Commonwealth of Massachusetts
Executive Office of Health and Human Services

Rate Year 2016
Technical Specifications Manual for MassHealth Acute Hospital Quality Measures (Version 9.0)

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Section 1. Introduction to the Manual

The Massachusetts Executive Office of Health and Human Services (EOHHS) publishes this technical specifications manual, as a supplement to the Medicaid Acute Hospital Request for Application (RFA) contract, for all hospitals participating in the MassHealth Hospital Pay-for-Performance (P4P) Program reporting requirements.

A. Purpose of Manual

This EOHHS Technical Specifications Manual for Acute Hospital Quality Measures (EOHHS Manual) contains comprehensive instructions to assist hospitals with implementation of the MassHealth P4P quality measures reporting requirements. This EOHHS manual is organized to provide the following information:

- Section 1: Summary of Acute RFA *updates to quarterly reporting requirements and submission deadlines*.
- Section 2: Data collection standards and guidelines that apply to all quality measures reporting.
- Section 3: Technical specifications for "MassHealth specific" measures, *not published in national manuals,* plus instructions to modify national hospital reported quality measures data files that apply to MassHealth reporting requirements. Instructions in this EOHHS Manual should be used in conjunction with national hospital specification manuals posted on Quality Net and Joint Commission websites.
- Section 4: Sampling specifications that apply to the Medicaid patient population.
- Section 5: Data transmittal guidelines, *access to MassQEX portal and Customer Help Desk*.
- Section 6: Chart data validation procedures and scoring methods.
- Section 7: Health disparities measure specifications.
- Section 8: Other information *relevant to Acute RFA contract* for hospital quality contacts; and
- Appendix: Several paper tools to support collection and reporting of all quality measures data.

To minimize burden, every effort has been made to align the MassHealth hospital quality reporting standards with national guidelines for hospital measurement and reporting systems supported by the Center for Medicare and Medicaid Services (CMS) and other national stakeholder groups involved in hospital quality measurement. EOHHS reserves the right to make changes to measure specifications and reporting instructions contained in this manual, during each Acute Hospital RFA rate year period, as necessary to improve reliability and accuracy of measurement and reporting.

Updates to the current and prior rate year EOHHS Technical Specifications Manuals are posted on the MassQEX webpage on Mass.Gov at: http://www.mass.gov/eohhs/provider/insurance/masshealth/massqex/

For more information about the MassHealth Acute Hospital Pay-for-Performance (P4P) Program please contact:

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Refer to Section 8 in this EOHHS Manual for details on how to download a copy of the Acute Hospital RFA.

Acknowledgments: This EOHHS Manual is developed by the MassHealth Office of Providers and Plans in collaboration with the EOHHS Contractor clinical team, MassHealth Hospital Quality Advisory Committee and in consultation with various national stakeholder organizations involved in hospital quality measurement systems.

B. **Enhancements to Version 9.0**

This version contains substantial changes throughout the entire manual that are noted in *italic underlined font* that are summarized below.

Checklist of Key Changes

Section	Core Manual Description	Clarify	Update	New
TOC	**Table of Contents** - revised to reflect reorganization of manual sections		X	
1	**Introduction**			
	• Section 1.A - minor edits	X		
	• Section 1.B – convert Figure 1 to at-a-glance checklist		X	X
	• Section 1.C - revised Table 1.1		X	
2	**Data Collection Standards & Guidelines**			
	• Section 2.A – revised Table 2.1 measure sets		X	X
	• Section 2.B – revised text on manual versions		X	
	• Section 2.C – reformat text & Table 2.2 Medicaid payer code list		X	
	• Section 2.D – removed Table 2.4 and updated version updates	X	X	
	• Section 2.E - relabeled Table 2.5 as 2.4 and updated content		X	X
3	**MassHealth Quality Measure Specifications**			
	• Section 3.A – insert new NEWB-1 metric specifications and flowcharts			X
	• Section 3.B – insert new NEWB-2 metric specifications and flowcharts			X
	• Section 3.C – update MAT-3 numerator/denominator statements and flowcharts		X	
	• Section 3.D - update MAT-4 numerator/denominator statements and flowcharts		X	
	• Section 3.E - insert new MAT-5 metric specifications and flowcharts			X
	• Section 3.F - delete CCM clinical trial data element		X	
	• Section 3.G – revised intro text and manual versions		X	
4	**Medicaid Sampling Specifications**			
	• Section 4.A – update ICD-10 references and re-organized text	X	X	
	• Section 4.B - revised text	X		
	• Section 4.C – revised text; removed payer group sampling instructions	X	X	X
	• Section 4.D – insert new Tables 4.1 & 4.2 sample size requirements and text	X		X
	• Section 4.E - revised MassHealth initial population definitions	X	X	
5	**Data Transmittal Guidelines**			
	• Section 5.A – moved portal system requirement text here and revised text	X	X	
	• Section 5.B – moved Medicaid data file content text here and revised text	X	X	
	• Section 5.C – moved portal repository text here; updated all Jpegs and revised text	X	X	X
	• Section 5.D - moved user account registration text here and revised text	X	X	X
	• Section 5.E – merged customer support , data vendor, MassQEX website text here	X	X	X
	• Section 5.F – update data extension form mailing instruction		X	
6	**Data Validation Methods**			
	• Section 6.A – minor edit		X	
	• Section 6.B – revised Table 6.1 scored data elements		X	X
	• Section 6.C – revised mailing instruction		X	
7	**Health Disparities Measure Specifications**			
	• Section 7.A - no change			
	• Section 7.B – no change			
	• Section 7.C – no change			
	• Section 7.D – revised Table 7.3 mock report metrics and revised examples		X	X
8	**Other Hospital P4P Program Updates**			
	• Section 8.A – revised Table 8.2 mailing instruction		X	X
	• Section 8.B – revised Table 8.3 metric transitions and merged data validation text here	X	X	
	• Section 8.D – revised Table 8.4 performance assessment summary	X	X	X
	• Section 8.D – revised Table 8.5 performance evaluation data periods and text	X	X	X
	• Section 8.E - revised Table 8.6; insert new text on eligible HDD source	X	X	X
	Appendix Description	**Clarify**	**Update**	**New**
A-1	• Data Abstraction Tool: (NEWB-1) - insert new document			X
A-2	• Data Abstraction Tool: (NEWB-2) – insert new document			X
A-3	• Data Abstraction Tool: (MAT-3) - revise data elements		X	
A-4:	• Data Abstraction Tool: (MAT-4) - revise data elements		X	
A-5	• Data Abstraction Tool: (MAT-5) - insert new document			X
A-6	• Data Abstraction Tool: (CCM-1,2,3) – updated data element		X	
A-7	• XML Schema: MassHealth Specific Measures File - add and retire data elements		X	X
A-8	• XML Schema: MassHealth Identifier Crosswalk File		X	
A-9	• XML Schema: Data Deletion Request File		X	
A-10	• MassHealth Data Dictionary - add and retire data element s		X	X
A-11	• MassHealth Measure Calculation Rules – insert new MAT-5, NEWB worksheets		X	X

Checklist Notes: The description points (rows) to each section where change was made. An 'X' is marked under type of change header labels titled: Clarify (modify text to make clearer), Update (delete, correct, or modify text/information), New (insert new text or information not in prior version) for each section row. A blank in indicates no change was made.

C. Changes to Quality Reporting Requirements

The RY2016 Acute Hospital RFA contract introduces changes to quality reporting schedules and data specifications that are summarized below.

1) **Data Submission Timelines.** Table 1.1 displays the calendar year (CY) quarter data periods, submission due dates and manual instructions that apply to the current Acute RFA rate year.

Table 1.1 Acute RFA 2016 Data Submission Cycles

Acute RFA Contract Year	CY Quarter Data Reporting Cycle	Discharge Data Periods	Submission Due Date	EOHHS Manual Instructions
Rate Year 2016	Quarter 1-2015 Quarter 2-2015	Jan 1, 2015 – Mar 31, 2015 April 1, 2015 - June 30, 2015	Nov 13, 2015 Nov 13, 2015	Version 8.0, & 8.1
	Quarter 3-2015*	July 1, 2015 – Sept 30, 2015	***Feb 12, 2016****	Version 8.0, & 8.1
	Quarter 4-2015*	Oct 1, 2015 – Dec 31, 2015	***May 13, 2016****	Version 8.1a, 8.0, 8.1
Rate Year 2017	Quarter 1-2016	Jan 1, 2016 – Mar 31, 2016	Aug 15, 2016	Version 9.0
	Quarter 2-2016	April 1, 2016 - June 30, 2016	Nov 14, 2016	Version TBD

**Bold italic underline font indicates new change begins*

- *As noted in Table 1.1, for RY16, the CY2015 data reporting cycle, announced in the prior rate year contract, requires that first two quarters (Q1, Q2) be submitted under one submission cycle due date. Beginning with Q3-2015 discharge data all submission cycles will revert to the quarterly reporting format.*

- *The Acute RFA2016 contract also introduces the upcoming RY17 CY2016 (Q1-2016) quarter data reporting cycle with the submission due date noted on Table 1.1 above*. The term version 'TBD' indicates that EOHHS manual reporting instructions may not change from previous quarter cycle. Instead, changes may go into effect in a subsequent quarter reporting cycle to allow hospitals ample time to modify data collection tools.

2) **Data Reporting Specifications.** Below is a summary of changes that apply to CY15 and CY16 reporting.

Table 1.2 New Data Reporting Specifications

New Data Specification	Description of Change	Effective Data Period	Manual Instruction
ICD-10 Conversion	• ICD-10 formats and allowable values	As of Q4-2015	Release Notes (8.1a) Data Dictionary (9.0)
Portal File Transmittal	• ICD-10 XML Schema file compliance	As of Q4-2015	Release Notes (8.1a) Section 5 (9.0)
Begin MAT-4 Measure	• ICD-10 specifications, flowchart & data tools	As of Q4-2015 As of Q1-2015	Release Notes (8.1a) Section 3 (8.1)
Begin TOB Measures	• National specifications references	As of Q1-2015	Section 3 (9.0)
Portal System Requirements	• Upgrade portal specs requirements	As of Q1-2016	Section 5 (9.0)
Newborn Measures	• New data specifications, flowchart and tools	As of Q1-2016	Section 3 (9.0)
MAT-5 Measure	• New data specifications, flowcharts and tools	As of Q1-2016	Section 3 (9.0)
Aggregate Medicaid Payer Sampling	• New Quarterly sample size requirements • New Monthly sample size requirements	As of Q1-2016	Section 4 (9.0)
ICD Data Entry Form	• New Aggregate Medicaid payer data entry	As of Q1-2016	Section 5 (9.0)

As noted in Table 1.2, various changes to data specifications will go into effect with specific quarter data reporting periods. As of Q4-2015 reporting cycles, all data file specifications must comply with ICD-10 requirements as published in EOHHS Release Notes (v8.1a) and this Manual. As of Q1-2016, new data specifications include changes to portal system requirements, aggregate Medicaid sampling and ICD data entry requirements, retiring and adding new measures.

Section 2. Data Collection Standards & Guidelines

This section outlines the standards and guidelines for collecting clinical and administrative data elements that apply to MassHealth hospital quality measures reporting. Hospitals are required to collect and report data on all measures they are eligible to report on based on patient population mix and type of service offered by the facility.

A. MassHealth Hospital Quality Measure Sets. The measures data that apply to RY2016 quality reporting are:

Table 2.1 Quality Measures by CY Reporting

Metric ID #	Measure Set Name	CY2015 Reporting	CY2016 Reporting	Technical Instruction
	MassHealth Specific Measures			
	Maternity			
MAT-1	Intrapartum Antibiotic Prophylaxis for Group B Streptococcus	No change	*Retire Q1-2016*	EOHHS Manual TJC Manual & NHIQM Manual
MAT-2a	Perioperative Antibiotics for Cesarean Section –Antibiotic Timing	No change	*Retire Q1-2016*	
MAT-2b	Perioperative Antibiotics for Cesarean Section – Antibiotic Selection	No change	*Retire Q1-2016*	
MAT-3	Elective Delivery ≥37 and <39 completed weeks gestation	*Begins Q1-2015*		
MAT-4	Cesarean Birth, Nulliparous vertex singleton term	*Begins Q1-2015*		
MAT-5	*Appropriate DVT prophylaxis for women undergoing cesarean*		*Begins Q1-2016*	
	Newborn			
NEWB-1	*Exclusive Breast milk feeding*		*Begins Q1-2016*	TJC Manual & EOHHS Manual
NEWB-2	*Newborn Bilirubin Screening*		*Begins Q1-2016*	
	Care Coordination Measures (Inpatient Setting)			
CCM-1	Reconciled medication list received by patient at discharge	No change		EOHHS Manual
CCM-2	Transition record with data received by patient at discharge			
CCM-3	Timely transmission of transition record			
	Health Disparities Composite			
HD-2	Composite includes MAT, CCM measures only	No change		EOHHS Manual
	Nationally Reported Measures			
	Emergency Dept. Throughput			
ED-1	Median time – from ED arrival to ED depart for Admitted ED patients	No change		NHIQM & EOHHS Manual
ED-2	Median time – admit decision time to ED depart for admitted			
	Tobacco Treatment			
TOB-1	Tobacco Screening	Begins Q1-2015		NHIQM & EOHHS Manual
TOB-2	Tobacco use treatment provided or offered	Begins Q1-2015		
TOB-3	Tobacco use treatment provided or offered at discharge	Begins Q1-2015		

B. General Data Elements and Technical Specifications. Hospitals must report all general clinical and administrative data elements that are commonly required to calculate measure assignments. Regardless of which measures are reported, certain data elements (i.e.: ICD codes, payer source, race, ethnicity, patient identifiers, etc.) considered general to each patients care episode must be collected and submitted for every case that falls into the measures initial patient population. The technical specifications that define collection and reporting of data elements for measures in Table 2.1 are contained in the following manuals:

1) ***EOHHS Technical Specifications Manual for Acute Hospital Quality Measures –*** This manual is the primary source of instruction for all MassHealth measures data collection and reporting required under the Acute RFA. Hospitals must adhere to instructions in the following versions of this manual:
   - **Version 8.0 & 8.1**- these versions apply as of Q1-2015 to *Q3- 2015 data reporting.*
   - **Version 8.1a** – *this EOHHS Release Notes version applies for Q4-2015 data reporting only*
   - **Version 9.0 –** *this version applies as of Q1-2016 discharge data reporting*

2) ***Specifications Manual for National Hospital Inpatient Quality Measures*** (*version 5.0, 5.0a*)**,** plus related Release Notes and Appendix A: ICD-10 Code Tables for nationally reported measures posted on: https://www.qualitynet.org. This document is noted to as the "NHIQM Manual" in this EOHHS manual.

3) ***Specifications Manual for the Joint Commission National Quality Core Measures*** *(version 2015A-1, 2015B-1),* plus related Release Notes and Appendix A: ICD-10Code Tables for maternity measures posted on: https://manual.jointcommission.org/bin/view/Manual/WebHome. This document is noted as the "TJC Manual" in this EOHHS manual.

Hospitals are responsible for accessing and adhering to instructions contained in the appropriate versions of specification manuals that apply to Acute RFA rate year CY quarter discharge periods noted in Table 1.1.

C. MassHealth Data Elements. Specific administrative data elements that link the Hospitals patient identifier codes to MassHealth patient identifier codes are required for EOHHS to calculate the health disparities measure category. The data elements include payment source, race/ethnicity, and other patient identifiers that are described below.

1) **Payment Source.** Measures data should contain members in various MassHealth insurance programs.

a) **Included Population**: covered by program where Medicaid is the primary or only payer source as follows:

- ***MassHealth Fee-for-Service (FFS) Payer Codes*:** Members enrolled in the Primary Care Clinician Plan (PCCP), MassHealth Limited and other FFS insurance programs (codes 103, 104) that are paid primarily by MassHealth on a FFS basis under the Acute RFA contract *as listed in Table 2.2*.

- ***MassHealth Managed Care Payer Codes*:** Members enrolled under one of the six (6) Medicaid Managed Care Organization (MCO) Plans and/or the new Care Plus Plans (codes 282 to 287) *listed in Table 2.2*. These represent services paid primarily by MassHealth under capitated payment arrangements

- ***Other Medicaid Payer Codes*:** Members covered by other programs where services are paid primarily by Medicaid under other payment arrangements (codes 119, 178) *as listed in Table 2.2.*

b) **Excluded Population**: covered by insurance programs where Medicaid is ***not*** the primary payer, or is the secondary or tertiary payer source as follows:

- Dual eligible status (covered by Medicare and Medicaid),
- Third party liability (covered by HMO &/or Commercial plan & Medicaid), and
- Members over 65 years (covered by Medicaid or Medicare only).

Table 2.2 Massachusetts Medicaid Payer Source Codes*

Data File Requirement	Payer Code	Payer Code Description
INCLUDED Medicaid Population	103	Medicaid - Includes MassHealth FFS, and MassHealth Limited
	104	Medicaid - Primary Care Clinician (PCC) Plan
	108	Medicaid Managed Care- Fallon Community Health Plan
	110	Medicaid Managed Care- Health New England
	113	Medicaid Managed Care - Neighborhood Health Plan
	118	Medicaid Managed Care - Mass Behavioral Health Partnership Plan
	207, 274	Medicaid Managed Care - Network Health (Cambridge Health Alliance)
	208	Medicaid Managed Care - HealthNet (Boston Medical Center)
	282	Boston Medical Center - MassHealth CarePlus
	283	Fallon - MassHealth CarePlus
	284	Neighborhood Health Plan - MassHealth Care Plus
	285	Network Health - MassHealth CarePlus
	286	Celticare - MassHealth CarePlus
	287	MassHealth CarePlus
	119	Medicaid Managed Care Other (not listed elsewhere)
	178	Children's Medical Security Plan (CMSP)
EXCLUDED Medicaid Population	144	Other Government
	98	Healthy Start (Free care pool)
	120	Out of State Medicaid (Other Government)
	273	MassHealth Senior Care Options
	279	One Care – Fallon Total Care (Medicare and Medicaid)
	280	One Care– Network Health (Medicare and Medicaid)
	281	One Care – Commonwealth Care Alliance (Medicare and Medicaid)
	---	*All Commonwealth Care and Health Connector Care Plans*
	995	*Health Safety Net*

*State regulation 114.1 CMR 17.00 Hospital Inpatient Data Specifications Payer Codes (April 2014) at: http://www.chiamass.gov/regulations/

As noted in Table 2.2*, the included Medicaid population data file reflect payer codes where MassHealth is the primary payer. The excluded Medicaid payer codes reflect programs where MassHealth is not the primary payer.*

IMPORTANT NOTE - The above Medicaid payer source definitions differ from those in the NHIQM manuals which does not capture granularity of Medicaid payer types and codes required by CHIA regulations. Hospitals must modify NHIQM payer source codes, using the instructions in the data dictionary of this EOHHS manual, when submitting nationally reported measures data required for MassHealth.

2) **Other Patient Identifier Data Elements**

The other administrative data elements that are essential to link the Hospitals' patient identifier codes to MassHealth patient identifier codes include: Hospital Bill Number, MassHealth Member ID Number, Hospital Patient ID Number, and other case level identifiers. These data elements are required to identify all MassHealth eligible discharges for dates of services associated with quarter reporting cycles. The definitions, entry codes, allowable values and required file format for these patient identifier data elements are contained in data dictionary provided in this EOHHS manual.

3) **Race and Ethnicity Data Elements**

The Massachusetts state regulation (114.1CMR 17.00) sets standards that require all hospitals to collect and report case mix discharge data by race/ethnicity effective with January 1, 2007. These standards are part of the hospital case mix discharge data reporting requirements submitted each year to the Center for Health Information and Analysis (CHIA) Agency. To minimize burden, the states race/ethnicity data collection standards have been adapted for MassHealth hospital quality measures reporting requirements. The race/ethnicity data elements are required to calculate the health disparity measure category assignment in Section 7 of this EOHHS manual. Failure to adhere to race/ethnicity codes may affect the accuracy of calculating the health disparities measure category assignment.

Hospitals must adhere to the Massachusetts race/ethnicity data collection standards and make appropriate adjustments, per instruction in this manual, when preparing quality measures data files.

a) **Data Reporting Standard***:* At least one Race, the Hispanic Indicator, and one Ethnicity must be reported per patient as part of the measure data files. Massachusetts state standard requires hospitals to report all three data elements as follows:

   i. Race -- allows up to 3 fields for reporting (Race1; Race2; Other Race as free text);
   ii. Hispanic Indicator -- allows one field for reporting (Yes or No);
   iii. Ethnicity -- allows up to 3 fields for reporting (Ethnicity1; Ethnicity 2; Ethnicity Other-free text)

b) **Data Coding Standard.** The Massachusetts state definition of race/ethnicity data codes and allowable values required for all MassHealth hospital quality measures reporting, noted in Table 2.3, are as follows:

   i. **Race:** includes race category codes (R1 – R9) and allowable values;
   ii. **Hispanic Indicator**: includes a separate Hispanic valid entry codes (Y/N) and allowable values; and
   iii. **Ethnicity:** includes a partial list of ethnicity codes and allowable values that capture granularity across various race/ethnic group categories. The CHIA agency has updated the Massachusetts regulation (114.1CMR 17.00) standards for ethnicity codes/allowable values that will begin with October 1, 2014 state regulatory case mix reporting requirements. The partial list shown in Table 2.3 has been replaced and will consist of the old CHIA letter codes plus the expanded national Center for Disease Control (CDC) numeric ethnicity codes.

   Important Note: Due to changes in Massachusetts state ethnicity coding standards, the MassQEX portal will begin to accept both CHIA letter and all CDC numeric ethnicity codes/allowable values beginning with Q1-2015 (Jan 1, 2015 – Mar 31, 2015) discharge data reporting. Hospitals are responsible for updating ethnicity codes and using appropriate versions of XML schemas noted in Section 5 of this EOHHS manual when submitting data files. *The XML schema (v 8.0) was updated to include all CHIA ethnicity codes in Table 2.3 plus the expanded CDC ethnicity codes.*

c) **Data Accuracy Standard.** EOHHS conducts ongoing validation of race/ethnicity data elements to verify hospital coding accuracy against the quality measures reported data files. As noted in Section 6.B (a) of this manual, race/ethnicity data is validated during the quarterly medical chart review process. Hospitals must ensure that medical records selected for validation include proper documentation be submitted per patient file. See Section 6 of this manual for more details on data validation methods.

Contact the MassQEX Customer Support Help Desk, listed in Section 5 of this EOHHS Manual, if you have questions about race/ethnicity data elements required for measures reporting.

d) **Race/Ethnicity Code Comparisons.** The race/ethnicity codes and allowable values required in this EOHHS manual differ substantially from those required in the Specifications Manual for NHIQM published by Center for Medicare and Medicaid Services (CMS) as summarized below.

Table 2.3 Race/Ethnicity Data Element Comparison Chart

Massachusetts CHIA Standard[1] (Codes and Allowable Values)	Specifications Manual for NHIQM[3] (CMS Codes and Allowable Values)
Race Categories R1= American Indian or Alaska Native R2= Asian R3= Black or African American R4= Native Hawaiian or Pacific islander R5= White R9= Other Race UNKNOW= Unknown/Not Specified	**Race Categories** 1= White 2= Black or African American 3= American Indian or Alaska Native 4= Asian 5= Native Hawaiian or Pacific Islander 6= Retired Value (as of 7-01-05) 7= UTD (unable to determine or not stated (not documented, conflicting documentation or patient unwilling to provide)
Hispanic Indicator YES = Patient is Hispanic/Latino/Spanish NO = Patient is not Hispanic/Latino/Spanish	**Hispanic Ethnicity** YES = Patient is of Hispanic ethnicity/Latino NO = Patient is not of Hispanic ethnicity/Latino
Ethnicity Inclusions (see below)	**Hispanic Ethnicity Inclusion**: Cuban, Chicano, Mexican American, Puerto Rican, Other Spanish origin, South or Central American, Spanish origin, Hispanic/Latino, Black-Hispanic, Latin American, White-Hispanic

CHIA Ethnicity Group Inclusion (Partial List)[2]

Code	Allowable Values	Code	Allowable Values
2028-9	*Asian**	2158-4	Honduran
2029-7	Asian Indian	2161-8	Salvadoran
2033-9	Cambodian	2165-9	*South American**
2034-7	Chinese	2169-1	Columbian
2036-2	Filipino	2180-8	Puerto Rican
2039-6	Japanese	2182-4	Cuban
2040-4	Korean	2184-0	Dominican
2041-2	Laotian	AMERCN	American
2047-9	Vietnamese	BRAZIL	Brazilian
2058-6	African American	CARIBI	*Caribbean Island**
2060-2	*African**	CVERDN	Cape Verdean
2071-9	Haitian	EASTEU	Eastern European
2108-9	*European**	OTHER	Other Ethnicity
2118-8	*Middle Eastern or North African**	PORTUG	Portuguese
2148-5	*Mexican**	RUSSIA	Russian
2155-0	*Central American **	UNKNOW	Unknown/Not specified
2157-6	Guatemalan		

The following sources were used to create Table 2.3 contents:

1. ***CHIA Race Coding Standards***: See CHIA regulation 114.1 CMR 17.00 Hospital Inpatient Discharge: Data Specifications (April 2014) on: http://www.chiamass.gov/regulations/

2. ***Expanded CHIA Ethnicity Coding Standards***: The updated CHIA regulation 114.1 CMR 17.00 Hospital Inpatient Discharge: Data Specifications (April 2014) instructions replace the above Ethnicity Inclusion List which will include retaining the CHIA alpha letter codes plus using the national CDC ethnicity code set as of 10/1/2014 case mix reporting. As noted in Table 2.3 specific ethnic subgroups (with asterisks) previously clustered under those CHIA codes will now have an assigned national CDC code as posted on this website *http://www.cdc.gov/nchs/data/dvs/Race_Ethnicity_CodeSet.pdf.*

3. ***CMS Race/Ethnicity Coding Standards***: The Specifications Manual for NHIQM codes and allowable values for race/ethnicity are posted on: https://www.qualitynet.org

NOTE: Table 2.3 is intended to illustrate differences between Massachusetts state vs. national race/ethnicity coding standards and should not be used as a crosswalk to meet MassHealth quality reporting requirements.

D. Data Collection & Reporting Tools

This EOHHS manual provides the following standardized tools and resources to assist in collecting and reporting MassHealth patient-level information on all measures listed in Table 2.1.

1) **Data Abstraction Tools.** This manual includes several paper data abstraction tools (*Appendix A-1 to A-6*) to facilitate standardized collection and reporting of MassHealth specific maternity and care coordination measures not published in national manuals. These data abstraction tools should be used in conjunction with Section 3 measure specifications and data dictionary provided in this EOHHS manual.

2) **XML Schema File Format**. This manual includes several XML schema file layouts (*Appendix A-7 to A-9*) in excel worksheets to assist hospitals in standardized formatting of electronic files for all MassHealth quality measures data reporting. These XML file layouts should be used in conjunction with Section 3 measure specifications and data dictionary of this EOHHS manual.

   MassHealth measures data files must be collected using the Extensible Markup Language (XML) file format consistent with data transmission standards and guidelines provided in the EOHHS and NHIQM Manuals. Adherence to XML file format is important to decreasing variation in data collection and critical to meeting compliance with portal specifications. Failure to comply with the technical format requirements described in this manual will result in data files not being accepted by the portal.

3) **Data Dictionary.** This manual includes a data dictionary (*Appendix A-10)* which provides detailed definitions on the required clinical and administrative data elements, format, allowable values, and data abstraction sources to assist in preparing all MassHealth patient-level data files. The dictionary contains the full set of clinical and administrative data elements pertaining to the MassHealth specific measures, in Table 2.1, not published in CMS national hospital quality reporting manuals. It also includes definitions for all administrative patient-level identifier data elements required to supplement MassHealth payer files for the nationally reported hospital measures data. This data dictionary should be used in conjunction with Section 3. measure specifications in this EOHHS manual.

   Data dictionary definitions included in the EOHHS manual are developed in consultation with various state and national stakeholder organizations. The 'Specifications Manual for NHIQM' is the collaborative effort of the Centers for Medicare and Medicaid Services (CMS) and The Joint Commission (TJC) which is periodically updated by CMS and TJC. All Hospital Users of the 'Specifications Manual for NHIQM' are responsible for updating their software and associated documentation based on the nationally published manual production timelines.

4) **Measure Calculation Rules**. This manual also includes calculation rules *(Appendix A-11)* for MassHealth specific measures in Table 2.1 of this EOHHS manual. Details on calculation methods for the health disparities composite measure are further described in Section 7 of this manual. Calculation rules for the nationally reported measures required by MassHealth can be found in the 'NHQIM Manuals' versions.

   Effective with CY2016 Quarter 1 (Jan 1, 2016 – March 31, 2016) data submissions, Hospitals should use Appendix tool version 9.0 in this EOHHS Manual.

   Hospitals should use Appendix tool versions 8.0 and 8.1a for CY2015 (Jan 1, 2015 – Dec 31, 2015) discharge data period reporting.

   Refer to Table 2.4 for additional information on Appendix tool versions that apply to calendar year reporting.

Contact the MassQEX Customer Support Help Desk, listed in Section 5 of this EOHHS Manual, if you have questions about which versions of the data collection and reporting tools listed above apply to quarter reporting requirements.

5) **Archive of EOHHS Manual Versions.** EOHHS periodically updates technical specifications during the rate year, to improve accuracy and reliability of measure reporting. *Below is summary of modifications* to previous and comparison year EOHHS manual versions that focus on the following:

a) **MassHealth Specific Measures:** Changes to specifications in Section 3.A to 3.F and related Appendix tools are shown in italic underline font.

b) **Nationally Reported Measures**: Changes to specifications in Section 3.G and related Appendix tools are shown in italic underline font.

Table 2.4 EOHHS Manual Version Tracker (RY14 – RY16)

EOHHS Manual (Publish Date)	Manual Version	Calendar Year (CY) Data Period	CY Quarter Data Begins	Measure Description (Section 3)	Abstraction Tools (Appendices)	XML Schema Files (Appendices)	Data Dictionary (Appendix)	Measure Calc. Rules (Appendix)
RY2014 (Aug 20, 2013)	V. 7.0 →	Continue for CY13 (Jan 1 – Dec 31, 2013) Intro CY14 Specs (Jan 1 – Dec 31, 2014)	Q3-2013 Q4-2013 ---- Q1-2014	MAT Descriptions MAT Flowcharts CCM Descriptions/Flowcharts NHIQM: update all instruction	A-1: MAT1 A-2: MAT2a,b A-3: MAT3 A-4: CCM	A-5: MassHealth Metrics A-6: Crosswalk Identifier A-7:Data Deletion	A-8: Data Elements • MAT • all CCM • all MassHealth records	A-9: MassHealth Metrics • MAT • CCM
RY2015 (Sept . 12, 2014)	**V. 8.0 →**	New CY14 instruction (Jan 1 – Dec 31, 2014)	Q2-2014 Q3-2014 Q4-2014	No change (use Version 7.0)	No change (use Version 7.0)	No change (use Version 7.0)	No change (use Version 7.0)	No change (use Version 7.0)
	V. 8.0→ (MassQEX Interim Vendor Arrangements)	Intro CY15 specs (Jan 1 – June 30 2015)	Q1 -2015 Q2-2015 *Q3-2015*	MAT Descriptions MAT Flowcharts MAT-4 Descriptions MAT-4 Flowchart CCM Descriptions/Flowcharts NHIQM: Add TOB metrics	A-1: MAT1 A-2: MAT2a,b A-3: MAT3 A-4: New MAT-4 A-5: CCM	A-6: MassHealth Metrics A-7: Crosswalk Identifier A-8:Data Deletion	A-9: Data Elements • MAT • all CCM • all MassHealth records	A-10: MassHealth Metrics • MAT • CCM
RY2015 **(Feb 6, 2015)**	**V. 8.1 →** (New MassQEX Vendor Updates)	No change	No change	No change	No change	No change	No change	No change
RY2015 **Release Notes** (July 31, 2015)	**V. 8.1a →** *(ICD10 Supplement to RY15 Manuals)*	*Continue CY15* *(Oct 1- Dec 31, 2015)*	*Q4- 2015*	*ICD-10 Descriptions* *MAT 1 Flowchart* *MAT 2a, 2b Flowchart* *MAT3 Flowchart* *MAT 4 Flowchart*	*A-3: MAT-3* *A-4: MAT=4* A-1: No change (use 8.0) A-2: No change (use 8.0) A-5: No change (use 8.0)	*A-6: MassHealth Metrics* A-7: No change (use 8.0) A-8: No change (use 8.0)	*A-9: Select Data Elements* • *ICD-10-CM all records* • *ICD-10-PCS all records* • *Gestage, Labor, Parity & Prior uterine surgery*	*A-10: MassHealth Metrics* • *MAT rules only*
RY2016 **(Aug 28, 2015)**	**V. 9.0 →**	*Continue CY15 Instruction* ---- *Intro CY16 Specs* *(Jan 1 – Mar 31 2016)*	*Segway CY15 Instruction* --- *Q1- 2016* *Q2-2016*	*NEWB1:Description/Flowchart* *NEWB2: Description/Flowchart* *MAT3 Description/Flowchart* *MAT4 Description/Flowchart* *MAT5 Description/Flowchart* *NHIQM: update instruction*	*A-1: NEWB-1* *A-2: NEWB-2* *A-3: MAT 3* *A-4: MAT 4* *A-5: MAT 5* *A-6: CCM*	*A-7 MassHealth Metrics* *A-8 Crosswalk identifier* *A-9 Data Deletion*	*A-10 Data Elements* • *NEWB* • *MAT* • *CCM* • *all MassHealth records*	*A-11 MassHealth Metrics* • *NEWB* • *MAT* • *CCM*

Table 2.4 Legend

- **EOHHS Manual** - refers to rate year (RY) reporting relevant to Acute RFA contract period. Publish date is day posted on Mass.gov website
- **Manual Version -** indicates new data specifications that apply to RY data reporting cycles
- **CY Data Period** - refers to the calendar year (CY) data for the period of Jan 1 to Dec 31 that apply to RY incentive payment period (ex: CY15 data applies to RY16 payments)
- **CY Quarter Begins** - refers to the quarter data period that changes to technical specifications apply.
- **Measure Description** – refers to updated numerator/denominator measure descriptions, flowcharts and other pertinent specifications that apply.
- **Abstraction Tools** – refers to updated data abstraction tools listed that apply effective when CY quarter reporting changes begin.
- **XML Schema File** – refers to updated XML file layout listed that applies effective when CY quarter reporting changes begin.
- **Data Dictionary Elements** - refers to updated data element descriptions that apply effective when CY quarter reporting changes begin.
- **Measure Calc. Rule** – refers to MassHealth specific measure calculation rules that apply effective when CY quarter reporting changes begin.
- **No change** - when EOHHS measure descriptions &/or data tools have not changed, then a reference to the version that does apply is entered in parenthesis

E. Data Completeness Requirements

The Acute RFA contract stipulates that hospitals must comply with data completeness requirements to be eligible for incentive payments. Data completeness is defined as the submission of measures data that comply with all technical data collection and format guidelines published in this EOHHS Manual. In order to calculate a hospitals performance on each measure set various sources of information are required to determine accuracy and reliability.

1) **Data Completeness Requirements.** For the purposes of calculating measure category assignments, all of the following data components are required for each quarter reporting period:

   a. *Chart Abstracted Data***:** collect information from patient medical records and other administrative data that apply to all eligible population for measures listed in Table 2.1

   b. *Electronic Data Files***:** upload electronic data files that meet inclusion criteria for each measure population and conforms to XML format and includes required MassHealth patient identifier data.

   c. *ICD Data Entry On-line Form***:** enter all aggregate ICD patient population data that supplements the uploaded electronic data files being reported;

   d. *Medical Records Data*: submit medical chart documentation associated with upload of electronic files for data validation purposes for each quarter discharge data period being reported as requested by EOHHS contractor.

   e. *Timeliness of Data***.** All data components listed above must be received by the quarter submission due dates listed in the Acute RFA and Section 6.A (6) of this EOHHS manual. Failure to timely submit all data components listed above in the formats required by EOHHS, during each quarter reporting cycle, will render the hospital not eligible for payments.

   All Hospital chief executive officers (CEO) are required to sign and submit a "Hospital Data Accuracy and Completeness Attestation Form" at the beginning of each rate year *and when there is a change in CEO, as described in the Acute Hospital RFA contract.*

2) **Data Reliability Definition.** The data used to calculate a hospitals performance on each measure and measure sets *must be* both accurate and complete as follows:

   a. **Accurate Data**. Accurate data is defined as data on all cases that meet the specific inclusion criteria for eligible patients, which includes data that is collected and abstracted from the patient's medical record and other administrative data. If the data are not collected or abstracted from records accurately then that data will not be reliable.

   b. **Incomplete Data**. Incomplete data is defined as data that is selectively collected or because the hospital leaves out eligible cases in submitted data files. If the hospital submits accurate data but leaves out eligible cases in data files, and vice versa, then those data are not reliable. Data that are not reliable raise concerns for determining hospital performance.

   c. **Missing and Invalid Data.** Missing data refers to data elements that have no values present for the records submitted whereas, invalid data refers to data element values that fall outside the range of allowable values defined by the measure specifications manuals. Reducing missing and invalid data is critical to minimizing the bias for a measure rate because this data:
      - cannot be included in the calculation of the observed measure rate;
      - may not accurately reflect the observed measure rate for the patient population;
      - may contribute to mismatches between data elements that can affect the overall validation score; and, may result in measure failure.

   All abstraction of data must provide an answer to every required data element that applies to each measure in a measure category.

Section 3. MassHealth Quality Measures Specifications

3A. Exclusive Breast Milk Feeding (NEWB-1)

Description: Exclusive breast milk feeding during the newborn's entire hospitalization.

The measure is reported as an overall rate which includes all newborns that were exclusively fed breast milk during the entire hospitalization.

Rationale: Exclusive breast milk feeding for the first 6 months of neonatal life has long been the expressed goal of World Health Organization (WHO), Department of Health and Human Services (DHHS), American Academy of Pediatrics (AAP) and American College of Obstetricians and Gynecologists (ACOG). ACOG has recently reiterated its position (ACOG, 2007). A recent Cochrane review substantiates the benefits (Kramer et al., 2002). Much evidence has now focused on the prenatal and intrapartum period as critical for the success of exclusive (or any) BF (Centers for Disease Control and Prevention [CDC], 2007; Petrova et al., 2007; Shealy et al., 2005; Taveras et al., 2004). Exclusive breast milk feeding rate during birth hospital stay has been calculated by the California Department of Public Health for the last several years using newborn genetic disease testing data. Healthy People 2010 and the CDC have also been active in promoting this goal.

Type of measure: Process

Improvement noted as: Increase in the rate.

Numerator statement: Newborns that were fed breast milk only since birth

Included population: Not applicable
Data Elements:
- Exclusive Breast Milk Feeding

Denominator statement: Single term newborns discharged alive from the hospital

Included population:
- *Liveborn newborns with ICD-10-CM Principal Diagnosis Code for single liveborn newborn as defined in Appendix A, Table 11.20.1* of the Specifications Manual for Joint Commission National Core measures version 2015B1)

Excluded populations:
- Admitted to the Neonatal Intensive Care Unit (NICU) at this hospital during the hospitalization
- ICD-10-CM Other Diagnosis Codes for galactosemia as defined in Appendix A, Table 11.21
- ICD-10-PCS Principal Procedure Code or ICD-10-PCS Other Procedure Codes for parenteral nutrition as defined in Appendix A, Table 11.22
- Experienced death
- Length of Stay >120 days
- Enrolled in clinical trials
- Patients transferred to another hospital
- Patients who are not term or with < 37 weeks gestation completed

Data Elements:
- Admission Date
- Admission to NICU
- Birthdate
- Clinical Trial
- Discharge Date
- Discharge Disposition
- ICD-10-CM Other Diagnosis Codes
- ICD-10-CM Principal Diagnosis Code
- ICD-10-PCS Other Procedure Codes
- ICD-10-PCS Principal Procedure Code
- Term Newborn

Risk adjustment: No.

Data collection approach: Retrospective data sources for required data elements include administrative data and medical records. Refer to NEWB-1 data abstraction collection tool in ***Appendix A-1*** and data dictionary ***Appendix A-10*** of this manual for detailed instructions.

Data accuracy: Variation may exist in the assignment of ICD-10 codes; therefore, coding practices may require evaluation to ensure consistency.

Measure analysis suggestion: In order to identify areas for improvement in breast milk feeding rates, hospitals may wish to review documentation for reasons for not exclusively providing breast milk. Education efforts may be targeted based on the specific reasons identified.

Sampling: Yes. For additional information on sample size requirements refer to Section 4 of this manual.

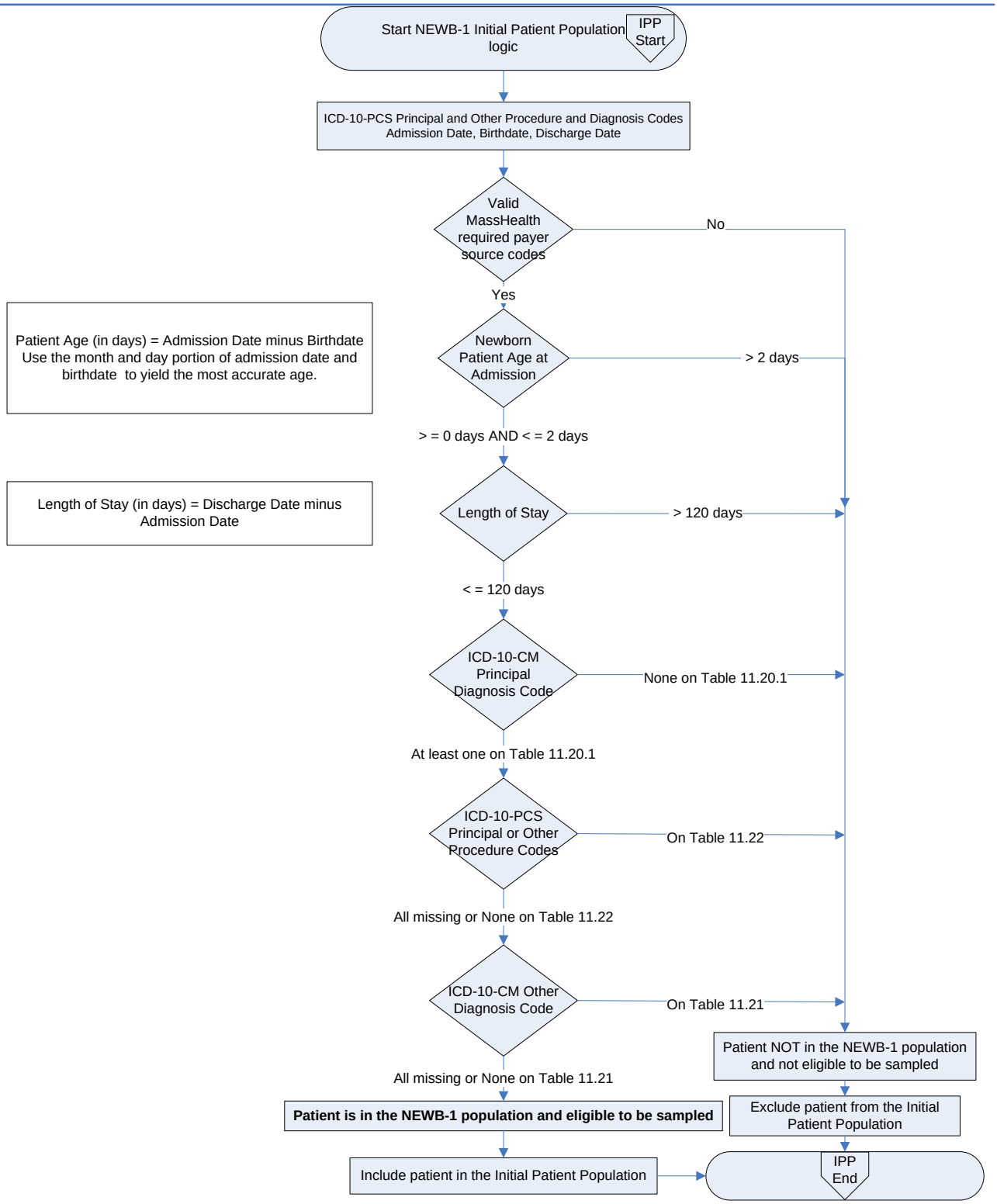
Data reported as: Aggregate rate generated from count data reported as a proportion. Refer to the calculation rules in ***Appendix A-11*** of this manual that apply to this measure.

Selected References:

- American Academy of Pediatrics. (2005). Section on Breastfeeding. Policy Statement: Breastfeeding and the Use of Human Milk. *Pediatrics*.115:496– 506.
- American College of Obstetricians and Gynecologists. (Feb. 2007). Committee on Obstetric Practice and Committee on Health Care for Underserved Women. Breastfeeding: Maternal and Infant Aspects. ACOG Committee Opinion 361.
- California Department of Public Health. (2006). Genetic Disease Branch. California In-Hospital Breastfeeding as Indicated on the Newborn Screening Test Form, Statewide, County and Hospital of Occurrence: Available at: http://www.cdph.ca.gov/data/statistics/Pages/BreastfeedingStatistics.aspx.
- Centers for Disease Control and Prevention. (Aug 3, 2007). Breastfeeding trends and updated national health objectives for exclusive breastfeeding--United States birth years 2000-2004. *MMWR - Morbidity & Mortality Weekly Report*. 56(30):760-3.
- Centers for Disease Control and Prevention. (2007). Division of Nutrition, Physical Activity and Obesity. Breastfeeding Report Card. Available at: http://www.cdc.gov/breastfeeding/data/report_card2.htm.
- Ip, S., Chung, M., Raman, G., et al. (2007). Breastfeeding and maternal and infant health outcomes in developed countries. Rockville, MD: *US Department of Health and Human Services*. Available at: http://www.ahrq.gov/downloads/pub/evidence/pdf/brfout/brfout.pdf
- Kramer, M.S. & Kakuma, R. (2002).Optimal duration of exclusive breastfeeding. [107 refs] Cochrane Database of Systematic Reviews. (1):CD003517.
- Petrova, A., Hegyi, T., & Mehta, R. (2007). Maternal race/ethnicity and one-month exclusive breastfeeding in association with the in-hospital feeding modality. *Breastfeeding Medicine*. 2(2):92-8.
- Shealy, K.R., Li, R., Benton-Davis, S., & Grummer-Strawn, L.M. (2005).The CDC guide to breastfeeding interventions. Atlanta, GA: US Department of Health and Human Services, CDC. Available at: http://www.cdc.gov/breastfeeding/pdf/breastfeeding_interventions.pdf.
- Taveras, E.M., Li, R., Grummer-Strawn, L., Richardson, M., Marshall, R., Rego, V.H., Miroshnik, I., & Lieu, T.A. (2004). Opinions and practices of clinicians associated with continuation of exclusive breastfeeding. *Pediatrics*. 113(4):e283-90.
- US Department of Health and Human Services. (2007). Healthy People 2010 Midcourse Review. Washington, DC: US Department of Health and Human Services. Available at: http://www.healthypeople.gov/data/midcourse.
- World Health Organization. (1991). Indicators for assessing breastfeeding practices. Geneva, Switzerland: World Health Organization. Available at: http://www.who.int/child-adolescent-health/new_publications/nutrition/who_cdd_ser_91.14.pdf.

ACKNOWLEDGEMENT: The MassHealth NEWB-1 measure attributes described above were adapted from the Specifications Manual for the Joint Commission National Quality Core Measures (version 2015B1) in consultation with The Joint Commission. The 'Specifications Manual for the Joint Commission National Quality Core Measures' is periodically updated by The Joint Commission. Users of the 'Specifications Manual for The Joint Commission National Core Measures' must update their software and associated documentation based on The Joint Commission's published manual production timelines.

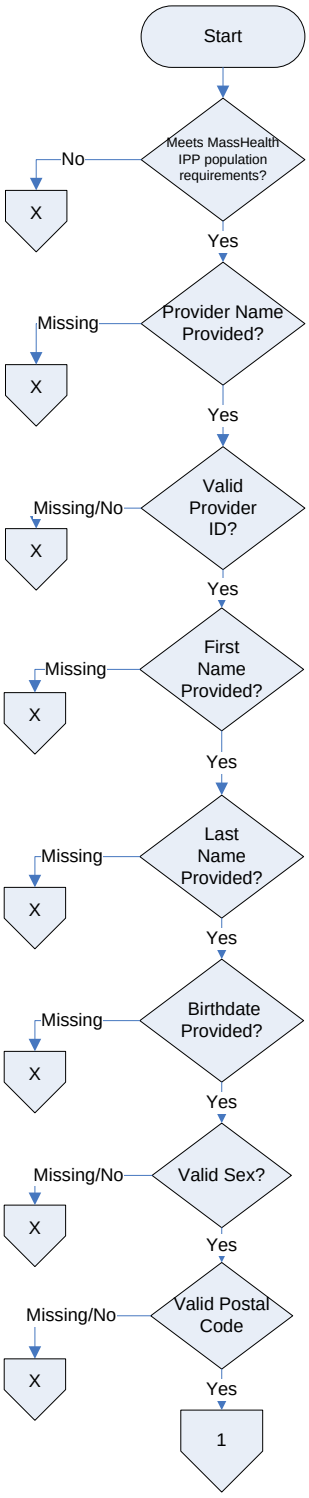
Initial Patient Population Algorithm
Exclusive Breast Milk Feeding (NEWB-1)



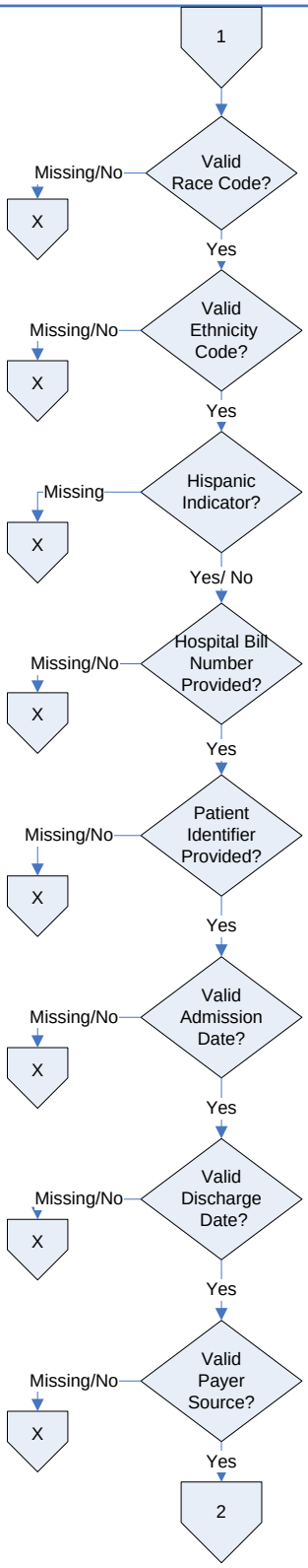
Exclusive Breast Milk Feeding (NEWB-1)

***Numerator:** Newborns that were fed breast milk only since birth

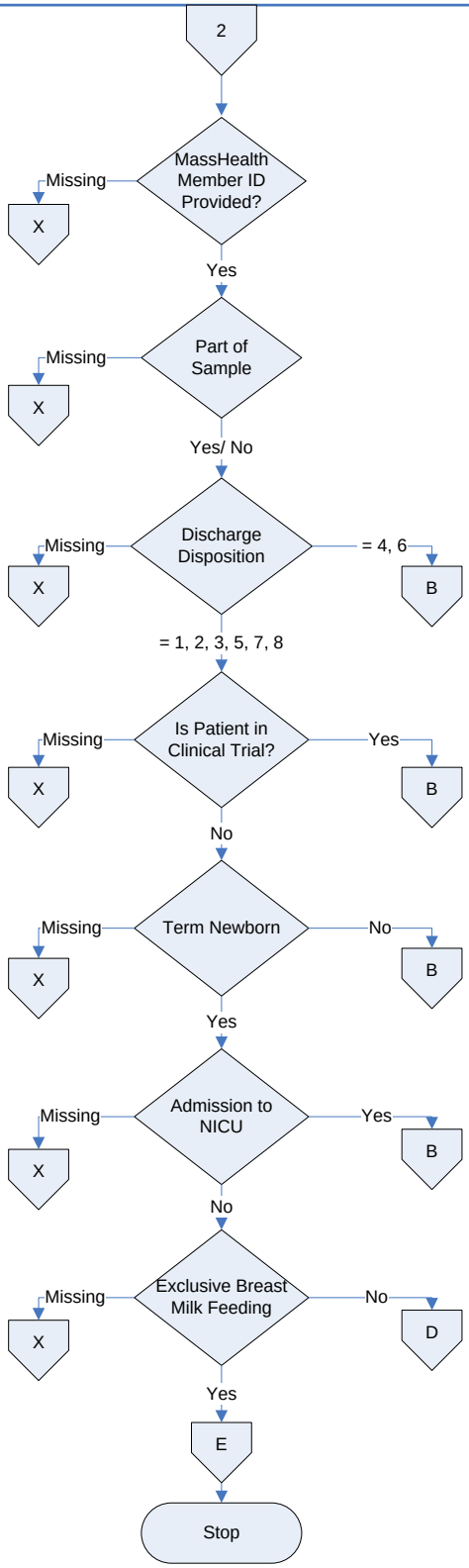
***Denominator:** Single term newborns discharged alive from the hospital

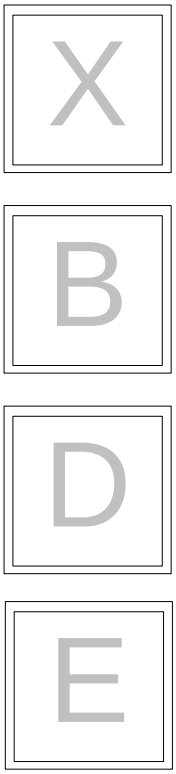


Exclusive Breast Milk Feeding (NEWB-1)



Exclusive Breast Milk Feeding (NEWB-1)





Review Ended
Not in Measure Population
Missing or Invalid Data
Case will be Rejected

Review Ended
Not in Measure Population
Excluded from Numerator
and Denominator

Review Ended
In Measure Population
Excluded from Numerator
Included in Denominator

Review Ended
In Numerator Population
Included in Numerator and
Denominator

Please contact the MassQEX Help Desk at massqexhelp@telligen.com if you require assistance to interpret the content of the measure flowcharts in this section of the manual

3B. Newborn Bilirubin Screening Prior to Discharge (NEWB-2)

Description: Bilirubin Screening completed for newborns prior to discharge.

Rationale: The American Academy of Pediatrics (AAP) clinical practice guideline recommends that every newborn be assessed prior to discharge from the hospital for jaundice and the risk of developing severe hyperbilirubinemia or kernicterus. The AAP guideline provides a framework for the detection and management of hyperbilirubinemia to reduce the incidence of untreated jaundice that could lead to unnecessary costs and morbidity.

All nurseries should establish protocols for assessing this risk through two clinical options used individually or in combination, pre-discharge measurement of the bilirubin level using TSB (total serum bilirubin) or TcB (transcutaneous bilirubin screening) and/or assessment of clinical risk factors.

Unfortunately the practice of visual inspection of the baby for jaundice frequently fails to identify the presence of the condition, particularly if the infant is discharged after a very short inpatient stay. Moreover, visual recognition is particularly inaccurate in babies with darker skin tones and in documenting the cephalo-caudal progression of jaundice in infants (Joint Commission, 2004; Bhutani, V., et al 2013). Simple serum or transcutaneous screenings conducted before discharge can significantly improve detection of hyperbilirubinemia and allow follow up and treatment. Although increased bilirubin levels occur in most newborns and are usually benign, high levels have the potential to lead to seizures or cause irreversible brain damage resulting in permanent visual, muscular or other disabilities and even death. Early screening and measurement of bilirubin levels, while the newborn is in the hospital, can lead to timely follow-up care and treatment interventions, upon discharge.

Type of measure: Process

Improvement noted as: Increase in the rate.

Numerator statement: Newborns who have had a serum or transcutaneous bilirubin screen prior to discharge to identify risk of hyperbilirubinemia.

Included population: Not applicable

Excluded population: None

Data Elements:

- Bilirubin Screening

Denominator statement: Newborns born at or beyond 35 completed weeks gestation that were delivered in the facility and discharged alive from the hospital.

Included population:

- *Liveborn newborns with ICD-10-CM Principal Diagnosis Code for liveborn newborns as defined in Appendix A, Table 11.10.3* of the Specifications Manual for Joint Commission National Core measures version 2015B1.

Excluded populations:

- Length of stay > 120 days
- Enrolled in clinical trials
- Gestational age < 35 weeks
- Comfort measures only
- Admission to the Neonatal Intensive Care Unit (NICU) during this hospitalization
- Newborns transferred to another hospital
- Newborn death prior to discharge
- Newborns born outside this hospital
- Parental refusal of bilirubin screening

Data Elements:

- Admission Date
- Admission to NICU

- Birthdate
- Born in this Facility
- Clinical Trial
- Comfort Measures Only
- Discharge Date
- Discharge Disposition
- Gestational Age
- ICD-10-CM Principal Diagnosis Code

Risk adjustment: No.

Data collection approach: Retrospective data sources for required data elements include administrative data and medical records. Refer to NEWB-2 data abstraction collection tool in ***Appendix A-2*** and data dictionary ***Appendix A-10*** of this manual for detailed instructions.

Data accuracy: Variation may exist in the assignment of ICD-10 codes; therefore, coding practices may require evaluation to ensure consistency.

Measure analysis suggestion: In order to identify areas for improvement, hospitals may want to review documentation for variables. Data could then be analyzed further to determine specific patterns or trends to help increase bilirubin screening.

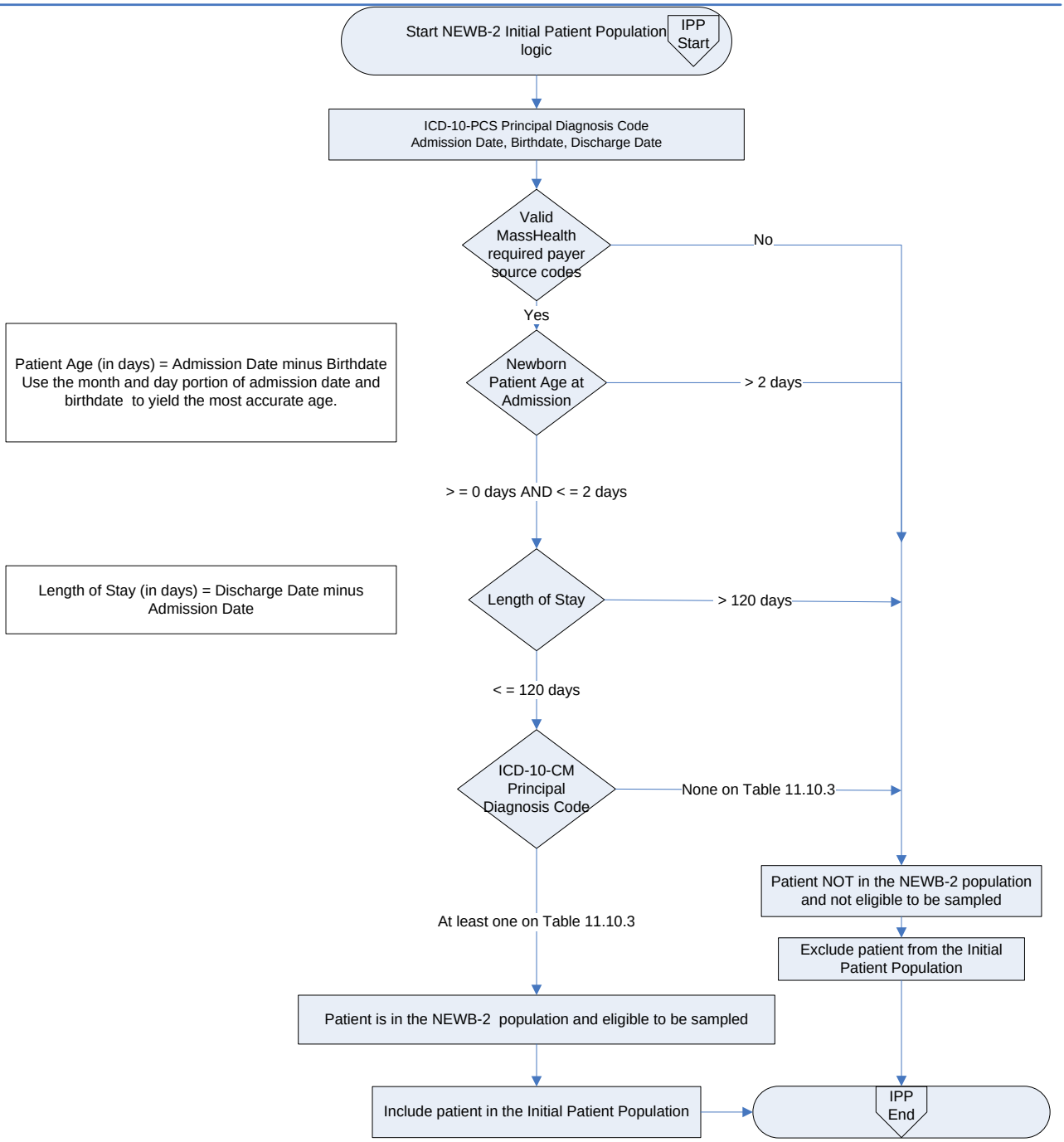
Sampling: Yes. For additional information on sample size requirements refer to Section 4 of this manual.

Data reported as: Aggregate rate generated from count data reported as a proportion. Refer to the calculation rules in ***Appendix A-11*** of this manual that apply to this measure.

Selected References:

- American Academy of Pediatrics Clinical Practice Guidelines: Management of Hyperbilirubinemia in the Newborn Infant 35 or More Weeks of Gestation. *Pediatrics,* 2004;114(1):297-316. Accessed April 2015 at: http://pediatrics.aapublications.org/content/114/1/297.full.
- Bhutani VK, Johnson LH, Schwoebel A, et al., A systems approach for neonatal hyperbilirubinemia in term and near-term newborns, *J Obstet Gynecol Neonatal Nurs,* 2006;35(4):444-455.
- Johnson L, Bhutani VK, Guidelines for the management of the jaundiced term and near-term infant, *Clin Perinatol,* 1998;25(3):555-574.
- Keren R, Bhutani VK, Luan X, et al., Identifying newborns at risk of significant hyperbilirubinemia: a comparison of two recommended approaches, *Arch Dis Child,* 2005;90(4):415-421.
- The Joint Commission Sentinel Event Alert, Issue 31: Revised guidance to help kernicterus, August 31, 2004, Available on online at: http://www.jointcommission.org/hyperbilirubinemia_resources/
- Newman, Thomas B., Universal Bilirubin Screening, Guidelines, and Evidence. *Pediatrics October 2009; 124:4 1199-1202.*
- Bhutani, V.K., Stark, R.R., Lazzeroni, L.C., Polan, R., Gourley, G.R., Kazmierczak, Melo, L., Burgos. A.E, Hall, J., and Stevenson, D.K., Pre-discharge screening for severe neonatal hyperbilirubinemia identifies infants who need phototherapy, Journal of Pediatrics (2013), vol. 162, No. 3, pp477 – 482.
- Fowler, T., Fairbrother, G., Owens, P., Garro, N., Pellegrini, C., and Simpson, L., Trends in Complicated Newborn Hospital Stays and Costs, 2002 – 2009: Implications for the Future, Medicare and Medicaid Research Review (2014), vol. 4, No.4, pp. E1 to E17, Accessed April 2015 via: https://www.cms.gov/mmrr/Articles/A2014/MMRR2014_004_04_a03.html

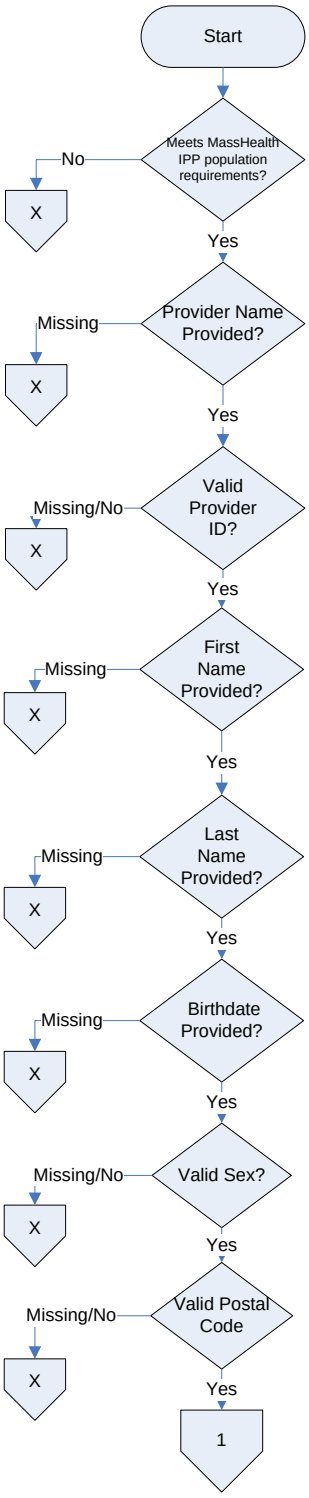
Initial Patient Population Algorithm
Newborn Bilirubin Screening (NEWB-2)



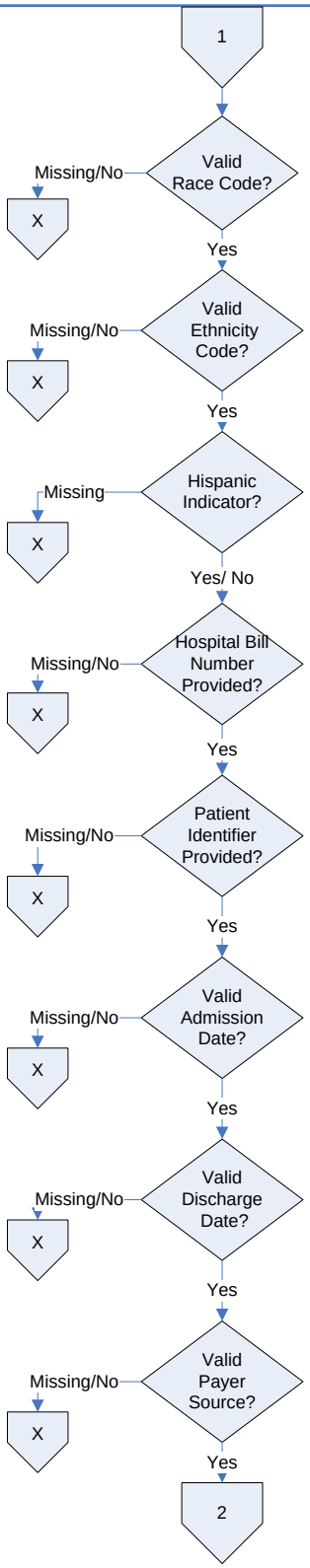
Newborn Bilirubin Screening (NEWB-2)

***Numerator:** Newborns who have a serum or transcutaneous bilirubin screen prior to discharge to identify risk of hyperbilirubinemia

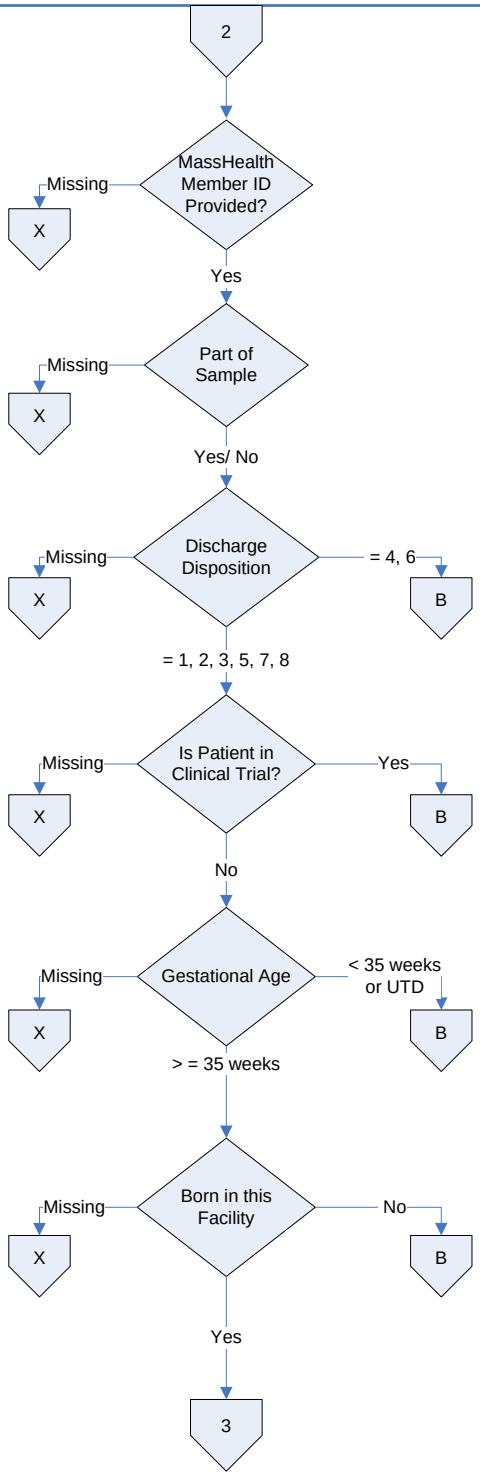
***Denominator:** Newborns born at or beyond 35 completed weeks gestation delivered in the facility and discharged alive from the hospital



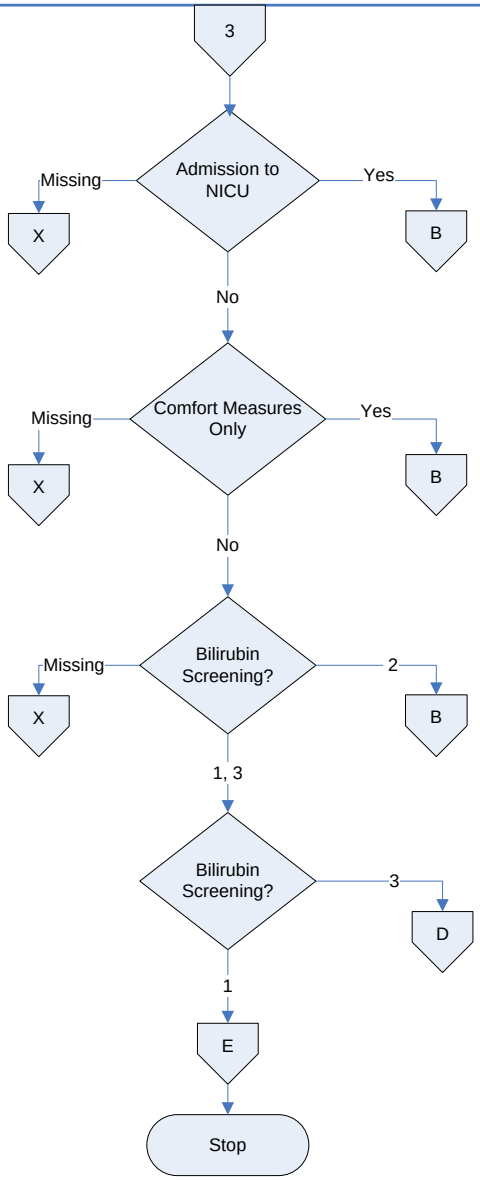
Newborn Bilirubin Screening (NEWB-2)



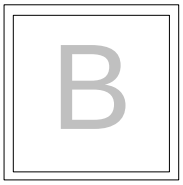
Newborn Bilirubin Screening (NEWB-2)



Newborn Bilirubin Screening (NEWB-2)



Review Ended
Not in Measure Population
Missing or Invalid Data
Case will be Rejected



Review Ended
Not in Measure Population
Excluded from Numerator and Denominator

Review Ended
In Measure Population
Excluded from Numerator
Included in Denominator

Review Ended
In Numerator Population
Included in Numerator and Denominator

Please contact the MassQEX Help Desk at massqexhelp@telligen.com if you require assistance to interpret the content of the measure flowcharts in this section of the manual

3C. Elective Delivery ≥ 37 and < 39 completed weeks gestation (MAT-3)

Description: Patients with elective vaginal deliveries or elective cesarean sections at >= 37 and <39 weeks of gestation completed.

Rationale: For almost 3 decades, the American College of Obstetricians and Gynecologists (ACOG) and the American Academy of Pediatrics (AAP) have had in place a standard requiring 39 completed weeks gestation prior to elective delivery, either vaginal or operative (ACOG, 1996). A survey conducted in 2007 of almost 20,000 births in HCA hospitals throughout the U.S. carried out in conjunction with the March of Dimes at the request of ACOG revealed that almost 1/3 of all babies delivered in the United States are electively delivered with 5% of all deliveries in the U.S. delivered in a manner violating ACOG/AAP guidelines. Most of these are for convenience, and result in significant short term neonatal morbidity (neonatal intensive care unit admission rates of 13- 21% (Clark et al., 2009).

According to Glantz (2005), compared to spontaneous labor, elective inductions result in more cesarean deliveries and longer maternal length of stay. The American Academy of Family Physicians (2000) also notes that elective induction doubles the cesarean delivery rate. Repeat elective cesarean sections before 39 weeks gestation also result in higher rates of adverse respiratory outcomes, mechanical ventilation, sepsis and hypoglycemia for the newborns (Tita et al., 2009).

Type of measure: Process

Improvement noted as: Decrease in the rate.

Numerator statement: Patients with elective deliveries

Included population: *ICD-10-PCS Principal Procedure Code or ICD-10-PCS Other Procedure Codes* for one or more of the following:

- Medical induction of labor as defined in Appendix A, Table 11.05 (of the Specifications Manual for Joint Commission National Core measures version *2015B1*) while not in Labor prior to the procedure
- Cesarean birth as defined in Appendix A, Table 11.06 (of the Specifications Manual for Joint Commission National Core measures version *2015B1*) and all of the following:
  - not in Labor
  - no history of a Prior Uterine Surgery

Excluded population: None

Data Elements:

- *ICD-10-PCS Other Procedure Codes*
- *ICD-10-PCS Principal Procedure Code*
- Labor
- Prior Uterine Surgery

Denominator statement: Patients delivering newborns with >= 37 and < 39 weeks of gestation completed

Included population:

- *ICD-10-PCS Principal Procedure Code or ICD-10-PCS Other Procedure Codes* for delivery as defined in Appendix A: *ICD-10-PCS Code Tables 11.01.1* Specifications Manual for Joint Commission National Core measures version *2015B1*.

- *ICD-10-CM Principal Diagnosis Code or ICD-10-CM Other Diagnosis Codes* for planned cesarean birth in labor as defined in Appendix A, Table 11.06.1 of the Specifications Manual for Joint Commission National Core measures version *2015B1*.

Excluded population:

- *ICD-10-CM Principal Diagnosis Code or ICD-10-CM Other Diagnosis Codes* for conditions possibly justifying elective delivery prior to 39 weeks gestation as defined in Appendix A,

Table 11.07 of the Specifications Manual for Joint Commission National Core measures version *2015B1*.

- Less than 8 years of age
- Greater than or equal to 65 years of age
- Length of stay > 120 days
- Enrolled in clinical trials
- Gestational Age < 37 or > = 39 weeks or UTD

Data Elements:

- Admission Date
- Birthdate
- Clinical Trial
- Discharge Date
- Gestational Age
- *ICD-10-CM Other Diagnosis Codes*
- *ICD-10-CM Principal Diagnosis Code*

Risk adjustment: No

Data collection approach: Retrospective data sources for required data elements include administrative data and medical records. Refer to MAT-3 data abstraction collection tool in ***Appendix A-3*** and data dictionary ***Appendix A-10*** of this manual for detailed instructions.

Data accuracy: Variation may exist in the assignment of *ICD-10* codes; therefore, coding practices may require evaluation to ensure consistency.

Measure analysis suggestion: In order to identify areas for improvement, hospitals may want to review results based on specific *ICD-10* codes or patient populations. Data could be analyzed further to determine specific patterns or trends to help reduce elective deliveries.

Sampling: Yes. For additional information on sample size requirements refer to Section 4 of this manual.

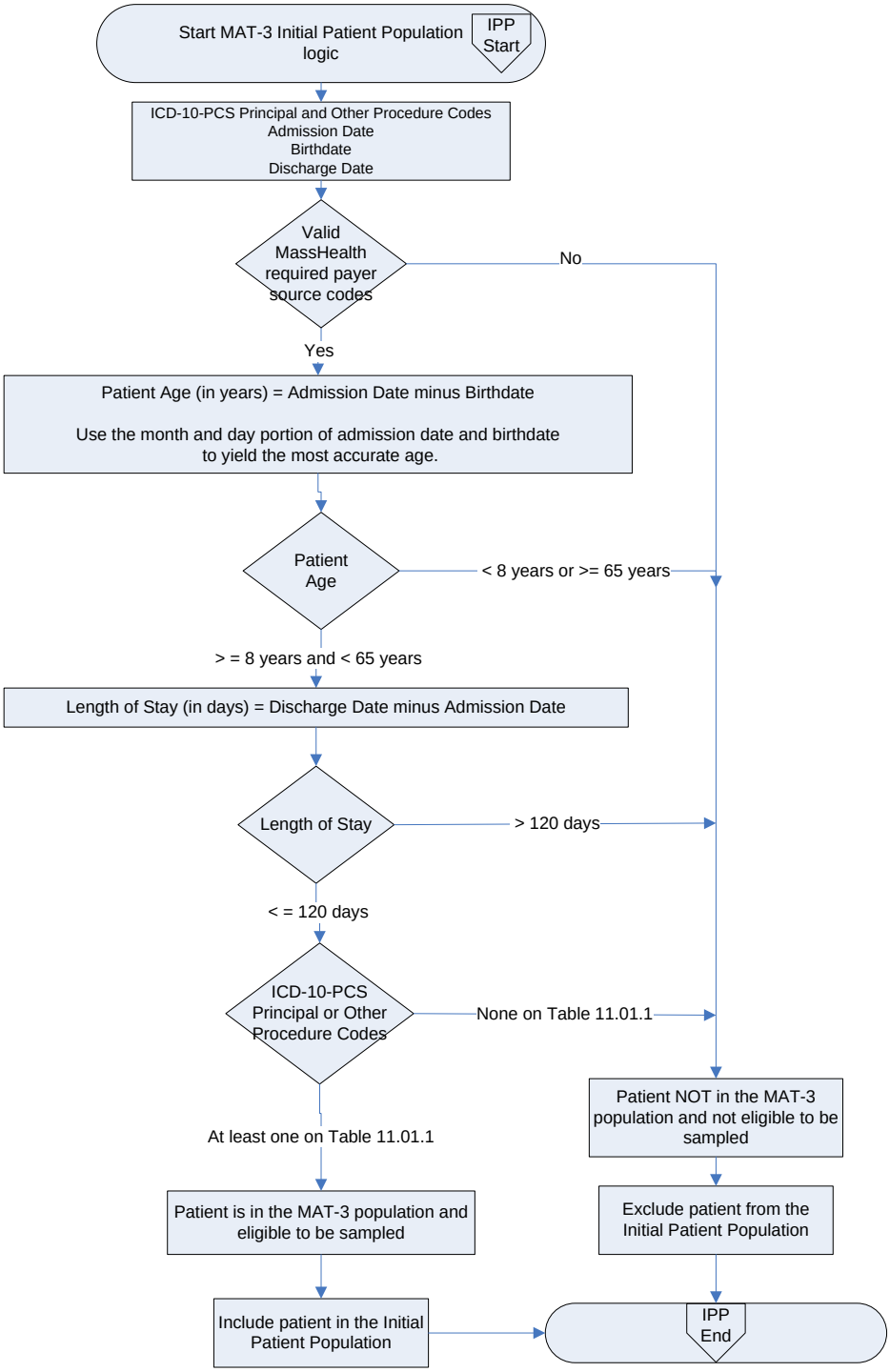
Data reported as: Aggregate rate generated from count data reported as a proportion. Refer to the calculation rules in ***Appendix A-11*** of this manual that apply to this measure.

Selected References:

- American Academy of Family Physicians. (2000). Tips from Other Journals: Elective induction doubles cesarean delivery rate, 61, 4.Retrieved December 29, 2008 at: http://www.aafp.org/afp/20000215/tips/39.html.
- American College of Obstetricians and Gynecologists. (November 1996). ACOG Educational Bulletin.
- Clark, S., Miller, D., Belfort, M., Dildy, G., Frye, D., & Meyers, J. (2009). Neonatal and maternal outcomes associated with elective delivery. [Electronic Version]. *Am J Obstet Gynecol*. 200:156.e1-156.e4.
- Glantz, J. (Apr.2005). Elective induction vs. spontaneous labor associations and outcomes. [Electronic Version]. *J Reprod Med*. 50(4):235-40.
- Tita, A., Landon, M., Spong, C., Lai, Y., Leveno, K., Varner, M, et al. (2009). Timing of elective repeat cesarean delivery at term and neonatal outcomes. [Electronic Version]. *NEJM*. 360:2, 111-120.

ACKNOWLEDGEMENT: The MassHealth MAT-3 measure attributes described above were adapted from Specifications Manual for the Joint Commission National Quality Core Measures (version 2015B1) in consultation with The Joint Commission. The 'Specifications Manual for the Joint Commission National Quality Core Measures' is periodically updated by The Joint Commission. Users of the 'Specifications Manual for The Joint Commission National Core Measures' must update their software and associated documentation based on The Joint Commission's published manual production timelines.

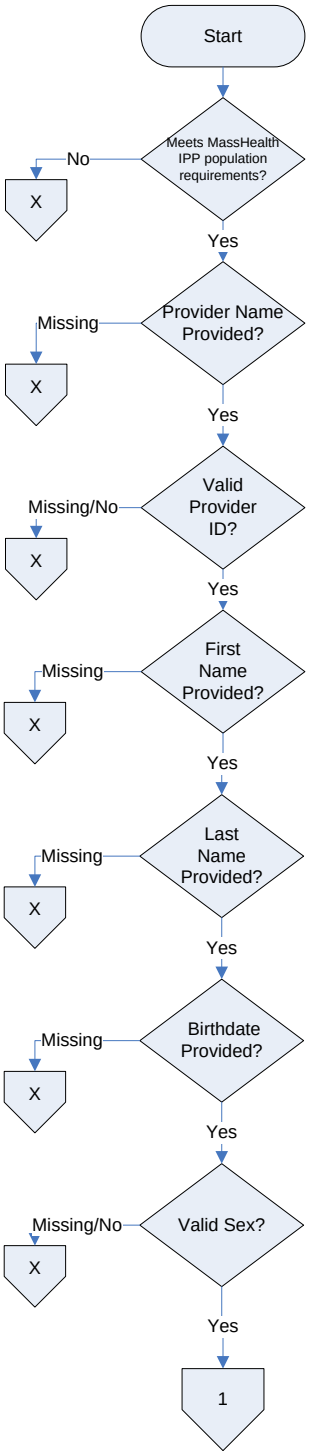
Initial Patient Population Algorithm
Elective Delivery (MAT-3)



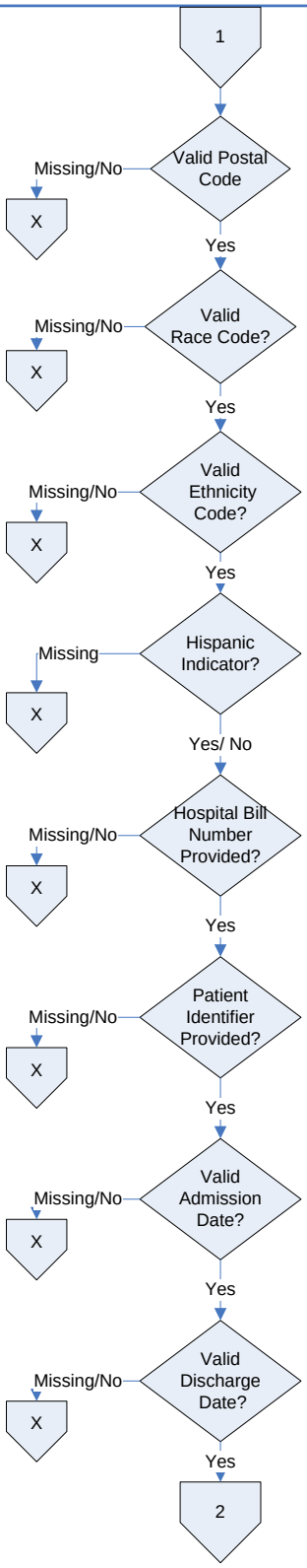
Elective Delivery (MAT-3)

***Numerator:** Patients with elective deliveries completed

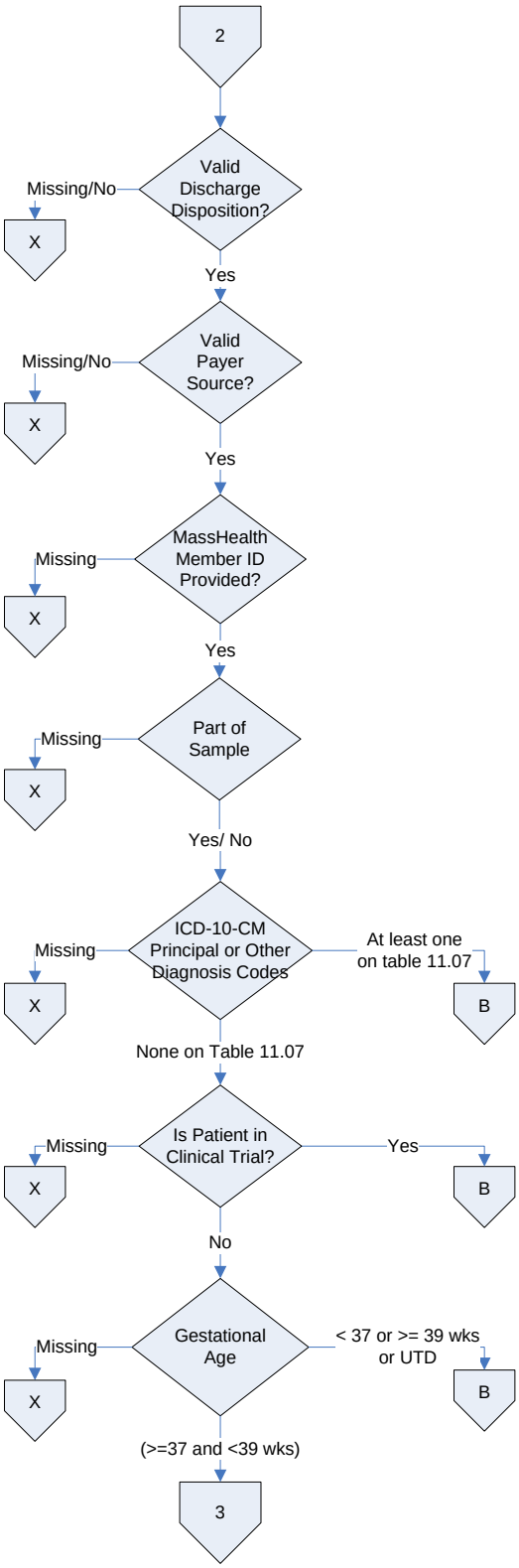
***Denominator:** Patients delivering newborns with >= 37 and <39 weeks gestation completed



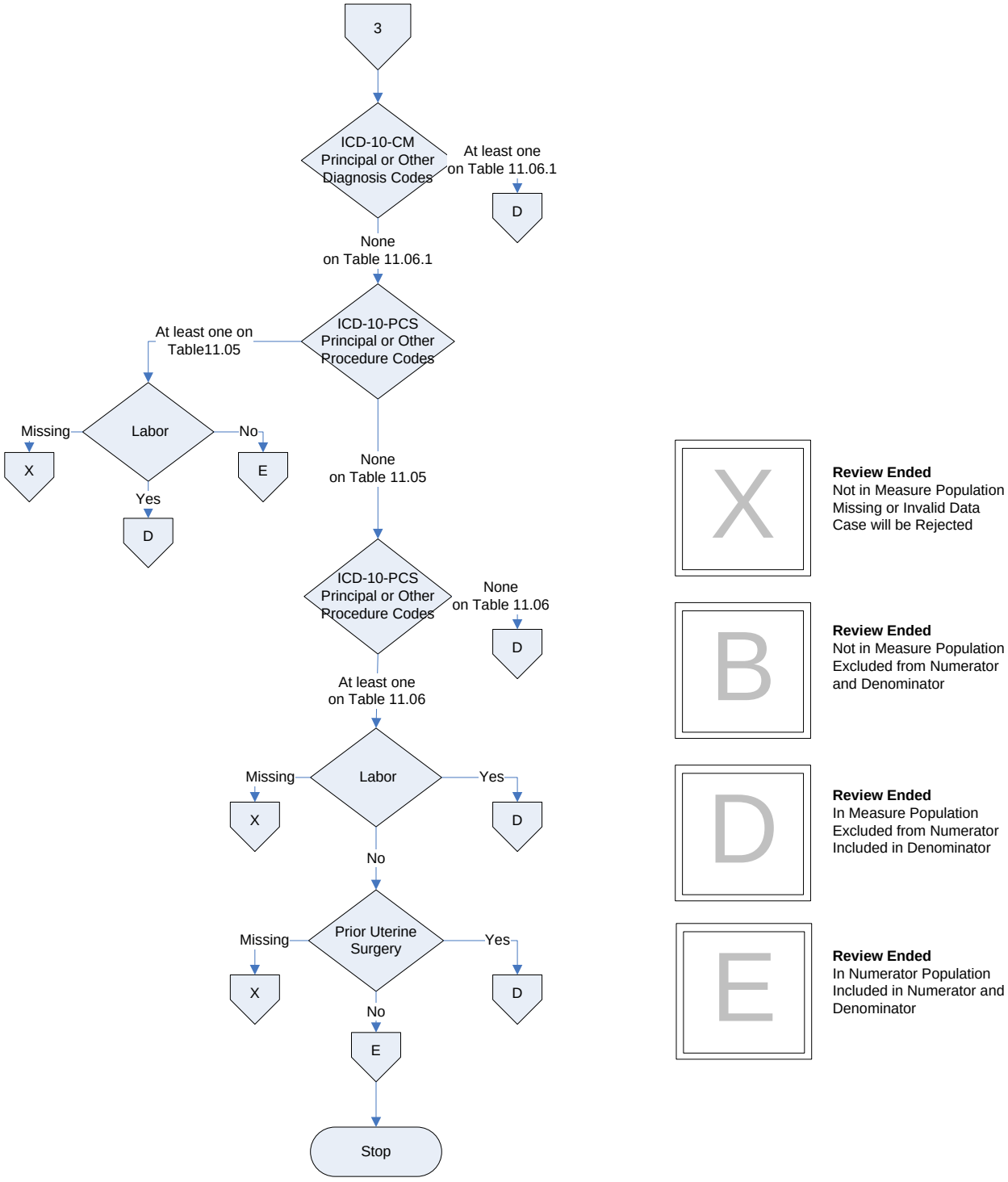
Elective Delivery (MAT-3)



Elective Delivery (MAT-3)



Elective Delivery (MAT-3)



Please contact the MassQEX Help Desk at massqexhelp@telligen.com if you require assistance to interpret the content of the measure flowcharts in this section of the manual.

3D. Cesarean Birth, Nulliparous vertex singleton term (MAT-4)

Description: Nulliparous women with a term, singleton baby in a vertex position delivered by cesarean birth.

Rationale: The removal of any pressure to not perform a cesarean birth has led to a skyrocketing of hospital, state and national cesarean section (CB) rates. Some hospitals now have CB rates over 50%. Hospitals with CB rates at 15-20% have infant outcomes that are just as good and better maternal outcomes (Gould et al., 2004). There are no data that higher rates improve any outcomes, yet the CB rates continue to rise. This measure seeks to focus attention on the most variable portion of the CB epidemic, the term labor CB in nulliparous women. This population segment accounts for the large majority of the variable portion of the CB rate, and is the area most affected by subjectivity.

As compared to other CB measures, what is different about NTSV CB rate (Low-risk Primary CB in first births) is that there are clear cut quality improvement activities that can be done to address the differences. Main et al. (2006) found that over 60% of the variation among hospitals can be attributed to first birth labor induction rates and first birth early labor admission rates. The results showed if labor was forced when the cervix was not ready the outcomes were poorer. Alfirevic et al. (2004) also showed that labor and delivery guidelines can make a difference in labor outcomes. Many authors have shown that physician factors, rather than patient characteristics or obstetric diagnoses are the major driver for the difference in rates within a hospital (Berkowitz, et al., 1989; Goyert et al., 1989; Luthy et al., 2003). The dramatic variation in NTSV rates seen in all populations studied is striking according to Menacker (2006). Hospitals within a state (Coonrod et al., 2008; California Office of Statewide Hospital Planning and Development [OSHPD], 2007) and physicians within a hospital (Main, 1999) have rates with a 3-5 fold variation.

Type of measure: Outcome

Improvement noted as: Decrease in the rate.

Numerator statement: Patients with cesarean births

Included population: *ICD-10-PCS Principal Procedure Code or ICD-10-PCS Other Procedure Codes* for cesarean birth as defined in Appendix A, Table 11.06 of the Specifications Manual for Joint Commission National Core measures version *2015B1*
Excluded population: None
Data Elements:

- *ICD-10-PCS Other Procedure Codes*
- *ICD-10-PCS Principal Procedure Code*

Denominator statement: Nulliparous patients delivered of a live term singleton newborn in vertex presentation.

Included population:

- *ICD-10-PCS Principal Procedure Code or ICD-10-PCS Other Procedure Codes* for delivery (as defined in Appendix A: *ICD-10-PCS Code Tables 11.01.1* of the Specifications Manual for Joint Commission National Core measures version *2015B1*)
- *Nulliparous patients* with ICD-*10-CM Principal Diagnosis Code or ICD-10-CM Other Diagnosis Codes* for outcome of delivery as defined in Appendix A, Table 11.08 (of the Specifications Manual for Joint Commission National Core measures version *2015B1*) and with a delivery of a newborn with 37 weeks or more of gestation completed

Excluded populations:

- *ICD-10-CM Principal Diagnosis Code or ICD-10-CM Other Diagnosis Codes* for multiple gestations and other presentations as defined in Appendix A, Table 11.09 (of the Specifications Manual for Joint Commission National Core measures version *2015B1*)
- Less than 8 years of age
- Greater than or equal to 65 years of age
- Length of stay > 120 days
- Enrolled in clinical trials
- Gestational age < 37 weeks or UTD

Data Elements:

- Admission Date
- Birthdate
- Clinical Trial
- Discharge Date
- Gestational Age
- *ICD-10-CM Other Diagnosis Codes*
- *ICD-10-CM Principal Diagnosis Code*
- Number of Previous Live Births

Risk adjustment: Yes. The direct standardization method is used to adjust for variation in outcomes that stem from differences in patient characteristics (risk factors). This method uses aggregate data and typically adjusts for only one risk factor (age of population). Direct standardization risk adjustment method applies the national maternal distribution weight at first delivery to the aggregated measure population by weighting the observed cesarean section rates for each maternal age group stratum according to their national frequency. The age groups are then summed to give the adjusted (or expected) rate. The adjusted rate is then interpreted as what the cesarean section rate would be expected to be if the organization performed at the national rate for each age group.
Below is a table of the national maternal distribution weights that apply at first delivery used to calculate the risk adjusted rate for each maternal age stratum from the hospitals data.

1. Within each age stratum, count the number of denominator and numerator cases found.
2. Within each age stratum, calculate the observed measure rate as the count of numerator cases divided by count of denominator cases.
3. Within each age stratum, multiply the observed measure rate by the corresponding National Maternal Distribution Weight at First Delivery, using table provided below, to create the weighted cesarean section measure rates. The weighted rate should be calculated to 8 decimal points.
4. Sum up the weighted rates over all the age strata to calculate aggregate risk-adjusted rate and rounded to 6 decimal points.

Direct Standardization File Information (Effective 7/1/2012)*

Maternal Age Stratum	2010 Population	2010 National Maternal Distribution Weight at First Delivery
Under 15	4,372	0.00272597
15-19	298,098	0.18586610
20-24	472,286	0.29447349
25-29	420,062	0.26191147
30-34	277,901	0.17327314
35-39	105,097	0.06552868
40-44	23,941	0.01492737
45-65	2,075	0.00129378

**Source*: ORYX Risk Adjustment Guide (2012)

Data Elements: Birthdate

Data collection approach: Retrospective data sources for required data elements include administrative data and medical records. Refer to MAT-4 data abstraction collection tool in ***Appendix A-4*** and data dictionary ***Appendix A-10*** of this manual for detailed instructions.

Data accuracy: Variation may exist in the assignment of *ICD-10 codes*; therefore, coding practices may require evaluation to ensure consistency.

Measure analysis suggestion: In order to identify areas for improvement, hospitals may want to review results based on specific *ICD-10 codes* or patient populations. Data could then be analyzed further determine specific patterns or trends to help reduce cesarean sections.

Sampling: Yes. For additional information on sample size requirements refer to Section 4 of this manual.

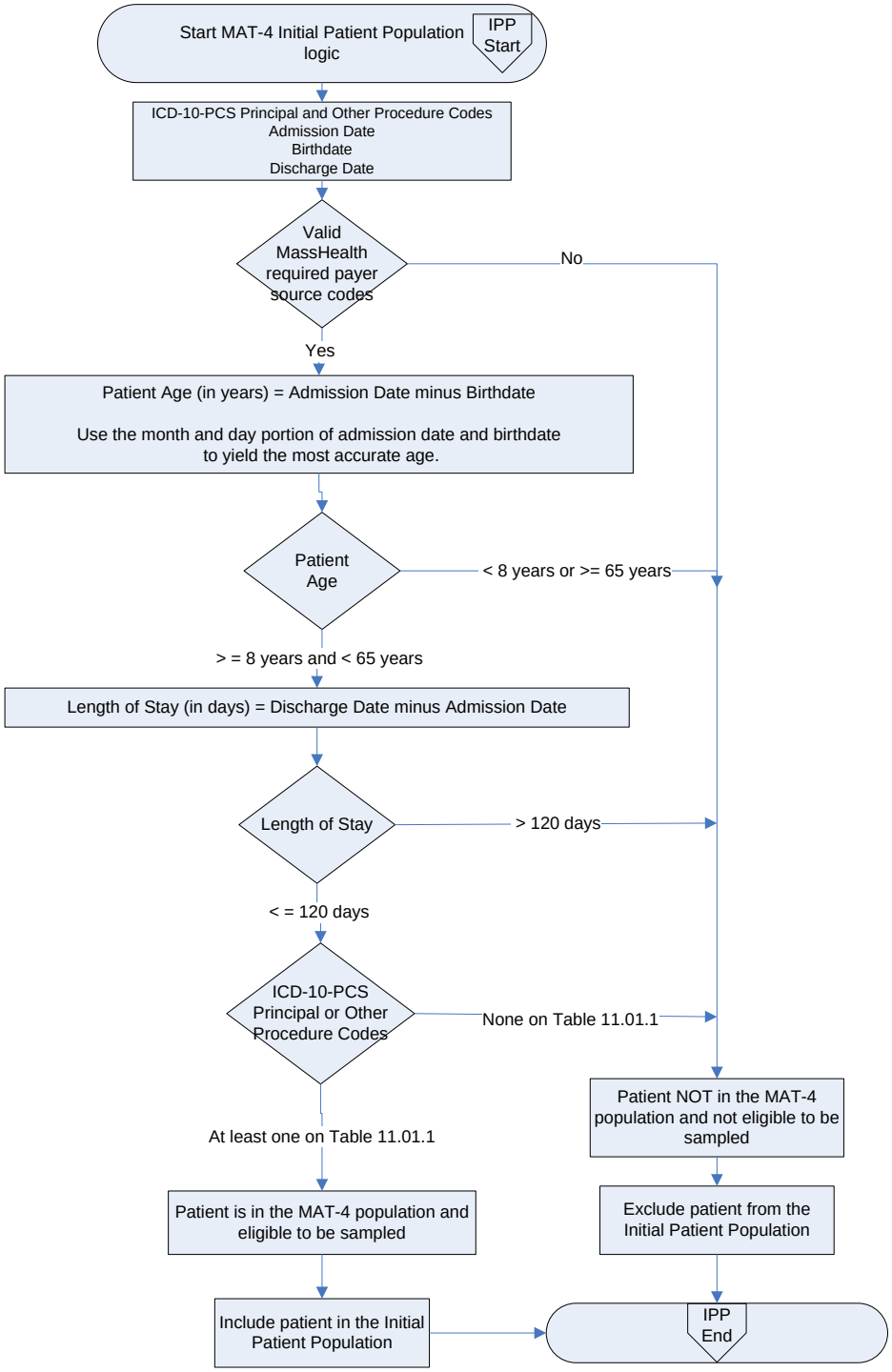
Data reported as: Aggregate rate generated from count data reported as a proportion. Refer to the calculation rules in ***Appendix A-11*** of this manual that apply to this measure.

Selected References:

- Agency for Healthcare Research and Quality. (2002). *AHRQ Quality Indicators—Guide to Inpatient Quality Indicators: Quality of Care in Hospitals—Volume, Mortality, and Utilization*. Revision 4 (December 22, 2004). AHRQ Pub. No. 02-RO204.
- Alfirevic, Z., Edwards, G., & Platt, M.J. (2004). The impact of delivery suite guidelines on intrapartum care in "standard primigravida." *Eur J Obstet Gynecol Reprod Biol*.115:28-31.
- American College of Obstetricians and Gynecologists. (2000). *Task Force on Cesarean Delivery Rates. Evaluation of Cesarean Delivery*. (Developed under the direction of the Task Force on Cesarean Delivery Rates, Roger K. Freeman, MD, Chair, Arnold W. Cohen, MD, Richard Depp III, MD, Fredric D. Frigoletto Jr, MD, Gary D.V. Hankins, MD, Ellice Lieberman, MD, DrPH, M. Kathryn Menard, MD, David A. Nagey, MD, Carol W. Saffold, MD, Lisa Sams, RNC, MSN and ACOG Staff: Stanley Zinberg, MD, MS, Debra A. Hawks, MPH, and Elizabeth Steele).
- Bailit, J.L., Garrett, J.M., Miller, W.C., McMahon, M.J., & Cefalo, R.C. (2002). Hospital primary cesarean delivery rates and the risk of poor neonatal outcomes. *Am J Obstet Gynecol*. 187(3):721-7.
- Bailit, J. & Garrett, J. (2003). Comparison of risk-adjustment methodologies. *Am J Obstet Gynecol*.102:45-51.
- Bailit, J.L., Love, T.E., & Dawson, N.V. (2006). Quality of obstetric care and risk-adjusted primary cesarean delivery rates. *Am J Obstet Gynecol*.194:402.
- Bailit, J.L. (2007). Measuring the quality of inpatient obstetrical care. *Ob Gyn Sur*. 62:207-213.
- Berkowitz, G.S., Fiarman, G.S., Mojica, M.A., et al. (1989). Effect of physician characteristics on the cesarean birth rate. *Am J Obstet Gynecol*. 161:146-9.
- California Office of Statewide Hospital Planning and Development. (2006). *Utilization Rates for Selected Medical Procedures in California Hospitals*, Retrieved from the Internet on February 11, 2010 at: http://www.oshpd.ca.gov/HID/Products/PatDischargeData/ResearchReports/HospIPQualInd/Vol-Util_IndicatorsRpt/2007Util.pdf
- Cleary, R., Beard, R.W., Chapple, J., Coles, J., Griffin, M., & Joffe, M. (1996). The standard primipara as a basis for inter-unit comparisons of maternity care. *Br J Obstet Gynecol*. 103:223-9.
- Coonrod, D.V., Drachman, D., Hobson, P., & Manriquez, M. (2008). Nulliparous term singleton vertex cesarean delivery rates: institutional and individual level predictors. *Am J Obstet Gynecol*. 694-696.
- DiGiuseppe, D.L., Aron, D.C., Payne, S.M., Snow, R.J., Dieker, L., & Rosenthal, G.E. (2001). Risk adjusting cesarean delivery rates: a comparison of hospital profiles based on medical record and birth certificate data. *Health Serv Res*.36:959-77.
- Gould, J., Danielson, B., Korst, L., Phibbs, R., Chance, K.,& Main, E.K., et al. (2004). Cesarean delivery rate and neonatal morbidity in a low-risk population. *Am J Obstet Gynecol*, 104:11-19.
- Goyert, G.L., Bottoms, F.S., Treadwell, M.C., et al. (1989). The physician factor in cesarean birth rates. *N Engl J Med*.320:706-9.
- Le Ray, C., Carayol, M., Zeitlin, J., Berat, G., & Goffinet, F. (2006). Level of perinatal care of the maternity unit and rate of cesarean in low-risk nulliparas. *Am J Obstet Gynecol*. 107:1269-77.
- Luthy, D.A., Malmgren, J.A., Zingheim, R.W., & Leininger, C.J. (2003). Physician contribution to a cesarean delivery risk model. *Am J Obstet Gynecol*.188:1579-85.
- Main, E.K. (1999). Reducing cesarean birth rates with data-driven quality improvement activities. *Peds*. 103: 374-383.
- Main E.K., Bloomfield, L., & Hunt, G. (2004). Development of a large-scale obstetric quality-improvement program that focused on the nulliparous patient at term. *Am J Obstet Gynecol*.190:1747-58.
- Main, E.K., Moore, D., Farrell, B., Schimmel, L.D., Altman, R.J., Abrahams, C., et al., (2006). Is there a useful cesarean birth measure? Assessment of the nulliparous term singleton vertex cesarean birth rate as a tool for obstetric quality improvement. *Am J Obstet Gynecol*. 194:1644-51.
- Menacker, F. (2005).Trends in cesarean rates for first births and repeat cesarean rates for low-risk women: United States, 1990-2003. *Nat Vital Stat Rep*. 54(4): 1-5.
- Romano, P.S., Yasmeen, S., Schembri, M.E., Keyzer, J.M., & Gilbert, W.M. (2005). Coding of perineal lacerations and other complications of obstetric care in hospital discharge data. *Am J Obstet Gynecol*.106:717-25.
- U.S. Department of Health and Human Services. (2000). *Healthy People 2010: Understanding and Improving Health*. 2nd ed. Washington, DC: U.S. Government Printing Office. Measure 16-9.
- Yasmeen, S., Romano, P.S., Schembri, M.E., Keyzer, J.M., & Gilbert, W.M. (2006). Accuracy of obstetric diagnoses and procedures in hospital discharge data. *Am J Obstet Gynecol*. 194:992-1001.
- ORYX Risk Adjustment Guide (2012). Aggregate level risk adjustment through using direct standardization; The Joint commission, Accessed April 2014 at: http://www.jointcommission.org/performance_measurement.aspx

ACKNOWLEDGEMENT: The MassHealth MAT-4 measure attributes described above were adapted from "Specifications Manual for the Joint Commission National Quality Core Measures (versions *2015B1*)" with permission and in consultation with The Joint Commission (TJC). This core manual, as well as the ORYX Risk Adjustment Guide that provides the National Maternal Distribution Weight at First Delivery, is periodically updated by The Joint Commission. Users of the 'Specifications Manual for The Joint Commission National Core Measures' and ORYX Risk Adjustment Guide must update their software and associated documentation based on The Joint Commission's published manual production timelines.

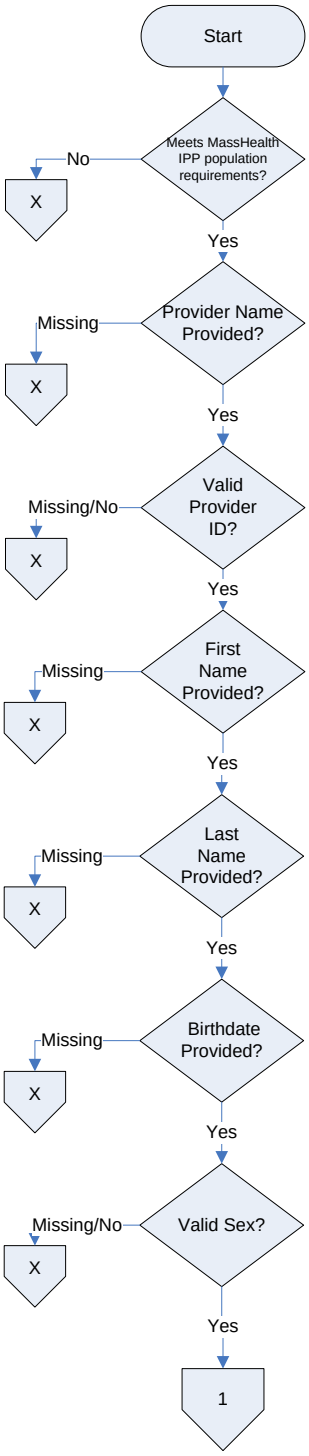
Initial Patient Population Algorithm
Cesarean Birth (MAT-4)



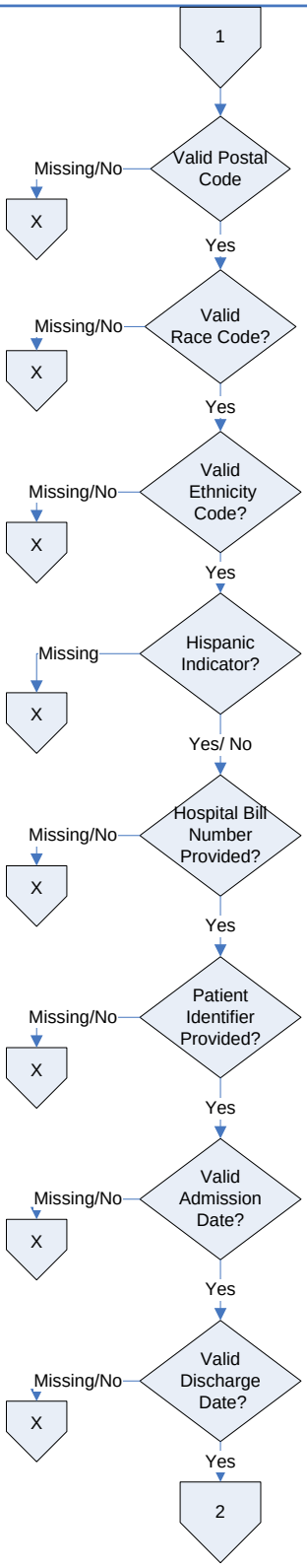
Cesarean Birth (MAT-4)

***Numerator:** Patients with cesarean births

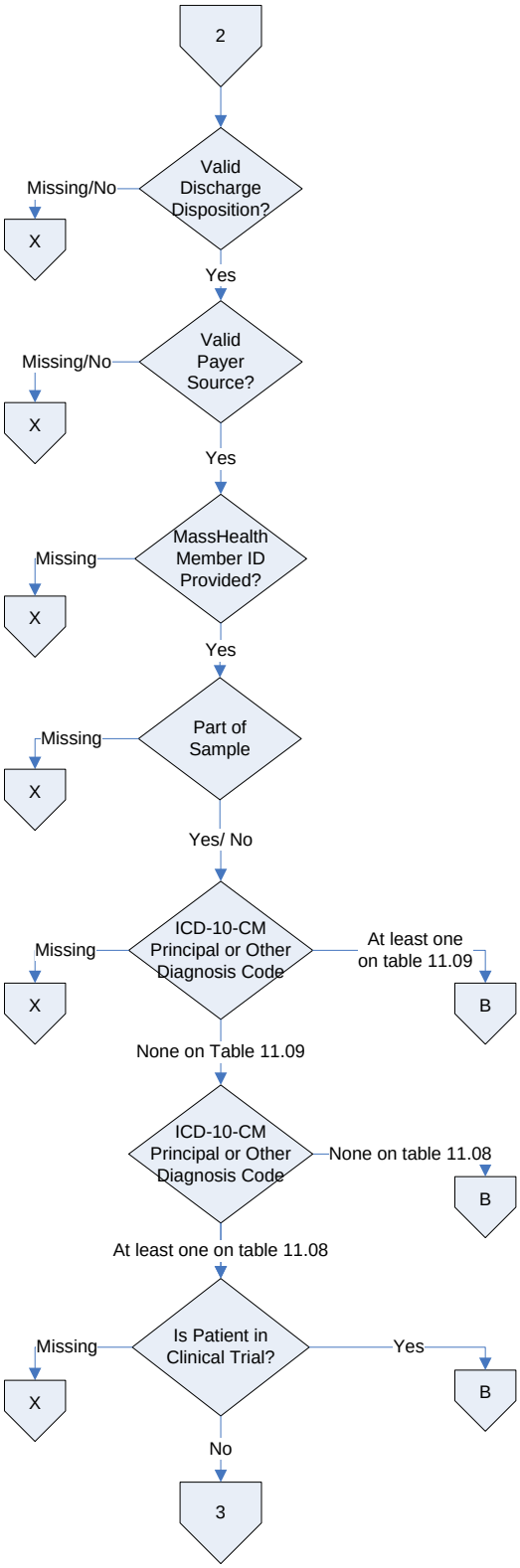
***Denominator:** Nulliparous patients delivered of a live term singleton newborn in vertex presentation



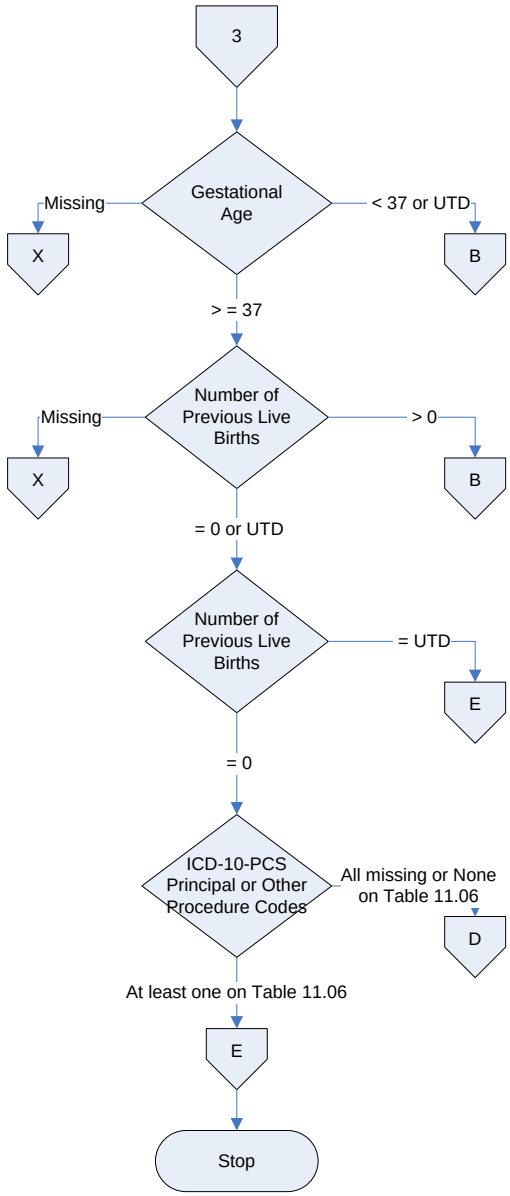
Cesarean Birth (MAT-4)



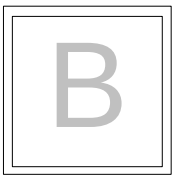
Cesarean Birth (MAT-4)



Cesarean Birth (MAT-4)



Review Ended
Not in Measure Population
Missing or Invalid Data
Case will be Rejected



Review Ended
Not in Measure Population
Excluded from Numerator and Denominator

Review Ended
In Measure Population
Excluded from Numerator
Included in Denominator

Review Ended
In Numerator Population
Included in Numerator and Denominator

Please contact the MassQEX Help Desk at massqexhelp@telligen.com if you require assistance to interpret the content of the measure flowcharts in this section of the manual.

3E. Appropriate DVT Prophylaxis for Cesarean Delivery (MAT-5)

Description: DVT prophylaxis in women undergoing Cesarean delivery.

Rationale: Pulmonary embolism (PE) is a leading cause of death in women undergoing cesarean.(10) Pregnant women have a fourfold to fivefold increased risk of thromboembolism compared with nonpregnant women(1, 2). Approximately 80% of thromboembolic events in pregnancy are venous (3), with a prevalence of 0.5–2.0 per 1,000 pregnant women (4–9). Venous thromboembolism, including pulmonary embolism, accounts for 1.1 deaths per 100,000 deliveries (3), or 9 % of all maternal deaths in the United States (10). In the developing world, the leading cause of maternal death is hemorrhage (11) ; however, in developed nations, where hemorrhage is more often successfully treated and prevented, thromboembolic disease is one of the leading causes of death(12). The prevalence and severity of this condition during pregnancy and the peripartum period warrant special consideration of management and therapy. Such therapy includes the treatment of acute thrombotic events and prophylaxis for those at increased risk of thrombotic events.

To reduce the risk of PE, current ACOG recommendations call for the use of pneumatic compression devices (PCD) in all women undergoing cesarean delivery who are not already receiving medical venous thromboembolism (VTE) prophylaxis. PCD use has been shown to reduce the incidence of PE in the general population of patients undergoing major surgery by about 70%. In cesarean deliveries, PCD use has demonstrated a two-thirds reduction in post cesarean deaths from thromboembolism.(10)

Type of measure: Process

Improvement noted as: Increase in the rate.

Numerator statement: Number of women undergoing Cesarean delivery who receive either fractionated or unfractionated heparin or heparinoid, or pneumatic compression prior to surgery.

Included population: Not applicable
Excluded population: None
Data Elements:

- DVT Prophylaxis

Denominator statement: All women undergoing Cesarean delivery.

Included population:

- *ICD-10-PCS Principal Procedure Code or ICD-10-PCS Other Procedure Codes* for delivery (as defined in Appendix A: *ICD-10-PCS* Code Tables *11.06* of the Specifications Manual for Joint Commission National Core measures version *2015B1*.

Excluded populations:

- Less than 8 years of age
- Greater than or equal to 65 years of age
- Length of stay > 120 days
- Enrolled in clinical trials

Data Elements:

- Admission Date
- Birthdate
- Clinical Trial
- Discharge Date
- ICD-10-CM Other Procedure Codes
- ICD-10-CM Principal Procedure Code

Risk adjustment: No

Data collection approach: Retrospective data sources for required data elements include administrative data and medical records. Refer to MAT-4 data abstraction collection tool in ***Appendix A-5*** and data dictionary ***Appendix A-10*** of this manual for detailed instructions.

Data accuracy: Variation may exist in the assignment of ICD-10 codes; therefore, coding practices may require evaluation to ensure consistency.

Measure analysis suggestion: In order to identify areas for improvement, hospitals may want to review documentation for reasons for not administering prophylaxis. Data could then be analyzed further to determine specific patterns or trends to help increase DVT prophylaxis.

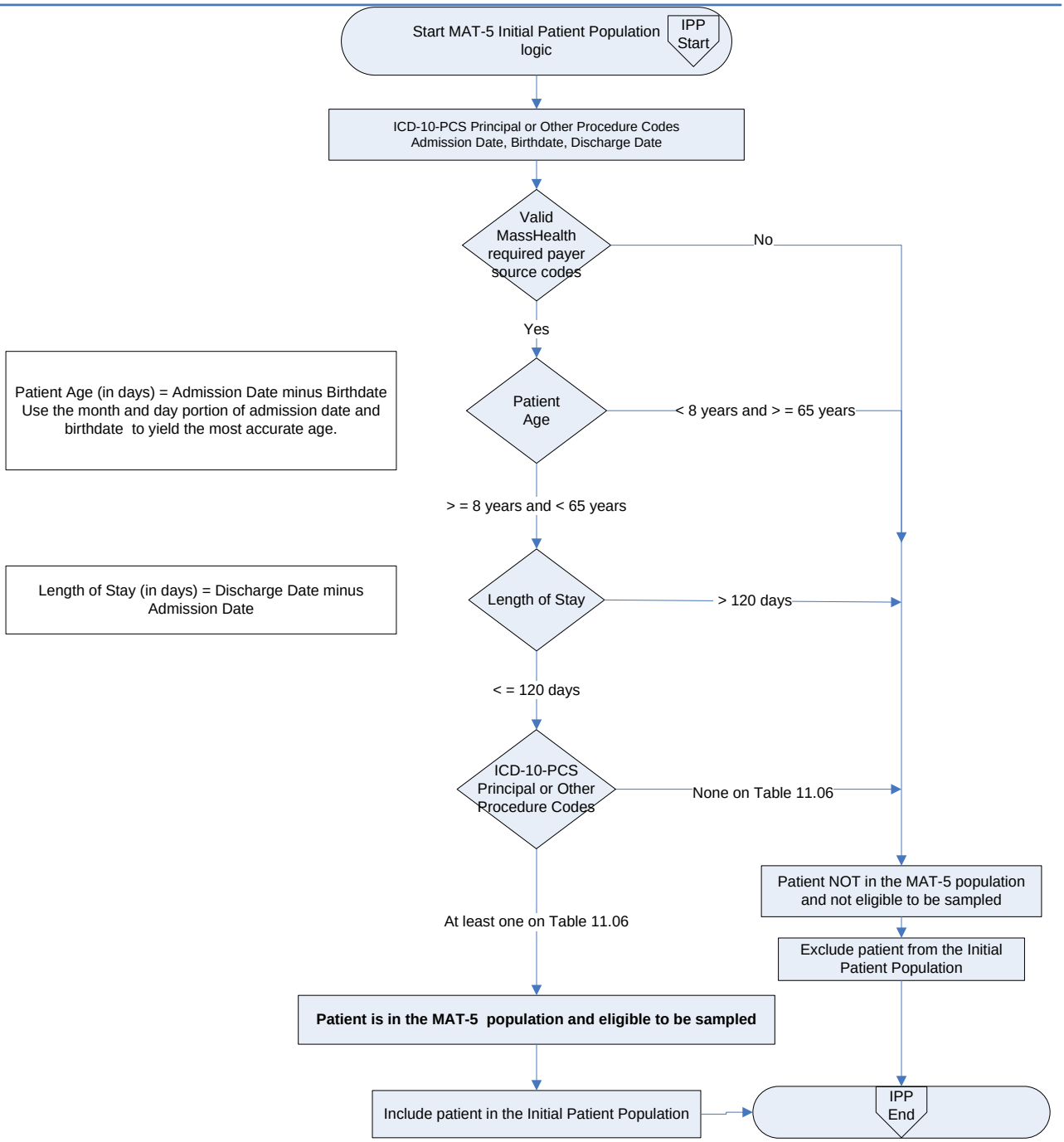
Sampling: Yes. For additional information on sample size requirements refer to Section 4 of this manual.

Data reported as: Aggregate rate generated from count data reported as a proportion. Refer to the calculation rules in ***Appendix A-11*** of this manual that apply to this measure.

Selected References:

1. Heit JA, Kobbervig CE, James AH, Petterson TM, Bailey KR, Melton LJ III. Trends in the incidence of venous thromboembolism during pregnancy or postpartum: a 30-year population-based study. Ann Intern Med 2005;143:697–706. (Level II-3)
2. Pomp ER, Lenselink AM, Rosendaal FR, Doggen CJ. Pregnancy, the postpartum period and prothrombotic defects: risk of venous thrombosis in the MEGA study. J Thromb Haemost 2008;6:632–7. (Level II-2)James AH, Jamison MG, Brancazio LR, Myers ER.
3. Venous thromboembolism during pregnancy and the postpartum period: incidence, risk factors, and mortality. Am J Obstet Gynecol 2006;194:1311–5. (Level II-3)
4. Andersen BS, Steffensen FH, Sorensen HT, Nielsen GL, Olsen J. The cumulative incidence of venous thromboembolism during pregnancy and puerperium--an 11 year Danish population-based study of 63,300 pregnancies. Acta Obstet Gynecol Scand 1998;77:170–3. (Level II-3)
5. Gherman RB, Goodwin TM, Leung B, Byrne JD, Hethumumi R, Montoro M. Incidence, clinical characteristics, and timing of objectively diagnosed venous thromboembolism during pregnancy. Obstet Gynecol 1999;94: 730–4. (Level II-3)
6. Lindqvist P, Dahlback B, Marsal K. Thrombotic risk during pregnancy: a population study. Obstet Gynecol 1999; 94:595–9. (Level II-3)
7. Simpson EL, Lawrenson RA, Nightingale AL, Farmer RD. Venous thromboembolism in pregnancy and the puerperium: incidence and additional risk factors from a London perinatal database. BJOG 2001;108:56–60. (Level II-2)
8. Jacobsen AF, Skjeldestad FE, Sandset PM. Incidence and risk patterns of venous thromboembolism in pregnancy and puerperium--a register-based case-control study. Am J Obstet Gynecol 2008;198:233.e1–233.e7. (Level II-3)
9. Liu S, Rouleau J, Joseph KS, Sauve R, Liston RM, Young D, et al. Epidemiology of pregnancy-associated venous thromboembolism: a population-based study in Canada. Maternal Health Study Group of the Canadian Perinatal Surveillance System. J Obstet Gynaecol Can 2009;31:611–20. (Level II-3)
10. Clark SL, Belfort MA, Dildy GA, Herbst MA, Meyers JA, Hankins GD. Maternal death in the 21st century: causes, prevention, and relationship to cesarean delivery. Am J Obstet Gynecol 2008;199:36.e1–5; discussion 91–2. e7–11. (Level II-3)
11. Program for Appropriate Technology in Health (PATH). Postpartum hemorrhage prevention and treatment: postpartum hemorrhage. Available at: http://www.pphprevention. org/pph.php. Retrieved April 19, 2011. (Level III)
12. Chang J, Elam-Evans LD, Berg CJ, Herndon J, Flowers L, Seed KA, et al. Pregnancy-related mortality surveillance--United States, 1991--1999. MMWR Surveill Summ 2003; 52:1–8. (Level II-3)
13. Clark SL, Meyers JA, Frye DK, Perlin JA. Patient Safety in Obstetrics: The Hospital Corporation of America Experience Am J Obstet Gynecol 2011;204:283-7
14. Casele H, Grobman WA. Cost-effectiveness of thromboprophylaxis with intermittent pneumatic compression at cesarean delivery. Obstet Gynecol 2006;108:535-540
15. Thromboembolism in pregnancy. American College of Obstetricians and Gynecologists Practice Bulletin #123, September 2011
16. Queenan JT. How to stop the relentless rise in cesarean deliveries. Obstet Gynecol 2011; 118:199-200

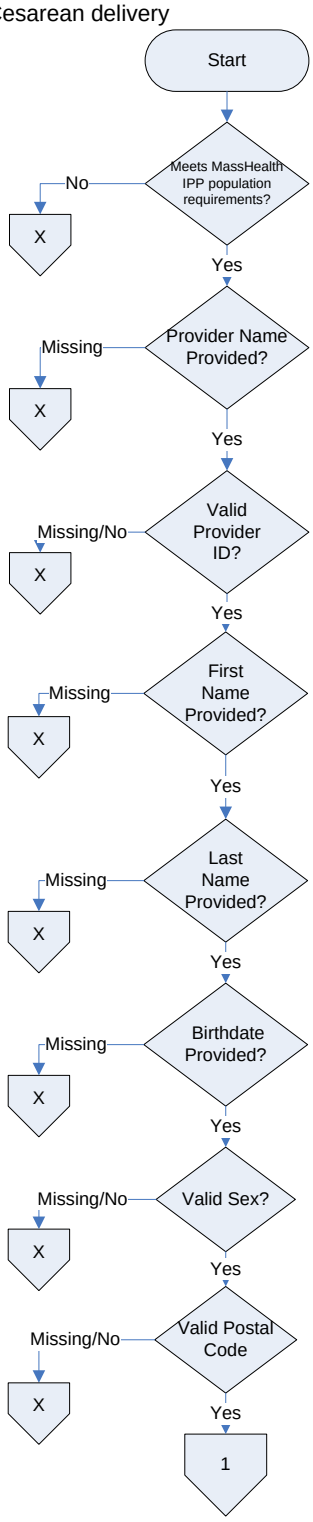
Initial Patient Population Algorithm
DVT Prophylaxis (MAT-5)



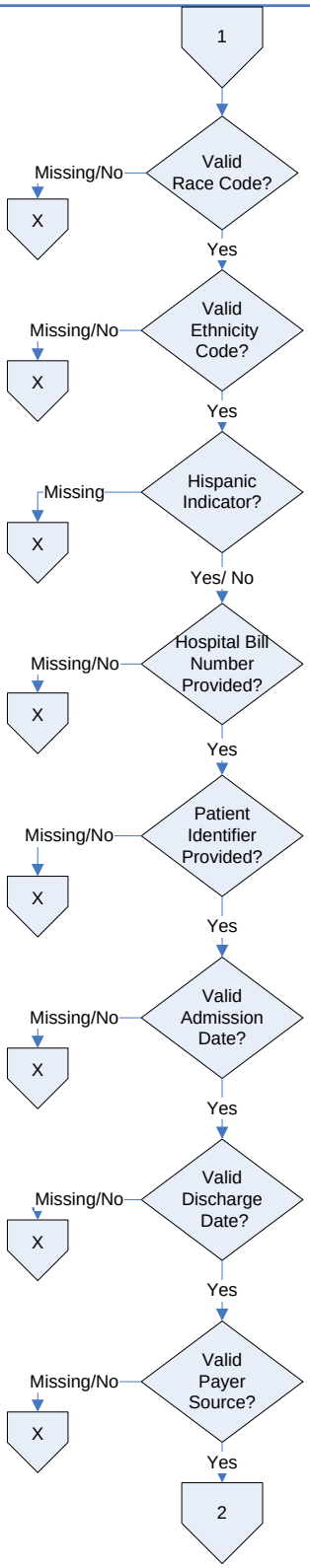
DVT Prophylaxis (MAT-5)

***Numerator:** Number of women undergoing Cesarean delivery who receive either fractionated or unfractionated heparin or heparinoid, or pneumatic compression prior to surgery

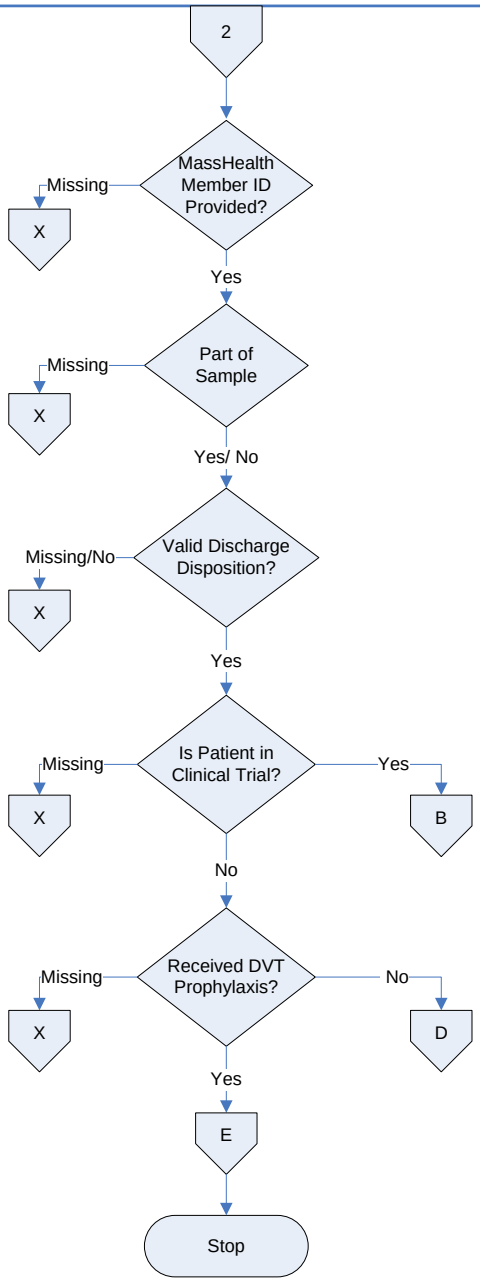
***Denominator:** All women undergoing Cesarean delivery

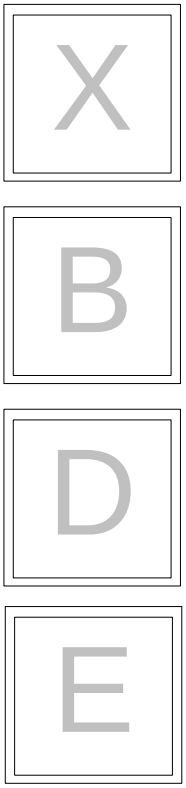


DVT Prophylaxis (MAT-5)



DVT Prophylaxis (MAT-5)





Review Ended
Not in Measure Population
Missing or Invalid Data
Case will be Rejected

Review Ended
Not in Measure Population
Excluded from Numerator
and Denominator

Review Ended
In Measure Population
Excluded from Numerator
Included in Denominator

Review Ended
In Numerator Population
Included in Numerator and
Denominator

Please contact the MassQEX Help Desk at massqexhelp@telligen.com if you require assistance to interpret the content of the measure flowcharts in this section of the manual

3F. Care Coordination Measures Set (Inpatient Discharges)

Introduction. Care coordination is the deliberate organization of care delivery activities between providers, patients, and health system components designed to improve quality and efficiency of healthcare. Care coordination measures are intended to capture a broad cross-section of diagnoses and reasons for admissions that must include patients discharged from any hospital inpatient facility unit. Thus, the measure population should not be limited to cases drawn from existing measures listed in Table 2.1 of this manual.

3F-1: Reconciled Medication List Received by Discharge Patient	(CCM-1)

Description: Percentage of patients discharged from an acute hospital inpatient facility to home or any other site of care, or their caregiver(s), who received a reconciled medication list at the time of discharge including, at a minimum, medications in the specified categories (continued, new, discontinued).

Rationale: The Institute of Medicine estimated that medication errors harm 1.5 million people each year in the United States, at an annual cost of at least $3.5 billion. Many of these medication errors occur during times of transition, when patients receive medications from different prescribers who lack access to patients' comprehensive, reconciled medication list at each care transition (e.g., inpatient discharge). Providing a reconciled medication list at discharge may improve patients' ability to manage their medication regimen properly and reduce the number of medication errors.

Type of measure: Process

Improvement noted as: An increase in the rate.

Numerator statement: Patients or their caregiver(s) who received a reconciled medication list at the time of discharge.

Data Elements:

- Reconciled Medication List

Denominator statement: Patients discharged from any unit of the acute hospital inpatient facility (e.g.: medical, surgical, rehab, psychiatric, obstetrics, etc.) to home/ self-care or any other site of care.

Excluded population:

- Patients less than 2 years
- Patients greater than or equal to 65 years of age
- Patients who died
- Patients who left against medical advice (AMA) or discontinued care

Measure Population Identification. See initial patient population algorithm.

Risk adjustment: No

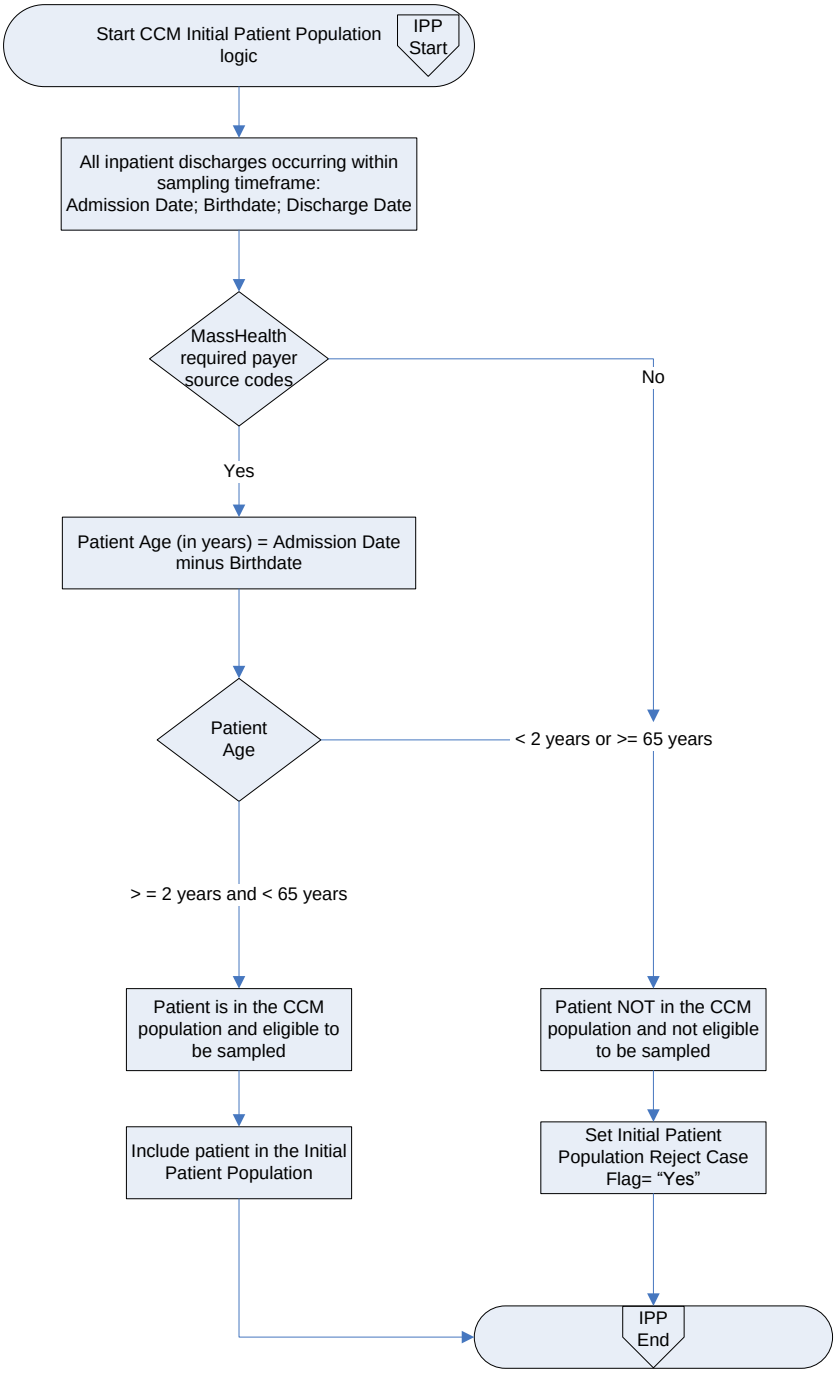
Data collection approach: Retrospective data sources for required data elements include administrative and medical records. Refer to data abstraction tool in ***Appendix A-6*** and data dictionary in ***Appendix A-10*** of this manual for detailed instructions.

Data accuracy: Variation may exist in documentation provided at the time of transition and documentation of transmission time; therefore, medical record documentation processes may require evaluation.

Measure analysis suggestion: Data could be analyzed further to determine specific patterns or trends.

Sampling: Yes. For additional information on sample size requirements refer to Section 4 of this manual.
Data reported as: Aggregate rate generated from count data reported as a proportion. Refer to the ***Appendix A-11*** for the calculation rules that apply to this measure.

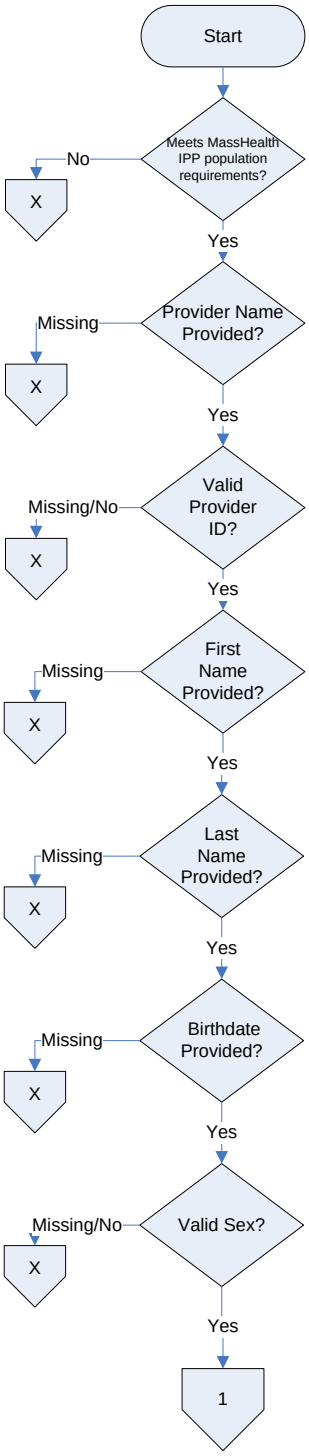
Initial Patient Population Algorithm
Care Coordination Measure (CCM-1, 2, 3)



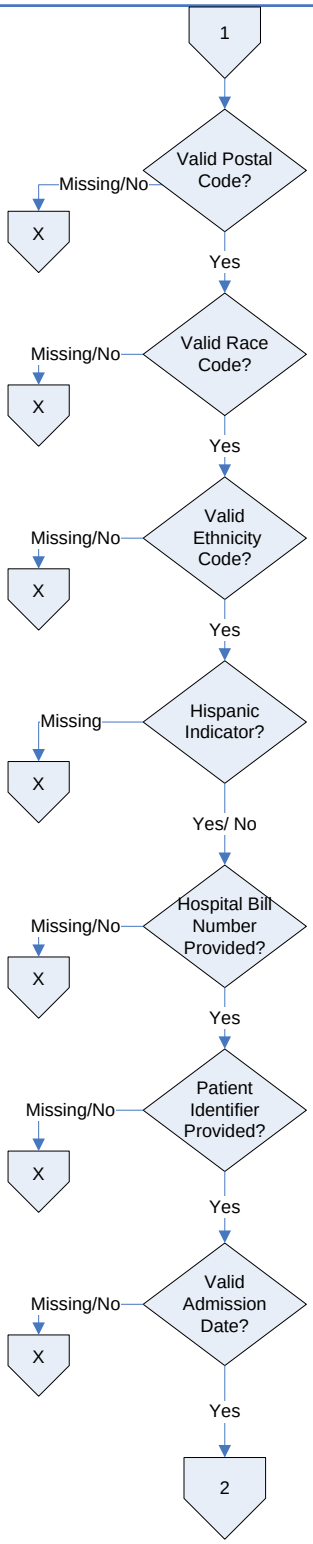
Care Coordination Measure (CCM-1)

***Numerator:** Patients or their caregiver(s) who received a reconciled medication list at the time of discharge including, at a minimum, medications in the following categories: Discontinued, Continued, and New.

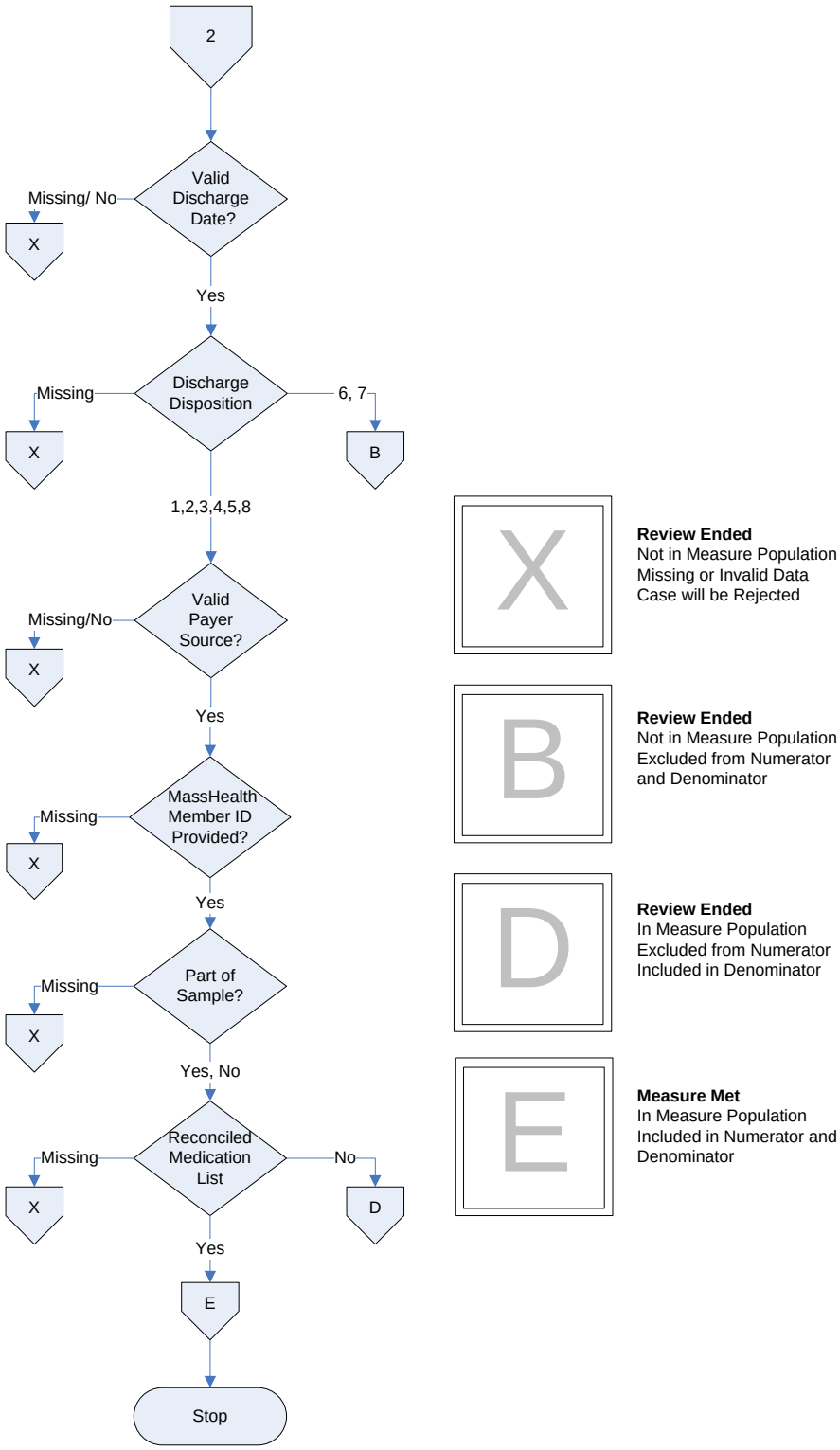
***Denominator:** Patients discharged from an inpatient facility to home/ self care or any other site of care.



Care Coordination Measure (CCM-1)



Care Coordination Measure (CCM-1)



Please contact the MassQEX Help Desk at massqexhelp@telligen.com if you require assistance to interpret the content of the measure flowcharts in this section of the manual.

3F-2. Transition Record with Specified Elements Received by Discharge Patient (CCM-2)

Description: Percentage of patients discharged from an acute hospital inpatient facility to home or any other site of care, or their caregiver(s), who received a transition record (and with whom a review of all included information was documented) at the time of discharge including, at a minimum, all of the specified elements.

Rationale: Numerous studies have identified the necessary elements required for effectively managing transitions of care at the time of discharge that should be included in transition records. National consensus has led to an agreed upon minimum set of data elements that should be in transition records to facilitate communication and exchange of information for providing proper follow up care and avoiding readmission.

Type of measure: Process measure

Improvement noted as: An increase in the rate.

Numerator statement: Patients or their caregiver(s) who received a transition record (and with whom a review of all included information was documented) at the time of discharge including, at a minimum, all of the included data elements.

Data Elements:

- Transition Record
- Reason for Inpatient Admission
- Medical Procedures and Tests Performed During Inpatient Stay and Summary of Results
- Discharge Diagnosis
- Current Medication List
- Studies Pending at Discharge
- Patient Instructions
- Advance Care Plan
- Contact Information 24 hrs/ 7 days
- Contact Information for Studies Pending
- Plan for Follow Up Care
- Primary Physician or Other Health Care Professional Designated for Follow Up Care

Denominator statement: Patients discharged from any unit of the acute hospital inpatient facility (e.g.: medical, surgical, rehab, psychiatric, obstetrics, etc.) to home/ self-care or any other site of care.

Excluded population:

- Patients less than 2 years
- Patients greater than or equal to 65 years of age
- Patients who died
- Patients who left against medical advice (AMA) or discontinued care

Measure Population Identification. See initial patient population algorithm

Risk adjustment: No

Data collection approach: Retrospective data sources for required data elements include administrative and medical records. Refer to data abstraction tool in ***Appendix A-6*** and data dictionary in ***Appendix A-10*** of this manual for detailed instructions.

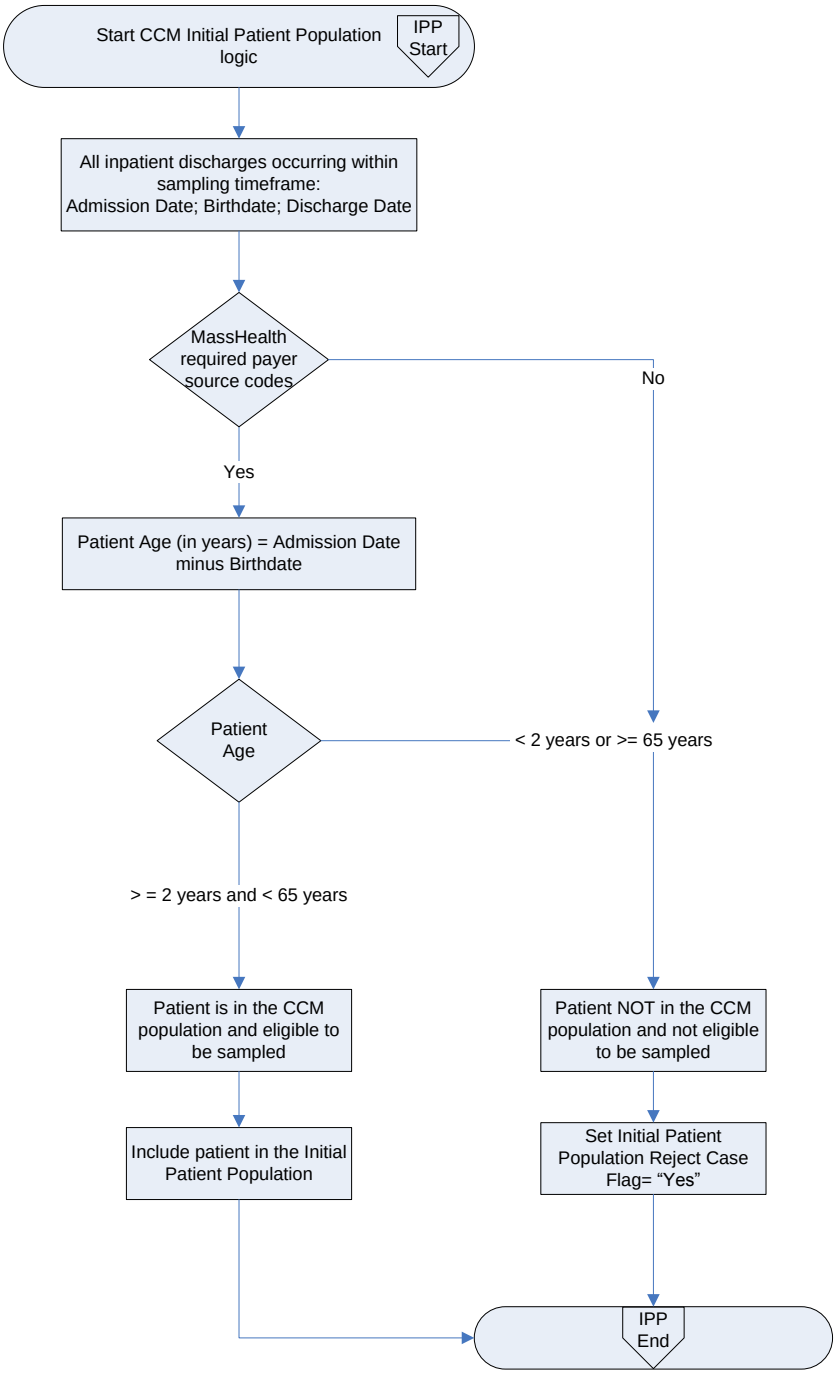
Data accuracy: Variation may exist in documentation provided at the time of transition and documentation of transmission time; therefore, medical record documentation processes may require evaluation.

Measure analysis suggestion: Data could be analyzed further to determine specific patterns or trends.

Sampling: Yes. For additional information on sample size requirements refer to Section 4 of this manual.

Data reported as: Aggregate rate generated from count data reported as a proportion. Refer to the ***Appendix A-11*** for the calculation rules that apply to this measure.

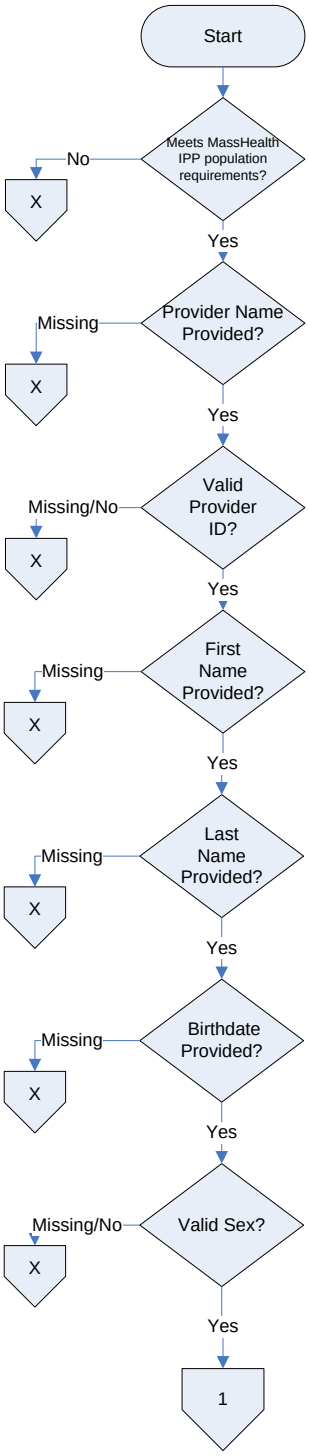
Initial Patient Population Algorithm
Care Coordination Measure (CCM-1, 2, 3)



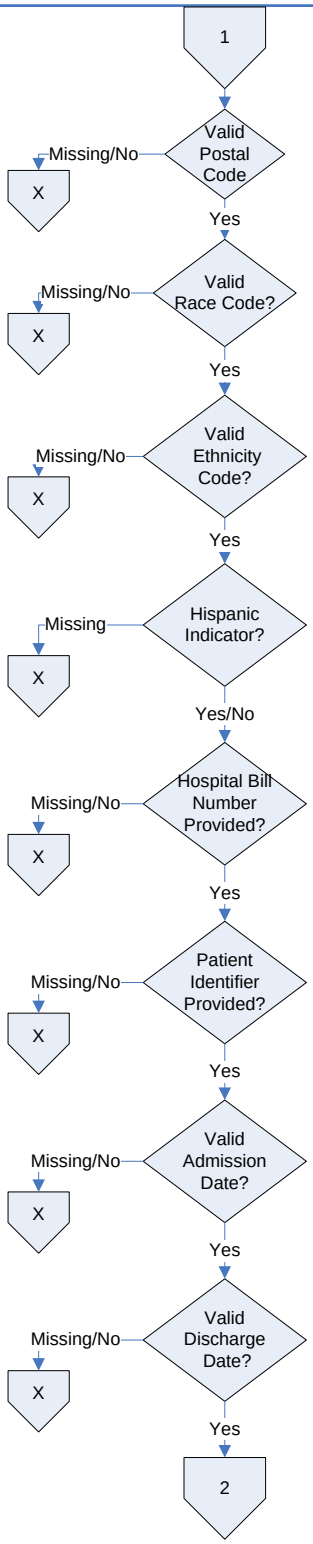
Care Coordination Measure (CCM-2)

***Numerator:** Patients or their caregiver(s) who received a written transition record at the time of discharge.

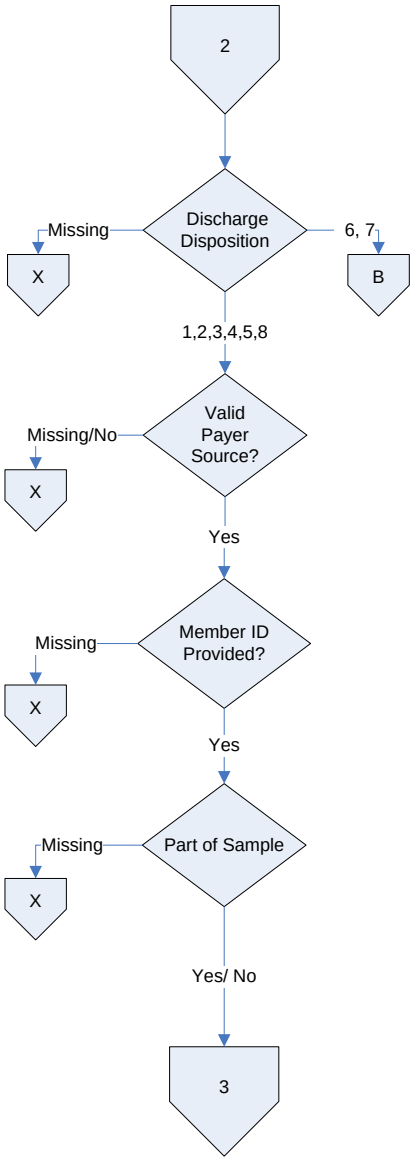
***Denominator:** Patients discharged from an inpatient facility to home/ self care or any other site of care.



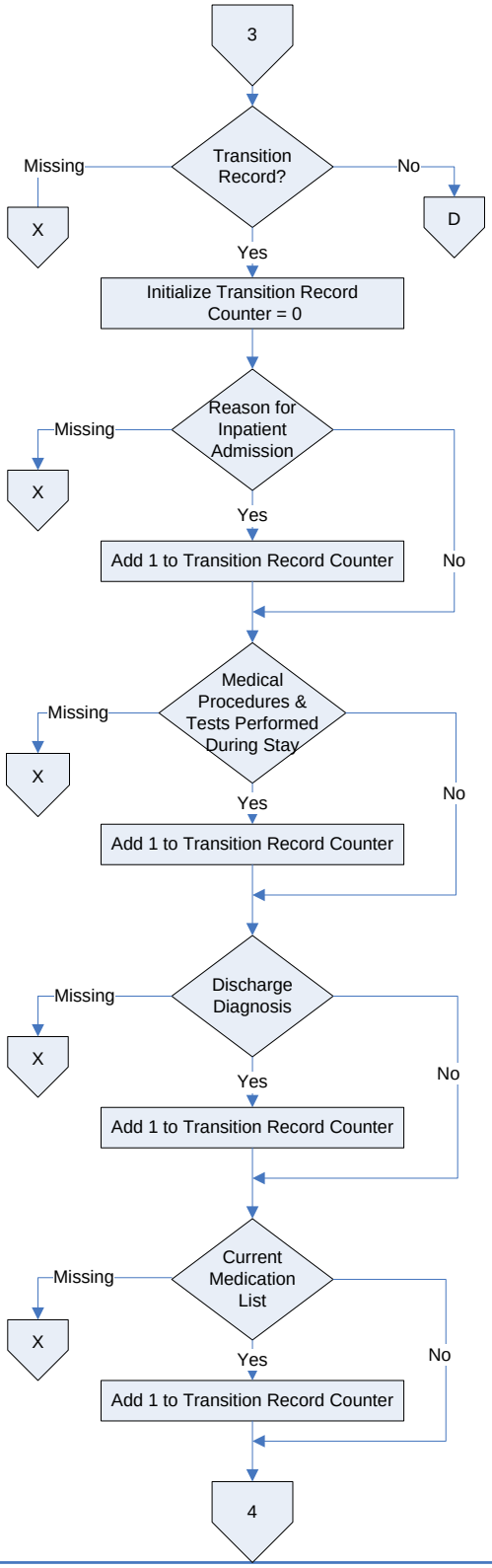
Care Coordination Measure (CCM-2)



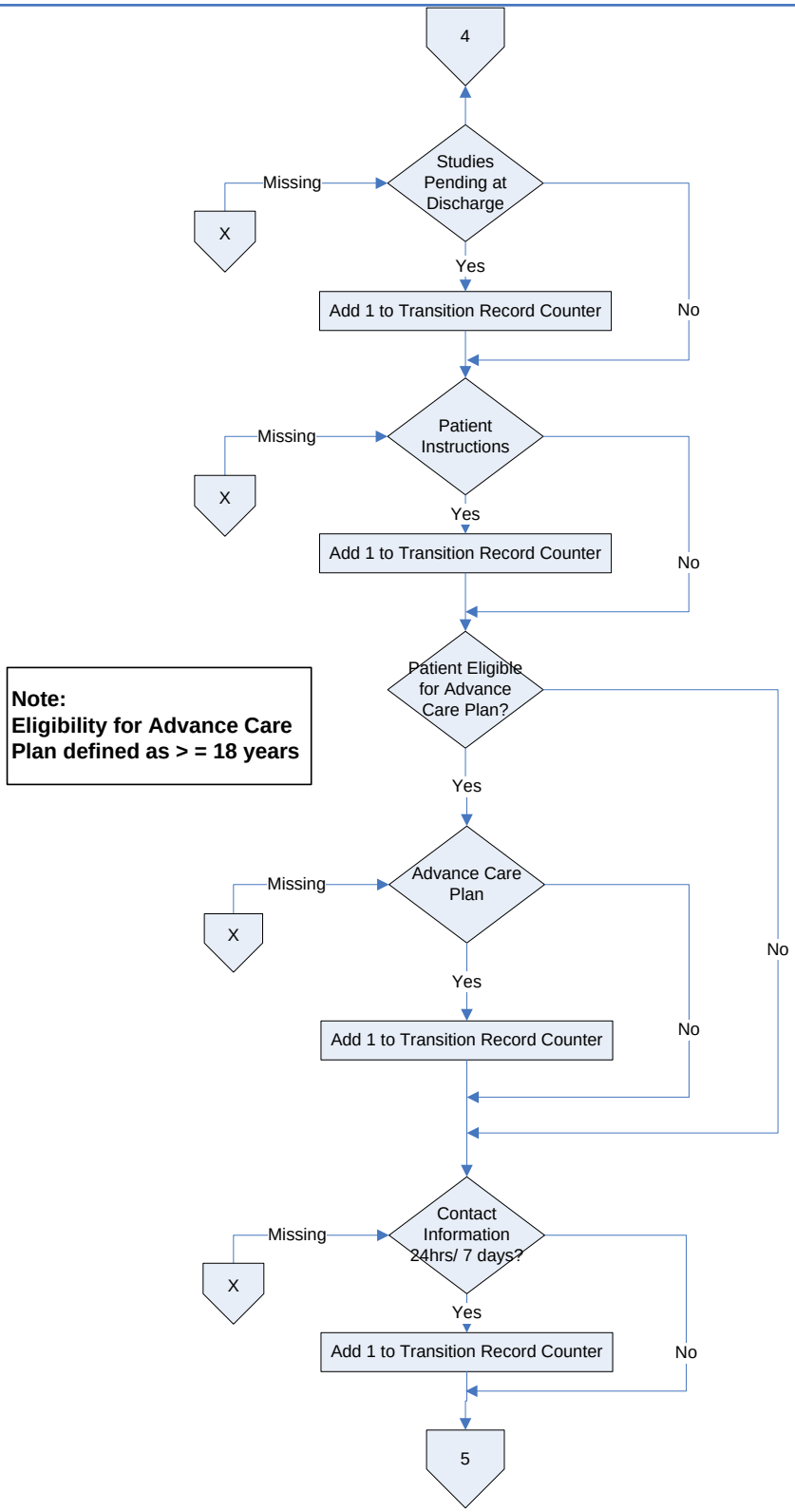
Care Coordination Measure (CCM-2)



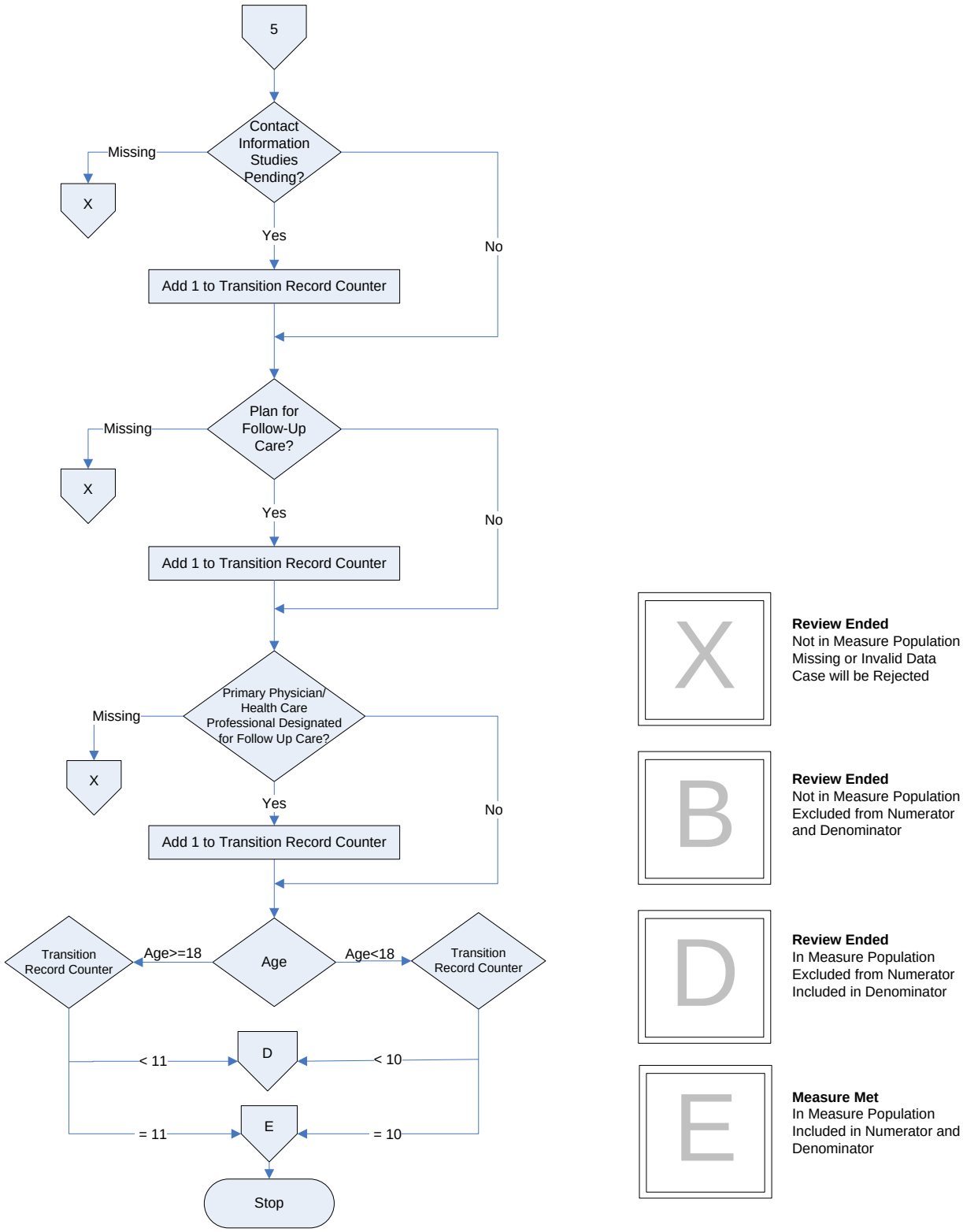
Care Coordination Measure (CCM-2)



Care Coordination Measure (CCM-2)



Care Coordination Measure (CCM-2)



Please contact the MassQEX Help Desk at massqexhelp@telligen.com if you require assistance to interpret the content of the measure flowcharts in this section of the manual.

3F-3: Timely Transition of Transition Record	(CCM-3)

Description: Percentage of patients discharged from an acute hospital inpatient facility to home or any other site of care for whom a transition record was transmitted to the facility or primary physician or other health care professional designated for follow-up care within 2 days of discharge.

Rationale: Timely communication and exchange of patient information between hospitals and physician or other provider caring for the patient allows the receiving provider to effectively facilitate treatment consistent with patient's clinical presentation, and decrease risk of hospital readmissions

Type of measure: Process measure

Improvement noted as: An increase in the rate.

Numerator statement: Patients for whom a transition record was transmitted to the facility or primary physician or other health care professional designated for follow-up within 2 days of discharge.

Data Elements:

- Discharge Date
- Transmission Date

Denominator statement: Patients discharged from any unit of the acute hospital inpatient facility (e.g.: medical, surgical, rehab, psychiatric, obstetrics, etc.) to home/ self-care or any other site of care.

Excluded population:

- Patients less than 2 years
- Patients greater than or equal to 65 years of age
- Patients who died
- Patients who left against medical advice (AMA) or discontinued care

Measure Population Identification. See initial patient population algorithm

Risk adjustment: No

Data collection approach: Retrospective data sources for required data elements include administrative and medical records. Refer to data abstraction tool in ***Appendix A-6*** and data dictionary in ***Appendix A-10*** of this manual for detailed instructions.

Data accuracy: Variation may exist in documentation provided at the time of transition; therefore, medical record documentation processes may require evaluation.

Measure analysis suggestion: Data could be analyzed further to determine specific patterns or trends.

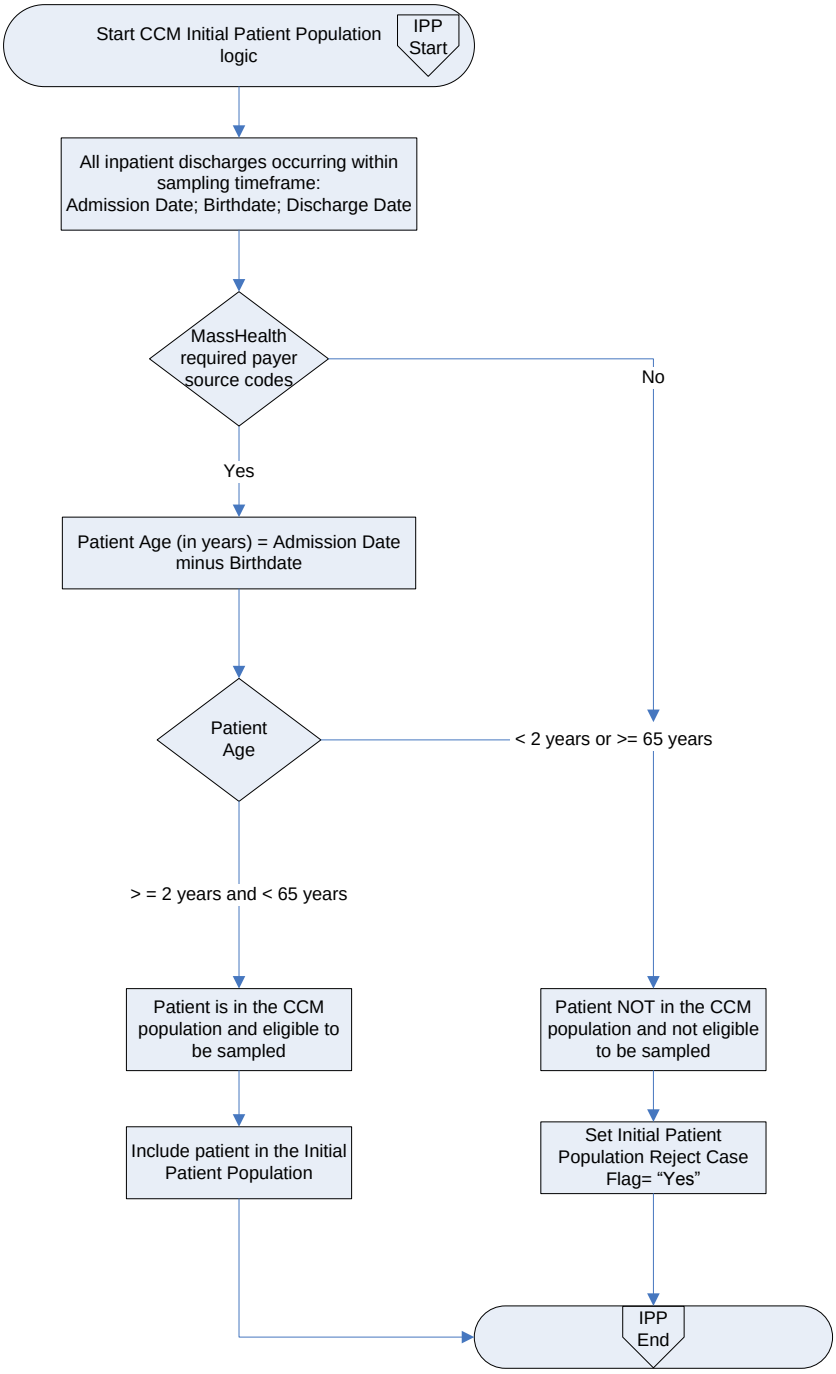
Sampling: Yes. For additional information on sample size requirements refer to Section 4 of this manual.

Data reported as: Aggregate rate generated from count data reported as a proportion. Refer to the calculation rules in ***Appendix A-11*** of this manual that apply to this measure.

Selected References (for all CCM measures):

- ABIM Foundation American College of Physicians Society of Hospital Medicine. The Physician Consortium for Performance Improvement. (PCPI). Care Transitions Performance Measurement Set Phase 1: Inpatient Discharges & Emergency Dept. Discharges, PCPI, American Medical Association, June 2009.
- Transitions of Care Consensus Policy Statement American College of Physicians-Society of General Internal Medicine-Society of Hospital Medicine-American Geriatrics Society-American College of Emergency Physicians-Society of Academic Emergency Medicine, 2009b Journal of Hospital Medicine, vol 4 364—370.
- Chin, MH., Walters, AE., Scott C., Huang, E. (2007) Interventions to Reduce Racial and Ethnic Disparities in Health Care, Medical Care Research Review, Oct, 64 (5 suppl) 7S-28s DOCI:10.1177/1077558707305413.
- Evaluation of electronic discharge summary: a comparison of documentation in electronic vs. handwritten discharge summaries, in Intern'tl Jnl Medical informatics vol. 77 613-620.
- Reid, R., Haggerty, J., and MCkendry, R. (2002). Defusing the Confusion: Concepts and Measures of Continuity of Healthcare, Centre for Health Services and Policy Research Foundation British Columbia available at: http://www.chsrf.ca/Migrated/PDF/ResearchReports/CommissionedResearch/cr_contcare_e.pdf Accessed Aug 12, 2011
- McDonald, KM, Schultz, E., Albin, L., Pineda, N, Lonhart, J, Sundaram, V., Smith-Spangler, C. Brustrom, J., Malcolm, E. (2011), Care Coordination Measures Atlas. AHRQ Publication No. 11-0023-EF, January 2011. Agency for Healthcare Research and Quality, Rockville, MD available at: http://www.ahrq.gov/qual/careatlas/; Accessed August 12, 2011
- Greenwald, J., Denham, C., and Jack, B (2007), The Hospital Discharge: A review of a High risk care transition with highlights of a re-engineered discharge process, Jnl Patient Safety, vol 3, No 2, June 2007.
- National Quality Forum. Preferred Practices and Performance Measures for Measuring and Reporting Care Coordination, 2010, A Consensus Report. http://www.qualityforum.org/ Accessed August 12, 2011.
- Pham, H, Grossman, J. Cohen, G. and Bodenheimer (2008), Hospitalists and Care Transitions: The Divorce of Inpatient and outpatient care, Health Affairs, vol 27, no. 5 pp 1315-1327
- Rozich JD & Resar, RK. 2001. Medication safety: One organization's approach to the challenge. *J. Clin. Outcomes Manag*. 8:27-34.
- Partnership for Solutions. 2002. *Chronic conditions: Making the Case for Ongoing Care*. Baltimore MD: The Johns Hopkins University.
- Van Walraven C, Seth R, Austin PC, Laupacis A. 2002. Effect of discharge summary availability during post-discharge visits on hospital readmission. Journal of General Internal Medicine 17:186-192.
- Snow V, Beck D, Budnitz T,. Miller DC, Potter J, Wears RL, Weiss KB, Williams MV. Transitions of Care Consensus Policy Statement: American College of Physicians-Society of General Internal Medicine- Society of Hospital Medicine- American Geriatrics Society- American College of Emergency Physicians- Society of Academic Emergency Medicine. *J Gen Intern Med* 2009 Apr 3.
- National Research Council. *Preventing Medication Errors: Quality Chasm Series*. Washington, DC: The National Academies Press, 2007.

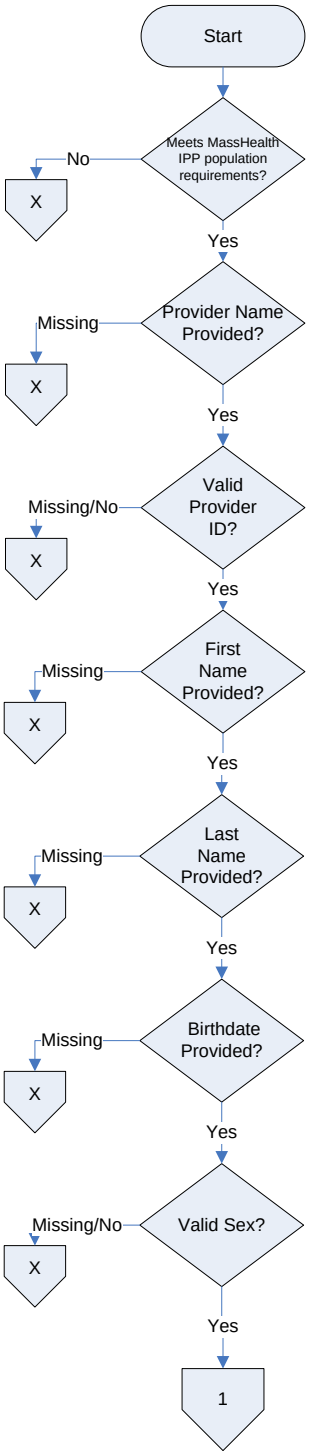
Initial Patient Population Algorithm
Care Coordination Measure (CCM-1, 2, 3)



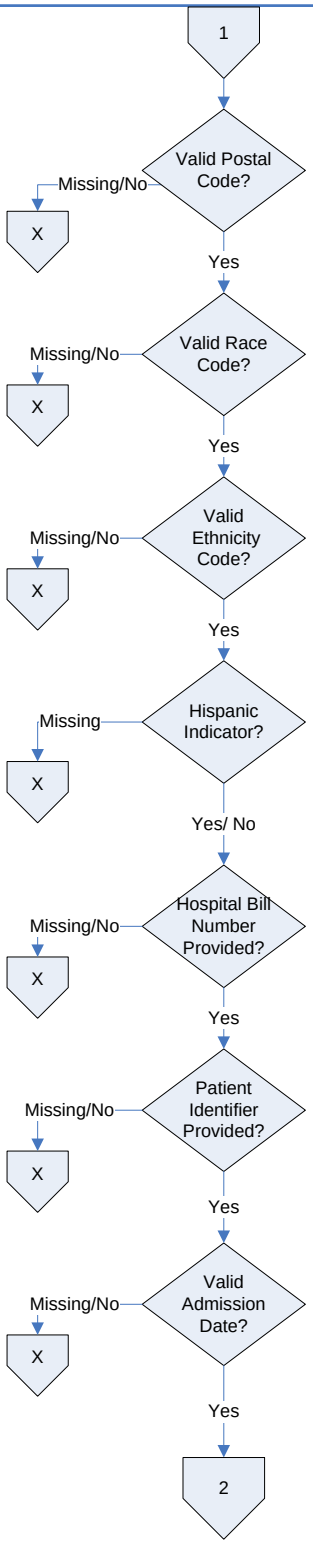
Care Coordination Measure (CCM-3)

***Numerator:** Patients for whom a written transition record was transmitted to the facility or primary physician or other health care professional designated for follow up care within 2 days of discharge

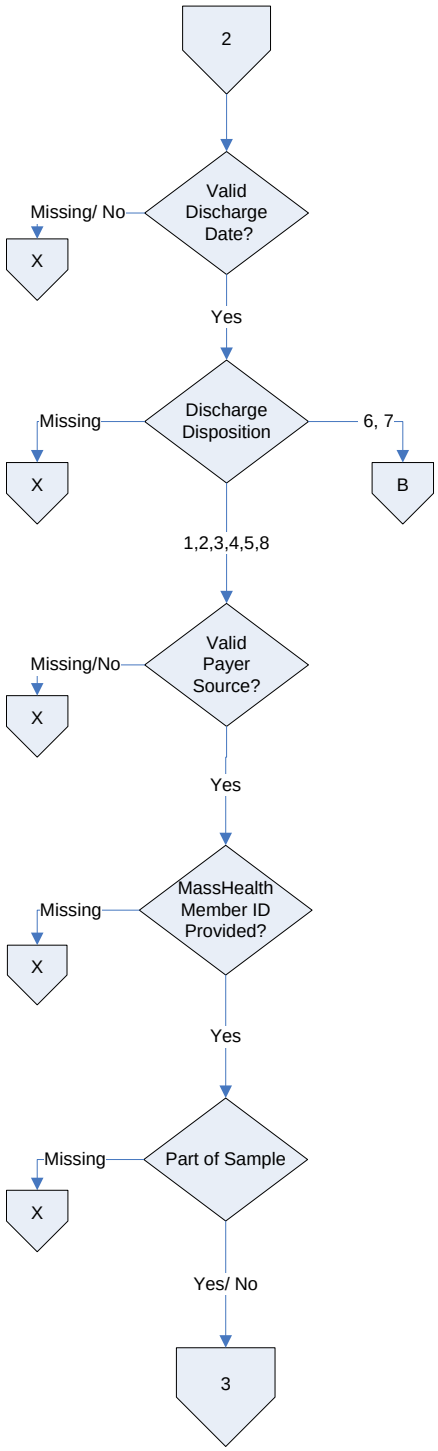
***Denominator:** Patients discharged from an inpatient facility to home/ self care or any other site of care.



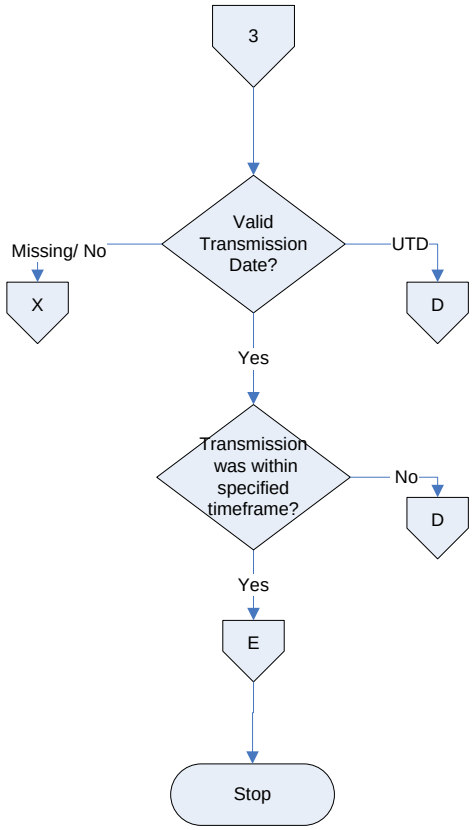
Care Coordination Measure (CCM-3)



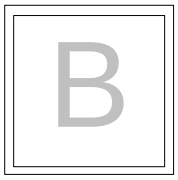
Care Coordination Measure (CCM-3)



Care Coordination Measure (CCM-3)



Review Ended
Not in Measure Population
Missing or Invalid Data
Case will be Rejected



Review Ended
Not in Measure Population
Excluded from Numerator and Denominator

Review Ended
In Measure Population
Excluded from Numerator
Included in Denominator

Measure Met
In Measure Population
Included in Numerator and Denominator

Note:
If the Transition Record was transmitted within 2 days of the discharge date, the case will be assigned to Category E.

Please contact the MassQEX Help Desk at massqexhelp@telligen.com if you require assistance to interpret the content of the measure flowcharts in this section of the manual.

3-G Nationally Reported Hospital Measures Requirements

Hospitals must collect and submit nationally reported hospital quality measures listed in *Table 2,1 of this EOHHS Manual, that apply to MassHealth Acute RFA quality* reporting requirements using the instructions outlined below.

Data collection guidelines and tools for the nationally reported measures are already published in the 'Specification Manuals for NHIQM'. *Users of the 'Specifications Manual for NHIQM' are responsible for updating their software and associated documentation based on the national published manual production timelines*.

Table 3.2 Specifications Manual for NHIQM

Acute RFA Rate Year Reporting	NHQIM Manual Versions (CY Discharge Data Periods)	EOHHS Manual Versions
RY2015	(CY2014) 01/01/2014 – 12/31/2014 (CY2015) 01/01/2015 – 09/30/2015	Version 4.3, 4.3b and Release Notes Version 4.4 and 4.4a and Release Notes
RY2016	*(CY2015) 10/1/2015 – 06/30/2016*	*Version 5.0, 5.a and Release notes*

Hospitals are responsible for accessing and adhering to data collection specifications for nationally reported hospital quality measures using the appropriate versions of the manuals listed in Table 3.2. *Below are instructions for modifying nationally reported measures data files that apply to MassHealth reporting requirements.*

1) **Emergency Department Throughput Measures (ED-1, ED-2)**

a. **Measure Specification and Flowchart:** *Hospitals are required to report on the entire ED-1 and ED-2 measure population strata using the instructions provided below*. Refer to the appropriate versions of the 'NHIQM Manuals**"** and relevant release notes, shown in Table 3.2 above, that apply to instructions for the collection of calendar year quarter discharge data periods required for the Acute RFA rate year.

b. **Data Dictionary:** Refer to NHIQM manual version above for data element definitions that apply.

c. **Data Abstraction Tool:** Refer to NHQIM manual cited above.

d. ***Medicaid* Sampling Requirement:** Hospitals must adhere to Section 4 of this EOHHS manual, for MassHealth sampling requirements that apply to this measure. ***Note*:** Global sampling methods published in the NHIQM manuals for ED measures are not applicable to Medicaid payer sampling requirements.

e. **XML File Format:** This EOHHS manual provides an *updated XML Schema MassHealth Crosswalk File* to assist Hospitals in collecting the required MassHealth identifier data elements that must be included as part of the data files. *Refer to Section 5 for XML file versions that apply to CY2015 and CY2016 data reporting.*

2) Tobacco Treatment Measures (TOB-1, 2, 3)

a. **Measure Specification and Flowchart:** Refer to the appropriate versions of the 'NHIQM Manuals**"** and relevant release notes, shown in Table 3.2 above, that apply to instructions for the collection of calendar year quarter discharge data periods required for the Acute RFA rate year.

b. **Data Dictionary:** Refer to NHIQM manual version above for data element definitions that apply.

c. **Data Abstraction Tool:** Refer to NHQIM manual cited above.

d. ***Medicaid* Sampling Requirement:** Hospitals must adhere to Section 4 of this EOHHS manual, for MassHealth sampling requirements that apply to this measure. ***Note*:** Global sampling methods published in the NHIQM manuals for TOB measures are not applicable to Medicaid payer sampling requirements.

e. **XML File Format:** This EOHHS manual provides an *updated XML Schema MassHealth Crosswalk File* to assist Hospitals in collecting the required MassHealth identifier data elements that must be included as part of the data files. *Refer to Section 5 for XML file versions that apply to CY2015 and CY2016 data reporting.*

Contact the MassQEX Support Help Desk if you have questions *on the required XML Schema versions that apply to the measures listed above*.

Section 4. Medicaid Population Sampling Specifications

This section defines the patient population and sampling specifications that apply to MassHealth measures reporting requirements. Definitions contained in this section align with guidelines set forth in national manuals, wherever possible to minimize data collection burden.

A. Definition of MassHealth Patient Population. The Specifications Manual for NHIQM defines the "Initial Patient Population" (also termed ICD population) as all patients who share a common set of clinical and administrative characteristics (admission date, *ICD-10-CM principle diagnosis or ICD-10-PCS procedure code*, *length of stay less than or equal to 120 days,* payer source, age, etc.) for a given condition from which the sample must be drawn and represent. *All ICD-10 codes relevant to the initial patient population must be identified prior to applying data integrity filters, measure exclusions and the sampling method*.

The term 'MassHealth Initial Patient Population' will be used in this section to refer to all patients who share the common set of clinical and administrative data elements (payer codes, race/ethnicity elements, other unique patient identifier codes, etc.) that are eligible to be sampled for the dates of service relevant to the discharge data period.

B. Sampling Methods Overview. Sampling is the process of selecting *cases* from a *broader* patient population without collecting data for the entire population. A well designed sample is based on a selection of cases that provide sufficient information for calculating measure rates. Sample size must be carefully determined and cases randomly selected to ensure meaningful and valid sample-based performance measures data.

1) Sampling Approaches. *Hospitals can use either the simple random sampling or systematic random sampling methods to ensure their data is representative of the measure initial patient population.* Random sampling is a precise procedure that allows you to control the likelihood of specific cases being selected. Hospitals can achieve this by using one of the following approaches:

a. ***Simple random sampling***: selecting a sample size *(n)* from the population of size *(N)* so that every case has the same chance of being selected into the sample; or

b. ***Systematic random sampling:*** selecting every k^{th} record from a population of size *N* so that a sample *n* is obtained, where $k \leq N/n$. The first sample record (i.e.: the starting point) must be randomly selected before taking every k^{th} record. This requires a two-step process that includes:

i.) randomly select the starting point by choosing a number between one and k using a table of random numbers or a computer generated random number; and then
ii.) select every k^{th} record until the selection of the sample size is completed.

Hospitals are responsible for ensuring that the sampling approach selected is consistently applied for each quarter. While over-sampling is not required, hospitals can submit additional cases to improve the precision of their measure rates. Please refer to the national manuals for more detailed examples on how to apply each of the random sampling techniques described above.

2) Order of Data Flow. *Sampling is a useful method for identifying cases for abstraction from medical records that apply to the initial patient population*. The order of data flow for selecting cases involves the following steps:

a. Identify the Initial Patient Population of the measure set *as described in* Section 4.A above.
b. Follow either simple random or systematic random sampling approach described above.
c. Pull the sample of medical records, for each measure set, based on sample size requirements.
d. Abstract specific data elements needed for each measure.

Hospitals may sample their population or report their entire population. *However, sampling should not be used unless the hospital has a large number of cases for a given measure*. Hospitals whose 'MassHealth ICD Patient Population' size is less than the minimum number of cases cannot sample should adhere to the sample size requirement tables provided below.

C. MassHealth Sampling Instructions. The sampling methods selected to establish sample size requirements for all MassHealth acute hospital quality reporting on each measure set is based on statistical power analysis.

This method enables the calculation of the minimum number of discharges necessary to detect changes in the measure rates and hospital performance data and ensure that a statistically valid sample is drawn. The following guidelines apply to MassHealth sampling specifications.

1) **MassHealth Sampling Requirements.** Hospitals must sample cases from all MassHealth inpatient paid claims using instructions provided below and perform medical chart abstraction for the sampled claims. The number sampled by Hospitals will vary by the volume of the patients that meets the criteria for **'**MassHealth Initial Patient Population**'** for each measure as defined in this manual. The minimum required sample size is based on the estimated volume of MassHealth discharges required for each measure.

2) **National Measures Sampling Requirement.** *The NHIQM manuals provide sampling instruction based on patients drawn from all payer population (Medicare & non-Medicare) that require adjustment for MassHealth hospital quality reporting.* The MassHealth sample size requirements for the nationally reported measures in Section 3 of this EOHHS Manual, differ from the sampling specifications published in NHIQM manuals because they are adjusted to meet MassHealth discharge volume specifications for a statistically valid sample. In particular, MassHealth sample size requirements are designed to produce aggregate rates and not intended to produce rates for each measure strata as may be required for national reporting.

   NOTE*: The global population sampling techniques, described in NHIQM manuals for particular measures sets, do not apply to the MassHealth national measures (ED, TOB) required in Section 3 of this EOHHS Manual. MassHealth requires sampling for each individual measure set whereas global sampling is done once for all cases that fall into the global sub-population.*

3) **Dates of Service**. Hospitals must identify the MassHealth Initial Patient Population measures data using available databases that contain all discharges for the quarter reporting periods specified in the Acute RFA and Section 1.C of this manual using the sample size requirements tables provided below.

4) ***Aggregate*** **Medicaid Payer Sampling.** *Effective with Q1-2016 discharge data reporting, the MassHealth Initial Patient Population is identified as an aggregate of all the following Medicaid payer source code inclusions*:

   a. MassHealth Fee-for-Service & PCCP insurance program codes;
   b. MassHealth Managed Care insurance plan codes; and.
   c. Other Medicaid Payer insurance program codes.

   Please refer to Table 2.2 of this EOHHS manual for a list of Medicaid payer code inclusions that apply to MassHealth measures data sampling and reporting.

5) ***Aggregate*** **Medicaid Payer Sampling Steps.** The order of data flow must be modified when selecting cases for the *aggregate* Medicaid payer source groups as follows:

   - **Step 1.** Identify the Initial Patient Population based on measure specifications and dates of service.
   - **Step 2**. Identify and include cases with *all the Medicaid payer inclusion codes listed above*.
   - **Step 3.** Identify the MassHealth sample size requirements for each measure using sampling tables below.
   - **Step 4**. Select and apply the random sampling approach to identify charts.
   - **Step 5**. Begin medical chart abstraction of specified measure on cases selected.

   The steps outlined above begin with the initial patient population and then extracts the all Medicaid payer cases. These steps can be followed to identify cases for all the measures being submitted.

D. Sampling Options

Hospitals that choose to sample have the option of sampling either quarterly (option A) or monthly (option B) for each measure. Hospitals must select and utilize only one option **consistently** (either quarterly or monthly), during a calendar year submission period.

Regardless of the option used, hospitals must ensure that sampling procedures consistently produce statistically valid and useful data. Due to measure exclusions, hospitals selecting sample cases ***must*** submit ***at least*** the minimum required sample size. The tables provided below, for each sampling option, automatically build the number of cases needed to obtain the required sample sizes.

1) **Quarterly Sampling (Option A):** Hospitals that choose the quarterly sampling option method must use the minimum sample sizes specified in the *revised* Table 4.1 below.

Table 4.1
QUARTERLY Sample Size Requirement for Each Measure

Number of MassHealth Discharges Per QUARTER (Initial Patient Population Size "N")	***Aggregate of All Medicaid Payer*** Minimum Required Sample Size "n"
1 - 59	No sampling; 100% of ICD Population is required
60 – 119	***60***
120 – 199	***92***
> = 200	***103***

As noted in the Table 4.1 above, the quarterly sampling option Initial patient population size (N) and the minimum required sample size (n) column numbers *have been adjusted for the aggregation of all Medicaid payer population inclusions defined in Section 2.B of this EOHHS manual.*

The quarterly sampling option displays a *revised* MassHealth initial patient population (N) category numbers and required minimum sample sizes (n) *that apply to each measure listed in Section 2.A of this manual.*

Hospitals must ensure that the quarterly sample sizes selected for each measure are representative *of the aggregate of all Medicaid payer population inclusions listed in Section 2.B of this EOHHS manual*

Below is an example of how the quarterly sampling option would be used for calendar year reporting.

Example #1: MassHealth Quarterly Sampling of each Measure

- *During the **first quarter**, the hospitals MassHealth initial patient population is N=30 cases. Using the revised Table 4.1 above, no sampling is allowed and 100% of the Medicaid population is required*.
- *During the **second quarter**, the hospitals MassHealth initial patient population is N=67 cases. Using the above Table 4.1, the minimum required sample would be 60 cases for the Medicaid populatio*n.
- *During the **third quarter**, the hospitals MassHealth initial patient population is N=75 cases. Using the above Table 4.1, the required sample would be a minimum of 60 cases for the Medicaid population.*
- *During the **fourth quarter**, the hospitals MassHealth initial patient population is N=207 cases. Using the above Table 4.1, the required sample would be a minimum of 103 cases for the Medicaid population*

2) **Monthly Sampling (Option B):** Hospitals that choose the monthly sampling option must use the minimum sample sizes specified in the *revised* Table 4.2 below.

Table 4.2
MONTHLY Sample Size Requirements for Each Measure

Number of MassHealth Discharges Per MONTH (Initial Patient Population Size "N")	***Aggregate of All Medicaid Payer*** Minimum Required Sample Size "n"
1 - 19	No sampling; 100% of ICD Population is required
20 – 39	***20***
40 – 66	***30***
> = 67	***35***

As noted in the Table 4.1 above, the monthly sampling option Initial patient population size (N) and the minimum required sample size (n) *column numbers have been adjusted for the aggregation of all Medicaid payer population inclusions defined in Section 2.B of this EOHHS manual.*

The monthly sampling option displays a *revised* MassHealth initial patient population (N) category numbers and required minimum sample sizes (n) *that apply to each measure listed in Section 2.A of this manual.*

Hospitals must ensure that the monthly sample sizes selected for each measure are representative *of the aggregate of all Medicaid payer population inclusions listed in Section 2.B of this EOHHS manual*

Below is an example of how the monthly sampling option would be used for calendar year reporting.

Example #2: MassHealth Monthly Sampling of Each Measure

- *During **January** the hospitals MassHealth initial patient population is N=19 cases. Using the revised Table 4.2 above, no sampling is allowed and 100% of the Medicaid population is required for the month*.
- *During **February** the hospitals MassHealth initial patient population is N=65 cases. Using the above Table 4.2, the required Medicaid sample would be a minimum of 30 cases for this month.*
- *During **March** the hospitals MassHealth initial patient population is N=100 cases. Using the above Table 4.2, the required Medicaid sample size would be 35 cases for this month*.

E. MassHealth Initial Patient Population Data

Hospitals are required to submit information on the MassHealth Initial Patient Population and sample count data. ICD population and sample count data are used to evaluate data completeness of all files submitted by the hospital, in accordance with the MassHealth sampling requirements stated in this section.

1) ***Definition of ICD Population Data***. The initial patient population data must include the following information for each measure set submitted are defined as follows:

- ***ICD-10 Population Size -*** refers to count of patient population with all relevant *ICD-10-CM diagnosis and ICD-10-PCS procedure codes* included in the measure as defined in Section 4 above.

- ***Aggregate Medicaid Payer Population Size -*** refers to count of patient population with all relevant *ICD-10 codes* included in the measure *that meet all of the Medicaid payer code inclusions* in Section 2.C of this EOHHS manual.

- ***Sample Size -*** refers to whether or not the hospital has sampled data for the time period being reported for payer source stated. If no sampling was done then enter the total sample count.

2) On-line ICD Population Data Entry Requirements

- The ICD population *and sample size count* information must be entered as aggregate data using the on-line data entry form located in the secure web portal, as described in Section 5 of this manual. Only Hospitals, not data vendors, are authorized to enter ICD population data via the web portal.

- Hospitals that do not have any *inpatient population and sample size* data for a given measure, during a particular quarter (or month), must enter zero (0) onto the form to meet data entry reporting requirement.

- Failure to comply with on-line data entry of ICD population data will result in the information being credited as not received and not meeting data completeness requirements as defined in Section 2.E of this manual

Refer to Section 5 of this EOHHS Manual for additional instructions that apply to on-line ICD population data entry requirements.

Section 5. Data Transmittal Guidelines

This section outlines the technical guidelines for preparation and transmittal of all measures data files required under the Acute RFA. Hospitals and vendors must comply with data transmittal instructions provided in this section.

EOHHS has designated the MassHealth Quality Exchange (MassQEX) as the secure web portal for submitting all required electronic data files and information outlined in this section. This portal is the only approved method to securely transmit data files between the Hospitals and the EOHHS Contractor (Telligen). The MassQEX web portal URL address is: http://www.mass.gov/masshealth/massqex.

The MassQEX portal is divided into three sections: portal system requirements for submission, reports repository and user accounts that are described below. All aspects of the MassQEX web portal, including set up and configuration of system requirements are managed by the EOHHS Contractor.

A. Portal System Requirements. The web portal's data submission tool allows users to securely transmit data files to the web portal. Listed below are the requirements for transmitting data. Any deviation from the requirements listed below may result in data submissions not being processed.

1) **System Requirements:** *Effective with Q1-2016 data file reporting portal system requirements are as follows:*

- Minimum of *1 GHz* processor or better with a minimum of 125MB free disk space
- Windows 7 or higher
- *1 GB* of RAM or higher
- High speed internet connect of *384* Kbps or higher
- *Chrome v44 or higher*
- Browser security level of Medium or lower
- Must have adequate operating system rights to allow provider sites to properly install programs and modify/edit registry entries
- Pop-ups allowed for URL https://massqex-portal.telligen.com
- Java Runtime Environment (JRE) version *1.8.0_51* or higher. Available for download from http://www.oracle.com/technetwork/java/index.html

2) Test Data Files. All users are required to successfully complete a test submission for each of the reporting measures prior to uploading final production data. Certification of successful transmission is required prior to the permission being granted for final production level submissions. This certification will serve as proof that a provider's system is capable of generating properly formatted XML files based on CMS, TJC and MassHealth XML schemas. Below is additional information about using this data submission tool to run test submissions.

- Test files will be processed in a near real time environment.
- The user will be able to access reports that show summary success or failure information as well as reports that provide detailed descriptions of errors detected in a test submission.
- All errors must be addressed before certification of a measure can be given.
- There is no limit to the number of test files that can be submitted.
- Test files ***will not*** be permanently stored on EOHHS Contactor servers.
- The test environment remains open throughout the entire rate year Acute Hospital RFA to allow registered users to perform ongoing tests in preparation for subsequent submission cycles.

3) Production Data Files. Providers are required to use the EOHHS Contractor provided upload software for the transmission of data to the web portal. The upload application provides:

- Single and multiple file data submission
- Data compression to reduce transmission sizes
- Data encryption utilizing asymmetric key pairs
- Filename
  - Name cannot exceed 45 characters
  - Filenames are limited to the following character ranges
    - a – z
    - A – Z
    - 0 – 9
  - Underscores will replace spaces in all filenames
  - Filenames containing illegal characters will not be uploaded or processed

Upon completion of data transmissions, users will be able to run reports that show the success or failure of processing. The production environment does not remain open throughout the entire Acute Hospital RFA rate year period. The production environment is activated approximately 60 days prior to submission deadlines and then closed after each submission due date. Notices are sent via the MassQEX list-serve to announce when the portal environment is open for data production prior to each submission deadline.

4) Portal Environment Maintenance. The portal environment is periodically programmed in between submission cycles, to prepare for and support the changes in the transmittal of revised technical specifications for all quality measures listed in Section 2 (Table 2.1). *As noted in Section 1.C of this manual various changes go into effect with each quarter reporting cycle period. Portal status updates are periodically posted on the MassQEX portal homepage to notify users of scheduled maintenance periods*.

B. Data File Contents. Each measure must be submitted in separate electronic data files using instructions provided below.

1) **XML Schema Versions.** All measures data must be submitted using the appropriate versions of the XML schemas that apply to quarter reporting periods as follows:

	XML MassHealth Specific Measures (MAT, CCM, NEWB)	XML MassHealth Identifier Crosswalk (ED, TOB)
a) XML Schema (v 8.0)	*Use for CY2015 (Q1 to Q3-2015)*	*Use for CY2015 (Q1 to Q3-2015)*
b) XML Schema (v 8.1a)	*Use for CY2015 (Q4-2015)*	*Use for CY2015 (Q4-2015)*
c) XML Schema (v 9.0)	*Use for CY2016 (Q1 to Q4-2016)*	*Use for CY2016 (Q1to Q4-2016)*

Each XML file may contain data for only one admission per each provider Hospital on each of the measures a hospital is eligible to report on.

2) **XML File Format Types.** The following XML file layouts apply to MassHealth measures data reporting:

a) **MassHealth Specific Measures File.** This XML file is required for the maternity (MAT), care coordination measure (CCM) *and newborn care (NEWB) measure sets.* The file must include all measures data the hospital is eligible to report on for the required discharge data period in Section 1.C. This file should contain all required clinical and administrative data elements for the MassHealth records sampled on each measure, as defined in Section 4 of this manual.

b) **MassHealth Identifier Crosswalk File.** This XML file is required for the nationally reported measures (ED, TOB) listed in Table 2.1, to ensure that data files pulled from national databases have the corresponding MassHealth patient identifier record elements, in Section 2.C of this manual. **NOTE:** All measure level data files submitted without **first** submitting a corresponding MassHealth Identifier Crosswalk file will be rejected by the portal.

c) **Data Deletion Request File.** See Section 5.B.4 below for detail on this XML file.

3) **Data Transmittal Process.** Hospitals must submit all required data files via the secure web portal described in Section 5. Data files are not accepted in file formats other than those described above. A summary of the required data submission contents is provided below.

Table 5-1. MassQEX Electronic Data File Contents

Quality Measures	XML MassHealth Specific Measures File	XML MassHealth Identifier Crosswalk File	ICD Data Entry Form
MAT-1, MAT-2a, 2b	YES	NO	YES
MAT-3	YES	NO	YES
MAT-4	*YES*	*NO*	*YES*
MAT-5	*YES*	*NO*	*YES*
NEWB-1	*YES*	*NO*	*YES*
NEWB-2	*YES*	*NO*	*YES*
CCM-1, 2,3	YES	NO	YES
ED-1, 2	NO	YES	YES
TOB-1,2,3	*NO*	*YES*	*YES*

Table 5.1 lists all measures that apply to remainder of CY2015 (Q3 and Q4) and the start of CY2016 discharge data files for reporting periods shown in Table 1.1 of this EOHHS manual.

4) **Data File Deletion Procedures.** The portal allows hospitals and/or data vendors to delete data files that have been uploaded during an active data production cycle. The following steps apply to data file deletions:

a) To remove data files you must use the XML Schema MassHealth Deletion Request File *provided in this EOHHS manual*. This XML file has been designated to closely replicate the structure of the MassHealth Identifier Crosswalk file. The delete request must include all unique patient identifier information.

b) A successfully processed delete request will remove any measure level submission that corresponds to the unique patient identifier information submitted with the delete request. This will delete all matching submissions for the period at that time not just the last submission.

c) Note that a delete request will only remove the measure data and not the historical submission information. Any future data uploads are not affected by any previous delete requests.

d) Electronic file delete requests can only be made for the current submission cycle period. Once a submission cycle has closed file delete requests can no longer be made for that period.

5) **Online ICD Population Data Entry Form**

Hospitals are required to submit aggregate ICD population data that accompanies the measures data files. All ICD data must be reported via the portal using the on-line data entry form which is only visible after you have logged into the secure web portal.

a) ***Revised ICD Data Entry Form***. *Effective with Q1-2016 data, the ICD entry form will be streamlined to enter the total counts related to each measure category assignment for the aggregate of all Medicaid payer data as defined in Section 4.C of this EOHHS manual.*

The ICD population data must include the total counts related to each quarterly submission cycle due for the measures being reported in the electronic data file *contents as defined in Section 5 of this manual*.

b) ***ICD Data Entry Form Compliance***. If the hospital has no cases to report during a given quarter then zero's (0) must be entered in all the fields provided on the data entry form. Failure to enter zeros will render the Hospital having missing data resulting in non-compliance reporting status.

c) ***ICD Data Entry Form Options***. The MassQEX portal will provide the option to enter ICD data for quarterly or monthly samples *as illustrated in Figures 1 and 2 below*.

Figure 1 below illustrates a form that has been properly filled out, including zero (0) entries, where applicable, to be in compliance with data requirements.

Figure 1. Quarterly ICD Data Entry Form for Aggregate Medicaid Payer Population

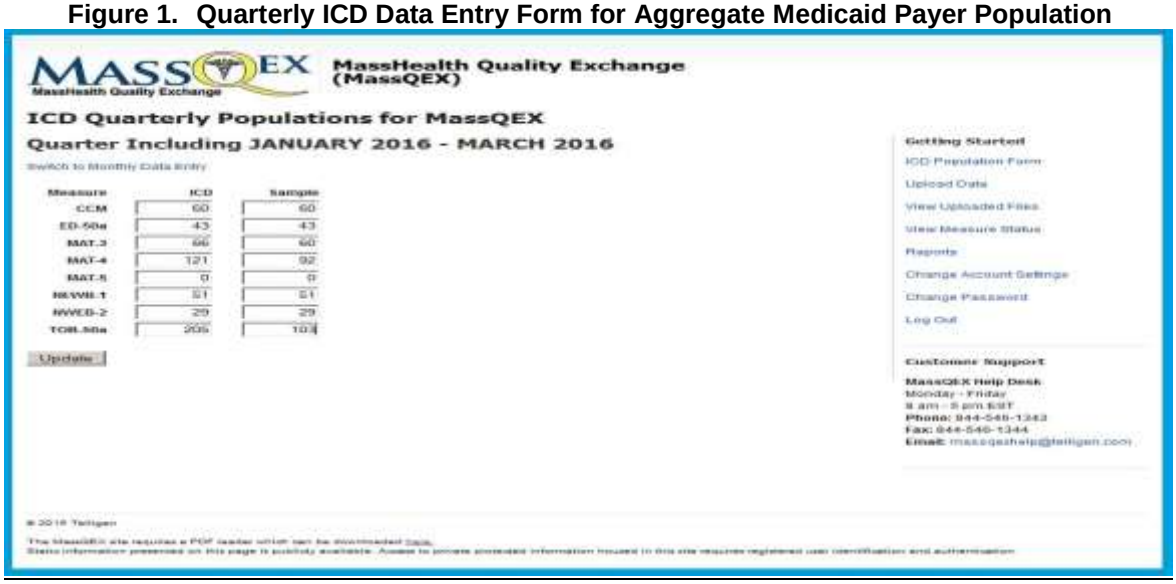
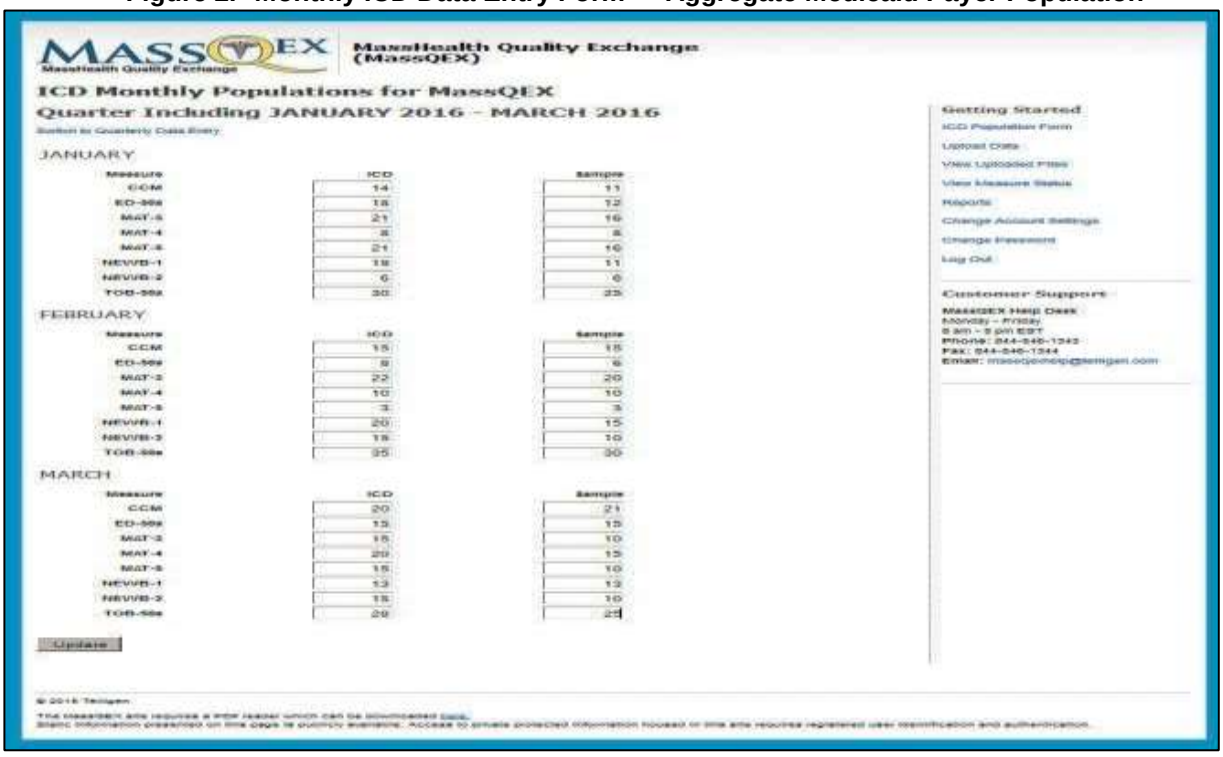


Figure 2 below illustrates the new ICD entry form option available to hospitals that sample on a monthly basis which is properly filled out. If selected, the monthly option must be used throughout the entire quarter.

Figure 2. Monthly ICD Data Entry Form -- Aggregate Medicaid Payer Population



6) ***Data Transmittal Schedule.*** All data file uploads plus on-line ICD data entry must be completed by the close of business day (5 pm eastern time) of published submission deadlines. *The ICD data entry information should be submitted within fifteen (15) days prior to the close of data cycle and can be revised up until the final submission due dates noted in Section 1.C of this manual.*. Hospitals may not request an extension of submission deadlines or request to resubmit corrections to data files or ICD data entry after the portal has closed**.** Refer to Section 5.G of this manual for criteria that apply to data extensions and Section 2.E data completeness requirements.

C. Portal Reports Repository

The web portal is equipped with an on-line report repository that provides users with summary information on data files submitted to the MassQEX clinical data warehouse. Reports are generated for processing of test and production level data that can be viewed and printed on-line in a PDF format.

MassQEX enhanced portal functionality for hospitals to be able to generate reports that provide feedback on content of submissions files uploaded into the portal environment. The report repository includes Input file reports plus two types of hospital summary reports that are described below.

1) **Input Files Report**. This report provides detailed information on specifications met for all test and production level data files submitted via the web portal to the MassQEX clinical data warehouse. These reports are available to both the hospital and data vendor for previously submitted data files and for both test and production submissions.

   To view the 'Input Files Report', the hospital or data vendor user will click on the "*View Uploaded Files*" link from the MassQEX portal home page. Clicking on this link will bring up the View Uploaded Files web page, which shows the last five file submissions to the MassQEX clinical data warehouse, including whether the data transmittal was a test or production data submission. Clicking on one of these submissions will bring up a list of the XML input files for that submission. From the "Input Files" screen, the user can click the "Print Report" link to generate the 'Input Files Report' for that submission.

   The 'Input Files Report' is available for all submissions, regardless of whether they are test or production submissions. Submitters of test data will find the reports useful because they will indicate where the submitted data is either incomplete or incorrect and will thus enable the user to correct their data files before submitting them as "production" data to the MassQEX clinical data warehouse. Below is an example of an 'Input Files Report' generated from the portal and details on how to read this report.

Figure 3. Example of a Portal Input Files Report

MassHealth Quality Exchange (MassQEX)
Input Files Report

Processed: 08/14/2016 11:48 AM (User, Test)
Provider: MassQEX
Uploader: MassQEX

FILE NAME	PROVIDER	MEASURE	DATE	PROCESSED	STATUS
MAT-4-V81-15Q1-000-X.xml	MassQEX	MAT-4 (01/01/2016-03/31/2016)	08/14/2016 11:48 AM	Yes	ERROR
ERRORS/WARNINGS: 1 [ERROR] Patient age is 65 years or older. Going to Bucket MAT-4X					
MAT-4-V81-15Q1-000-D.xml	MassQEX	MAT-4 (01/01/2016-03/31/2016)	08/14/2016 11:48 AM	Yes	WARNINGS
WARNINGS 1 "ICD Principal Procedure Code" (PRINPX) or "ICD Other Procedure Codes" (OTHRPX#) is not in table 11.06 is invalid. Going to Bucket MAT 4-D					
MAT-4-V81-15Q1-000-E.xml	MassQEX	MAT-4 (01/01/2016-03/31/2016	08/14/2016 11:48 AM	Yes	OK

The MassQEX 'Input Files Report' contains the following information:

- File Name – the name of the XML file that was submitted
- Provider – the name of the submitting provider
- Measure – the appropriate MassQEX measure name (and the data submission quarter)
- Date – the date that the XML file was submitted
- Processed – indicates whether the file was processed
- Status – indicates if the file processing ended with an error, warning or an OK status.

In addition to the above information, any warning or error messages resulting from data fie submission will be displayed. The following messages will be generated, under the status column, when the data files contain either incorrect or incomplete information:

i. ***Error Message.*** An error message is a "hard edit" – receiving such a message indicates that the file was incorrect or incomplete such that the submission was fatal, and the file was not accepted into the MassQEX clinical data warehouse. An error message identifies a problem with the file which needs to be corrected prior to resubmission by the hospital and/or vendor.

ii. ***Warning Message.*** If the message was a warning (i.e. without the word "error" preceding it), then the message was a "soft edit" in which the file submission was not fatal, and the file was accepted into the MassQEX clinical data warehouse. Even though the file submission was accepted, the warning message is still provided to the submitter for educational purposes. These soft edits do not need to be corrected unless the submitter chooses to do so. In contrast, an error message informs the submitter that an error has occurred that has prevented the data file from being uploaded into the MassQEX clinical data warehouse.

iii. ***OK Message.*** If message has OK status, then the data file was processed with no errors or warnings as described above.

Hospitals and data vendors are responsible for reviewing all details on the "Input Files Report" to ensure specifications and data completeness are met as part of the submission cycle process.

2) Hospital Summary Reports. Beginning RY2011, EOHHS expanded portal functionality for hospitals to be able to run user-initiated data summary profile reports on demand. The portal will generate <u>two</u> <u>*types of self-serve reports that include a measure count and ICD population counts as described below.*</u>

a) Measure Counts Report. This report aggregates and summarizes the information on the individual Input Files Report (described above) that presents overall counts of cases that met the numerator and denominator specifications for each measure the hospital reports on as well as cases excluded from denominator. Below is an example of the report that will be generated from the portal and details on how to read this report.

Figure 4. Example of a Measure Counts Report

MassHealth Quality Exchange (MassQEX)
Measure Counts

Medicaid Provider 12345ZYXWV MassQEX

CALENDAR YEAR AND QUARTER	MEASURE NAME	POPULATION	NUMERATOR	DENOMINATOR	EXCLUDED
CY 2016, Q1	CCM 1	10	9	10	0
	CCM 2	10	0	10	0
	CCM 3	10	8	10	0
	ED 1a	12	0	10	2
	ED 1b	10	0	9	2
	ED 1c	2	0	0	2
	ED 2a	12	0	10	2
	ED 2b	10	0	0	2
	ED 2c	2	0	0	2
	MAT 3	10	10	10	0
	MAT 4	8	4	6	2
	MAT 5	6	4	5	1
	NEWB 1	7	7	7	0
	NEWB 2	10	10	10	0
	TOB 1	29	24	24	5
	TOB 2	12	12	12	0
	TOB 3	12	11	12	0

Please Note:
The information contained in this self-service report is preliminary. This report is intended to provide relevant information on your organization's data submission though the MassQEX portal. This information summarizes your organization's data submissions though the portal as of the run date. This information will change as your organization submits additional data.

This information has not been validated and cannot be considered final for purposes of calculating your organization's P4P performance scores or payments.

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The MassQEX 'Measure Counts Report' contains the following information:

- Calendar Year - the full (Jan-Dec) measurement period that apply to discharge data
- Quarter – the discharge data period that apply to quarters of a calendar year
- Measure – the measure ID as defined in the MassQEX portal
- Overall Population – the sum of the denominator and the excluded counts
- Numerator - the counts that met the criteria for inclusion in the measure numerator
- Denominator - the counts that met the criteria for inclusion in the measure denominator
- Excluded – the number of cases that did not meet the criteria for denominator

To view the 'Measure Counts Report', the user will click on the '*Reports*' link from the menu on the right side of the MassQEX portal home page. Clicking on this link leads to a web page that displays links to the 'Input Files Report" and the new user-initiated reports. The hospital user can specify report criteria such as calendar year and/or quarter, which allows reports to be generated for the calendar year reporting period being requested. From the screen, the user can click the "Print Report" link to generate the report. This report is not designed to display measure counts by *the Medicaid payer population.*

The 'Measure Counts Report' is available for all data transmittals completed as part of the production level submissions**.** Hospitals will find this report useful because it provides an interim summary on cases that met the measure numerator and denominator specifications as files are submitted. This report is intended for MassQEX portal data management purposes only and does not represent the EOHHS hospital measure rate results used to calculate performance scores**.**

b) The ICD Population vs. Collapsed Upload Counts Report. The portal user can also generate a report that aggregates and summarizes the information on the ICD population data entered by the hospital on-line via the portal, with the actual uploaded cases that have been processed at the time of the submission cycle. Below is an example of the report that will be generated from the portal and details on how to read this report.

Figure 5. Example of Portal ICD Population Counts vs. Collapsed Upload Counts Report

MassHealth Quality Exchange (MassQEX)
ICD Population vs. Collapsed Upload Counts

Medicaid Provider 12345ZYXWV MassQEX
Q1 CY2016

Measure	ICD	Sample	Cases Uploaded	Difference
CCM	66	40	39	1
ED-44a	40	35	35	0
MAT-3	19	19	0	19
MAT-4	0	0	0	0
MAT-5	19	19	19	0
NEWB-1	8	8	10	-2
NEWB-2	10	10	10	0
TOB-44a	60	40	40	40

Please Note:
The information contained in this self-service report is preliminary. This report is intended to provide relevant information on your organization's data submission though the MassQEX portal. This information summarizes your organization's data submissions though the portal as of the run date. This information will change as your organization submits additional data.

This information has not been validated and cannot be considered final for purposes of calculating your organization's P4P performance scores or payments.

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The updated MassQEX 'ICD Population vs. Collapsed Upload Counts Report' contains the following information displayed by the two Medicaid payer population sets entered:

- Calendar Year - the full (Jan-Dec) measurement period that apply to discharge data
- Quarter – the discharge data period that apply to quarters of a calendar year
- Measure – the measure ID as defined in the MassQEX portal
- ICD – the hospital reported count case as defined in Section 4 and 5 of this manual.
- Sample – the hospital reported count of cases sampled as defined in Section 4 of this manual.
- Cases Uploaded -- the actual cases received, processed and aggregated for production level data.
- Difference - the difference between sample counts entered compared to actual cases uploaded and processed for production level data

To view the 'ICD Population vs. Collapsed Upload Counts Report' the user will click on the '*Reports'* link from the menu on the right side of the MassQEX portal home page. Clicking on this link leads to a web page that displays links to the 'Input Files Report' and the new user-initiated reports. The hospital user can specify criteria, such as calendar year and/or quarter, which allow reports to be generated for the calendar year reporting period being requested. From the screen, the user can click the "Print Report" link to generate a PDF of the report.
The 'ICD Population vs. Collapsed Uploaded Counts Report' is available for all data transmittals completed as part of the production level submissions**.** Hospitals will find this information to be useful because this report displays the difference between the two counts (sample and cases uploaded) and thus enables providers to identify when they

have met their submission level obligations. This report is intended for MassQEX portal data management purposes only and does not represent the EOHHS hospital discharge data used to calculate payments.

c) Access to Portal Reports Repository. Hospitals are responsible for downloading and reviewing all details in the portal generated reports with their MassQEX registered users to ensure that data completeness requirements are met as part of each submission cycle process. The Input File Reports are available to both hospitals and/or data vendors and the hospital summary user-initiated reports are available to the *hospital user only and not data vendors***.** Please note the hospital summary reports feature described above were not available prior to calendar year reporting data (Jan to Dec 2010).

D. User Account Registration. All aspects of the MassQEX portal system configuration and set up of portal user accounts are managed by the EOHHS Contractor (Telligen). The EOHHS Contractor will establish all user accounts for Hospitals participating in the MassHealth Hospital P4P Program, validate user registration form and monitor all MassQEX user accounts in accordance with Acute RFA contract requirements. Below are steps to register a new user.

1) **Opening User Accounts.** All Hospitals must set up user accounts to access the secure web portal *using the on-line registration form*. Each hospital must identify the individual users that will be authorized to submit and conduct all data transactions on the Hospitals behalf. The users can be individuals from hospital staff and/or hospital third-party vendors.

2) **Account Limits.** There will be a maximum of three accounts per provider (e.g.: hospital or third-party vendor) identified as the 'registered user'. New users will be required to complete registrations forms on-line before being granted access to the secure web portal.

3) **Completing Authorized Forms.** The new user must complete a registration form, then sign and date it in the presence of a Notary Public, who will issue the Notary's stamp and seal on page 1 of the form. The hospital chief executive officer (CEO) must sign the notarized form to authorize the individual designated to be the registered user for that hospital site.

   Note to Vendors: A vendor user registers only once and receives one account that allows access to all hospitals represented by the vendor. A copy of each vendor user registration form (notarized page 1 & page 2) must be submitted to the Hospital CEO for signature for each hospital represented.

4) **Mailing User Registration Forms.** Originals of the completed registration forms must be mailed to the EOHHS Contractor, to address listed below, for the account to be activated.

   Telligen, Inc.
   Attention: MassHealth Quality Exchange
   800 South Street (Suite 170)
   Waltham, MA. 02453

5) ***Maintaining User Accounts****. Hospitals designate authorized users to transmit data, which contains protected health information, in accordance with HIPAA standards. All Hospitals are required to monitor and maintain their secure portal user accounts during each Acute Hospital RFA contract rate year. Hospitals are responsible for updating their account information each year and/or closing accounts whenever any changes to their staff or vendors occur. Hospitals must contact the MassQEX Help Desk to close any inactive user accounts.*

6) **Logging into the System:** The portal provides instructions for setting up a password and is equipped with a 'forgot my password' option that will have the following functionality:
   - A temporary password, valid for one time use, will be transmitted to the user's registered email account after successfully answering three randomly selected security questions.
   - The temporary password will expire if it is not used within four hours.
   - Upon logging into the system, the user will be required to choose a new password.

E. MassQEX Customer Support. EOHHS provides technical support help desk for all registered portal users. The EOHHS contractor staff is available to work with both the hospitals staff and third-party data vendors to assist in the implementation of XML specifications and technical aspects of measures data collection and data transmission procedures outlined in this manual.

1) The MassQEX Help Desk is managed by EOHHS Contractor and includes:

- **Help Desk Phone**: (844) 546-1343 toll free number. The phone will be answered by a live person that will request description of your inquiry and initiate a help desk ticket. The inquiry is then triaged to the clinical or technical staff and response will be sent via email or a return call.
- **Help Desk Email:** Massqexhelp@telligen.com
- **Hours of Operation:** Support staff is available during business hours of 8 a.m. – 5 p.m. (Eastern Time) from Monday through Friday. Any reported issues will be addressed within one business day.

The EOHHS Contractor uses a ticket tracking system to log all MassQEX *user inquiries, enter user contact demographics and* generate email based reminders and notifications for users of the MassQEX system.

2) MassQEX List-Serve. MassQEX operates an auto-notification feature for individuals that have created users-accounts and are authorized to conduct data transactions on behalf of the hospital. The list-serve provides information and updates on portal system functionality and enhancements, including notices on measure specifications, status of submission production timelines and other related activities. Individuals not authorized as portal users may also register for the list-serve by sending a request to the MassQEX Help Desk email listed above.

3) **MassHealth Quality Exchange (MassQEX) Website.** *EOHHS dedicates a MassQEX webpage in the Mass.Gov website at: http://www.mass.gov/eohhs/provider/insurance/masshealth/massqex/*

This website serves as a central hub of information for hospitals and data vendors participating in the MassHealth Acute Hospital P4P program quality reporting. The MassQEX homepage contains rate year specific program updates, quality measures that apply to current Acute RFA rate year incentive payments, technical specifications manuals, program participation forms and technical session documents, data submission timelines, user registration information and access to the MassQEX portal homepage. Hospitals should periodically check the MassQEX website for program or portal status updates.

4) Hospital Third-party Data Vendors. The EOHHS Acute Hospital RFA contract includes a provision for hospitals that work with third-party vendors. Hospitals can identify and authorize third-party vendors to conduct electronic data transactions via the MassQEX secure portal, on the Hospital's behalf.

The Acute RFA contract stipulates that Hospitals are responsible for communicating directly with their data vendors on all aspects of MassHealth hospital data collection and reporting requirements, including adherence to the appropriate versions of the EOHHS Technical Specifications Manual. This is to ensure data completeness and accuracy of electronic data files are submitted on the Hospital's behalf.

Section 5 of this EOHHS manual contains instruction that requires collaboration among the hospital and their data vendors to successfully meet data submission requirements *and verifying data completeness status during each submission cycle.* Hospitals should note that data vendors who submit electronic data files on their behalf can ***only*** access certain types of portal repository reports (Input file reports) but not the "Measure Counts" and "ICD population vs. Collapsed Upload Counts" reports which are hospital user-initiated ***only*** via the portal. For this reason, it is recommended that hospitals review all portal repository reports with their data vendors to identify errors, warnings or inconsistencies that can be corrected prior to the close of each submission cycle.

The MassQEX Customer Support Helpdesk is available to assist hospitals and data vendors in interpreting the various reports generated by the portal.

F. Data Extension Request Procedures

Each Acute Hospital RFA rate year defines the quality data reporting deadlines that hospitals must adhere to as a condition for earning incentive payments under the MassHealth Hospital P4P Program. No data extensions are permitted during the rate year. However, EOHHS recognizes that unusual or extraordinary circumstances can arise during the RFA rate year that may require modifying the quality reporting deadlines.

This section outlines the provisions and procedures that apply to requesting a change to current RFA rate year quality data reporting deadlines.

1) **Quarterly Data Processing Cycle**. Each quarter data processing cycle involves various components that include portal data file uploads, online ICD data entry, and submitting chart records for data validation purposes. During each submission cycle the portal is re-programmed for hospitals to be able to generate various portal repository reports (see Section 5.D of manual) to assess their status in meeting specifications unique to each quarter reporting cycle.

   Technical specifications for the portal and chart validation software are also programmed to each quarter reporting cycle requirements. Therefore a request to change any quarter reporting deadline affects data processing methods for various data components and programming specifications particular to each quarter reporting cycle.

2) **Provision for Granting Data Extensions**. A hospital can request a change to RFA quality reporting deadlines when they have experienced circumstances that are beyond the control of the hospital facility, which may include, but are not limited to, the following definitions:

   a. **Extraordinary Circumstances**: In the event of a disaster or catastrophic event (hurricane, tornado, floods, fires, etc.) that results in shut down of hospital and/or their data vendor facility operations thereby affecting the hospital's ability to complete the work required to meet quality data reporting deadlines. This process does not preclude EOHHS from considering other hospital's that have been affected by such extraordinary events across a specific region or locale.

   b. **Unusual Circumstances**: In the event that the EOHHS or its Contractor facility experiences an unusual circumstance (ex: building power outages, internet provider interruptions, phone service provider interruptions, etc.) or extraordinary circumstance (as defined above) that impede the hospital's access to MassQEX portal or customer support services during an open active quarter reporting submission cycle. Other unusual circumstances where meeting the quarterly reporting deadlines is beyond the control of the facility may be considered (ex: new enrolled Medicaid hospitals under the current rate year, etc.).

   c. **Non-Applicable Circumstances**. Quality reporting data extensions **do not** apply to a request for resubmission to correct data files, after the portal has closed, when the data files were incomplete or incorrectly submitted during a quarter reporting cycle. Data extensions also does not apply to a request for resubmitting chart record data that were incomplete, after the due dates noted in Section 6.A.(6) of this EOHHS manual. Finally, data extensions do not apply to calendar year quarter data cycles that are used for prior RFA contract rate year period payments.

   Should EOHHS make a determination to grant a change to RFA reporting deadlines to hospitals affected by unusual or extraordinary circumstances, as described above, then such decision will be communicated using existing communication methods (EOHHS memos, email, MassQEX list-serve, posting updates on MassQEX website).

3) **Procedure to Request a Data Extension**. EOHHS has established a procedure for hospitals to request a change to RFA published reporting deadlines when the hospital experiences unusual or extraordinary circumstances during the current RFA rate year period.

The hospital should notify EOHHS, via phone or email, of the circumstance and to request a data extension form. Hospitals must adhere to the following procedures and instructions when submitting a request:

a) **MassHealth Hospital Data Extension Request Form (MHDER Form_2016)**

The Hospital must use the "MassHealth Hospital Quality Data Extension Request Form" to submit their written request. The Hospitals form must complete all the required information that includes:

- Specify the Type of data request;
- Detail about the type of data request, reason for the request (describe details on specific event that lead to requesting an extension,
- Include supporting documentation, plus identify a timeline for EOHHS agency consideration; and .
- Include the Hospital Chief executive officer (CEO) signature

Please refer to the actual PDF fillable form which includes detailed instructions. The MHDER fillable form is now posted on the Mass.Gov website and can be downloaded from the MassQEX webpage URL at: http://www.mass.gov/masshealth/massqex

b) **Submitting Your Request**

Hospitals must submit a packet of information that must include: a) completed typed form signed by the hospital CEO, include supporting documentation and b) the typed cover letter on hospital stationery that identifies contents enclosed, and c) mail to:

Executive Office of Health and Human Services
MassHealth Office of Providers and Plans
***Attention**: Acute Hospital P4P Program*
100 Hancock Street 6th floor
Quincy, MA 02171

The completed form must be received within 10 calendar days of the date that the circumstance occurred. The hospital can expedite their request by sending a copy of the materials via fax to MassHealth at (617) 847-3476 or to the EOHHS mailbox at: Masshealthhospitalquality@state.ma.us.

c) **EOHHS Notification Process**

Following the receipt of the Hospital's request, EOHHS will provide immediate acknowledgement (via phone & email) to the Hospital CEO and designated quality contact that the request has been received.

EOHHS will then provide the Hospital CEO and designated quality contact with final written decision regarding the Hospital's data extension request.

Section 6. Data Validation Methods

All quality measures data submitted to EOHHS, via the MassQEX web portal, must meet data validation standards along several levels. This includes passing: a) internal portal data completeness checks; b) chart level audits and; c) external portal checks to verify expectations for volume of discharges that meet ICD requirements for measures data received.

The EOHHS contractor will perform all aspects of portal and chart validation processes for inpatient measures data reported under the MassHealth Acute Hospital RFA. All data that has been successfully submitted via the MassQEX portal are subject to the validation methods described in this section.

A. Overview of Clinical Data Validation Process

1) The purpose of validation is to verify that the patient-level abstracted data submitted by Hospitals to MassQEX is accurate and reliable for calculating performance scores and incentive payments.

2) The EOHHS contractor will identify a sample of the Hospitals MassHealth patient-level records submitted via MassQEX, acquire copies of charts and re-abstract the measures data. Chart re-abstraction will establish the 'EOHHS Standard' for data abstraction. The 'Hospitals original' abstraction will be compared to the 'EOHHS' abstraction using methods outlined throughout this section.

3) Data validation procedures for the measures listed in Table 2.1 of this manual has been revised. *Refer to Section 8.B of this manual for data validation process that applies to newly reported measures.*

4) A random sample of six (6) charts per quarter will be identified, by the EOHHS Contractor, for each Hospital. The EOHHS contractor will re-abstract the medical record data for each hospital based on the revised data validation procedure that apply to reported measures as described above in Section 6.A.3.

5) Hospitals achieving an overall agreement score ≥ 80% for all 4 quarters of data submitted will be considered to have "passed" validation. Hospitals with overall scores that fall below 80% will be considered to have "failed" validation.

6) **Chart Validation Request Schedule:**
   a. Hospitals will be notified by the EOHHS Contractor of cases selected for chart validation within fourteen (14) calendar days following each data submission deadline.
   b. Hospitals must submit paper copies of all medical records requested within seventeen (17) calendar days of the request. The EOHHS Contractor will notify hospitals, by email or telephone, if any of the requested records have not been received within four (4) calendar days of the deadline.
   c. Copies of all paper medical records must include information on all three data elements of Race, Hispanic Indicator and Ethnicity for validation purposes. Hospitals are responsible for communicating this data submission requirement to their medical records department staff.
   d. Copies of records not received from Hospitals within seventeen (17) calendar days of the EOHHS Contractor request will be deemed as failing validation. The Acute RFA requires hospitals provide copies of records, for validation purposes, as part of program participation.

B. Data Validation Scoring Methods

1) **Validation Standard.** Hospitals will be evaluated against the 'EOHHS Standard' for chart abstraction by measuring agreement on the specific clinical and non-clinical (demographic and administrative) data elements for the measure sets listed in Section 2. Information from the 'Hospital original' and 'EOHHS Standard' abstraction will be compared to identify matches and variances across the data elements.

2) **Data Element Scoring.** All data elements are categorized as scored or non-scored. Scored elements are included in the calculation of the overall validation rate. Non-scored elements are not included in the calculation of validation rates but must pass portal completeness checks and will also be used to verify that the correct medical chart was received. A summary of the data element scoring categories is provided in Table below.

Table 6.1: Summary of Data Element Scoring Categories

Scored Data Elements		Non-Scored Data Elements	
Administrative Elements: • Race • Hispanic Indicator • Ethnicity • Hospital Bill Number	**Clinical Data Elements:** • *NEWB-1 measure* • *NEWB-2 measure* • MAT-3 measure • MAT-4 measure • *MAT-5 measure* • CCM measures • ED measures • TOB measures	• Admission Date • Admission Time • Birth date • Discharge Date (scored for CCM3 only) • Discharge Disposition (*scored for NEWB-1, NEWB-2, CCM only)* • Episode of Care • First Name	• Hospital Patient ID # • Last Name • Member ID Number • Payer Source • Postal Code • Provider ID • Provider Name • Sample • Sex

As noted in Table 6.1, scored data elements include administrative and clinical elements as follows:

a) ***Administrative Data Elements*:** These elements verify the MassHealth unique patient identifier data.

i. **Race, Hispanic Indicator and Ethnicity** data elements will be scored across all measures data being reported on. The aim of validation is to determine how consistently hospitals document all required data elements in medical record and electronic clinical data files.

ii. All race/ethnicity data elements documented in the medical record must indicate that the patient has self-reported. Clinician notes that make reference to a patient's race/ethnicity are considered invalid for data validation purposes.

iii. Copies of all paper medical records must include information on all three data elements of Race, Hispanic Indicator and Ethnicity for validation purposes. The data elements must be clearly documented in the copy of the paper medical record submitted (i.e.: copy of the face sheet, nursing admission assessment, initial patient assessment) or include a copy of the administrative record (i.e.: registration system screen shot) for that patient.

iv. Failure to include the documentation of race/ethnicity data in any medical record submitted will result in failing data validation for these data elements.

b) **Clinical Data Elements**: A full list of the clinical data elements that are eligible to be scored for each of the measure categories are contained in the following location:

i. **MassHealth Specific Measures (Sections 3.A – 3E):** The list of clinical data elements that apply to validation scoring these measures are listed on the table of contents of the MassHealth Data Dictionary in the this EOHHS manual.

ii. **Nationally Reported Hospital Measures (Section 3.G):** The full list of clinical data elements that apply to validation scoring each of these measures are contained in the NHQIM Manual versions listed in Section 3 of this EOHHS Manual.

3) **Data Element Mismatch Reasons.** The EOHHS contractor will identify a mismatch reason for each variance observed between the data elements in the 'Hospital original' and 'EOHHS Standard' abstraction. The mismatch reason categories are provided below.

Table 6.2: Mismatch Reason Categories

Abstractor answer not found	Parent element mismatch (child element)
Abstractor missed information	Poor record copy
Acceptable match/mismatch	Unclear element definition
Data entry error	Invalid record sent
Not following abstraction guidelines	Record not received

4) **Calculating Overall Score.** The overall agreement score is the aggregate of the validation rates for all quarters of data. The overall score is the proportion of scored items in agreement divided by the total scored items rated. Confidence intervals will be calculated to determine appropriate range for estimating if a reliability threshold has been met.

NOTE: EOHHS will adjust the overall validation results when it has been determined that the hospital has not been compliant with quarterly data completeness requirements applicable to calendar year reporting. In this instance, adjustment of the overall result is based on insufficient information to conclude the data quality standard as being met for calendar year reporting.

5) **Validation Results Reports.** Hospitals will receive reports that provide information on quarterly results, case detail results at the data element level, and comments to improve reliability of measures reporting as appropriate.

Beginning with RY2016, Hospitals will receive validation results twice during the rate year, once after the first two quarters (Q1, Q2) and then after the last two quarters (Q3, Q4) are submitted. After all four quarters of data has been validated, the Hospital will receive their overall results report with the overall agreement score for all four quarters reported.

C. Requesting Re-Evaluation of Clinical Data Validation Results.

Hospitals can have their original validation results considered for re-evaluation under the following conditions:

1) Basis for Re-evaluation:

a. Only Hospitals that have **not** met an overall agreement rate of ≥ 80% may request a re-evaluation of their results. Hospitals can request a re-evaluation of validation results for any quarter that fall below 80%.

b. The re-evaluation process for any quarter will be based on copies of medical records that were originally submitted, for that quarter, within the timelines stated under Section 6.A above.

c. Hospitals are **not** allowed to submit any new or additional documentation as part of the re-evaluation process.

d. Hospitals that failed to submit copies of the medical records requested by the EOHHS contractor within the timelines stated under **Section 6.A** above, are **not** eligible to submit a request for re-evaluation.

2) Timelines:

a. The Hospital has **10 business days** from the date of notification on their original overall validation report results to submit a written request for re-evaluation.

b. The re-evaluation process will be completed and mailed to the Hospital by the EOHHS contractor within **10 business days** from receipt of the Hospitals request.

3) Submission Format:

a. Hospitals must complete the **"***Hospital Data Validation Request for Re-evaluation of Results Form"* and provide information on the data element mismatches including the rationale for the request to re-evaluate the chart abstraction results. This PDF fillable form is posted on the MassQEX website at: http://www.mass.gov/eohhs/provider/insurance/masshealth/massqex/acute-hospital-p4p-forms.html

b. The request can be faxed to the EOHHS Contractor listed below:

Telligen, Inc.
Attention: MassHealth Quality Exchange
800 South Street (Suite 170)
Waltham MA. 02453
FAX: 844-546-1344

4) Final Results. The Hospital will receive a written response on the re-evaluation result indicating the following:

a. Whether any of the validation results have been adjusted; and
b. Whether the overall agreement score remains below the required threshold (≥ 80%) noted above.
c. Provide details on data element mismatches that remain and educational comments to improve data reliability as appropriate.

Please contact the MassQEX Customer Support Help Desk listed in Section 5 of this manual if you have questions on how to complete the form and submit your request.

Section 7. Health Disparities Measure Specifications

Background. This section describes the EOHHS health disparity measurement approach, measure attributes and calculation methods, interpreting data reports, and suggestions for analysis to monitor progress over time.

A. Measurement Considerations: Several factors must be considered when identifying disparity measures for quality assessment and evaluating hospital-level performance. Such factors include the type of disparity measure and statistical indicators suitable for quality scoring, defining comparison and reference groups, ability to estimate differences across groups or identify problems of equity, and monitoring progress over time. Given divergent views on defining and measuring disparity, it is imperative to communicate key considerations that inform the MassHealth measurement approach. These are briefly discussed below.

- **Measurement Approach.** The Institute of Medicine report, Unequal Treatment, defines health disparities as racial/ethnic differences in quality of healthcare that are not due to access-related factors or clinical needs, patient choices or appropriateness of interventions. Rather, disparities in care emerge from the characteristics of and operations of the healthcare system such as provider interactions, the legal and regulatory climate (IOM, 2003). The IOM posits that health disparities exist because they are associated in many cases with the worst outcomes of care. Hence the goal is to promote equity of care through consistent use of evidence-based care processes across all areas of the healthcare system. Health disparities are observed across many racial/ethnic groups with some subgroups being disproportionately represented in poorer outcomes of care (CDC, 2013, AHRQ, 2012). Therefore a measurement approach that can make valid inferences about disparity across various racial minority groups is preferred.

- **Comparison and Reference Groups.** Assessing disparity across more than two racial/ethnic groups requires a summary disparity measure to be calculated. In general, summary disparity measures for unordered groups (i.e.: race, ethnicity), are similar in concept to traditional measures of variability used in statistics, such as the means deviation and the variance (Keppel et al, 2005). Health disparities can be measured by comparing social groups of interest against a reference point (i.e.: best-off group, population average, fixed target, etc.) to determine if problems of equitable care among groups exist (Braveman, 2006; Carter-Pokras and Baquet, 2002; Ward et al, 2013). The degree and patterns of disparity observed will depend on how comparison and reference groups are defined.

- **Measure Statistical Indicators**. A vast range of statistical indicators exist for evaluating and monitoring health disparities depending on the measurement approach selected (IOM 2010, Harper, S. and Lynch, J., 2007). The types of measures commonly used to evaluate health disparity include absolute and relative measures. These measures of association communicate different information to assess impact of health disparity in relative risk terms.

  Some commonly used statistical indicators include between-group variance, index of disparity' and Thiel Index which are relatively easy to calculate, have straightforward interpretation, don't require ordering social groups and both utilize information on all social groups (Oakes, Kaufman, 2006; Harper and Lynch, 2005). The 'between group-variance' is an absolute measure that summarizes the mean deviation of the racial/ethnic group. It weights each comparison group size and is less sensitive to groups with small sample sizes, which is an important consideration. Given that significant numbers of the hospitals reporting MassHealth measures data, have one or more racial groups with small sample sizes, the 'between-group variance' is better suited for measuring disparity because it weights racial/ ethnic group sizes within each hospital.

  While absolute measures give accurate data, they only provide partial assessment of disparity at a single point in time and therefore relative measures are needed to evaluate the impact of disparity over time. Relative measures such as the 'index of disparity' and 'Thiel index" are relative measures that look at disparity gaps between several groups in relation to reference point. The 'index of disparity' summarizes the mean deviation of a group rate relative to a reference point whereas the 'Thiel Index ' summarizes differences as disproportionality in population. Relative measures that are sensitive to changes in size of population subgroups and level of health within each subgroup are preferable for monitoring progress over time (NCI, 2005).

- **Measure Reliability.** Yearly analysis of the MassHealth hospital quality measures reported data, indicate that small cell size of racial group data, at the individual measure level, across many hospitals continues to remain a challenge. Therefore using a hospital-level composite measure that aggregates data from all reported measures will maximize the racial group sample size and thus improve the reliability. A disparity composite measure can be constructed based on calculation of differences across racial/ethnic composite group rates and thereby improve precision of racial group rates. Regardless, small sample size remains the biggest limitation of hospital level disparity analysis. The decision regarding appropriateness of pooling MassHealth reported measures is to mitigate challenges of varying hospital eligible data reporting patterns, racial group case volume, and attributes of measure rate directionality.

B. Composite Measure Attributes

Rationale: Composite measures typically summarize individual metrics related in some way (conditions) or can be created from indicators that are not highly correlated (AHRQ, 2012; Schwartz et al, 2008, Nolan and Berwick, 2006). A composite measure provides a better understanding of healthcare quality because it represents various aspects of care and focuses improvement efforts across a spectrum of processes rather than just its parts. The pooling of data from various measure sets reported to MassHealth represent consensus-based desired care practices that every patient should receive. Hence these measures serve as a basis for evaluating disparities since they reflect service dimensions where racial/ethnic groups have shown poor outcomes of care and opportunity to improve equitable care (CDC, 2013; AHRQ, 2012: DPH 2007).

Similarly, the all-or-none approach to composite measurement (opportunity model) assumes each patient is eligible to receive one or more of the recommended care processes across a spectrum of care. The disparity composite measure is a modification of this approach in that it takes the individual instances of care across the reported measures, sorts by racial/ethnic group and then combines them all together. The unit of measurement becomes the "racial/ethnic group" (not the individual patient). From an equity perspective, receiving the desired care process on measures that make up the composite should not differ across racial groups (AHRQ, 2012, IOM, 2010).

Type of Measure: Composite of process measures data (except ED-1, ED-2).

Composite Measure Components: A health disparity is a measurable variation in the characteristic of one or more populations relative to a reference point that can be expressed as a favorable (desirable) or adverse event (undesirable). Adverse events are considered a missed opportunity to receive the recommended interventions and can be reduced through planned actions (IOM, 2001). The consequence of not receiving recommended care is what often contributes to a health disparity.

The disparity composite measure represents the total number of instances each racial/ethnic group did not receive the desired care process (numerator) divided by the total number of opportunities available for receiving the desired care process (denominator). The composite measure is defined as follows:

- **Comparison Group Composite Rate**: The comparison group rate is defined as sum of the numerators (instances where desired care was not given) for each racial/ethnic group divided by the sum of denominators (opportunities to receive the appropriate desired care).
- **Reference Group Composite Rate**: The reference group rate is defined as the sum of the numerators from all combined racial groups (instances where desired care was not given) divided by the sum of denominators (opportunities to receive the appropriate desired care).
- **Between Group Variance (BGV)**: The variance statistic measures the deviation of each racial/ethnic comparison group's composite rate from the hospitals reference group rate.

Data Collection Approach: Retrospective data sources of the required data elements include administrative and medical records. No additional collection of clinical or administrative data elements is required.

Data Accuracy: Accurate collection of the Race, Hispanic Indicator, Ethnicity data elements are necessary to improve reliability of group composite rates. Unknown codes should be minimized and eliminated when possible.

Sampling: Hospitals may choose to over-sample data for race/ethnicity to improve precision of composite rates.

Risk Adjustment: Does not apply to care process measures.

Data Reported as: The racial comparison and reference group composite numerator rates are reported as missed opportunity results (instances where desired care was not given) and the final hospital BGV (degree of variance in care). See Section 7.D for additional information on how data is reported.

Improvement noted as: A decrease in variance between racial/ethnic composite group compared to the hospital reference group rate. Note that a BGV of zero (0) does not tell us that the desired care was given to all patients every time, only that there was no variance in care provided to each racial group from the hospital reference group.

Measure Analysis Suggestion: Composite measures are limited in their ability to provide guidance for quality improvement. Therefore, further analysis should be done using results on individual measures that make up the composite to ensure information is actionable. See Section 7.D for additional suggestions.

C. HD2 Measure Calculation Method

1. Description of Terms and Formulas

a) Racial/Ethnic Group Categories. The race/ethnicity codes and allowable values, in Section 2.C of this manual, are modified for composite measure calculation purposes and summarized in table below.

Table 7.1 Race/Ethnicity Category Groups

Allowable Values	Codes
Hispanic	Y
Asian (non-Hispanic)	R2
Black/African American (non-Hispanic)	R3
White (non-Hispanic)	R5
Other (non-Hispanic)	R1+R4+R9

- As noted in Table 7.1, the "Other" category combines race codes (R1+R4+R9) and allowable values (American Indian/Alaska Native, Native Hawaiian/Pacific Islander, Other race) that represent smaller volume in the hospitals calendar year reported data. This is done to improve sample size across groups.
- The non-Hispanic qualifier indicates each group reflects the primary self-designated race.
- The "UNKNOW (non-Hispanic)" code is not valid for disparity analysis and therefore excluded from all the composite measure calculations described below.

b) Definition of Hospital Measure Population Groups

- Comparison Group: The comparison groups are the count data for each of the five (5) racial/ethnic categories derived from the hospitals calendar year reported data, excluding UNKNOW code.

- Reference Group: The reference group is count data on total population of all racial/ethnic categories derived from the hospitals calendar year reported data, excluding UNKNOW code. This definition of the reference group was selected based on research literature which recommends pairing the total population average when using between group variance statistics. The total population average is more stable than a standard reference point and has the advantage of having the same value across all domains that encompass the same population. Other considerations included ability to calculate the disparity measure even when the hospitals data may not contain the maximum amount of racial groups.

c) Definition of Reference Group Composite Rate. Within each hospital, total of all five (5) racial/ethnic (R/E) categories, the hospital reference group composite rate (r_{ref}) is calculated using the following formula:

$$r_{ref} = \frac{n_{ref}}{d_{ref}}$$

Where:
d_{ref} = Sum the denominators from all 5 racial/ethnic groups to get the reference group denominator
n_{ref} = Sum the numerators from all 5 racial/ethnic groups to get the reference group numerator
r_{ref} = Reference group composite rate is calculated by dividing the reference group numerator (n_{ref}) by the reference group denominator (d_{ref})

d) Definition of Comparison Group Composite Rate: Within each hospital, for each of the racial/ethnic categories, the comparison group *composite rate* (r_i) is calculated using the following formula:

$$r_i = \frac{n_i}{d_i}$$

Where:
n_i = For each R/E group, sum the numerators from all measures to get the comparison group numerator.
d_i = For each R/E group, sum the denominators from all measures to get the comparison group denominator
r_i = Comparison group composite rate is calculated by dividing the comparison group numerator (n_i) by the comparison group denominator (d_i)

e) Between-Group Variance (BGV). The BGV for each racial/ethnic comparison group's composite rate from the reference group composite rate is calculated using the following formula:

$$\text{BGV} = \sum_{i=1}^{n} \frac{d_i}{d_{ref}} \left(r_i - r_{ref}\right)^2$$

Where:

r_i = is the composite rate in racial/ethnic comparison group i
r_{ref} = is the reference group composite rate
d_i = is the denominator in racial/ethnic comparison group i
d_{ref} = is the denominator in the reference group
n = is the number of racial/ethnic comparison groups within a hospital
i =1 to n is the range of number of groups where n is total number racial/ethnic comparison groups within the hospital.

The BGV measures the deviation of each racial/ethnic comparison group's composite rate from the reference group composite rate and weights each comparison group by its population size. The BGV measure accounts for relative sizes of groups and weights each racial/ethnic group by the hospitals population size.

f) Disparity Composite Value. The composite value is defined as the final BGV statistic that is calculated by summing all the racial/ethnic comparison group BGV values. As of RY15 results, the final BGV statistic will no longer be converted (to 1-BGV) to align with the individual clinical quality measure rate directionality**.**

The BGV statistic uses an interval scale that ranges from zero to one (0 – 1) displayed in 6 decimal points. A value close to zero (0) may indicate no variation exists whereas a value close to one (1) may indicate that a wide variation exists. Refer to Section 7.D for more detail on how to interpret BGV results.

2. **Example of Composite Measure Calculation.** A step-by-step example of the hospitals composite measure calculation is illustrated below. Hospital A's scenario displays the following summary information extracted from the reported calendar year data files.

Step 1 – Criteria to Identify the Race/Ethnicity Groups

- The hospitals data files must have more than one racial/ethnic group, after UNKNOW code is excluded.
- The hospitals data file is sorted by all numerators & denominators to obtain the information shown below.

Table 7.2 Recoding of Hospital Race/Ethnicity Groups (Example)

MHRACE Code	Hispanic Indicator	Recoded R/E Category	R/E Category Name	Numerator **(Care not given)**	Denominator
-----	Y	1	Hispanic	30	60
R3	N	2	Black/African Amer. (Non-Hispanic)	2	5
R5	N	3	White (Non-Hispanic)	20	100
R2	N	4	Asian (Non-Hispanic)	3	5
R1+R4+R9	N	5	Other (Non-Hispanic)	15	30
--------	-------	--------	**TOTALS**	**70**	**200**

- Once the racial/ethnic groups have been recoded the hospital's reference and comparison *group rates* are calculated using the following steps below.

Step 2: Calculate the Reference Group Composite Rate.

- Sum the denominators from all 5 racial/ethnic groups to obtain the reference group denominator (d_{ref})
- Sum the numerators from all 5 racial/ethnic groups to obtain the reference group numerator (n_{ref})
- Calculate the reference group composite rate (r_{ref}) by dividing the reference group numerator by the reference denominator (d_{ref}) using the formula shown in Section 7.c above.
- Data from Table 7.2 is used to illustrate the following calculation:

Example:

Reference group denominators= 60+5+100+5+30=200
Reference group numerator = 30+2+20+3+15=70
Reference group composite rate = 70/200 = 35%

Step 3: Calculate the Race/Ethnicity Comparison Group Composite Rates.

- For each race/ethnic group, sum the denominators from all measures to get comparison group denominator (d_i)
- For each race/ethnic group, sum the numerators from all measures to get comparison group numerator (n_i).
- Calculate the race/ethnic comparison group composite rate (r_i) by dividing the comparison group numerator by the comparison group denominator (d_i) using the formula shown in Section 7.d above.
- Data from Table 7.2 is used to illustrate the following calculation:

Example:

(r_i) Hispanic group rate = 30/60 = 50%
(r_i) Black/African American, Non-Hispanic rate = 2/5 = 40%
(r_i) White, Non-Hispanic rate = 20/100 = 20%
(r_i) Asian, Non-Hispanic rate = 3/5 = 60%
(r_i) Other Races, Non-Hispanic rate = 15/30 = 50%

Step 4: Calculate the Comparison Group BGV Statistics

- Compute the BGV statistic for each race/ethnic group using the formula shown in section 7.e above
- Data from Table 7.2 is used to illustrate the following calculation:

Example:

$$\textbf{BGV}_i = \frac{d_i}{d_{ref}}(r_i - r_{ref})2$$

$$\textbf{BGV1}_{Hispanic} = \frac{60}{200}(0.5-0.35)^2 = \mathbf{0.006750}$$

$$\textbf{BGV2}_{Black/African\ American,\ Non\text{-}Hispanic} = \frac{5}{200}(0.4-0.35)^2 = \mathbf{0.000063}$$

$$\textbf{BGV3}_{White,\ Non\text{-}Hispanic} = \frac{100}{200}(0.2-0.35)^2 = \mathbf{0.011250}$$

$$\textbf{BGV4}_{Asian,\ Non\text{-}Hispanic} = \frac{5}{200}(0.6-0.35)^2 = \mathbf{0.001563}$$

$$\textbf{BGV5}_{Othe\ ,\ Non\text{-}Hispanic} = \frac{30}{200}(0.5-0.35)^2 = \mathbf{0.003375}$$

Step 5: Calculate Disparity Measure Final BGV Statistic

- Compute the hospitals final BGV statistic by summing all the racial/ethnic composite group BGV.
- Data from Table 7.2 is used to illustrate the following calculation:

$$\textbf{Final BGV} = \sum_{i=1}^{n} \frac{d_i}{d_{ref}}\left(r_i - r_{ref}\right)^2$$

Example

= BGV1 + BGV2 + BGV3 + BGV4 + BGV5
= 0.006750+ 0.000063 + 0.011250+ 0.001563+ 0.003375
= 0.023001

The final BGV summarizes the absolute differences between each racial/ethnic comparison group rate from the reference group composite rate and weights each comparison group by its population size. The final BGV is now the raw statistic that has not been transposed for directionality as done in previous years.

The disparity measure statistics shown above are summarized in the hospitals year-end report. An example of the composite measure report and how to interpret results are provided below.

D. HD-2 Composite Measure Report Results

Effective RY15, the HD-2 composite measure report content and format has undergone major revision from previous year. This section illustrates an example of new report content and how to interpret your results.

1) **New Report Content**. The disparity composite measure results are now reported as missed opportunities. The racial/ethnic (R/E) comparison and hospital reference group numerator is transformed to instances where care was not given (100 minus X) as opposed to instances where care was given (X). Below is an example of new report display format.

Table 7.3 MassHealth HD-2 Report Format (Mock Example)

Racial/Ethnic Comparison Groups	Hispanic	Black/AA	Asian	White	Other	Hospital Reference Group
Numerator	228	87	45	503	20	883
Denominator	670	334	112	1117	40	2273
Rate	34%	26%	40%	45%	50%	39%
Comparison BGV	0.000684	0.002407	0.000009	0.001879	0.000219	N/A
Final BGV	--	--	--	--	--	0.005198
Composite Metric ID	**Hispanic**	**Black/AA**	**Asian**	**White**	**Other**	**Total Missed Opportunities**
NEWB1	1	1		1		3
NEWB2	1	1				2
MAT3				1		1
MAT4	1	1				2
MAT5			1	2		3
CCM1	5	1	1	5	1	13
CCM2	132	49	24	288	12	505
CCM3	85	29	19	195	7	335
TOB1	3	2		5		10
TOB2		2		4		6
TOB3		1		2		3
TOTALS	**228**	**87**	**45**	**503**	**20**	**883**
Unknown Group	--	--	--	--	--	54

Explanation of Data Entry Fields

As noted in Table 7.3, the revised report results are displayed in two distinct sections. The upper portion displays each racial/ethnic comparison group rate and corresponding BGV, the hospitals reference group rate and the final BGV value. The lower portion displays which measures contributed to missed opportunities where the desired care was not given by each R/E group. Below is the explanation of the report data entry fields.

Overall Results (upper portion of report)

- Numerator: total cases where desired care was *not* given for R/E comparison and reference group.
- Denominator: total cases that met denominator criteria for R/E comparison and reference group.
- Rate (N/D): percent missed opportunity cases for racial comparison and reference group.
- Comparison BGV: is the degree of variance in care contributed by each racial group.
- Final BGV: is the degree of variance in care contributed by all combined groups (not transposed)
- Reference Group: total cases of all 5 racial groups hospital reported on

Missed Opportunities (lower portion of report)

- Metric ID: abbreviation of individual measures that make up the HD-2 composite.
- Totals: total count of missed opportunities for each racial group for each reported measure.
- Unknown Group: total cases in denominator not valid for analysis (excluded from all calculations)

Effective with the RY15 HD2 year-end report, a new self-serve report feature will be available in the MassQEX portal to allow hospitals to identify each missed opportunity case by measure ID that was displayed in their report. Below is additional information on how to interpret your results.

2) **How to Interpret the Overall Results**. The following important considerations should be taken into account when interpreting your results.

a) The new HD2 report displays the numerator rate (instances of care not given) for each R/E comparison group and the hospitals reference group as well as the final BGV value (degree of variance in care provided to racial/ethnic groups relative to the hospitals reference group).

b) The BGV quantifies the degree of variance in care occurring within the hospital, but unlike a rate, it does not tell us about the direction of improvement. The BGV ranges from zero (0= no variation exists) to one (1= variation does exist). The final BGV value is not significantly correlated with the number of R/E groups or with the size of the R/E comparison groups the hospital reports on.

c) Each racial composite group BGV also offers different information. For example, the R/E composite group rate with a larger BGV contributes more to the overall variance at a hospital than those with a lower BGV. Likewise, a larger BGV for each R/E comparison group is due to variation in care for that group weighted by the size of that R/E comparison group compared to the hospitals reference group size.

d) Interpretation of the final BGV should always be done in conjunction with the R/E comparison group specific rates to the hospitals reference group rate. The degree of disparity contributed by each R/E group is based on both the difference between the comparison and reference group rate, and the comparison group population size.

Revised Example A:

Table 7.3 provides examples of R/E group variance that are above and below the hospitals reference group rate, both of which contribute to the total final BGV.

The Black group has a lower composite rate (26%) than the hospitals reference group rate *(39%)* thus a large BGV value *(0.002407*) that contributed to the final BGV *(.005198*).

The White group has a higher composite rate (45%) a larger denominator population size than the reference group *(39%)* thus also contributing to a fairly large BGV *(.001879*).

Another way of examining the data is to add the sum of all BGV for the Non-white racial minority groups *(.003319*) versus the White group *(.001879*) as a way of looking at which groups contributed most to the final BGV.

e) Example A illustrates that the Black group received the desired care more frequently relative to the hospitals reference group, compared to the White group rate which received desired care less frequently. These results suggest that opportunity exists for targeting interventions with White Medicaid patients as a way to reduce the hospitals overall variance. However, from an equity perspective, the goal is to reduce composite rates and eliminate disparity in care across all racial groups.

f) Care should be taken when interpreting your results since achieving a lower BGV does not necessarily correlate with improvement on a given clinical process measure. As noted in section 7.B, a BGV of zero (0) *does not* tell us that desired care was given to all patients every time, *only* that there was no variance in care compared to the hospitals reference group.

g) A hospital with overall poor quality may still obtain a low BGV as long as the degree of disparity across R/E groups is small. Likewise, a hospital with no improvement or even a decrease in their clinical measure rates may still improve its final BGV as long as the degree of disparity across R/E groups is reduced.

3) **Interpreting Missed Opportunities for Quality Care.** The new HD2 report represents the missed opportunities resulting from failure to receive desired care. Any variation in care may be reduced through planned actions.

   a) The HD2 report is created from all eligible measures the hospital submitted during the calendar year and is intended to supplement the clinical process measure rates report. Therefore, the HD2 results must be reviewed in conjunction with the hospitals year-end clinical process measure results.

   b) The new HD2 report now gives detail on which clinical process measures are contributing to disparities in care across one or more racial groups. Hospitals can use these results to detect trends by patient groups or which service dimensions represented by the measures, are contributing to variance in care.

> ***Revised Example B:***
>
> **Table 7.3** gives additional detail about each R/E group numerator rates about missed opportunities across one or more racial groups.
>
> This is illustrated in Table 7.3 where the number of missed opportunities for Hispanic group on *CCM-2 metric is n=132* in relation to the total *CCM-2* missed opportunities *(n=505*). Thus the Hispanic group represents *26%* of the missed opportunities for the *CCM-2* measure.
>
> Likewise, the number of missed opportunities for White group on CCM-3 metric is n=195 in relation to the total missed opportunities (n=335). The White Medicaid patient group represents 58% of missed opportunity for the CCM-3 measure

   c) As shown in Example B, the Hispanic group did not receive desired *process of care for CCM-2* compared to other racial groups. This information can be used to identify provider-patient factors (language barriers, cultural norms) and target interventions that would address improving maternity care processes with Hispanic patients.

      Example B also suggests that opportunity exists for targeting interventions related to CCM-3 with White Medicaid patients as a way to reduce missed opportunities. However, from an equity perspective, the goal is to reduce and eliminate instances where care was not given across all racial group

The new HD2 report provides a snapshot of disparity in care across the eligible Medicaid population. Disparity results can be used to determine if you are achieving the goal of equitable care for all patients and reveal areas where adjustments in system level processes (patient, practitioner, organizational) are needed.

Please contact the MassQEX Help Desk, listed in Section 5 of this EOHHS manual, if you have any questions on how to interpret your health disparities measure results.

Select References

- Agency for Healthcare Research and Quality. *National Healthcare Disparities Quality Report (2012)*. No 13-003. Published June 2013, available at: http://www.ahrq.gov/research/findings/nhqrdr/nhdr12/index.html

- Braveman P. (2006). Health disparities and health equity: concepts and measurement. *Annual Review Public Health,* 27, p.167-194.

- Carter-Pokras O. and Baquet, C. (2002). What is a health disparity? *Public Health Reports*, vol. 117, p426-434.

- Centers for Disease Control and Prevention. Diminishing racial disparities in early-onset neonatal Group B streptococcal disease – United States, 2000-2003. MMWR 2004;53:502-05.

- Center for Disease Control (2013), Health Disparities and Inequalities Report United States 2013, Morbidity and Mortality Weekly report *supplement vol. 62, no. 3, November 23, 2013, Accessed Feb 12, 2014* http://www.cdc.gov/mmwr/pdf/other/su6203.pdf

- Cook, B.L., McGuire, T.G., and Zaslavsky, A.M. (2012). Measuring Racial/Ethnic disparities in healthcare: Methods and practical issues, Health Service Research vol. 47:3, Part II, June 2012 pp. 1232 - 1254.

- Davidson, G., Moscovice, I., and Remus, D. (2007). Hospital size, uncertainty and pay-for-performance. Working Paper Series #3, Upper Midwest Rural Health Research Center, University of Minnesota Rural Health Research Center.

- Harper S., and Lynch J. (2005), Methods for measuring cancer disparities: using data relevant to Healthy People 2010 cancer-related objective. National Cancer Institute, Cancer Surveillance, Monograph Series 6, Bethesda, MD.

- Harper S., and Lynch J. (2007), Selected comparisons of measures of health disparities. A review using databases relevant to Healthy people 2010 cancer-related objectives, National Cancer Institute, Cancer Surveillance, Monograph Series 7, Bethesda, MD

- Harper S, Lynch, J, Meersman S.C, Breen N., Davis W.W., Reichman M.E.(2008). An overview of methods for monitoring social disparities in cancer with an example using trend in lung cancer incidence by area-socioeconomic position and race-ethnicity, 1992-2004. American Journal Epidemiology, 167, no. 8, p.889-899.

- Harper S, King, N, Meersman S.C, Breen N.,Lynch, J (2010). Implicit Value Judgments in the Measurement of Health Inequalities., Milbank Quarterly, vol. 88 , no. 1, pp.4-29.

- Institute of Medicine (2001). Crossing the Quality Chasm. A new health system for the 21st century. Committee on Quality of Healthcare in America. Washington, DC: National Academy Press.

- Institute of Medicine (2003). Unequal Treatment, Smedley, B.D., Stith, A.Y., and Nelson, A.R. Editors, Confronting racial and ethnic disparities in healthcare. Committee on understanding and eliminating racial and ethnic disparities in health care. Board of Health Sciences Policy, Washington, DC: National Academy Press.

- Institute of Medicine (2010), Ulmer, C., Bruno, M. and Burke, S. Editors. Committee on Future Directions for the National Healthcare Quality and Disparities Reports. National Academy of Sciences. Washington DC.

- Keppel K, Pamuk E, Lynch J, et al. (2005). Methodological issues in measuring health disparities. National Center for Health Statistics, Vital Health Statistics vol. 2 (141).

- Nolan, T. and Berwick, DM., (2006) All-or-none measurement raises the bar on performance, Jnl American Medical Association, vol 295, no. 10, pp1168-1170.

- O'Brien S.M., DeLong, E.R. and Peterson E.D. (2008). Impact of case volume on hospital performance assessment. Archives of Internal Medicine, 168 (12): p.1277-1284.

- Oakes, J.M. and Kaufman, J.S. (2006). Methods in Social Epidemiology. San Francisco, CA: Jossey-Bass.

- Massachusetts Department of Public Health (2007). Racial and Ethnic Health Disparities by EOHHS Regions in Massachusetts. DPH Information, Statistics, Research and Evaluation Bureau and other health status reports, Accessed August 2013. Available at: http://www.mass.gov/eohhs/gov/departments/dph/programs/health-stats/repi/race-and-ethnicity.html

- Roy Carr-Hill and Paul Chalmers-Dixon, Edited by Jennifer Lin (2005), The Public Health Observatory Handbook of Health Inequalities Measurement, Southeast Public Health Observatory (SEPHO) Centre for Health Economics, York University; Accessed March 30, 2012 at: http://www.sepho.org.uk/extras/rch_handbook.aspx

- Schwartz, M., Ren, J., Pekoz, E.A, Wang, X., Choen, A.B., Restuccia (2008). Estimating a composite measure of hospital quality from the hospital compare database, Medical Care, volume 46, no. 8, pp. 778 - 785

- Ward, A. Johnson, P.J. and O'Brien, M (2013). The normative dimensions of health disparities. Journal of Health Disparities Research and Practice, volume 6, issue 1, spring 2013 pp46-61.

Section 8 : Other Hospital P4P Program Updates

This section provides general information intended to further clarify MassHealth Hospital P4P program requirements and documents mailed by EOHHS to hospital quality contacts on their performance status. Contact EOHHS if you have questions about any content in this section.

A. **Program Participation Checklist.** Below is a brief summary of the Acute RFA program requirements.

Table 8.1 MassHealth Hospital P4P Program Requirements	Acute RFA Section 7	EOHHS Manual Instruction
Program Eligibility. All Hospitals contracted under the EOHHS Acute Hospital RFA are required to participate in P4P quality reporting. ***No hospital is exempt.***	Sect. 7.1	None
Key Quality Representatives. Hospitals must designate two key representatives (Quality & Finance) to serve as key communication liaisons between Hospital and EOHHS. The two representatives are entered in the EOHHS business mailbox masshealthhospitalquality@state.ma.us	Sect 7.2	None
Register for MassQEX Portal. The MassQEX web portal is the approved mechanism for the secure exchange of data files between Hospitals and EOHHS. Hospitals must authorize staff to conduct data transactions on their behalf.	Sect 7.1	Section *5.D*
Submit Quality Measures Data. Hospitals are required to submit all eligible measures data identified in the Acute RFA. When a third-party vendor submits data, the hospital remains accountable for meeting all reporting requirements.	Sect 7.3	Sections 2 & 5
Submit ICD Population and Sample Size Counts. Hospitals must enter aggregate ICD measure population and sample size counts, for each quarter to be in compliance with reporting requirements.	Sect. 7.3	Section *5.B.5*
Meet Data Completeness Requirements. Hospitals must meet data completeness requirements to calculate measure category assignments.	Sect. 7.3	Section 2.F
Pass Data Validation. Hospitals must pass validation requirements (.80), based on all four quarters of data. Confidence intervals are used to determine appropriate range for estimating if a reliability threshold has been met.	Sect. 7.4	Section 6
Meet Quality Reporting Timelines. Hospitals must comply with quarterly data reporting submission deadlines published in the RFA.	Sect. 7.6	Sections 1 & 5
Third-party Data Vendors. Hospitals can identify third-party vendors to conduct data transactions via the portal and must communicate directly with their vendors on all aspects of data reporting requirements.	Sect 7.6	Section *5.E*
Submit Acute Hospital *Program* Forms. Hospitals must submit the updated Quality Contact Form and Hospital Data Attestation Form each rate year.	Sect. 7.6	Section 8.A
Achieve Performance Standards. Each Hospitals performance will be evaluated annually in accordance with the criteria and calculation methods in the RFA.	Sect 7.4	Section 8.D
Incentive Payments. Hospitals may earn incentive payments if they meet data completeness requirements, pass data validation requirements and achieve performance thresholds.	Sect. 7.5	Section 8.E

The above checklist is intended to serve as quick reference and does not replace the terms and conditions outlined in the EOHHS Medicaid Acute Hospital RFA and contract. Please refer to the original Acute RFA contract for other terms and conditions that may apply.

1) **Access to the Acute Hospital RFA:** to download a copy of the contract:

- Go to www.commbuys.com and press Enter. The COMMBUYS introductory screen appears.
- Click the "Contract & Bid Search" link. The "COMMBUYS Advanced Search" screen appears.
- In the 'Search for' box, click the "Bids: button. A list of Search Fields appears.
- In the "Bid Description" field, type the RFR Document Number: **16LCEHSACUTEHOSPITAL**
- Click the "Find It: button.
- In Results section (bottom of page), click link under Bid # and 'Solicitation screen' for the RFR appears.
- In the "File Attachments" section, click link to the document you want to access.
- From the 'File Download' pop-up menu, click 'Open' to view document or Save to download the document.

2) *Hospital Program Participant Forms*. The various forms that apply to all Hospitals participating in MassHealth Acute Hospital P4P Program reporting requirements are listed in table below.

Table 8.2 Summary of Required Program Forms

Form Name	Form Content	Mail Form To
Hospital Quality Contacts Form	Per Acute RFA (Section 7.1.E and 7.6.E) this form requires: • Listing 2 key representatives for all EOHHS business communication • Identify MassQEX portal users that will conduct data transactions • Requires key representative signature • Mail at the beginning of each RFA rate year *and* when contacts change	EOHHS MassHealth Office Providers & Plans *Attention: Acute Hospital P4P Program* 100 Hancock St. 6th floor Quincy, MA 02171
Hospital Data Accuracy and Completeness Attestation Form	Per Acute RFA (Section 7.6.E) this form requires: • Attests MassQEX users on quality contact form are authorized to submit data • Attests data required for payment determinations is accurate and complete • Requires Hospital CEO signature • Mail at the beginning of each RFA rate year *and* when CEO changes	EOHHS MassHealth Office Providers & Plans *Attention: Acute Hospital P4P Program* 100 Hancock St. 6th floor Quincy, MA 02171
Hospital Data Reporting Extension Request Form	Per EOHHS manual instructions (Section 5.G): • Explain circumstance for requesting extension of RFA reporting deadline, attach supporting documentation and identify timeline. • Requires Hospital CEO signature • Must be received by EOHHS within 10 days hospital circumstance occurred.	EOHHS MassHealth Office Providers & Plans *Attention: Acute Hospital P4P Program* 100 Hancock St. 6th floor Quincy, MA 02171
Hospital Data Validation of Re-evaluation Request Form	Per EOHHS manual instructions (Section 6.C): • Enter case detail, data element & rationale for requesting review of results • Requires key quality representative signature • Submit within 10 days from date of notification of report results	Telligen, Inc *Attention:* MassHealth Quality Exchange 800 South Street (Suite 170) Waltham, MA. 02453
MassQEX Hospital Staff User Registration Form	Per EOHHS manual instructions (Section 5.D) • On-line registration is required to obtain a portal user account • Designated hospital staff user must enter all required information • Requires notary public and Hospital CEO signatures • The EOHHS Contractor verifies and activates portal accounts	Telligen, Inc *Attention:* MassHealth Quality Exchange 800 South Street (Suite 170) Waltham, MA. 02453
MassQEX Third-Party Vendor User Registration Form	Per EOHHS manual instructions (Section 5.D) • On-line registration is required to obtain a portal user account • Designated data vendor staff user must enter all required information • Requires notary public and Hospital CEO signatures • The EOHHS Contractor verifies and activates portal accounts	Telligen, Inc. *Attention:* MassHealth Quality Exchange 800 South Street (Suite 170) Waltham, MA. 02453

a) **Access to Program Forms**: All MassHealth Acute Hospital P4P program PDF fillable forms are posted in the MassQEX webpage on Mass.Gov website at: www.mass.gov/masshealth/massqex . The on-line registration forms is located on the web portal link on this MassQEX website.

b) **Mailing the Program Forms**: each form should be mailed to correct address listed on the table above. Please contact EOHHS at: masshealthhospitalquality@state.ma.us if you have questions about the required program forms.

B. Performance Measures Transition

The Acute RFA16, Section 7.3 announced new changes to measures that apply to the current rate year and the next rate year rolling reporting cycle. Below is a summary of changes that apply.

1) **Measure Reporting Requirements**

a. For RY2016, Hospitals begin the CY2015 data reporting cycle for the measures listed in Table 2.1 in this EOHHS manual. As of Q1-2015 discharge data period, hospitals will also begin reporting four (4) new measures noted in Table 8.3 below.

b. Hospitals will also begin the new CY2016 data reporting rolling cycle which begins with Q1-2016 discharge data period. As of Q1-2016, hospitals will discontinue reporting three maternity measures, and begin reporting of three (3) new measures (maternity, newborn) as noted in Table 8.3 below.

Table 8.3 Performance Measures Added and Retired

Metric ID	Measure Name	RY 2016 (CY2015)	RY 2017 (CY2016)
MAT-1	Intrapartum Antibiotic Prophylaxis for Group B Streptococcus	Yes	***Retired***
MAT-2a	Perioperative Antibiotics for Cesarean Section – Antibiotic Timing	Yes	***Retired***
MAT-2b	Perioperative Antibiotics for Cesarean Section – Antibiotic Choice	Yes	***Retired***
MAT-4	Cesarean Birth, NVST	***Begin New***	Continue
TOB-1	Tobacco use screening	***Begin New***	Continue
TOB-2	Tobacco treatment provided or offered	***Begin New***	Continue
TOB-3	Tobacco treatment provided or offered at discharge	***Begin New***	Continue
MAT-5	Appropriate DVT prophylaxis for cesarean delivery	N/A	***Begin New***
NEWB-1	Exclusive breast milk feeding	N/A	***Begin New***
NEWB-2	Newborn bilirubin screening prior to discharge	N/A	***Begin New***

2) Data Validation for Newly Reported Measures

a. In RY2016 (CY2015 data) the following newly reported measures that will be added to validation: MAT-4 and TOB-1, TOB-2, TOB-3.

b. *Validation Approach***.** The validation process is modified when new measures are introduced in a given rate year. This allows hospitals to gain experience in collecting required data elements during first year of reporting before the measures are used for performance scoring.

c. *New quality measure category*: data elements for the metrics that comprise the category are validated separately in first year of collection (e.g.: TOB-1, 2, 3).

d. *New individual measures***:** data elements are not validated separately for measures that are added to an existing reporting category (e.g.: MAT-4). Instead random sampling is modified to prioritize selection of cases for validation of the new individual measure in the first year it is reported.

e. *Separate Scoring*. When new measure categories are introduced, under a given rate year, hospitals will receive two different validation scores. One validation score will be computed for existing measure sets reported and a separate score is computed for newly reported measure category set.

Please refer to Section 6 of this EOHHS manual for details that apply to data validation methods.

C. **Performance Assessment Methods.** Below is a summary of methods in Section 7.4 of Acute RFA16 that apply to measure types.

Table 8.4 Performance Assessment by Measure Type*

Components	Individual Measures (RY16)	Composite Measure (RY16)
Performance Assessment Approach	• Uses improvement model to asses performance • Compares Hospitals' Previous & Comparison Year Performance • Compares Your Hospitals' Performance to All Hospitals Performance	Uses decile rank system to assesses performance relative to other Hospitals Does not compare your hospitals previous and comparison years rank Does not compare your hospitals rank to a median or average score
Raw Measure Calculation	• Measure Rates (MAT-1,2a,2b,3, CCM-1,2,3) • Median Time Value (ED metrics)	• Must have >1 Racial group in CY reported data • HD-2 Composite = Combines *MAT and CCM* only (ED is excluded) • Racial Composite Rate & Hospital Reference Rate* • HD-2 Composite Value = Raw BGV only*
Setting Thresholds	• Attainment = 50th percentile (all hospitals previous year data) • Benchmark = *mean of top decile* (all hospitals previous year data)	• Target Attainment = set above 2nd decile group • HD2 value is rounded to 6 decimal points
Quality Scoring Approach **(Weighting of Raw Results)**	**Award Attainment Points** • 0 points = if Equal to or less than Attainment • 1 to 9 points = if greater than > Attainment but below Benchmark • 10 points = if Equal to or greater than benchmark **Award Improvement Points** • 0 points = if Equal to or less than previous year • 0 to 9 points = if within improvement range • Do not need to meet attainment to get improvement points	**Quality Scoring Approach** • HD2 values are ranked highest to lowest • Conversion factor assigns weight to the Hospitals HD2 value Apply weight to each group above 2nd decile • 3rd decile = (.30); 4th decile= (.40); 5th decile = (.50); 6th decile = (.60); • 7th decile = (.70); 8th decile = (.80); 9th decile= (.90); 10th decile = (1.0) • 1st & 2nd decile = (zero weight)
Performance Score Calculation	☛ (Measure Rate – Attainment) x 9+ 0.5 = **Attainment Pts.** (Benchmark – Attainment) ☛ (Current Rate – Prior Yr. Rate) x 10 – 0.5 = **Improvement Pts**. (Benchmark Threshold – Prior Yr. Rate) ☛ Total Awarded Points X 100% = **Total Performance Score** Total Possible Points	☛ Conversion Factor x 100% = HD2 Performance Score
Measurement Period	• *RY15 Previous Year (CY2014 data)* • *RY16 Comparison Year (CY2015 data)*	• Current *RY2016 reported data only (CY2015)*
Other Considerations	▪ Points awarded after a baseline rate is established on each measure. ▪ Points not awarded on newly reported measures ▪ Points not awarded when all hospital attainment indicate suboptimal score ▪ Not eligible for improvement points if *failed validation* in previous year. ▪ May get attainment points if *passed validation* in comparison year and if already established a baseline rate for the measure.	▪ Each rate year your HD-2 value may fall into different decile group depending on all hospital individual values ▪ Each rate year the distribution of all HD-2 values will also affect where your Hospital falls relative to the target attainment. ▪ NOTE(*) Refer to Section 7 of this EOHHS manual for details on new HD2 value results that apply as of rate year reports

***NOTE:** This table is intended to serve as quick reference and does not replace the terms and conditions outlined in the Acute Hospital RFA contract.

D. Performance Evaluation Periods.

Each Hospital's performance is calculated using the calendar year (CY) reported measures data that includes the period of January 1 to December 31. A summary of CY data periods that apply to performance evaluation on each measure set is shown in Table below.

Table 8.5 Performance Evaluation Periods

Existing Quality Measure Set	Previous Year (CY2014 data)	Comparison Year (CY2015 data)	RFA2016 Performance Scoring
Maternity (MAT-1, MAT-2a, 2b, MAT-3)	Jan 1, 2014- Dec 31, 2014	Jan 1, 2015 - Dec 31, 2015	*Attainment/Improvement Points*
(*MAT-4: Cesarean Birth*)	Not applicable	Jan 1, 2015 - Dec 31, 2015	Not applicable
Care Coordination (CCM-1, 2, 3)	Jan 1, 2014- Dec 31, 2014	Jan 1, 2015 - Dec 31, 2015	*Attainment/Improvement Points*
Emergency Dept. Throughput (ED-1, ED-2)	Jan 1, 2014- Dec 31, 2014	Jan 1, 2015 - Dec 31, 2015	*Attainment/Improvement Points*
Tobacco Treatment (TOB-1, 2, 3)	Not applicable	Jan 1, 2015 - Dec 31, 2015	*Pass/Fail Validation*
Health Disparities Composite (HD-2)	Not applicable	Jan 1, 2015 - Dec 31, 2015	Decile Group Rank
Newly Introduced Measures		**RY2016 Baseline Year (CY2015 data)**	**RFA2016 Performance Scoring**
DVT Prophylaxis for cesareans (MAT-5)	Not applicable	Not applicable	Not applicable
Newborn Care (NEWB-1, 2)	Not applicable	Not applicable	Not applicable

As noted in Table 8.5, the performance evaluation period for individual measure will use the comparison and previous year reported data periods and the health disparity composite measure uses the current (comparison) year reported data only.

- *In RY16, Hospitals will report on CY2015* data that will serve as the basis for performance evaluation of the individual quality measure sets.

- In RY16, performance scoring for existing individual measure sets will be *based on assigning quality points for achieving attainment and improvement, except for the MAT-4 and Tobacco measures.*

  Scoring of the newly reported tobacco measure set will be based solely on meeting data validation in the first year of reporting. No quality points are assigned for MAT-4 in the first year of data reporting. This data will be serve as baseline to set attainment and benchmark thresholds for next rate year performance scoring.

  Performance scoring for the disparity composite measure is based on the decile group rank method summarized in Table 8.4 above.

Performance evaluation for the reporting cycle of new *maternity (MAT-5) and newborn care measures (NEWB*) is not applicable to RY16 quality scoring as this data will apply to next RY2017 performance evaluation period.

E. Incentive Payment Approaches

1) **Payment Eligibility Criteria.** All Hospitals must meet the following criteria to earn incentive payments:
   - Meet data completeness requirements per Section 2.F of this manual; and
   - Pass data validation (.80) as described per Section 6 of this manual; and
   - Achieve performance thresholds per Section 7.4 of Acute RFA.

2) **Type of Payment Approaches.** The Acute RFA contract may introduce a new measure category on a given rate year. When this occurs the rate year contract will list the following incentive approaches:

   a) **Pay-for-Performance (P4P)**: incentive payments on existing measure sets will be contingent on meeting data completeness, data validation standards and achieving performance thresholds**.**

   b) **Pay-for-Reporting (P4R):** Incentive payments on a newly introduced quality measure category will be contingent on meeting data completeness and pass/fail data validation criterion only in first year it is reported. P4R **does not** apply when a new individual measure is added to an existing category.

Table 8.6 illustrates an example of how incentive approaches are transitioned for newly reported measures.

Table 8.6 – RY16 Payment Approach by Measures Transition

ID #	Quality Measure Category	RY2015 Payment Approach	RY2016 Payment Approach	RY2017 Payment Approach
MAT	Maternity	P4P	P4P	P4P
CCM	Care Coordination	P4P	P4P	P4P
ED	Emergency Dept.	P4P	P4P	P4P
HD-2	Health Disparities Composite	P4P	P4P	P4P
	Newly Reported Measures			
MAT-4	Cesarean Birth, NVST	Not applicable	Not applicable	P4P
MAT-5	DVT prophylaxis for cesareans	Not applicable	Not applicable	Not applicable
TOB	Tobacco Treatment Set	Not applicable	**P4R only**	P4P
NEWB	Newborn Care Set	Not applicable	Not applicable	**P4R only** (P4P in RY18)

3) ***Eligible Medicaid Discharges.*** *The incentive payment formula is based on a maximum allocated amount that is divided by the eligible Medicaid discharges to determine a quality measure category per discharge amount.*

   - *Effective with Acute RFA2016, the eligible discharges for each measure category will be identified from the MMIS (Massachusetts Medicaid Information System) Discharge Data based on paid claims for the PCC Plan and FFS discharges where MassHealth is the primary payer.*

   - *For RY16 the final discharge amounts that will be used for payment calculations will be based upon the FY15 MMIS claims data period of 10/1/2014 - 9/30/2015.*

   - *Beginning with RY16, EOHHS will no longer use of the CHIA hospital case mix data to identify the hospitals eligible Medicaid discharges on each measure category.*

Please refer to Section 7.5 of the Acute Hospital RFA contract for the original payment methodology. Contact EOHHS at: Masshealthhospitalquality@state.ma.us if you have questions about this section.