Commonwealth of Massachusetts
Executive Office of Health Human Services

Rate Year 2015

Technical Specifications Manual for
MassHealth Acute Hospital Quality Measures
(Version 8.0)

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Section 1. Introduction

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 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 Hospital P4P measures reporting requirements. This EOHHS manual is organized *by sections that provide the following* information:

- *Section 1:* Acute RFA contract changes to quality reporting requirements and submission timelines.
- *Section 2:* Data collection standards and guidelines that apply to all required quality measures reporting.
- *Section 3:* Technical specifications for "MassHealth specific" measures not published in national hospital quality reporting manuals plus instructions to modify "nationally reported hospital quality measures" that apply to MassHealth quality reporting requirements. The instruction in this EOHHS Manual should be used in conjunction with existing national hospital technical specification manuals posted on Quality Net and Joint Commission websites.
- *Section 4:* Sampling specifications that apply to the Medicaid patient population.
- *Section 5:* Accessing the MassHealth Quality Exchange (MassQEX) website secure portal for data transmittal and the Customer Support Help Desk.
- *Section 6:* Chart data validation procedures and scoring methods
- *Section 7*: Health disparities measure specifications; and
- *Appendices*: 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 rate year EOHHS Manual are posted on the Mass.gov website "Special Notices to Hospitals" at http://www/mass/gov/eohhs/gov

To download a copy of the EOHHS Acute Hospital RFA and Contract:

- Type www.commbuys.com and press Enter. The COMMBUYS introductory screen appears.
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For more information about the Acute Hospital RFA or the MassHealth Acute Hospital Pay-for-Performance Program please contact: Iris Garcia-Caban, PhD MassHealth Office of Providers and Plans 100 Hancock Street Quincy, MA. 02171 at (617) 847-6528 or via the EOHHS business mailbox: Masshealthhospitalquality@state.ma.us

Acknowledgments: This EOHHS Manual is developed by the MassHealth Office of Providers and Plans in collaboration with the EOHHS Contractor, MassHealth Hospital Quality Advisory Committee and in consultation with various national stakeholder organizations (Iowa Foundation for Medical Care, The Joint Commission, Leapfrog Group, Agency Healthcare Research and Quality) involved in hospital quality measurement systems.

B. Enhancements to Version 8.0

This version contains substantive changes throughout all sections the manual. Key changes that apply to this version are noted throughout the manual in *italic underlined font* and summarized in Table below.

Figure 1- Summary of Changes in Version 8.0

SECTION	CORE MANUAL	RATIONALE	PAGE(S)
TOC	**Table of Contents** • Minor edits		1
1	**Introduction** • Section 1.A – update and clarify all text • Section 1.B – update all sections • Section 1.C - update Table 1.1; insert new Table 1.2 • Section 1.D – update Table 1.3 content and other text • Section 1.E – update all text; add new table 1.4 and 1.5	New inserts, updates, clarify	2 - 6
2	**Data Collection Standards & Guidelines** • Section 2.A – add new metric to Table 2.1, clarify specs reference column • Section 2.B - update reference to all manual versions • Section 2.C – major revision to payer source, R/E data text & Tables 2.2, 2.3, 2.4, • Section 2.D - insert new Table 2.4 data tool version summary • Section 4.D.5 – edit Table 2.5 to add RY14 row, edit Table intro, headers & legend text • Section 2.E.1 – clarify data completeness requirements	New inserts, updates, clarify	7 - 13
3	**MassHealth Measures Specifications** • Section 3.A – no change • Section 3.B – no change • Section 3.C – data element exclusion to numerator • Section 3.D - New insert of cesarean section specs • Section 3.E – clarify numerator and denominator populations • Section 3.F – new tobacco measures reporting instructions	New inserts, updates, clarify	14 - 70
4	**Medicaid Population Sampling Specifications** • Section 4.E – removed all payer ICD entry requirement for national metrics	Update	71 - 74
5	**Data Transmittal Guidelines** • Section 5.A –edit XML file versions, relocate deletion file instruction; update screenshot • Section 5.B – edit user registration procedures • Section 5.D – entered temporary portal report screenshots	Update	75 - 85
6	**Data Validation Methods** • Section 6.A.3 – update text on measures excluded in validation procedures • Section 6.B.2 – update Table 6.1 data elements scored	Update	86 – 89
7	**Health Disparities Measure Specifications** • Section 7.A – insert new introduction text • Section 7.B - new insert to clarify measure attribute descriptions • Section 7.C – clarify text on calculation definitions • Section 7.D – insert new HD2 missed opportunity report format & interpreting results	New insert update, clarify	90 - 98
Section	**APPENDIX**		
A-1	Data Abstraction Tool (MAT-1) - update Medicaid payer codes	Update	Separate pdf
A-2	Data Abstraction Tool (MAT-2a, 2b) - update Medicaid payer codes	Update	Separate pdf
A-3	Data Abstraction Tool (MAT-3) - update Medicaid payer codes; add data element	Update	Separate pdf
A-4:	*Data Abstraction Tool: (MAT-4)* - new data tool	New insert	separate pdf
A-5	Data Abstraction Tool (CCM-1,2,3) - - update Medicaid payer codes	Update	Separate pdf
A-6	XML Schema File: MassHealth Specific Measures - update ethnicity codes, values	Update	Separate pdf
A-7	XML Schema File: MassHealth Identifier Crosswalk - update ethnicity codes, values	Update	Separate pdf
A-8	XML Schema File: Data Deletion Request	Update	Separate pdf
A-9	MassHealth Data Dictionary - update and add new data elements for maternity; updates to CCM and all MassHealth records data elements	Update, Clarify	Separate pdf
A-10	Measure Calculation Rules - new insert for MAT-4; update other rules	New insert , update	Separate pdf

Figure 1 Legend:

- *Section* – shows the key sections that make up the core contents of the manual.
- *Descriptions of change* – brief explanation of edits made to text (add/expand; delete, correct, *edit*/modify).
- *Rationale* – states reason for change included in this version of the manual
  - ► New insert = *entered new text/information not included in previous version*
  - ► Clarify = *edit information to make current explanation clearer*; *rephrased current text*
  - ► Update = *bring up to date existing text and/or information*
  - ► None = no substantive change made *to previous version text and/or information*.
- *Pages* – *lists page each section begins and ends*; and where appendices can be found.

C. Changes to Quality Reporting Requirements *(all italic font under this section indicates new text)*

In RY15, EOHHS will transition to a new MassQEX Contractor that will provide support with hospital quality data collection and reporting system. Consequently, the RY15 Acute Hospital RFA contract has introduced short-term changes to the quarter data reporting format, as well as new data requirements that will be phased-in with the Q1-2015 discharge data period.

1) ***Data Submission Timelines*.** Table 1.1 displays the calendar year (CY) quarter data periods, submission due dates and manual instructions that apply to each Acute RFA rate year. *Below is a summary of short-term changes to rate year quarter data reporting formats and submission deadlines.*

Table 1.1 Acute RFA Data Submission Cycles (RY15 - RY16)

Acute RFA Contract Year	CY Quarter Data Reporting Cycle	Discharge Data Periods	Submission Deadline	EOHHS Manual Instructions
Rate Year 2014	Quarter 1-2014	Jan 1, 2014 – Mar 31, 2014	Aug 15, 2014	Version 7.0
Rate Year 2015	***Quarter 2-2014**** ***Quarter 3-2014**** ***Quarter 4-2014****	April 1, 2014 - June 30, 2014 July 1, 2014 – Sept 30, 2014 Oct 1, 2014 – Dec 31, 2014	***May 15, 2015****	Version 7.0 and Version 8.0 series
Rate Year 2016	***Quarter 1-2015**** ***Quarter 2-2015****	Jan 1, 2015 – Mar 31, 2015 April 1, 2015 - June 30, 2015	***Nov 13, 2015****	Version 8.0 series

**Bold italic font indicates new change to reporting requirements*

- *The RY15 CY2014 (Q1) data submission cycle began under the prior rate year rolling reporting cycle. The remaining three quarters of CY14 (Q2, Q3, Q4) must be submitted as consolidated files on the due date noted in Table 1.1. The RFA15 introduces the RY16 CY2015 data rolling reporting cycle that must be submitted as two combined quarters of data (Q1, Q2) by the due date noted on Table 1.1 above.*
- *All Hospitals must submit the consolidated combined quarter data period files by deadlines listed during the EOHHS Contractor transition period*. The term "version TBD", under EOHHS Manual instructions indicates version may not change from previous submission cycle. Instead, changes to reporting may go into effect in a subsequent quarter cycle to allow hospitals ample time to modify data collection tools.

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

Table 1.2 Summary Changes to Reporting Specifications

Data Specification	Description of Change	Effective Quarter Data Period	Manual Instruction
ICD-9 Data Entry Form	• Removed all payer sample count entry requirement for PN, SCIP, ED • Add monthly ICD data entry feature option	As of Q1-2014	Section 5.A.5
Payer codes	• Change to CHIA Medicaid payer codes (*Portal will accept new payer codes*)	As of Q1-2015	Section 2.C
Ethnicity codes	• Change to CHIA ethnicity code standards (*Portal will accept all ethnicity codes*)	As of Q1-2015	Section 2.C
Maternity measures	• Modify MAT-3 elements and add new ones	As of Q1-2015	Section 3.D Appendix A-9
Pneumonia Measure	• Discontinue PN-6 measure reporting	As of Q1-2015	Section 2.A
Cesarean Measure	• Add new data specifications & tools	As of Q1-2015	Section 3.E Appendices
Tobacco Measures	• Add new instruction for reporting	As of Q1-2015	Section 3.F

As noted in Table 1.2, various changes to reporting specifications will go into effect with specific quarter data periods. In RY15, the only CY2014 (Jan 1 – Dec 31, 2014) data reporting specifications that changed were enhancements to the on-line ICD-9 data entry form. In RY16, changes to CY2015 (Jan 1 – Dec 31, 2015) data reporting specifications include new payer and ethnicity codes, discontinue PN measure, addition of new cesarean section and tobacco measures that begin with Q1-2015 data submission cycle deadline noted in Table 1.1 above.

3) ***ICD-10 Implementation Requirements***. *EOHHS will implement the International Classification of Diseases, 10th Revision (ICD-10) for inpatient procedure codes by October 1, 2015 as required by federal mandate. This change will impact hospital quality measures reporting as of Q4-2015 (October 1, 2014 – Dec 31, 2014 discharges) data submission cycles. Below is preliminary information relevant to ICD-10 conversion:*

   a) ***MassHealth ICD-10 Standards:*** *EOHHS has established ICD-10 implementation standards and published various resources (UB-04 Billing guides, Provider bulletins, etc.) to assist hospitals in preparing for ICD-10 conversion. These resources should be used in conjunction with the CMS guides to ensure complete set of instructions that apply to MassHealth. Hospitals should regularly check the Mass.gov website to get the latest updates on MassHealth ICD-10 implementation status at: http://www.mass.gov/eohhs/gov/newsroom/masshealth/providers/icd10-implementation.html*

   b) ***ICD-9 to ICD-10 Code Crosswalks****: The CMS National Hospital Inpatient Quality Reporting program has posted preliminary ICD-9-CM to ICD-10 code crosswalk tables applicable to various quality measure sets reporting on https://www.qualitynet.org CMS provides this information in preparation for October 1, 2015 implementation date for reference only and does not consider it final. EOHHS will monitor this website and publish updated versions to this EOHHS Manual, as applicable.*

D. Performance Evaluation Periods

Each Hospital's performance is calculated using all data reported for the calendar year (CY) that *includes the period of January 1st to December 31st*. In RY2015, hospitals will report on CY2014 data that will serve as the basis for calculating performance between comparison and previous year. A summary of reporting data periods that applies to performance evaluation periods on each measure set is shown below.

Table 1.3 Performance Evaluation Data Periods (RY15)

Quality Measure Set	Previous Year (CY2013 Data)	Comparison Year (CY2014 data)	RFA2015 Quality Scoring
Maternity (MAT-1, MAT-2a, 2b, MAT-3)	Jan 1, 2013- Dec 31, 2013	Jan 1, 2014- Dec 31, 2014	Pay-for-Performance
Children's Asthma (CAC 1a, 2a, 3)	Jan 1, 2013- Dec 31, 2013	Jan 1, 2014- Dec 31, 2014	Pay-for-Performance
Pneumonia (PN-6)	Jan 1, 2013- Dec 31, 2013	Jan 1, 2014- Dec 31, 2014	Pay-for-Performance
Surgical Care Infection Prevention (SCIP-1a, 2a, 3a)	Jan 1, 2013- Dec 31, 2013	Jan 1, 2014- Dec 31, 2014	Pay-for-Performance
Care Coordination (CCM-1, 2, 3)	Jan 1, 2013- Dec 31, 2013	Jan 1, 2014- Dec 31, 2014	Pay-for-Performance
Emergency Dept. Throughput (ED-1, ED-2)	Jan 1, 2013- Dec 31, 2013	Jan 1, 2014- Dec 31, 2014	Pay-for-Performance
Health Disparities Composite (HD-2)	Not applicable	Jan 1, 2014- Dec 31, 2014	Pay-for-Performance (Decile Rank)
Newly Introduced Measures		**RY2016 Baseline Year (CY2015 data)**	**RFA2016 Quality Scoring**
Cesarean Section (MAT-4)	Not applicable	Jan 1, 2015 - Dec 31, 2015	Not applicable
Tobacco Cessation (TOB-1, 2, 3)	Not applicable	Jan 1, 2015 - Dec 31, 2015	Pay-for-Reporting

As noted in Table 1.3, *for RY15 performance evaluation period will use comparison and previous calendar year reported data to calculate individual quality measure sets. The health disparity composite measure performance evaluation periods uses the comparison year reported data only. In RY15, performance will be will be scored based on achieving improvement from previous year except for the health disparity measure which is scored based on decile group rank method using current year data as described in Acute RFA contract*

The newly introduced maternity and tobacco cessation measures will apply to RY2016 performance evaluation period and will serve as baseline data to set attainment and benchmark thresholds.

E. ***Hospital Reports Data Periods.*** *EOHHS provides hospitals with various reports, during the rate year, that contain information used to calculate incentive payments. A summary of the types and content that apply hospital reports are summarized below.*

1) ***Types of Reports****. During the rate year the hospital receives reports that are calculated based on eligible Medicaid payer and ICD population requirements as listed in table below.*

Table 1.4 Types of Hospital Reports

EOHHS Report Type	Report Content	Report Frequency	Data Period Used
A. Data Validation Report	Data reliability results	Twice a year	Calendar year (CY)
B. Measure Rate Report	Individual measure results	Once a year	Calendar year (CY)
C.HD-2 Measure Report	Racial composite group rates and final BGV results	Once a year	Calendar year (CY)
D. Performance Score Report	Quality measure category (QMC) weighted scores	Once a year	Calendar year (CY)
E. Eligible Medicaid HDD Report	CHIA hospital case mix discharge volume (FFS payer only)	Once a year	Fiscal year (FY)
F. Incentive Payment Notice Statement	Payments earned by QMC score	Once a year	Rate year (RY) Fiscal year (FY)

As noted in Table above, the quality measure reports (type A – D) use the hospitals individual measures sampled data that met ICD requirements plus all Medicaid payer codes (in Section 2.C of this manual). The eligible HDD report (type E) is extracted from the CHIA case mix database, that meet the measure category ICD requirements and Medicaid FFS payer codes only which is also used in the final rate year payment notice report (type F).

Table 1.5 Hospital Report Data Periods

Rate Year	Acute RFA Contract (RY Period)	Quality Measure Data Reported (CY Period)	Eligible Medicaid HDD (FY Period)
RY2014	10/1/2013 - 9/30/2014	CY2013 (Jan 1, 2013 - Dec 31, 2013)	HDD13 (10/1/2012 - 9/30/2013)
RY2015	10/1/2014 - 9/30/2015	CY2014 (Jan 1, 2014 - Dec 31, 2014)	HDD14 (10/1/2013 - 9/30/2014)
RY2016	10/1/2015 - 9/30/2016	CY2015 (Jan 1, 2015 - Dec 31, 2015)	HDD15 (10/1/2014 - 9/30/2015)

2) ***Data Periods****. As shown in Table 1.5, the data periods used to calculate various hospital reports differ in data specifications. Below is information that explains the table column headers.*

a) ***Rate Year (RY) Period:*** *refers to the current federal fiscal year period of October 1 to September 30 that applies under each rate year to the hospital Acute RFA contract payments.*

b) ***Calendar Year (CY) Period****: refers to the calendar year period of January 1 – December 31 that apply to measurement cycle associated with Acute RFA rate year incentive payments. Quality measure reports always use the hospitals CY reported data.*

c) ***Fiscal Year (FY) Period:*** *refers to the retrospective federal fiscal year period (October 1 – September 30) used to extract eligible Medicaid HDD case mix from data files hospitals report directly to Center for Health Information Analysis (CHIA) as part of state regulatory requirements. The FY data period slightly aligns with the CY reported data period but is not identical.*

d) ***Note****: The MassHealth quality measure report CY data period is not intended to match the eligible HDD volume FY period because each uses different parameters for meeting ICD requirements (individual vs. measure category assignment), different data periods and different Medicaid payer code criteria.*

The above information is intended to assist hospitals with interpreting various reports. Please contact EOHHS at: Masshealthhospitalquality@state.ma.us if you have questions about your hospital reports.

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 Set. *The measures that apply to RY2015 and RY2016 reporting are:*

Table 2.1 Hospital Quality Performance Measure Set

Metric ID #	Measure Set Name	Technical Instruction Manuals
	Maternity	
MAT-1	Intrapartum Antibiotic Prophylaxis for Group B Streptococcus	EOHHS Manual Section 3.A-D, TJC & NHIQM Manuals
MAT-2a	Perioperative Antibiotics for Cesarean Section – Antibiotic Timing	
MAT-2b	Perioperative Antibiotics for Cesarean Section – Antibiotic Choice	
MAT-3	Elective Delivery ≥37 and <39 completed weeks gestation	
MAT-4	*Cesarean Section, Nulliparous vertex singleton term* ***(NEW as of Q1-2015)***	
	Pediatric Asthma	
CAC-1a	Children's Asthma Care – Inpatient Use of Relievers	NHIQM Manual & EOHHS Manual Section 3.F
CAC-2a	Children's Asthma Care – Inpatient Use of Corticosteroids	
CAC-3	Children's Asthma Care – Home management plan of care	
	Community Acquired Pneumonia	
PN-6	Appropriate antibiotic selection for immuno-competent patients *(Retire as of Q1-2015)*	EOHHS Section 3.F & NHQIM
	Surgical Care Infection Prevention	
SCIP-1a	Prophylactic antibiotic received within 1 hour prior to surgical incision	NHIQM Manual & EOHHS Manual Section 3.F
SCIP-2a	Appropriate antibiotic selection for surgical prophylaxis	
SCIP-3a	Prophylactic antibiotic discontinued w/in 24 hrs. after surgery end time	
	Care Coordination Measures (Inpatient Setting)	
CCM-1	Reconciled medication list received by patient at discharge	EOHHS Manual Section 3.E
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, CAC, SCIP, PN, CCM measures only	EOHHS Manual Section 7
	Emergency Dept. Throughput	
ED-1	Median time – from ED arrival to ED depart for Admitted ED patients	NHIQM Manual & EOHHS Manual Section 3.F
ED-2	Median time – admit decision time to ED depart for admitted	
	Tobacco Cessation (*New as of Q1-2015*)	
TOB-1	*Tobacco Screening*	NHIQM Manual & EOHHS Manual Section 3.F
TOB-2	*Tobacco use treatment provided or offered*	
TOB-3	*Tobacco use treatment provided or offered at discharge*	

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 7.0 –** this version applies with *Q1-2014 to Q4-2014 (Jan 1 2014 – Dec 31, 2014) data reporting*.
   - ***Version 8.0*** *- this version applies as of Q1-2015 data (Jan 1, 2015 – Mar 31, 2015) data reporting.*

2) **Specifications Manual for National Hospital Inpatient Quality Measures (*version 4.3b and 4.4*),** plus related Release Notes and Appendix A: ICD Code Tables for SCIP, CAC, ED, and TOB measures posted on: https://www.qualitynet.org. This document is referred to as the "NHIQM Manual" in this EOHHS manual.

3) **Specifications Manual for the Joint Commission National Quality Core Measures *(version 2014A and 2015A)*,** plus related Release Notes and Appendix A: ICD-9-CM Code Tables for maternity measures posted on: https://manual.jointcommission.org/bin/view/Manual/WebHome This document is referred to 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 Identifier 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 assignment. These data elements include payment source, race/ethnicity, and other patient identifiers that are described below.

1. **Medicaid Payment Source.** Measures data reporting must include members covered across various MassHealth insurance programs as follows:
   a) ***Included Medicaid Population***: covered by programs where Medicaid is the primary *or only* payment source as defined in Table 2.2.
   b) ***Excluded Medicaid Population***: covered by programs where Medicaid is ***not*** the primary payment source as defined in Table 2.2.

Table 2.2 Massachusetts Medicaid Payer Source Codes*

Data File Requirement	Medicaid Payer Population Description	Payer Code	Payer Code Description
INCLUDED Medicaid Population	**MassHealth Fee-for-Service (FFS) Payer Codes:** • Members enrolled in the Primary Care Clinician Plan (PCCP) or other FFS insurance programs. These codes represent services paid primarily by MassHealth on a FFS basis under the Acute RFA contract.	**103** **104**	Medicaid - Includes MassHealth FFS, and MassHealth Limited Medicaid - Primary Care Clinician (PCC) Plan
	MassHealth Managed Care Payer Codes: • Members enrolled under one of the six (6) MassHealth Managed Care Organization (MCO) Plans *plus newly established insurance plans.* These payer codes represent services paid primarily by MassHealth under capitated payment arrangements	**108** **110** **113** **118** ***207, 274*** **208**	Medicaid Managed Care- Fallon Community Health Plan Medicaid Managed Care- Health New England Medicaid Managed Care - Neighborhood Health Plan Medicaid Managed Care - Mass Behavioral Health Partnership Plan Medicaid Managed Care - Network Health (Cambridge Health Alliance) Medicaid Managed Care - HealthNet (Boston Medical Center)
	• *These six (6) new Medicaid payer codes reflect the expansion of insurance plans resulting from the MassHealth Program implementing Affordable Care Act (ACA) requirements that were mandated by January 1, 2014.*	***282*** ***283*** ***284*** ***285*** ***286*** ***287***	*Boston Medical Center - MassHealth CarePlus* *Fallon - MassHealth CarePlus* *Neighborhood Health Plan - MassHealth Care Plus* *Network Health - MassHealth CarePlus* *Celticare - MassHealth CarePlus* *MassHealth CarePlus*
	Other Medicaid Payer Codes: Members covered by other programs where services are paid primarily by Medicaid under other payment arrangements.	**119** **178**	Medicaid Managed Care Other (not listed elsewhere) Children's Medical Security Plan (CMSP)
EXCLUDED Medicaid Population	**Excluded Payer Codes**: Members covered by programs where Medicaid is **not** the primary payer source, or is 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* • *Members age 65 and over -- Covered by Medicaid or Medicare only* • *All Commonwealth Care & Health Connector Care Plans*	**144** ***98*** ***120*** ***273*** ***279*** ***280*** ***281***	Other Government *Healthy Start (Free care pool)* *Out of State Medicaid (Other Government)* *MassHealth Senior Options* *One Care – Fallon Total Care (Medicare)* *One Care– Network Health (Medicare)* *One Care – Commonwealth Care Alliance (Medicare)*

**Source*: CHIA Massachusetts Hospital Inpatient Data Submission Guide Payer Code List (April 2014) at: http://www.mass.gov/chia/gov/laws-regs/chia-regulations.html

As shown in Table 2.2, the included Medicaid payer codes are insurance programs primarily funded by MassHealth. The excluded Medicaid payer codes should not be included in data files. *Key change includes six (6) new Medicaid payer codes and exclusion of Healthy Start code effective with Q1-2015 data reporting.*

IMPORTANT NOTE - The above Medicaid payer source definitions differ from those in the NHIQM manuals (*non-Medicare code #2*) which does not capture *granularity of payer types and codes required by Massachusetts state regulations*. Hospitals must modify NHIQM payer source data element 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 alpha 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. The XML schema Version 8.0 has been updated to include all CHIA plus CDC ethnicity codes. The XML schema Version 7.0 should be used for all RY15 calendar year 2014 data reporting. Hospitals are responsible for updating ethnicity codes and using appropriate versions of XML schemas noted in Table 2.4 of this EOHHS manual when submitting data files.*

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	Ethnic Group (allowable values)	Code	Ethnic Group (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 Massachusetts Hospital Inpatient Data Submission Guide (*April 2014)* posted on: http://www.mass.gov/chia/docs/g/chia-regs/inpatient-specss-submission-guide.pdf

2. ***CHIA Ethnicity Coding Standards***: *The updated CHIA Hospital Data Submission Guide (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 state vs. national race/ethnicity coding standards* and should not be used as a crosswalk to meet MassHealth measures 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-5*) 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-6 to A-8*) 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-9*) 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 (MAT, CCM, HD2) 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.F* measure specifications in this EOHHS manual.

   Data dictionary definitions included in the EOHHS manual were developed in consultation with The Joint Commission and Iowa Foundation for Medical Care. 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-10)* for MassHealth specific maternity and care coordination measures. 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 (*in Section 3.F)* can be found in the 'NHQIM Manuals' versions.

Hospitals must adhere to the appropriate versions of the data collection tools and resources that apply to quarterly reporting cycles listed in Section 1.C of this EOHHS Manual.

Table 2.4 Data Reporting Tools Versions

MassHealth Data Tools	Version 7.0 (Use with Q1-2014 to Q4-2014 data)	Version 8.0 (Use as of Q1-2015 data)
Data Abstraction Paper Tool	Appendix A-1 to A-4	Appendix A-1 to A-5
XML Schemas	Appendix A-5 to A-5	Appendix A-6 to A-9
Data Dictionary	Appendix A-8	Appendix A-9
Measure Calculation Rules	Appendix A-9	Appendix A-10

As noted in Table 2.4, Hospitals must use Version 7.0 data tools when reporting all four quarters of CY2014 data (Jan 1, 2014 – Dec 31, 2014) that apply to RY15 incentive payments. Hospitals should use Version 8.0 tools beginning with Q1-2015 data submissions that apply to RY16 incentive payments.

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. Modifications to *previous and comparison year EOHHS manual* versions focus on the following:
   a) **MassHealth Specific Measures**: Changes to specifications in Section 3.A - 3.E and related Appendix tools are shown *in italic underline font*.
   b) **Nationally Reported Measures**: Changes to specifications in Section 3.F and related Appendix tools are shown *in italic underline font*.

Table 2.5 Summary of Manual Version Updates (RY13 – RY15)

EOHHS Manual (Publish Date)	Manual Version	Calendar Year (CY) Data Period	CY Quarter Data Begins	Measure Description (Section 3A to 3F)	Abstraction Tools (Appendices)	XML Schema Files (Appendices)	Data Dictionary (Appendix)	Measure Calc. Rules (Appendix)
RY2013 (Aug 22, 2012)	Version 6.0 →	Jan 1 – Dec 31, 2012 (Intro CY13 specs)	Q3-2012 Q4-2012	MAT Descriptions MAT Flowcharts CCM Descriptions CCM Flowcharts NHQIM: add ED metrics	A-1: MAT1 A-2: MAT2a,2b A-3: MAT-3 A-4: CCM	A-5: MassHealth Metrics A-6: Crosswalk Identifier A-7:Data Deletion	A-8: Data Elements • MAT • all CCM • MassHealth records	A-9: MassHealth Metrics • MAT • CCM
RY2013 (Feb 8, 2013) (March 22, 2013)	Version 6.1 → 6.1.a →	Add for CY13 specs (Jan 1 – June 30, 2013)	Q1-2013 Q2-2013 (v6.1a)	MAT Descriptions MAT Flowcharts CCM Descriptions CCM Flowcharts (v6.1a) NHQIM: clarify edits	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 • MassHealth record	A-9: MassHealth Metrics • MAT • CCM
RY2014 (Aug 20, 2013)	Version 7.0 →	Continue for CY13 (Jan 1 – Dec 31, 2013) --- *Continue for CY14* (Jan 1 – Dec 31, 2014)	Q3-2013 Q4-2013 ---- Q1-2014	MAT Descriptions MAT Flowcharts CCM Descriptions CCM Flowcharts NHQIM: edit 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)	Version 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)*
		Intro CY15 specs (Jan 1 – June 30, 2015)	*Q1 -2015* *Q2-2015*	*MAT Descriptions* *MAT Flowcharts* *MAT-4 Descriptions* *MAT-4 Flowchart* *CCM Descriptions* *CCM 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*

Table 2.5 Legend

- EOHHS Manual - refers to rate year (RY) reporting relevant to Acute RFA contract period. Publish date is day posted on EHS Mass.gov website
- Manual Version - indicates new change to data specifications that apply to RY data reporting cycles
- CY Data Period - refers to the calendar year data (CY) for the period of Jan 1 to Dec 31 that apply to RY incentive payment period (ex: CY14 data applies to RY15 payments)
- CY Quarter Begins - refers to the quarter data period *that changes to technical specifications apply*.
- Measure Description – refers to *technical measure descriptions, flowcharts and other pertinent specifications* that apply to the RY manual version.
- Abstraction Tools – refers to updated data abstraction tools listed that apply effective when CY quarter reporting changes begin in the RY manual version
- XML Schemas – refers to updated XML schema files listed that apply effective when CY quarter reporting changes begin in the RY manual version.
- Data Dictionary Elements - refers to updates in Data Dictionary descriptions that apply effective when CY quarter reporting changes begin in the RY manual version
- Measure Calc. Rule – refers to updates in measure calculation rules that apply effective when CY quarter reporting changes begin in the RY manual version

OTHER Note: 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. **On-line ICD Data Entry 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 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 Measures Specifications

3A. Intrapartum Antibiotic Prophylaxis for Group B Streptococcus	(MAT-1)

Description: Pregnant women who are eligible for and receive intrapartum intravenous antibiotic prophylaxis for Group B Streptococcus (GBS).

Rationale: Failure to provide prophylaxis to mothers of all ages who have screened positive for GBS or have other risk factors for GBS significantly increases the chances of GBS infection to the newborn and the risk of infant mortality. Administering timely antibiotic prophylaxis, consistent with current evidenced-based practice, decreases the risk of infant infection, complications, readmissions, morbidity, and mortality.

Type of measure: Process measure

Improvement noted as: An increase in the rate.

Numerator statement: All eligible patients who receive intrapartum intravenous antibiotic prophylaxis for GBS.

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

- Antibiotic Administration Date
- Antibiotic Administration Time
- Antibiotic Name for GBS Prophylaxis
- Delivery Date
- Delivery Time
- Intrapartum Antibiotics
- Maternal Allergies

Denominator statement: All patients who deliver a live infant.

Included population: ICD-9 Principal *or Other* Diagnosis Codes for live births during the admission (as defined in Appendix A: ICD-9-CM Code Tables 11.01, 11.02, 11.03, 11.04 of the Specifications Manual for Joint Commission National Core measures version noted in Section 2.A of this manual).
This population must be further defined on the basis of the following criteria.

- Previous infant with GBS disease,
- GBS bacteriuria during current pregnancy,
- Screened and tested positive for vaginal and rectal GBS colonization at 35-37 weeks gestation or within 5 weeks prior to birth, or
- Unknown GBS status (culture not done, incomplete or results unknown) and any of the following:
  - Delivery at < 37 weeks gestation
  - Amniotic membrane rupture ≥ 18 hours, or
  - Intrapartum temperature ≥ 100.4° F (38.0° C)

Excluded populations:

- Less than 8 years of age
- Greater than or equal to 65 years of age
- Length of stay > 120 days
- Patients enrolled in a clinical trial during the hospital stay relevant to the measure population,
- Patient screened negative for GBS at 35-37 weeks gestation or within 5 weeks prior to birth,
- Patients delivering via Cesarean section prior to onset of labor with intact membranes,
- Patients who received an intravenous antibiotic for any reason other than GBS prophylaxis within 24 hours prior to delivery, and
- Deliveries resulting in stillbirths
- Patients with gestational age < or = 24 weeks

Data Elements:

- Amniotic Membrane Rupture 18 or More Hours

- Cesarean Delivery
- Clinical Trial
- GBS Bacteriuria
- GBS Screening
- Gestational Age < 37 Weeks
- Intrapartum Temperature
- IV Antibiotics (non-GBS) – MAT-1
- Live Newborn
- Previous Infant with Invasive GBS

Risk adjustment: No

Data collection approach: Retrospective data sources for required data elements include administrative and medical records. Data is collected on the last administration of the intrapartum prophylactic antibiotic. Choices for the data element Antibiotic Name for GBS Prophylaxis are limited to Ampicillin, Cefazolin, Clindamycin, Penicillin, Vancomycin, or Other. Refer to data abstraction tool (***Appendix A-1***) and data dictionary (***Appendix A-9***) of this manual for detailed instructions.

Data accuracy: Women may be receiving antibiotics at the time of delivery for a variety of reasons besides GBS prophylaxis. Hospitals may wish to pay particular attention to documenting these reasons, so that practice that deliberately differs from standards for good clinical reasons is not confused with failure to follow standards where they are applicable.

Measure analysis suggestion: Consideration may be given to relating this measure to antenatal screening and postnatal compliance with overall GBS guidelines. The process-owners for intrapartum GBS prophylaxis, as assessed in this measure, may include clinicians and support staff on the labor and delivery unit as well as the obstetrical admitting area. Opportunities may exist in any of these arenas which, when addressed jointly, can generate true process improvement. Attention should be given to possible decreases in infection rate and infant mortality, specifically changes over time for a total population and in underserved racial and ethnic groups.

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-10*** of this manual that apply to this measure.

Selected References:

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- Center for Disease Control and Prevention. 2010 Revised Guidelines for Prevention of Group B Strep. MMWR Weekly Report, Vol. 59, no RR-10, Nov.19, 2010. Accessed http://www.cdc.gov/mmwr/
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- Colombo D.F., Lew, J.L., Pedersen, C.A., Johnson J.R., Fan-Havard P. (2005). Optimal timing of ampicillin administration to pregnant women for establishing bactericidal levels in the prophylaxis of Group B Streptococcus,. *American Journal of Obstetrics and Gynecology*, 194**,** p. 466-70.
- Larsen JW, Sever JL. (2008). Group B Streptococcus and pregnancy: a review**,** *Amer Jnl Obstetrics and Gynecology*, p.440-50.
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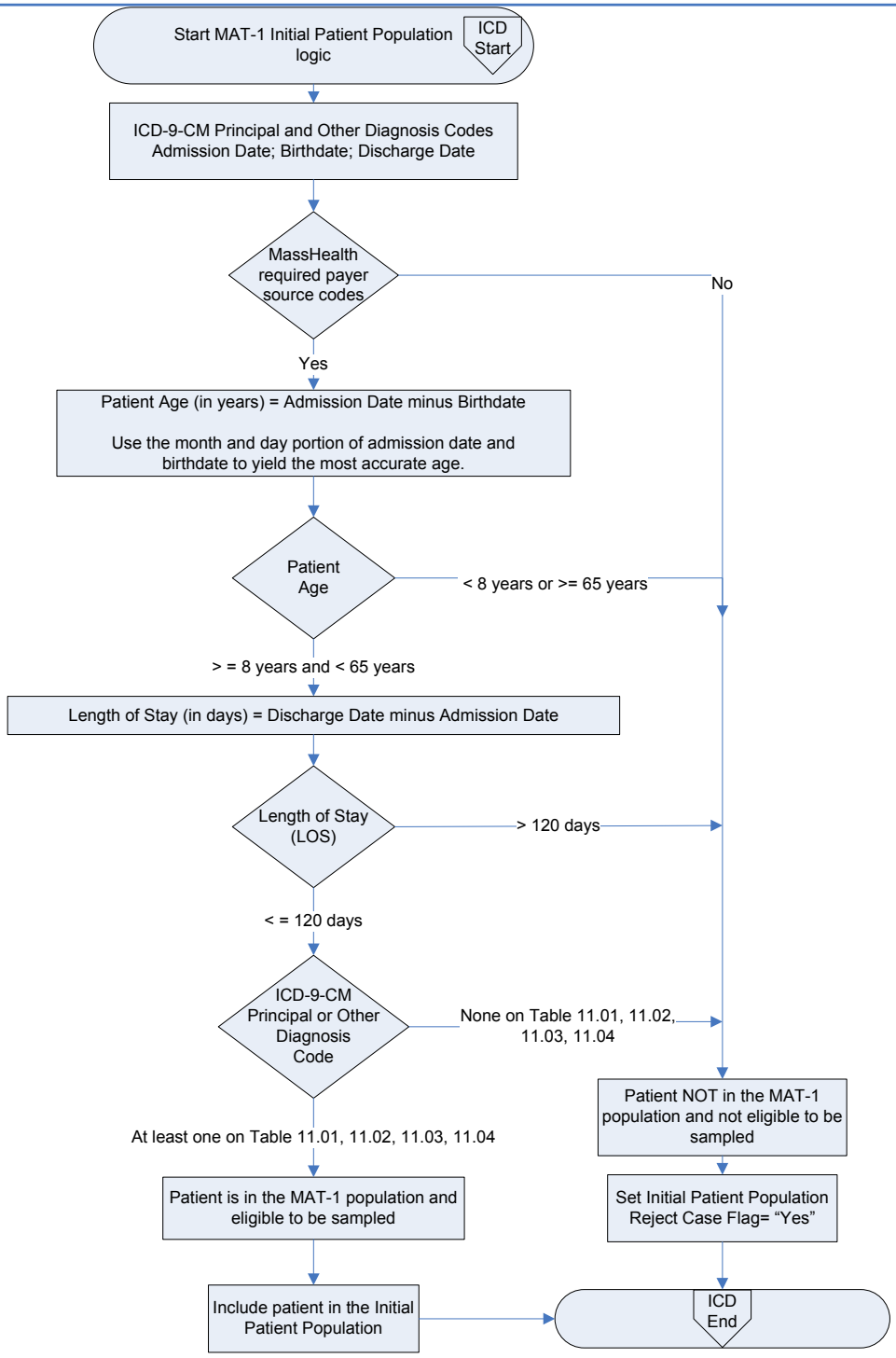
- Phares C.R., Lynfield R., Farley M.M., et al. (2008). Epidemiology of invasive group B streptococcal disease in the United States, 1999-2005., *Journal American Medical Association*, 299(17), p.2056-2065.
- Riley L., Appollon, K., Haider S, Chan-Flynn S., Cohen A, Ecker, J., Rein M, Lieberman, E. (2003). Real world compliance with strategies to prevent early-onset group B streptococcal disease. *Journal of Perinatology* 23(4), p.272-7.

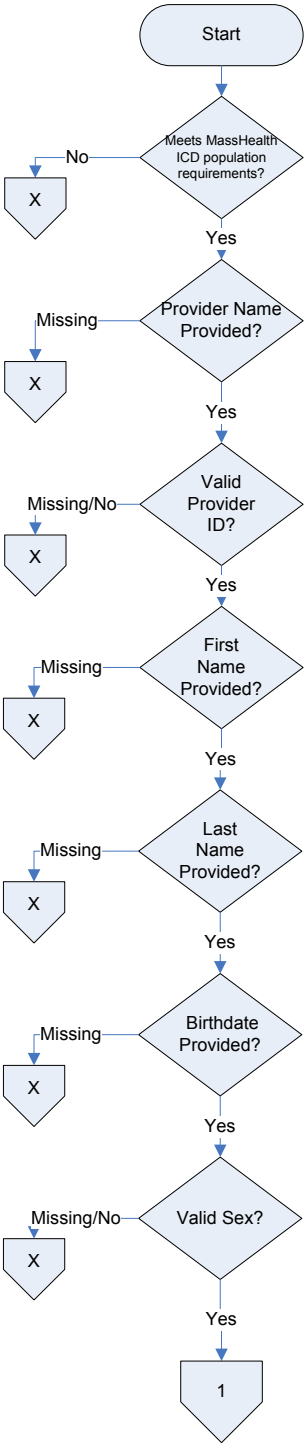
Initial Patient Population Algorithm
Intrapartum Antibiotic Prophylaxis for GBS (MAT-1)



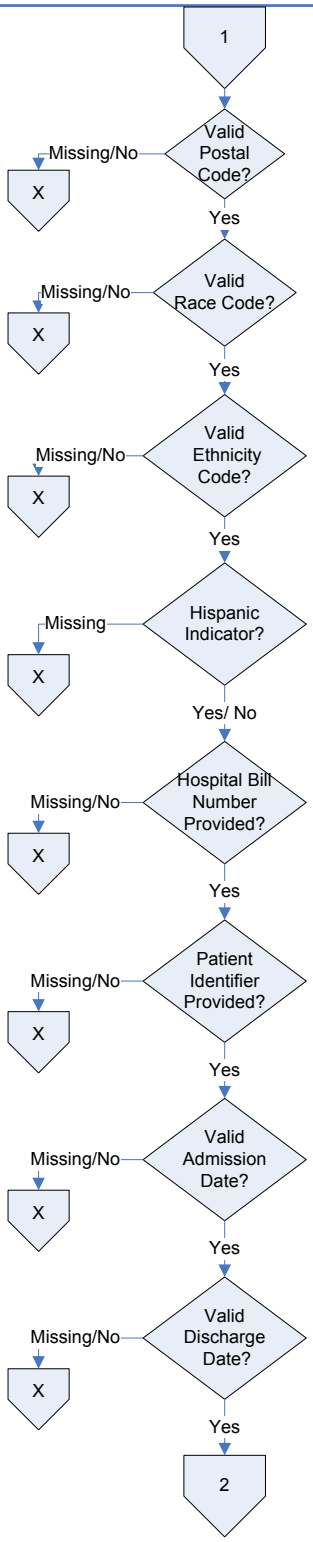
Intrapartum Antibiotic Prophylaxis for Group B Streptococcus (MAT-1)

***Numerator:** All eligible patients who receive intrapartum antibiotic prophylaxis for GBS

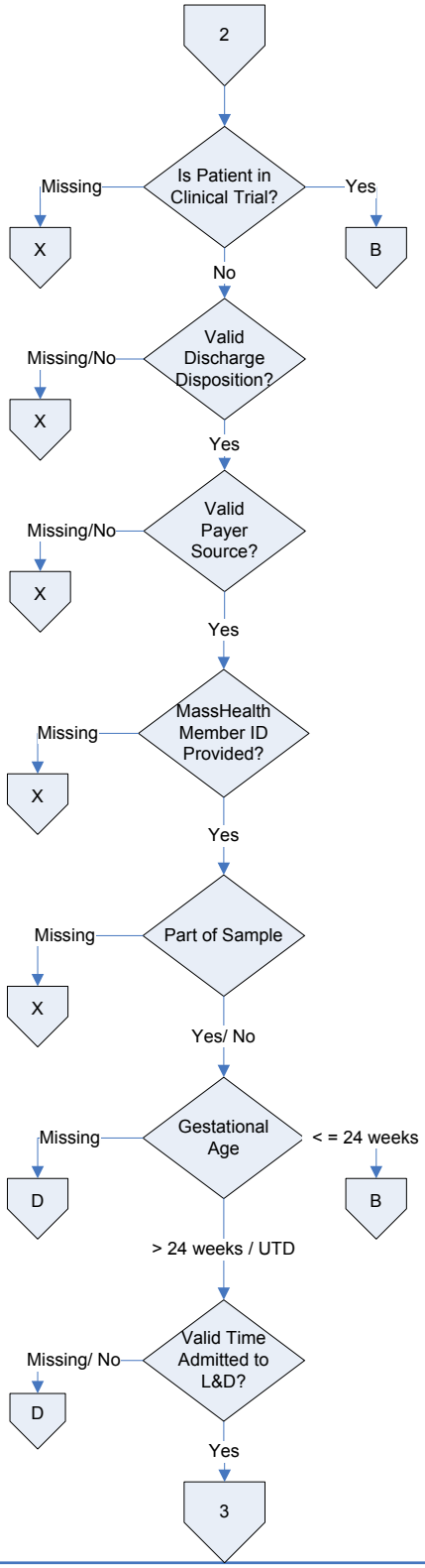
***Denominator:** All patients who deliver a live infant



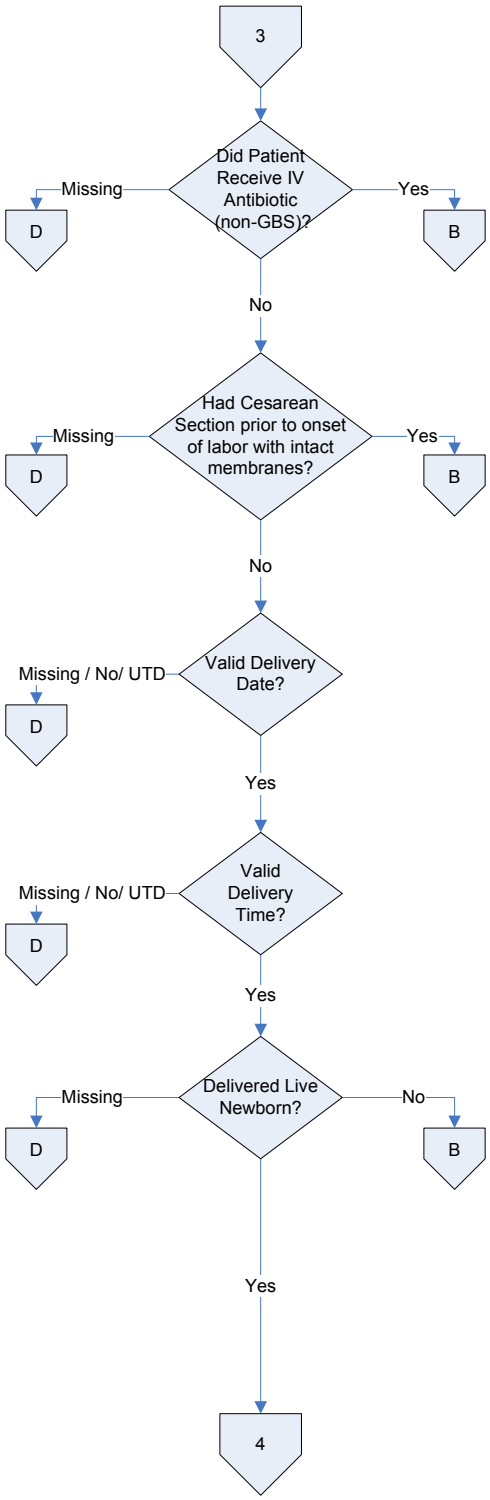
Intrapartum Antibiotic Prophylaxis for Group B Streptococcus (MAT-1)



Intrapartum Antibiotic Prophylaxis for Group B Streptococcus (MAT-1)

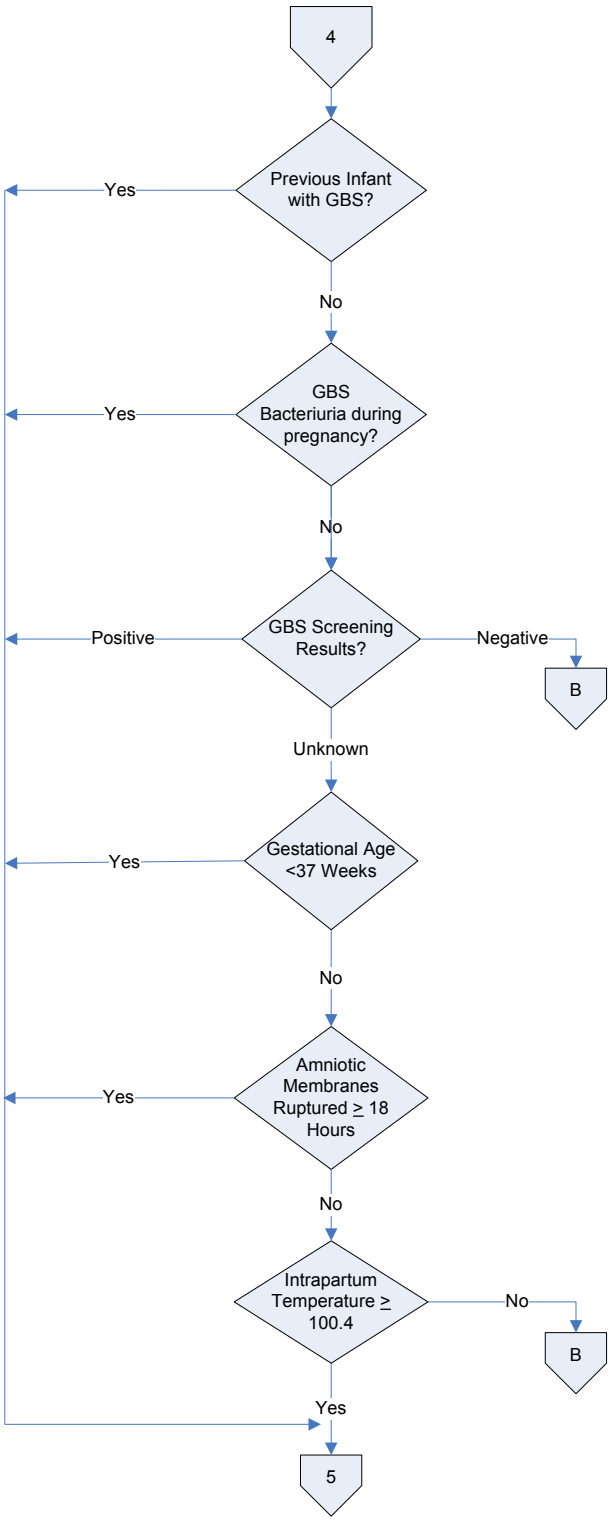


Intrapartum Antibiotic Prophylaxis for Group B Streptococcus (MAT-1)

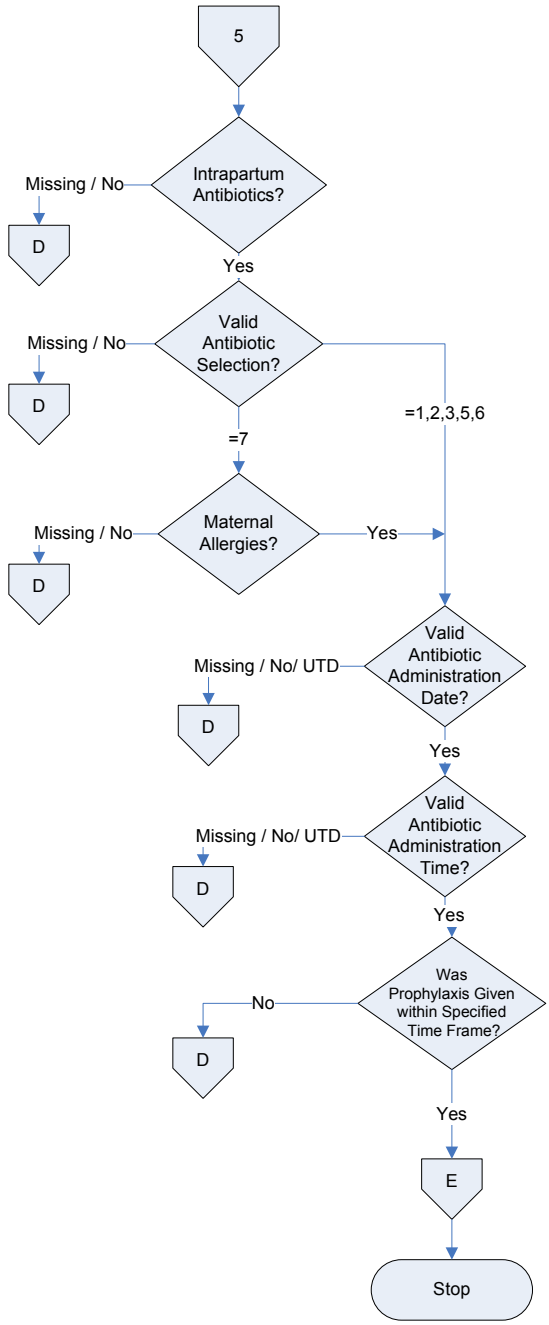


Note:
Infant delivery date cannot be prior to the mother's admission date or after the discharge date.

Intrapartum Antibiotic Prophylaxis for Group B Streptococcus (MAT-1)



Intrapartum Antibiotic Prophylaxis for Group B Streptococcus (MAT-1)



Note:
If the antibiotic prophylaxis is administered prior to infant delivery time, the case will be assigned to Category E.

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

3B. Perioperative Antibiotics for Cesarean Section – Antibiotic Timing	(MAT-2a)

Description: Patients undergoing Cesarean section who receive prophylactic intravenous antibiotics within one (1) hour prior to surgical incision.

Rationale: Delivery of prophylactic antibiotics, consistent with current evidence-based practice, within an hour prior to incision time is a well-established quality and safety practice. It reduces the risk of morbidity to the mother and decreases the overall cost of care by avoiding the expense of treating postoperative infections. Over 80 well-designed studies have documented the efficacy of prophylactic antibiotics in high-risk Cesarean sections (Smaill, F. and Hofmeyer, G.J. 1999; Hopkins, L and Smaill, F, 1999).

The American College of Obstetricians and Gynecologists recommends this practice both for high-risk and other Cesarean deliveries. An even larger body of evidence supports the use of prophylactic antibiotics for broad classes of surgery, including operative deliveries (Dellinger et al, 1994). The larger body of evidence is generally applicable to Cesarean delivery with the notable difference that an infant is being born as the mother is undergoing surgery.

Traditionally, many practitioners have preferred to defer administration of antibiotics until the time of delivery in order to avoid introducing unnecessary medications into the newborn's system, while others have found it safe and effective to administer the antibiotics shortly before the surgical incision. Current evidence and guidelines support administration prior to surgical incision.

Type of measure: Process measure

Improvement noted as: An increase in the rate.

Numerator statement: All eligible patients who receive prophylactic intravenous antibiotics within one (1) hour prior to surgical incision.

Included population: Not applicable

Excluded population: None

Data Elements:

- Antibiotic Administration Date
- Antibiotic Administration Time
- Cesarean Section Incision Time
- Cesarean Section Start Date
- IV Antibiotic for Cesarean Section Prophylaxis

Denominator statement: All patients undergoing Cesarean section.

Included population: An ICD-9-CM principal procedure code for Cesarean section that include 74.0 (classical Cesarean section), 74.1 (low cervical Cesarean section), 74.2 (extraperitoneal Cesarean section), 74.4 (Cesarean section of other specified type) or 74.99 (other Cesarean section of unspecified type).

Excluded population:

- Less than 8 years of age
- Greater than or equal to 65 years of age
- Length of stay > 120 days
- Patients enrolled in a clinical trial during the hospital stay relevant to the measure population,
- Patients with a confirmed or suspected infection during the birth hospitalization prior to the Cesarean section procedure or rupture of amniotic membranes 18 hours or greater,
- Patients who received an intravenous antibiotic within 24 hours prior to surgery except prophylaxis for GBS, which is not a reason for exclusion, and
- Patients who undergo other surgeries within 3 days before or after the Cesarean section during this hospitalization.

Data Elements:

- Clinical Trial
- Infection Prior to Cesarean Section
- Other Surgeries
- IV Antibiotics (non-GBS)

Risk adjustment: No

Data collection approach: Retrospective data sources for required data include administrative and medical records. Data is collected on the perioperative antibiotic for surgical prophylaxis that is administered within the targeted time frame. Refer to MAT-2a,2b data abstraction collection tool in ***Appendix A-2*** and data dictionary ***Appendix A-9*** of this manual for detailed instructions.

Data accuracy: Women may be receiving antibiotics at the time of delivery for a variety of reasons besides prophylaxis against postoperative infections. Hospitals may wish to pay particular attention to documenting these reasons, so that practice that deliberately differs from standards for good clinical reasons is not confused with failure to follow standards where they are applicable.

Measure analysis suggestion: Improvement in compliance rates should be accompanied with decreases in the rate of postoperative infections.

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-10*** of this manual that apply to this measure.

Selected References:

- All bibliography for the MAT 2a, 2b measures are listed under the MAT 2b selected references description.

3C. Perioperative Antibiotics for Cesarean Section – Antibiotic Choice	(MAT-2b)

Description: Patients undergoing Cesarean section who receive appropriate prophylactic intravenous antibiotics for surgical prophylaxis.

Rationale: A goal of prophylaxis with antibiotics is to use an agent that is safe, cost-effective, and has a spectrum of action that covers most of the probable intraoperative contaminants for the operation.

Type of measure: Process measure

Improvement noted as: An increase in the rate.

Numerator statement: All eligible patients who receive recommended intravenous antibiotics for Cesarean Section surgical prophylaxis.

Included population: Not applicable

Excluded population: None

Data Elements:
- Antibiotic Name for Cesarean Section Prophylaxis
- IV Antibiotic for Cesarean Section Prophylaxis
- Maternal Allergies

Denominator statement: All patients undergoing Cesarean section.

Included population: An ICD-9-CM principal procedure code for Cesarean section that include 74.0 (classical Cesarean section), 74.1 (low cervical Cesarean section), 74.2 (extraperitoneal Cesarean section), 74.4 (Cesarean section of other specified type) or 74.99 (other Cesarean section of unspecified type).

Excluded population:
- Less than 8 years of age
- Greater than or equal to 65 years of age
- Length of stay > 120 days
- Patients enrolled in a clinical trial during the hospital stay relevant to the measure population,
- Patients with a confirmed or suspected infection during the birth hospitalization prior to the Cesarean section procedure or with rupture of amniotic membranes 18 hours or greater,
- Patients who received an intravenous antibiotic within 24 hours prior to surgery except prophylaxis for GBS, which is not a reason for exclusion, and
- Patients who undergo other surgeries within 3 days before or after the Cesarean section during this hospitalization.

Data Elements:
- Clinical Trial
- Infection Prior to Cesarean Section
- Other Surgeries
- IV Antibiotics (non-GBS)

Risk adjustment: No

Data collection approach: Retrospective data sources for required data include administrative and medical records. Data is collected on the perioperative antibiotic for surgical prophylaxis that is administered within the targeted time frame. Choices for the data element Antibiotic Name for Cesarean Section Prophylaxis are limited to Ampicillin, Cefazolin, Gentamicin, or Other. Refer to MAT-2a,2b data abstraction collection tool in ***Appendix A-2*** and data dictionary ***Appendix A-9*** of this manual for detailed instructions.

Data accuracy: Women may be receiving antibiotics at the time of delivery for a variety of reasons besides prophylaxis against postoperative infections. Hospitals may wish to pay particular attention to documenting these

reasons, so that practice that deliberately differs from standards for good clinical reasons is not confused with failure to follow standards where they are applicable.

Measure analysis suggestion: Improvement in compliance rates should be accompanied with decreases in the rate of postoperative infections.

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-10*** of this manual that apply to this measure.

Selected References (MAT-2a and MAT-2b):

- Alekwe, L.O., Kuti, O., Orji, E.O., Ogunniyi, S.O. (2008). Comparison of ceftriaxone versus triple drug regimen in the prevention of cesarean section infectious morbidities, *Journal Maternal Fetal Neonatal Medicine*, 21(9):638-42.
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- Sullivan, S.A., Smith, T., Chang, E, et al.(2007). Administration of cefazolin prior to skin incision is superior to cefazolin at cord clamping in preventing postcesarean infectious morbidity: a randomized, controlled trial, *American Journal of Obstetrics Gynecology*, 196, p.455.e1-455.e5.
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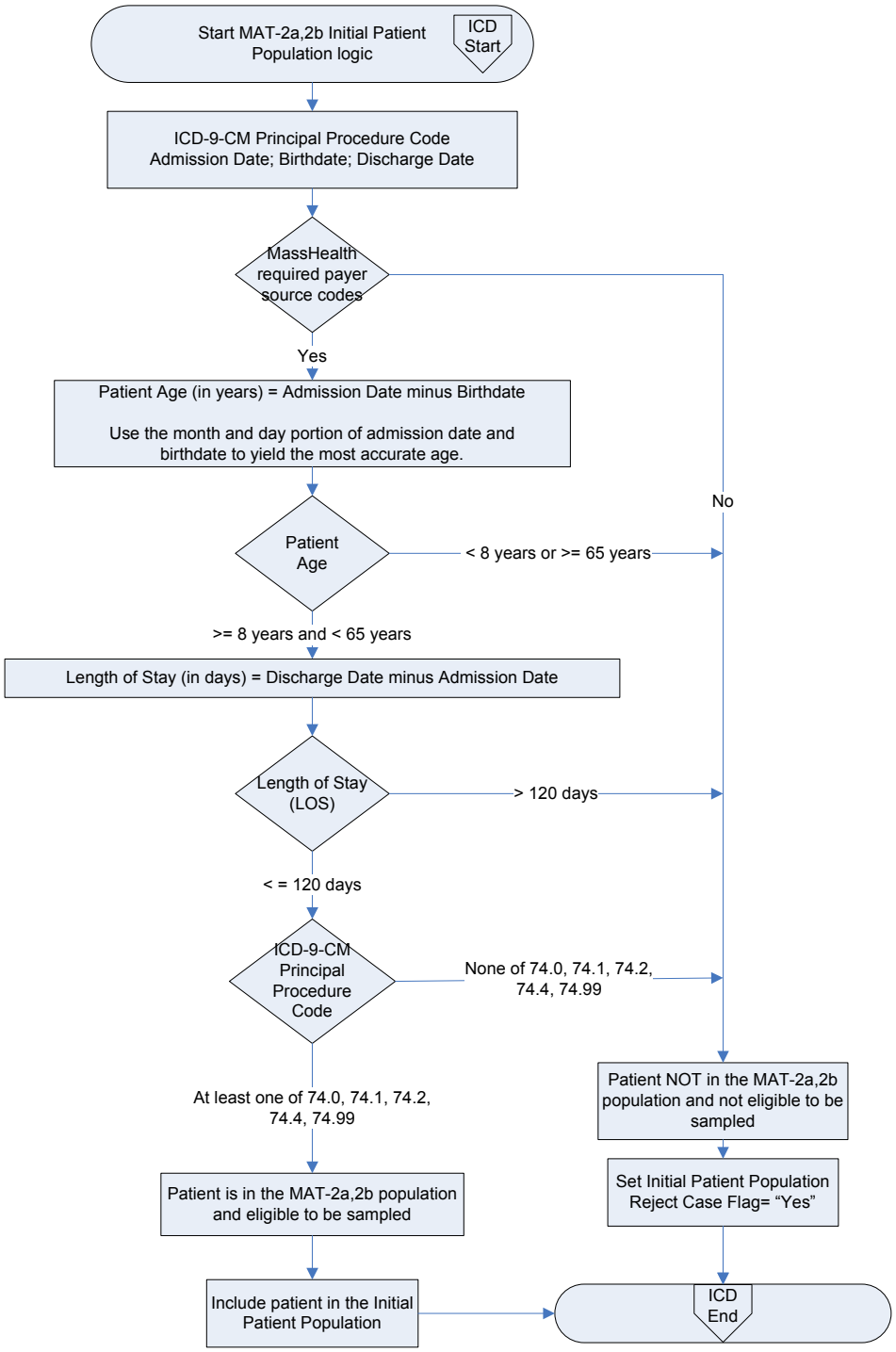
- Griffiths, J., Demianczuk, N., Cordoviz, M., Joffe, A.M. (2005). Surgical site infection following elective caesarian section: a case-control study of post discharge surveillance. *J Obstet Gynaecol Canada*, p.340-4.
- American College of Obstetricians and Gynecologists. Antimicrobial prophylaxis for cesarean delivery: timing of administration. September 2010:116:791-2
- Bratzler DW, Dellinger EP, Olsen KM, et al.Clinical Practice Guidelines for Antimicrobial Prophylaxis in Surgery. ASHP Report. Am J Health-Syst Pharm. 2013;70:195-283

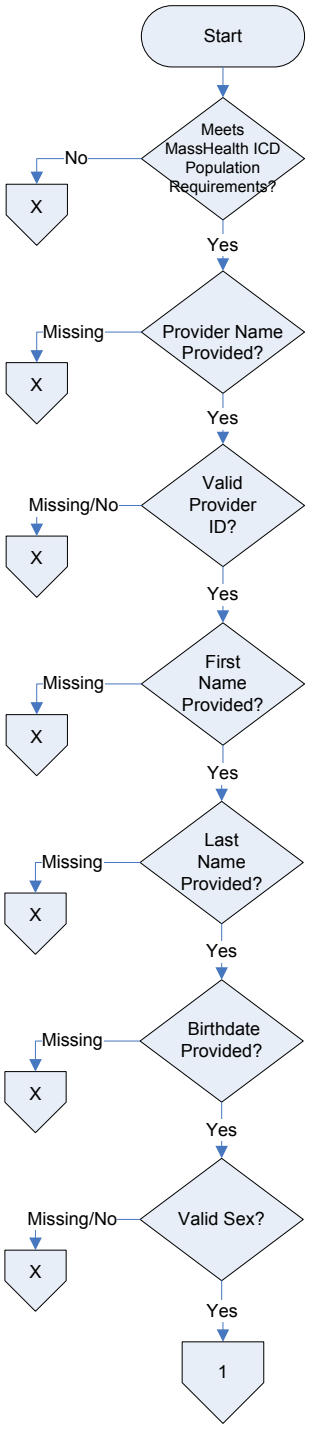
Initial Patient Population Algorithm
Perioperative Antibiotics for Cesarean Section (MAT-2a,2b)



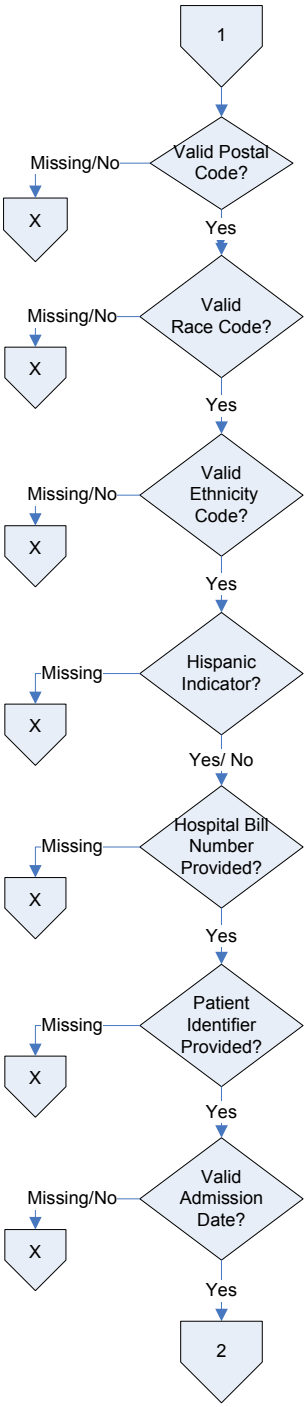
Perioperative Antibiotics for Cesarean Section (MAT-2a, 2b)

***Numerator:** All eligible patients who receive prophylactic intravenous antibiotics within one (1) hour prior to surgical incision.

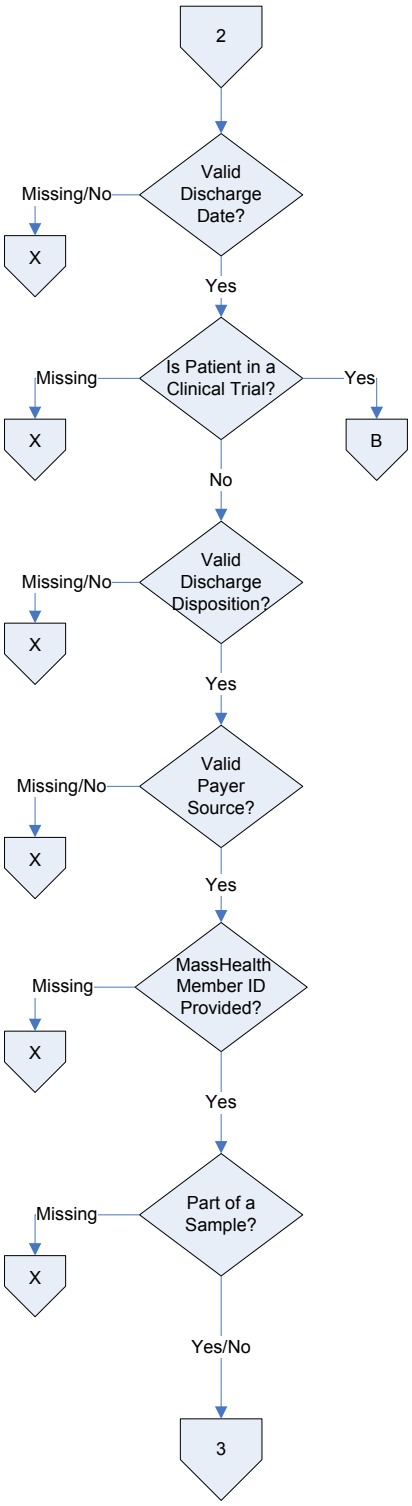
***Denominator:** All patients undergoing Cesarean section.



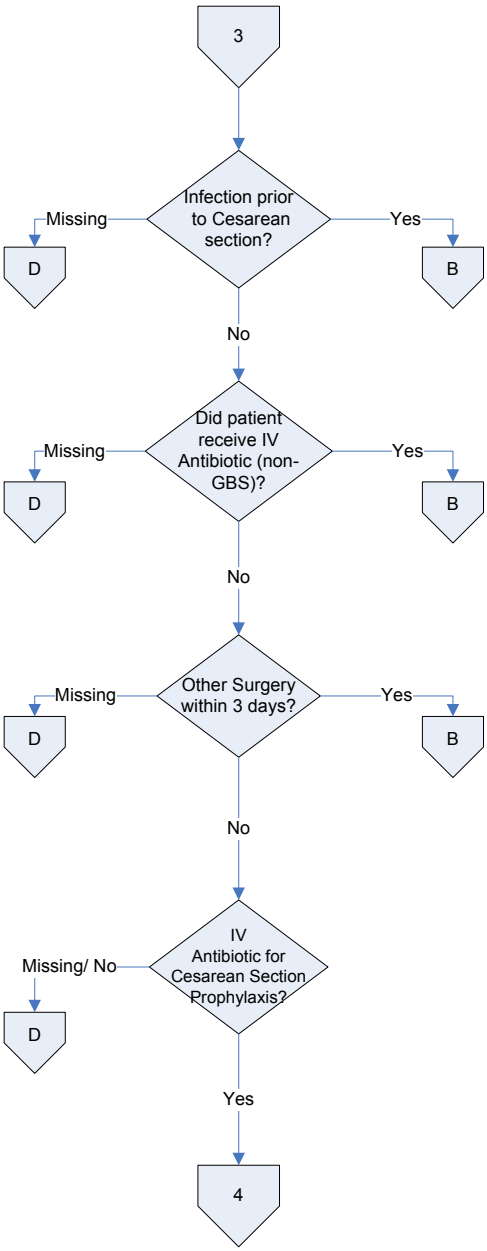
Perioperative Antibiotics for Cesarean Section (MAT-2a, 2b)



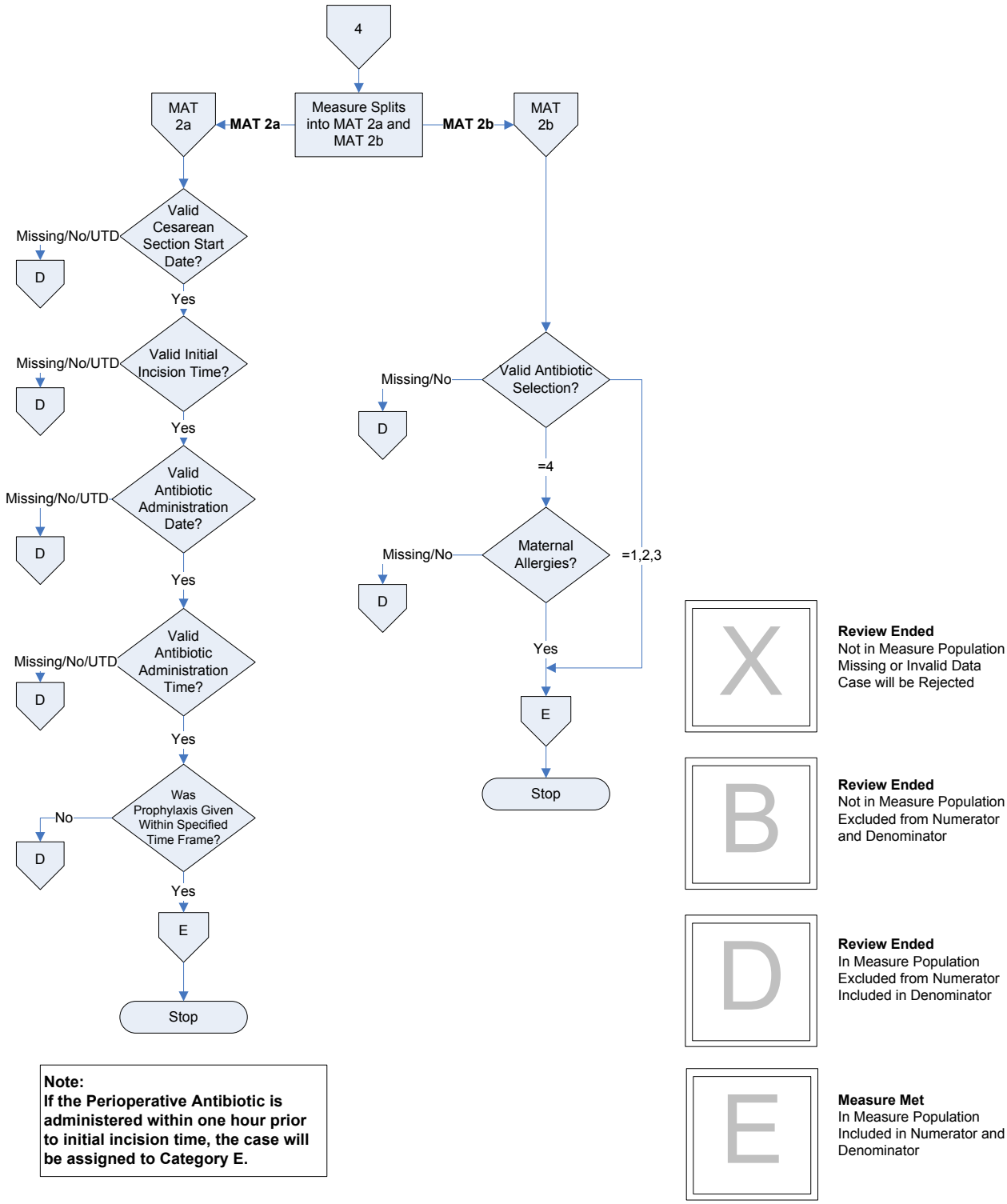
Perioperative Antibiotics for Cesarean Section (MAT-2a, 2b)



Perioperative Antibiotics for Cesarean Section (MAT-2a, 2b)



Perioperative Antibiotics for Cesarean Section (MAT-2a, 2b)



Note:
If the Perioperative Antibiotic is administered within one hour prior to initial incision time, the case will be assigned to Category E.

3D. 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-9-CM Principal Procedure Code or ICD-9-CM Other Procedure Codes for one or more of the following:

- Medical induction of labor as defined in Appendix A, Table 11.05
- Cesarean section as defined in Appendix A, Table 11.06 *and all of the following:*
  - not in Labor
  - *no history of a Prior Uterine Surgery*

Excluded population: None

Data Elements:

- ICD-9-CM Other Procedure Codes
- ICD-9-CM Principal Procedure Code
- Labor
- *Prior Uterine Surgery*

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

Included population:

- ICD-9 Principal *or Other* Diagnosis Codes for live births during the admission (as defined in Appendix A: ICD-9-CM Code Tables 11.01, 11.02, 11.03, 11.04 of the Specifications Manual for Joint Commission National Core measures version noted in Section 2.A of this manual).
- ICD-9-CM Principal Diagnosis Code or ICD-9-CM Other Diagnosis Codes for planned cesarean section in labor as defined in Appendix A, Table 11.06.1 of the Specifications Manual for Joint Commission National Core measures.

Excluded population:

- ICD-9-CM Principal Diagnosis Code or ICD-9-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 noted in Section 2.A of this manual)
- 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-9-CM Other Diagnosis Codes
- ICD-9-CM Principal Diagnosis Code

MAT-3 Measure Population identification: See initial patient population algorithm.

Risk adjustment: No

Data collection approach: Retrospective data sources for required data include administrative and medical records. Refer to MAT-3 data abstraction collection tool in ***Appendix A-3*** and data dictionary ***Appendix A-9*** of this manual for detailed instructions.

Data accuracy: Variation may exist in the assignment of ICD-9-CM 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-9 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.

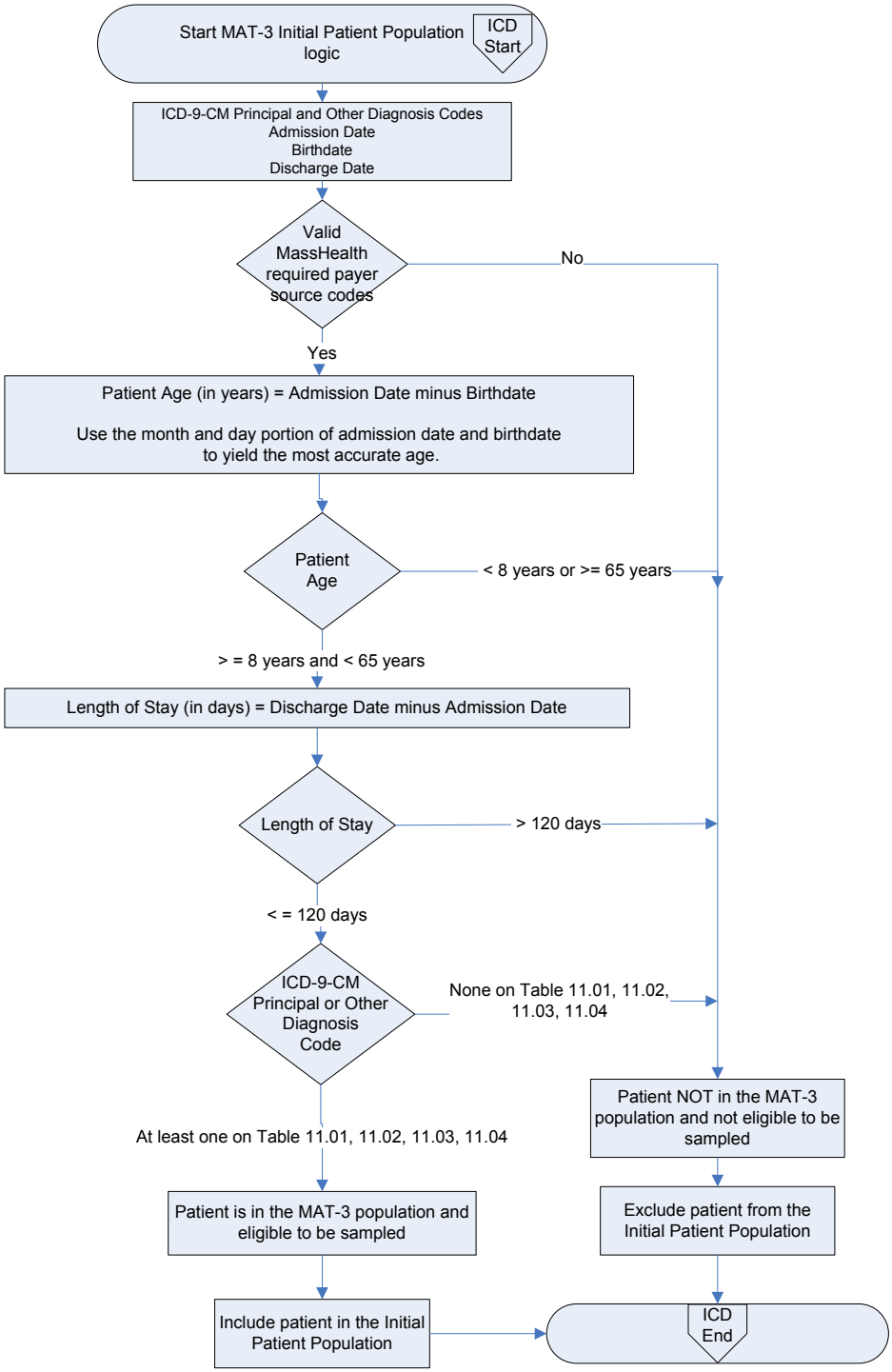
Data reported as: Aggregate rate generated from count data reported as a proportion. Refer to the calculation rules in ***Appendix A-10*** of this manual that apply to this measure.

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 (versions *2015A*) 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.

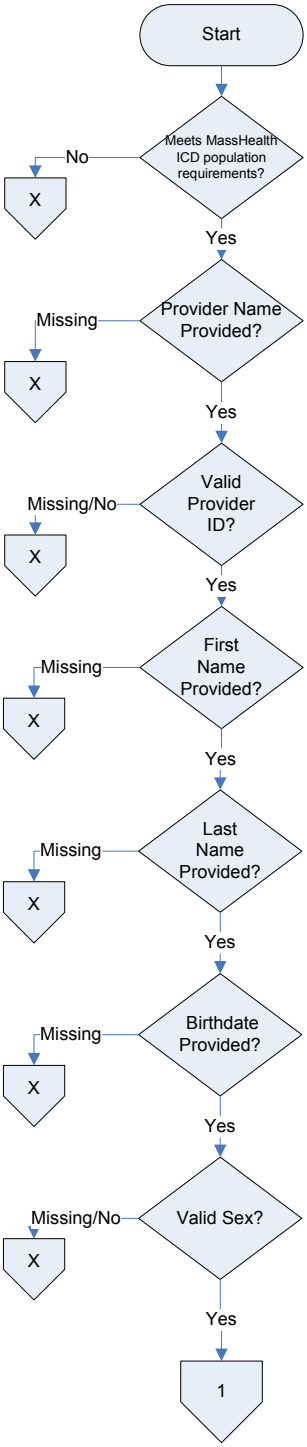
Initial Patient Population Algorithm
Elective Delivery (MAT-3)



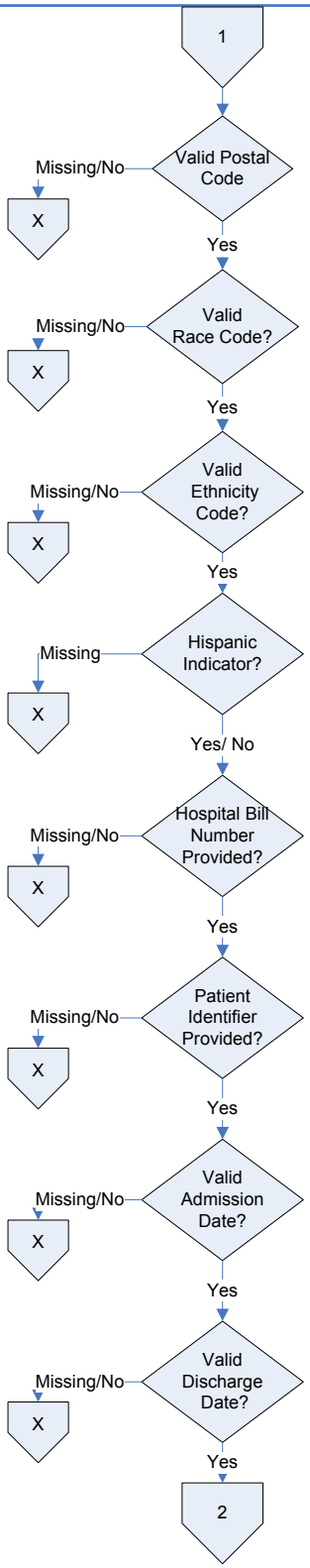
Elective Delivery (MAT-3)

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

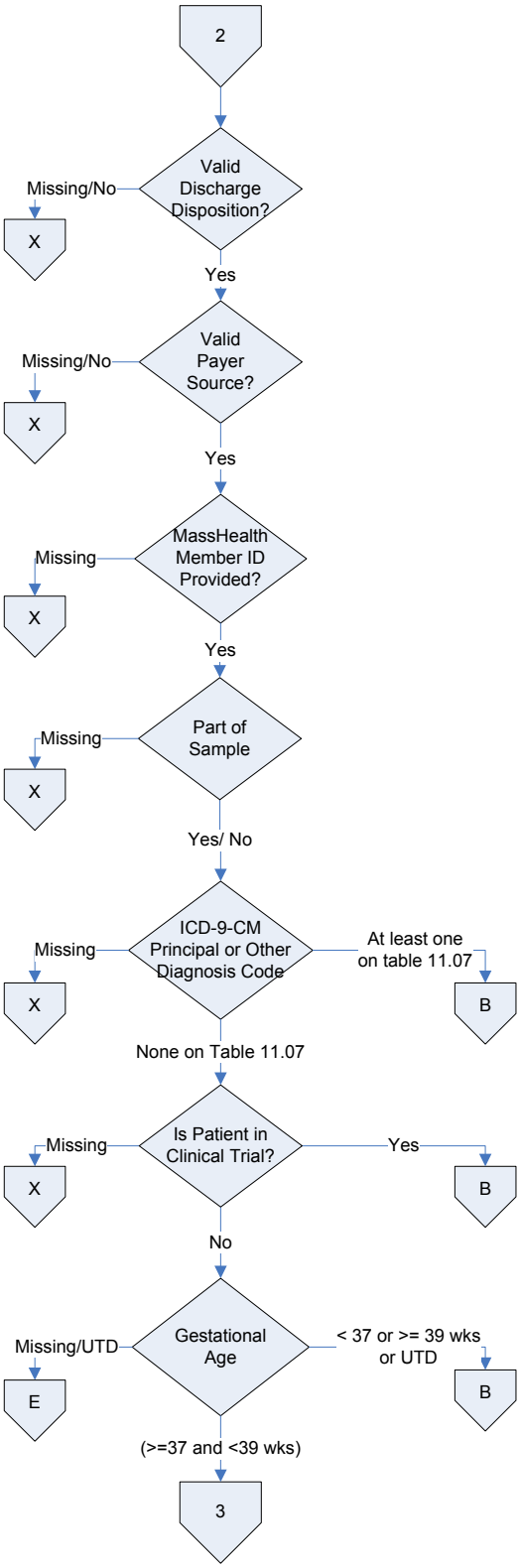
***Denominator:** Patients delivering newborns with >= 37 and <39 weeks gestation completed



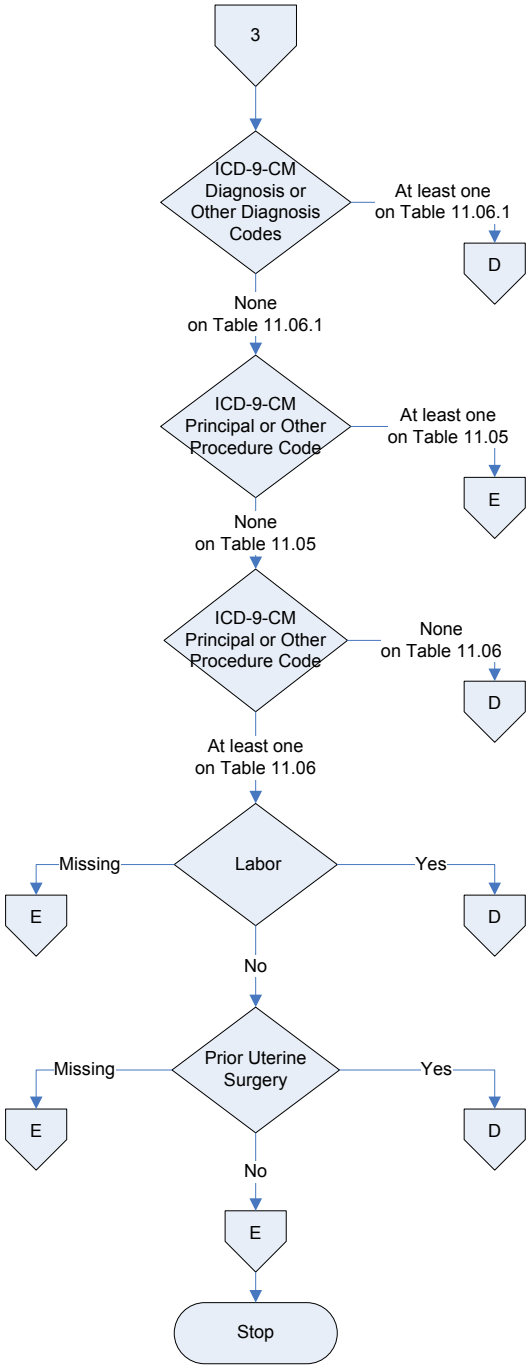
Elective Delivery (MAT-3)

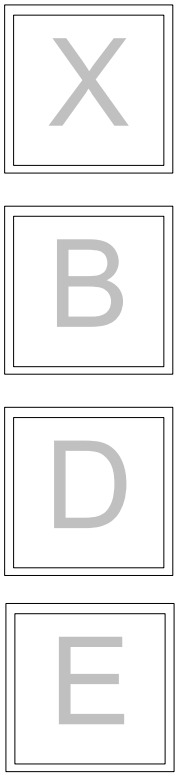


Elective Delivery (MAT-3)



Elective Delivery (MAT-3)





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

3E. Cesarean Section	(MAT-4)

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

Rationale: The removal of any pressure to not perform a cesarean birth has led to a skyrocketing of hospital, state and national cesarean section (CS) rates. Some hospitals now have CS rates over 50%. Hospitals with CS 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 CS rates continue to rise. This measure seeks to focus attention on the most variable portion of the CS epidemic, the term labor CS in nulliparous women. This population segment accounts for the large majority of the variable portion of the CS rate, and is the area most affected by subjectivity.

As compared to other CS measures, what is different about NTSV CS rate (Low-risk Primary CS 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 Sections

Included population: *ICD-9-CM Principal Procedure Code or ICD-9-CM Other Procedure Codes* for cesarean section as defined in Appendix A, Table 11.06 of the Specifications Manual for Joint Commission National Core measures version noted in Section 2.A of this manual
Excluded population: None
Data Elements:

- ICD-9-CM Other Procedure Codes
- ICD-9-CM Principal Procedure Code

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

Included population:

- *ICD-9 Principal or Other Diagnosis Codes* for live births during the admission (as defined in Appendix A: ICD-9-CM Code Tables 11.01, 11.02, 11.03, 11.04 of the Specifications Manual for Joint Commission National Core measures version noted in Section 2.A of this manual)
- *Nulliparous patients with ICD-9-CM Principal Diagnosis Code or ICD-9-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 noted in Section 2.A of this manual) *and with a delivery of a newborn with 37 weeks or more of* gestation completed

Excluded populations:

- *ICD-9 Principal or 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 noted in Section 2.A of this manual)
- Less than 8 years of age
- Greater than or equal to 65 years of age
- Length of stay > 120 days
- Enrolled in clinical trials
- Patients with gestational age < 37 weeks or UTD

Data Elements:

- Admission Date
- Birthdate
- Clinical Trial
- Discharge Date
- Gestational Age
- ICD-9-CM Other Diagnosis Codes
- ICD-9-CM Principal Diagnosis Code
- Parity

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-9*** of this manual for detailed instructions.
Data accuracy: Variation may exist in the assignment of ICD-9-CM 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-9 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-10*** 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.
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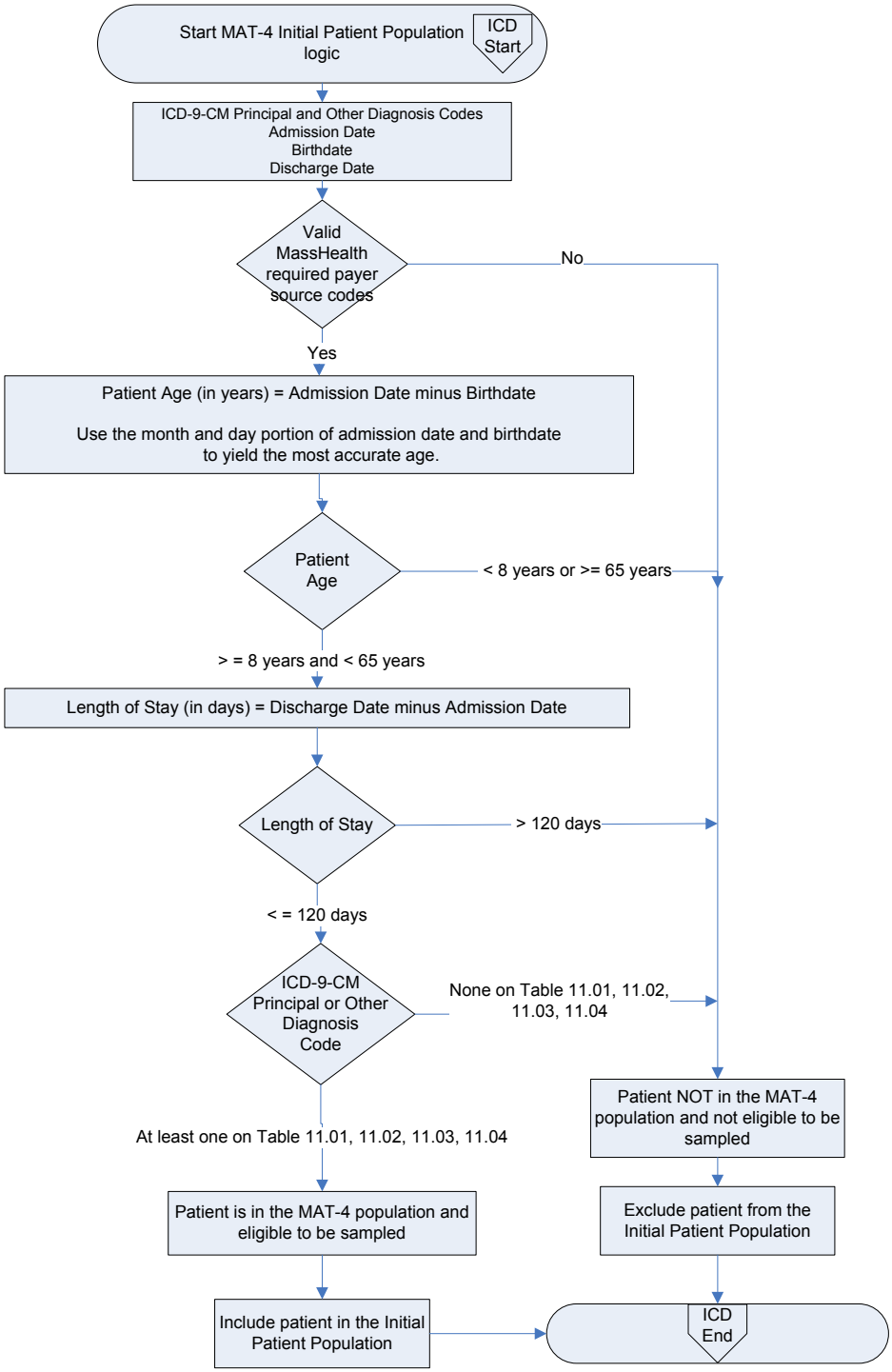
ACKNOWLEDGEMENT: The MassHealth MAT-4 measure attributes described above were adapted from "Specifications Manual for the Joint Commission National Quality Core Measures (versions 2015A)" with permission and in consultation with The Joint Commission (TJC). This core manual, as well as the ORYX Risk Adjustment 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.

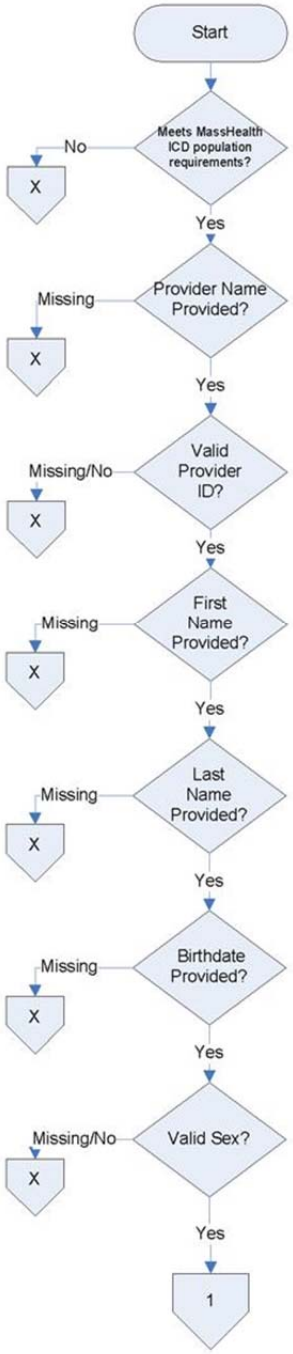
Initial Patient Population Algorithm
Cesarean Section (MAT-4)



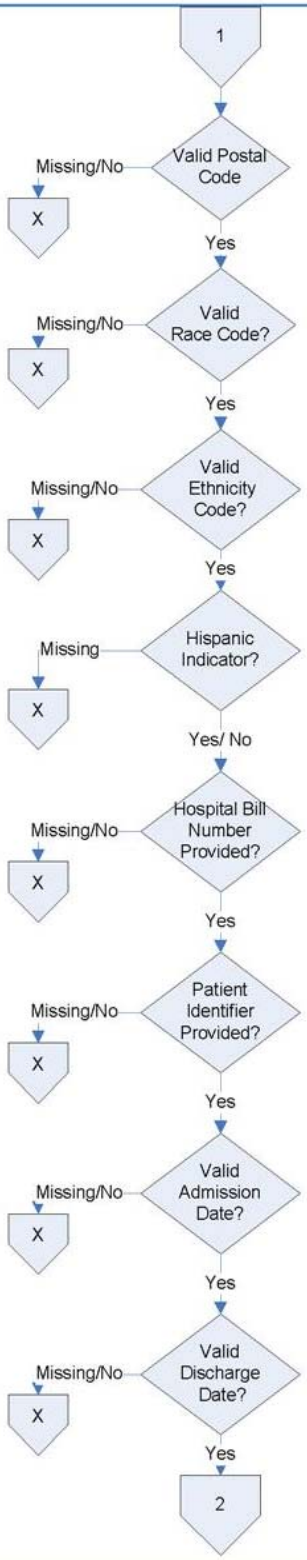
Cesarean Section (MAT-4)

***Numerator:** Patients with cesarean sections

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



Cesarean Section (MAT-4)



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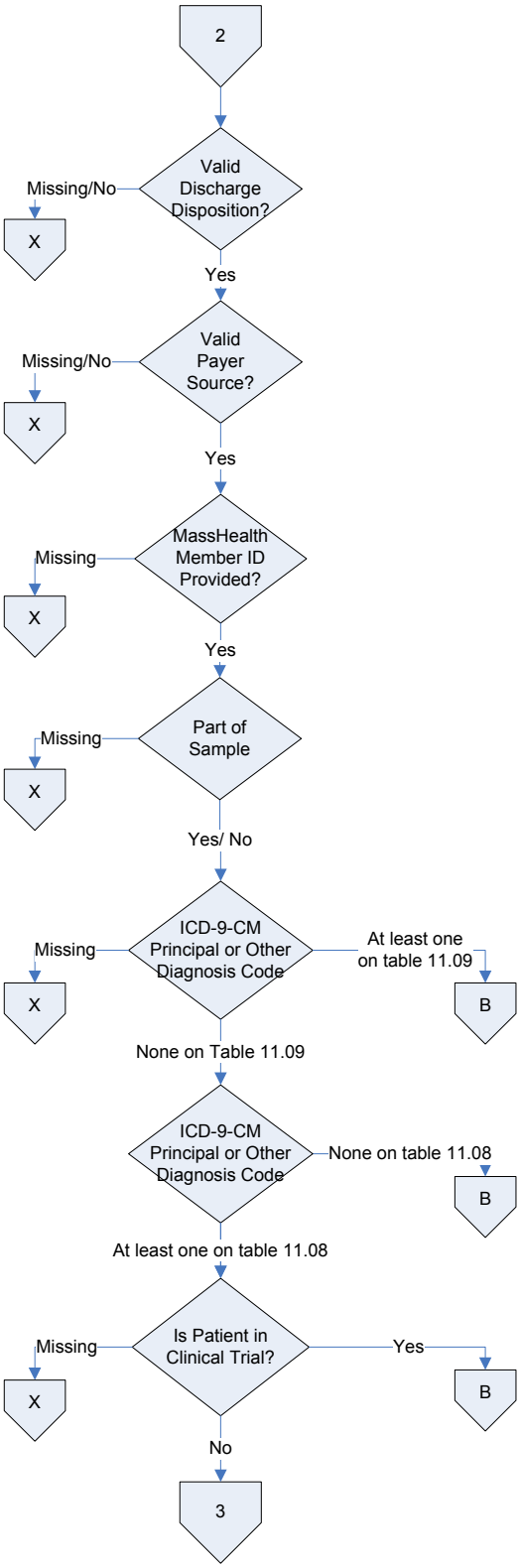
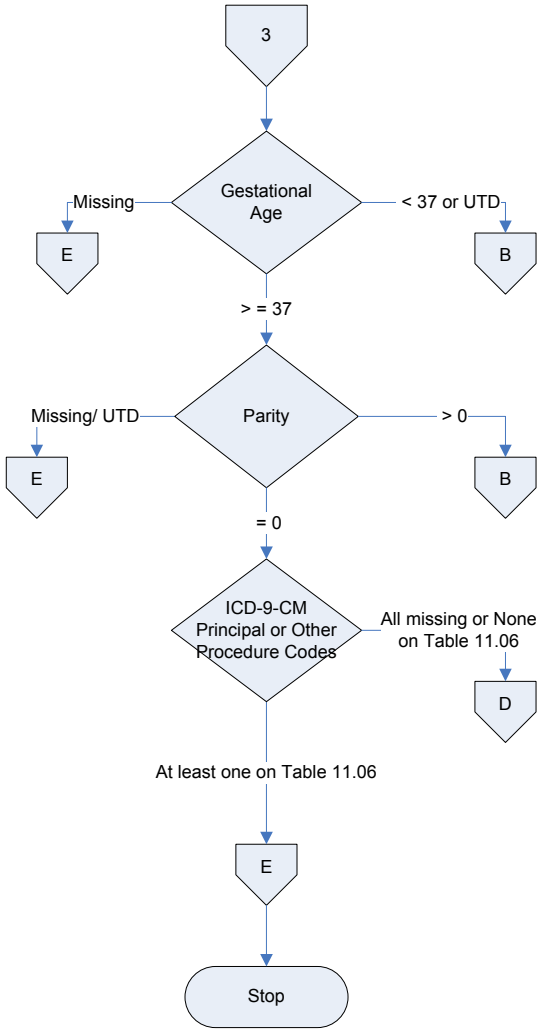
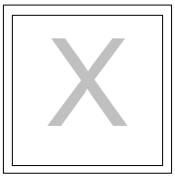


Cesarean Section (MAT-4)





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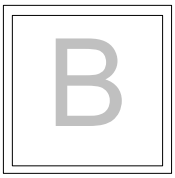
Missing or Invalid Data
Case will be Rejected



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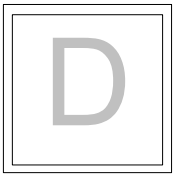
Not in Measure Population
Excluded from Numerator and Denominator



Review Ended
In Measure Population
Excluded from Numerator
Included in Denominator

Review Ended
In Numerator Population
Included in Numerator and Denominator

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 Discharged Patients (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

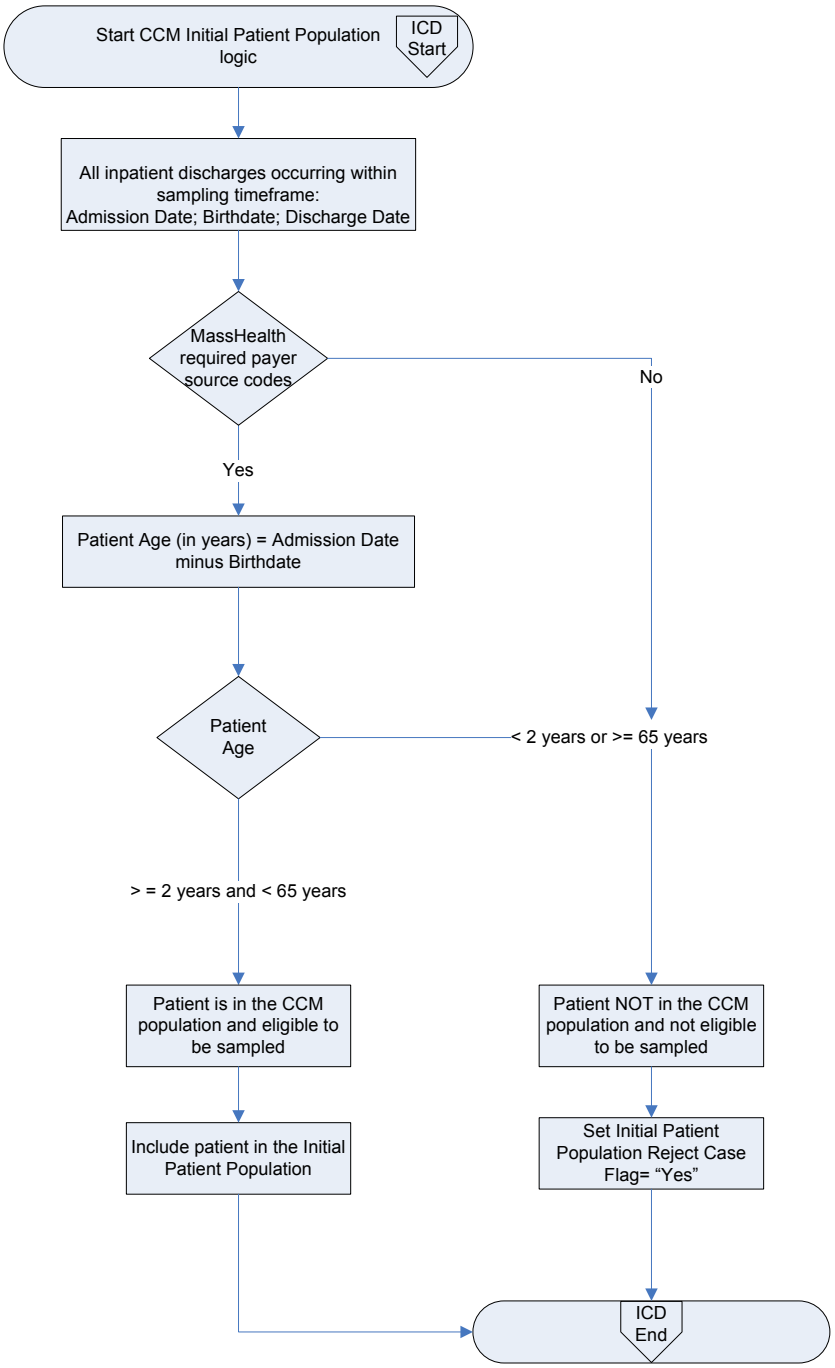
Data collection approach: Retrospective data sources for required data elements include administrative and medical records. Refer to data abstraction tool in ***Appendix A-5*** and data dictionary in ***Appendix A-9*** of this manual for detailed instructions.

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-10*** for the calculation rules that apply to this measure.

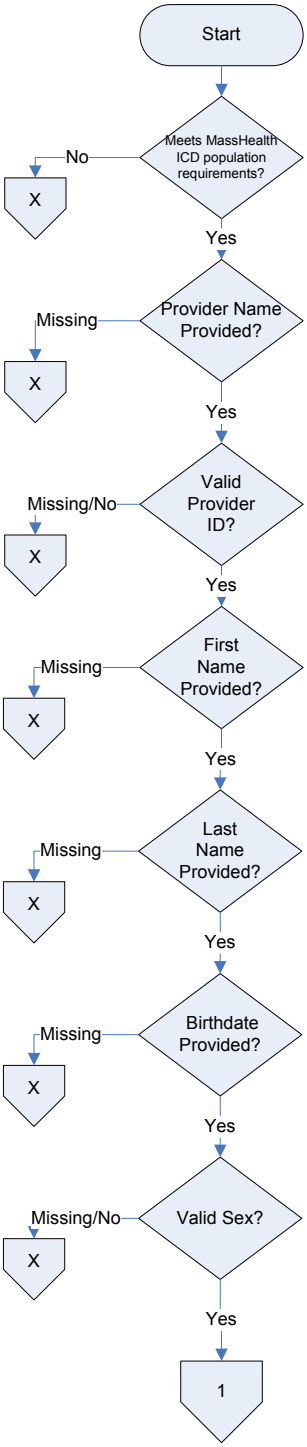
Initial Patient Population Algorithm
Care Coordination Measure (CCM-1, 2, 3)



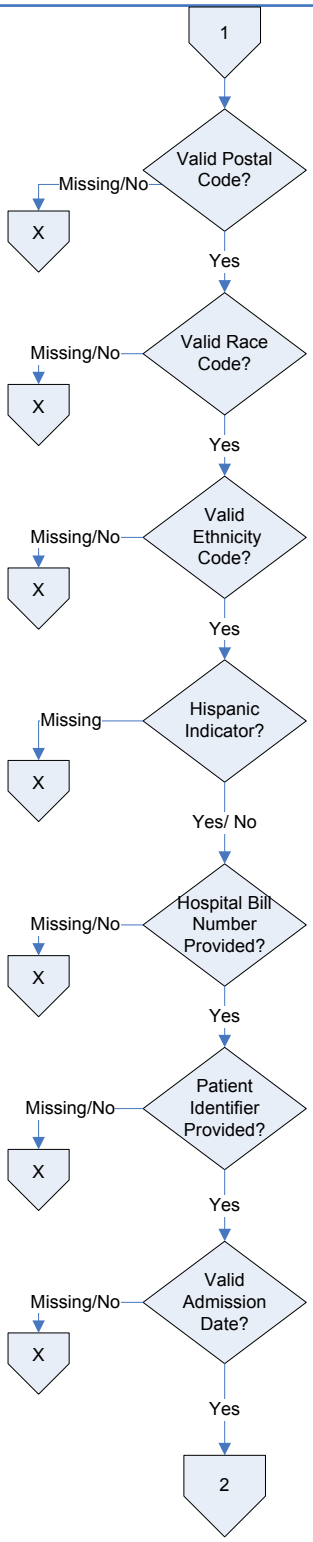
Care Coordination Measure (CCM-1)

***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.

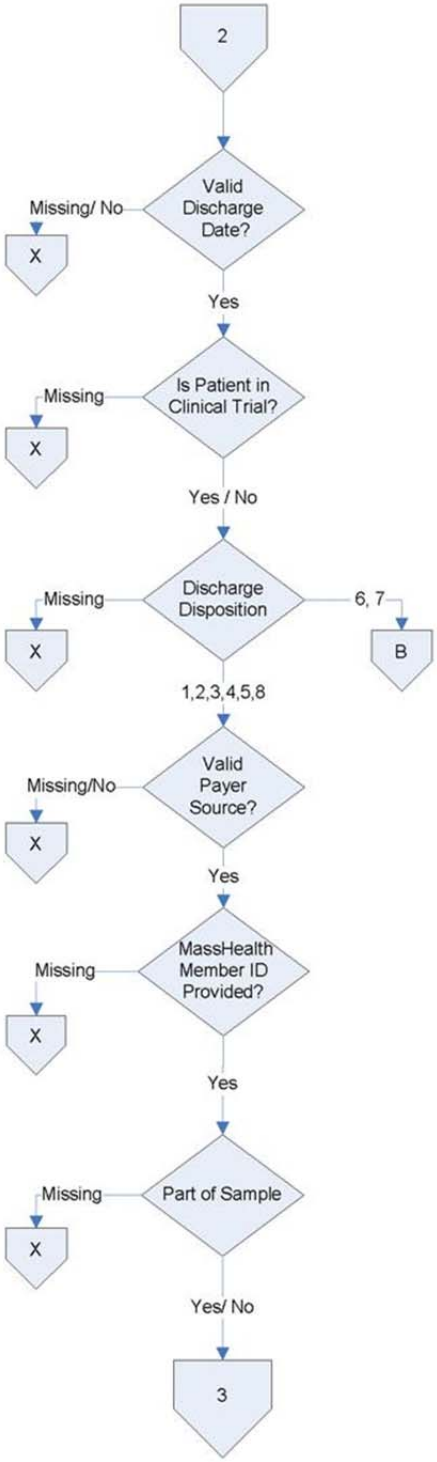
***Denominator:** Patients discharged from an inpatient facility to home/ self care or any other site of care.



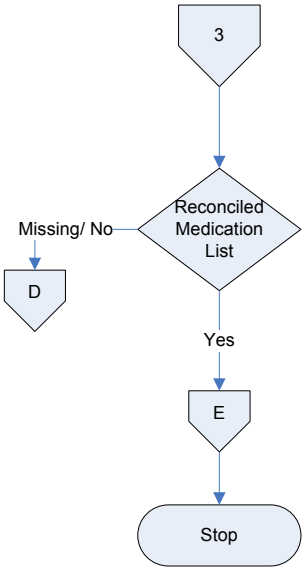
Care Coordination Measure (CCM-1)



Care Coordination Measure (CCM-1)



Care Coordination Measure (CCM-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

Measure Met
In Measure Population
Included in Numerator and Denominator

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-5*** and data dictionary in ***Appendix A-9*** of this manual for detailed instructions.

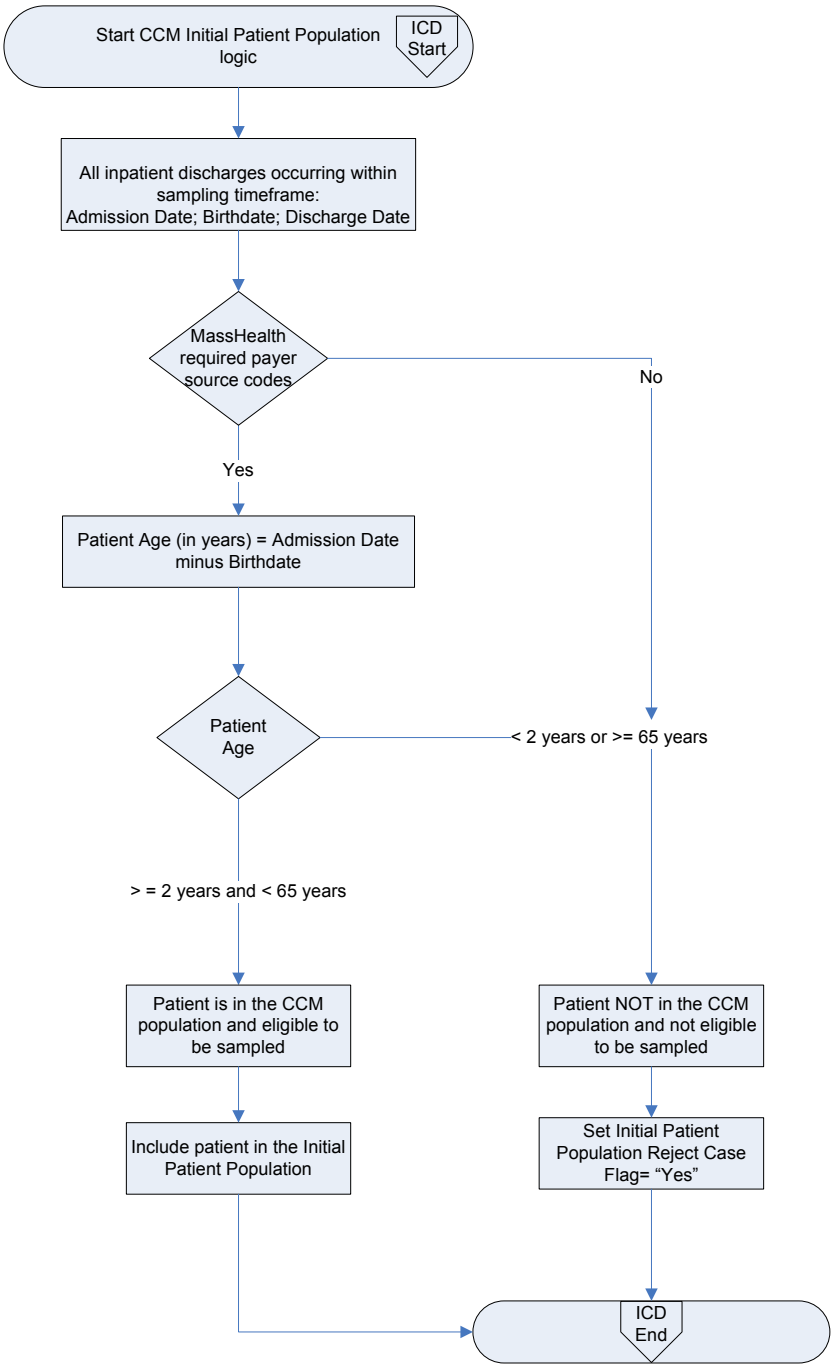
Data accuracy: Variation may exist in documentation provided at the time of transition and documentation of transmission time; therefore, medical record documentation processes may require evaluation.

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-10*** for the calculation rules that apply to this measure.

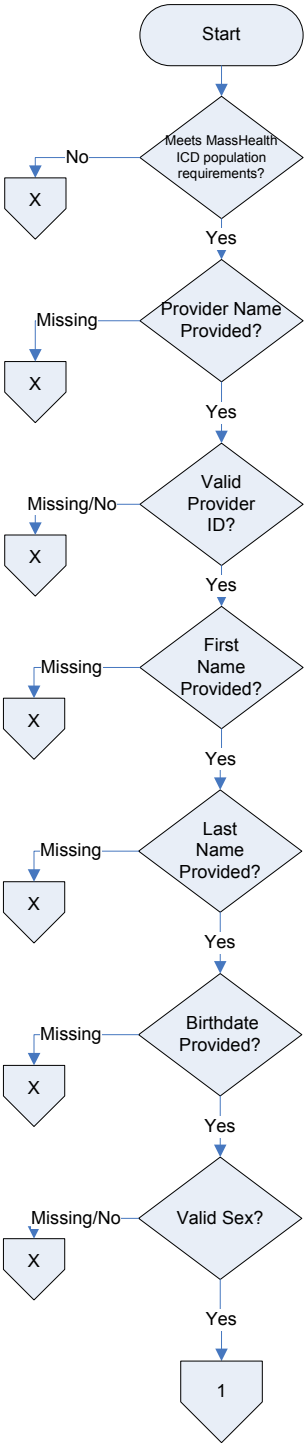
Initial Patient Population Algorithm
Care Coordination Measure (CCM-1, 2, 3)



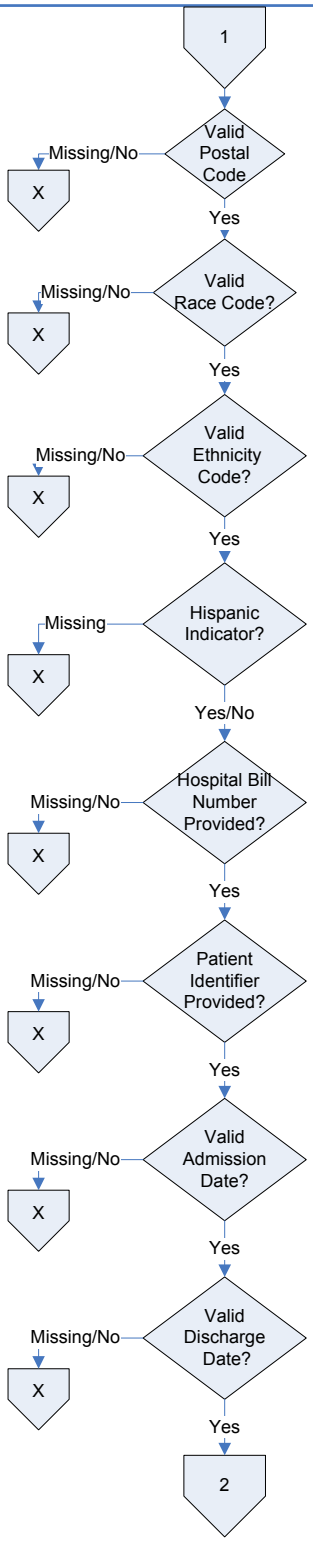
Care Coordination Measure (CCM-2)

***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)



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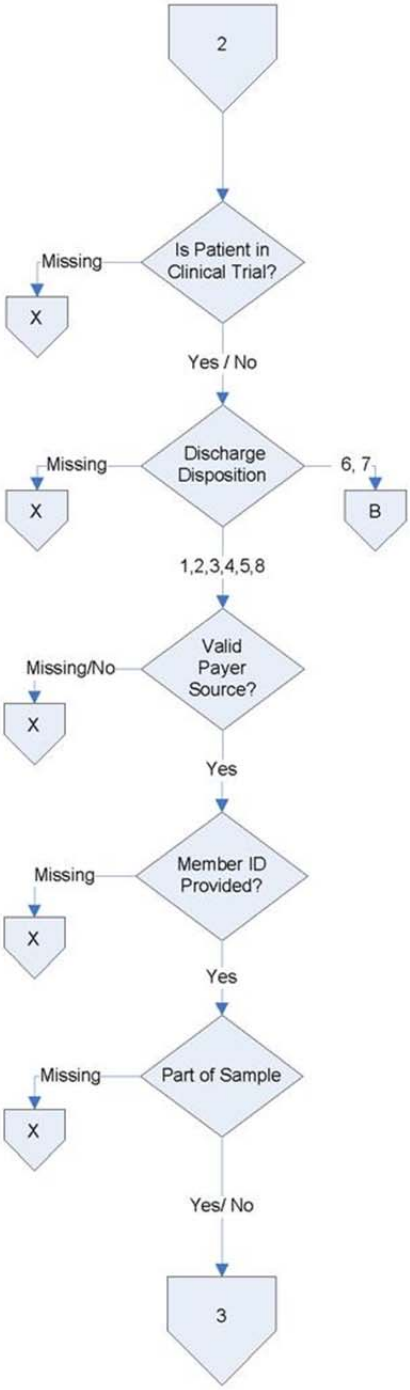
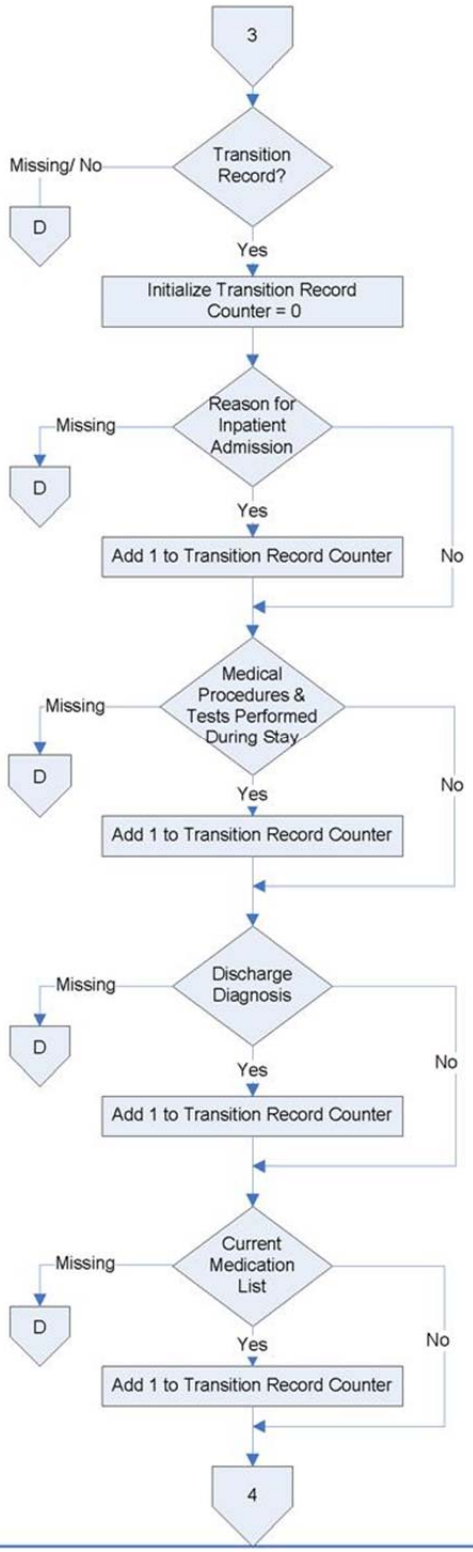
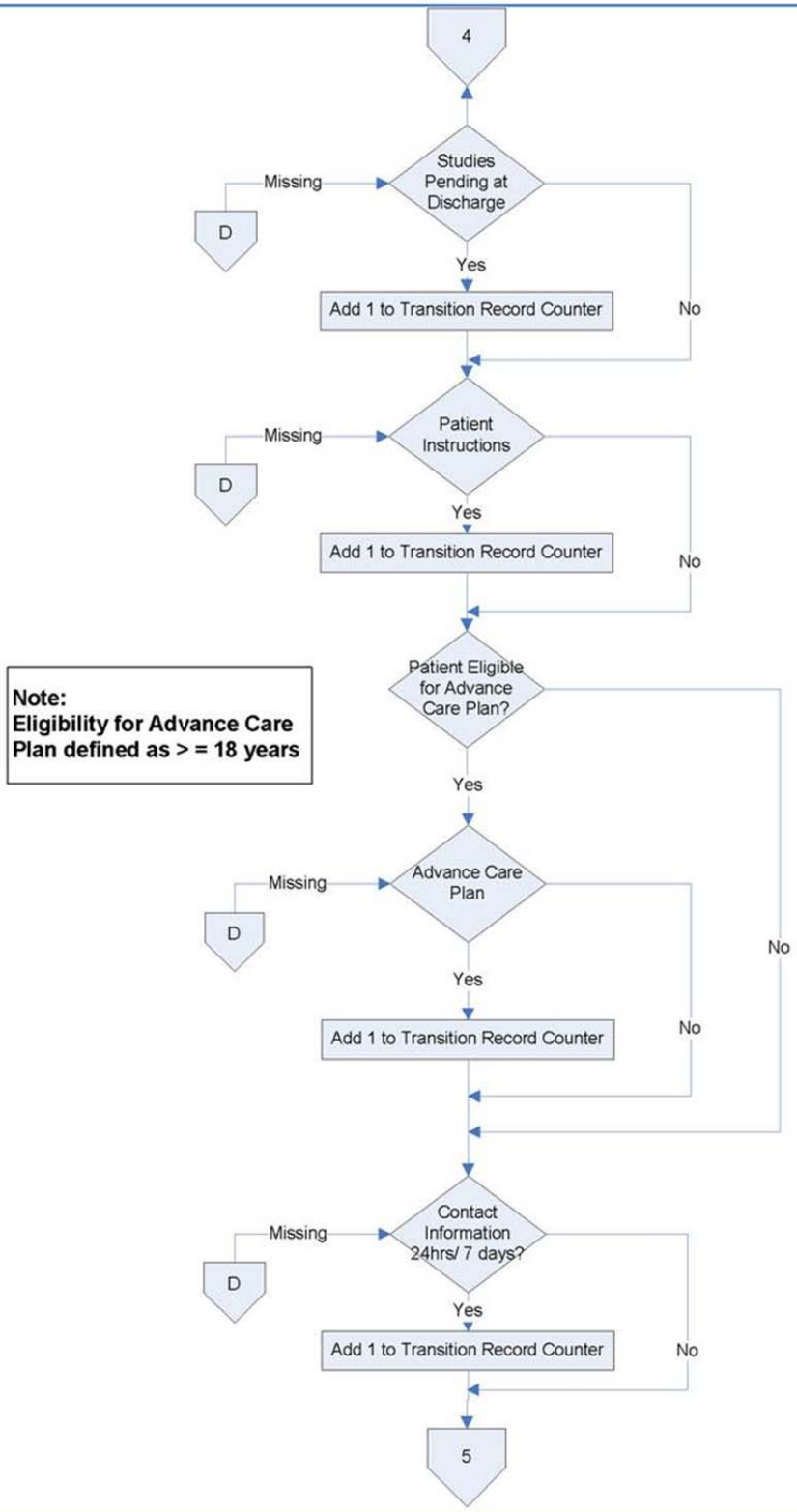


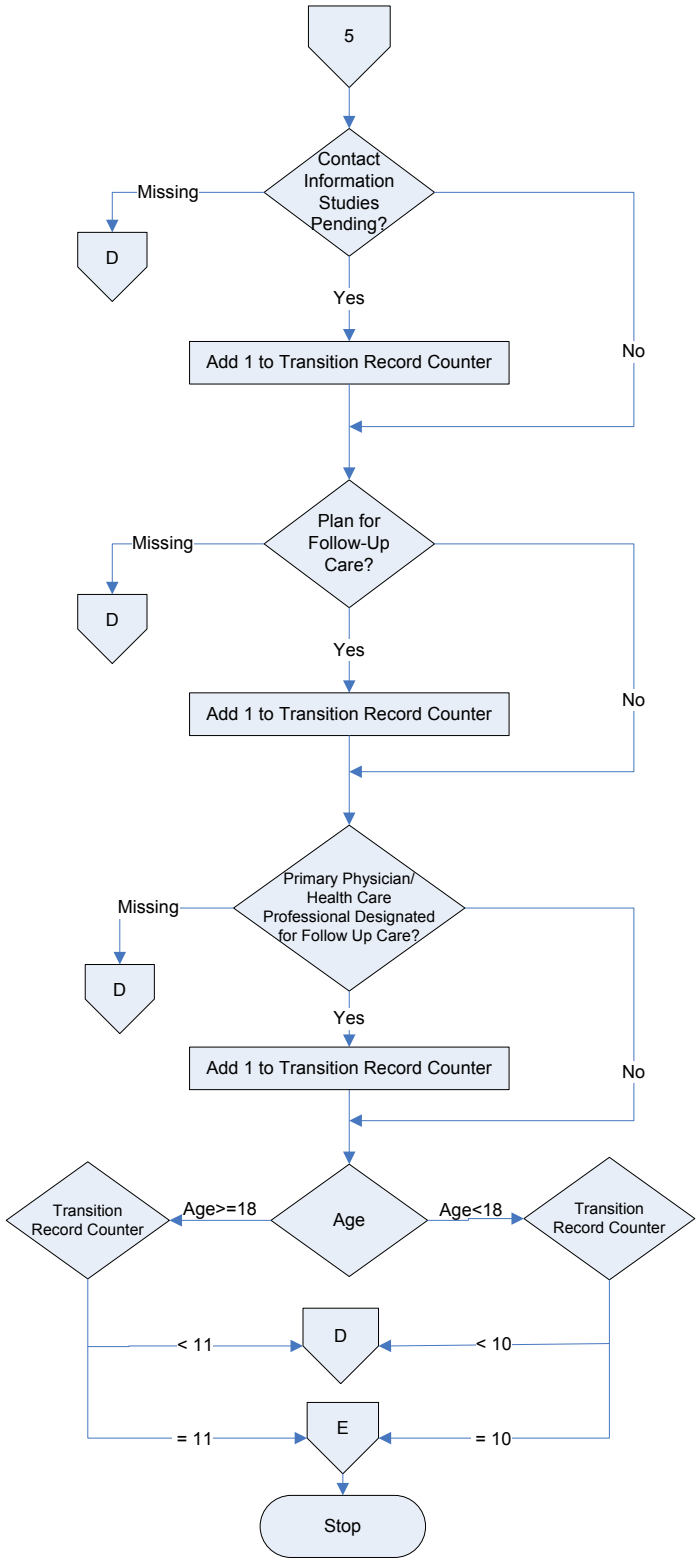
Care Coordination Measure (CCM-2)



Care Coordination Measure (CCM-2)



Care Coordination Measure (CCM-2)



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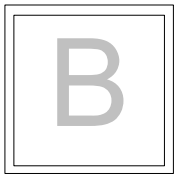
Not in Measure Population
Missing or Invalid Data
Case will be Rejected



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

3F-3. Timely Transmission 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-5*** and data dictionary in ***Appendix A-9*** 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-10*** of this manual that apply to this measure.

Selected References (for all CCM measures):

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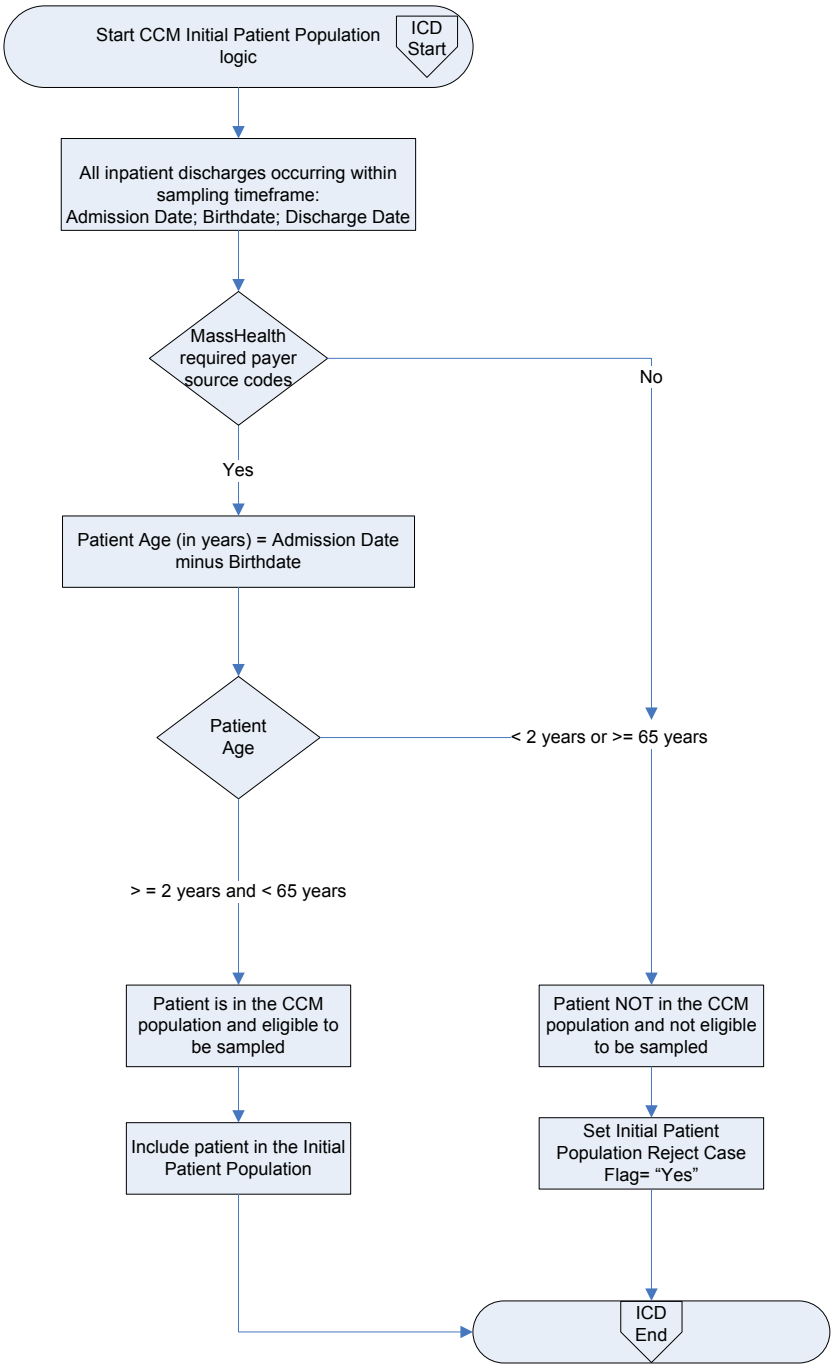
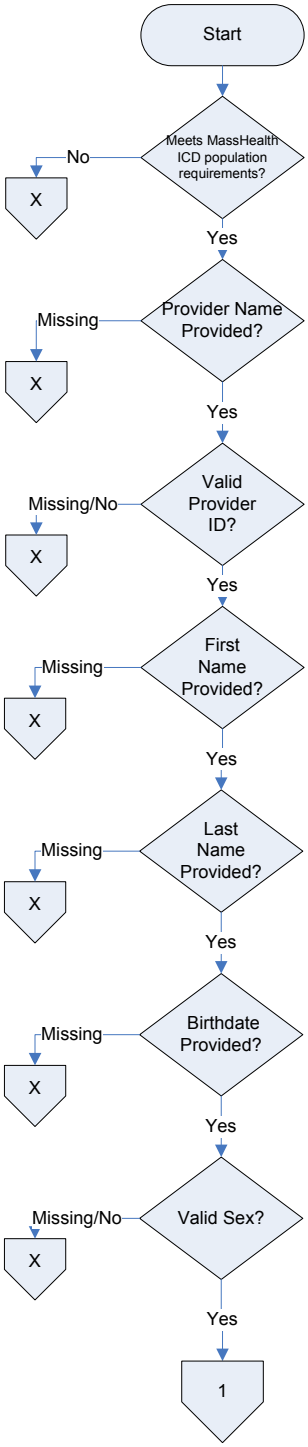
Initial Patient Population Algorithm
Care Coordination Measure (CCM-1, 2, 3)



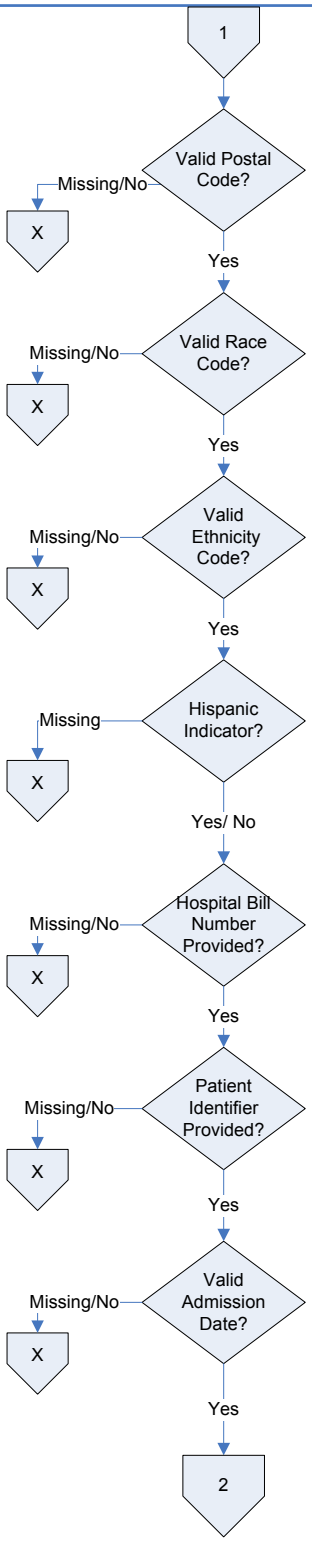
Care Coordination Measure (CCM-3)

***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

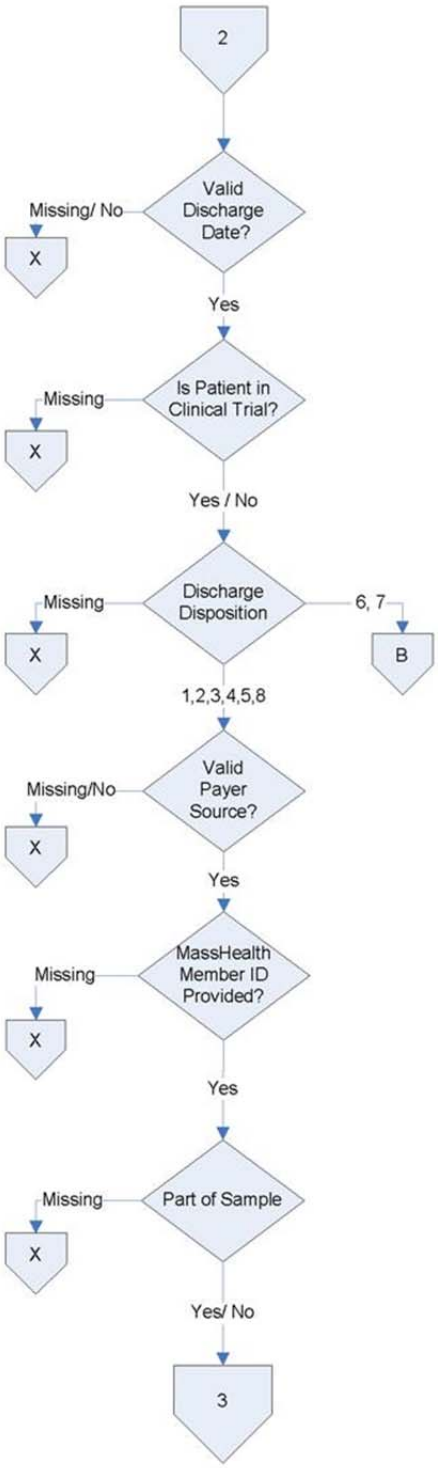
***Denominator:** Patients discharged from an inpatient facility to home/ self care or any other site of care.



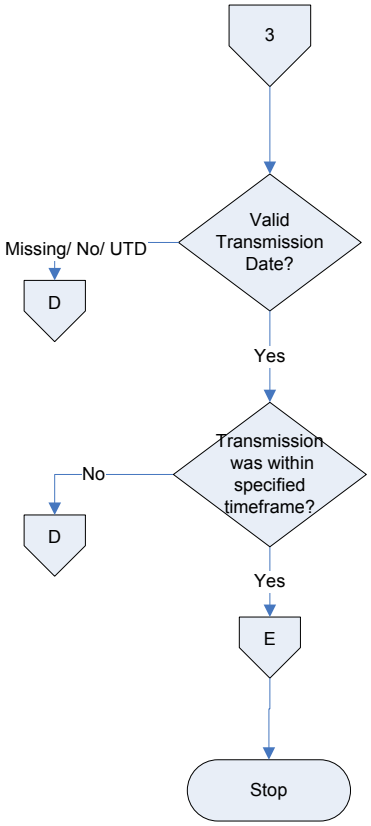
Care Coordination Measure (CCM-3)



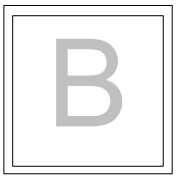
Care Coordination Measure (CCM-3)



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.

3-F Nationally Reported Hospital Measures Requirements

Hospitals must collect and submit nationally reported hospital quality measures, in Table 2.1 of this manual, that apply to MassHealth Acute RFA rate year reporting requirements using the instructions outlined below.

The nationally reported measures required by MassHealth include surgical care infection prevention, children's asthma care, emergency department throughput, pneumonia, and new tobacco cessation measures. Data collection guidelines and tools for the nationally reported measures are already published in the "Specification Manuals for NHIQM". The NHIQM manual versions that apply to rate year data reporting requirements are listed in table below.

Table 3.2 Specifications Manual for NHIQM

Acute RFA Rate Year	Calendar Year Discharge Data Periods	NHIQM Manual Versions
RY2014	(CY2013) 01/01/2013 – 12/31/2013	**Version 4.2, 4.2b and Release notes**
RY2015	(CY2014) 01/01/2014 – 12/31/2014	**Version 4.3, 4.3b and Release notes**
RY2016	(CY2015) 01/01/2015 – *09/30/2015*	**Version 4.4 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. Users of the 'Specifications Manual for NHIQM' are responsible for updating their software and associated documentation based on the national published manual production timelines.

Below are instructions for modifying data files extracted from nationally reported database that apply to MassHealth reporting requirements.

1. **Community Acquired Pneumonia (PN)**

   a) *Refer to EOHHS Manual version 7.0 for XML schema versions that apply to RY15 CY2014 quarter reporting periods*. *Pneumonia measure reporting will no longer be required as Q1-2015 data submissions.*

2. **Surgical Care Infection Prevention (SCIP**)

   a) **Measure Specifications 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 NHIQM manual version cited above.

   d) **Sampling Requirement:** See Section 4 of this EOHHS manual for MassHealth sampling requirements.

   e) **XML File Format:** *Appendix A-7 of this* EOHHS manual provides an XML schema for the 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 of this EOHHS manual for XML schema versions that apply to *CY2014 and CY2015 data reporting*.

3. **Children's Asthma Care Measures (CAC)**

   a) **Measure Specifications 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.

   Hospitals must follow the CMS transmission specifications and requirements outlined in the Hospital Clinical Data XML file layout section of the 'NHIQM Manual"' versions referenced in Section 2.A of this manual, when creating the CAC data files for submission to MassQEX.

Note that, unlike CMS, the Joint Commission (TJC) measure specifications does not allow transmission of any patient identifiers and asks for additional data elements. Therefore, if a Hospital or data vendor uploads CAC measures data files they created for TJC, these will be rejected by the MassQEX portal.

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

c) **Data Abstraction Tool:** Refer to NHIQM manual version cited above.

d) **Sampling Requirement:** See Section 4 of this EOHHS manual for MassHealth sampling requirements.

e) **XML File Format:** *Appendix A-7 of this* EOHHS manual provides an XML schema for the 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 of this EOHHS manual for XML schema versions that apply to *CY2014 and CY2015 data reporting*.

4. Emergency Department Throughput Measures (ED-1, ED-2)

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. *Hospitals are required to report on the entire ED-1 and ED-2 measure population strata using the instructions provided below*.

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) **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 the all Medicaid payer sampling requirements.

e) **XML File Format:** *Appendix A-7 of this* EOHHS manual provides an XML schema for the 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 of this EOHHS manual for XML schema versions that apply to *CY2014 and CY2015 data reporting*.

5. Tobacco Cessation 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) **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 the all Medicaid payer sampling requirements.

e) **XML File Format:** *Appendix A-7 of this* EOHHS manual provides an XML schema for the 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 of this EOHHS manual for XML schema versions that apply to *CY2015 data reporting.*

Contact the MassQEX Customer Support Help Desk, listed in Section 5 of this EOHHS Manual, if you require technical support or have questions on how to prepare the required XML Crosswalk files when preparing any of the nationally reported hospital 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 "Initial Patient Population" as all patients who share a common set of clinical (ICD-9-CM principle diagnosis, procedure codes) and administrative (admission date, ICD-9-CM principle diagnosis or procedure codes, payer source, age, etc.) characteristics for a given condition from which the sample must be drawn and represent.

For the MassHealth hospital quality measures reporting requirement, the term *'MassHealth Initial Patient Population'* is used to refer to all patients who share the common set of clinical and administrative data elements (Medicaid payer codes, race/ethnicity, other unique patient identifier codes, etc.) that are eligible to be sampled for dates of service relevant to discharge data periods. All relevant ICD-9-CM codes must be identified prior to applying data integrity filters, measure exclusions and sampling methods.

B. Sampling Methods Overview. Sampling is the process of selecting observations from a patient population without collecting data for the entire eligible population. A well designed sample is based on a selection of cases that provides 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) **Order of Data Flow**. The order of data flow for selecting cases involves the following steps:
   a. Identify the Initial Patient Population using definitions in Section 4.A above;
   b. Pull a sample of medical records for each measure set based on sample size requirements;
   c. Follow either simple random or systematic random sampling approach described below; and
   d. Abstract specific data elements needed for each measure.

Hospitals may sample their population or report their entire population if desired. However, hospitals whose 'MassHealth ICD Patient Population' size is less than the minimum number of cases cannot sample and should refer to Tables provided below to determine the minimum number of cases that need to be sampled for each measure category. While over-sampling is not required, hospitals may choose to submit additional cases to increase the precision of their measure rates.

2) **Sampling Approach**. 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.

The national manuals provide sampling approaches based on patients drawn from an all payer population (Medicare & non-Medicare) that will require adjustment for MassHealth P4P measures reporting.
Refer to the national manuals for detailed examples of how to apply the random or systematic sampling techniques described above.

C. MassHealth Sampling Instructions. The sampling methods selected to establish sample size requirements for the 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) **Sample Size 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 for that provider that meets the criteria for **'**MassHealth Initial Patient Population**'** for each measure as defined in Section 4.A above and throughout this manual. The minimum required sample size is based on the estimated volume of MassHealth discharges required for each measure.

   The MassHealth sample size requirements for the *nationally reported measures in Section 3.F of this manual,* differ from the sampling specifications published in NHIQM manuals because they are designed to meet MassHealth *discharge volume specifications* for a statistically valid sample. In particular, the SCIP and CAC sampling required by MassHealth are designed to produce aggregate rates and not intended to produce rates for several strata as required for national reporting.

2) **Dates of Service**. Hospitals must submit measures data for all discharge quarter reporting periods, specified in the Acute RFA and Section 1.C of this manual using the sample size requirements for each measure provided in tables below.

3) **All Medicaid Payer Sampling Method.** Sample size requirements should be modified to capture two distinct Medicaid payer population groups. Each population group will be sampled independently based on discharges for that group.

   The term 'MassHealth Initial Patient Population' will consist of all Medicaid payer code inclusions (in Table 2.2) to be collected as two distinct Medicaid payer source population data sets defined as follows.

   a. **MassHealth FFS/PCC Plan Payer Source**: includes member populations, enrolled in Primary Care Clinician Plan (PCCP) and in fee-for-service (FFS) insurance programs, where hospital services are covered under Acute Hospital RFA contract payment arrangements.

   b. **All Other Medicaid Payer Source:** includes member populations, enrolled in one *of the* MassHealth Managed Care Plans and other MassHealth insurance programs, where hospital services are covered under capitated payment arrangements.

   Sampling for nationally reported measures *in Section 3.F of this manual that are required* by MassHealth, must also be conducted independently for the two Medicaid payer population groups using methods outlined above. These data files must include payer codes in the MassHealth Crosswalk File per instructions in this EOHHS Manual

4) **All Medicaid Payer Sampling Steps.** The order of data flow must be modified when selecting cases for the two distinct Medicaid payer source groups as follows:

   - **Step 1.** Identify the '*MassHealth Initial ICD Population'* for each measure based on the data specifications and dates of service.

   - **Step 2**. Identify and include cases with the appropriate payer source codes and stratify into two (2) Medicaid payer groups as defined above.

   - **Step 3.** Identify sample size required for each Medicaid payer group independently using sampling tables provided below.

   - **Step 4**. *Select and apply the random* sampling approach (in Section 4.B) for each payer group to identify charts.

   - **Step 5**. Begin medical chart abstraction of specified measure on cases selected.

   The above method begins with all Medicaid payer population set and then extracts the initial ICD measure population and stratifies data into two (2) distinct Medicaid payer source groups. The steps outlined above can be followed to identify cases for all measures being submitted.

D. Sampling Options. Hospitals have the option of sampling either quarterly (option A) or monthly (option B) for each measure. Hospitals that choose to sample must select and utilize only one option ***consistently*** (either quarterly or monthly for sampling), within a calendar year quarter submission cycle. 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 must use the minimum required sample sizes specified in Table 4.1 below.

Table 4.1 QUARTERLY Sample Size Requirement for Each Measure

Number of MassHealth Discharges **Per QUARTER** (ICD Patient Population Size)	**MassHealth FFS/ PCCP Payer Source**	**All Other Medicaid Payer Source**
	Minimum Required Sample Size "n"	Minimum Required Sample Size "n"
1-29	No sampling; 100% of ICD Population is required	No sampling; 100% of ICD Population is required
30-59	30	30
60-99	46	46
100-129	54	54
130-159	60	60
> 159	65	65

Table 4.1 displays the minimum sample sizes (n) required on each quality measure, listed under Table 2.1 of this EHS Manual, for the quarterly sampling option that is consolidated into one table. The quarterly sample size requirements are identified for the two Medicaid payer source groups. Hospitals must ensure that the cases selected represent the combined sample size amounts for both Medicaid payer population groups on each measure listed in Section 2.A of this manual.

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

Table 4.2 MONTHLY Sample Size Requirement for Each Measure

Number of MassHealth Discharges **Per MONTH** (ICD Patient Population Size)	**MassHealth FFS/ PCCP Payer Source**	**All Other Medicaid Payer Source**
	Minimum Required Sample Size "n"	Minimum Required Sample Size "n"
1-10	No sampling; 100% of ICD Population is required	No sampling; 100% of ICD Population is required
11-20	11	11
21-33	16	16
34-43	18	18
44-53	20	20
> 54	22	22

Table 4.2 displays the minimum sample sizes (n) required on each quality measure, listed under Table 2.1 of this EHS Manual, for the monthly sampling option that is consolidated into one table. The monthly sample size requirements are identified for the two Medicaid payer source groups. Hospitals must ensure that the cases selected represent the combined sample size amounts for both Medicaid payer population groups on each measure listed in Section 2.A of this manual.

The term "no sampling" used in the above tables means that sampling does not apply when discharge volume per quarter or per month falls in the ranges shown. A hospital may choose to submit a larger sample size than is required in the above tables. Hospitals whose MassHealth Initial Patient Population size is less than the minimum number of cases per quarter or month for the measure ***cannot*** use a sampling option. Instead the entire ICD patient population size is required to be sampled and must be submitted in the electronic data files. Hospitals must use the sample size requirement tables provided above to determine the minimum number of cases that need to be sampled for each measure population.

Example on How to Sample Cases. The following examples illustrate how to identify and independently sample cases from both Medicaid payer source groups using the sampling steps and sample size tables described above.

Example #1 (Hospital A): Sampling of Maternity Measure	Example # 2 (Hospital B): Sampling of Care Coordination Measure
Hospital A identifies 32 cases for the MassHealth FFS/PCCP payer source and 8 cases for All Other Medicaid payer source group in their MAT-1 initial ICD patient population. Following the quarterly sampling size requirements in Table 4.1 under maternity measures row header shows Hospital A would be required to submit: n=30 cases for the MassHealth FFS/PCCP *plus* n=8 cases from the All Other Medicaid payer group (which is 100% of ICD population).	Hospital B identifies 200 MassHealth FFS/PCCP cases and 60 cases for All Other Medicaid groups in their CCM-2 initial ICD patient population. Following the quarterly sampling Table 4.1, under care coordination measures row header shows Hospital B would be required to submit: n=65 cases for the MassHealth FFS/PCCP plus n=46 cases for the All Other Medicaid payer group

E. Medicaid ICD Patient Population Data

Hospitals are required to submit information on the MassHealth ICD Patient Population and sample count data. MassHealth ICD Patient 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 above.

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

- ***ICD-9 Population Size -*** refers to count of patient population with all relevant ICD-9-CM diagnosis and procedure codes included in the measure as defined in Section 4 above.

- ***MassHealth FFS & PCCP Payer Population Size -*** refers to count of patient population with all relevant ICD-9-CM diagnosis or procedure codes included in the measure that have *Medicaid fee-for service* payer codes (103, 104) as defined *in Section 2.C.* of this manual.

- ***All Other Medicaid Payer Population Size -*** refers to count of patient population with all relevant ICD diagnosis or procedure codes included in the measure that have *Medicaid managed care capitation* payer codes as defined in *Section 2.C* of this 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 Data Entry Form Requirements

- The ICD population 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 discharges for a given measure, during a particular quarter, set must enter zero (0) onto the form to meet quarterly 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 using the appropriate versions of XML schemas provided in this manual.

A. *Medicaid Payer* Data File Contents. Each measure must be submitted in separate electronic data files using instructions provided below.

1. **XML File Formats.** *The following XML file layouts apply to MassHealth measures data reporting:*

   a) **MassHealth *Specific Measures* File (Appendix A-6).** *This XML file is required for the maternity (MAT) and care coordination measure (CCM) sets*. The file must include all measures data the hospital is eligible to report on for the required discharge data period stated *below*. 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 (Appendix A-7).** This XML file is required for the *nationally reported measures (listed in Section 3.F)* 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 (Appendix A-8).** *See Section 5.A.4 below for detail on this XML file.*

2. **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:

   a) **XML Schemas (v 7.0)** - *Use this version of MassHealth Specific Measures XML schema for reporting MAT and CCM data files for Q1-2014 to Q4-2014 (0/1/01/14- 12/31/14). Use this version of MassHealth Identifier Crosswalk XML schema when reporting the CY2014 PN, SCIP, CAC, ED measures data files.*

   b) ***XML Schemas (v 8.0)*** *– Use this version of MassHealth Specific Measures XML schema for reporting MAT and CCM data files as of Q1-2015 (01/01/15). Use this version of MassHealth Identifier Crosswalk XML schema when reporting the SCIP, CAC, ED and TOB data files as of Q1-2015.*

   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.

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 Submission Contents

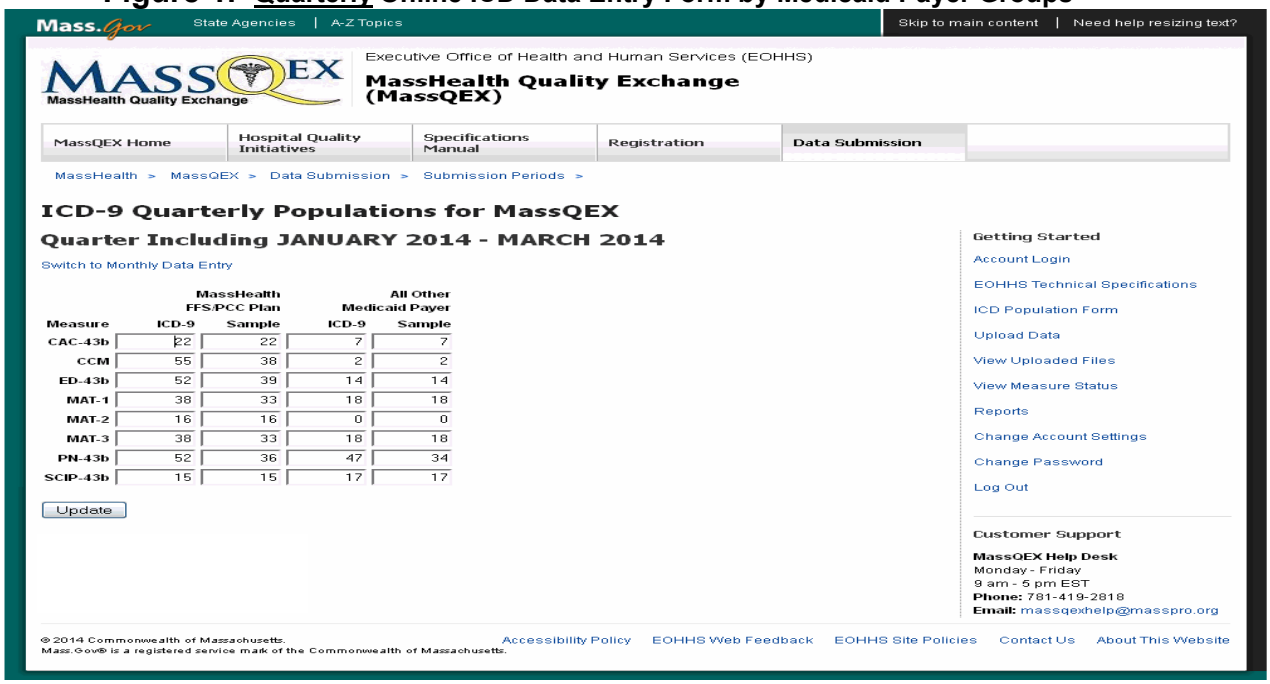
	Quality Measures	MassHealth *Specific Measures File*	MassHealth Identifier Crosswalk File	MassQEX ICD Data Entry Form
MassHealth Specific Measures	**MAT-1**	YES	NO	YES
	MAT-2a, 2b	YES	NO	YES
	MAT-3	YES	NO	YES
	MAT-4	*YES*	*NO*	*YES*
	CCM-1, 2,3	YES	NO	YES
Nationally Reported Measures	**PN-6 (*Retire Q1-2015*)**	NO	YES	YES
	CAC -1a, 2a, 3	NO	YES	YES
	SCIP-1a, 2a, 3a	NO	YES	YES
	ED-1, 2	NO	YES	YES
	TOB-1,2,3 (As of Q1-2015)	*NO*	*YES*	*YES*

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 guidelines apply to data file deletions:
   a) The purpose of the delete request feature is to remove previously submitted clinical data.
   b) To remove data files you must use the XML Schema MassHealth Deletion Request File (Appendix A-8) in this 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.
   c) 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.
   d) 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.
   e) 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-9 Population Data Entry Form.** Hospitals are required to submit aggregate ICD population data that accompanies the measures data files.
   a) 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.
   b) *Hospitals are required to enter aggregate ICD population data by Medicaid payer groups*. This data must include the total counts related to each quarterly submission cycle due for the measures being reported in the electronic data files, as defined in Section 4 of this manual.
   c) 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.

Effective with Q1-2014 submissions, the MassQEX portal will provide the option to enter ICD data for quarterly or monthly samples. As shown in Figure 1, the *quarterly* form has separate data entry fields for ICD counts and sample sizes on each measure category for the two Medicaid payer source groups.

Figure 1. Quarterly Online ICD Data Entry Form by Medicaid Payer Groups

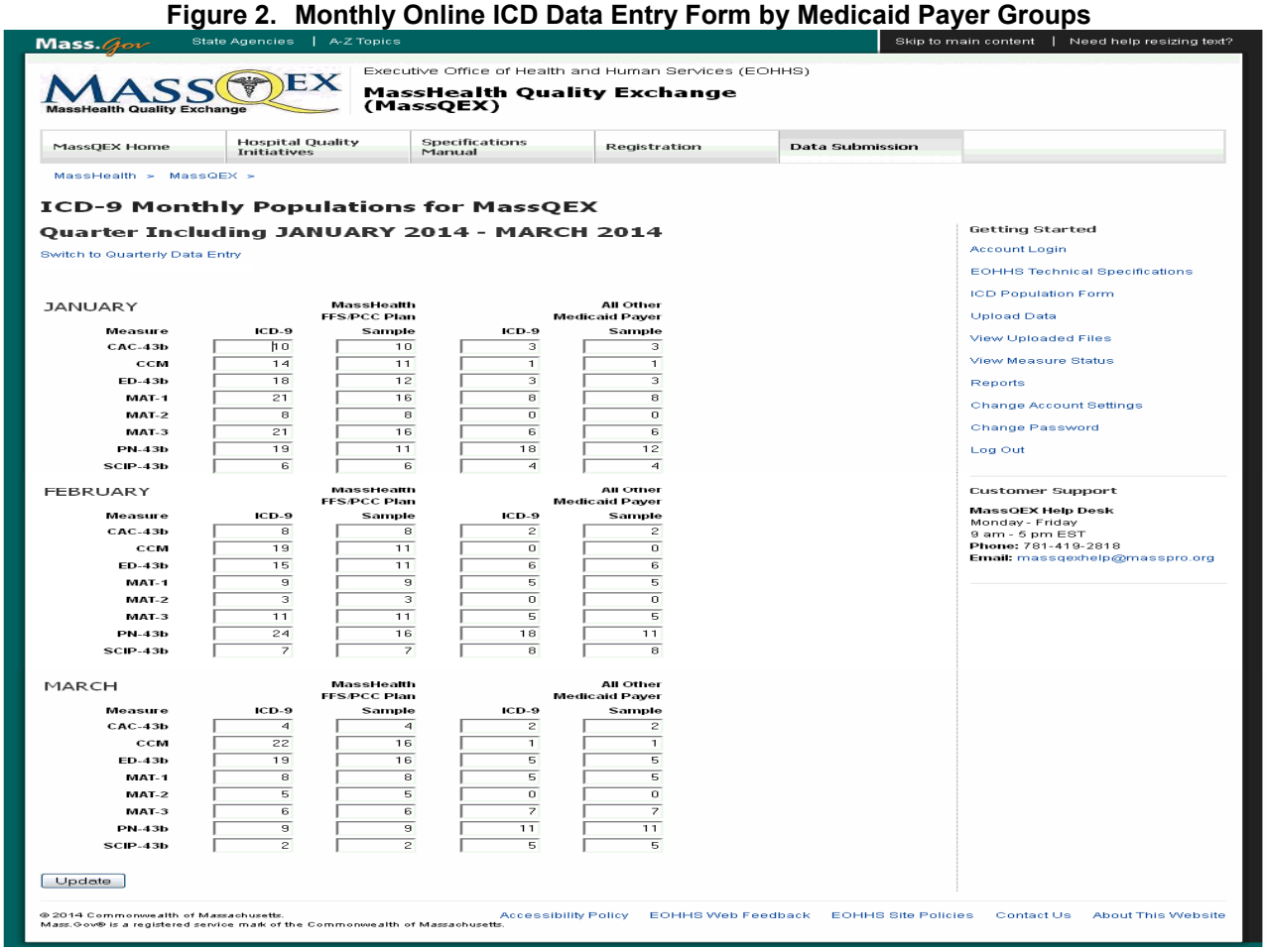


Measure	MassHealth FFS/PCC Plan ICD-9	MassHealth FFS/PCC Plan Sample	All Other Medicaid Payer ICD-9	All Other Medicaid Payer Sample
CAC-43b	22	22	7	7
CCM	55	38	2	2
ED-43b	52	39	14	14
MAT-1	38	33	18	18
MAT-2	16	16	0	0
MAT-3	38	33	18	18
PN-43b	52	36	47	34
SCIP-43b	15	15	17	17

Figure 1 illustrates a form that is properly filled out, including zero (0) entries, where applicable, to be in compliance with data requirements. The on-line ICD data information should be submitted within fifteen (15) days prior to the close of each Acute Hospital RFA submission deadline and can be edited or updated up until the final submission due dates.

Figure 2 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 Online ICD Data Entry Form by Medicaid Payer Groups



6. **Submission Cycle Deadlines**. All data file uploads plus on-line ICD data entry must be completed by the close of business day (5 pm EST) of published submission deadlines. 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.

B. Portal User Accounts. EOHHS has designated the MassHealth Quality Exchange (MassQEX) as the secure web portal for submitting all required electronic data files and information as outlined in **Section 5** in this manual. The MassQEX website portal URL address is: http://www.mass.gov/masshealth/massqex. This portal is the only approved method to securely transmit data files between the Hospitals and the EOHHS Contractor.

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

1. **Registration Process.** The EOHHS Contractor will set up and configure all MassQEX user accounts. Below are steps to register a new user.

   a) **User Accounts.** All Hospitals must set up user accounts to access the secure web portal. 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.

b) **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.

c) **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.

d) **Submitting Registration Forms.** Originals of the completed registration forms must be mailed to the EOHHS contractor for the account to be activated. Hospitals and third party vendor organizations are responsible for updating their registered user accounts information whenever staff changes occur.

e) **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.

C. 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) The System Requirements are:
- Minimum of 330 MHZ processor or better with a minimum of 125MB free disk space
- Windows *7* or higher
- 256 MB of RAM or higher
- High speed internet connect of 128 kbps or higher
- Internet Explorer *8*
- Browser security level of Medium or lower
- Adequate operating system rights to allow provider sites to properly install programs and modify/edit registry entries
- Pop-ups allowed for URL http://massqex.ehs.state.ma.us/massqex
- Java Runtime Environment (JRE) version *1.7.0_45* or higher. Available for download from http://www.oracle.com/technetwork/java/index.html

2) **System Test**. Users can test their system's readiness by going to the MassQEX website at http://massqex.ehs.state.ma.us/massqex and conducting a System Test. The test will scan the system for the following information:
- JavaScript enabled browser
- Java enabled browser
- Applet enabled browser
- Java version *1.7.0_45* or higher
- Java Security Policy Files

If a system does not pass one of the scans, the user will receive instructions as to what corrective actions are needed. When a successful test has been conducted, the user will receive notification that the portal is ready to be used.

3) **Test Data.** 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 the portal 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.

4) **Production Data.** 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.

5) **Portal Environment Specifications**. The portal environment is periodically programmed in between submission cycles, to prepare for and support the changes in transmittal of revised technical specifications, for all quality measures listed in Section 2 (Table 2.1), that go into effect with each quarter reporting cycle periods listed in Section 1.C of this manual.

D. 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 f*or 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: 06/27/2014 01:06 PM **(User, Test)**
Provider: MassQEX
Uploader: Masspro

FILE NAME	PROVIDER	MEASURE	DATE	PROCESSED	STATUS
SCIP-1-4_3b-15Q1-028-XXX-Buc-Anti-Tim-I-GT-1440-PRINPX-46_76-5_03-YES-ORALANTI-Missing.xml	MassQEX	SCIP-43b (01/01/2014-12/31/2014)	06/27/2014 01:06 PM	Yes	ERROR
ERRORS/WARNINGS: 1 [ERROR] unable to find XML element ORALANTIBIOTIC Using measure SCIP-43b-INF-1a Going to bucket SCIP-INF-1aX					
SCIP-1-4_3b-15Q1-028-DEE-Buc-Anti-Tim-I-GT-1440-PRINPX-46_76-5_03-YES-ORALANTI-Y-D-Bucket-Later-INF-1.xml	MassQEX	SCIP-43b (01/01/2014-12/31/2014)	06/27/2014 01:06 PM	Yes	WARNINGS
WARNINGS 1 Antibiotic Timing I < 0 minutes or > 60 minutes for all antibiotic doses and Antibiotic Name is Not in Table 3.8 or Table 3.10 for any dose is invalid. Going to Bucket SCIP-INF-1aD using measure SCIP-43b (INF-1a)					
SCIP-1-4_3b-15Q1-027-EEE-Bucket-Anti-Tim-I-GT-1440-PRINPX-48_65-In-T-5_03-ORALANTI-Y-D-Bucket-Later-INF-1.xml	MassQEX	SCIP-43b (01/01/2014-12/31/2014)	06/27/2014 01:06 PM	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 two types of reports that display an aggregate summary of measure and ICD-9 population counts that are described below.

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 Portal Measure Counts Report

MassHealth Quality Exchange

MassHealth Quality Exchange (MassQEX)
Measure Counts
Medicaid Provider 12345ZYXWV MassQEX

CALENDAR YEAR	QUARTER	MEASURE	OVERALL POPULATION	NUMERATOR	DENOMINATOR	EXCLUDED
2014	1	CAC 1a	1	1	1	0
		CAC 2a	1	1	1	0
		CAC 3	1	1	1	0
		CCM 1	2	2	2	0
		CCM 2	2	2	2	0
		CCM 3	2	2	2	0
		ED 1a	3	0	3	0
		ED 1b	3	0	0	3
		ED 1c	3	0	3	0
		ED 2a	3	0	3	0
		ED 2b	3	0	0	3
		ED 2c	3	0	3	0
		MAT 1	3	3	3	0
		MAT 2a	1	1	1	0
		MAT 2b	1	1	1	0
		MAT 3	1	1	1	0
		PN 6	1	1	1	0
		SCIP INF-1a	0	0	0	0
		SCIP INF-2a	0	0	0	0
		SCIP INF-3a	0	0	0	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.

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 two Medicaid payer population sets.

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-9 Population vs. Collapsed Upload Counts Report.** The portal user can also generate a report that aggregates and summarizes the information on the ICD-9 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

MassHealth Quality Exchange (MassQEX)
ICD-9 Population vs. Collapsed Upload Counts

Medicaid Provider 12345ZYXWV MassQEX

			MassHealth FFS/PCC Plan				All Other Medicaid Payer			
CALENDAR YEAR	QUARTER	MEASURE	ICD-9	SAMPLE	CASES UPLOADED	DIFFERENCE	ICD-9	SAMPLE	CASES UPLOADED	DIFFERENCE
2014	1	CAC-43b	22	22	0	22	7	7	0	7
		CCM	55	38	0	38	2	2	0	2
		ED-43b	52	39	0	39	14	14	0	14
		MAT-1	38	33	0	33	18	18	0	18
		MAT-2	16	16	0	16	0	0	0	0
		MAT-3	38	33	0	33	18	18	0	18
		PN-43b	52	36	0	36	47	34	0	34
		SCIP-43b	15	15	0	15	17	17	0	17

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.

The updated MassQEX 'ICD-9 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-9 – the hospital reported count case as defined in Section 4.D and 5.5 of this manual.
- Sample – the hospital reported count of cases sampled as defined in Section 4.D 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-9 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-9 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).

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 Customer Support Help Desk features include:

- **Help Desk Phone**: *The MassHealth Acute Hospital Program number (617) 847-6528 has been temporarily designated during EOHHS Contractor transition period (*voice messages are routed directly to staff)

- **Help Desk Email:** *The EOHHS mailbox at: MassHealthhospitalquality@state.ma.us has been temporarily designated during EOHHS Contractor transition period.*

- **Hours of Operation:** Support staff is available during business hours from 9 a.m. – 5 p.m. (Eastern Time) from Monday through Friday and will respond to any reported issue within one business day.

The EOHHS contractor uses a ticket tracking system to log all MassQEX user inquiries and issues. This system is used to manage and support internal workloads, enter contact demographics, generate email based reminders and notifications for users of the MassQEX system.

2) **MassQEX List-Serve.** The MassQEX web site provides 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.

F. Hospital Third-party Data Vendors. The EOHHS Acute Hospital 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.

The EOHHS manual contains instruction under Section 5 that requires collaboration among the hospital and their data vendors to successfully meet data submission requirements. In specific, Section 5.D provides a portal repository which generates various detailed reports to assist both hospitals and data vendors in 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-9 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.

G. 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) **Data Extension Request Form (MHDER Form_2015)**. The Hospital must use the "*MassHealth Hospital Quality Data Extension Request Form*" to submit their written request (see sample form below). A copy of the form can be obtained by sending an email to EOHHS business mailbox at: Masshealthhospitalquality@state.ma.us.

      The hospitals *written* request must provide details on nature of events and include supporting documentation, for EOHHS agency consideration. EOHHS will determine the final timeline for submitting

data based on the circumstances and documentation provided by the hospital.

(Revised **Sample Form - For illustration purposes only**)
RY2015 MassHealth Hospital Quality P4P Data Extension Request Form

Instructions: Hospitals can request a data extension to the Acute Hospital RFA2015 quality reporting deadlines when it experiences extraordinary or unusual circumstances as defined in this EOHHS manual.

I. General Information

Hospital Name		MH Provider ID:	
Street Address		City, State, Zip	
CEO Contact Information		Key Quality Contact Information	
Name		Name	
Email		Email	
Phone		Phone	
Fax		Fax	

II. Specify Type of Data Request.

Enter the specific Acute Hospital RFA submission due date affected:	
Enter portal submission quarter discharge data period affected:	
Enter validation quarter discharge data period affected:	

III. Reason for Request
A. Describe reason for request
B. Attach supporting documentation to support request.

I hereby attest, to the best of my ability, that the content of this request form contains accurate information.

Hospital CEO Signature: _____ Date: _____

MHQDER Form_2xxx_Mock template

Please note that above sample is for illustration purposes only. The original form contains more detailed instructions.

b) **Hospital Submission Instructions**. 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:

Kiki Feldmar
Executive Office of Health and Human Services
MassHealth Office of Providers and Plans
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. Data validation for the reported pneumonia (PN) and surgical care infection prevention (SCIP) measures sets were discontinued as of Q1-2013.

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**: • MAT-1 measure • MAT-2a & 2b measures • MAT-3 measure • *MAT-4 = Parity* • CAC measures • CCM measures • ED measures • *TOB measures*	• Admission Date • Admission Time • Birth date • Discharge Date (score for CCM3 only) • Discharge Disposition (*scored for 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) **Race/Ethnicity 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 contained in *Appendix A-9 table of contents of* the data dictionary of this EOHHS manual.

ii. **Nationally Reported Hospital Measures (*Section 3.F*):** 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.F 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.

EOHHS is transitioning to a new MassQEX Contractor during RY15 which will temporarily change the sending hospitals validation reports twice a year (Q1, Q2 and Q3,Q4) In RY15, only one validation report will be issued to all hospitals. 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 validation 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 **"***Request for Re-evaluation of Data Validation Results Form"* and provide information on the data element mismatches including the rationale for the request to re-evaluate the chart abstraction results. An example of the form is provided at the end of this section.
b. The request must be sent to the EOHHS Contractor address and/or fax listed below and on the form as follows:

   EOHHS Contractor Name
   Attention: MassHealth Quality Exchange (MassQEX)
   Street Address
   Town, State, Zip code
   Fax Number: (xxx) -xxx-xxxx

c. An electronic copy of the form can be obtained by contacting the MassQEX Customer Support Help Desk *listed in Section 5 of this manual*

4) Final Results:

a. The Hospital will receive a written report on the final re-evaluation results indicating the following responses:
   1) Whether any of the validation results have been adjusted; and
   2) Whether the overall agreement score remains below the threshold requirements outlined in Section 6.C.1(a) above.
b. The final report will also provide details on data element mismatches that remain and educational comments to improve data reliability as appropriate.

5) **Example of Re-evaluation Request Form.** The following mock template illustrates an example of the types of information that will be required when submitting a request for re-evaluation.

Contact the MassQEX Customer Support Help Desk, listed in Section 5 of this EOHHS Manual if you have questions about how to complete the form.

Section 7. Health Disparities Measure Specifications

Background (*entire text is a new insert*)

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 *(entire text replaces previous version)*

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 all hospital reported 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 *(changes are shown in italic underline font)*

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.* ***The final BGV statistic will no longer be converted to align with the individual clinical quality measure rate directionality.***

The BGV statistic uses an interval scale, displayed in 6 decimal points, that ranges from zero to one (0 – 1). 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	Denominator
-----	Y	1	Hispanic	30	60
R3	N	2	Black/African Amer. (Non-Hispanic)	3	5
R5	N	3	White (Non-Hispanic)	80	100
R2	N	4	Asian (Non-Hispanic)	2	5
R1+R4+R9	N	5	Other (Non-Hispanic)	15	30
--------	-------	--------	**TOTALS**	**130**	**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+3+80+2+15=130
Reference group composite rate =130/200=65%

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 = 3/5 = 60%
(r_i) White, Non-Hispanic rate = 80/100 = 80%
(r_i) Asian, Non-Hispanic rate = 2/5 = 40%
(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:

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

$$\mathbf{BGV1}_{Hispanic} = \frac{60}{200}(0.5-0.65)^2 = \mathbf{0.006750}$$

$$\mathbf{BGV2}_{Black/African\ American,\ Non\text{-}Hispanic} = \frac{5}{200}(0.6-0.65)^2 = \mathbf{0.000063}$$

$$\mathbf{BGV3}_{White,\ Non\text{-}Hispanic} = \frac{100}{200}(0.8-0.65)^2 = \mathbf{0.011250}$$

$$\mathbf{BGV4}_{Asian,\ Non\text{-}Hispanic} = \frac{5}{200}(0.4-0.65)^2 = \mathbf{0.001563}$$

$$\mathbf{BGV5}_{Othe\ ,\ Non\text{-}Hispanic} = \frac{30}{200}(0.5-0.65)^2 = \mathbf{0.003375}$$

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 *(entire text replaces previous version)*

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	235	82	49	501	19	886
Denominator	694	321	122	1123	30	2307
Rate	34%	26%	40%	45%	50%	38%
Comparison BGV	0.000621	0.002301	0.000016	0.001876	0.000008	N/A
Final BGV	--	--	--	--	--	0.004822
Composite Metric ID	Hispanic	Black/AA	Asian	White	Other	**Total Missed Opportunities**
MAT1	7	1	2	1		11
MAT2a			1	2	1	4
MAT2b						
MAT3						
CAC1						
CAC2						
CAC3	6	1		2		9
PN-3b				1		1
PN6		1				1
SCIP1a			1	2		3
SCIP2a			1	2		3
SCIP3a				3		3
CCM1	5	1	1	5	1	13
CCM2	132	49	24	288	10	503
CCM3	85	29	19	195	7	335
TOTALS	**235**	**82**	**49**	**501**	**19**	**886**
Unknown Group	--	--	--	--	--	44

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.

Example A:

Table 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 (38%) thus a large BGV value (0.002301) that contributed to the final BGV (.004822).

The White group has a higher composite rate (45%) a larger denominator population size than the reference group thus also contributing to a fairly large BGV (.001876).

Another way of examining the data is to add the sum of all BGV for the Non-white racial minority groups (.002946) versus the White group (.001876) 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.

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 MAT-1 metric is N=7 in relation to the total MAT-1 missed opportunities (n=11). Thus the Hispanic group represents 64% of the missed opportunities for the MAT-1 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 maternity care for MAT-1 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.

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