Current and Emerging Trends with Electronic Clinical Quality Measures: Practical Implementation Experiences from the Forefront

PCPI Education Session
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Welcome!
Our Panel

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Current and Emerging Trends with Electronic Clinical Quality Measures: Practical Implementation Experiences from the Forefront

Context For Today: Multiple Perspectives

- Measure Developers
- Providers
- Vendors
- Policy Makers
Agenda

- Background
  - Quality measure landscape
  - Evolution of clinical quality measures
  - Common terminology
  - eMeasure implementation
  - Challenges of data capture
Agenda

- Real world implementations of electronic clinical quality measures
- Implementation scenarios
- Dialogue and discussion
BACKGROUND
Quality Measure Landscape

• It begins with the data……
  – Claims Based Measures
    • Leverages codified billing data
    • Codification finalized after care is delivered
  – Clinical Quality Measures
    • Manual Abstraction – after care is delivered
    • Electronically derived - codification before care is given
Evolution of Clinical Quality Measures

**Manual Chart Abstraction:**
- Gold standard for Clinical Quality Measure (CQM) data abstraction
- Historically used by The Joint Commission and the Centers for Medicare & Medicaid Services (CMS)

**Electronically Derived Measures:**
- Referred to as eMeasures or eCQMs
- Relies on data capture by Electronic Healthcare Record (EHR) and other ancillary systems that feed into the master patient record
- Requires new standards and data models for proper exchange of clinical data
Manual Abstraction vs. eMeasures

**Manually-Abstracted CQMs**

- Utilizes a human-readable narrative definition
  - Manual chart review allows data collection from **any documentation**
  - Inconsistent provider documentation mediated by use of abstraction/coding staff trained to **interpret** clinical process of care from patient records
  - Does not require codification of data elements captured at point of care
  - Does not require changes in electronic health care record system (or ancillary system) prior to CQM reporting periods

**Electronically-Extracted CQMs**

- Utilizes an eMeasure specification and value sets
  - For CMS programs, EHR certification requirements demand **specific data coding** in software.
  - Software installation (or upgrades) required **prior to** data submission, but in time to ensure codification changes are made prior to data collection
  - Consistent provider documentation is required to assure accurate analysis: workflow changes and training of staff to ensure proper data capture
Retooling Measures

Manual Abstraction Process

Capture
• Data documented in patient record

Interpret
• Manual chart review by abstraction/coding staff

Calculate
• Data manually extracted and calculated for reporting

Transformed into Measure Specifications for the eMeasure Process

Codify
• Data must be codified to QDM requirements

Capture
• Structured data must be entered into the EHR by clinician

Calculate
• Electronically extracted data for calculation and reporting

# New Terminology

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>eMeasure or eCQM</td>
<td>The electronic format for quality measures using the Quality Data Model (QDM) and the Healthcare Quality Measure Format (HQMF), an HL7 standard</td>
</tr>
<tr>
<td>QDM</td>
<td>An “information model” intended to clearly define concepts used in quality measures and clinical care</td>
</tr>
<tr>
<td>HQMF</td>
<td>An Health Level Seven International (HL7) standard used to represent quality measures in an electronic format.</td>
</tr>
<tr>
<td>Value set</td>
<td>Are lists of specific values (terms and their codes: CPT®, ICD-10-CM, LOINC®, MeSH®, RxNorm, SNOMED CT®, etc.) derived from single or multiple standard vocabularies used to define clinical concepts</td>
</tr>
<tr>
<td>VSAC</td>
<td>Value Set Authority Center is the library of value sets used by eCQM and is maintained by the National Library of Medicine</td>
</tr>
<tr>
<td>QRDA</td>
<td>Quality Reporting Document Architecture is a HL7 standard document format for the exchange of eCQM data. QRDA reports represent eCQM data at the patient or organization level.</td>
</tr>
</tbody>
</table>
Programming 101 - Making a PJS

Instructions:
• Find 2 slices of bread
• Spread peanut butter on one slice of bread
• Spread jelly on the other slice of bread
• Put the two slices of bread together
Building eMeasures: Measure Authoring Tool (MAT)

Value set details

<table>
<thead>
<tr>
<th>Name</th>
<th>OID</th>
<th>Code System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemorrhagic Stroke</td>
<td>2.16.840.1.113883.3.117.1.7.1.212</td>
<td>ICD9CM, ICD10CM, SNOMEDCT</td>
</tr>
<tr>
<td>Type: Grouping</td>
<td>Version: 20130401</td>
<td></td>
</tr>
<tr>
<td>Steward: Joint Commission</td>
<td>status: Active</td>
<td></td>
</tr>
</tbody>
</table>

Grouping value set

<table>
<thead>
<tr>
<th>Value Set Name</th>
<th>OID</th>
<th>Code System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemorrhagic Stroke</td>
<td>2.16.840.1.113883.3.117.1.7.1.233</td>
<td>ICD9CM</td>
</tr>
<tr>
<td>Hemorrhagic Stroke</td>
<td>2.16.840.1.113883.3.117.1.7.1.234</td>
<td>ICD10CM</td>
</tr>
<tr>
<td>Hemorrhagic Stroke</td>
<td>2.16.840.1.113883.3.117.1.7.1.235</td>
<td>SNOMEDCT</td>
</tr>
</tbody>
</table>

QDM Element


The Centers for Medicare & Medicaid Services Measure Authoring Tool information available at: https://www.emeasuretool.cms.gov/
Value Set Examples

- Annual measure updates require value sets to be versioned.
- The annual update process for measure allows for changes to the original value sets.
- CMS has recently established a Change Review Process for annual updates that also includes a review of proposed changes to the value sets.
eMeasure Framework Interdependencies

The eMeasure landscape is complex with continually changing components that must be accounted for.

Timeline Interdependencies:
- Regulations
- Annual QDM updates
- MAT/Bonnie updates
- Value Set versioning
- Codes set updates
- QRDA and HQMF revision balloting
eMeasure Implementation Process

EHR Vendor: Design, Coding, Certification, Beta test, General release, Installation across customer base


Regulations Standards Certification

Measure Authoring Tool Bonnie Quality Data Model

eMeasure Value Sets UMLS Terminology Services

Quality Reporting Document Architecture (QRDA) Health Quality Measures Format (HQMF)

# The Challenge of Data Capture

<table>
<thead>
<tr>
<th>Types of Elusive Data</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discrete value available in electronic format but usually in devices or standalone special software systems</td>
<td>Ejection Fraction from Echocardiogram and PR or QT intervals in ECG</td>
</tr>
<tr>
<td>Structured data captured but available in a different setting of care/EHR system</td>
<td>Ambulatory or Long Term Care data not available in Acute Care Hospital EHR</td>
</tr>
<tr>
<td>Data usually captured on paper and not electronically</td>
<td>Clinician Notes</td>
</tr>
<tr>
<td>Data captured electronically but not as structured elements</td>
<td>Transcribed Notes</td>
</tr>
</tbody>
</table>
Feasibility

“As new measures are developed de novo for EHRs, feasibility testing should be done during measure development to ensure that the data elements critical for the measure can be consistently found in EHRs.”

• **De novo eMeasure**: A new performance measure developed for use in EHRs; it is not re-specified from an existing measure based on other data sources.

• **eMeasure feasibility**: The extent to which the required data are readily available or could be captured without undue burden and can be implemented for performance measurement in EHRs.
eMeasure Feasibility Assessment

National Quality Forum (NQF) eMeasure Feasibility Assessment Project

Recommendations:
1. Assess feasibility throughout eMeasure development.
2. Create Framework for eMeasure feasibility assessment.
   a. Data element feasibility assessment.
   b. eMeasure feasibility assessment.
3. Validating the data element feasibility scoring.
4. Data element feasibility catalogue/repository.
5. NQF evaluation for endorsement.

*NQF convened a 15-member Technical Expert Panel which was comprised of eMeasure developers, experts in eMeasure development and testing, EHR vendors, and eMeasure users and implementers.
eMeasure Feasibility Assessment

• eCQM feasibility must also account for ancillary systems that do not fall under certification requirements.
  – Systems may not readily interface into a certified system.
  – Systems may not support structured/codified data therefore adding to time, cost and complexity of data capture for eCQMs.
Measure Feasibility – understand how organizations use data

Issues:
- EHR not historically configured to capture “inpatient encounter” data element (time stamp). ED + Inpatient considered one inpatient encounter.
- Requires changes to billing system to meet technical requirement to support this measure.
- eCQM definition too vague—eCQM leaves it open to interpretation, therefore increasing variation in measure implementation.
- Since data element historically not captured, provider must pick from data that is available:
  - When registered as inpatient
  - When assigned to a bed
  - Etc.
CMS 102 (Stroke 10) Assessed for Rehabilitation
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"

Issues:
- No QDM element that capture traditional Inpatient Encounter (ED + Inpatient)
- ED measures force data element differentiation between ED visit and inpatient encounter data element (time stamps).
- No allowance in logic for orders placed prior to Inpatient Encounter time stamp
- No allowance for workflow variance to address needs of the patient.

What if assessment for rehab is done while in the ED?

OR: "Procedure, Performed: Rehabilitation Assessment"
OR: "Procedure, Performed: Rehabilitation Therapy"
“Many data elements that are difficult or impossible to automate are also essential for measure meaningfulness.”

REAL WORLD IMPLEMENTATIONS OF ELECTRONIC CLINICAL QUALITY MEASURES
MUSC Health

Medical Center
- 709-bed academic medical center; 58 neonatal beds,
- Includes University Hospital; Ashley River Tower; Children’s Hospital; Institute of Psychiatry; Storm Eye Institute; Hollings Cancer Center

University
- Founded in 1824, oldest medical school in the south
- Clinical Departments: 16; 660 medical students; 651 residents; 1,144 faculty

MUSC Physicians
- Physician members in MUSC Physicians: 781
- Unique MUSC Physicians outreach locations: 111
- MUSC Specialty Care, MUSC Primary Care, MUSC After Hours
Agenda: MUSC eCQM and Supporting CDS Process Overview

Enterprise CQM Reporting Model
Measure Specification Mapping
Quality Data Capture Build Assessment
CQM Workflow Design
Verification and Validation
The Enterprise CQM Model outlines the organizational strategy for measurement and reporting to deliver a more effective and streamlined approach for satisfying Accreditation, Certification, and Regulatory Program requirements.

- Outline quality measures to be reported for programs across all settings/sites of care and specialty programs for the organization
- Identify complimentary and overlapping quality measures addressed in various programs
- Identify common populations and disease states/care processes of focus across measures
# Enterprise CQM Reporting Model

<table>
<thead>
<tr>
<th>Measure Title</th>
<th>HQR Required</th>
<th>IQR Chart Abstracted</th>
<th>HQR 1st Direct</th>
<th>Claims</th>
<th>HQR - Web-Based</th>
<th>PARENT SURVEY</th>
<th>HQR - MESS</th>
<th>HAC Reductions Program</th>
<th>JC Abstraction</th>
<th>JC EHR</th>
<th>GOB</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-hospital, risk-standardized KSR90 following heart failure</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✗</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-hospital, risk-standardized KSR90 following acute ischemic myocardial infarction (AMI) hospitalization</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✗</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-hospital, risk-standardized KSR90 following pneumonia</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✗</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-hospital, all-cause risk-standardized KSR90 following non-hospital orthopedic surgery (THA) and total joint arthroplasty (TJA)</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✗</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-hospital, all-cause risk-standardized KSR90 following Chronic Obstructive Pulmonary Disease (COPD)</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✗</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-hospital, all-cause risk-standardized KSR90 following an acute hospitalization</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✗</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-hospital, unplanned readmission rate (KSR90) following pass Graft (CABG) surgery</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✗</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-hospital, urgent surgery received within 30 days</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✗</td>
<td></td>
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</tr>
</tbody>
</table>
Measure Specification Mapping

Quality measures are grouped by families based on common care processes, conditions, and disease states and specifications/quality data elements for ‘like’ measures are mapped.

- Create a quality data element inventory for each measure family by identifying unique data elements and workflow requirements based on measure specifications.
- For duplicative or overlapping clinical concepts, map data element attributes and value sets to define a single data element that satisfies requirements for use in all applicable measures.
Influenza Vaccination

Measures have a consistent, patient oriented goal but are specified differently based on:

- **Care settings** (ambulatory vs inpatient)
- **Data specifications** (abstraction vs electronically derived)
- **Performance periods** (current flu season for inpatient, last flu season for ambulatory)
- **Specificity** (narrative definitions vs codified value sets and data standards)
<table>
<thead>
<tr>
<th>IP</th>
<th>AMB</th>
<th>Value Set/ Term Binding</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Patients who received the influenza vaccine during this inpatient hospitalization</td>
<td>&quot;Procedure, Performed: Influenza Vaccination&quot;</td>
<td>2.16.840.1.113883.3.526.3.402 (Version: 20140701)</td>
</tr>
<tr>
<td>• Patients who have an ICD-9-CM Principal Procedure Code or Other Procedure Codes from Table 12.9 for Prophylactic Vaccination against Influenza during this inpatient hospitalization</td>
<td>&quot;Medication, Administered: Influenza Vaccine&quot;</td>
<td>2.16.840.1.113883.3.526.3.1254 (Version: 20140701)</td>
</tr>
<tr>
<td>• Patients who received the influenza vaccine during the current year’s flu season but prior to the current hospitalization</td>
<td>&quot;Communication: From Patient to Provider: Previous Receipt of Influenza Vaccine&quot;</td>
<td>2.16.840.1.113883.3.526.3.1185 (Version: 20140701) 416928007 Has influenza vaccination at work (finding) 185902006 Has influenza vaccination at hospital (finding) 185901004 Has influenza vaccination at surgery (finding) 185900003 Has influenza vaccination at home (finding)</td>
</tr>
<tr>
<td>• Patients who were offered and declined the influenza vaccine</td>
<td>&quot;Communication: From Patient to Provider: Influenza Vaccination Declined&quot;</td>
<td>Influenza vaccination declined (situation) (SNOMED Code: 315640000) (OID: 2.16.840.1.113883.6.96)</td>
</tr>
<tr>
<td>• Patients who have an allergy/sensitivity to the influenza vaccine</td>
<td>&quot;Procedure, Performed not done: Patient Reason&quot; for &quot;Influenza Vaccination&quot;</td>
<td>Influenza vaccination declined (situation) (SNOMED Code: 315640000) (OID: 2.16.840.1.113883.6.96)</td>
</tr>
<tr>
<td>• Patients who have an allergy/sensitivity to eggs</td>
<td>&quot;Medication, Allergy: Influenza Vaccine&quot;</td>
<td>Influenza vaccination declined (situation) (SNOMED Code: 315640000) (OID: 2.16.840.1.113883.6.96)</td>
</tr>
<tr>
<td>• anaphylactic allergy to eggs,</td>
<td>&quot;Diagnosis, Active: Allergy to Eggs&quot;</td>
<td>Influenza vaccination declined (situation) (SNOMED Code: 315640000) (OID: 2.16.840.1.113883.6.96)</td>
</tr>
<tr>
<td>• for whom the vaccine is not likely to be effective because of bone marrow transplant within the past 6 months,</td>
<td>&quot;Medication, Administered not done: Medical Reason&quot;</td>
<td>Based on documentation of bone marrow transplant and timing element of within the last 6 months (of the encounter) we would like for the exception to register based on 266721009 Absent response to treatment (situation) (2.16.840.1.113883.6.96)</td>
</tr>
<tr>
<td>• history of Guillain-Barre Syndrome within 6 weeks after a previous influenza vaccination</td>
<td>Diagnosis, Active: Allergy to Influenza Vaccine</td>
<td>Inpatient Documentation of Guillian Barre will be in the medical history potential link to exclusion for the ambulatory influenza? (2.16.840.1.113883.6.96) to Code set for Guillian Barre (2.16.840.1.113883.3.666.5.490)</td>
</tr>
<tr>
<td>• Patients for whom vaccination was indicated, but supply had not been received by the hospital due to problems with vaccine production or distribution</td>
<td>&quot;Medication, Administered not done: System Reason&quot;</td>
<td>182856006 Drug not available - out of stock (finding) (2.16.840.1.113883.6.96)</td>
</tr>
</tbody>
</table>
Regulatory build analysts work together to outline the alignment strategy for quality data across care settings and EHR workflow and build rules and flexibilities.

- Build options are based on quality measure specifications, the EHR system’s ability to code and reuse data for quality measurement, and required alignment for data reuse across care settings.
- Data requirements are reviewed against Meaningful Use objectives and organizational documentation standards and policy.
- Evaluates the impact of data included as a result of a single MUSC health record and health information exchange.
Meaningful Use Core Data Set

1. Patient name
2. Sex
3. Date of birth
4. Race **
5. Ethnicity **
6. Preferred language
7. Care team member(s)
8. Allergies **
9. Medications **
10. Care plan
11. Problems **
12. Laboratory test(s) **
13. Laboratory value(s)/result(s) **
14. Procedures **
15. Smoking status **
16. Vital signs

**NOTE:** Data requirements marked with a double asterisk (**) also have a defined vocabulary which must be used.
eCQM Implementation and Analysis Teams are formed for each measure family to finalize and confirm data capture design and clinical decision support tools, feedback and reporting needs, and develop an evidence based implementation strategy.

➢ The teams address data capture workflows and implementation strategies based on:

- An understanding of the measure’s clinical recommendation statement and targeted quality action
- A review of the build assessment supplied by the regulatory analysts and clear understanding of data capture requirements and flexibilities
- The needs and culture of individual care settings, specialties, and services
- Anticipated problems that threaten the adoption and consistent use of new EHR workflows and data capture requirements
Verification and Validation

Regulatory build analysts and eCQM Implementation and Analysis Teams work together to confirm the build functions properly for correct inputs, and to determine adequacy of implementation and utilization of supporting data capture.

- Identify deficiencies that are related to data capture (as opposed to true quality gaps) and review documentation for consistency as well as level of completeness, accuracy, granularity, timeliness, and currency.
- Determine root cause for failures related to documentation. Review build strategy and the effectiveness of implementation tools and support.
- Innovate and optimize.
Enterprise Implementation of eCQMs and Supporting CDS

**Challenges**

- Measure, Value Set, and System Updates:
  - Tracking and management of value sets / term bindings
  - Down stream impact within and across care settings
  - Delay in implementation of updates due to reporting period requirements (sync with CDS?)
  - Out of sync reporting periods and quality measure timing elements in relation to value sets and term bindings

**Opportunities**

- Ability to standardize in a way that is flexible, customized and appropriate for multiple user groups
- Encourage and enhance data reuse
- Promote a patient oriented view of the health record and enhances care team communication
- Promote real-time documentation allowing for more robust CDS to drive improved outcomes
- Feedback loops support timely detailed review and redesign of workflow segments to improve efficiency and introduce CDS tools early in the process.
- Introduces ‘meaning’ to Meaningful Use
IMPLEMENTATION SCENARIOS
Alignment of Measures

• Continue to look for alignment opportunities…. down to the data element level.

• Goal: capture once, reuse many…..
Core Objective

Record smoking status for patients 13 years old or older

Standards Criteria

Coded to one of the following SNOMED CT® codes:

1. Current every day smoker. 449868002
2. Current some day smoker. 428041000124106
3. Former smoker. 8517006
4. Never smoker. 266919005
5. Smoker, current status unknown. 77176002
6. Unknown if ever smoked. 266927001
7. Heavy tobacco smoker. 428071000124103
8. Light tobacco smoker. 428061000124105

§170.207(h)
Smoking Status?

**eMeasures**

<table>
<thead>
<tr>
<th>eMeasure - EP</th>
<th>Value Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMS61 &amp; CMS64</td>
<td>2.16.840.1.113883.3.600.2390</td>
</tr>
<tr>
<td>CMS138</td>
<td>2.16.840.1.113883.3.526.3.1170</td>
</tr>
<tr>
<td></td>
<td>2.16.840.1.113883.3.526.3.1189</td>
</tr>
</tbody>
</table>

55 SNOMED Codes to define Tobacco User and Non-User
Smoking Status?

What is the goal?
Efficiency = Collect Once

Core Objective
Record smoking status for patients 13 years old or older

Different measurement, cannot properly map.

Which is right?

Smoking Status?

Core Objective
Record smoking status for patients 13 years old or older

Examples
- Non-smoker for personal reasons (finding) - Should they be mapped to Former? Mapped to Never?
- Does not use moist powdered tobacco (finding) – What should this be mapped to?
- Ex-light cigarette smoker (1-9/day) (finding) - Map to Former but clinically meaningful information that “prior level was low” is lost.
- eCQM list has non-mutually exclusive values (never chewed but current smoker?) and concepts not addressed at all in Core Objective (chew, snuff, etc.).

<table>
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$170.207(h)$

| CMS138 | 2.16.840.1.113883.3.526.3.1170 |
| CMS138 | 2.16.840.1.113883.3.526.3.1189 |

Smoking Status?

Core Objective
Record smoking status for patients 13 years old or older

- Core Objective values are not “normalized” to each other nor to clinical practice
- eCQM values are closer to clinical practice (e.g., including pipes, cigars, chewing) but not normalized to each other (e.g., some items are not mutually exclusive) nor to the Core Objective.
- Therefore the structured field for smoking status requires additional mapping which is inefficient and impossible since normalization to the Core Objective definition is not possible to accommodate requirements for different measure specifications.
Core Objective
Record smoking status for patients 13 years old or older

Joint Commission
TOB Measures
Tobacco Use Status

Smoking Status?

eMeasure

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Core Objective
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Coded to one of the following SNOMED CT® codes:
(1) Current every day smoker. 449868002
(2) Current some day smoker. 428041000124106
(3) Former smoker. 8517006
(4) Never smoker. 266919005
(5) Smoker, current status unknown. 77176002
(6) Unknown if ever smoked. 266927001
(7) Heavy tobacco smoker. 428071000124103
(8) Light tobacco smoker. 428061000124105

Joint Commission
TOB Measures
Tobacco Use Status

1. The patient has smoked cigarettes daily on average in a volume of five or more cigarettes (=>1/4 pack) per day and/or cigars daily and/or pipes daily during the past 30 days.

2. The patient has smoked cigarettes daily on average in a volume of four or less cigarettes (< ¼ pack) per day and/or used smokeless tobacco and/or smoked cigarettes but not daily and/or cigars but not daily and/or pipes but not daily during the past 30 days.

3. The patient has not used any forms of tobacco in the past 30 days.

4. The patient refused the tobacco use screen.

5. The patient was not screened for tobacco use during this hospitalization or unable to determine the patient’s tobacco use status from medical record documentation.

6. The patient was not screened for tobacco use during the first three days of admission because of cognitive impairment.

CMS138 2.16.840.1.113883.3.526.3.1170
2.16.840.1.113883.3.526.3.1189
Continued variation in data elements lead to complex mapping that lose clinical meaning, increases errors, increases variation in implementation and increases costs.

If we are striving for the goal of “collect once, and reuse” in order to “consistently measure and improve population health and reduce costs” the item must be defined properly: alignment focus must go beyond programs and drill down into the data element level.
Capture Once

Core Objectives

Joint Commission

State Quality Reporting Requirements

CMS IQR Chart Abstracted Measures

Private Payer Requirements

Etc....

eCQMs

INFLUENZA VACCINATION
Variation in Measures, Specifications, and Targeted Actions

• External Reporting Requirements
  – PQRS/VBPM/MU
    • Ambulatory eCQM
    • Ambulatory GPRO Web measure
  – Joint Commission and IQR
    • Inpatient abstraction based measure

• Internal Quality Initiatives
  – Ambulatory, provider focused screening measure
  – Patient Centered Medical Home population management
  – Inpatient, provider focused screening measure

• What are we measuring?
  – Did the patient get the vaccination?
  – Did the provider screen at the visit?
### Ambulatory and Inpatient Influenza Vaccination

<table>
<thead>
<tr>
<th>Denominator</th>
<th>AMB</th>
<th>IP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients who received the influenza vaccine during the current hospitalization</td>
<td>OR: &quot;Procedure, Performed: Influenza Vaccination&quot;</td>
<td>OR: &quot;Communications From Patient to Provider: Previous Receipt of Influenza Vaccine &lt;= 153 day(s) before start of &quot;Measurement Period&quot;</td>
</tr>
<tr>
<td>Patients who have an ICD-9-CM Principal Procedure Code or Other Procedure Code from Table 13.3 of Preparatory Vaccination against Influenza during this inpatient hospitalization</td>
<td>OR: &quot;Medication, Administered: Influenza Vaccine&quot;</td>
<td>OR: &quot;Communications From Patient to Provider: Previous Receipt of Influenza Vaccine &lt;= 153 day(s) before start of &quot;Measurement Period&quot;</td>
</tr>
<tr>
<td>Patients who received the influenza vaccine during the current season’s flu season but prior to the current hospitalization</td>
<td>OR: &quot;Medication, Administered: Influenza Vaccine&quot;</td>
<td>OR: &quot;Communications From Patient to Provider: Previous Receipt of Influenza Vaccine &lt;= 153 day(s) before start of &quot;Measurement Period&quot;</td>
</tr>
<tr>
<td>Patients who were offered and declined the influenza vaccine</td>
<td>OR: &quot;Medication, Administered: Influenza Vaccine&quot;</td>
<td>OR: &quot;Communications From Patient to Provider: Previous Receipt of Influenza Vaccine &lt;= 153 day(s) before start of &quot;Measurement Period&quot;</td>
</tr>
<tr>
<td>Patients who have an allergy/sensitivity to the influenza vaccine, anaphylactic type allergy or anaphylactic type allergy to eggs, or for whom the vaccine is not likely to be effective because of bone marrow transplant within the past 6 months, or history of Guillain-Barré Syndrome within 8 weeks after a previous influenza vaccination</td>
<td>OR: &quot;Communications From Patient to Provider: Influenza Vaccination Declined&quot;</td>
<td>OR: &quot;Communications From Patient to Provider: Influenza Vaccination Declined&quot;</td>
</tr>
</tbody>
</table>

### Denominator Exclusions
- Patients less than 6 months of age
- Patients who expire prior to hospital discharge
- Patients with an organ transplant during the current hospitalization (Appendix A, Table 13.30)
- Patients for whom vaccination was indicated, but supply had not been received by the hospital due to problems with vaccine production or distribution
- Patients who have a Length of Stay greater than 120 days
- Patients who are transferred or discharged to another acute care hospital
- Patients who leave Against Medical Advice (AMA)
<table>
<thead>
<tr>
<th>IP</th>
<th>AMB</th>
<th>Value Set/ Term Binding</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Patients who received the influenza vaccine during this</td>
<td>&quot;Procedure, Performed: Influenza Vaccination&quot;</td>
<td>2.16.840.1.113883.3.526.3.402 (Version: 20140701)</td>
</tr>
<tr>
<td>inpatient hospitalization</td>
<td>&quot;Medication, Administered: Influenza Vaccine&quot;</td>
<td>2.16.840.1.113883.3.526.3.1254 (Version: 20140701)</td>
</tr>
<tr>
<td>• Patients who have an ICD-9-CM Principal Procedure Code or</td>
<td>&quot;Communication: From Patient to Provider: Previous Receipt of</td>
<td>2.16.840.1.113883.3.526.3.1185 (Version: 20140701)</td>
</tr>
<tr>
<td>Other Procedure Codes from Table 12.9 for Prophylactic</td>
<td>Influenza Vaccine&quot;</td>
<td>416928007 Has influenza vaccination at work (finding)</td>
</tr>
<tr>
<td>Vaccination against Influenza during this inpatient</td>
<td></td>
<td>185902006 Has influenza vaccination at hospital (finding)</td>
</tr>
<tr>
<td>hospitalization</td>
<td></td>
<td>185901004 Has influenza vaccination at surgery (finding)</td>
</tr>
<tr>
<td>• Patients who received the influenza vaccine during the</td>
<td></td>
<td>185900003 Has influenza vaccination at home (finding)</td>
</tr>
<tr>
<td>current year’s flu season but prior to the current</td>
<td></td>
<td></td>
</tr>
<tr>
<td>hospitalization</td>
<td>&quot;Communication: From Patient to Provider: Influenza Vaccination</td>
<td>Influenza vaccination declined (situation) (SNOMED Code: 315640000) (OID: 2.16.840.1.113883.6.96)</td>
</tr>
<tr>
<td>• Patients who were offered and declined the influenza</td>
<td>&quot;Procedure, Performed not done: Patient Reason&quot; for &quot;Influenza</td>
<td>Influenza vaccination declined (situation) (SNOMED Code: 315640000) (OID: 2.16.840.1.113883.6.96)</td>
</tr>
<tr>
<td>vaccine</td>
<td>Vaccination&quot;</td>
<td></td>
</tr>
<tr>
<td>• Patients who have an allergy/sensitivity to the influenza</td>
<td>&quot;Medication, Allergy: Influenza Vaccine&quot;</td>
<td>2.16.840.1.113883.3.526.3.1254 (Version: 20140701)</td>
</tr>
<tr>
<td>vaccine</td>
<td>&quot;Procedure, intolerance: Influenza Vaccination&quot;</td>
<td>2.16.840.1.113883.3.526.3.1257 (Version: 20140701)</td>
</tr>
<tr>
<td>• anaphylactic allergy to eggs.</td>
<td>&quot;Diagnosis, Active: Allergy to Eggs&quot;</td>
<td>2.16.840.1.113883.3.526.3.1253 (Version: 20140701)</td>
</tr>
<tr>
<td>for whom the vaccine is not likely to be effective because of</td>
<td>Medication, Administered not done: Medical Reason</td>
<td>91930004 Allergy to eggs (disorder)</td>
</tr>
<tr>
<td>bone marrow transplant within the past 6 months,</td>
<td>Based on documentation of bone marrow transplant and timing</td>
<td>213020009 Egg protein allergy (disorder)</td>
</tr>
<tr>
<td>• history of Guillain-Barre Syndrome within 6 weeks after a</td>
<td>Diagnosis, Active: Allergy to Influenza Vaccine</td>
<td></td>
</tr>
<tr>
<td>previous influenza vaccination</td>
<td>Inpatient Documentation of Guillian Barre will be in the medical</td>
<td></td>
</tr>
<tr>
<td>• Patients for whom vaccination was indicated, but supply</td>
<td>Health record and potential link to exclusion for the ambulatory</td>
<td></td>
</tr>
<tr>
<td>had not been received by the hospital due to problems with</td>
<td>influenza? (2.16.840.1.113883.6.96) to Code set for Guillian Barre</td>
<td></td>
</tr>
<tr>
<td>vaccine production or distribution</td>
<td>Acute infective polyneuritis (ICD9CM 2013 2.16.840.1.113883.6.103)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Guillain-Barre syndrome (disorder) SNOMEDCT 2014-03 2.16.840.1.113883.6.96</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Guillain-Barre syndrome ICD10CM 2014 2.16.840.1.113883.6.90</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot;Medication, Administered not done: System Reason&quot;</td>
<td>182856006 Drug not available - out of stock (finding) (2.16.840.1.113883.6.96)</td>
</tr>
</tbody>
</table>
Can we eSpecify a complementary encounter-based screening measure focused on clinician action?
Structured Documentation Required for Multiple Secondary Use Cases

• How will the quality data elements be used? What are the standards and terminology requirements for each use case?
  – Relevant documentation found throughout the record. Requirements Include:
    • CPOE (vaccination order)
    • Administration of vaccine (Immunization History)
    • Previous Receipt of Vaccine (Immunization History)
    • Allergy to the influenza vaccine (Allergy List)
    • Bone marrow transplant within the past 6 months (Medical History)
    • History of Guillian-Barre Syndrome (Medical History)
    • Vaccine out of stock or patient decline at visit (Structured data that can be used for patient lists, communication, and follow up)
  – Must meet measurement (actions) AND reporting (structure) requirements
Influenza Vaccine Best Practice Advisory

Ambulatory

Inpatient
Supporting Quality Care, Workflow, and High Value Documentation

- Balance patient, provider, and encounter specific orientation with highly targeted and precise CDS logic.
- EHR build and implementation consistency across care setting
- Promote data stewardship and accountability
- Clear, Consistent, and Actionable definition of terms.
Thank you!

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