Initial Patient Population (IPP):

- Change to Initial Patient Population (IPP) logic in all 8 populations to remove discharge datetime attribute and change timing relationship:
- Current logic:

    AND: "Occurrence A of Encounter, Performed: Encounter Inpatient (discharge datetime)" during "Measurement Period"

- Revised logic:

    AND: "Occurrence A of Encounter, Performed: Encounter Inpatient" ends during "Measurement Period"

- Added logic to IPP to identify inpatients who have had a selected surgery from the SCIP Major Surgery table:

AND: "Occurrence A of Procedure, Performed: General or Neuraxial Anesthesia" during "Occurrence A of Encounter, Performed: Encounter Inpatient"

AND: "Occurrence A of Procedure, Performed: SCIP Major Surgical Procedure (ordinality: 'Principal')" during "Occurrence A of Procedure, Performed: General or Neuraxial Anesthesia"

Denominator

- Changed Denominator logic in every population to represent the surgery of interest of each population occurs during an anesthesia episode during the encounter OR the surgery of interest becomes an open procedure after a laparoscopic procedure:
- Current logic:

    AND: "Occurrence A of Procedure, Performed: Hospital measures-CABG (ordinality: 'Hospital Measures - Principal')" during "Occurrence A of Encounter, Performed: Encounter Inpatient"

    AND: "Occurrence A of Procedure, Performed: Hospital measures-CABG (incision datetime)" >= 1 minute(s) starts after start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

- Revised logic:

    AND:

        OR: "Occurrence A of Procedure, Performed: Hospital measures-CABG (ordinality: 'Principal')" during "Occurrence A of Procedure, Performed: General or Neuraxial Anesthesia"

        OR: "Occurrence A of Procedure, Performed: Hospital measures-CABG (ordinality: 'Principal')" starts after end of ("Occurrence A of Procedure, Performed: Laparoscopic Procedures" during "Occurrence A of Encounter, Performed: Encounter Inpatient")

Denominator Exclusions:

Populations 1-8 in Denominator Exclusions, removed all logic phrases related to antibiotics being administered. Logic was in the measure to identify patients who have an infection in order to exclude them. Updated measure specifications no longer look at antibiotic usage to determine infection.

Logic removed:

OR: "Medication, Active: Hospital measures-IV, IM, PO Antimicrobial medications (route: 'Hospital measures-Route IV, oral or IM')" <= 1440 minute(s) starts before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

OR:

> AND: "Occurrence A of Medication, Administered: Hospital measures-IV, IM, PO Antimicrobial medications (route: 'Hospital measures-Route IV, oral or IM')" > 1440 minute(s) starts before start of "Occurrence A of Procedure, Performed: Hospital measures-CABG (incision datetime)"

> AND: "Occurrence A of Medication, Administered: Hospital measures-IV, IM, PO Antimicrobial medications (route: 'Hospital measures-Route IV, oral or IM')" during "Occurrence A of Encounter, Performed: Encounter Inpatient"

Populations 1-8 in Denominator exclusions, the following duplicative logic was removed that looked at a procedure, performed to implant a pocketed device:

> OR: "Device, Applied: Hospital measures-Pacemaker or implantable defibrillator device" <= 4 day(s) starts after end of "Occurrence A of Procedure, Performed: Hospital measures-CABG"

> OR: "Device, Applied: Hospital measures-Pacemaker or implantable defibrillator device" <= 4 day(s) ends before start of "Occurrence A of Procedure, Performed: Hospital measures-CABG"

Populations 1-8 in Denominator exclusions, Occurrence B was added to the data element: "Procedure, Performed: Hospital measures-Joint Commission evidence of a surgical procedure requiring general or neuraxial anesthesia" identifying a different instance of a surgical episode other than the instance surrounding the selected surgery of each population. The value set used in this data element changed to more closely harmonize with other inpatient quality reporting paper-measures using this data element.

- Current logic:

> OR: "Procedure, Performed: Hospital measures-Joint Commission evidence of a surgical procedure requiring general or neuraxial anesthesia" <= 4 day(s) ends before start of "Occurrence A of Procedure, Performed: Hospital measures-CABG (ordinality: 'Hospital Measures - Principal')"

> OR: "Procedure, Performed: Hospital measures-Joint Commission evidence of a surgical procedure requiring general or neuraxial anesthesia" <= 4 day(s) starts after end of "Occurrence A of Procedure, Performed: Hospital measures-CABG (ordinality: 'Hospital Measures - Principal')"

- Revised logic:

    OR: "Occurrence B of Procedure, Performed: General or Neuraxial Anesthesia" <= 4 day(s) ends before start of "Occurrence A of Procedure, Performed: General or Neuraxial Anesthesia"

    OR: "Occurrence B of Procedure, Performed: General or Neuraxial Anesthesia" <= 4 day(s) starts after end of "Occurrence A of Procedure, Performed: General or Neuraxial Anesthesia"

Populations 1-8 in the Denominator Exclusions, principal diagnosis of infection was changed to better represent the measure specifications for a patient having a principal diagnosis of infection any time during the encounter they are excluded from the measure.

- Current logic:

    OR:

        AND NOT: "Occurrence A of Diagnosis, Active: Hospital Measures-Infection diagnosis (ordinality: 'Hospital Measures - Principal')" ends before start of "Occurrence A of Procedure, Performed: Hospital measures-CABG (incision datetime)"

        AND: "Occurrence A of Diagnosis, Active: Hospital Measures-Infection diagnosis (ordinality: 'Hospital Measures - Principal')" starts before start of "Occurrence A of Procedure, Performed: Hospital measures-CABG (ordinality: 'Hospital Measures - Principal')"

    Revised logic:

        OR: "Diagnosis, Active: Hospital Measures - Any infection (ordinality: 'Principal')" during "Encounter, Performed: Encounter Inpatient"

Population 5 in Denominator exclusions, Colon surgery, the following logic sequences were removed to align with the updated paper-measure specifications. These logic sequences were previously in the e-specifications to ensure that a patient who is on bowel prep antibiotics for colon surgery would not be excluded from the measure:

    OR:

        AND NOT:

            AND: "Occurrence A of Medication, Administered: Hospital Measures-PO Colon and Hysterectomy Antibiotics-Metronidazole (route: 'Hospital measures-Route oral')" > 1440 minute(s) starts

before start of "Occurrence A of Procedure, Performed: Hospital measures- Colon surgery (incision datetime)"

AND: "Occurrence A of Medication, Administered: Hospital measures-PO Neomycin sulfate (route: 'Hospital measures-Route oral')" > 1440 minute(s) starts before start of "Occurrence A of Procedure, Performed: Hospital measures- Colon surgery (incision datetime)"

during "Occurrence A of Encounter, Performed: Encounter Inpatient"

AND NOT:

AND: "Occurrence A of Medication, Administered: Hospital measures-PO Erythromycin (route: 'Hospital measures-Route oral')" > 1440 minute(s) starts before start of "Occurrence A of Procedure, Performed: Hospital measures- Colon surgery (incision datetime)"

AND: "Occurrence A of Medication, Administered: Hospital measures-PO Neomycin sulfate (route: 'Hospital measures-Route oral')" > 1440 minute(s) starts before start of "Occurrence A of Procedure, Performed: Hospital measures- Colon surgery (incision datetime)"

during "Occurrence A of Encounter, Performed: Encounter Inpatient"

AND: "Occurrence A of Medication, Administered: Hospital measures-IV, IM, PO Antimicrobial medications (route: 'Hospital measures-Route IV, oral or IM')" > 1440 minute(s) starts before start of "Occurrence A of Procedure, Performed: Hospital measures- Colon surgery (incision datetime)"

AND: "Occurrence A of Medication, Administered: Hospital measures-IV, IM, PO Antimicrobial medications (route: 'Hospital measures-Route IV, oral or IM')" during "Occurrence A of Encounter, Performed: Encounter Inpatient"

OR:

AND NOT:

AND: "Occurrence A of Medication, Active: Hospital measures-PO Erythromycin (route: 'Hospital measures-Route oral')" <= 1440 minute(s) starts before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

AND: "Occurrence A of Medication, Active: Hospital measures-PO Neomycin sulfate (route: 'Hospital measures-Route oral')" <= 1440

minute(s) starts before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

AND NOT:

AND: "Occurrence A of Medication, Active: Hospital measures-PO Neomycin sulfate (route: 'Hospital measures-Route oral')" <= 1440 minute(s) starts before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

AND: "Occurrence A of Medication, Active: Hospital Measures-PO Colon and Hysterectomy Antibiotics-Metronidazole (route: 'Hospital measures-Route oral')" <= 1440 minute(s) starts before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

AND: "Medication, Active: Hospital measures-IV, IM, PO Antimicrobial medications (route: 'Hospital measures-Route IV, oral or IM')" <= 1440 minute(s) starts before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

Numerator:

In the Numerator in Populations 1-8, logic was added to account for the possibility of an open procedure occurring after a laparoscopic procedure. Timing of antibiotics must be tied to the laparoscopic procedure. This change more closely aligns with the measure specifications.

Added logic:

OR:

AND: "Occurrence A of Procedure, Performed: Hospital measures-CABG (ordinality: 'Principal')" starts after end of "Occurrence A of Procedure, Performed: Laparoscopic Procedures"

AND:

OR: "Medication, Administered: IV quinolones (route: 'Hospital measures-Route IV')" <= 120 minute(s) starts before start of "Occurrence A of Procedure, Performed: Laparoscopic Procedures"

OR: "Medication, Administered: Hospital measures-IV Vancomycin (route: 'Hospital measures-Route IV')" <= 120 minute(s) starts before start of "Occurrence A of Procedure, Performed: Laparoscopic Procedures"

OR: "Medication, Administered: IV Antimicrobial medication (route: 'Hospital measures-Route IV')" <= 60 minute(s) starts before start of "Occurrence A of Procedure, Performed: Laparoscopic Procedures"

Populations 1-8 of the Numerator, to account for the possibility a patient may have more than one surgery during the surgical episode surrounding the principal procedure, the timing of antibiotics should be based on the first incision during the episode. This is represented in revised logic for the numerator.

- Current logic:

    OR: "Medication, Administered: Hospital measures-SCIP IV quinolones (route: 'Hospital measures-Route IV')" <= 120 minute(s) starts before start of "Occurrence A of Procedure, Performed: Hospital measures-Vascular surgery (incision datetime)"

    OR: "Medication, Administered: Hospital measures-IV Antimicrobial medication (route: 'Hospital measures-Route IV')" <= 60 minute(s) starts before start of "Occurrence A of Procedure, Performed: Hospital measures-Vascular surgery (incision datetime)"

    OR: "Medication, Administered: Hospital measures-IV Vancomycin (route: 'Hospital measures-Route IV')" <= 120 minute(s) starts before start of "Occurrence A of Procedure, Performed: Hospital measures-Vascular surgery (incision datetime)"

- Revised logic:

    OR: "Medication, Administered: IV quinolones (route: 'Hospital measures-Route IV')" <= 120 minute(s) starts before start of "Occurrence A of Procedure, Performed: General or Neuraxial Anesthesia (incision datetime)"

    OR: "Medication, Administered: Hospital measures-IV Vancomycin (route: 'Hospital measures-Route IV')" <= 120 minute(s) starts before start of "Occurrence A of Procedure, Performed: General or Neuraxial Anesthesia (incision datetime)"

    OR: "Medication, Administered: IV Antimicrobial medication (route: 'Hospital measures-Route IV')" <= 60 minute(s) starts before start of "Occurrence A of Procedure, Performed: General or Neuraxial Anesthesia (incision datetime)"

All sections of logic phrases and sequences were reordered to be consistent across all populations.

Value Set Changes

- ICD10, SNOMED and RxNorm value sets were updated to include new concepts and/or mappings as specified in updated measure specifications..

- Value sets were changed as necessary to allow harmonization across the inpatient eCQMs.
- Major value set changes are listed below:

Value set changes

- Original value set:
    o Hospital measures-Infection diagnosis (2.16.840.1.113883.3.666.5.695)
- Replaced with:
    o Hospital Measures - Any infection (2.16.840.1.113883.3.666.5.696)
- Original value set:
    o Hospital Measures-Joint Commission Evidence of a surgical procedure requiring general or neuraxial anesthesia (1.3.6.1.4.1.33895.1.3.0.31)
- Replaced with:
    o General or Neuraxial Anesthesia (2.16.840.1.113883.3.666.5.1743)

Value sets with name changes:

- Original value set:
    o Any Infection SCIP (2.16.840.1.113883.3.666.5.2256)
- Renamed:
    ♦ Any Infection Prior to Anesthesia Concepts
- Original value set:
    ♦ Hospital measures-SCIP IV quinolones (2.16.840.1.113883.3.666.5.835)
- Renamed:
    o IV quinolones

New Value Sets:

- Laparoscopic Procedures (2.16.840.1.113762.1.4.1045.52)

Value set updates:

- ICD10
    o Abdominal hysterectomy (2.16.840.1.113883.3.666.5.1830)
    o CABG Surgeries (2.16.840.1.113883.3.666.5.1668)
    o Hospital measures-Cardiac Valve Surgery (2.16.840.1.113883.3.666.5.2307)
    o Colon Surgeries (2.16.840.1.113883.3.666.5.1815)
    o Hip Arthroplasty Surgeries (2.16.840.1.113883.3.666.5.1061)
    o Hospital measures-knee arthroplasty (2.16.840.1.113883.3.666.5.1813)
    o Other Cardiac Surgeries (2.16.840.1.113883.3.666.5.1836)
    o Hospital Measures-Pacemaker or implantable defibrillator procedure (2.16.840.1.113883.3.666.5.1840)
    o Hospital measures-Vaginal hysterectomy (2.16.840.1.113883.3.666.5.1831)

- o Hospital measures-vascular surgery (2.16.840.1.113883.3.666.5.1833)
- o SCIP Major Surgical Procedure (2.16.840.1.113883.3.117.1.7.1.1)
- SNOMED CT
    - o Abdominal hysterectomy (2.16.840.1.113883.3.666.5.2261)
    - o CABG Surgeries (2.16.840.1.113883.3.666.5.2262)
    - o Hospital measures-Caesarean section (2.16.840.1.113883.3.666.5.2260)
    - o Colon Surgeries (2.16.840.1.113883.3.666.5.2263)
    - o Hip arthroplasty Surgeries (2.16.840.1.113883.3.666.5.2264)
    - o Other Cardiac Surgeries (2.16.840.1.113883.3.666.5.2265)
    - o Hospital Measures-Pacemaker or implantable defibrillator procedure (2.16.840.1.113883.3.666.5.1087)
    - o Hospital measures-vascular surgery SNOMED (2.16.840.1.113883.3.666.5.2267)
    - o SCIP Major Surgery (2.16.840.1.113883.3.666.5.1250)
- ICD9
    - o Hospital Measures-Pacemaker or implantable defibrillator procedure (2.16.840.1.113883.3.666.5.1087)
- RxNorm
    - o IV Antimicrobial medication (2.16.840.1.113883.3.666.5.765)
    - o IV, IM, PO Antimicrobial medications (2.16.840.1.113883.3.666.5.693)

<u>CMS 172/NQF 0528</u> SCIP-INF-2-Prophylactic Antibiotic Selection for Surgical Patients

Measure versioned to v4

Metadata updates:

- Removed reference to ICD9 terminology in the denominator guidance.
- Removed the words "Hospital Measures-" from the first line in the denominator exclusion guidance.
- Removed the following two sentences from denominator exclusion guidance in the metadata. No longer supported in specification requirements as a way to determine if a patient has an infection:
    - o Patients who were receiving antibiotics more than 24 hours prior to surgery
    - o Patients who were receiving antibiotics within 24 hours prior to arrival (except colon surgery patients taking oral prophylactic antibiotics)
- Added wording to denominator exclusion guidance for updated measure specification regarding patients who did not receive any prophylactic antibiotics:
    - o Within 24 hours prior to surgical incision date and time through discharge
    - o Received antibiotics prior to arrival but none during the hospitalization

  o Received ALL antibiotics greater than 1440 minutes prior to Surgical Incision Date and time

  o Added wording to denominator exclusion guidance to exclude patients who received ONLY oral or intramuscular antibiotics during the hospitalization

All sections of logic phrases and sequences were reordered to be consistent and more concise across all populations.

Initial Patient Population (IPP):

 Change to Initial Patient Population (IPP) logic in all 8 populations to remove discharge datetime attribute and change timing relationship:

- Current logic:

  AND: "Occurrence A of Encounter, Performed: Encounter Inpatient (discharge datetime)" during "Measurement Period"

- Revised logic:

  AND: "Occurrence A of Encounter, Performed: Encounter Inpatient" ends during "Measurement Period"

Added logic to IPP to identify inpatients who have had a selected surgery from the SCIP Major Surgery table:

  AND: "Occurrence A of Procedure, Performed: General or Neuraxial Anesthesia" during "Occurrence A of Encounter, Performed: Encounter Inpatient"

  AND: "Occurrence A of Procedure, Performed: SCIP Major Surgical Procedure (ordinality: 'Principal')" during "Occurrence A of Procedure, Performed: General or Neuraxial Anesthesia"

Denominator:

- Changed Denominator logic in every population to represent the surgery of interest of each population occurs during the anesthesia episode identified in the IPP and to simplify the logic.
- Current logic:

  AND: "Occurrence A of Procedure, Performed: Hospital measures-CABG (ordinality: 'Hospital Measures - Principal')" during "Occurrence A of Encounter, Performed: Encounter Inpatient"

AND: "Occurrence A of Procedure, Performed: Hospital measures-CABG (incision datetime)" >= 1 minute(s) starts after start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

AND: "Occurrence A of Procedure, Performed: Hospital measures-Joint Commission evidence of a surgical procedure requiring general or neuraxial anesthesia" during "Occurrence A of Encounter, Performed: Encounter Inpatient"

AND: "Occurrence A of Procedure, Performed: Hospital measures-Joint Commission evidence of a surgical procedure requiring general or neuraxial anesthesia" >= 1 minute(s) starts after start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

AND: "Occurrence A of Procedure, Performed: Hospital measures-Joint Commission evidence of a surgical procedure requiring general or neuraxial anesthesia" ends after start of "Occurrence A of Procedure, Performed: Hospital measures-CABG (incision datetime)"

- Revised logic:

    AND: "Occurrence A of Procedure, Performed: Hospital measures-CABG (ordinality: 'Principal')" during "Occurrence A of Procedure, Performed: Hospital Measures-Joint Commission Evidence of a surgical procedure requiring general or neuraxial anesthesia"

Denominator Exclusions:

In Denominator Exclusions in Populations 1-8, removed all logic phrases related to antibiotics being administered. This logic was in the measure to identify patients who have an infection in order to exclude them. Updated measure specifications no longer look at antibiotic usage to determine infection.

- Logic removed:

    OR: "Medication, Active: Hospital measures-IV, IM, PO Antimicrobial medications (route: 'Hospital measures-Route IV, oral or IM')" <= 1440 minute(s) starts before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

    OR:

        AND: "Occurrence A of Medication, Administered: Hospital measures-IV, IM, PO Antimicrobial medications (route: 'Hospital measures-Route IV, oral or IM')" > 1440 minute(s) starts before start of "Occurrence A of Procedure, Performed: Hospital measures-CABG (incision datetime)"

AND: "Occurrence A of Medication, Administered: Hospital measures-IV, IM, PO Antimicrobial medications (route: 'Hospital measures-Route IV, oral or IM')" during "Occurrence A of Encounter, Performed: Encounter Inpatient"

Populations 1-8 in Denominator exclusions, the following duplicative logic was removed because it was similar to logic looking at a procedure, performed to implant a pocketed device:

OR: "Device, Applied: Hospital measures-Pacemaker or implantable defibrillator device" <= 4 day(s) starts after end of "Occurrence A of Procedure, Performed: Hospital measures-CABG"

OR: "Device, Applied: Hospital measures-Pacemaker or implantable defibrillator device" <= 4 day(s) ends before start of "Occurrence A of Procedure, Performed: Hospital measures-CABG"

Populations 1-8 in Denominator Exclusions, principal diagnosis of infection was changed to better represent the paper-measure specifications for a patient has a principal diagnosis of infection any time during the encounter they are excluded from the measure.

- Current logic:

    OR:

        AND NOT: "Occurrence A of Diagnosis, Active: Hospital Measures-Infection diagnosis (ordinality: 'Hospital Measures - Principal')" ends before start of "Occurrence A of Procedure, Performed: Hospital measures-CABG (incision datetime)"

        AND: "Occurrence A of Diagnosis, Active: Hospital Measures-Infection diagnosis (ordinality: 'Hospital Measures - Principal')" starts before start of "Occurrence A of Procedure, Performed: Hospital measures-CABG (ordinality: 'Hospital Measures - Principal')"

- Revised logic:

    OR: "Diagnosis, Active: Hospital Measures - Any infection (ordinality: 'Principal')" during "Encounter, Performed: Encounter Inpatient"

Population 5 in Denominator exclusions, Colon surgery, the following logic sequences were updated to align with the paper-measure specifications which no longer reference a patient on antibiotics to determine a probability of infection exists. These logic sequences previously in the e-specifications was to ensure a patient who is on bowel prep antibiotics for colon surgery would not be excluded from the measure:

    OR:

AND NOT:

AND: "Occurrence A of Medication, Administered: Hospital Measures-PO Colon and Hysterectomy Antibiotics-Metronidazole (route: 'Hospital measures-Route oral')" > 1440 minute(s) starts before start of "Occurrence A of Procedure, Performed: Hospital measures- Colon surgery (incision datetime)"

AND: "Occurrence A of Medication, Administered: Hospital measures-PO Neomycin sulfate (route: 'Hospital measures-Route oral')" > 1440 minute(s) starts before start of "Occurrence A of Procedure, Performed: Hospital measures- Colon surgery (incision datetime)"

during "Occurrence A of Encounter, Performed: Encounter Inpatient"

AND NOT:

AND: "Occurrence A of Medication, Administered: Hospital measures-PO Erythromycin (route: 'Hospital measures-Route oral')" > 1440 minute(s) starts before start of "Occurrence A of Procedure, Performed: Hospital measures- Colon surgery (incision datetime)"

AND: "Occurrence A of Medication, Administered: Hospital measures-PO Neomycin sulfate (route: 'Hospital measures-Route oral')" > 1440 minute(s) starts before start of "Occurrence A of Procedure, Performed: Hospital measures- Colon surgery (incision datetime)"

during "Occurrence A of Encounter, Performed: Encounter Inpatient"

AND: "Occurrence A of Medication, Administered: Hospital measures-IV, IM, PO Antimicrobial medications (route: 'Hospital measures-Route IV, oral or IM')" > 1440 minute(s) starts before start of "Occurrence A of Procedure, Performed: Hospital measures- Colon surgery (incision datetime)"

AND: "Occurrence A of Medication, Administered: Hospital measures-IV, IM, PO Antimicrobial medications (route: 'Hospital measures-Route IV, oral or IM')" during "Occurrence A of Encounter, Performed: Encounter Inpatient"

OR:

AND NOT:

AND: "Occurrence A of Medication, Active: Hospital measures-PO Erythromycin (route: 'Hospital measures-Route oral')" <= 1440

minute(s) starts before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

AND: "Occurrence A of Medication, Active: Hospital measures-PO Neomycin sulfate (route: 'Hospital measures-Route oral')" <= 1440 minute(s) starts before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

AND NOT:

AND: "Occurrence A of Medication, Active: Hospital measures-PO Neomycin sulfate (route: 'Hospital measures-Route oral')" <= 1440 minute(s) starts before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

AND: "Occurrence A of Medication, Active: Hospital Measures-PO Colon and Hysterectomy Antibiotics-Metronidazole (route: 'Hospital measures-Route oral')" <= 1440 minute(s) starts before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

AND: "Medication, Active: Hospital measures-IV, IM, PO Antimicrobial medications (route: 'Hospital measures-Route IV, oral or IM')" <= 1440 minute(s) starts before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

Populations 1-8 in Denominator exclusions, logic added to represent no antibiotics were administered prophylactically and no antibiotics were administered IM or PO to satisfy measure specification updates.

The Measure Authoring Tool no longer supports the use of the functions CURRENT and IMMEDIATE PRIOR. The logic was revised to represent another inpatient encounter occurred within one year of the current episode of care (inpatient encounter). The revised logic appears in the numerator logic for every population reasons for giving Vancomycin.

- Current logic:

    OR: IMMEDIATE PRIOR "Encounter, Performed: Encounter Inpatient (discharge datetime)" <= 1 year(s) starts before start of CURRENT "Occurrence A of Encounter, Performed: Encounter Inpatient"

- Revised logic:

    OR: "Encounter, Performed: Encounter Inpatient (discharge datetime)" <= 1 year(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

Data elements which used the principal procedure value set and incision datetime in the numerator of each population were revised to align with the paper-measure specifications for timing of appropriate antibiotic administration given <=1440 minutes <u>before</u> *anesthesia end time.* The following value set is used:

General or Neuraxial Anesthesia
(2.16.840.1.113883.3.666.5.1743)

Logic phrases were combined and condensed to simplify the logic. All logic in the numerator representing antibiotic administration after anesthesia end time was removed from the measure to align with the updated paper-measure specifications.

Example of logic revision:

- Current logic:

    OR:

        AND:

            OR: "Medication, Administered: Hospital Measures-IV Clindamycin (route: 'Hospital measures-Route IV')" <= 1440 minute(s) starts before start of "Occurrence A of Procedure, Performed: Hospital measures- Colon surgery (incision datetime)"

            OR: "Medication, Administered: Hospital Measures-IV Clindamycin (route: 'Hospital measures-Route IV')" <= 1440 minute(s) starts after end of "Occurrence A of Procedure, Performed: Hospital measures-Joint Commission evidence of a surgical procedure requiring general or neuraxial anesthesia"

        AND:

            OR: "Medication, Administered: Hospital Measures-IV Aminoglycosides (route: 'Hospital measures-Route IV')" <= 1440 minute(s) starts before start of "Occurrence A of Procedure, Performed: Hospital measures- Colon surgery (incision datetime)"

            OR: "Medication, Administered: Hospital Measures-IV Aminoglycosides (route: 'Hospital measures-Route IV')" <= 1440 minute(s) starts after end of "Occurrence A of Procedure, Performed: Hospital measures-Joint Commission evidence of a surgical procedure requiring general or neuraxial anesthesia"

- Revised logic:

OR:

AND: "Medication, Administered: Hospital Measures-IV Clindamycin (route: 'Hospital measures-Route IV')"

AND: "Medication, Administered: Hospital Measures-IV Aminoglycosides (route: 'Hospital measures-Route IV')"

<= 1440 minute(s) starts before or during "Occurrence A of Procedure, Performed: General or Neuraxial Anesthesia"

In the numerator of Population 5 (Colon surgery) the following logic for appropriate antibiotic selection was removed and replaced with two new combinations of antibiotics to match the current measure specifications. The value set "Hospital measures-IV arthroplasty and colon antibiotics RxNorm Value Set (2.16.840.1.113883.3.666.5.732)" containing the antibiotics cefuroxime and cefazolin was divided into two new value sets to accommodate the new antibiotic regimens.

- Current logic:

AND:

OR: "Medication, Administered: Hospital measures-IV arthroplasty and colon antibiotics (route: 'Hospital measures-Route IV')" <= 1440 minute(s) starts before start of "Occurrence A of Procedure, Performed: Hospital measures-Colon surgery (incision datetime)"

OR: "Medication, Administered: Hospital measures-IV arthroplasty and colon antibiotics (route: 'Hospital measures-Route IV')" <= 1440 minute(s) starts after end of "Occurrence A of Procedure, Performed: Hospital measures-Joint Commission evidence of a surgical procedure requiring general or neuraxial anesthesia"

AND:

OR: "Medication, Administered: Hospital Measures-IV Metronidazole (route: 'Hospital measures-Route IV')" <= 1440 minute(s) starts before start of "Occurrence A of Procedure, Performed: Hospital measures- Colon surgery (incision datetime)"

OR: "Medication, Administered: Hospital Measures-IV Metronidazole (route: 'Hospital measures-Route IV')" <= 1440 minute(s) starts after end of "Occurrence A of Procedure, Performed: Hospital measures-Joint Commission evidence of a surgical procedure requiring general or neuraxial anesthesia"

- Revised logic:

    OR:

        AND: "Medication, Administered: IV Cefazolin (route: 'Hospital measures-Route IV')"

        AND: "Medication, Administered: Hospital Measures-IV Metronidazole (route: 'Hospital measures-Route IV')"

        <= 1440 minute(s) starts before or during "Occurrence A of Procedure, Performed: General or Neuraxial Anesthesia"

    OR:

        AND: "Medication, Administered: Hospital Measures-IV Metronidazole (route: 'Hospital measures-Route IV')"

        AND: "Medication, Administered: IV Cefuroxime (route: 'Hospital measures-Route IV')"

        <= 1440 minute(s) starts before or during "Occurrence A of Procedure, Performed: General or Neuraxial Anesthesia (incision datetime)"

Additional logic was added to include one additional combination of appropriate antibiotics:

    OR:

        AND: "Medication, Administered: Hospital Measures-IV Metronidazole (route: 'Hospital measures-Route IV')"

        AND: "Medication, Administered: IV Ceftriaxone (route: 'Hospital measures-Route IV')"

        <= 1440 minute(s) starts before or during "Occurrence A of Procedure, Performed: General or Neuraxial Anesthesia"

In the numerator of Population 6 (Abdominal hysterectomy) and Population 7 (Vaginal hysterectomy) additional antibiotic regimens were added to the approved antibiotics list for these two surgeries in the measure specifications. These regimens were added to the logic. They include:

- Vancomycin and Aminoglycosides
- Vancomycin and Aztreonam
- Vancomycin and Quinolones

New logic example:

> OR:
>
> > AND: "Medication, Administered: Hospital measures-IV Vancomycin (route: 'Hospital measures-Route IV')"
> >
> > AND: "Medication, Administered: Hospital Measures-IV Aminoglycosides (route: 'Hospital measures-Route IV')"
> >
> > <= 1440 minute(s) starts before or during "Occurrence A of Procedure, Performed: General or Neuraxial Anesthesia"

In the numerator of Population 6 (Abdominal hysterectomy) and Population 7 (Vaginal hysterectomy) logic was written to check if a patient had colon surgery and if he did, IV Ertapenem is an appropriate antibiotic for prophylaxis.

- New logic:

  > OR:
  >
  > > AND: "Occurrence A of Procedure, Performed: Hospital measures- Colon surgery" during "Occurrence A of Encounter, Performed: Encounter Inpatient"
  > >
  > > AND: "Medication, Administered: Hospital Measures-IV Ertapenem (route: 'Hospital measures-Route IV')" <= 1440 minute(s) starts before or during "Occurrence A of Procedure, Performed: General or Neuraxial Anesthesia

Value set Changes

- ICD10, SNOMED and RxNorm value sets were updated to include new concepts and/or mappings as specified in updated measure specifications..
- Value sets were changed as necessary to allow harmonization across the inpatient eCQMs.
- Major value set changes are listed below:

Value set changes

- Original value set:
  - Hospital measures-Infection diagnosis (2.16.840.1.113883.3.666.5.695)
- Replaced with:
  - Hospital Measures - Any infection (2.16.840.1.113883.3.666.5.696)
- Original value set:
  - Hospital Measures-Joint Commission Evidence of a surgical procedure requiring general or neuraxial anesthesia (1.3.6.1.4.1.33895.1.3.0.31)

- Replaced with:
  - General or Neuraxial Anesthesia (2.16.840.1.113883.3.666.5.1743)

Value sets with name changes:

- Original value set:
  - Any Infection SCIP (2.16.840.1.113883.3.666.5.2256)
- Renamed:
  - Any Infection Prior to Anesthesia Concepts
- Original value set:
  - Hospital measures-SCIP IV quinolones (2.16.840.1.113883.3.666.5.835)
- Renamed:
  - IV quinolones
- Original value set:
  - Hospital measures-IV Hysterectomy-Antibiotics (2.16.840.1.113883.3.666.5.729)
- Renamed:
  - Antibiotics for Prophylaxis for Hysterectomy Surgeries

Value set updates:

- ICD10
  - Abdominal hysterectomy (2.16.840.1.113883.3.666.5.1830)
  - CABG Surgeries (2.16.840.1.113883.3.666.5.1668)
  - Hospital measures-Cardiac Valve Surgery (2.16.840.1.113883.3.666.5.2307)
  - Colon Surgeries (2.16.840.1.113883.3.666.5.1815)
  - Hip Arthroplasty Surgeries (2.16.840.1.113883.3.666.5.1061)
  - Hospital measures-knee arthroplasty (2.16.840.1.113883.3.666.5.1813)
  - Other Cardiac Surgeries (2.16.840.1.113883.3.666.5.1836)
  - Hospital Measures-Pacemaker or implantable defibrillator procedure (2.16.840.1.113883.3.666.5.1840)
  - Hospital measures-Vaginal hysterectomy (2.16.840.1.113883.3.666.5.1831)
  - Hospital measures-vascular surgery (2.16.840.1.113883.3.666.5.1833)
  - SCIP Major Surgical Procedure (2.16.840.1.113883.3.117.1.7.1.1)
- SNOMED CT
  - Abdominal hysterectomy (2.16.840.1.113883.3.666.5.2261)
  - CABG Surgeries (2.16.840.1.113883.3.666.5.2262)
  - Hospital measures-Caesarean section (2.16.840.1.113883.3.666.5.2260)
  - Colon Surgeries (2.16.840.1.113883.3.666.5.2263)
  - Hip arthroplasty Surgeries (2.16.840.1.113883.3.666.5.2264)

- o Other Cardiac Surgeries (2.16.840.1.113883.3.666.5.2265)
- o Hospital Measures-Pacemaker or implantable defibrillator procedure (2.16.840.1.113883.3.666.5.1087)
- o Hospital measures-vascular surgery SNOMED (2.16.840.1.113883.3.666.5.2267)
- o SCIP Major Surgery (2.16.840.1.113883.3.666.5.1250)
- ICD9
  - o Hospital Measures-Pacemaker or implantable defibrillator procedure (2.16.840.1.113883.3.666.5.1087)
- RxNorm
  - o IV Antimicrobial medication (2.16.840.1.113883.3.666.5.765)
  - o IV, IM, PO Antimicrobial medications (2.16.840.1.113883.3.666.5.693)
- New Value Sets:
  - o IV Cefuroxime (2.16.840.1.113762.1.4.1045.8)
  - o IM or PO Antimicrobial medications (2.16.840.1.113762.1.4.1045.5)
  - o IM or PO Route (2.16.840.1.113762.1.4.1045.6)
  - o IV Ceftriaxone (2.16.840.1.113762.1.4.1045.3)
  - o IV Cefazolin (2.16.840.1.113762.1.4.1045.7)

CMS 30/NQF 0639 AMI-10 Statin Prescribed at Discharge

- Measure versioned to v4.
- Header updates
  - o Rationale updated
  - o References updated
  - o Guidance updated
  - o Denominator updated
  - o Denominator Exclusions updated
  - o Denominator Exceptions updated
- Removed "Occurrence A of Encounter, Performed: Hospital Measures-Encounter Inpatient" and replaced it with the harmonized encounter QDM Encounter Inpatient.
- Initial Patient Population: attribute "Principal" harmonized with other measures for diagnosis QDM in "Diagnosis, Active: Hospital Measures-AMI (ordinality: 'Principal') starts during "Occurrence A of Encounter, Performed: Encounter Inpatient.
- Initial Patient Population: attribute "discharge datetime" removed from encounter QDM in "Occurrence A of Encounter, Performed: Encounter Inpatient" during "Measurement Period". This harmonizes encounter logic to use the default attribute.
- Denominator Exclusions: Added Comfort Measures for hospital arrival in ED

AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

AND: "Occurrence A of Intervention, Performed: Comfort Measures" starts after start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

- Denominator Exclusion: Added Clinical Trial Participant for hospital arrival in ED

    AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

    AND NOT: "Occurrence A of Patient Characteristic Clinical Trial Participant: Clinical Trial Participant" ends before start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

    AND: "Occurrence A of Patient Characteristic Clinical Trial Participant: Clinical Trial Participant" starts before or during "Occurrence A of Encounter, Performed: Emergency Department Visit"

- Numerator: Revised timing relationship

    AND: "Medication, Discharge: Statins" during "Occurrence A of Encounter, Performed: Encounter Inpatient"

    TO

    AND: "Medication, Discharge: Statins" starts during "Occurrence A of Encounter, Performed: Encounter Inpatient"

- Denominator Exceptions: Revised LDL-c Test for Inpatient hospital arrival

    AND: "Laboratory Test, Result: LDL-c Test (result < 100 mg/dL)" <= 24 hour(s) starts after start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

    AND NOT: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

    AND: "Laboratory Test, Result: LDL-c Test (result < 100 mg/dL)" <= 30 day(s) starts before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

    AND NOT: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

- Denominator Exceptions: Added LDL-c Test for hospital arrival in ED

  AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

  AND: "Laboratory Test, Result: LDL-c Test (result < 100 mg/dL)" <= 24 hour(s) starts after start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

  AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

  AND: "Laboratory Test, Result: LDL-c Test (result < 100 mg/dL)" <= 30 day(s) starts before start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

- Denominator Exceptions: Removed System Reasons AMI

  OR: "Medication, Order not done: System Reasons AMI" for "Statins RxNorm Value Set" during "Occurrence A of Encounter, Performed: Encounter Inpatient"

  OR: "Medication, Discharge not done: System Reasons AMI" for "Statins RxNorm Value Set" during "Occurrence A of Encounter, Performed: Encounter Inpatient"

- Denominator Exceptions: Revised Medication Administered not done for Medication-Hold

  AND: "Medication, Administered not done: Hospital Measures - Hold" for "Statin " starts during "Occurrence A of Encounter, Performed: Encounter Inpatient"

  AND NOT: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

- Denominator Exceptions: Added Medication Administered not done for Medication-Hold for hospital arrival in ED

  AND: "Occurrence A of Encounter, Performed: Emergency Department Visit" <= 1 hour(s) ends before start of "Occurrence A of Encounter, Performed: Encounter Inpatient"

  AND: "Medication, Administered not done: Hospital Measures - Hold" for "Statin " starts after start of "Occurrence A of Encounter, Performed: Emergency Department Visit"

"Medication, Administered not done: Hospital Measures - Hold" for "Statin " starts before or during "Occurrence A of Encounter, Performed: Encounter Inpatient"

- Denominator Exceptions: Revised logic for Reason for Not Prescribing Statin Medication at Discharge

    OR: "Medication, Order not done: Medical Reason" for "Statin ingredient specific "

    OR: "Medication, Order not done: Patient Refusal" for "Statin ingredient specific "

    OR: "Medication, Discharge not done: Medical Reason" for "Statin ingredient specific "

    OR: "Medication, Discharge not done: Patient Refusal" for "Statin ingredient specific "

    OR: "Medication, Allergy: Statin Allergen"

    starts before or during "Occurrence A of Encounter, Performed: Encounter Inpatient"

- Value Set Updates
    o Current Value Sets were revised to include additional codes and/or addition of ICD-9, ICD-10, and SNOMED-CT terminologies when appropriate. Grouping Value Sets were created to group the additional terminologies together, therefore value set OIDs attached to measure phrases were revised.
    o Value set content has been updated to reflect current measure specifications including medication value sets.
- Added the following value sets
    o Discharged to Health Care Facility for Hospice Care SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.207)
    o Discharged to Home for Hospice Care SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.209)
    o Emergency Department Visit SNOMED-CT Value Set (2.16.840.1.113883.3.117.1.7.1.292)
    o Statin ingredient specific RXNORM Value Set (2.16.840.1.113762.1.4.1021.7)
    o Statin RXNORM Value Set (2.16.840.1.113883.3.117.1.7.1.225)
- Updated the following value sets
    o Original value set
        ♦ Encounter Inpatient SNOMED-CT Value Set (2.16.840.1.113883.3.666.5.3001)
    o Replaced with
        ♦ Encounter Inpatient SNOMEDCT Value Set (2.16.840.1.113883.3.666.5.307)
    o Original value set

- ♦ Medical Reasons AMI SNOMED-CT Value Set
  (2.16.840.1.113883.3.666.5.3003)
  - o Replaced with
    - ♦ Medical Reason SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.473)
  - o Original value set
    - ♦ Patient Reasons AMI SNOMED-CT Value Set (2.16.840.1.113883.3.666.5.3004)
  - o Replaced with
    - ♦ Patient Refusal SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.93)
  - o Original value set
    - ♦ Left Against Medical Advice SNOMED-CT Value Set
      (2.16.840.1.113883.3.666.5.1106)
  - o Replaced with
    - ♦ Left Against Medical Advice SNOMEDCT Value Set
      (2.16.840.1.113883.3.117.1.7.1.308)
  - o Original value set
    - ♦ Patient Expired Grouping Value Set (2.16.840.1.113883.3.117.1.7.1.86)
  - o Replaced with
    - ♦ Patient Expired SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.309)
  - o Original value set
    - ♦ Principal Diagnosis SNOMED-CT Value Set (2.16.840.1.113883.3.117.2.7.1.14)
  - o Replaced with
    - ♦ Principal SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.14)
- Deleted the following value sets
  - o System Reasons AMI SNOMED-CT Value Set (2.16.840.1.113883.3.666.5.3005)
  - o Statins RxNorm Value Set (2.16.840.1.113883.3.117.1.7.1.824)"

CMS 185/NQF 0716 Healthy Term Newborn

Header Changes

- Guidance updated

Logic Changes

- IPP
  - o Revised logic to include patient's discharged during 'Measurement Period' to harmonize eCQMs
  - o Removed data element "Liveborn Born In Hospital" and attribute "reason: 'Birth'".

    AND: "Diagnosis, Active: Gestational age >= 37 weeks" starts during "Occurrence A of Encounter…."

AND:

     OR: "Diagnosis, Active: Single Liveborn Newborn Born in Hospital" starts during "Occurrence A …"

     OR:

          AND: "Diagnosis, Active: Single Live Birth" starts during "Occurrence A of Encounter…"

          AND: "Diagnosis, Active: Liveborn Born In Hospital" starts during "Occurrence A of Encounter…

          AND: "Occurrence A of Encounter, Performed: Inpatient Encounter (reason: 'Birth')"

Remodeled phrase:

AND:

     AND: "Physical Exam, Finding: Estimated Gestational Age at Birth (result >= 37 week(s))" < 1 day(s) starts during "Occurrence A of Encounter…"

     AND:

          OR: "Diagnosis, Active: Single Live Birth" starts during "Occurrence A of Encounter…"

          OR: "Diagnosis, Active: Single Liveborn Newborn Born in Hospital" starts during "Occurrence A… "

- o Remodeled data element "Gestational Age at Birth" from 'diagnosis, active' to 'Physical Exam, Finding".

    Original:

     AND: "Diagnosis, Active: Gestational age >= 37 weeks" starts during "Occurrence A of Encounter, Performed: Inpatient Encounter"

    Remodeled:

     AND: "Physical Exam, Finding: Estimated Gestational Age at Birth (result >= 37 week(s))" < 1 day(s) starts during "Occurrence A…"

- o Updated the following value sets:

- ♦ Congenital Anomalies I9 (2.16.840.1.113883.3.666.5.1565)
- ♦ Congenital Anomalies I10 (2.16.840.1.113883.3.666.5.1670)
- ♦ Newborn Affected by Placenta or Abruption S (2.16.840.1.113883.3.666.5.1674)
- ♦ Newborn Affected by Umbilical Cord Complications S (2.16.840.1.113883.3.666.5.1678)
- ♦ Birth Trauma or Injuries S (2.16.840.1.113883.3.666.5.1688)
- ♦ Drug Withdrawal Syndrome S (2.16.840.1.113883.3.666.5.1695)
- ♦ Infection I10 (2.16.840.1.113883.3.666.5.1707)
- ♦ Shock and Complications S (2.16.840.1.113883.3.666.5.1730)
  - o Added the following value sets:
    - ♦ Estimated Gestational Age at Birth (2.16.840.1.113762.1.4.1045.47)
  - o Removed the following value sets:
    - ♦ Gestational age >= 37 weeks Grouping Value Set (2.16.840.1.113883.3.666.5.1596)
    - ♦ Single Liveborn Newborn Born in Hospital (2.16.840.1.113883.3.117.1.7.1.26)
    - ♦ Birth (2.16.840.1.113883.3.117.1.7.1.70)

CMS 31/NQF 1354 EHDI-1a Hearing screening prior to hospital discharge

- Measure versioned to v2
- Measure title is updated
- Guidance is updated
- IPP and denominator in header are updated
- IPP is updated
  - o Add ICD9 and ICD10 corresponding phrase
  - o Remove "reason: 'Birth'" attribute from encounter
  - o The attribute of discharge datetime is removed from encounter and ends during is used instead.
- Denominator Exclusions is updated
  - o Remove SNOMED corresponding phrase, only keep LOINC phrases
- Numerator is updated
  - o Remove SNOMED corresponding phrase, only keep LOINC phrases and its related "not done: medical reason" phrase
- Data criteria is updated
  - o Following the latest CMS blueprint vocabulary guidance, the QDM of diagnostic study should use LOINC codes and the result should use SNOMED-CT codes
  - o Remove Hearing Examination SNOMED-CT Value Set (2.16.840.1.114222.4.1.214079.1.1.2)

- o Harmonize encounter value set from "Inpatient Encounter SNOMED-CT Value Set (2.16.840.1.113883.3.117.1.7.1.23)" to "Encounter Inpatient SNOMEDCT Value Set (2.16.840.1.113883.3.666.5.307)"

- o Harmonize expired value set from "Patient Expired SNOMED-CT Value Set (2.16.840.1.113883.3.67.1.101.1.78)" to "Patient Expired SNOMEDCT Value Set (2.16.840.1.113883.3.117.1.7.1.309)"

- o Remove attribute "Reason: Birth"

Appendix E. Clinical Quality Measures for CMS's 2014 EHR Incentive Program for Eligible Professionals – Release Notes, June 1, 2014

CMS146v3/NQF 0002 **Appropriate Testing for Children with Pharyngitis**

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Clinical Recommendation Statement updated

Logic Changes

- Initial Patient Population
  - The name of the medication value set was changed from 'Antibiotic Medications' to 'Antibiotic Medications for Pharyngitis'
- Denominator Exclusion
  - The name of the medication value set was changed from 'Antibiotic Medications' to 'Antibiotic Medications for Pharyngitis'

Value Set Changes

Value Set Name	Value Set OID	Status
Antibiotic Medications for Pharyngitis	2.16.840.1.113883.3.464.1003.196.12.1001 2.16.840.1.113883.3.464.1003.196.11.1001	Updated title and removed codes
Acute Pharyngitis	2.16.840.1.113883.3.464.1003.102.12.1011 2.16.840.1.113883.3.464.1003.102.11.1033	Updated codes
Acute Tonsillitis	2.16.840.1.113883.3.464.1003.102.12.1012 2.16.840.1.113883.3.464.1003.102.11.1036	Added codes
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048	Removed code

CMS137v3/NQF 0004 **Initiation and Engagement of Alcohol and Other Drug Dependence Treatment**

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Reference updated

Logic Changes

- Initial Patient Population
    - Re-ordered the birthdate criterion so it appears first
    - Removed unneeded occurrences from the encounters
- Denominator Exclusions
    - Removed the unneeded occurrence from the diagnosis

Value Set Changes

Value Set Name	Value Set OID	Status
Alcohol and Drug Dependence	2.16.840.1.113883.3.464.1003.106.12.1001 2.16.840.1.113883.3.464.1003.106.11.1001 2.16.840.1.113883.3.464.1003.106.11.1002 2.16.840.1.113883.3.464.1003.106.11.1003	Updated codes
Alcohol and Drug Dependence Treatment	2.16.840.1.113883.3.464.1003.106.12.1005 2.16.840.1.113883.3.464.1003.106.11.1012	Added code
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048 2.16.840.1.113883.3.464.1003.101.11.1216	Removed code

CMS 165v3/NQF 0018 **Controlling High Blood Pressure**

Header Changes

- eMeasure Version number incremented
- Copyright updated

Logic Changes

- Initial Patient Population
    - Re-ordered the instance where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement
- Denominator Exclusions
    - Re-ordered the instance where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement

Value Set Changes

Value Set Name	Value Set OID	Status
Essential Hypertension	2.16.840.1.113883.3.464.1003.104.12.1011 2.16.840.1.113883.3.464.1003.104.11.1029	Removed codes
Dialysis Education	2.16.840.1.113883.3.464.1003.109.12.1016 2.16.840.1.113883.3.464.1003.109.11.1031	Added code
Kidney Transplant	2.16.840.1.113883.3.464.1003.109.12.1012 2.16.840.1.113883.3.464.1003.109.11.1024 2.16.840.1.113883.3.464.1003.109.11.1025	Removed codes
Vascular Access for Dialysis	2.16.840.1.113883.3.464.1003.109.12.1011 2.16.840.1.113883.3.464.1003.109.11.1022 2.16.840.1.113883.3.464.1003.109.11.1023	Updated codes
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048 2.16.840.1.113883.3.464.1003.101.11.1216	Removed code

CMS156v3/NQF 0022 Use of High-Risk Medications in the Elderly

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Definitions updated
- Guidance updated

Logic Changes

- No logic changes

Value Set Changes

Value Set Name	Value Set OID	Status
High Risk Medications for the Elderly	2.16.840.1.113883.3.464.1003.196.12.1253 2.16.840.1.113883.3.464.1003.196.11.1091	Updated codes, removed

	2.16.840.1.113883.3.464.1003.196.11.1056	two value
	2.16.840.1.113883.3.464.1003.196.11.1236	sets from
	2.16.840.1.113883.3.464.1003.196.11.1057	grouping
	2.16.840.1.113883.3.464.1003.196.11.1237	value set
	2.16.840.1.113883.3.464.1003.196.11.1240	
	2.16.840.1.113883.3.464.1003.196.11.1241	
	2.16.840.1.113883.3.464.1003.196.11.1118	
	2.16.840.1.113883.3.464.1003.196.11.1129	
	2.16.840.1.113883.3.464.1003.196.11.1245	
	2.16.840.1.113883.3.464.1003.196.11.1037	
	2.16.840.1.113883.3.464.1003.196.11.1044	
	2.16.840.1.113883.3.464.1003.196.11.1247	
	2.16.840.1.113883.3.464.1003.196.11.1120	
	2.16.840.1.113883.3.464.1003.196.11.1248	
	2.16.840.1.113883.3.464.1003.196.11.1251	
	2.16.840.1.113883.3.464.1003.196.11.1252	
	2.16.840.1.113883.3.464.1003.196.11.1253	
	2.16.840.1.113883.3.464.1003.196.11.1022	
	2.16.840.1.113883.3.464.1003.196.11.1109	
	2.16.840.1.113883.3.464.1003.196.11.1027	
	2.16.840.1.113883.3.464.1003.196.11.1050	
	2.16.840.1.113883.3.464.1003.196.11.1257	
	2.16.840.1.113883.3.464.1003.196.11.1052	
	2.16.840.1.113883.3.464.1003.196.11.1256	
High-Risk Medications With Days Supply Criteria	2.16.840.1.113883.3.464.1003.196.12.1254	Removed codes
	2.16.840.1.113883.3.464.1003.196.11.1131	
	2.16.840.1.113883.3.464.1003.196.11.1134	
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048	Removed code
	2.16.840.1.113883.3.464.1003.101.11.1216	

CMS155v3/NQF 0024 Weight Assessment and Counseling for Nutrition and Physical Activity for Children and Adolescents

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Numerator narrative updated

Logic Changes

- Denominator Exclusion
    - Re-ordered the instance where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement
- Numerator 2 logic
    - Updated to reflect that the counseling must occur during a visit
- Numerator 3 logic
    - Updated to reflect that the counseling must occur during a visit

Value Set Changes

Value Set Name	Value Set OID	Status
Weight	2.16.840.1.113883.3.464.1003.121.12.1015 2.16.840.1.113883.3.464.1003.121.11.1031	Added code
Counseling for Nutrition	2.16.840.1.113883.3.464.1003.195.12.1003 2.16.840.1.113883.3.464.1003.195.11.1004	Added codes
Counseling for Physical Activity	2.16.840.1.113883.3.464.1003.118.12.1035 2.16.840.1.113883.3.464.1003.118.11.1042	Added codes
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048 2.16.840.1.113883.3.464.1003.101.11.1216	Removed code
Pregnancy	2.16.840.1.113883.3.526.2.532 2.16.840.1.113883.3.526.3.378	Updated value set

CMS138v3/NQF 0028 Preventive Care and Screening: Tobacco Use: Screening and Cessation Intervention

Header Changes

- eMeasure Version number incremented
- Copyright updated

- Disclaimer updated
- Guidance updated
- Initial Patient Population narrative updated

Logic Changes

- Numerator
  - Added 'Risk Category Assessment: Tobacco Use Screening' data element
- Denominator Exceptions
  - Revised timing anchor for 'Risk Category Assessment: Medical Reason' data element
  - Re-ordered 'AND' and 'AND NOT' operators so the 'AND' operator precedes the 'AND NOT' operator

Value Set Changes

Value Set Name	Value Set OID	Status
Tobacco User	2.16.840.1.113883.3.526.3.1170 2.16.840.1.113883.3.526.2.422	Updated value set

CMS125v3/NQF Not Applicable Breast Cancer Screening

Header Changes

- eMeasure Version number incremented
- NQF Number removed
- Endorsed By removed
- Copyright updated
- Rationale updated
- Clinical Recommendation Statement updated
- Reference added

Logic Changes

- No logic changes

Value Set Changes

Value Set Name	Value Set OID	Status
Unilateral Mastectomy	2.16.840.1.113883.3.464.1003.198.12.1020 2.16.840.1.113883.3.464.1003.198.11.1038 2.16.840.1.113883.3.464.1003.198.11.1037	Removed codes

| Face-to-Face Interaction | 2.16.840.1.113883.3.464.1003.101.12.1048 | Removed code |
| | 2.16.840.1.113883.3.464.1003.101.11.1216 | |

CMS124v3/NQF 0032 Cervical Cancer Screening

Header Changes

- eMeasure Version number incremented
- Copyright updated

Logic Changes

- No logic changes

Value Set Changes

Value Set Name	Value Set OID	Status
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048	Removed code
	2.16.840.1.113883.3.464.1003.101.11.1216	
Hysterectomy with No Residual Cervix	2.16.840.1.113883.3.464.1003.198.11.1026	Removed code
	2.16.840.1.113883.3.464.1003.198.12.1014	

CMS153v3/NQF0033 Chlamydia Screening for Women

Header Changes

- eMeasure Version number incremented
- Copyright updated

Logic Changes

- Initial Patient Population
  - Re-ordered the instances where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement

Value Set Changes

Value Set Name	Value Set OID	Status
Chlamydia Screening	2.16.840.1.113883.3.464.1003.110.12.1052	Updated codes
	2.16.840.1.113883.3.464.1003.110.11.1129	

Chlamydia	2.16.840.1.113883.3.464.1003.110.12.1003	Updated codes
	2.16.840.1.113883.3.464.1003.110.11.1007	
	2.16.840.1.113883.3.464.1003.110.11.1009	
Contraceptive Medications	2.16.840.1.113883.3.464.1003.196.12.1080	Updated codes
	2.16.840.1.113883.3.464.1003.196.11.1080	
Diagnostic Studies During Pregnancy	2.16.840.1.113883.3.464.1003.111.12.1008	Added code
	2.16.840.1.113883.3.464.1003.111.11.1013	
Gonococcal Infections and Venereal Diseases	2.16.840.1.113883.3.464.1003.112.12.1001	Added codes
	2.16.840.1.113883.3.464.1003.112.11.1001	
Lab Tests During Pregnancy	2.16.840.1.113883.3.464.1003.111.12.1007	Updated codes
	2.16.840.1.113883.3.464.1003.111.11.1012	
Lab Tests for Sexually Transmitted Infections	2.16.840.1.113883.3.464.1003.110.12.1051	Updated codes
	2.16.840.1.113883.3.464.1003.110.11.1128	
Pregnancy Test	2.16.840.1.113883.3.464.1003.111.12.1011	Updated codes
	2.16.840.1.113883.3.464.1003.111.11.1019	
Procedures During Pregnancy	2.16.840.1.113883.3.464.1003.111.12.1009	Added codes
	2.16.840.1.113883.3.464.1003.111.11.1015	
Procedures Involving Contraceptive Devices	2.16.840.1.113883.3.464.1003.111.12.1010	Added codes
	2.16.840.1.113883.3.464.1003.111.11.1018	
X-Ray Study (all inclusive)	2.16.840.1.113883.3.464.1003.198.12.1034	Added codes
	2.16.840.1.113883.3.464.1003.198.11.1055	
Delivery Live Births	2.16.840.1.113883.3.464.1003.111.12.1015	Added codes
	2.16.840.1.113883.3.464.1003.111.11.1027	
Inflammatory Diseases of Female Reproductive Organs	2.16.840.1.113883.3.464.1003.112.12.1004	Updated codes
	2.16.840.1.113883.3.464.1003.112.11.1010	

| Complications of Pregnancy, Childbirth and the Puerperium | 2.16.840.1.113883.3.464.1003.111.12.1012
2.16.840.1.113883.3.464.1003.111.11.1023 | Updated codes |
| Face-to-Face Interaction | 2.16.840.1.113883.3.464.1003.101.12.1048
2.16.840.1.113883.3.464.1003.101.11.1216 | Removed code |

CMS130v3/NQF 0034 Colorectal Cancer Screening

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Clinical Recommendation Statement updated

Logic Changes

- No logic changes

Value Set Changes

Value Set Name	Value Set OID	Status
Malignant Neoplasm of Colon	2.16.840.1.113883.3.464.1003.108.12.1001 2.16.840.1.113883.3.464.1003.108.11.1001 2.16.840.1.113883.3.464.1003.108.11.1003	Updated codes
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048 2.16.840.1.113883.3.464.1003.101.11.1216	Removed code

CMS126v3/NQF 0036 Use of Appropriate Medications for Asthma

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Disclaimer updated

Logic Changes

- Initial Patient Population
  - Re-ordered the instances where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement

- Denominator Exclusions
  - Re-ordered the instances where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement

Value Set Changes

Value Set Name	Value Set OID	Status
Chronic Obstructive Pulmonary Disease	2.16.840.1.113883.3.464.1003.102.12.1007 2.16.840.1.113883.3.464.1003.102.11.1021	Added code
Emphysema	2.16.840.1.113883.3.464.1003.102.12.1004 2.16.840.1.113883.3.464.1003.102.11.1010 2.16.840.1.113883.3.464.1003.102.11.1011 2.16.840.1.113883.3.464.1003.102.11.1012	Updated codes
Persistent Asthma	2.16.840.1.113883.3.464.1003.102.12.1023 2.16.840.1.113883.3.464.1003.102.11.1062	Added code
Preferred Asthma Therapy	2.16.840.1.113883.3.464.1003.196.12.1212 2.16.840.1.113883.3.464.1003.196.11.1024 2.16.840.1.113883.3.464.1003.196.11.1099 2.16.840.1.113883.3.464.1003.196.11.1097 2.16.840.1.113883.3.464.1003.196.11.1085	Updated codes
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048 2.16.840.1.113883.3.464.1003.101.11.1216	Removed code

CMS117v3/NQF 0038 Childhood Immunization Status

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Clinical Recommendation Statement updated
- Definition updated
- Guidance updated

Logic Changes

- Initial Patient Population

- – Updated birthdate logic
- Numerator
    - – Removed duplicate timing logic for immunizations
    - – Changed timeframe to receive immunizations from 2 years to 730 days
    - – Updated value set from Malignant Neoplasm of Lymphatic Tissue to Malignant Neoplasm of Lymphatic and Hematopietic Tissue
    - – Removed Disorders of the Immune System and HIV as contraindications for the influenza vaccine
    - – Reordered Procedure, Performed and Medication, Administered constructs

Value Set Changes

Value Set Name	Value Set OID	Status
Anaphylactic Reaction to DTaP Vaccine	2.16.840.1.113883.3.464.1003.199.12.1031 2.16.840.1.113883.3.464.1003.199.11.1064	Added codes and removed codes
Anaphylactic Reaction to Hemophilus Influenza B (HiB) Vaccine	2.16.840.1.113883.3.464.1003.199.12.1030 2.16.840.1.113883.3.464.1003.199.11.1063	Added codes and removed codes
Anaphylactic Reaction to Hepatitis B Vaccine	2.16.840.1.113883.3.464.1003.199.12.1029 2.16.840.1.113883.3.464.1003.199.11.1060	Added codes and removed codes
Influenza Vaccine	2.16.840.1.113883.3.464.1003.196.12.1218 2.16.840.1.113883.3.464.1003.199.11.1220	Removed code
Hemophilus Influenza B (HiB) Vaccine Administered	2.16.840.1.113883.3.464.1003.110.12.1043 2.16.840.1.113883.3.464.1003.110.11.1113	Added codes
Measles, Mumps and Rubella (MMR) Vaccine Administered	2.16.840.1.113883.3.464.1003.110.12.1031 2.16.840.1.113883.3.464.1003.199.11.1085 2.16.840.1.113883.3.464.1003.199.11.1086	Added codes
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048 2.16.840.1.113883.3.464.1003.101.11.1216	Removed code
Rotavirus Vaccine (2 dose schedule) Administered	2.16.840.1.113883.3.464.1003.110.12.1048 2.16.840.1.113883.3.464.1003.110.11.1131	Removed value set from grouping value set

Rotavirus Vaccine (3 dose schedule) Administered	2.16.840.1.113883.3.464.1003.110.12.1047 2.16.840.1.113883.3.464.1003.110.11.1132	Removed value set from grouping value set
Rubella	2.16.840.1.113883.3.464.1003.110.12.1037 2.16.840.1.113883.3.464.1003.110.11.1098	Removed code
Malignant Neoplasm of Lymphatic Tissue	2.16.840.1.113883.3.464.1003.108.12.1021 2.16.840.1.113883.3.464.1003.108.11.1056 2.16.840.1.113883.3.464.1003.108.11.1055 2.16.840.1.113883.3.464.1003.108.11.1054	Removed value sets
Malignant Neoplasm of Lymphatic and Hematopietic Tissue	2.16.840.1.113883.3.464.1003.108.12.1009 2.16.840.1.113883.3.464.1003.108.11.1025 2.16.840.1.113883.3.464.1003.108.11.1026 2.16.840.1.113883.3.464.1003.108.11.1027	Added value sets

CMS147v4/NQF 0041 Preventive Care and Screening: Influenza Immunization

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Disclaimer updated
- Initial Patient Population narrative updated

Logic Changes

- Initial Patient Population
  – Added 'Encounter, Performed: Face-to-Face Interaction' to logic
- Denominator
  – Removed Occurrencing for 'Encounter Influenza', 'Hemodialysis', and 'Peritoneal Dialysis' data elements
  – Revised timing anchor for 'Encounter Influenza', 'Hemodialysis', and 'Peritoneal Dialysis' data elements for the period of time that 'starts after start' of 'Measurement Period
- Numerator
  – Revised timing anchor for 'Influenza Vaccination', 'Influenza Vaccine', and 'Previous Receipt of Influenza Vaccine' for the period of time that 'starts before start' of 'Measurement Period.' The numerator action is no longer required to occur during the 'Encounter Influenza'

– Revised timing anchor for 'Influenza Vaccination', 'Influenza Vaccine', and 'Previous Receipt of Influenza Vaccine' for the period of time that 'starts after start of 'Measurement Period.' The numerator action is no longer required to occur during the 'Encounter Influenza'

- Denominator Exceptions

    – Revised timing anchor for the following data elements that start before start of 'Measurement Period':

        ▪ 'Influenza Vaccination Declined'

        ▪ 'Procedure Performed not done' (Medical, Patient and System reasons)

        ▪ 'Medication Administered not done' (Medical, Patient and System reasons)

    – Revised timing anchor for the following data elements that start after start of 'Measurement Period':

        ▪ 'Influenza Vaccination Declined'

        ▪ 'Procedure Performed not done' (Medical, Patient and System reasons)

        ▪ 'Medication Administered not done' (Medical, Patient and System reasons)

    – Revised logic to include 'AND NOT' statement to require the Diagnosis of 'Allergy to Eggs' to still be Active as of the end of the influenza season

    – Revised timing constraint of Diagnosis of 'Allergy to Eggs'

    – Revised logic to include 'AND NOT' statement to require the Diagnosis of 'Allergy to Influenza Vaccine' to still be Active as of the end of the influenza season

    – Revised timing constraint of Diagnosis of 'Allergy to Influenza Vaccine'

    – Revised logic to include 'AND NOT' statement to require the Diagnosis of 'Intolerance to Influenza Vaccine' to still be Active as of the end of the influenza season

    – Revised timing constraint of Diagnosis of 'Intolerance to Influenza Vaccine'

    – Added 'Occurrencing' construct to require that the same occurrence of the Diagnosis data element meets the 'AND' and 'AND NOT' logic strings - 3 data elements ('Allergy to Eggs', 'Allergy to Influenza Vaccine', and 'Intolerance to Influenza Vaccine'

    – Revised logic to include 'AND NOT' statement to require the Procedure of 'Influenza Vaccination' to still be Active as of the end of the influenza season

    – Revised timing constraint of 'Procedure Intolerance: Influenza Vaccine'

    – Added 'Occurrencing' construct to require that the same occurrence of the Procedure data element meets the 'AND' and 'AND NOT' logic strings

    – Revised logic to include 'AND NOT' statement to require the 'Medication Intolerance: 'Influenza Vaccine' to still be Active as of the end of the influenza season

    – Revised timing constraint of 'Medication Intolerance: 'Influenza Vaccine'

    – Added 'Occurrencing' construct to require that the same occurrence of the Medication Intolerance data element meets the 'AND' and 'AND NOT' logic strings

    – Revised logic to include 'AND NOT' statement to require the 'Medication Allergy: Influenza Vaccine' to still be Active as of the end of the influenza season

– Revised timing constraint of 'Medication Allergy: 'Influenza Vaccine''
– Added 'Occurrencing' construct to require that the same occurrence of the Medication Allergy data element meets the 'AND' and 'AND NOT' logic strings

Value Set Changes

Value Set Name	Value Set OID	Status
Allergy to Eggs	2.16.840.1.113883.3.526.3.1253 2.16.840.1.113883.3.526.2.1346	Updated title
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.11.1216 2.16.840.1.113883.3.464.1003.101.12.1048	Added value set

CMS127v3/NQF 0043 Pneumonia Vaccination Status for Older Adults

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Rationale updated
- Clinical Recommendation Statement updated
- Guidance updated

Logic Changes

- No logic changes

Value Set Changes

Value Set Name	Value Set OID	Status
History of Pneumococcal Vaccine	2.16.840.1.113883.3.464.1003.110.12.1028 2.16.840.1.113883.3.464.1003.110.11.1108	Added code
Pneumococcal Vaccine Administered	2.16.840.1.113883.3.464.1003.110.12.1034 2.16.840.1.113883.3.464.1003.110.11.1134	Added code system and code
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048 2.16.840.1.113883.3.464.1003.101.11.1216	Removed code

CMS166v4/NQF 0052 Use of Imaging Studies for Low Back Pain

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Rationale updated
- Clinical Recommendation Statement updated
- References updated

Logic Changes

- No logic changes

Value Set Changes

Value Set Name	Value Set OID	Status
Low Back Pain	2.16.840.1.113883.3.464.1003.113.12.1001 2.16.840.1.113883.3.464.1003.113.11.1001	Added codes
IV Drug Abuse	2.16.840.1.113883.3.464.1003.106.12.1003 2.16.840.1.113883.3.464.1003.106.11.1006	Added code
All Cancer	2.16.840.1.113883.3.464.1003.108.12.1011 2.16.840.1.113883.3.464.1003.108.11.1001 2.16.840.1.113883.3.464.1003.108.11.1003 2.16.840.1.113883.3.464.1003.108.11.1004 2.16.840.1.113883.3.464.1003.108.11.1007 2.16.840.1.113883.3.464.1003.108.11.1008 2.16.840.1.113883.3.464.1003.108.11.1009 2.16.840.1.113883.3.464.1003.108.11.1010 2.16.840.1.113883.3.464.1003.108.11.1013 2.16.840.1.113883.3.464.1003.108.11.1016 2.16.840.1.113883.3.464.1003.108.11.1019 2.16.840.1.113883.3.464.1003.108.11.1022 2.16.840.1.113883.3.464.1003.108.11.1025	Updated codes

| Face-to-Face Interaction | 2.16.840.1.113883.3.464.1003.101.12.1048

2.16.840.1.113883.3.464.1003.101.11.1216 | Removed code |

CMS131v3/NQF 0055 Diabetes: Eye Exam

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Denominator Exclusions removed

Logic Changes

- Initial Patient Population
    - Re-ordered the instance where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement
- Denominator Exclusions
    - Removed Denominator Exclusions

Value Set Changes

Value Set Name	Value Set OID	Status
Diabetes	2.16.840.1.113883.3.464.1003.103.12.1001 2.16.840.1.113883.3.464.1003.103.11.1003	Removed codes
Gestational Diabetes	2.16.840.1.113883.3.464.1003.103.12.1010 2.16.840.1.113883.3.464.1003.103.11.1014 2.16.840.1.113883.3.464.1003.103.11.1012	Removed value set
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048 2.16.840.1.113883.3.464.1003.101.11.1216	Removed code

CMS123v3/NQF 0056 Diabetes: Foot Exam

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Denominator Exclusions removed

Logic Changes

- Initial Patient Population

- Re-ordered the instance where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement
- Denominator Exclusions
    - Removed Denominator Exclusions

Value Set Changes

Value Set Name	Value Set OID	Status
Diabetes	2.16.840.1.113883.3.464.1003.103.12.1001 2.16.840.1.113883.3.464.1003.103.11.1003	Removed codes
Gestational Diabetes	2.16.840.1.113883.3.464.1003.103.12.1010 2.16.840.1.113883.3.464.1003.103.11.1014 2.16.840.1.113883.3.464.1003.103.11.1012	Removed value set
Bilateral Amputee	2.16.840.1.113883.67.1.101.1.140 2.16.840.1.113883.67.1.101.1.141 2.16.840.1.113883.67.1.101.1.142 2.16.840.1.113883.67.1.101.1.143	Removed value set
Left Foot Amputee	2.16.840.1.113883.67.1.101.11.718 2.16.840.1.113883.67.1.101.11.144	Removed value set
Right Foot Amputee	2.16.840.1.113883.67.1.101.11.719 2.16.840.1.113883.67.1.101.11.145	Removed value set
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048 2.16.840.1.113883.3.464.1003.101.11.1216	Removed code

CMS122v3/NQF 0059 Diabetes: Hemoglobin A1c Poor Control

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Guidance updated
- Denominator Exclusions removed

Logic Changes

- Initial Patient Population

- Re-ordered the instance where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement
- Denominator Exclusions
  - Removed Denominator Exclusions
- Numerator
  - Added logic to identify missing tests
  - Added logic to identify tests with no results

Value Set Changes

Value Set Name	Value Set OID	Status
Diabetes	2.16.840.1.113883.3.464.1003.103.12.1001 2.16.840.1.113883.3.464.1003.103.11.1003	Removed codes
HbA1c Laboratory Test	2.16.840.1.113883.3.464.1003.198.12.1013 2.16.840.1.113883.3.464.1003.198.11.1024	Updated codes
Gestational Diabetes	2.16.840.1.113883.3.464.1003.103.12.1010 2.16.840.1.113883.3.464.1003.103.11.1014 2.16.840.1.113883.3.464.1003.103.11.1012	Removed value set
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048 2.16.840.1.113883.3.464.1003.101.11.1216	Removed code

CMS148v3/NQF 0060 Hemoglobin A1c Test for Pediatric Patients

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Denominator Exclusions removed

Logic Changes

- Initial Patient Population
  - Re-ordered the instance where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement
  - Re-ordered visit statement so birthdate is listed first
- Denominator Exclusions
  - Removed Denominator Exclusions

Value Set Changes

Value Set Name	Value Set OID	Status
Diabetes	2.16.840.1.113883.3.464.1003.103.12.1001 2.16.840.1.113883.3.464.1003.103.11.1003	Removed codes
HbA1c Laboratory Test	2.16.840.1.113883.3.464.1003.198.12.1013 2.16.840.1.113883.3.464.1003.198.11.1024	Updated codes
Diabetes Visit	2.16.840.1.113883.3.464.1003.103.12.1012 2.16.840.1.113883.3.464.1003.101.11.1216 (Face-to-Face Interaction value set in Diabetes Visit grouping value set)	Removed code
Gestational Diabetes	2.16.840.1.113883.3.464.1003.103.12.1010 2.16.840.1.113883.3.464.1003.103.11.1014 2.16.840.1.113883.3.464.1003.103.11.1012	Removed value set

CMS134v3/NQF 0062 Diabetes: Urine Protein Screening

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Clinical Recommendation Statement updated
- Denominator Exclusions removed

Logic Changes

- Initial Patient Population
  - Re-ordered the instance where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement
- Denominator Exclusions
  - Removed Denominator Exclusions
- Numerator
  - Re-ordered the instances where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement

Value Set Changes

Value Set Name	Value Set OID	Status
Diabetes	2.16.840.1.113883.3.464.1003.103.12.1001 2.16.840.1.113883.3.464.1003.103.11.1003	Removed codes
Gestational Diabetes	2.16.840.1.113883.3.464.1003.103.12.1010 2.16.840.1.113883.3.464.1003.103.11.1014 2.16.840.1.113883.3.464.1003.103.11.1012	Removed value set
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048 2.16.840.1.113883.3.464.1003.101.11.1216	Removed code
Diabetic Nephropathy	2.16.840.1.113883.3.464.1003.109.12.1004 2.16.840.1.113883.3.464.1003.109.11.1008 2.16.840.1.113883.3.464.1003.109.11.1009	Updated codes
Glomerulonephritis and Nephrotic Syndrome	2.16.840.1.113883.3.464.1003.109.12.1018 2.16.840.1.113883.3.464.1003.109.11.1035 2.16.840.1.113883.3.464.1003.109.11.1037	Updated codes
Hypertensive Chronic Kidney Disease	2.16.840.1.113883.3.464.1003.109.12.1017 2.16.840.1.113883.3.464.1003.109.11.1032 2.16.840.1.113883.3.464.1003.109.11.1034	Updated codes
Kidney Transplant	2.16.840.1.113883.3.464.1003.109.12.1012 2.16.840.1.113883.3.464.1003.109.11.1024 2.16.840.1.113883.3.464.1003.109.11.1025	Removed codes
Macroalbumin Test	2.16.840.1.113883.3.464.1003.109.12.1019 2.16.840.1.113883.3.464.1003.109.11.1038	Removed codes
Vascular Access for Dialysis	2.16.840.1.113883.3.464.1003.109.12.1011 2.16.840.1.113883.3.464.1003.109.11.1022 2.16.840.1.113883.3.464.1003.109.11.1023	Updated codes
ACE Inhibitor or ARB	2.16.840.1.113883.3.526.3.1139 2.16.840.1.113883.3.526.2.39	Updated title

CMS163v3/NQF 0064 Diabetes: Low Density Lipoprotein (LDL) Management

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Denominator Exclusions removed

Logic Changes

- Initial Patient Population
  - Re-ordered the instance where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement
- Denominator Exclusions
  - Removed Denominator Exclusions

Value Set Changes

Value Set Name	Value Set OID	Status
Diabetes	2.16.840.1.113883.3.464.1003.103.12.1001 2.16.840.1.113883.3.464.1003.103.11.1003	Removed codes
Gestational Diabetes	2.16.840.1.113883.3.464.1003.103.12.1010 2.16.840.1.113883.3.464.1003.103.11.1014 2.16.840.1.113883.3.464.1003.103.11.1012	Removed value set
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048 2.16.840.1.113883.3.464.1003.101.11.1216	Removed code

CMS164v3/NQF 0068 Ischemic Vascular Disease (IVD): Use of Aspirin or Another Antithrombotic

Header Changes

- eMeasure version number incremented
- Copyright updated
- Clinical Recommendation Statement updated
- Rationale updated

Logic Changes

- Initial Patient Population
  - Re-ordered the instance where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement
- Numerator

– Re-ordered the instance where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement

Value Set Changes

Value Set Name	Value Set OID	Status
Percutaneous Coronary Interventions	2.16.840.1.113883.3.464.1003.104.12.1010 2.16.840.1.113883.3.464.1003.104.11.1026 2.16.840.1.113883.3.464.1003.104.11.1027 2.16.840.1.113883.3.464.1003.104.11.1028	Updated codes, removed HCPCS value set from measure and grouping value set
Acute myocardial Infarction	2.16.840.1.113883.3.464.1003.104.12.1001 2.16.840.1.113883.3.464.1003.104.11.1001	Added codes
Ischemic Vascular Disease	2.16.840.1.113883.3.464.1003.104.12.1003 2.16.840.1.113883.3.464.1003.104.11.1007 2.16.840.1.113883.3.464.1003.104.11.1009	Added codes
Aspirin and Other Anti-thrombotics	2.16.840.1.113883.3.464.1003.196.12.1211 2.16.840.1.113883.3.464.1003.196.11.1211	Removed codes
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048 2.16.840.1.113883.3.464.1003.101.11.1216	Removed code

CMS154v3/NQF 0069 Appropriate Treatment for Children with Upper Respiratory Infection (URI)

Header Changes

- eMeasure Version number incremented
- Copyright updated

Logic Changes

- Numerator

- The name of the medication value set was changed from 'Antibiotic Medications' to 'Antibiotic Medications for Pharyngitis'
- Denominator Exclusion
  - The name of the medication value set was changed from 'Antibiotic Medications' to 'Antibiotic Medications for Pharyngitis'

Value Set Changes

Value Set Name	Value Set OID	Status
Antibiotic Medications for Pharyngitis	2.16.840.1.113883.3.464.1003.196.12.1001 2.16.840.1.113883.3.464.1003.196.11.1001	Updated title and removed codes
Competing Conditions for Respiratory Conditions	2.16.840.1.113883.3.464.1003.102.12.1017 2.16.840.1.113883.3.464.1003.113.11.1009 2.16.840.1.113883.3.464.1003.113.11.1011 2.16.840.1.113883.3.464.1003.112.11.1010 2.16.840.1.113883.3.464.1003.110.11.1005 2.16.840.1.113883.3.464.1003.110.11.1006 2.16.840.1.113883.3.464.1003.112.11.1016 2.16.840.1.113883.3.464.1003.112.11.1001 2.16.840.1.113883.3.464.1003.112.11.1013 2.16.840.1.113883.3.464.1003.102.11.1040 2.16.840.1.113883.3.464.1003.102.11.1041 2.16.840.1.113883.3.464.1003.110.11.1013 2.16.840.1.113883.3.464.1003.119.11.1001 2.16.840.1.113883.3.464.1003.116.11.1024 2.16.840.1.113883.3.464.1003.110.11.1012 2.16.840.1.113883.3.464.1003.102.11.1043 2.16.840.1.113883.3.464.1003.102.11.1044 2.16.840.1.113883.3.464.1003.102.11.1045	Updated codes
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048 2.16.840.1.113883.3.464.1003.101.11.1216	Removed code

CMS145v3/NQF 0070 **Coronary Artery Disease (CAD): Beta-Blocker Therapy—Prior Myocardial Infarction (MI) or Left Ventricular Systolic Dysfunction (LVEF <40%)**

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Disclaimer updated
- Guidance updated

Logic Changes

- Initial Patient Population 1
    - Removed 'Occurrencing' construct from 'Encounter, Performed: Office Visit' in the COUNT >= 2
    - Revised logic construct to be isolated by encounter type
    - Revised logic to include 'AND NOT' statement to require the Diagnosis to still be Active
    - Added 'Occurrencing' construct to require that the same occurrence of the Diagnosis data element meets the 'AND' and 'AND NOT' logic strings
- Numerator 1
    - Re-ordered instances where 'AND' and 'AND NOT' operators are nested together so the 'AND' operator precedes the 'AND NOT' statement
- Denominator Exceptions 1
    - Replaced 'Beta Blocker Therapy for LVSD' value set that is used in conjunction with 'Medication, Order not done' with 'Beta Blocker Therapy Ingredient' (for use with 'Medical Reasons', 'Patient Reasons', and 'System Reasons')
    - Revised timing anchor for 'Medical Reasons', 'Patient Reasons', 'System Reasons'
    - Revised logic to include 'AND NOT' statement to require the Medication, Allergy/Intolerance to still be Active
    - Revised logic to include 'AND NOT' statement to require the Diagnosis to still be Active
    - Added 'Occurrencing' construct to require that the same occurrence of the Diagnosis data element meets the 'AND' and 'AND NOT' logic strings
    - Revised logic for capturing an active Atrioventricular Block (and not having a Cardiac Pacer)
- Initial Patient Population 2
    - Removed 'Occurrencing' construct from 'Encounter, Performed: Office Visit' in the COUNT >= 2
    - Revised logic construct to be isolated by encounter type
    - Revised logic to include 'AND NOT' statement to require the Diagnosis to still be Active
    - Added 'Occurrencing' construct to require that the same occurrence of the Diagnosis data element meets the 'AND' and 'AND NOT' logic strings

- Numerator 2
  - Re-ordered instances where 'AND' and 'AND NOT' operators are nested together so the 'AND' operator precedes the 'AND NOT' statement
- Denominator Exceptions 2
  - Replaced 'Beta Blocker Therapy' value set that is used in conjunction with 'Medication, Order not done' with 'Beta Blocker Therapy Ingredient' (for use with 'Medical Reasons', 'Patient Reasons', and 'System Reasons')
  - Revised timing anchor for 'Medical Reasons', 'Patient Reasons', 'System Reasons'
  - Revised logic to include 'AND NOT' statement to require the Medication, Allergy/Intolerance to still be Active
  - Revised logic to include 'AND NOT' statement to require the Diagnosis to still be Active
  - Added 'Occurrencing' construct to require that the same occurrence of the Diagnosis data element meets the 'AND' and 'AND NOT' logic strings
  - Revised logic for capturing an active Atrioventricular Block (and not having a Cardiac Pacer)

Value Set Changes

Value Set Name	Value Set OID	Status
Beta Blocker Therapy Ingredient	2.16.840.1.113883.3.526.3.1493 2.16.840.1.113883.3.526.2.1921	Updated title, replaced 'Allergen' with 'Ingredient', updated value set
Hypotension	2.16.840.1.113883.3.526.3.370 2.16.840.1.113883.3.526.2.185	Updated value set
Left Ventricular Systolic Dysfunction	2.16.840.1.113883.3.526.3.1091 2.16.840.1.113883.3.526.2.859	Updated title
Moderate or Severe	2.16.840.1.113883.3.526.3.1092 2.16.840.1.113883.3.526.2.860	Updated title

CMS182v4/NQF 0075 Ischemic Vascular Disease (IVD): Complete Lipid Panel and LDL Control

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Rationale updated
- Clinical Recommendation Statement updated

- References updated

Logic Changes

- Initial Patient Population
  - Re-ordered the instance where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement
- Numerator 1
  - Removed Complete Lipid Panel as a numerator positive event

Value Set Changes

Value Set Name	Value Set OID	Status
Percutaneous Coronary Interventions	2.16.840.1.113883.3.464.1003.104.12.1010 2.16.840.1.113883.3.464.1003.104.11.1026 2.16.840.1.113883.3.464.1003.104.11.1027 2.16.840.1.113883.3.464.1003.104.11.1028	Updated codes, removed HCPCS value set from measure and grouping value set
Acute myocardial Infarction	2.16.840.1.113883.3.464.1003.104.12.1001 2.16.840.1.113883.3.464.1003.104.11.1001	Added codes
Ischemic Vascular Disease	2.16.840.1.113883.3.464.1003.104.12.1003 2.16.840.1.113883.3.464.1003.104.11.1007 2.16.840.1.113883.3.464.1003.104.11.1009	Added codes
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048 2.16.840.1.113883.3.464.1003.101.11.1216	Removed code
Complete Lipid Panel	2.16.840.1.113883.3.464.1003.104.11.1035 2.16.840.1.113883.3.464.1003.104.12.1015	Removed value set

CMS135v3/NQF 0081 Heart Failure (HF): Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) Therapy for Left Ventricular Systolic Dysfunction (LVSD)

Header Changes

- eMeasure version number incremented
- Copyright updated
- Disclaimer updated
- Guidance updated

Logic Changes

- Initial Patient Population
    - Revised logic construct to be isolated by encounter type
    - Revised logic to include 'AND NOT' statement to require the Diagnosis to still be Active
    - Added 'Occurrencing' construct to require that the same occurrence of the Diagnosis data element meets the 'AND' and 'AND NOT' logic strings
- Numerator
    - Re-ordered instances where 'AND' and 'AND NOT' operators are nested together so the 'AND' operator precedes the 'AND NOT' statement
- Denominator Exceptions
    - Replaced 'ACE inhibitor or ARB' value set that is used in conjunction with 'Medication, Order not done' with 'ACE Inhibitor or ARB Ingredient' (for use with 'Medical Reasons', 'Patient Reasons', and 'System Reasons')
    - Revised timing anchor for 'Medical Reasons', 'Patient Reasons', 'System Reasons' and 'Patient Reason for ACE Inhibitor or ARB Decline'
    - Revised logic to include 'AND NOT' statement to require the Medication, Allergy/Intolerance to still be Active
    - Revised logic to include 'AND NOT' statement to require the Diagnosis to still be Active
    - Added 'Occurrencing' construct to require that the same occurrence of the Diagnosis data element meets the 'AND' and 'AND NOT' logic strings

Value Set Changes

Value Set Name	Value Set OID	Status
ACE Inhibitor or ARB	2.16.840.1.113883.3.526.3.1139 2.16.840.1.113883.3.526.2.39	Updated title
ACE Inhibitor or ARB Ingredient	2.16.840.1.113883.3.526.3.1489 2.16.840.1.113883.3.526.2.1926	Updated title, replaced 'Allergen' with 'Ingredient', updated value set
Allergy to ACE Inhibitor or ARB	2.16.840.1.113883.3.526.3.1211 2.16.840.1.113883.3.526.2.1256	Updated title, updated value set

Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048 2.16.840.1.113883.3.464.1003.101.11.1216	Removed code
Intolerance to ACE Inhibitor or ARB	2.16.840.1.113883.3.526.3.1212 2.16.840.1.113883.3.526.2.1257	Updated title
Left Ventricular Systolic Dysfunction	2.16.840.1.113883.3.526.3.1091 2.16.840.1.113883.3.526.2.859	Updated title
Patient Reason for ACE Inhibitor or ARB Decline	2.16.840.1.113883.3.526.3.1140 2.16.840.1.113883.3.526.2.305	Updated title
Pregnancy	2.16.840.1.113883.3.526.3.378 2.16.840.1.113883.3.526.2.532	Updated value set
Moderate or Severe	2.16.840.1.113883.3.526.3.1092 2.16.840.1.113883.3.526.2.860	Updated title

CMS144v3/NQF 0083 Heart Failure (HF): Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction (LVSD)

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Disclaimer updated
- Guidance updated
- Transmission Format updated

Logic Changes

- Initial Patient Population
  - Revised logic construct to be isolated by encounter type
  - Revised logic to include 'AND NOT' statement to require the Diagnosis to still be Active
  - Added 'Occurrencing' construct to require that the same occurrence of the Diagnosis data element meets the 'AND' and 'AND NOT' logic strings
- Numerator
  - Re-ordered instances where 'AND' and 'AND NOT' operators are nested together so the 'AND' operator precedes the 'AND NOT' statement
- Denominator Exceptions

– Replaced 'Beta Blocker Therapy for LVSD' value set that is used in conjunction with 'Medication, Order not done' with 'Beta Blocker Therapy Ingredient' (for use with 'Medical Reasons', 'Patient Reasons', and 'System Reasons')
– Revised timing anchor for 'Medical Reasons', 'Patient Reasons', 'System Reasons'
– Revised logic to include 'AND NOT' statement to require the Medication, Allergy/Intolerance to still be Active
– Revised logic to include 'AND NOT' statement to require the Diagnosis to still be Active
– Added 'Occurrencing' construct to require that the same occurrence of the Diagnosis data element meets the 'AND' and 'AND NOT' logic strings
– Revised logic for capturing an active Atrioventricular Block (and not having a Cardiac Pacer)

Value Set Changes

Value Set Name	Value Set OID	Status
Beta Blocker Therapy Ingredient	2.16.840.1.113883.3.526.3.1493 2.16.840.1.113883.3.526.2.1921	Updated title, replaced 'Allergen' with 'Ingredient', updated value set
Hypotension	2.16.840.1.113883.3.526.3.370 2.16.840.1.113883.3.526.2.185	Updated value set
Left Ventricular Systolic Dysfunction	2.16.840.1.113883.3.526.3.1091 2.16.840.1.113883.3.526.2.859	Updated title
Moderate or Severe	2.16.840.1.113883.3.526.3.1092 2.16.840.1.113883.3.526.2.860	Updated title

CMS143v3/NQF0086 Primary Open-Angle Glaucoma (POAG): Optic Nerve Evaluation

Header Changes

- eMeasure version number incremented
- Copyright updated
- Disclaimer updated
- Guidance updated

Logic Changes

- Initial Patient Population

– Removed requirement of two or more visits during the measurement period, thereby removing the value set 'Patient Provider Interaction' from the measure
– Revised logic to include 'AND NOT' statement to require the Diagnosis to still be Active
– Added 'Occurrencing' construct to require that the same occurrence of the Diagnosis meets the 'AND' and 'AND NOT' logic strings

- Denominator Exceptions
  – Revised timing component of denominator exceptions to ensure the exceptions begin during a specific encounter

Value Set Changes

Value Set Name	Value Set OID	Status
Patient Provider Interaction	2.16.840.1.113883.3.526.3.1012 2.16.840.1.113883.3.526.2.1049	Removed value set
Primary Open-Angle Glaucoma	2.16.840.1.113883.3.526.3.326 2.16.840.1.113883.3.526.2.72 2.16.840.1.113883.3.526.2.73 2.16.840.1.113883.3.526.2.74	Updated title

CMS167v3/NQF 0088 Diabetic Retinopathy: Documentation of Presence or Absence of Macular Edema and Level of Severity of Retinopathy

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Disclaimer updated
- Definition updated
- Guidance updated

Logic Changes

- Initial Patient Population
  – Removed requirement of two or more visits during the measurement period, thereby removing the value set 'Patient Provider Interaction' from the measure
  – Revised logic to include 'AND NOT' statement to require the Diagnosis to still be Active
  – Added 'Occurrencing' construct to require that the same occurrence of the Diagnosis meets the 'AND' and 'AND NOT' logic strings

Value Set Changes

Value Set Name	Value Set OID	Status
Diabetic Retinopathy	2.16.840.1.113883.3.526.3.327 2.16.840.1.113883.3.526.2.80	Removed codes
Level of Severity of Retinopathy Findings	2.16.840.1.113883.3.526.3.1283 2.16.840.1.113883.3.526.2.1377	Updated codes
Macular Edema Findings Present	2.16.840.1.113883.3.526.3.1320 2.16.840.1.113883.3.526.2.1381	Removed codes
Patient Provider Interaction	2.16.840.1.113883.3.526.3.1012 2.16.840.1.113883.3.526.2.1049	Removed value set

CMS142v3/NQF 0089 Diabetic Retinopathy: Communication with the Physician Managing Ongoing Diabetes Care

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Disclaimer updated
- Definition updated
- Guidance updated

Logic Changes

- Initial Patient Population
  - Removed requirement of two or more visits during the measurement period, thereby removing the value set 'Patient Provider Interaction' from the measure
  - Revised logic to include 'AND NOT' statement to require the Diagnosis to still be Active
  - Added 'Occurrencing' construct to require that the same occurrence of the Diagnosis meets the 'AND' and 'AND NOT' logic strings

Value Set Changes

Value Set Name	Value Set OID	Status
Diabetic Retinopathy	2.16.840.1.113883.3.526.3.327 2.16.840.1.113883.3.526.2.80	Removed codes

Level of Severity of Retinopathy Findings	2.16.840.1.113883.3.526.3.1324 2.16.840.1.113883.3.526.2.1393	Removed value set
Macular Edema Findings Absent	2.16.840.1.113883.3.526.3.1286 2.16.840.1.113883.3.526.2.1391	Removed value set
Macular Edema Findings Present	2.16.840.1.113883.3.526.3.1323 2.16.840.1.113883.3.526.2.1392	Removed value set
Level of Severity of Retinopathy Findings	2.16.840.1.113883.3.526.3.1283 2.16.840.1.113883.3.526.2.1377	Added – Harmonized with CMS167
Macular Edema Findings Absent	2.16.840.1.113883.3.526.3.1284 2.16.840.1.113883.3.526.2.1373	Added – Harmonized with CMS167
Macular Edema Findings Present	2.16.840.1.113883.3.526.3.1320 2.16.840.1.113883.3.526.2.1381	Added – Harmonized with CMS167
Patient Provider Interaction	2.16.840.1.113883.3.526.3.1012 2.16.840.1.113883.3.526.2.1049	Removed value set

CMS139v3/NQF 0101 Falls: Screening for Future Fall Risk

Header Changes

- eMeasure Version number incremented
- Measure Developer updated
- Copyright updated
- Disclaimer updated
- Rationale updated
- Clinical Recommendation Statement updated
- References updated

Logic Changes

- Denominator Exceptions
  - Re-ordered the instance where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement

Value Set Changes

Value Set Name	Value Set OID	Status
Falls Screening	2.16.840.1.113883.3.464.1003.118.12.1028 2.16.840.1.113883.3.464.1003.118.11.1077	Added code
Patient not ambulatory	2.16.840.1.113883.3.464.1003.118.12.1009 2.16.840.1.113883.3.464.1003.118.11.1010	Added codes
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048 2.16.840.1.113883.3.464.1003.101.11.1216	Removed code

CMS161v3/NQF 0104 Adult Major Depressive Disorder (MDD): Suicide Risk Assessment

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Disclaimer updated
- Clinical Recommendation Statement updated
- Guidance updated

Logic Changes

- Initial Patient Population
  – Removed 'Occurrencing' construct from "Diagnosis, Active: Major Depressive Disorder-Active" data element

Value Set Changes

Value Set Name	Value Set OID	Status
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048 2.16.840.1.113883.3.464.1003.101.11.1216	Removed code

CMS128v3/NQF 0105 Anti-depressant Medication Management

Header Changes

- eMeasure Version number incremented
- Copyright updated

Logic Changes

- Initial Patient Population
  - Re-ordered the instance where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement

Value Set Changes

Value Set Name	Value Set OID	Status
Antidepressant Medication	2.16.840.1.113883.3.464.1003.196.12.1213 2.16.840.1.113883.3.464.1003.196.11.1102 2.16.840.1.113883.3.464.1003.196.11.1194	Updated codes
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048 2.16.840.1.113883.3.464.1003.101.11.1216	Removed code

CMS136v4/NQF 0108 ADHD: Follow-Up Care for Children Prescribed Attention-Deficit/Hyperactivity Disorder (ADHD) Medication

Header Changes

- eMeasure Version number incremented
- Copyright updated

Logic Changes

- Initial Patient Population 1
  - Added a statement to cover the case of the medication starting on the first day of the measurement period
- Denominator Exclusions 1
  - Re-ordered the instances where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement
- Initial Patient Population 2
  - Added a statement to cover the case of the medication starting on the first day of the measurement period
  - Clarified the time period for the active medication
- Denominator Exclusions 2
  - Re-ordered the instances where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement

Value Set Changes

Value Set Name	Value Set OID	Status
ADHD Medications	2.16.840.1.113883.3.464.1003.196.12.1171	Added codes

	2.16.840.1.113883.3.464.1003.196.11.1171	
Behavioral Health Follow-up Visit	2.16.840.1.113883.3.464.1003.101.12.1054 2.16.840.1.113883.3.464.1003.101.11.1221	Removed codes
Inpatient Encounter	2.16.840.1.113883.3.464.1003.101.12.1060 2.16.840.1.113883.3.464.1003.101.11.1224	Added codes
Mental Health Diagnoses	2.16.840.1.113883.3.464.1003.105.12.1004 2.16.840.1.113883.3.464.1003.105.11.1010 2.16.840.1.113883.3.464.1003.105.11.1011	Added codes
Narcolepsy	2.16.840.1.113883.3.464.1003.114.12.1011 2.16.840.1.113883.3.464.1003.114.11.1021	Added codes
principal	2.16.840.1.113883.3.67.1.101.1.287 2.16.840.1.113883.3.67.1.101.11.724	Removed value set
Principal	2.16.840.1.113883.3.117.1.7.1.14	Added value set
Psychotherapy and Pharmacologic Management	2.16.840.1.113883.3.464.1003.101.12.1055 2.16.840.1.113883.3.464.1003.101.11.1222	Removed codes
Substance Abuse	2.16.840.1.113883.3.464.1003.106.12.1004 2.16.840.1.113883.3.464.1003.106.11.1009	Added codes
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048 2.16.840.1.113883.3.464.1003.101.11.1216	Removed code

CMS169v3/NQF 0110 Bipolar Disorder and Major Depression: Appraisal for alcohol or chemical substance use

Header Changes

- eMeasure Version number incremented
- Measurement Period update

Logic Changes

- Denominator
    - Re-ordered instances where 'AND' and 'AND NOT' operators are nested together so the 'AND' operator precedes the 'AND NOT' statement

Value Set Changes

- Titles of several value sets updated to conform to capitalization standards

Measure Set

- Updated to replace "Clinical Quality Measure Set 2011- 2012" with "None"

CMS157v3/NQF 0384 Oncology: Medical and Radiation – Pain Intensity Quantified

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Disclaimer updated
- Guidance updated

Logic Changes

- Initial Patient Population
  - Re-ordered the instances where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement

Value Set Changes

Value Set Name	Value Set OID	Status
Cancer	2.16.840.1.113883.3.526.3.1010 2.16.840.1.113883.3.526.2.1078 2.16.840.1.113883.3.526.2.1079	Removed codes
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.11.1216 2.16.840.1.113883.3.464.1003.101.12.1048	Removed code

CMS141v4/NQF 0385 Colon Cancer: Chemotherapy for AJCC Stage III Colon Cancer Patients

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Disclaimer updated
- Guidance updated
- Numerator updated
- Denominator Exceptions updated

Logic Changes

- Initial Patient Population

– Re-ordered the instances where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement

- Denominator
    – Re-ordered the instance where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement
- Denominator Exceptions
    – Revised timing component of denominator exceptions to ensure the exceptions begin during a specific encounter.
    – Revised logic to include 'AND NOT' statement to require the data element to still be Active
    – Added 'Occurrencing' construct to require that the same occurrence of the data element meets the 'AND' and 'AND NOT' logic strings

Value Set Changes

Value Set Name	Value Set OID	Status
Chemotherapy for Colon Cancer - Capecitabine	2.16.840.1.113883.3.526.3.1288 2.16.840.1.113883.3.526.2.1025	Updated title
Chemotherapy for Colon Cancer - Fluorouracil	2.16.840.1.113883.3.526.3.1289 2.16.840.1.113883.3.526.2.1023	Updated title
Chemotherapy for Colon Cancer - Leucovorin and Levo-Leucovorin	2.16.840.1.113883.3.526.3.1290 2.16.840.1.113883.3.526.2.1024	Updated title
Chemotherapy for Colon Cancer – Oxaliplatin	2.16.840.1.113883.3.526.3.1291 2.16.840.1.113883.3.526.2.1026	Updated title
Chemotherapy for Colon Cancer - Capecitabine Ingredient	2.16.840.1.113883.3.526.3.1485 2.16.840.1.113883.3.526.2.1914	Updated title, replaced 'allergen' with 'Ingredient'
Chemotherapy for Colon Cancer - Leucovorin and Levo-Leucovorin Ingredient	2.16.840.1.113883.3.526.3.1490 2.16.840.1.113883.3.526.2.1916	Updated title, replaced 'allergen' with 'Ingredient'; removed inactive codes
Chemotherapy for Colon Cancer - Fluorouracil Ingredient	2.16.840.1.113883.3.526.3.1486 2.16.840.1.113883.3.526.2.1915	Updated title, replaced 'allergen' with 'ingredient'

Chemotherapy for Colon Cancer - Oxaliplatin Ingredient	2.16.840.1.113883.3.526.3.1495 2.16.840.1.113883.3.526.2.1917	Updated title, replaced 'allergen' with 'ingredient'

CMS140v3/NQF 0387 **Breast Cancer: Hormonal Therapy for Stage IC-IIIC Estrogen Receptor/Progesterone Receptor (ER/PR) Positive Breast Cancer**

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Disclaimer updated
- Guidance updated
- Denominator Exceptions updated

Logic Changes

- Denominator
    - Revised timing constraints in the logic statement: 'AND NOT: "Occurrence A of Diagnosis, Active: Breast Cancer ER or PR Positive" starts before start of "Occurrence A of Diagnosis, Active: Breast Cancer"'
    - Re-ordered the instances where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement
- Numerator
    - Re-ordered the instances where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement
- Denominator Exceptions
    - Added the following logic statement: OR: "Occurrence A of Diagnosis, Active: Breast Cancer" <= 120 day(s) starts before or during "Measurement End Date"
    - Revised timing anchors for 'Medical Reasons', 'Patient Reasons', 'System Reasons', 'Procedure, Performed: Radiation Therapy II' and 'Procedure, Performed: Bilateral Oophorectomy'
    - Revised logic to include 'AND NOT' statement to require the Diagnosis or Medication data elements to still be Active
    - Added 'Occurrencing' construct to require that the same occurrence of the data element meets the 'AND' and 'AND NOT' logic strings

Value Set Changes

Value Set Name	Value Set OID	Status
Gonadotropin-Releasing Hormone Analogue Medication	2.16.840.1.113883.3.526.3.1316 2.16.840.1.113883.3.526.2.467	Updated title

Tamoxifen or Aromatase Inhibitor Therapy Ingredient	2.16.840.1.113883.3.526.3.1487 2.16.840.1.113883.3.526.2.1913	Updated title; removed codes

CMS129v4/NQF 0389 Prostate Cancer: Avoidance of Overuse of Bone Scan for Staging Low Risk Prostate Cancer Patients

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Disclaimer updated

Logic Changes

- Initial Patient Population
    - Re-ordered the instance where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement

Value Set Changes

- No value set changes

CMS62v3/NQF Not Applicable HIV/AIDS: Medical Visit

Header Changes

- eMeasure Version number incremented
- Measure Steward updated
- Measure Developer updated
- NQF Number removed
- Endorsed By removed
- Copyright updated
- Disclaimer updated

Logic Changes

- No logic changes

Value Set Changes

Value Set Name	Value Set OID	Status
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048 2.16.840.1.113883.3.464.1003.101.11.1216	Removed code
HIV Visit	2.16.840.1.113883.3.464.1003.101.12.1047	Removed code

CMS52v3/NQF0405 HIV/AIDS: Pneumocystis Jiroveci Pneumonia (PCP) Prophylaxis

Header Changes

- eMeasure Version number incremented
- Measure Steward updated
- Measure Developer updated
- Copyright updated
- Disclaimer updated
- Numerator statement updated

Logic Changes

- Numerator 1
  - Re-ordered the instances where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement
- Initial Patient Population 2
  - Re-ordered the logic statement for Occurrence B of Encounter
- Initial Patient Population 3
  - Re-ordered the logic statement for Occurrence A of Diagnosis
- Numerator 3
  - Added a clause to update the syntax for temporal logic operator usage.

Value Set Changes

Value Set Name	Value Set OID	Status
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048 2.16.840.1.113883.3.464.1003.101.11.1216	Removed code
HIV Visit	2.16.840.1.113883.3.464.1003.101.12.1047	Removed code

CMS77v3/NQF Not Applicable HIV/AIDS: RNA Control for Patients with HIV

Header Changes

- eMeasure version number incremented
- Measure Steward updated
- Measure Developer updated
- Copyright updated

Logic Changes

- Numerator
  - Units for results was changed to "copies/mL"

Value Set Changes

Value Set Name	Value Set OID	Status
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048 2.16.840.1.113883.3.464.1003.101.11.1216	Removed code
HIV Viral Load	2.16.840.1.113883.3.464.1003.120.11.1004 2.16.840.1.113883.3.464.1003.120.12.1002	Added codes
HIV Visit	2.16.840.1.113883.3.464.1003.101.12.1047	Removed code

CMS2v4/NQF 0418 Preventive Care and Screening: Screening for Clinical Depression and Follow-Up Plan

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Rationale updated
- Clinical Recommendation Statement updated
- References updated
- Definition updated
- Guidance updated

Logic Changes

- No logic changes

Value Set Changes

Value Set Name	Value Set OID	Status
Depression Screening Denominator Encounter Codes CPT	2.16.840.1.113883.3.600.1538	Removed codes
Depression medications - adult	2.16.840.1.113883.3.600.470	Updated codes and removed codes

CMS68v4/NQF 0419 Documentation of Current Medications in the Medical Record

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Rationale updated
- Clinical Recommendation Statement updated

- Reference updated
- Guidance updated
- Transmission Format updated

Logic Changes

- Denominator Exceptions
  – Updated the logic to remove OR construct

Value Set Changes

Value Set Name	Value Set OID	Status
Encounter Medications CPT	2.16.840.1.113883.3.600.1.1609	Added codes

CMS69v3/NQF 0421 Preventive Care and Screening: Body Mass Index (BMI) Screening and Follow-Up Plan

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Description updated
- Disclaimer updated
- Rationale updated
- Clinical Recommendation updated
- References updated
- Definitions updated
- Guidance updated
- Initial Patient Population statement updated
- Numerator statement updated

Logic Changes

- Initial Patient Population 1
  – Reordered Patient Characteristic Birthdate statement
  – The logic was changed from "before start of measurement period" to "before start of "Occurrence A of Encounter, Performed: Encounter Code Set"
- Numerator 1
  – Reordered OR and AND construct
  – Added logic to capture most recent Physical Exam, Finding
- Initial Patient Population 2
  – Reordered Patient Characteristic Birthdate statement
  – The logic was changed from "before start of measurement period" to "before start of "Occurrence A of Encounter, Performed: Encounter Code Set"
- Numerator 2
  – Reordered OR and AND construct
  – Added logic to capture most recent Physical Exam, Finding

Value Set Changes
- No value set changes

CMS132v3/NQF 0564 Cataracts: Complications within 30 Days Following Cataract Surgery Requiring Additional Surgical Procedures

Header Changes
- eMeasure version number incremented
- Copyright updated
- Disclaimer updated
- Guidance updated

Logic Changes
- Denominator Exclusions
  - Revised logic to include 'AND NOT' statement to require the Diagnosis to still be Active
  - Revised logic to include 'AND NOT' statement to require the Medication to still be Active
  - Added 'Occurrencing' construct to require that the same occurrence of the Diagnosis meets the 'AND' and 'AND NOT' logic strings
- Numerator
  - Revised logic to remove value set 'Paracentesis Procedures' from measure

Value Set Changes

Value Set Name	Value Set OID	Status
Anomalies of Puillary Function	2.16.840.1.113883.3.526.3.1406 2.16.840.1.113883.3.526.2.1513	Removed codes
Aphakia and Other Disorders of Lens	2.16.840.1.113883.3.526.3.1407 2.16.840.1.113883.3.526.2.1516 2.16.840.1.113883.3.526.2.1517 2.16.840.1.113883.3.526.2.1518	Updated title
Corneal Opacity and Other Disorders of Cornea	2.16.840.1.113883.3.526.3.1419 2.16.840.1.113883.3.526.2.1550 2.16.840.1.113883.3.526.2.1551 2.16.840.1.113883.3.526.2.1552	Updated title
Paracentesis Procedures	2.16.840.1.113883.3.526.3.1431 2.16.840.1.113883.3.526.2.1584	Removed value set

	2.16.840.1.113883.3.526.2.1585	
Vascular Disorders of Iris and Ciliary Body	2.16.840.1.113883.3.526.3.1445 2.16.840.1.113883.3.526.2.1618	Removed codes

CMS133v3/NQF 0565 **Cataracts: 20/40 or Better Visual Acuity within 90 Days Following Cataract Surgery**

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Disclaimer updated
- Guidance updated
- Denominator exclusions language updated

Logic Changes

- Denominator Exclusions
  - Revised logic to include 'AND NOT' statement to require the Diagnosis to still be Active
  - Added 'Occurrencing' construct to require that the same occurrence of the Diagnosis meets the 'AND' and 'AND NOT' logic strings

Value Set Changes

Value Set Name	Value Set OID	Status
Choroidal Degenerations	2.16.840.1.113883.3.526.3.1450 2.16.840.1.113883.3.526.2.1632	Updated steward
Corneal Opacity and Other Disorders of Cornea	2.16.840.1.113883.3.526.2.1550 2.16.840.1.113883.3.526.2.1551 2.16.840.1.113883.3.526.2.1552 2.16.840.1.113883.3.526.3.1419	Updated title
Degeneration of Macula and Posterior Pole	2.16.840.1.113883.3.526.3.1453 2.16.840.1.113883.3.526.2.1643	Removed codes
Diabetic Macular Edema	2.16.840.1.113883.3.526.3.1455 2.16.840.1.113883.3.526.2.1649	Removed code
Diabetic Retinopathy	2.16.840.1.113883.3.526.3.327 2.16.840.1.113883.3.526.2.80	Removed codes

Nystagmus and Other Irregular Eye Movements	2.16.840.1.113883.3.526.3.1465 2.16.840.1.113883.3.526.2.1677 2.16.840.1.113883.3.526.2.1678 2.16.840.1.113883.3.526.2.1679	Updated title
Other Background Retinopathy and Retinal Vascular Changes	2.16.840.1.113883.3.526.3.1469 2.16.840.1.113883.3.526.2.1691	Removed code
Other Retinal Disorders	2.16.840.1.113883.3.526.3.1474 2.16.840.1.113883.3.526.2.1706	Removed codes
Other and Unspecified Forms of Chorioretinitis and Retinochoroiditis	2.16.840.1.113883.3.526.3.1468 2.16.840.1.113883.3.526.2.1686 2.16.840.1.113883.3.526.2.1687 2.16.840.1.113883.3.526.2.1688	Updated title
Visual Field Defects	2.16.840.1.113883.3.526.3.1446 2.16.840.1.113883.3.526.2.1621	Removed code
Visual Acuity 20/40 or Better	2.16.840.1.113883.3.526.3.1483 2.16.840.1.113883.3.526.2.1731	Updated title

CMS158v3/NQF Not Applicable Pregnant women that had HBsAg testing

Header Changes

- eMeasure Version number incremented
- NQF Number removed
- Endorsed By removed
- Copyright updated
- Disclaimer updated

Logic Changes

- Initial Patient Population
    - Revised logic to use new value sets "Delivery - Procedure" and "Delivery - Diagnosis"
    - Modified logic to ensure the procedure and diagnosis occur on the same day where the order is not important
- Numerator
    - Revised logic to use new value set "Delivery - Procedure"
- Denominator Exceptions
    - Revised logic to use new value set "Delivery - Procedure"

Value Set Changes

Value Set Name	Value Set OID	Status
Delivery - Diagnosis	2.16.840.1.113883.3.67.1.101.1.278	Name changed
Live Birth or Delivery	2.16.840.1.113883.3.67.1.101.1.273 2.16.840.1.113883.3.67.1.101.1.274 2.16.840.1.113883.3.67.1.101.1.275 2.16.840.1.113883.3.67.1.101.1.276	Removed
Delivery - Procedure	2.16.840.1.113762.1.4.1078.5	Added
Delivery	2.16.840.1.113883.3.67.1.101.1.82	Removed codes (SNOMED)
Hepatitis B	2.16.840.1.113883.3.67.1.101.1.270 2.16.840.1.113883.3.67.1.101.1.269	Added codes

CMS159v3/NQF 0710 **Depression Remission at Twelve Months**

Header Changes

- eMeasure Version number incremented
- Measure Steward updated
- Measure Developer updated
- Copyright updated
- Disclaimer updated
- Definition updated
- Denominator Exclusions updated

Logic Changes

- Initial Patient Population
  - Revised logic to modify timing constraints for the encounters for starts before start of "Measurement Period" and ends before start of "Measurement Period"
  - Added Face to Face Interaction – No ED encounter type
  - Added Occurrence C of Risk Category Assessment for encounter Face to Face Interaction
  - Re-ordered the instance where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement
- Denominator Exclusions

> – Removed reference to Occurrence A for encounter Care Services in Long-Term Residential Facility

- Numerator
  - – Revised logic to modify timing constraints for Occurrence D of the Risk Category Assessment for starts after end of First Occurrence A or B or C

Value Set Changes

Value Set Name	Value Set OID	Status
Face to Face Interaction – No ED	2.16.840.1.113762.1.4.1080.2	Added
principal	2.16.840.1.113883.3.67.1.101.11.724 2.16.840.1.113883.3.67.1.101.1.287	Removed
Principal	2.16.840.1.113883.3.117.1.7.1.14	Added

CMS160v3/NQF 0712 Depression Utilization of the PHQ-9 Tool

Header Changes

- eMeasure Version number incremented
- Measure Steward updated
- Measure Developer updated
- Copyright updated
- Disclaimer updated
- Denominator Exclusions updated

Logic Changes

- Initial Patient Population 1
  - – Revised logic to include new encounter, "Occurrence A of Encounter Performed: Face to Face Interaction – No ED" for two Diagnosis Active (Major Depression Including Remission and Dysthymia) and to include timing constraints, starts before or during new encounter and does not end before start of new encounter
  - – Revised logic to add new "Occurrence A of Encounter, Performed: Face to Face Interaction – No ED" as an encounter
  - – Revised timing constraints for encounters for ends before or during "Measurement End Date"
  - – Re-ordered the instance where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement
- Denominator Exclusions 1
  - – Revised timing constraints for starts before or during "Measurement End Date"
- Numerator 1
  - – Revised timing constraints for ends before or during "Measurement End Date"

- Initial Patient Population 2
  - Revised timing constraints for starts after start of "Measurement Start Date"
  - Revised logic to add new encounter "Occurrence A of Encounter, Performed: Face to Face Interaction – ED" with timing constraints for new encounter
  - Revised logic to add new encounter "Occurrence A of Encounter, Performed: Face to Face Interaction – ED" for two Diagnosis Active (Major Depression Including Remission and Dysthymia) and to include timing constraints, starts before or during new encounter and does not end before start of new encounter
  - Re-ordered the instance where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement
- Denominator Exclusions 2
  - Revised timing constraints for starts after start of "Measurement Start Date"
- Numerator 2
  - Revised timing constraints for ends after start of "Measurement Start Date"
- Initial Patient Population 3
  - Revised logic to add new encounter "Occurrence A of Encounter, Performed: Face to Face Interaction – ED" for two Diagnosis Active (Major Depression Including Remission and Dysthymia) and to include timing constraints, starts before or during new encounter and does not end before start of new encounter
  - Revised logic to add new "Occurrence A of Encounter, Performed: Face to Face Interaction – No ED" as an encounter
  - Revised timing constraints for encounters for ends after start of "Measurement Start Date"
  - Re-ordered the instance where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement
- Denominator Exclusions 3
  - Revised timing constraints for starts after start of "Measurement Start Date".
- Numerator 3
  - Revised timing constraints for ends after start of "Measurement Start Date"

Value Set Changes

Value Set Name	Value Set OID	Status
Face to Face Interaction – No ED	2.16.840.1.113762.1.4.1080.2	Added
principal	2.16.840.1.113883.3.67.1.101.11.724 2.16.840.1.113883.3.67.1.101.1.287	Removed
Principal	2.16.840.1.113883.3.117.1.7.1.14	Added

CMS75v3/NQF Not Applicable Children Who Have Dental Decay or Cavities

Header Changes

- eMeasure Version number incremented
- Measure Steward updated
- Measure Developer updated
- Copyright updated

Logic Changes

- No logic changes

Value Set Changes

Value Set Name	Value Set OID	Status
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048 2.16.840.1.113883.3.464.1003.101.11.1216	Removed code
Clinical Oral Evaluation	2.16.840.1.113883.3.464.1003.125.11.1006 2.16.840.1.113883.3.464.1003.125.12.1003	Removed
Clinical Oral Evaluation	2.16.840.1.113883.3.464.1003.125.11.1010 2.16.840.1.113883.3.464.1003.125.12.1003	Added

CMS177v3/NQF 1365 Child and Adolescent Major Depressive Disorder (MDD): Suicide Risk Assessment

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Disclaimer updated
- Reference updated
- Guidance updated

Logic Changes

- Initial Patient Population
    - Re-ordered instances where 'AND' and 'AND NOT' operators are nested together so the 'AND' operator precedes the 'AND NOT' statement
- Numerator
    - Removed 'Occurrencing' construct from "Intervention, Performed: Suicide Risk Assessment" data element

Value Set Changes

- No value set changes

CMS82v2/NQF 1401 Maternal Depression Screening

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Disclaimer updated
- Guidance updated
- Rationale updated

Logic Changes

- No logic changes

Value Set Changes

Value Set Name	Value Set OID	Status
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048 2.16.840.1.113883.3.464.1003.101.11.1216	Removed code

Measure Set

- Updated to replace "Clinical Quality Measure Set 2011- 2012" with "None"

CMS74v4/NQF Not Applicable Primary Caries Prevention Intervention as Offered by Primary Care Providers, including Dentists

Header Changes

- eMeasure Version number incremented
- Measure Steward updated
- Measure Developer updated
- Copyright updated

Logic Changes

- No logic changes

Value Set Changes

Value Set Name	Value Set OID	Status
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048 2.16.840.1.113883.3.464.1003.101.11.1216	Removed code
Clinical Oral Evaluation	2.16.840.1.113883.3.464.1003.125.11.1006	Removed

	2.16.840.1.113883.3.464.1003.125.12.1003	
Clinical Oral Evaluation	2.16.840.1.113883.3.464.1003.125.11.1010 2.16.840.1.113883.3.464.1003.125.12.1003	Added
Fluoride Varnish Application for Children	2.16.840.1.113883.3.464.1003.125.11.1005 2.16.840.1.113883.3.464.1003.125.12.1002	Removed
Fluoride Varnish Application for Children	2.16.840.1.113883.3.464.1003.125.11.1011 2.16.840.1.113883.3.464.1003.125.12.1002	Added

CMS61v4/NQF Not Applicable Preventive Care and Screening: Cholesterol - Fasting Low Density Lipoprotein (LDL-C) Test Performed

Header Changes

- eMeasure Version number incremented
- Copyright updated

Logic Changes

- Initial Patient Population 1
  - Reordered Patient Characteristic Birthdate statement
- Denominator Exclusions 1
  - Re-ordered the instance where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement
- Initial Patient Population 2
  - Reordered Patient Characteristic Birthdate statement
- Denominator 2
  - Re-ordered the instance where 'OR' and 'OR NOT' operators are nested together so that the 'OR' statement precedes the 'OR NOT' statement
- Denominators Exclusions 2
  - Re-ordered the instance where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement
- Initial Patient Population 3
  - Reordered Patient Characteristic Birthdate statement
- Denominator Exclusions 3
  - Re-ordered the instance where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement
- Numerator 3
  - Reordered Laboratory Test, Performed statements for clarity

Value Set Changes

Value Set Name	Value Set OID	Status

Current Cigarette Smoker	2.16.840.1.113883.3.600.2390	Added codes
CHD or CHD Risk Equivalent I10	2.16.840.1.113883.3.600.858	Removed codes
Anti-Hypertensive Pharmacologic Therapy	2.16.840.1.113883.3.600.1476	Removed codes
Pregnancy SNM	2.16.840.1.113883.3.600.1621	Updated codes
CHD or CHD Risk Equivalent SNOMED	2.16.840.1.113883.3.600.862	Updated codes

CMS64v4/NQF Not Applicable Preventive Care and Screening: Risk-Stratified Cholesterol – Fasting Low Density Lipoprotein (LDL-C)

Header Changes

- eMeasure Version number incremented
- Copyright updated

Logic Changes

- Initial Patient Population 1
  – Reordered Patient Characteristic Birthdate statement
- Denominator Exclusions 1
  – Re-ordered the instance where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement
- Numerator 1
  – Triglycerides results removed
  – Logic updated to ensure the most recent LDL is considered.
- Initial Patient Population 2
  – Reordered Patient Characteristic Birthdate statement
- Denominator 2
  – Re-ordered the instance where 'OR' and 'OR NOT' operators are nested together so that the 'OR' statement precedes the 'OR NOT' statement
- Denominators Exclusions 2
  – Re-ordered the instance where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement
- Numerator 2
  – Triglycerides results removed
  – Logic updated to ensure the most recent LDL is considered.
- Initial Patient Population 3
  – Reordered Patient Characteristic Birthdate statement
- Denominator 3

- Re-ordered the instance where 'OR' and 'OR NOT' operators are nested together so that the 'OR' statement precedes the 'OR NOT' statement
- Denominator Exclusions 3
  - Re-ordered the instance where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement
- Numerator 3
  - Triglycerides results removed
  - Logic updated to ensure the most recent LDL is considered.

Value Set Changes

Value Set Name	Value Set OID	Status
Current Cigarette Smoker	2.16.840.1.113883.3.600.2390	Added codes
CHD or CHD Risk Equivalent I10	2.16.840.1.113883.3.600.858	Removed codes
Anti-Hypertensive Pharmacologic Therapy	2.16.840.1.113883.3.600.1476	Removed codes
Pregnancy SNM	2.16.840.1.113883.3.600.1621	Updated codes
CHD or CHD Risk Equivalent SNOMED	2.16.840.1.113883.3.600.862	Updated codes

CMS149v3/NQF Not Applicable Dementia: Cognitive Assessment

Header Changes

- eMeasure Version number incremented
- Copyright updated
- Disclaimer updated
- Guidance Updated

Logic Changes

- Initial Patient Population
  - Revised logic construct to be isolated by encounter type
  - Revised logic to include 'AND NOT' statement to require the Diagnosis to still be Active
  - Added 'Occurrencing' construct to require that the same occurrence of the Diagnosis data element meets the 'AND' and 'AND NOT' logic strings
- Denominator Exceptions
  - Revised logic to include 'AND NOT' statement to require the Diagnosis of 'Severe Dementia' to still be Active

- Added 'Occurrencing' construct to require that the same occurrence of the Diagnosis data element of 'Severe Dementia' meets the 'AND' and 'AND NOT' logic strings
- Revised timing anchor for 'Medical Reasons' and Patient Reasons' for "Risk Category Assessment not done" and for "Intervention, Performed not done"
- Revised logic to include 'AND NOT' statement to require the Intervention of 'Palliative Care' to still be active
- Added 'Occurrencing' construct to require that the same occurrence of the Intervention data element of 'Palliative Care' meets the 'AND' and 'AND NOT' logic strings

Value Set Changes

- No value set changes

CMS65v4/NQF Not Applicable Hypertension: Improvement in Blood Pressure

Header Changes

- eMeasure Version number incremented
- Measure Steward updated
- Measure Developer updated
- Copyright updated
- Clinical Recommendation Statement updated
- Definition updated
- Guidance updated
- Initial Population statement updated
- Denominator Exclusion statement updated

Logic Changes

- Initial Patient Population
  - Changed clauses using "Diagnosis, Active: Hypertension" to "Diagnosis, Active: Essential Hypertension"
  - Re-ordered the statements to flow in a more logical sequence, including nesting the 'AND' statement to precede the 'AND NOT' statement
- Denominator Exclusions
  - Changed "Renal Transplant" to "Kidney Transplant"
  - Re-ordered the instance where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement

Value Set Changes

Quality Data Element	Value Set OID	Status
Hypertension Grouping Value Set	2.16.840.1.113883.3.464.1003.104.12.1016	Removed

Essential Hypertension Grouping Value Set	2.16.840.1.113883.3.464.1003.104.12.1011	Added
Renal Transplant Grouping Value Set	2.16.840.1.113883.3.464.1003.109.12.1002	Removed
Kidney Transplant Grouping Value Set	2.16.840.1.113883.3.464.1003.109.12.1012	Added
Surgical Procedures-Renal Transplant	2.16.840.1.113883.3.464.1003.109.11.1005	Removed
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.11.1216	Removed code
Pregnancy	2.16.840.1.113883.3.526.2.532 2.16.840.1.113883.3.526.3.378	Removed code
Blood Pressure Visit	2.16.840.1.113883.3.464.1003.101.12.1056	Removed code

CMS50v3/NQF Not Applicable Closing the Referral Loop: Receipt of Specialist Report

Header Changes

- eMeasure Version number incremented
- Measure Steward updated
- Measure Developer updated
- Copyright updated

Logic Changes

- No logic changes

Value Set Changes

Value Set Name	Value Set OID	Status
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048 2.16.840.1.113883.3.464.1003.101.11.1216	Removed code

CMS66v3/NQF Not Applicable Functional Status Assessment for Knee Replacement

Header Changes

- eMeasure Version number incremented

- Measure Steward updated
- Measure Developer updated
- Copyright updated
- Initial Population statement revised

Logic Changes

- Initial Patient Population:
  - Added a statement to the clause which checks the timing of the TKA procedure to ensure that Occurrence A of the procedure ends concurrent with the measurement start date.
  - Added the clause "Occurrence A of" to the "Encounter, Performed: Office Visit" clause to explicitly link the statements to Occurrence A for the Office Visit.
- Denominator Exclusions
  - Re-ordered the instance where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement

Value Set Changes

Value Set Name	Value Set OID	Status
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048 2.16.840.1.113883.3.464.1003.101.11.1216	Removed code
Fracture – Lower Body	2.16.840.1.113883.3.464.1003.113.11.1070 2.16.840.1.113883.3.464.1003.113.12.1037	Codes added

CMS56v3/NQF Not Applicable Functional Status Assessment for Hip Replacement

Header Changes

- eMeasure Version number incremented
- Measure Steward
- Measure Developer updated
- Copyright updated
- Initial Population statement revised

Logic Changes

- Initial Patient Population:
  - Added a statement to the clause which checks the timing of the THA procedure to ensure that Occurrence A of the procedure ends concurrent with the measurement start date
  - Added the clause "Occurrence A of" to the "Encounter, Performed: Outpatient Consultation" clause to explicitly link the statements to Occurrence A for the Outpatient Consultation

- Added the clause "Occurrence A of" to the "Encounter, Performed: Face-to-Face Interaction" clause to explicitly link the statements to Occurrence A for the Face-to-Face Interaction
- Denominator Exclusions
  - Re-ordered the instance where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement

Value Set Changes

Value Set Name	Value Set OID	Status
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048 2.16.840.1.113883.3.464.1003.101.11.1216	Removed code
Fracture – Lower Body	2.16.840.1.113883.3.464.1003.113.11.1070 2.16.840.1.113883.3.464.1003.113.12.1037	Codes added

CMS90v4/NQF Not Applicable Functional Status Assessment for Complex Chronic Conditions

Header Changes

- eMeasure Version number incremented
- Measure Steward updated
- Measure Developer updated
- NQF Number updated
- Copyright updated
- Numerator statement updated

Logic Changes

- Initial Patient Population
  - Updated how we specify the MOST RECENT operator- previous version evaluated each expression separately while we want it evaluated across each group; moved the MOST RECENT operator up one level
  - Re-ordered the statements to flow in a more logical sequence, including nesting the 'AND' statement to precede the 'AND NOT' statement
- Denominator Exclusions
  - Re-ordered the instance where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement

Value Set Changes

Value Set Name	Value Set OID	Status
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048 2.16.840.1.113883.3.464.1003.101.11.1216	Removed code

Malignant Neoplasm of Colon	2.16.840.1.113883.3.464.1003.108.11.1001 2.16.840.1.113883.3.464.1003.108.11.1003	Removed codes; added codes
Malignant Neoplasm of Bone, Connective Tissue Skin (Other than Malignant Melanoma of the Skin) and Breast	2.16.840.1.113883.3.464.1003.108.11.1013 2.16.840.1.113883.3.464.1003.108.12.1011	Removed codes
Malignant Neoplasm of Digestive Organs Other than Colon and Peritoneum	2.16.840.1.113883.3.464.1003.108.11.1007 2.16.840.1.113883.3.464.1003.108.12.1011	Removed codes
Malignant Neoplasm of Gentiourinary Organs	2.16.840.1.113883.3.464.1003.108.11.1019 2.16.840.1.113883.3.464.1003.108.12.1011	Removed codes
Malignant Neoplasm of Lip, Oral Cavity and Pharynx	2.16.840.1.113883.3.464.1003.108.11.1004 2.16.840.1.113883.3.464.1003.108.12.1011	Removed codes
Malignant Neoplasm of Lymphatic and Hematopietic Tissue	2.16.840.1.113883.3.464.1003.108.11.1025 2.16.840.1.113883.3.464.1003.108.12.1011	Removed codes
Malignant Neoplasm of Other and Unspecified Sites	2.16.840.1.113883.3.464.1003.108.11.1022 2.16.840.1.113883.3.464.1003.108.12.1011	Removed codes
Malignant Neoplasm of Respiratory and Intrathoracic Organs	2.16.840.1.113883.3.464.1003.108.11.1010 2.16.840.1.113883.3.464.1003.108.12.1011	Removed codes

CMS179v3/NQF Not Applicable ADE Prevention and Monitoring: Warfarin Time in Therapeutic Range

Header Changes

- eMeasure Version number incremented
- Measure Steward updated
- Measure Developer updated
- Copyright updated

Logic Changes

- Initial Patient Population

– Re-ordered the instances where 'AND' and 'AND NOT' operators are nested together so that the 'AND' statement precedes the 'AND NOT' statement

- Measure Population
  – "Laboratory Test, Result: INR (result)" is updated to "Laboratory Test, Result: INR"

Value Set Changes

Value Set Name	Value Set OID	Status
Face-to-Face Interaction	2.16.840.1.113883.3.464.1003.101.12.1048 2.16.840.1.113883.3.464.1003.101.11.1216	Removed code
Warfarin	2.16.840.1.113883.3.117.1.7.1.232	Removed code

Measure Set

- Updated to replace "Clinical Quality Measure Set 2011- 2012" with "None"

CMS22v3/NQF Not Applicable Preventive Care and Screening: Screening for High Blood Pressure and Follow-Up Documented

Header Changes

- eMeasure version number incremented
- Copyright updated
- Initial Patient Population statement updated

Logic Changes

- Initial Patient Population
  – Reordered Patient Characteristic Birthdate statement
- Numerator:
  – Reordered Physical Exam, Finding and Intervention, Order statements

  – Added 'Occurrencing' construct to Physical Exam Finding statements in order to address the accuracy of the most recent previous blood pressure reading. MOST RECENT being applied prior to evaluation of BP reading criteria

Value Set Changes

Value Set Name	Value Set OID	Status
BP Screening Denominator Encounter Codes	2.16.840.1.113883.3.600.192	Removed codes
Anti-Hypertensive Pharmacologic Therapy	2.16.840.1.113883.3.600.1476	Removed codes

Appendix F. CMS179v2 _Supplemental_SQL_Logic_Reference

ADE Prevention and Monitoring: Warfarin Time in Therapeutic Range

Supplemental SQL Logic Reference
(CMS179, version 2, updated 5/15/13)

The purpose of this document is to support the implementation of the clinical quality measure "ADE Prevention and Monitoring: Warfarin Time in Therapeutic Range" by providing an example of the structured query language (SQL) that underwent field testing. The defined SQL logic below provides a full view of its content, but the specifications supplied in the header section of the Health Quality Measure Format (HQMF) of the clinical quality measure should be the primary basis for implementation of the measure. The HQMF files for this clinical quality measure contain instructions in the Definition and Guidance section which indicate the ultimate purpose of the SQL logic defined in this document. Since the SQL implementation may vary depending on an EHR system's table structure and data definitions, EHR system programmers and vendors should replace the field names and table names as needed based on their knowledge of their EHR system and its requirements in order to fulfill the measure's intent.

TTR percentage will be calculated for each patient that meets the criteria for the Measure Population. The average of these values is reported as the Measure Observation.

ADE Prevention and Monitoring

Percent of Time in Therapeutic Range (TTR)

The initial part of the SQL logic calculates the percent TTR for each patient (PctTTR in the temporary table #PatientTTR). Percent of time in therapeutic range (TTR) is calculated within the logic originally developed by the Department of Veterans Affairs (VA).

Warfarin time in therapeutic range is the percentage of time in which patients with atrial fibrillation or flutter who are on chronic warfarin therapy have International Normalized Ratio (INR) test results within the therapeutic range (2.0 - 3.0) during the measurement period.

The following filters are applied to the INR results prior to the calculation of TTR for each patient:

1. INR value closest to 2.5 when there are more than one INR result on a single date.

2. INR values greater than 10 will be replaced with an INR value of 10.

3. INR values less than 0.8 are ignored and eliminated from the final TTR calculation for each patient.

The logic keeps track of the number of valid INR intervals for each patient. A Valid INR Interval is defined as a pair of INR start dates that are less than or equal to 56 days apart. Patients without two such intervals will be excluded from the calculation of the providers' Average PctTTR later on.

Identifiers for the patient's provider and the practice site are also included. The identifier for the provider that is ultimately responsible for warfarin management should be used. The identifier for the practice site at which the patient's warfarin is managed should be used.

```
USE [Datamart_Staging]
GO
/****** Object:  StoredProcedure [dbo].[ADE_TTRCalculationWithFilters]
Script Date: 04/10/2013 09:01:41 ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO


ALTER PROCEDURE [dbo].[ADE_TTRCalculationWithFilters]


AS


SET NOCOUNT ON;


SELECT
Patient_ID,
Practice_Site,
provider_ID,
        [QDM_Attribute Result Value],
        ABS(2.5 - [QDM_Attribute Result Value])AS ValDiff,
        DATEADD(DAY,0, DATEDIFF(DAY, 0,[Start DateTime])) AS [Start
DateTime]
INTO
        #LabResults1
FROM    dbo.ADE_LabResults a JOIN
          ADE_VocabularyDictionary b ON a.DataElement_Code = b.Code
WHERE
          b.[QDM Category] = 'Laboratory Test, Result' AND b.[Value Set
Name] = 'INR'
ORDER BY patient_ID, [Start DateTime]
SELECT      Patient_ID,
        [Start DateTime],
```

```
            MIN(ValDiff) AS ValDiff
INTO    #LabResults2
FROM    #LabResults1
GROUP BY Patient_ID,
            [Start DateTime]


SELECT  a.Patient_ID,
            Practice_Site,
            Provider_ID,
        a.[Start DateTime],
CASE WHEN a.[QDM_Attribute Result Value] >10 THEN 10 ELSE a.[QDM_Attribute
Result Value] END AS [QDM_Attribute Result Value]


INTO    #FilteredLabResults
FROM    #LabResults1 a
JOIN    #LabResults2 b ON a.Patient_ID = b.Patient_ID
AND     a.[Start DateTime] = b.[Start DateTime]
AND     a.ValDiff = b.ValDiff
WHERE   a.[QDM_Attribute Result Value] >= 0.8



DROP TABLE #LabResults2
DROP TABLE #LabResults1



SELECT
            Patient_ID,
            Practice_Site,
            Provider_ID,
            [QDM_Attribute Result Value],
            [Start datetime],
            RANK () OVER (PARTITION BY Patient_ID ORDER BY [Start
datetime]) AS INROrder
INTO
            #OrderedINRList
```

```
FROM     #FilteredLabResults


ORDER BY

         [Start datetime]


DECLARE            @INRLowerBound AS DECIMAL(20,4)
SET        @INRLowerBound = 2.0
DECLARE            @INRUpperBound AS DECIMAL(20,4)

SET                @INRUpperBound = 3.0


SELECT

           Patient_ID,

           Practice_Site,

           Provider_ID,
           INROrder,

           INR1Date,

           INR1Result,

           TimeBetweenSamples,

           INRDiff,

           INRShiftKPI2,

           IsValidInterval,
CASE

     WHEN

           INRShiftKPI2 = 0.0 AND (INR1Result >= @INRLowerBound AND
INR1Result <= @INRUpperBound
           AND INR2Result >= @INRLowerBound AND INR2Result <=
@INRUpperBound)THEN CAST(TimeBetweenSamples AS DECIMAL)
       ELSE isnull(cast(TimeBetweenSamples AS DECIMAL) * ABS((INRShiftKPI2
/ NULLIF(INRDiff,0))),0)
     END  AS TherapeuticDaysKPI2


INTO

     #TherapeuticDays
FROM
(
```

```
        SELECT
        inr1.Patient_ID,
        inr1.Practice_Site,
        inr1.Provider_ID,

                inr1.INROrder,

                inr1.[Start datetime] AS INR1Date,
        inr1.[QDM_Attribute Result Value] AS INR1Result,
        inr2.[Start datetime] AS INR2Date,

                inr2.[QDM_Attribute Result Value] AS INR2Result,

    DATEDIFF(DAY,inr1.[Start datetime],inr2.[Start datetime]) AS
TimeBetweenSamples,

    inr2.[QDM_Attribute Result Value] - inr1.[QDM_Attribute Result Value] AS
INRDiff,

                dbo.DifferenceWithinRange_v2  (inr1.[QDM_Attribute Result

Value],inr2.[QDM_Attribute Result Value],@INRLowerBound,@INRUpperBound) AS

INRShiftKPI2,

                CASE

    WHEN (ABS(DATEDIFF(DAY,inr1.[Start datetime],inr2.[Start datetime])) <=
56)

                        THEN 1

                        ELSE 0

                END AS IsValidInterval

        FROM

                #OrderedINRList inr1

                INNER JOIN #OrderedINRList inr2

    ON inr2.INROrder = inr1.INROrder + 1 AND inr1.Patient_ID =
inr2.Patient_ID

        WHERE

                inr2.[Start datetime] >= inr1.[Start datetime]

) x

ORDER BY

        INR1Date

SELECT

        Patient_ID ,

        Practice_Site,

        Provider_ID,

         ROUND(100 * (SUM(TherapeuticDaysKPI2) / SUM(TimeBetweenSamples)),2)

AS PctTTR,

        SUM(IsValidInterval) as NumValidIntervals
```

```
INTO

      #PatientTTR

FROM

      #TherapeuticDays


GROUP BY Patient_ID,Practice_Site, Provider_ID
ORDER BY Patient_ID



DROP TABLE #FilteredLabResults
DROP TABLE #TherapeuticDays
DROP TABLE #OrderedINRList
```

Cumulative Medication Duration

Cumulative medication duration (CMD) includes the total number of calendar days the patient is actively using Warfarin. The SQL logic below does not include the specific medication codes that are used to identify each individual warfarin prescription for a patient. In the HQMF file for the clinical quality measure, the value set for the data element Medication, Active "Warfarin" contains the RxNorm codes that should be used to identify patients on warfarin therapy. The HQMF file for the clinical quality measure also defines cumulative medication duration >=180 days.

For testing purposes, the measurement start date was set to 1/1/2011, and the look-back period for an active medication of warfarin is 200 days prior to measurement start date. Depending on how cumulative medication duration is captured in the site's EHR, SQL logic may need to be modified in order to include this particular data set.

```
DECLARE @MeasurementStartDate DATETIME
DECLARE @LookBackDate DATETIME


SET @MeasurementStartDate = '1/1/2011'
SET @LookBackDate = @MeasurementStartDate - 200


SELECT DISTINCT a.Patient_ID,
                     a.Practice_Site,
                     a.Provider_ID,
                     a.PctTTR,
```

```
                        B.[Start DateTime],
                B.[Stop DateTime],

                        DATEDIFF(DAY,B.[Start DateTime] , B.[Stop
DateTime]) AS DateDifference,

                            CASE WHEN b.[Start DateTime] < @LookBackDate THEN
DATEDIFF(DAY,B.[Start DateTime] ,

                                        B.[Stop DateTime]) -
DATEDIFF(DAY,B.[Start DateTime] , @LookBackDate)

                        WHEN        b.[Stop DateTime] >=
@MeasurementStartDate THEN DATEDIFF(DAY,B.[Start DateTime] ,

                                        B.[Stop DateTime]) -
DATEDIFF(DAY,@MeasurementStartDate,B.[Stop DateTime])

                        ELSE DATEDIFF(DAY,B.[Start DateTime] , B.[Stop
DateTime])   END AS ActualUsageIn200DayPeriod

INTO            #PatientTTRWithMedDates

FROM            #PatientTTR A

    JOIN        ADE_Medications B ON A.Patient_ID = B.Patient_ID

    JOIN        ADE_VocabularyDictionary C ON B.DataElement_Code = C.Code

WHERE           B.[Start DateTime] IS NOT NULL

                    AND (b.[Start DateTime] >= @LookBackDate or
b.[Stop DateTime] >= @LookBackDate)

                    AND (b.[Start DateTime] <= @MeasurementStartDate)
                AND C.[QDM Category] = 'Medication, Active'


SELECT      Patient_ID,

                Practice_Site,
            Provider_ID,
        PctTTR,
        SUM(ActualUsageIn200DayPeriod)
AS

CumlativeMedicationUsage

INTO        #PatientTTRWithMin180DaysMeds

FROM        #PatientTTRWithMedDates

GROUP BY    Patient_ID,Practice_Site, Provider_ID,PctTTR

HAVING      SUM(ActualUsageIn200DayPeriod) >=180

ORDER BY    Patient_ID,Practice_Site, Provider_ID
```

Age Requirements

The logic in this section contains a filter that states the patient must be 18 years or older during the measurement period.

```
SELECT  a.Patient_id,
           b.BirthDate,
           a.Practice_Site,
           a.Provider_ID,
           a.PctTTR
INTO    #PatientTTRAbove18WithMin180DaysMeds
FROM    #PatientTTRWithMin180DaysMeds a
JOIN    ADE_Patients B ON a.Patient_ID = b.Patient_ID
WHERE   DATEDIFF(YEAR,b.birthdate,@MeasurementStartDate) >=18
ORDER BY A.Practice_Site
```

Active Diagnosis (including exclusion criteria)

Atrial Fibrillation Diagnosis

Patients who have an active diagnosis of atrial fibrillation or atrial flutter that started and did not end before the first day of the measurement period must be included in this measure.

Valvular Heart Disease

If patients contain an active diagnosis of valvular heart disease that started and did not end before the start of the measurement period, they should be excluded from the data set.

```
SELECT   a.Patient_Id,
           a.BirthDate,
           a.Practice_Site,
           a.Provider_ID,
           a.PctTTR
INTO     #PatientTTRAbove18WithMin180DaysMedsAndDiagnosis
FROM     #PatientTTRAbove18WithMin180DaysMeds a JOIN
           ADE_Diagnosis b ON a.Patient_id =B.Patient_ID
WHERE
           b.[start DateTime] < @MeasurementStartDate
      AND b.[Stop DateTime] > @MeasurementStartDate   AND
b.DataElement_Code IN (SELECT CODE FROM
```

```
ADE_VocabularyDictionary WHERE [QDM Category] = 'Diagnosis, Active' AND
([Value Set Name] = 'Atrial Fibrillation/Flutter'))

            AND b.Patient_id NOT IN (SELECT Patient_Id FROM ADE_Diagnosis
where (DataElement_Code IN (SELECT CODE FROM ADE_VocabularyDictionary

WHERE [QDM Category] = 'Diagnosis, Active' AND ([Value Set Name] =
'Valvular Heart Disease'))))

            AND (b.[start DateTime] <= @MeasurementStartDate AND b.[Stop
DateTime] >= @MeasurementStartDate)


ORDER BY A.Patient_ID


DROP TABLE #PatientTTRAbove18WithMin180DaysMeds
```

Valid INR Intervals

The SQL logic below calculates patients who have at least two valid INR intervals during the measurement period. A valid INR interval is defined as a pair of INR results that are less than or equal to 56 days apart. If multiple INR results are present on the same day, only one is noted for the TTR calculation (filter mentioned in Percent TTR section).

```
SELECT    A.Patient_Id,
            A.BirthDate,
A.Practice_Site,
            A.Provider_ID,
            A.PctTTR
INTO      #PatientsWithTwoValidIntervals
FROM      #PatientTTRAbove18WithMin180DaysMedsAndDiagnosis A  JOIN
#PatientTTR B ON A.Patient_ID = B.Patient_ID
WHERE
            B.NumValidIntervals >= 2
```

Encounter Data

The logic below includes patients that have at least one outpatient visit during the measurement period. Patient encounter codes and definitions are site-specific and must capture the relative encounters needed to meet the criteria of the measure.

```
SELECT    a.Patient_Id,
            a.BirthDate,
```

```
            a.Practice_Site,

            a.Provider_ID,

            a.PctTTR

INTO      #PatientTTRWithDaysAgeDiagnosisEncounter

FROM      #PatientsWithTwoValidIntervals a

JOIN      ADE_Encounters B ON A.Patient_Id = b.Patient_ID

JOIN    ADE_VocabularyDictionary C ON B.DataElement_Code = C.Code WHERE

            (C.[Value Set Name] = 'Face-to-Face Interaction' OR C.[Value

Set Name] = 'Office Visit')

            AND b.[start datetime] >= @MeasurementStartDate

ORDER BY  Practice_site
```

Average TTR by Provider and Practice

To calculate an AverageTTR by provider, patients who meet all the criteria above will be grouped by unique provider identifier. The provider IDs should be assigned by the site (e.g., actual provider identifier). The identifier for the provider that is ultimately responsible for warfarin management should be used.

Note: The logic also includes the calculation of AverageTTR by practice site (e.g., an anticoagulation clinic). This is for reference purposes only and is not required for the quality measure or its reporting. Ideally, the identifier for the practice site at which the patient's warfarin is managed should be used.

```
SELECT Practice_Site,AVG(PctTTR) AS AvgTTRByPracticeSite

FROM #PatientTTRWithDaysAgeDiagnosisEncounter

GROUP BY Practice_Site


SELECT Provider_ID,AVG(PctTTR) AS AvgTTRByProvider

FROM #PatientTTRWithDaysAgeDiagnosisEncounter

GROUP BY Provider_ID
```

FUNCTION [dbo].[DifferenceWithinRange_v2]

The following function is required for the calculation of TTR. This function calculates the difference between two numbers that falls within a specified range. For example, given a range of 2.0 to 3.0, the difference between 1.5 and 2.5 within this range is 0.5. The function is intended for calculating differences between INR values within the context of the Rosendaal method of calculating TTR (time in therapeutic range), which requires that the proportion of an INR difference from one sample to the next fall within the therapeutic range.

```
USE [V01DW]

GO


/****** Object:  UserDefinedFunction [dbo].[DifferenceWithinRange_v2]

Script Date: 01/03/2013 13:51:42 ******/

SET ANSI_NULLS ON

GO


SET QUOTED_IDENTIFIER ON

GO


CREATE FUNCTION [dbo].[DifferenceWithinRange_v2] (
      --inputs:
      @Val1 as decimal(10,5),
      @Val2 as decimal(10,5),

      @LowerBound as decimal(10,5),
      @UpperBound as decimal(10,5) )

RETURNS decimal(10,5)

AS

BEGIN

      -- Declare the return variable here

      DECLARE @result as decimal(10,5)



      set @result =

      (

      SELECT

           case

      -- inr values are both outside the range in the same direction
           when @Val1 > @UpperBound and @Val2 > @UpperBound then null
           when @Val1 < @LowerBound and @Val2 < @LowerBound then null

      -- inr values are straddling the range

           when (@Val1 > @UpperBound and @Val2 < @LowerBound)
                 OR (@Val2 > @UpperBound and @Val1 <
@LowerBound)
```

```
            then @UpperBound - @LowerBound

    -- both inr values are within the range          when @Val1
between @LowerBound and @UpperBound                    and @Val2
between @LowerBound and @UpperBound           then (@Val2 -
@Val1)

    -- one value is in the range and one is outside
        when @Val1 > @Val2
    and @Val1 > @UpperBound

            then (@UpperBound - @Val2)*(-1) --/ (@Val1 - @Val2)
        when @Val2 > @Val1                    and @Val2 >
@UpperBound

            then (@UpperBound - @Val1)*(-1) --/ (@Val2 - @Val2)


        when @Val1 > @Val2
    and @Val2 < @LowerBound
    then (@Val1 - @LowerBound)*(-1)
    when @Val2 > @Val1
    and @Val1 < @LowerBound

            then (@Val2 - @LowerBound)*(-1)
    else null

    end

    )


    -- Return the result of the function

    RETURN @result


END
GO
```

Acronyms

AHRQ	Agency for Healthcare Research and Quality
API	Application Programming Interface
CDC	Centers for Disease Control and Prevention
CMS	Centers for Medicare & Medicaid Services
CPT	Current Procedural Terminology
CQM	Clinical Quality Measure
eCQM	Electronic Clinical Quality Measure
ED	Emergency Department
EHR	Electronic Health Record
HCPCS	Healthcare Common Procedure Coding System
HL7	Health Level Seven International
HMPC	Home Management Plan of Care
HQMF	Health Quality Measures Format
ICD	International Classification of Diseases
INR	International Normalized Ratio
IPP	Initial Patient Population
LOINC	Logical Observation Identifiers Names and Codes
MAT	Measure Authoring Tool
MU	Meaningful Use
NLM	National Library of Medicine
NQF	National Quality Forum
OID	Object Identifier
ONC	Office of the National Coordinator for Health Information Technology
QDM	Quality Data Model
QRDA	Quality Reporting Document Architecture
SNOMED	Systematized Nomenclature of Medicine
SQL	Structured Query Language
UHDDS	Uniform Hospital Discharge Data Set
USHIK	United States Health Information Knowledgebase
VSAC	Value Set Authority Center
XML	Extensible Markup Language