

**Commonwealth of Massachusetts
Executive Office Health and Human Services**

**RY2019
EOHHS Technical Specifications Manual
for
MassHealth Acute Hospital Quality Measures
(Version 12.0)**



Published September 13, 2018

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Enhancements to Version 12.0

Effective with Acute RFA2019, the MassHealth Hospital P4P Program transitions to quality measures requirements that will rely on various types of data sources. As a result, EOHHS Manual (v 12.0) contains substantive changes in content and format.

The revisions that apply to each section are summarized in a checklist below. Information that changed from prior version is distinguished using *italic underlined font*. New section inserts do not use underlined italic font.

Section	Changes in Core Manual	Update	Clarify	New
	Table of Contents • Move enhancement to version 12.0	X		X
1	Introduction • Update purpose narrative; quality reporting cycles and data specifications • Insert new quality measures transition and measurement periods	X		X
2	MassQEX Data Collection Standards & Guidelines • Update Table 2.1; payer and race code instruction; data tools and completeness • Add new Medicaid ACO payer codes	X		X
3	MassHealth Quality Measure Specifications • Update NEWB1, MAT4, CCM descriptions and flowcharts • Insert HD2 Composite specs and calculation methods	X		X
4	Medicaid Sampling Specifications • Delete references to NHIQM under sampling instruction, clarify payer sampling	X	X	
5	MassQEX Data Transmittal Guidelines • Delete references to NHIQM portal maintenance and crosswalk identifier file; • Update Jpegs and XML file version content grid	X X		
6	MassQEX Data Validation Methods • Updated chart requirements; Table 6.1 delete data elements; clarify reports	X	X	
7	MassHealth PSI-90 Measure Specifications • Insert measure description, data collection and calculation methods, reports			X
8	National Healthcare-Associated Infection Measures • Insert measure description, data collection and calculation methods, reports			X
9	National Hospital Patient Experience Survey Measures • Insert measure description, data collection and calculation methods, reports			X
Changes in Appendix Tools				
A-1	Data Abstraction Tool NEWB1 -- removed and updated data elements	X		
A-2	Data Abstraction Tool MAT4 -- removed and updated data elements	X		
A-3	Data Abstraction Tool CCM1,2,3 -- removed and updated data elements	X		
A-4	XML Schema: MassHealth Specific Measures - removed and updated data elements	X		
A-5	XML Schema: Data Deletion Request			
A-6	MassHealth Data Dictionary -- removed data elements; updated abstraction notes	X		
A-7	MassHealth Specific Measure Calculation Rules -- removed data elements	X		
A-8	MassHealth PSI-90 Claims Extraction Rules			X

Table Notes:

The above checklist displays at-a-glance changes as marked by (X) under the following header labels

- Update (delete, correct, or modify text information in prior version shown in *underlined italic font*)
- Clarify (modification of text to make clearer)
- New (insert new information not published in prior version)
- Blank (no change made in prior version)

Section 1. Introduction to the Manual

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

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 all MassHealth hospital performance measures reporting and requirements.

This EOHHS manual content has been substantively revised and reorganized as follows

- Section 1: Summary of changes to program measurement and reporting requirements
- Section 2: *Data collection* standards and guidelines that apply to process measures reporting
- Section 3: MassHealth clinical process measures specifications
- Section 4: Sampling specifications that apply to the Medicaid patient population
- Section 5: Data transmittal guidelines, access to portal and customer support
- Section 6: Chart data validation procedures and scoring methods
- Section 7: (NEW) MassHealth PSI-90 measure specifications
- Section 8: (NEW) MassHealth collection of national healthcare-associated infection measures.
- Section 9: (NEW) MassHealth collection of national hospital patient experience survey measures.

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 developing hospital inpatient quality measures.

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.

The following resources are available for Hospital and their data vendors

1. **MassHealth Quality Exchange Website:** EOHHS provides information on the Mass.Gov website at: <http://www.mass.gov/masshealth/massqex> that contains technical resources for hospitals and data vendors involved with MassHealth quality reporting requirements.
2. **MassQEX Portal Homepage:** The EOHHS designates a Contractor that provides a secure portal for the exchange of quality measures data located on this website: <https://massqex-portal.telligen.com/massqex/>
3. **EOHHS Acute Hospital RFA Contract (P4P Section 7).** To download a copy:
 - Go to www.commbuys.com and press Enter. The COMMBUYS introductory screen appears.
 - On bottom click "Contract & Bid Search" link. The "COMMBUYS Advanced Search" screen appears.
 - In "Search" for box click the "Bids" link. A list of Search Fields appears.
 - In "Bid Description" type the Document #: **19LCEHSACUTEHOSPITAL** and Click "Find It" button.
 - In Results section (bottom of page), click link under Bid # and 'Solicitation screen' for the RFR appears.
 - In the "File Attachments" section, click link to the document you want to access.
 - From the 'File Download' pop-up menu, click 'Open' to view document or Save to your desktop.
4. **MassHealth Acute Hospital P4P Program:** For information contact:
Iris Garcia-Caban, PhD
MassHealth Office of Delivery System Operations
Phone: (617) 847-6528
Email: Masshealthhospitalquality@state.ma.us

B. MassHealth Quality Measures Transition

- 1) **Quality Measure Domains:** Effective with Acute RFA2019, the MassHealth Hospital P4P Program transitions to quality performance requirements that will use a combination of process and outcome measures classified under three quality domains as shown in Table below.

Table 1-1: MassHealth Hospital Quality Measures Transition

Quality Domains	Measure Name	EOHHS Manual Instruction
Clinical Process	Cesarean Birth (MAT-4)	Sections 2 to 6
	Exclusive breast milk feeding (NEWB-1)	
	Reconciled medication list received by patient at discharge (CCM-1)	Sections 2 to 6
	Transition record with data received by patient at discharge (CCM-2)	
	Timely transmittal of transition record at discharge (CCM-3)	
	Health Disparity Composite (HD-2)	Section 3
Safety Outcomes	Patient Safety and Adverse Events Composite (PSI-90)	New Section 7
	Healthcare Associated Infection Measures (HAIs)	New Section 8
Patient Experience Outcome	Hospital Patient Experience Survey (HCAHPS)	New Section 9

- 2) **Performance Evaluation Periods:** The performance measurement data periods that apply to the process and outcome measures on Table 1.1 are summarized below.

Table 1-2: RY19 Performance Measurement Periods

Metric ID	Previous Year Data Period	Comparison Year Data Period	RY2019 Performance Scoring
MAT-4	1/1/2017 – 12/31/2017	7/1/2018 – 12/31/2018	Attainment & Improvement
NEWB-1	1/1/2017 – 12/31/2017	7/1/2018 – 12/31/2018	Attainment & Improvement
CCM-1,2,3	1/1/2017 – 12/31/2017	7/1/2018 – 12/31/2018	Attainment & Improvement
HD-2	Not Applicable	7/1/2018 – 12/31/2018	Decile Rank
PSI-90	Not Applicable	Oct 1, 2013 – Sept. 30, 2015	Interquartile Range
HAI's	Not Applicable	Jan 1, 2015 – Dec 31, 2016	(Overall z-score)
HCAHPS	1/1/2016 – 12/31/2016	1/1/2017 – 12/31/2017	Attainment & Improvement

As noted in Table 1.2, in RY19, process and outcome measure evaluation periods apply as follows:

- a) **Clinical Process Measures:** The obstetrical/neonate (MAT-4, NEWB-1) and care coordination (CCM-1,2,3) measure categories will use the current calendar year reported comparison data period and previous calendar year reported data to compute attainment and improvement points. The HD-2 category will use the current calendar year reported comparison period for decile ranking.
- b) **Safety Outcome Measure:** The newly introduced safety outcome measure category is comprised of component 1 (PSI-90 z-score) and component 2 (HA z-score) that each use 24 months of data. Performance is evaluated by computing an overall safety z-score (from the combined PSI-90 and HAI z-scores) that is ranked across four quartile groups.
- c) **Patient Experience Measure:** The newly introduced HCAHPS measure category is evaluated using full calendar comparison year and previous year reported data periods to compute attainment and improvement points.

Please contact MassHealth at masshealthhospitalquality@state.ma.us if you have questions related to quality measure transitions and performance measurement periods

C. Changes to Quality Reporting Requirements

The RY19 changes to data submission timelines and reporting specifications are summarized below.

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

Table 1-3: Acute RFA 2019 Data Submission Cycles

Acute RFA Period	Submission Due Date	Quarter Reporting Cycle	Discharge Data Periods	EOHHS Manual Version
Rate Year 2019	<u>May 17, 2019*</u>	<u>Quarter 3-2018</u>	July 1, 2018 – Sept 30, 2018	Version 12.0
	<u>May 17, 2019*</u>	<u>Quarter 4-2018</u>	Oct 1, 2018 – Dec 31, 2018	Version 12.0
Rate Year 2020	Aug 16, 2019	Quarter 1-2019	Jan 1, 2019 – Mar 31, 2019	Version 12.0
	Nov 15, 2019	Quarter 2-2019	April 1, 2019 - June 30, 2019	Version TBD

- *During the RY2019 program transition, both Q3 and Q4-2018 data files are due May 17, 2019 reporting cycle (indicated by italic bold underline).*
- *The rolling reporting cycle for the next RY2020 calendar year data files begins as of Q1-2019 submission cycle. Note that RY2020 quarter submission due dates are subject to change.*

- 2) **Data Reporting Specifications.** Table below summarizes the description of changes and their effective data period refer to manual sections that contain more detail.

Table 1-4: Clinical Process Measure Data Specifications

Data Specification	Description of Change	Effective Data Period	EOHHS Manual (version 12.0)
Medicaid Payer Codes	<ul style="list-style-type: none"> New Medicaid ACO payer codes Remove old Medicaid MCO plan codes 	As of Q3-2018	Section 2.B
NEWB-1 measure	<ul style="list-style-type: none"> Removed data elements (ethnicity, hospital bill number, postal code, sample) 	As of Q3-2018	Section 3 Appendix A-1
MAT-4 measure	<ul style="list-style-type: none"> Removed data elements (ethnicity, hospital bill number, postal code, sample) Updated data element (gestational age) 	As of Q3-2018	Section 3 Appendix A-2 Appendix A-6
CCM measures	<ul style="list-style-type: none"> CCM-2 provisional scoring counter logic Removed data elements (ethnicity, hospital bill number, postal code, sample) CCM-3 Update data element (accept transmittal date via CHERT) 	As of Q3-2018	Section 3 Appendix A-3 Appendix A-6
All Chart Abstraction	<ul style="list-style-type: none"> Update abstraction notes for gestational age, discharge disposition, episode of care, Medicaid payer codes, 	As of Q3-2018	Appendix A-6
Chart Validation Requirement	<ul style="list-style-type: none"> RY19 Charts required for Q3,4 only Discontinue scoring or ethnicity and bill number data element 	Q3 and Q4-2018, As of Q3-2018	Section 6.A

- *Table 1.4 summarizes the data elements that have been removed and no longer required as of Q3-2018 discharge data reporting. Refer to the section and Appendix tools listed for more detail.*
- *In addition, several data elements were updated and highlighted in the data dictionary of this EOHHS Manual. Refer to Section 6 of this manual for other changes that apply to RY19 calendar year validation requirements.*

Section 2. MassQEX Data Collection Standards & Guidelines

This section outlines the data collection standards and guidelines for reporting on clinical process measures the hospital is eligible to report on based on patient population mix and service line.

A. MassHealth Clinical Process Measures. The specific measures are listed in table below.

Table 2-1: RY19 Quality Performance Measures (Subset)

Quality Domain	Metric ID #	Measure Name	EOHHS Manual Instruction
Clinical Process	MAT4	Cesarean Birth, NTSV	Sections 2 to 6 (and TJC Manual)
	NEWB1	Exclusive Breast milk feeding	
	CCM1	Reconciled medication list received by patient at discharge	Sections 2 to 6
	CCM2	Transition record with data received by patient at discharge	
	CCM3	Timely transmittal of transition record at discharge	
	HD2	Health Disparity Composite	Section 3

General Data Elements. 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, 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 instructions that apply for clinical process measures in Table 2.1 are contained in the following manuals:

- 1) **RY2019 EOHHS Technical Specifications Manual for Acute Hospital Quality Measures** (Version 12.0): This manual is the primary source of instruction for all MassHealth measures data element collection and reporting required under the Acute RFA. Hospitals must adhere to instructions in this manual to report on clinical process measures listed in Table 2.1:
- 2) ***Specifications Manual for the Joint Commission National Quality Core Measures (Version 2018A)***, plus related Release Notes and Appendix A: ICD-10 Code Tables for maternity and newborn measures posted on: <https://manual.jointcommission.org/Manual/WebHome> This document is noted as the “TJC Manual” in this EOHHS manual. Instructions in the TJC Manual should be used in conjunction with EOHHS Manual listed above.

Hospitals are responsible for accessing and adhering to instructions contained in the appropriate versions of EOHHS Manual that apply to Acute RFA rate year CY quarter periods noted in Table 1.3.

B. MassHealth Specific Data Elements

The Massachusetts state regulation (114.1CMR 17.00) requires hospitals to collect and report case mix discharge data annually to the Center for Health Information and Analysis (CHIA) Agency that includes Medicaid payer source and race/ethnicity data elements. To minimize burden EOHHS adapted the CHIA payer and race/ethnicity data code standards for MassHealth hospital quality measures reporting requirements.

- 1) **Medicaid Payer Source.** *Effective RY19, MassHealth delivery system reform efforts resulted in changes to Medicaid insurance plan arrangements that became effective as of **March 1, 2018**. As a result, the Medicaid payer codes that apply to quality measures reporting have changed.*
 - a) ***Included Medicaid Payer Codes:*** *represent members covered by MassHealth insurance plans where Medicaid is the primary or only payment source as listed in Table 2.2. Key changes include the new Medicaid Accountable Care Organization (ACO) payer codes plus two Managed Care Organization (MCO) Plans. The MassHealth PCC and fee-for-service plan codes remain unchanged*
 - b) **Excluded Medicaid Payer Codes:** represent members where Medicaid is **not** the primary payer, is the secondary or tertiary payer source as listed in Table 2.2. This includes those with dual eligible status (covered by Medicare and Medicaid), third party liability (covered by HMO &/or Commercial plan & Medicaid), and seniors over 65 years (covered by Medicaid or Medicare only).

Table 2.2 - Massachusetts CHIA Medicaid Payer Source Codes*

Data File Requirement	Description	Payer Code (as of 3/1/18)
INCLUDED MEDICAID PAYER CODES	Medicaid: Includes MassHealth Fee-for-service and MassHealth Limited Medicaid: Primary Care Clinician (PCC) Plan	103 104
	Medicaid Managed Care – Boston Medical Center HealthNet Plan	208
	Medicaid Managed Care – Tufts Health Together Plan	270, 274
	Medicaid Managed Care - Other (not listed elsewhere)	119
	Medicaid: Other ACO	311
	Medicaid: Fallon 365 Care (ACO)	312
	Medicaid: Be Healthy Partnership with Health New England (ACO)	313
	Medicaid: Berkshire Fallon Health Collaborative (ACO)	314
	Medicaid: BMC HealthNet Plan Community Alliance (ACO)	315
	Medicaid: BMC HealthNet Plan Mercy Alliance (ACO)	316
	Medicaid: BMC HealthNet Plan Signature Alliance (ACO)	317
	Medicaid: BMC HealthNet Plan Southcoast Alliance (ACO)	318
	Medicaid: Community Care Cooperative (ACO)	320
	Medicaid: Partners Healthcare Choice (ACO)	322
	Medicaid: Steward Health Choice (ACO)	323
	Medicaid: My Care Family with Neighborhood Health Plan (ACO)	321
	Medicaid: Tufts Health Together with Atrius Health (ACO)	324
	Medicaid: Tufts Health Together with BIDCO (ACO)	325
	Medicaid: Tufts Health Together with Boston Children's (ACO)	326
	Medicaid: Tufts Health Together with CHA (ACO)	327
	Medicaid: Wellforce Care Plan (ACO)	328
EXCLUDED MEDICAID PAYER CODES	Healthy Start (free care pool)	98
	Out of State Medicaid (Other Government)	120
	Other Government	144
	Children's Medical Security Plan (CMSP)	178
	MassHealth Senior Care Options	273
	One Care – Tufts Health Unify	280
	One Care – Commonwealth Care Alliance	281
	Health Safety Net	995
	Other: Commercial ACO Plan	310
	All Health Connector Care plus All Commonwealth Care Plans	*

*Source: FY18 Hospital Case Mix Data Specifications <http://www.chiamass.gov/hospital-data-specification-manuals>

2) Race/Ethnicity Data Elements

The Massachusetts state regulation (114.1CMR 17.00) also requires hospitals to collect and report case mix discharge data to CHIA that includes race/ethnicity data element. Effective RY19, for the purposes of health disparity measure category analysis, MassHealth will require collection of the Race and Hispanic Indicator data elements **only**.

- a) **Revised Data Elements.** Effective RY19, the Race and Hispanic Indicator codes and allowable values required for MassHealth clinical process measures data reporting are summarized below.

Table 2-3: Massachusetts CHIA Race/Ethnicity Data Elements

Race Category Code	Allowable Value
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
Hispanic Indicator Code	Allowable Value
YES	Patient is Hispanic/Latino/Spanish
NO	Patient is not Hispanic/Latino/Spanish

-
- b) **Data File Reporting Standard:** Effective RY19, at least one Race and the Hispanic Indicator must be reported per patient as part of the measure data files as follows:

- i. **Race Categories** – 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).

The CHIA race/ethnicity data elements are required to calculate the health disparity measure category assignment described in this EOHHS manual. Failure to adhere to race/ethnicity codes may affect the accuracy of calculating the health disparities measure category. Refer to the data dictionary in this EOHHS manual for specific data element definitions.

Detail on the CHIA race/ethnicity codes are contained in the Hospital Case Mix Data Specifications (2018) at: <http://www.chiamass.gov/hospital-data-specification-manuals>

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

C. 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 clinical process measures listed in Table 2.1.

- 1) **Data Abstraction Tools.** This manual includes several paper data abstraction tools to facilitate standardized collection and reporting of MassHealth specific 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 Layout Format.** This manual includes several XML schema file layouts 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 this EOHHS Manual. 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 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 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 data elements pertaining to the MassHealth specific measures, in Table 2.1, not published in CMS national hospital quality reporting manuals. The data dictionary should be used in conjunction with Section 3 in this EOHHS manual.
- 4) **Measure Calculation Rules.** This manual also includes calculation rules for MassHealth specific measures in Table 2.1 of this EOHHS manual. Details on calculation methods for the health disparities composite measure are further described in Section 3 of this manual.

The Appendix Tools in the EOHHS Manual (version 12.0) apply as of CY2018 Quarter 3 and Quarter 4 (July 1, 2018 – Dec 31, 2018) data reporting cycles..

Contact the MassQEX Help Desk at massqexhelp@atelligen.com if you have questions on versions of the collection and reporting tools that apply to quarter reporting requirements.

D. Data Completeness Requirements

Data completeness is defined as the submission of measures data that comply with all technical data collection and format instructions published in this EOHHS Manual. All Hospitals must meet data accuracy and completeness requirements to be eligible for calculating measure category assignments and incentive payments.

- 1) **Data Completeness Definition.** The following components must be met each 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, conforms to XML format and includes required MassHealth patient identifier data.
 - c. **On-line ICD Data Entry Form:** enter aggregate ICD population data that supplements the uploaded electronic data files being reported;
 - d. **Medical Records Data:** submit medical chart records for data validation purposes on the specific quarter reporting periods 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 1.C of this EOHHS manual. Failure to timely submit all data components listed above in the formats required by EOHHS will render the hospital not eligible for payments.
- 2) **Data Reliability Definition.** The data used to calculate a hospitals performance on each measure and measure 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.

- 3) **Data Completeness Attestation:** At the start of each rate year, all Hospitals are required to complete and submit the "MassHealth Hospital Data Accuracy and Completeness Attestation (DACA) Form" that includes a provision for hospitals to indicate measure exemption reporting for service lines that are not applicable to their facility (e.g.: no obstetrical wards or infants delivered). Failure to complete the measures exemption entry in the Hospital DACA Form at the start of each rate year may result in the hospital not meeting data completeness.

Section 3. MassHealth Clinical Process Measures Specifications

3A. Exclusive Breast Milk Feeding

(NEWB-1)

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

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

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

Type of measure: Process

Improvement noted as: Increase in the rate.

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

Included population: Not applicable

Data Elements:

- Exclusive Breast Milk Feeding

Denominator statement: Single term newborns discharged alive from the hospital

Included population:

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

Excluded populations:

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

Data Elements:

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

Risk adjustment: No.

Data collection approach: Retrospective data sources for required data elements include administrative data and medical records. Refer to NEWB-1 data abstraction collection tool in **Appendix A-1** and data dictionary **Appendix A-6** of this manual for detailed instructions.

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

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

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

Data reported as: Aggregate rate generated from count data reported as a proportion. Refer to the calculation rules in **Appendix A-7** of this manual that apply to this measure.

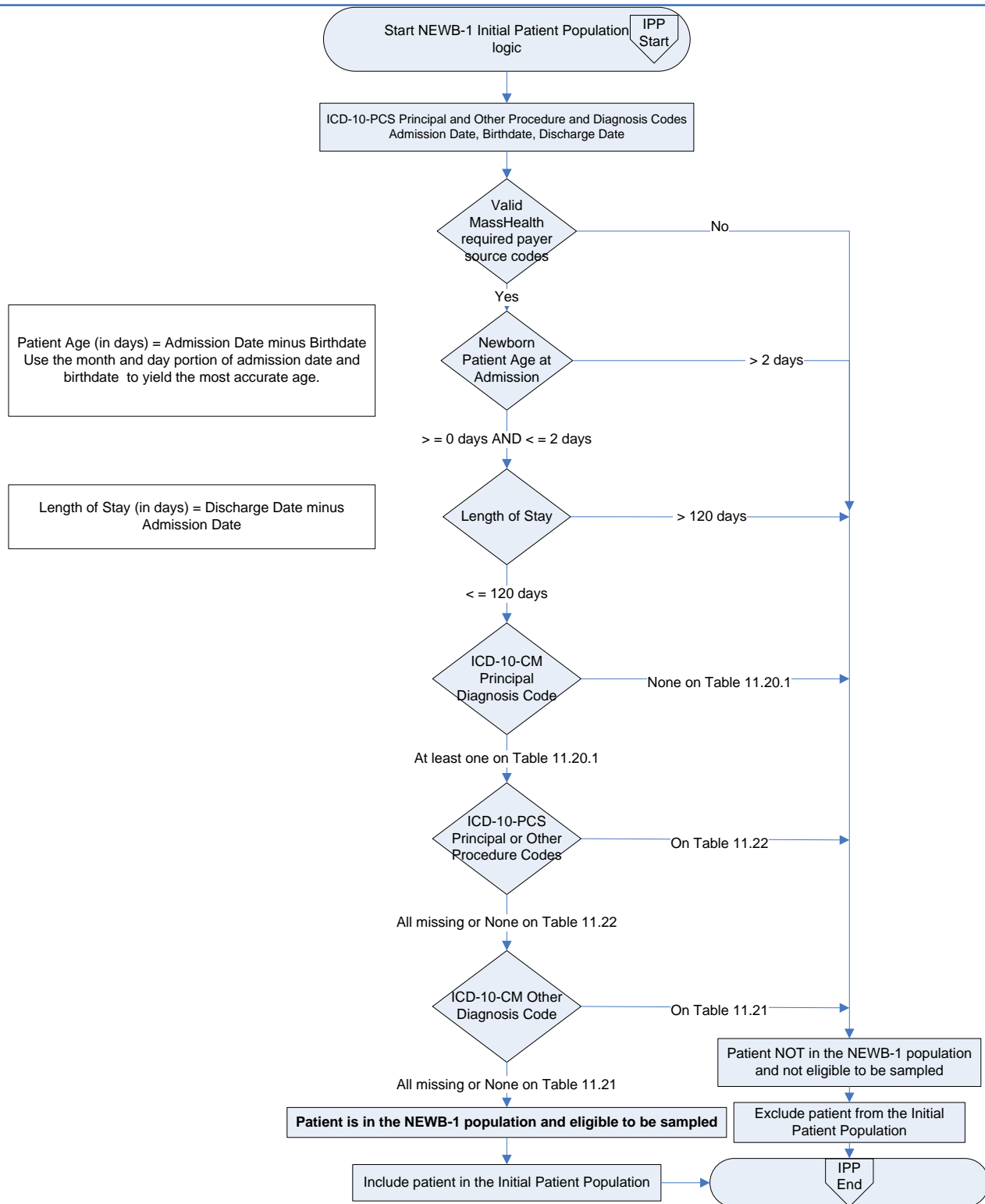
Selected References:

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ACKNOWLEDGEMENT: The MassHealth NEWB-1 measure attributes described above were adapted from the Specifications Manual for the Joint Commission National Quality Core Measures (version 2018A) in consultation with The Joint Commission. The ‘Specifications Manual for the Joint Commission National Quality Core Measures’ is periodically updated by The Joint Commission. Users of the ‘Specifications Manual for The Joint Commission National Core Measures’ must update their software and associated documentation based on The Joint Commission’s published manual production timelines.

Initial Patient Population Algorithm

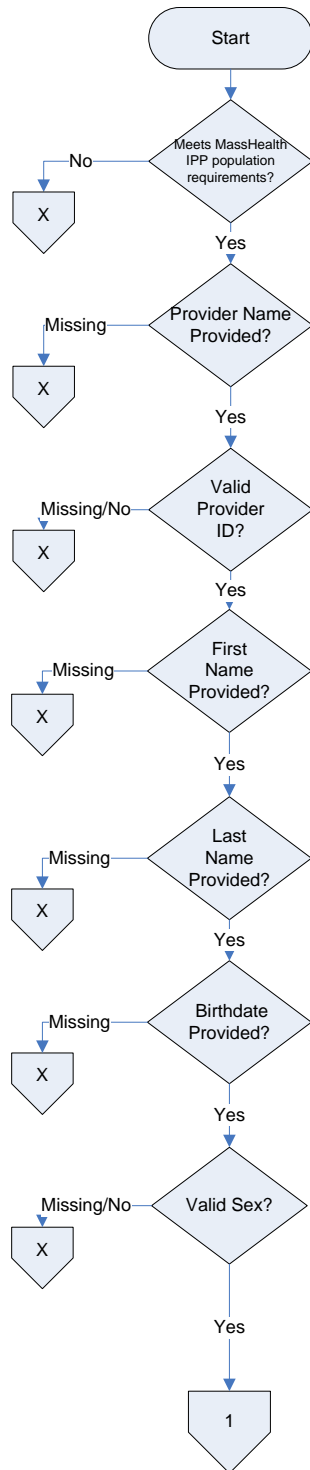
Exclusive Breast Milk Feeding (NEWB-1)



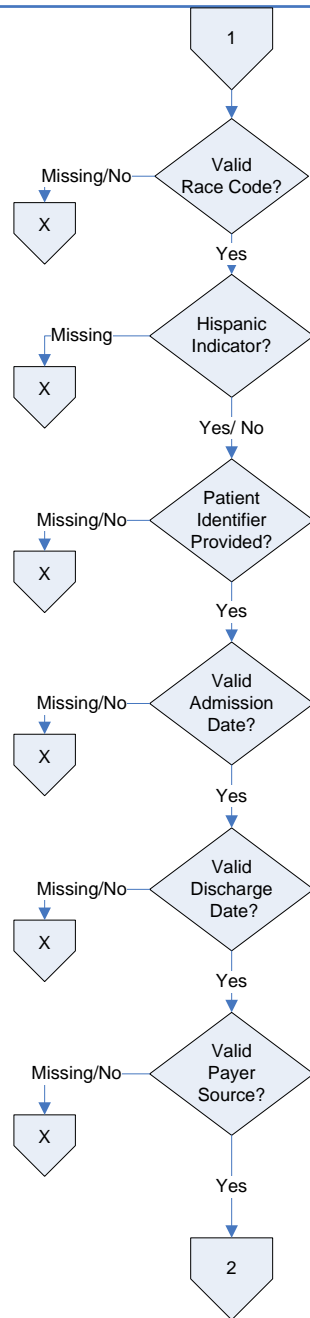
Exclusive Breast Milk Feeding (NEWB-1)

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

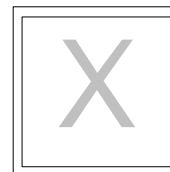
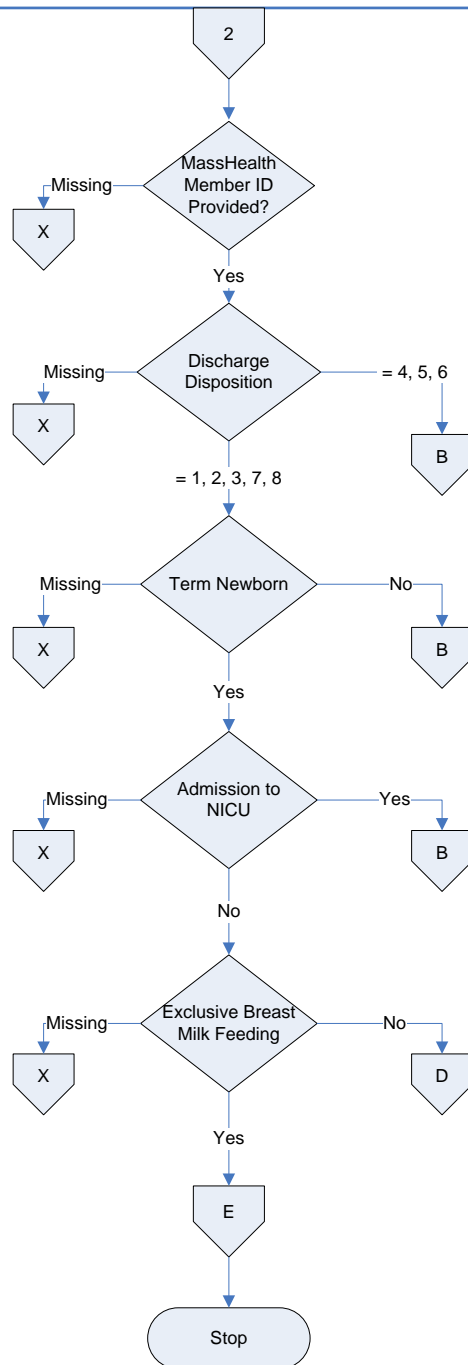
***Denominator:** Single term newborns discharged alive from the hospital



Exclusive Breast Milk Feeding (NEWB-1)



Exclusive Breast Milk Feeding (NEWB-1)



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



Review Ended
Not in Measure Population
Excluded from Numerator
and Denominator



Review Ended
In Measure Population
Excluded from Numerator
Included in Denominator



Review Ended
In Numerator Population
Included in Numerator and
Denominator

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

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

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

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

Type of measure: Outcome

Improvement noted as: Decrease in the rate.

Numerator statement: Patients with cesarean births

Included population: ICD-10-PCS Principal Procedure Code or ICD-10-PCS Other Procedure Codes for cesarean birth as defined in Appendix A, Table 11.06 of the Specifications Manual for Joint Commission National Core measures applicable version.

Excluded population: None

Data Elements:

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

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

Included population:

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

Excluded populations:

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

Data Elements:

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

Risk adjustment: No

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-2** and data dictionary **Appendix A-6** of this manual for detailed instructions.

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

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

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

Data reported as: Aggregate rate generated from count data reported as a proportion. Refer to the calculation rules in **Appendix A-7** of this manual that apply to this measure.

Selected References:

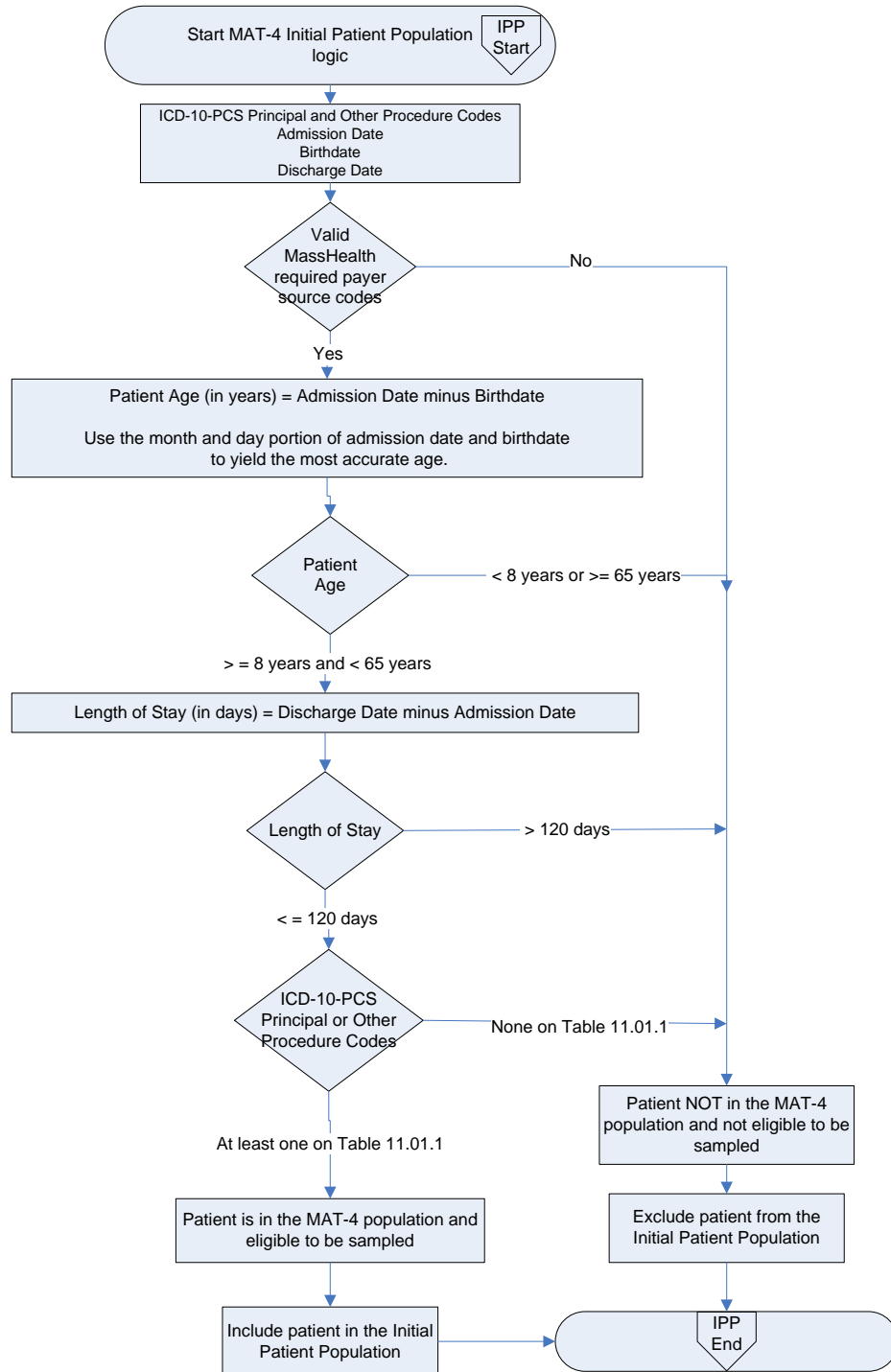
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ACKNOWLEDGEMENT: The MassHealth MAT-4 measure attributes described above were adapted from “Specifications Manual for the Joint Commission National Quality Core Measures (versions 2018A)” with permission and in consultation with The Joint Commission (TJC). This core manual 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

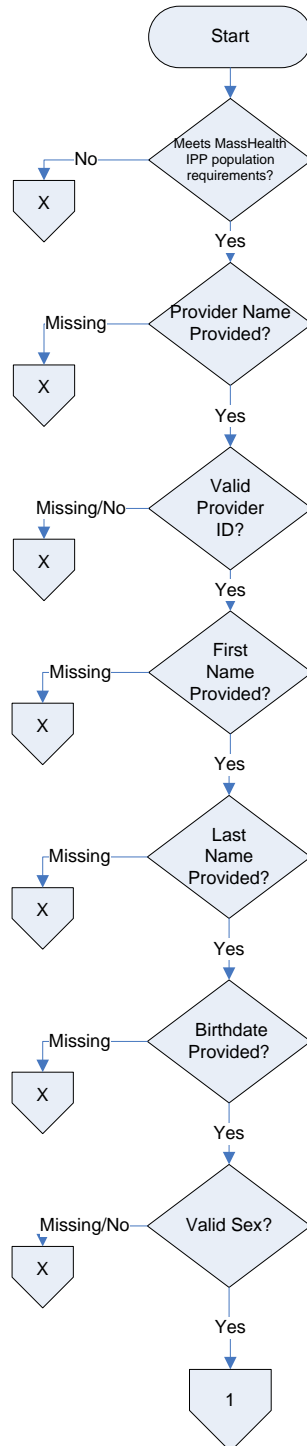
Cesarean Birth (MAT-4)



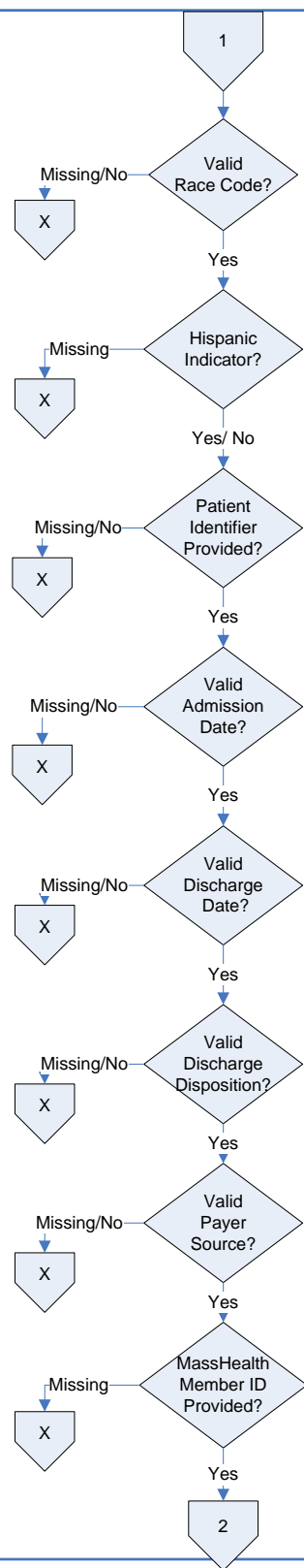
Cesarean Birth (MAT-4)

***Numerator:** Patients with cesarean births

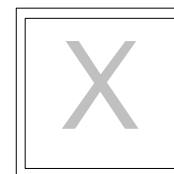
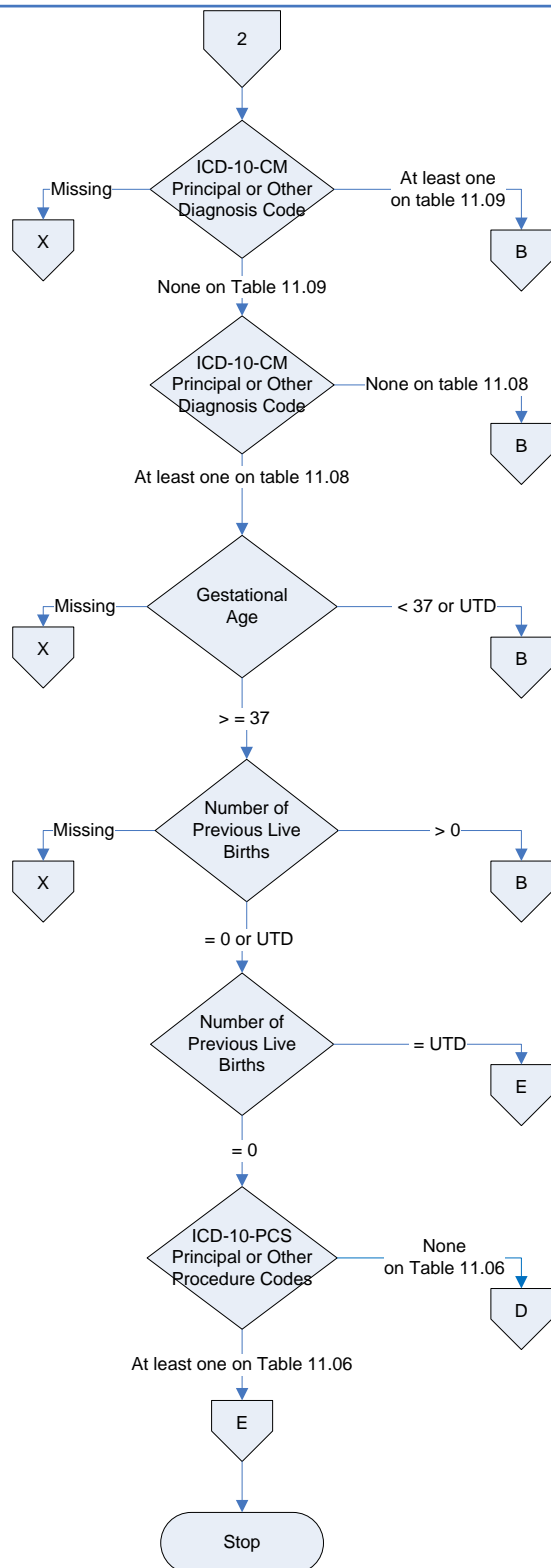
***Denominator:** Nulliparous patients delivered of a live term singleton newborn in vertex presentation



Cesarean Birth (MAT-4)



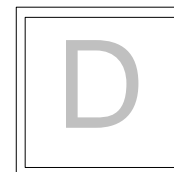
Cesarean Birth (MAT-4)



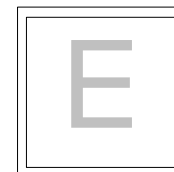
Review Ended
Not in Measure Population
Missing or Invalid Data
Case will be Rejected



Review Ended
Not in Measure Population
Excluded from Numerator
and Denominator



Review Ended
In Measure Population
Excluded from Numerator
Included in Denominator



Review Ended
In Numerator Population
Included in Numerator and
Denominator

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

3C. 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.

3C-1: Reconciled Medication List Received by Discharge Patient

(CCM-1)

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

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

Type of measure: Process

Improvement noted as: An increase in the rate.

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

Data Elements:

- Reconciled Medication List

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

Excluded population:

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

Measure Population Identification: See initial patient population algorithm.

Risk adjustment: No

Data collection approach: Retrospective data sources for required data elements include administrative and medical records. Refer to data abstraction tool in **Appendix A-3** and data dictionary in **Appendix A-6** of this manual for detailed instructions.

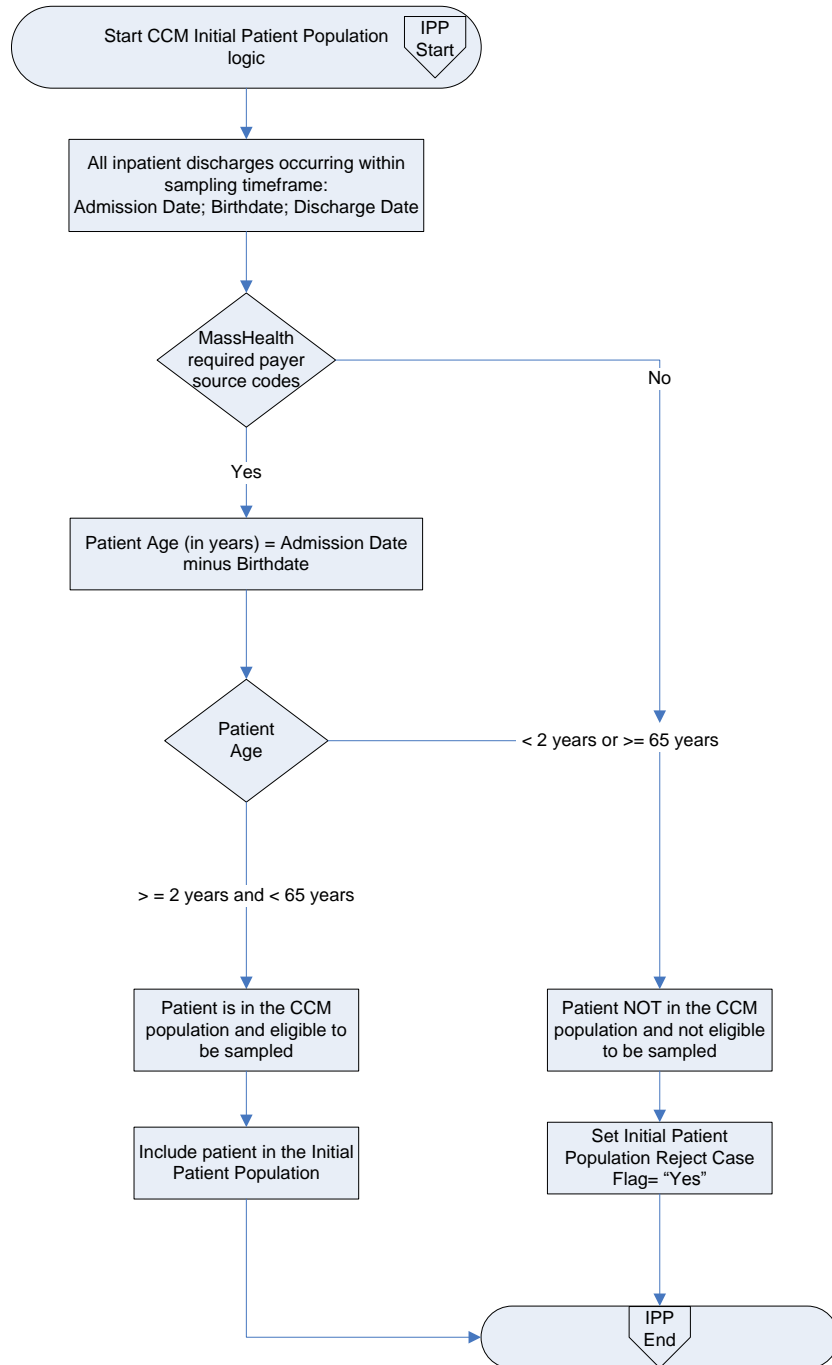
Data accuracy: Variation may exist in documentation provided at the time of transition and documentation of transmission time; therefore, medical record documentation processes may require evaluation.

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-7** for the calculation rules that apply to this measure.

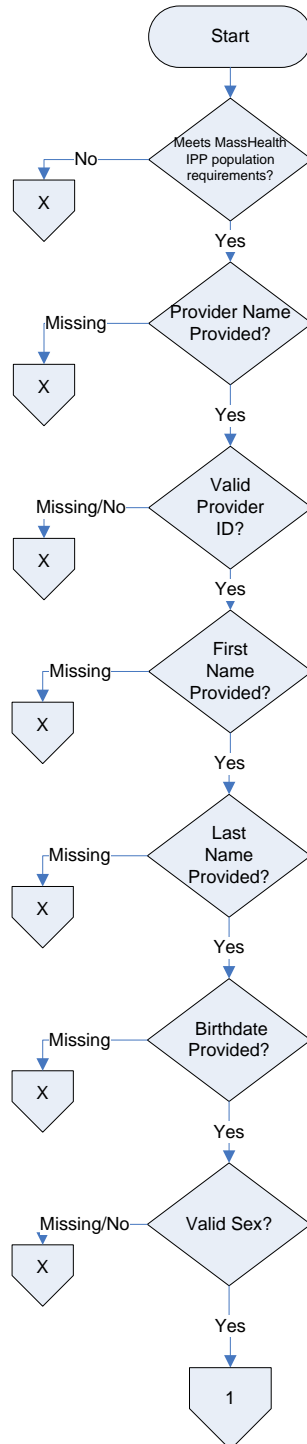
Initial Patient Population Algorithm Care Coordination Measure (CCM-1, 2, 3)



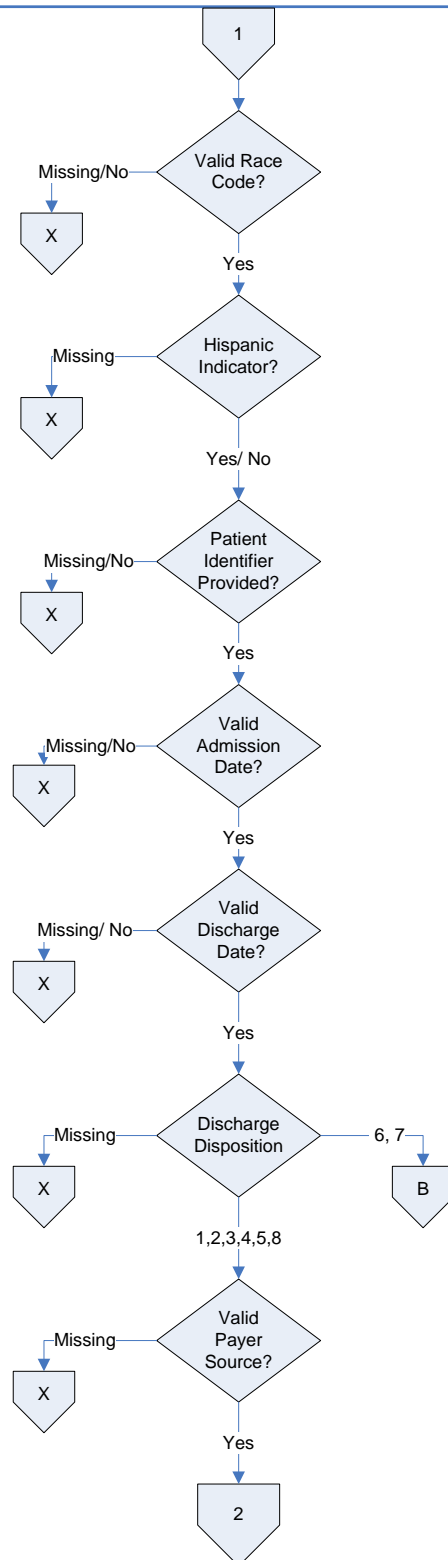
Care Coordination Measure (CCM-1)

***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.

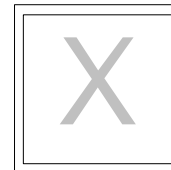
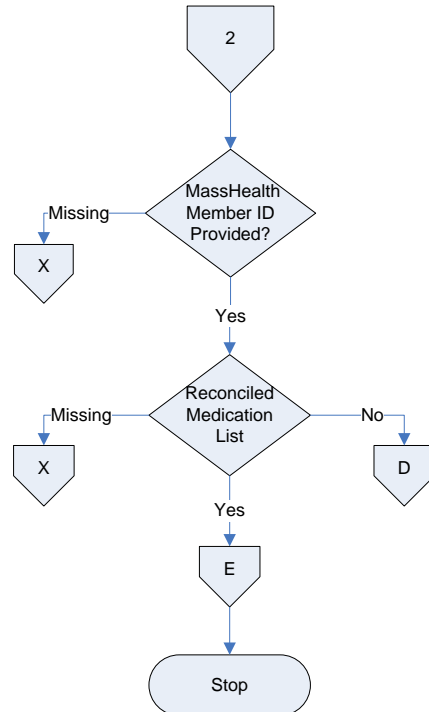
***Denominator:** Patients discharged from an inpatient facility to home/ self care or any other site of care.



Care Coordination Measure (CCM-1)



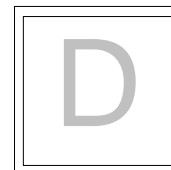
Care Coordination Measure (CCM-1)



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
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Included in Denominator



Measure Met
In Measure Population
Included in Numerator and
Denominator

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

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, six of the specified 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-3** and data dictionary in **Appendix A-6** of this manual for detailed instructions.

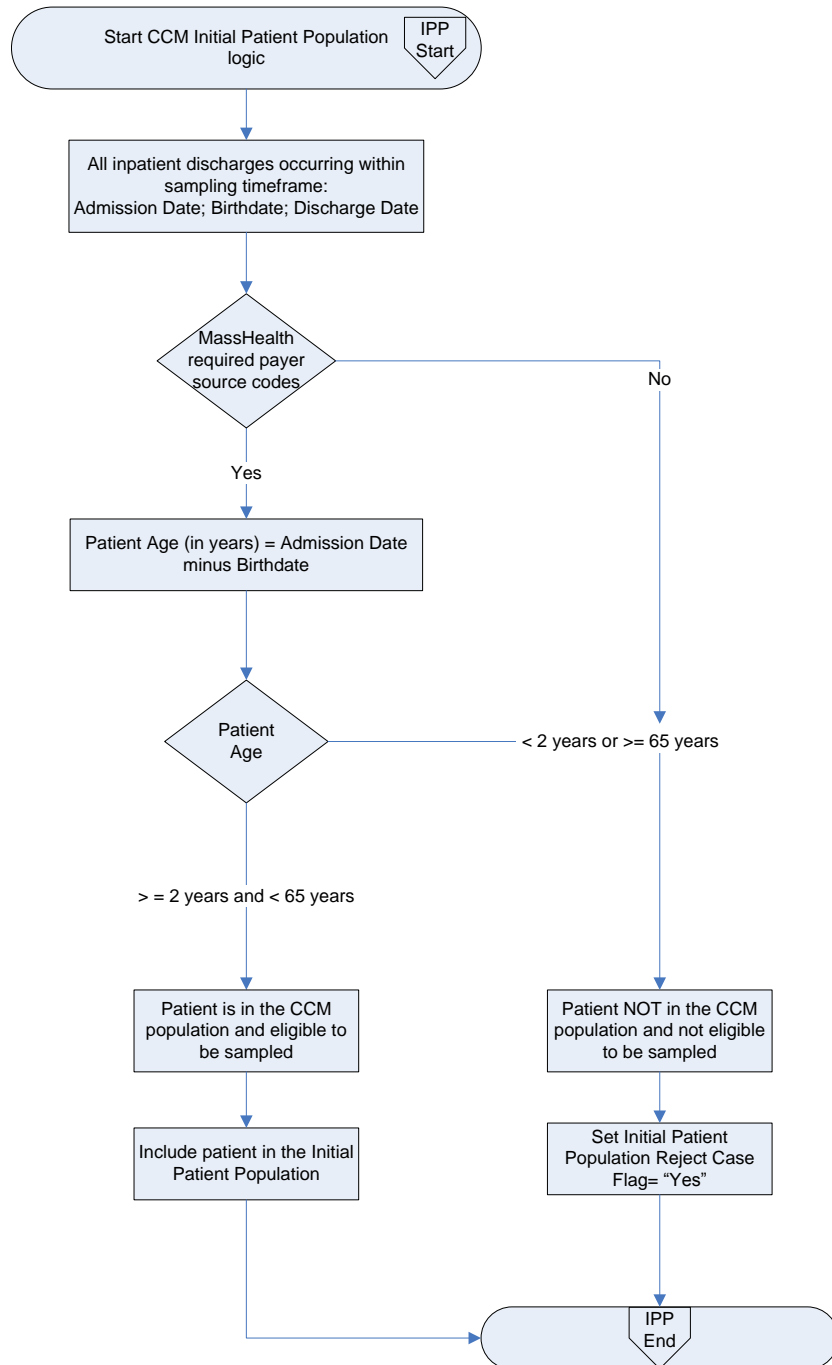
Data accuracy: Variation may exist in documentation provided at the time of transition and documentation of transmission time; therefore, medical record documentation processes may require evaluation.

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-7** for the calculation rules that apply to this measure.

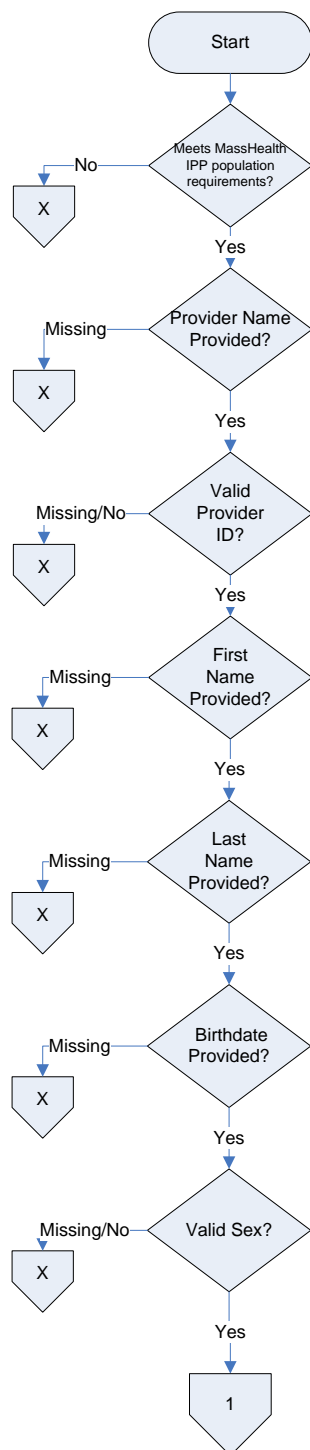
Initial Patient Population Algorithm Care Coordination Measure (CCM-1, 2, 3)



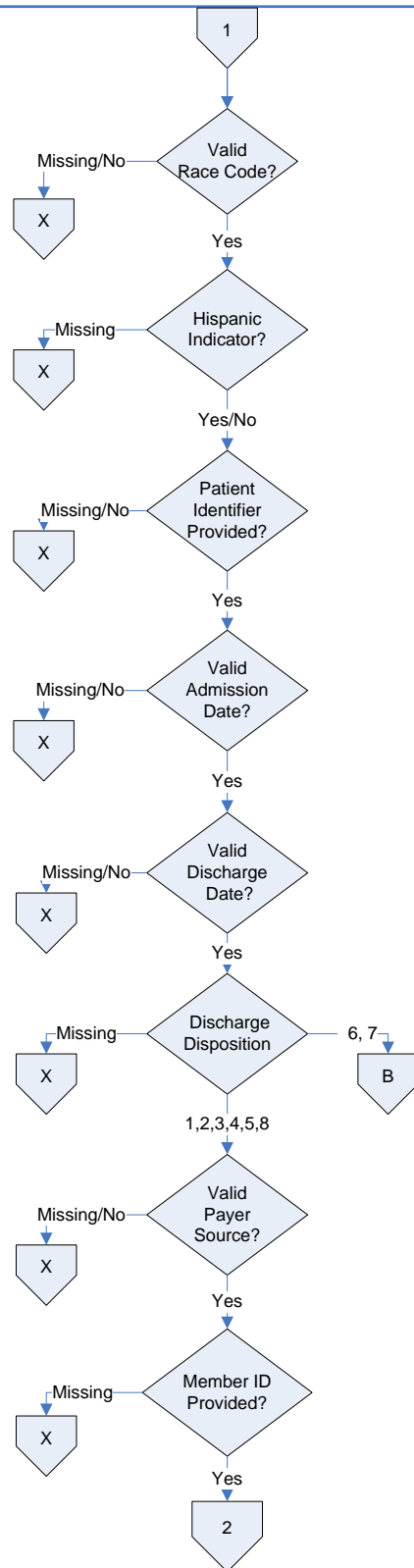
Care Coordination Measure (CCM-2)

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

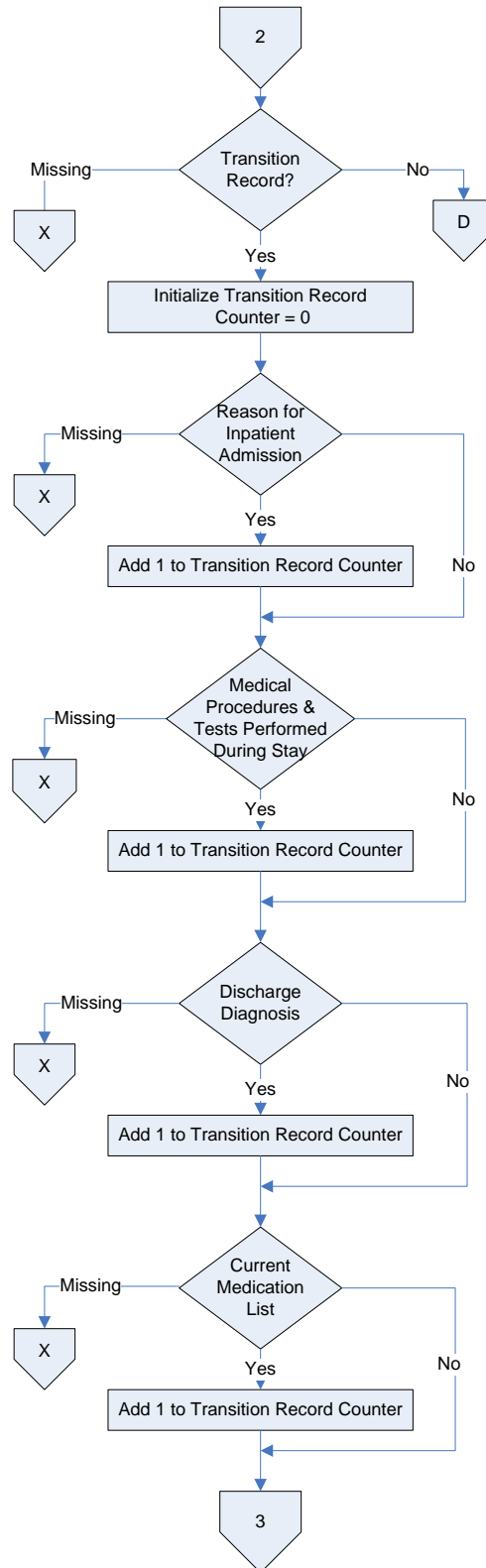
***Denominator:** Patients discharged from an inpatient facility to home/ self care or any other site of care.



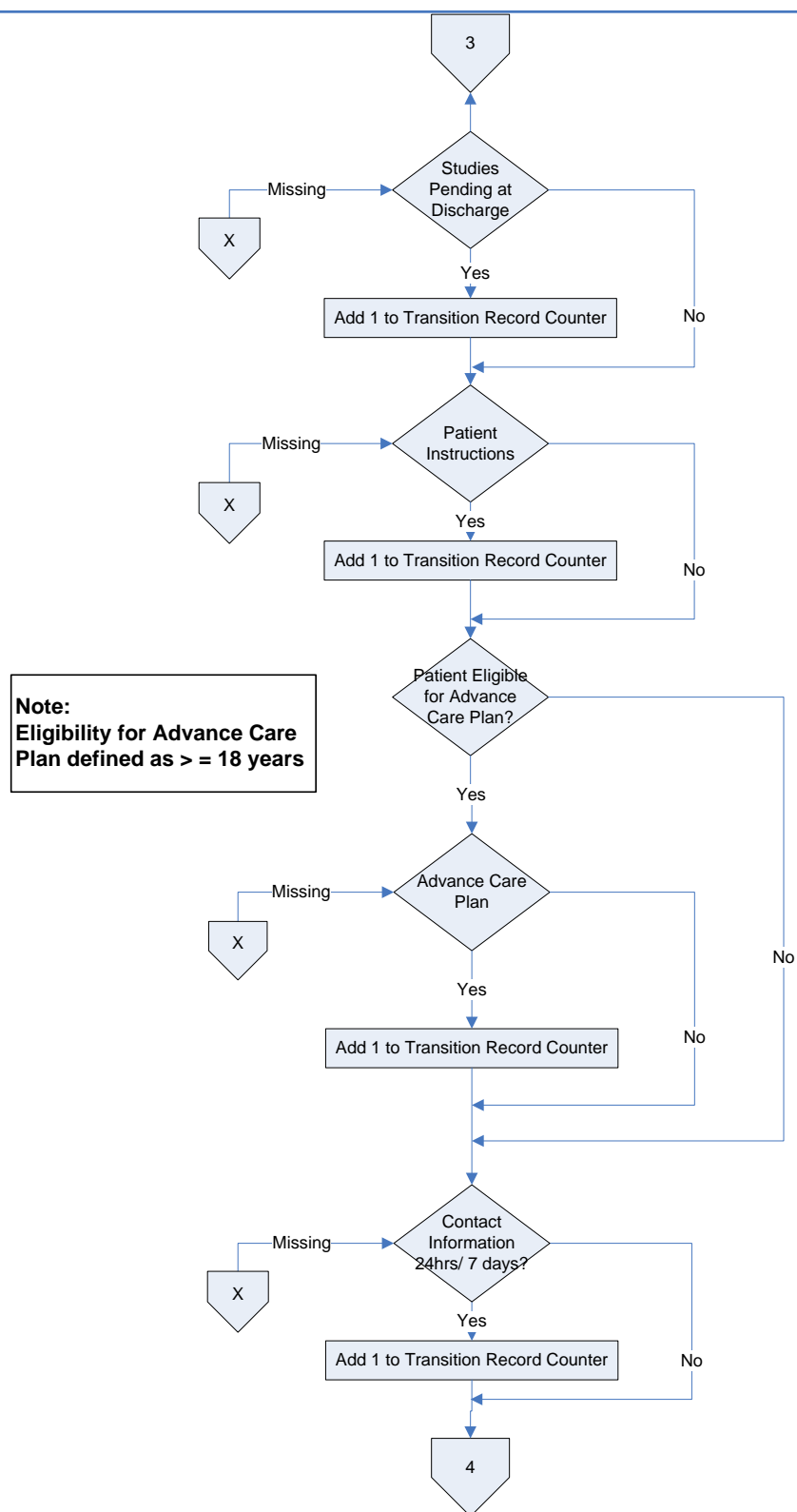
Care Coordination Measure (CCM-2)



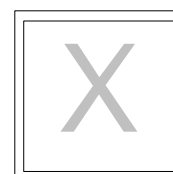
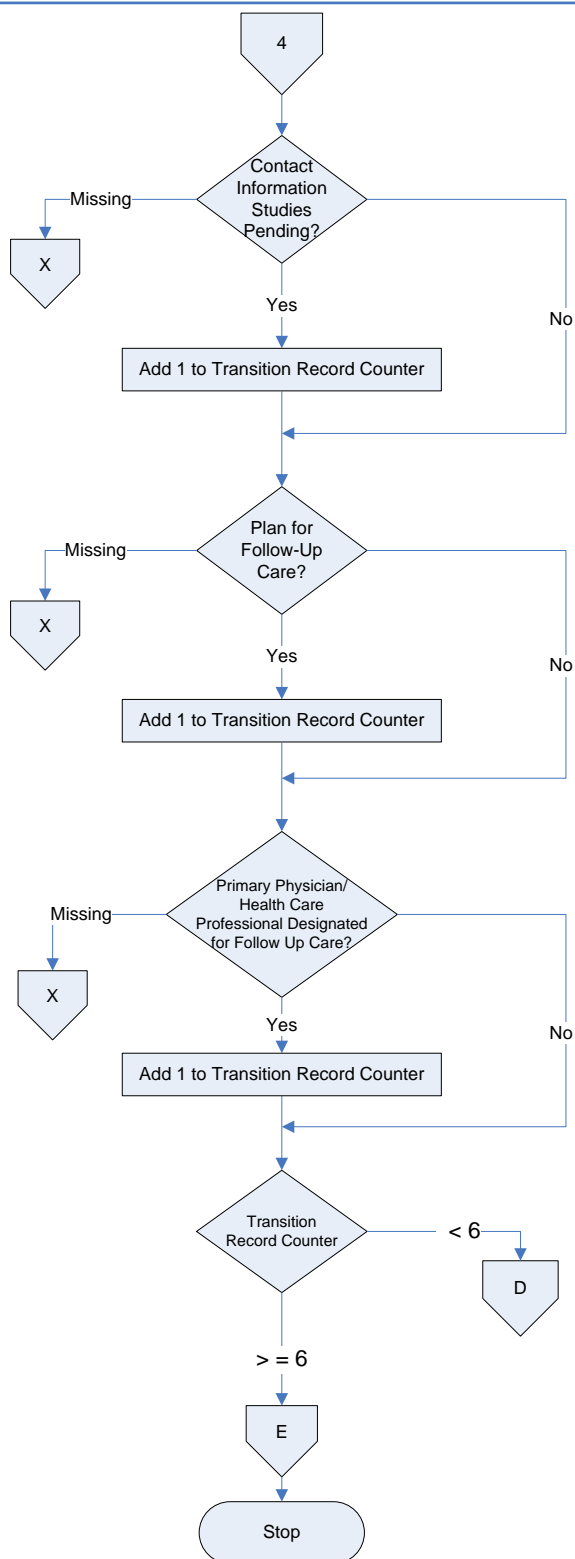
Care Coordination Measure (CCM-2)



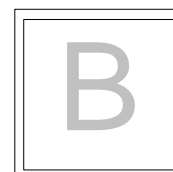
Care Coordination Measure (CCM-2)



Care Coordination Measure (CCM-2)



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



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and Denominator



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Included in Denominator



Measure Met
In Measure Population
Included in Numerator and
Denominator

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

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-3** and data dictionary in **Appendix A-6** 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.

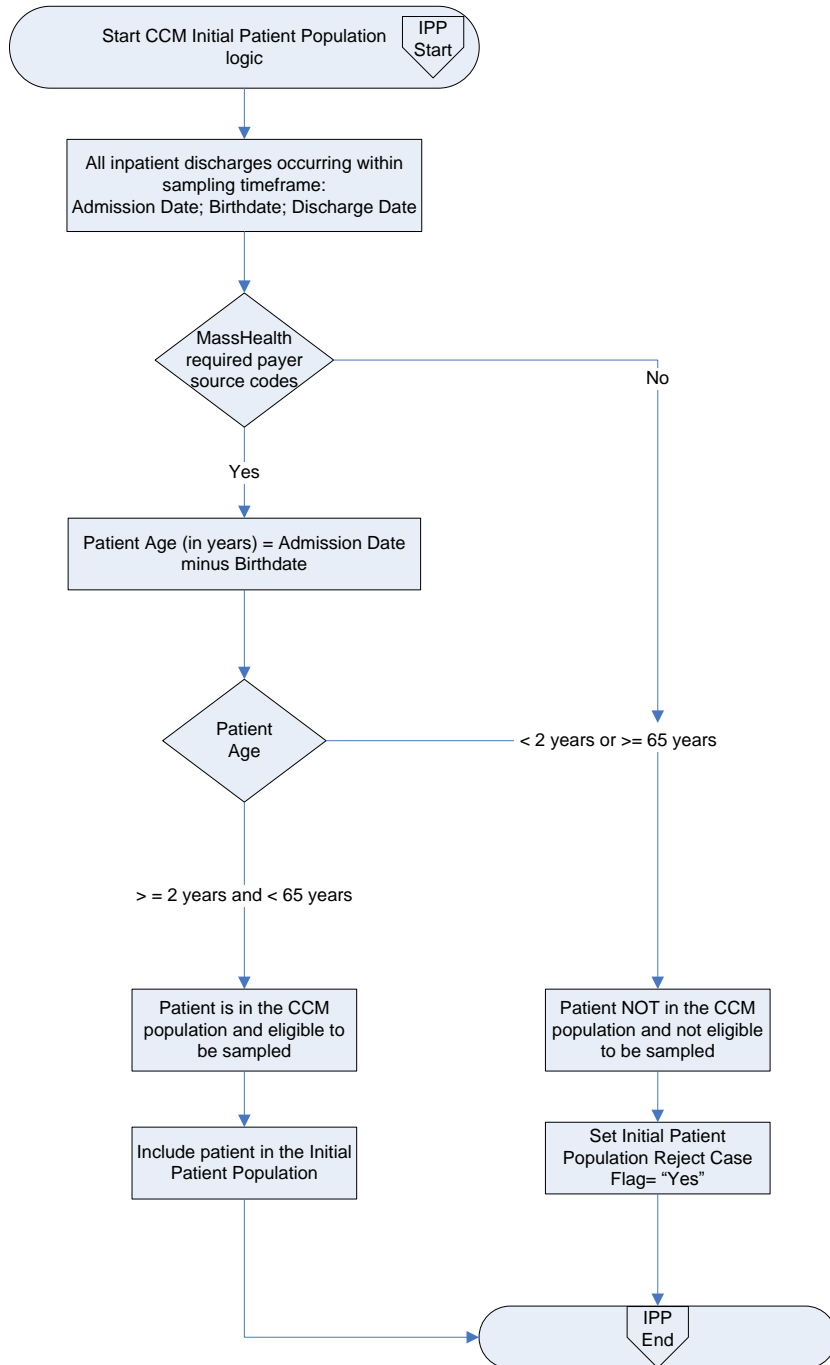
Sampling: Yes. For additional information on sample size requirements refer to Section 4 of this manual.

Data reported as: Aggregate rate generated from count data reported as a proportion. Refer to the calculation rules in **Appendix A-7** of this manual that apply to this measure.

Selected References (for all CCM measures):

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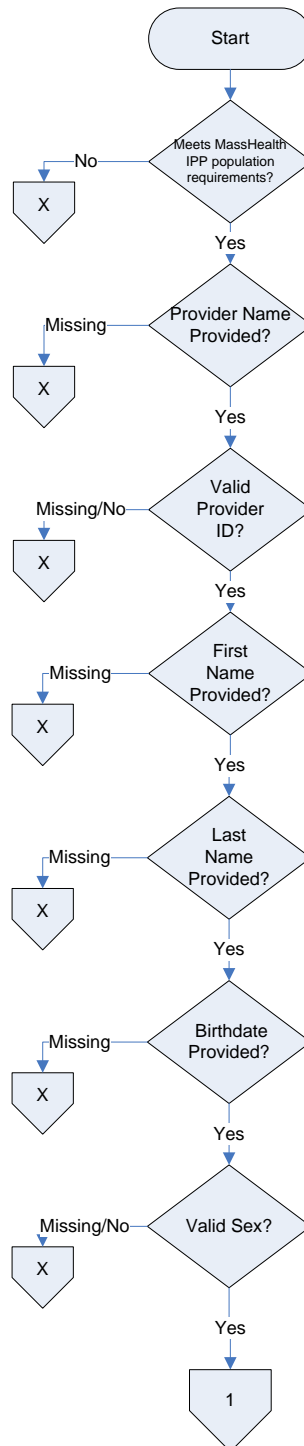
Initial Patient Population Algorithm Care Coordination Measure (CCM-1, 2, 3)



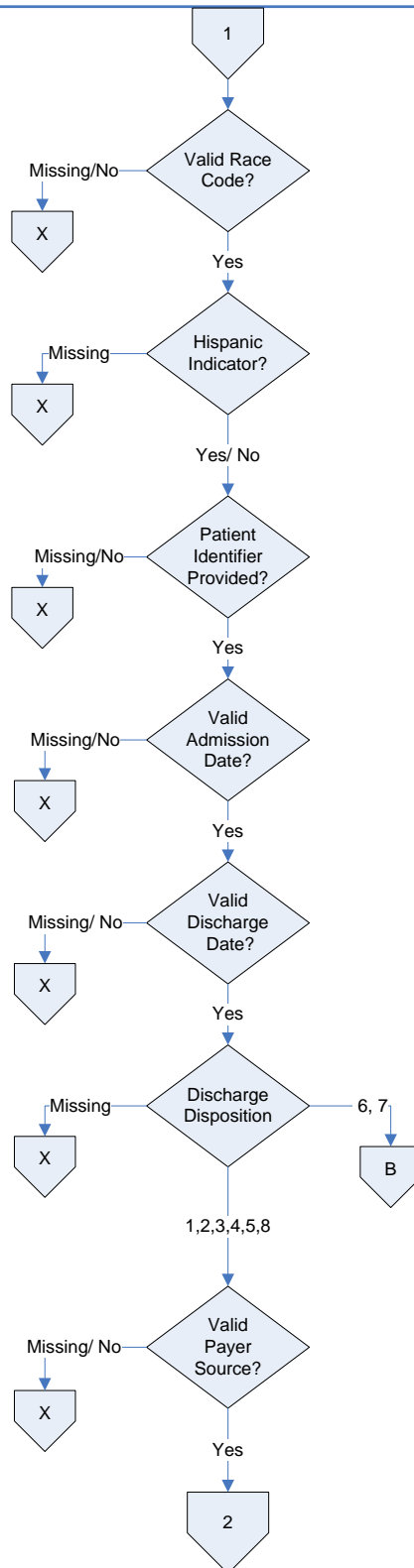
Care Coordination Measure (CCM-3)

***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

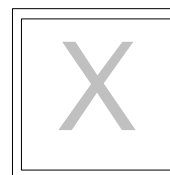
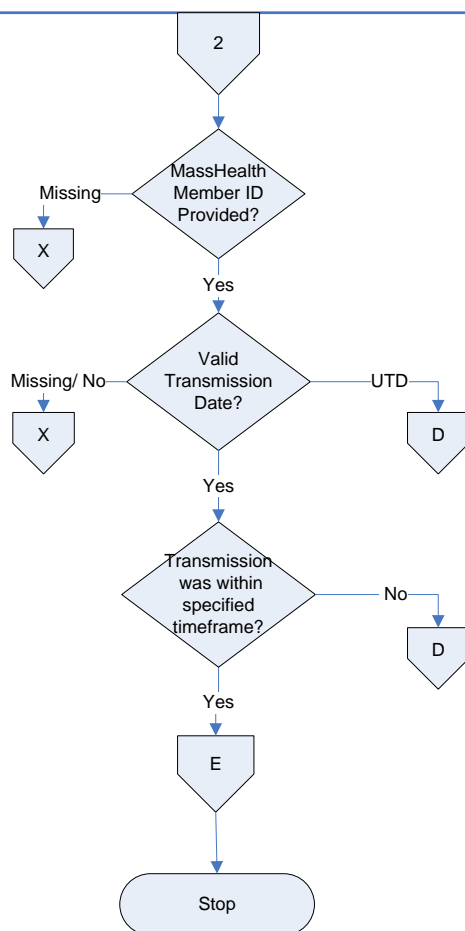
***Denominator:** Patients discharged from an inpatient facility to home/ self care or any other site of care.



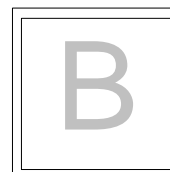
Care Coordination Measure (CCM-3)



Care Coordination Measure (CCM-3)



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



Review Ended
Not in Measure Population
Excluded from Numerator
and Denominator



Review Ended
In Measure Population
Excluded from Numerator
Included in Denominator



Measure Met
In Measure Population
Included in Numerator and
Denominator

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

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

A. Measure Attributes

Rationale: Composite measures typically summarize individual metrics related in some way (conditions) or can be created from indicators that are not highly correlated (AHRQ, 2012; Schwartz et al, 2008, Nolan and Berwick, 2006). A composite measure can provide 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 (opportunity model) to measurement 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 that takes the individual instances of care across the reported measures, that is sorted by racial/ethnic group and then combines them into a single score. The unit of analysis is the racial/ethnic group (not the individual patient). From an equity perspective, receiving the desired care process on measures making up the composite should not differ across groups (AHRQ, 2012, IOM, 2010, NQF, 2009, IOM, 2001). 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). Not receiving recommended care is what contributes to a health disparity.

Type of Measure: Composite of reported clinical process measures data.

Composite Measure Components: 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) that is defined as follows:

- **Racial 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 (degree of variation in care) 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: Consistent collection of the Race and Hispanic Indicator data elements are necessary to improve reliability of racial group composite rates. Unknown codes should be minimized 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: Missed opportunity results which transforms the comparison and reference group composite numerators to instances where the desired care was not given. A missed opportunity to receive the desired care is considered an undesirable event that can be reduced or eliminated through planned action. See [Section 3.D](#) of this manual for information on how missed opportunity results are reported.

Improvement noted as: A decrease in difference between racial comparison group rate and the reference group rate. Note that a BGV of zero (0) does not indicate 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 results must be interpreted in conjunction with the individual measures that make up the composite to ensure information is actionable for quality improvement. Refer to [Section 3.D](#) of this manual for information on how to interpret your results.

B. Measure Calculation Method

1. Description of Terms and Formulas

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

Table 3-1: 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 3.1](#), 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 “UNKNOWN (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 UNKNOWN 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 UNKNOWN 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:

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

Where:

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

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

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

The BGV statistic uses an interval scale that ranges from zero to one (0 – 1) displayed in 6 decimal points. A value close to zero (0) may indicate no variation exists whereas a value close to one (1) may indicate that a wide variation exists. Refer to [Section 3.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 UNKNOWN code is excluded.
- The hospitals data file is sorted by all numerators & denominators to obtain the information shown below.

Table 3-2: Recoding of Hospital Race/Ethnicity Groups (Example)

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

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

Step 2: Calculate the Reference Group Composite Rate.

- Sum the denominators from all 5 racial/ethnic groups to obtain the reference group denominator (d_{ref})
- Sum the numerators from all 5 racial/ethnic groups to obtain the reference group numerator (n_{ref})
- Calculate the reference group composite rate (r_{ref}) by dividing the reference group numerator by the reference denominator (d_{ref}) using the formula shown in Section 4.c above.

- Data from Table 3.2 is used to illustrate the following calculation:

Example:

Reference group denominators = 60+5+100+5+30=200

Reference group numerator = 30+2+20+3+15=70

Reference group composite rate = 70/200 = 35%

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

- For each race/ethnic group, sum the denominators from all measures to get comparison group denominator (d_i)
- For each race/ethnic group, sum the numerators from all measures to get comparison group numerator (n_i).
- Calculate the race/ethnic comparison group composite rate (r_i) by dividing the comparison group numerator by the comparison group denominator (d_i) using the formula shown in Section 3.D above.
- Data from Table 3.2 is used to illustrate the following calculation:

Example:

(r_i) Hispanic group rate = 30/60 = 50%

(r_i) Black/African American, Non-Hispanic rate = 2/5 = 40%

(r_i) White, Non-Hispanic rate = 20/100 = 20%

(r_i) Asian, Non-Hispanic rate = 3/5 = 60%

(r_i) Other Races, Non-Hispanic rate = 15/30 = 50%

Step 4: Calculate the Comparison Group BGV Statistics

- Compute the BGV statistic for each race/ethnic group using the formula shown in section 4.e above
- Data from Table 3.2 is used to illustrate the following calculation:

Example:

$$BGV_i = \frac{d_i}{d_{ref}} (r_i - r_{ref})^2$$

$$BGV1_{Hispanic} = \frac{60}{200} (0.5 - 0.35)^2 = \mathbf{0.006750}$$

$$BGV2_{Black/African American, Non-Hispanic} = \frac{5}{200} (0.4 - 0.35)^2 = \mathbf{0.000063}$$

$$BGV3_{White, Non-Hispanic} = \frac{100}{200} (0.2 - 0.35)^2 = \mathbf{0.011250}$$

$$BGV4_{Asian, Non-Hispanic} = \frac{5}{200} (0.6 - 0.35)^2 = \mathbf{0.001563}$$

$$BGV5_{Other, Non-Hispanic} = \frac{30}{200} (0.5 - 0.35)^2 = \mathbf{0.003375}$$

Step 5: Calculate Disparity Measure Final BGV Statistic

- Compute the hospitals final BGV statistic by summing all the racial/ethnic composite group BGV.
- Data from Table 3.2 is used to illustrate the following calculation:

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

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 disparity measure statistics shown above are summarized in the hospitals year-end report.

C. HD-2 Report Results

This section illustrates an example of disparity measure composite report and how to interpret your results.

- 1) **HD-2 Report Content.** The disparity composite measure results are 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 report display format.

Table 3-3:
MassHealth HD-2 Report Format (Updated Mock Example)

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

Explanation of Data Entry Fields

As noted in [Table 3.3](#), the 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)

A self-serve 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 HD2 missed opportunity report displays the numerator rate (instances of care not given) for each R/E comparison group and the hospitals reference group as well as the final BGV value (degree of variance in care provided to racial/ethnic groups relative to the hospitals reference group).
 - b) The BGV quantifies the degree of variance in care occurring within the hospital, but unlike a rate, it does not tell us about the direction of improvement. The BGV ranges from zero (0= no variation exists) to one (1= variation does exist). The final BGV value is not significantly correlated with the number of R/E groups or with the size of the R/E comparison groups the hospital reports on.
 - c) Each racial composite group BGV also offers different information. For example, the R/E composite group rate with a larger BGV contributes more to the overall variance at a hospital than those with a lower BGV. Likewise, a larger BGV for each R/E comparison group is due to variation in care for that group weighted by the size of that R/E comparison group compared to the hospitals reference group size.
 - d) Interpretation of the final BGV should always be done in conjunction with the R/E comparison group specific rates to the hospitals reference group rate. The degree of disparity contributed by each R/E group is based on both the difference between the comparison and reference group rate, and the comparison group population size.

Revised Example A

Table 3.3 provides examples of R/E group variance that are above and below the hospitals reference group rate, both of which contribute to the total final BGV.

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

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

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

- e) Example A illustrates that the Black group received the desired care more frequently relative to the hospitals reference group, compared to the White group rate which received desired care less frequently. These results suggest that opportunity exists for targeting interventions with White Medicaid patients as a way to reduce the hospitals overall variance. However, from an equity perspective, the goal is to reduce composite rates and eliminate disparity in care across all racial groups.
- f) Care should be taken when interpreting your results since achieving a lower BGV does not necessarily correlate with improvement on a given clinical process measure. As noted in Section 3.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 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 missed opportunity 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 HD2 missed opportunity report now gives detail on which clinical process measures are contributing to disparities in care across one or more racial groups. Hospitals can use these results to detect trends by patient groups or which service dimensions represented by the measures, are contributing to variance in care.

Revised Example B:

Table 3.3 gives additional detail about each R/E group numerator rates about missed opportunities across one or more racial groups.

This is illustrated in Table 3.3 where the number of missed opportunities for Hispanic group on CCM-2 metric is n=132 in relation to the total CCM-2 missed opportunities (n=505).

Thus, the Hispanic group represents 26% of the missed opportunities for the CCM-2 measure.

Likewise, the number of missed opportunities for White group on CCM-3 metric is n=195 in relation to the total missed opportunities (n=335).

The White Medicaid patient group represents 58% of missed opportunity for the CCM-3 measure.

- c) As shown in Example B, the Hispanic group did not receive desired process of care for CCM-2 compared to other racial groups. This information can be used to identify provider-patient factors (language barriers, cultural norms) and target interventions that would address improving 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 HD2 missed opportunity 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 identify areas where adjustments in system level processes (patient, practitioner, organizational) are needed.

Please contact the MassQEX Help Desk at massqexhelp@telligen.com if you have any questions on how to interpret your health disparities measure results.

Select References

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Section 4. Medicaid Population Sampling Specifications

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

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

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

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

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

- a. **Simple random sampling:** selecting a sample size (n) from the population of size (N) so that every case has the same chance of being selected into the sample; or
- b. **Systematic random sampling:** selecting every k^{th} record from a population of size N so that a sample n is obtained, where $k \leq N/n$. The first sample record (i.e.: the starting point) must be randomly selected before taking every k^{th} record. This requires a two-step process that includes:
 - i.) randomly select the starting point by choosing a number between one and k using a table of random numbers or a computer generated random number; and then
 - ii.) select every k^{th} record until the selection of the sample size is completed.

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

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

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

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

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

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

- 1) **MassHealth Sampling Requirements.** Hospitals must sample cases from all MassHealth inpatient paid claims using instructions provided below and perform medical chart abstraction for the sampled claims. The number sampled by Hospitals will vary by the volume of the patients that meets the criteria for 'MassHealth Initial Patient Population' for each measure as defined in this manual. The minimum required sample size is based on the estimated volume of MassHealth discharges required for each measure.
- 2) **Dates of Service.** Hospitals must identify the MassHealth Initial Patient Population measures data using available databases that contain all discharges for the quarter reporting periods specified in the Acute RFA and Section 1.C of this manual using the sample size requirements tables provided below.
- 3) **Aggregate Medicaid Payer Sampling.** The MassHealth Initial Patient Population is identified as an aggregate of all the Medicaid payer source codes. Please refer to Table 2.2 of this EOHHS manual for a list of new Medicaid payer code inclusions that apply to quality measures data sampling and reporting.
- 4) **Aggregate Medicaid Payer Sampling Steps.** The order of data flow must be modified when selecting cases for the aggregate Medicaid payer source groups as follows:
 - **Step 1-** Identify the Initial Patient Population based on measure specifications and dates of service.
 - **Step 2-** Identify and include cases with all the Medicaid payer inclusion codes listed above.
 - **Step 3-** Identify the MassHealth sample size requirements for each measure using Tables below.
 - **Step 4-** Select and apply the random sampling approach to identify charts.
 - **Step 5-** Begin medical chart abstraction of specified measure on cases selected.

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

D. Sampling Options

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

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

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

Table 4.1 - QUARTERLY Sample Size Requirement

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

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

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

Hospitals must ensure that the quarterly sample sizes selected for each measure are representative of the aggregate of all Medicaid payer population inclusions listed in Section 2.B of this EOHHS manual. Below is an example of how the quarterly sampling option would be used for calendar year reporting.

Example #1: MassHealth Quarterly Sampling of each Measure

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

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

Table 4.2 - MONTHLY Sample Size Requirements for Each Measure

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

As noted in the Table 4.2 above, the monthly sampling option Initial patient population size (N) and the minimum required sample size (n) column numbers have been adjusted for the aggregation of all Medicaid payer population inclusions defined in Section 2.B of this EOHHS manual.

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

Hospitals must ensure that the monthly sample sizes selected for each measure are representative of the aggregate of all Medicaid payer population inclusions listed in Section 2.B of this EOHHS manual. Below is an example of how the monthly sampling option would be used for calendar year reporting.

Example #2: MassHealth Monthly Sampling of Each Measure

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

-
- During **March** the hospitals MassHealth initial patient population is N=100 cases. Using the above Table 4.2, the required Medicaid sample size would be 35 cases for this month.

E. ICD Patient Population Data

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

1) **Definition of ICD Population Data.** The data must include the following information defined as follows:

- **ICD-10 Population Size** - refers to count of patient population with all relevant ICD-10-CM diagnosis and ICD-10-PCS procedure codes included in the measure as defined in Section 4.C above.
- **Aggregate Medicaid Payer Population Size** - refers to count of patient population with all relevant ICD-10 codes included in the measure that meet all Medicaid payer inclusions in Section 4.C.4 above.
- **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 population count.

2) On-line ICD Population Data Entry Form

- The ICD population and sample size count information must be entered as aggregate data using the on-line data entry form located in the secure web portal, as described in Section 5 of this manual. *Only Hospitals, not data vendors, are authorized to enter ICD population data via the web portal.*
- Hospitals that do not have any inpatient population and sample size data for a given measure, during a quarter (or month), must enter zero (0) onto the form to meet data reporting requirement.
- Failure to comply with ICD population data entry will result in not meeting data completeness requirements as defined in Section 2.E of this manual

Refer to Section 5 of this EOHHS Manual for other ICD population data entry instruction and requirements.

Section 5. MassQEX Data Transmittal Guidelines

This section outlines the technical guidelines for preparation and transmittal of clinical process measures data files listed in Table 2.1 of this manual. Hospitals and vendors must comply with instructions provided in this section.

EOHHS has designated the MassHealth Quality Exchange (MassQEX) as the secure web portal for submitting all required electronic data files and information outlined in this section. This portal is the only approved method to securely transmit data files between the Hospitals and the EOHHS Contractor (Telligen).

The MassQEX Portal URL address is: <https://massqex-portal.telligen.com/massqex/>. The MassQEX portal is divided into three sections: portal system requirements for submission, reports repository and user accounts that are described below. All aspects of the MassQEX web portal, including set up and configuration of system requirements are managed by the EOHHS Contractor.

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

1) **System Requirements:** The portal system requirements are as follows:

- Minimum of 1 GHz processor or better with a minimum of 125MB free disk space
- Windows 7 or higher
- 1 GB of RAM or higher
- High speed internet connect of 384 Kbps or higher
- MassQEX Portal supports the following Browsers:
 - Internet Explorer v 11 or higher
 - Chrome v 52 or higher
 - Firefox v 46 or higher
- Browser security level of medium or lower
- Browser Transport Layer Security (TLS) version 1.2
- Must have adequate operating system rights to allow provider sites to properly install programs and modify/edit registry entries
- Pop-ups allowed for URL <https://massqex-portal.telligen.com/massqex/>

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

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

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

- Single and multiple file data submission
- Data compression to reduce transmission sizes
- Data encryption utilizing asymmetric key pairs
- Filename
 - Name cannot exceed 45 characters
 - Filenames are limited to the following character ranges
 - a – z
 - A – Z
 - 0 – 9

- Underscores will replace spaces in all filenames
- Filenames containing illegal characters will not be uploaded or processed

Upon completion of data transmissions, users will be able to run reports that show the success or failure of processing. The production environment does not remain open throughout the entire Acute Hospital RFA rate year period.

The production environment is activated approximately 60 days prior to submission deadlines and then closed after each submission due date. Notices are sent via the MassQEX list-serve to announce when the portal environment is open for data production prior to each submission deadline.

- 4) **Portal Environment Maintenance.** The portal environment is periodically programmed in between submission cycles, to prepare for and support the changes in the transmittal of revised technical specifications for clinical process measures listed in Section 2 (Table 2.1).

As noted in Section 1.C of this manual various changes go into effect with each quarter reporting cycle period. Portal status updates are periodically posted on the MassQEX portal homepage to notify users of scheduled maintenance periods.

B. Data File Contents. The data file upload procedures that apply are noted below.

- 1) **Technical File Upload.** 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. Each measure must be submitted in separate electronic data files using instructions provided below. The secure file transfer application allows measure files to be submitted separately or collectively as a zipped file.
- 2) **Data Transmittal Process.** Hospitals must submit all required data files via the secure web portal described in Section 5. Data files are not accepted in file formats other than those described above. A summary of the required data submission contents is provided below.

Table 5-1: MassQEX Electronic Data File Contents

Quality Measures	XML MassHealth Specific Measures File	Online ICD Data Entry Form
MAT,4,	YES	YES
NEWB-1	YES	YES
CCM-1, 2,3	YES	YES

- 3) **XML Schema Versions.** All measures data must be submitted using the appropriate versions of the XML schema file layouts that apply to quarter reporting periods.

In RY19, the XML schema version 12.0 applies to Q3-2018 and Q4-2018 reporting periods.

- 4) **XML File Types.** As of RY19, they two XML file layouts apply to MassHealth measures data reporting:
 - a. **XML Schema MassHealth Specific Measures:** This XML file is required for the maternity, care coordination measure and newborn care measures. The file must include all measures data the hospital is eligible to report on for the required discharge data period in Section 1.C. This file should contain all required clinical and administrative data elements for the MassHealth records sampled on each measure, as defined in Section 4 of this manual.
 - b. **XML Schema MassHealth Data Deletion Request:** To remove data files you must use the XML Schema MassHealth Deletion Request File provided in this EOHHS manual.

- 5) **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 as follows:
- a. To remove data files you must use the XML Schema MassHealth Deletion Request File. 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.
 - b. Note that a delete request will only remove the measure data and not the historical submission information. Any future data uploads is not affected by any previous delete requests.
 - c. 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.
- 6) **Online ICD Population Data Entry Form**

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

- a. **Updated ICD Data Entry Form.** The ICD entry form provides fields to enter the total counts related to each measure category assignment for the aggregate Medicaid payer data as defined in Section 4.C of this EOHHS manual. The ICD population data must include total counts related to each quarterly submission cycle due for the measures being reported in the electronic data file contents, as defined in Section 5 of this manual.
- b. **ICD Data Entry Form Compliance.** If the hospital has no cases to report during a given quarter then zero's (0) must be entered in all the fields provided on the data entry form. Failure to enter zeros will render the Hospital having missing data resulting in non-compliance reporting status.
- c. **ICD Data Entry Form Options.** The MassQEX portal will provide the option to enter ICD data for quarterly or monthly samples as illustrated in Figures 1 and 2 below.

Figure 1 below illustrates a form that has been properly filled out to be in compliance with data requirements.

Figure 1.
MassQEX Portal Quarterly ICD Data Entry Form

Measure	ICD	Sample
CCM	90	60
MAT-4	22	22
NEWS-1	15	15

Update

Getting Started
ICD Population Form
Upload Data
View Uploaded Files
View Measure Status
Reports
Change Account Settings
Change Password
Log Out

Customer Support
MassQEX Help Desk
Phone: 544-548-1343
Email: massqexhelp@wellrigs.com
Monday - Friday
8 a.m. - 5 p.m. (ET)

Figure 2 below illustrates the 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. MassQEX Portal Monthly ICD Data Entry Form

- 7) **Data Transmittal Schedule.** All data file uploads plus on-line ICD data entry must be completed by the close of business day (5 pm eastern time) of published submission deadlines. The ICD data entry information should be submitted within fifteen (15) days prior to the close of data cycle and can be revised up until the final submission due dates noted in Section 1.C of this manual

IMPORTANT NOTE: 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 of this manual for criteria that apply to extraordinary circumstances for requesting data extensions and Section 2 data completeness requirements.

C. Portal Reports Repository

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

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

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

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

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

Figure 3 - Example of a MassQEX Portal Input Files Report

MassHealth Quality Exchange (MassQEX)

Input Files Report

Processed: 08/14/2018 11:48 AM (User, Test)
Provider: MassQEX
Uploader: MassQEX

FILE NAME	PROVIDER	MEASURE	DATE	PROCESSED	STATUS
MAT-4-V01-15Q1-000-K.xml	MassQEX	MAT-4 (07/01/2018-09/30/2018)	08/14/2018 11:48 AM	Yes	ERROR
ERRORS/WARNINGS: 1 [ERROR] Patient age is 65 years or older. Going to Bucket MAT-4K					
MAT-4-V01-15Q1-000-D.xml	MassQEX	MAT-4 (07/01/2018-09/30/2018)	08/14/2018 11:48 AM	Yes	WARNINGS
WARNINGS: 1 "ICD-9-CM Principal Procedure Code" (PRINPX) or "ICD-9-CM Other Procedure Codes" (OTHRPXX) is not in table 11.06. is invalid. Going to Bucket MAT-4D					
MAT-4-V01-15Q1-000-E.xml	MassQEX	MAT-4 (07/01/2018-09/30/2018)	08/14/2018 11:48 AM	Yes	OK

As shown in Figure 3, 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.

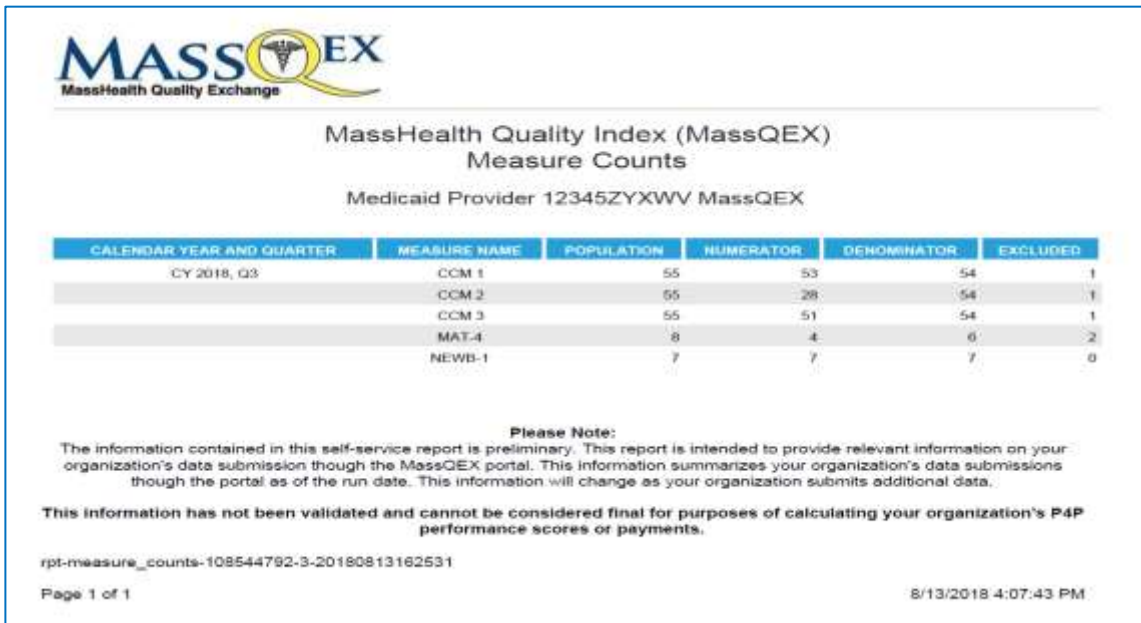
In addition to the above information, any warning or error messages resulting from data file submission will be displayed. The following messages will be generated, under the status column, when the data files contain either incorrect or incomplete information:

- 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.
- 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.
- 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.

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

Figure 4 - Example of a Measure Counts Report



As shown in Figure 4, the MassQEX 'Measure Counts Report' contains the following information:

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

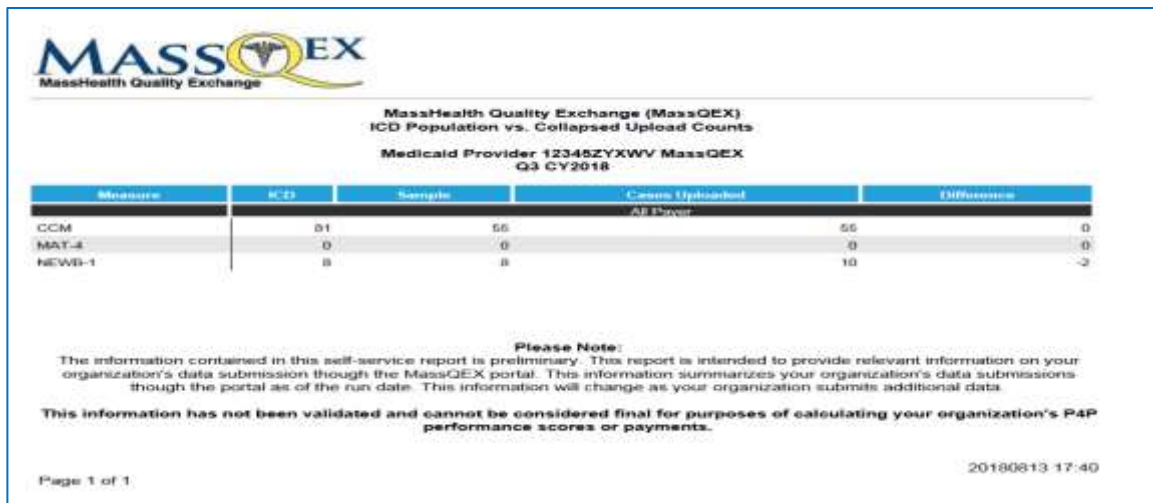
To view the 'Measure Counts Report', the user will click on the 'Reports' link from the menu on the right side of the MassQEX portal home page. Clicking on this link leads to a web page that displays links to the 'Input Files Report' and the new user-initiated reports. The hospital user can specify report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

The 'Measure Counts Report' is available for all data transmittals completed as part of the production level submissions. Hospitals will find this report useful because it provides an interim summary on cases that met the measure numerator and denominator specifications as files are submitted.

This report is intended for MassQEX portal data management purposes only and does not represent the EOHHS hospital measure rate results used to calculate performance scores.

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

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



As shown in Figure 5, the updated MassQEX 'ICD Population vs. Collapsed Upload Counts Report' contains the following information displayed by the two Medicaid payer population sets entered:

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

To view the 'ICD Population vs. Collapsed Upload Counts Report' the user will click on the '**Reports**' link from the menu on the right side of the MassQEX portal home page. Clicking on this link leads to a web page that displays links to the 'Input Files Report' and the new user-initiated reports. The hospital user can specify criteria, such as calendar year and/or quarter, which allow reports to be generated for the calendar year reporting period being requested. From the screen, the user can click the "Print Report" link to generate a PDF of the report.

The 'ICD Population vs. Collapsed Uploaded Counts Report' is available for all data transmittals completed as part of the production level submissions. Hospitals will find this information to be useful because this report displays the difference between the two counts (sample and cases uploaded) and thus enables providers to identify when they have met their submission level obligations. This report is intended for MassQEX portal data management purposes only and does not represent the EOHHS hospital discharge data used to calculate payments.

- 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).

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

- 1) **Opening an Account.** All Hospitals must set up user accounts to access the secure web portal using the on-line registration form. Each hospital must identify the individual users that will be authorized to submit and conduct all data transactions on the Hospitals behalf. The users can be individuals from hospital staff and/or hospital third-party vendors.
- 2) **Account Limits.** There will be a maximum of three accounts per provider (e.g.: hospital or third-party vendor) identified as the 'registered user'. New users will be required to complete registrations forms on-line before being granted access to the secure web portal.
- 3) **Completing Authorized Forms.** The new user must complete a registration form, then sign and date it in the presence of a Notary Public, who will issue the Notary's stamp and seal on page 1 of the form. The hospital chief executive officer (CEO) must sign the notarized form to authorize the individual designated to be the registered user for that hospital site.

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

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

Telligen, Inc.

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

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

- 5) **Logging into the System:** The portal provides instructions for setting up a password and is equipped with a 'forgot my password' option that will have the following functionality:

- A temporary password, valid for one time use, will be transmitted to the user's registered email account after successfully answering three randomly selected security questions.
- The temporary password will expire if it is not used within four hours.
- Upon logging into the system, the user will be required to choose a new password.

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

- 1) **MassQEX Helpdesk.** *The customer support contact information is listed below.*

☛ **Help Desk Phone:** The toll free phone # is (844) 546-1343. This line is answered by a live person that will request a description of your inquiry and initiate a help desk ticket, The inquiry is triaged to a clinical ore technical staff. A response is sent via email or a call is returned

☛ **Help Desk Email:** Massqexhelp@telligen.com

☛ **Business Hours:** 8:00 a.m. – 5:00 p.m. (Eastern Time). Customer support staff is available during business hours from Monday through Friday. Inquiries are addressed within one business day

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- 2) **MassQEX List-Serve.** MassQEX operates an auto-notification feature for individuals that have created users-accounts and are authorized to conduct data transactions on behalf of the hospital. The list-serve provides information and updates on portal system functionality and enhancements, including notices on measure specifications, status of submission production timelines and other related activities. Individuals not authorized as portal users may also register for the list-serve by sending a request to the MassQEX Help Desk email listed above.
 - 3) **Hospital Third-party Data Vendors.** The EOHHS Acute Hospital RFA contract includes a provision for hospitals that use 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 Medicaid Acute RFA contract stipulates that Hospitals are responsible for communicating directly with their data vendors on all aspects of MassHealth hospital data collection and reporting requirements, including adherence to the appropriate versions of the EOHHS Technical Specifications Manual. This is to ensure data completeness and accuracy of electronic data files are submitted on the Hospital's behalf.

Section 5 of this EOHHS manual contains instruction that requires collaboration among the hospital and their data vendors to successfully meet data submission requirements and verifying data completeness status during each submission cycle.

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

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

F. Data Extension Request Procedures

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

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

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

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

- 2) **Provision for Granting Data Extensions.** A hospital can request a change to RFA quality reporting deadlines when they have experienced circumstances that are beyond the control of the hospital facility, which may include, but are not limited to, the following definitions:
 - a. **Extraordinary Circumstances:** In the event of a disaster or catastrophic event (hurricane, tornado, floods, fires, etc.) that results in shut down of hospital and/or their data vendor facility operations thereby affecting the hospital's ability to complete the work required to meet quality data reporting deadlines. This process does not preclude EOHHS from considering other hospital's that have been affected by such extraordinary events across a specific region or locale.

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- b. **Unusual Circumstances:** In the event that the EOHHS or its Contractor facility experiences an unusual circumstance (ex: building power outages, internet provider interruptions, phone service provider interruptions, etc.) or extraordinary circumstance (as defined above) that impede the hospital's access to MassQEX portal or customer support services during an open active quarter reporting submission cycle. Other unusual circumstances where meeting the quarterly reporting deadlines is beyond the control of the facility may be considered (ex: new enrolled Medicaid hospitals under the current rate year, etc.).
- c. **Non-Applicable Circumstances.** Quality reporting data extensions **do not** apply to a request for resubmission to correct data files, after the portal has closed, when the data files were incomplete or incorrectly submitted during a quarter reporting cycle. Data extensions also does not apply to a request for resubmitting chart record data that were incomplete, after the due dates noted in Section 6.A.(6) of this EOHHS manual. Finally, data extensions do not apply to calendar year quarter data cycles that are used for prior RFA contract rate year period payments.

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

- 3) **Procedure to Request a Data Extension.** EOHHS has established a procedure for hospitals to request a change to RFA published reporting deadlines when the hospital experiences unusual or extraordinary circumstances during the current RFA rate year period. The hospital should notify EOHHS, via phone or email, of the circumstance and to request a data extension form. Hospitals must adhere to the following procedures and instructions when submitting a request:
- a) **MassHealth Hospital Data Extension Request Form:** The Hospital must submit a formal written request by using the "MassHealth Hospital Data Extension Request Form" (*MHDER*) that applies to the rate year data impacted. The Hospitals form must complete all the required information that includes:
- Specify the Type of data request and quarter period impacted;
 - Detail about the type of data request, reason for the request, and describe details on specific event that lead to requesting an extension;
 - Attach supporting documentation, and other pertinent information for EOHHS agency consideration; and;
 - Include the Hospital Chief executive officer (CEO) signature

IMPORTANT NOTE: To obtain a copy of the PDF fillable version of the MHDER form please contact EOHHS mailbox at: Masshealthhospitalquality@state.ma.us

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

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

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

- c) **EOHHS Notification Process:** Following the receipt of the Hospital's request, EOHHS will provide immediate acknowledgement (via phone & email) to the Hospital CEO and designated quality contact that the request has been received. EOHHS will then provide the Hospital CEO and designated quality contact with final written decision regarding the Hospital's data extension request.

Section 6. MassQEX 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 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 methods for the clinical process measures in Table 2.1 of this EOHHS manual occurs on a random sampling of charts selected from the hospitals reported data files uploaded to the portal..
- 4) **Chart Sampling:** In RY18, EOHHS transitioned chart sampling methods to identify records for only the first three quarters on a full calendar year reported data. No charts are requested on the fourth quarter data files uploaded to the portal.
 - a. During the RY19 P4P Program transition period, chart sampling methods will be adjusted for the "partial calendar year" reporting of Q3 and Q4 data due on dates shown in Section 1.C. A random sample of **five (5) charts** will be identified for each quarter of data files submitted to the portal.
 - b. Effective RY2020, a total of twelve (12) records per year will be required on a full calendar year of reported data files for validation purposes. A random sample of **four (4) charts** will be identified only for the first three quarters on of a calendar year data files. No charts are requested on the fourth quarter data files submitted to the portal.
- 5) **Chart 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 file submission deadline.
 - b. Hospitals must submit paper copies of all medical records requested within **twenty one (21) 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 and Hispanic Indicator 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 **twenty one (21) 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: <ul style="list-style-type: none"> • <u>Race</u> • <u>Hispanic Indicator</u> 	Clinical Data Elements: <ul style="list-style-type: none"> • NEWB-1 measure • MAT-4 measure • CCM measures 	<ul style="list-style-type: none"> • Admission Date • Admission Time • Birth date • Discharge Date (scored for CCM3 only) • Discharge Disposition (scored for NEWB-1 CCM only) • Episode of Care • First Name • ICD-CM Diagnosis Codes • ICD-PCS Procedure Codes 	<ul style="list-style-type: none"> • Hospital Patient ID # • Last Name • Member ID Number • Payer Source • Provider ID • Provider Name • Sex

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

a) **Administrative Data Elements:**

- Race and Hispanic Indicator** 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.
- 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 and Hispanic Indicator are considered invalid for data validation purposes.
- Copies of all paper medical records must include information on two data elements of Race and Hispanic Indicator 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.
- Failure to include the documentation of Race and Hispanic Indicator 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 Section 3 of this Manual. The list of clinical data elements that apply to validation scoring for clinical process measures are listed on the table of contents of the MassHealth Data Dictionary in 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

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- 4) **Calculating Overall Validation Rate.** The overall rate is the proportion of scored items in agreement divided by the total scored items rated. The year-end overall agreement rate is the aggregate of the validation rates for the applicable quarters of data validated per Section 6.A of this EOHHS Manual. Confidence intervals are calculated to determine appropriate range for estimating if a reliability threshold has been met. Overall agreement rates are computed as follows:
- a) Hospitals achieving an overall agreement score $\geq 80\%$ for chart data submitted, as defined in Section 6.A.4 above, will be considered to have “passed” validation. Hospitals with overall agreement rates that fall below 80% will be considered to have “failed” validation.
 - b) EOHHS will adjust the overall validation results when it has been determined that the hospital has not been compliant with data completeness requirements, per Section 2.D of this manual, applicable to calendar year reporting requirements.
 - c) When a hospital does not submit proper documentation for chart validation purposes during the calendar year, then the overall agreement rate will not be computed. This determination is based on insufficient information to conclude the data accuracy 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. In RY19, Hospitals will receive data validation results on the two quarters of calendar year reported data only as described in Section 6.A above.

C. Requesting Re-Evaluation of 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 $\geq 80\%$ may request a re-evaluation of their results. Hospitals can request a re-evaluation of validation results for any quarter of chart data submitted, as defined in Section 6.A.4 above, 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 for Re-evaluation:

- 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: Hospitals must complete the “MassHealth Hospital Data Validation Re-evaluation Request Form” that list the specific data element mismatches and basis for re-evaluation. To obtain a copy of form contact the MassQEX at: massqexhelp@telligen.com. Completed forms can be faxed to the EOHHS Contractor listed below:

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

4) Final Results. The Hospital will receive a written response indicating whether any of the validation results have been adjusted; whether the overall agreement rate remains below the required threshold ($\geq 80\%$), give detail on data element mismatches that remain and comments to improve data reliability as appropriate.

Please contact the MassQEX Help Desk at massqexhelp@telligen.com for questions on how to complete the form and submit your request.

Section 7. MassHealth PSI-90 Measure Specifications

This section outlines the data collection and calculations methods that apply to the PSI-90 composite measure required by the MassHealth Acute Hospital P4P Program.

A. Measure Description

Rationale: The Patient Safety Indicators (PSIs) are a set of measures which screen for potential problems that patients experience as a result of exposure to healthcare system (AHRQ, 2002). The PSI's can be used to assess the incidence of potentially avoidable complications and other iatrogenic events linked to in-hospital patient surgeries, medical procedures, and childbirth. PSI's serve as a starting point for further analysis to investigate errors caused by faulty systems that lead people to make a mistake or fail to prevent them as well as identify opportunities to reduce preventable errors through system and process changes (Corrigan and Donaldson 2000; McDonald, Romano and Geppert, 2002, Geppert, J., Rhoda, D., Morara, M. 2013).

Measure Name: Patient Safety and Adverse Events Composite includes the following indicators:

- PSI-03 Pressure Ulcer Rate
- PSI-06 Iatrogenic Pneumothorax Rate
- PSI-08 In-Hospital Fall with Hip Fracture Rate
- PSI-09 Postoperative Hemorrhage and Hematoma Rate
- PSI-10 Postoperative Acute Kidney Injury Rate
- PSI-11 Postoperative Respiratory Failure Rate
- PSI-12 Perioperative Pulmonary Embolism or Deep Vein Thrombosis Rate
- PSI 13 Postoperative Sepsis Rate
- PSI 14 Postoperative Wound Dehiscence Rate
- PSI 15 Unrecognized Abdominopelvic Accidental Puncture or Laceration Rate

Type of Measure: Outcome

Risk Adjustment: Yes

Results Reported As: A composite ratio represents a weighted average of all PSI's listed above.

Improvement Noted As: Lower composite ratio is better quality. However a lower ratio may not indicate that the hospital is performing as expected.

Measure Interpretation: Interpretation of a composite should be done in comparison to other data (e.g.: individual PSI observed rates) to identify areas for targeted quality improvement.

Select References

- Kohn L, Corrigan J, Donaldson M, Editors (2000), To Err Is Human: Building a Safer Health System. Institute of Medicine Committee on Quality of Health Care in America. Washington, DC, National Academy Press.
- McDonald K, Romano P, Geppert J, et al., Measures of Patient Safety Based on Hospital Administrative Data: Patient Safety Indicators. Technical Review 5, Stanford Evidence-based Practice Center under Contract No. 290-97-0013), AHRQ Publication No. 02-0038, Rockville, MD, August 2002
- Geppert, J., Rhoda, D., Morara, M., Quality Indicator Empirical Methods (Revised by Battelle, under Contract No. HHS290201200001C), Agency for Healthcare Research and Quality. Rockville, MD., September 2013
- Catherine L. Snow, C., Holtzman, L., Waters, H., et al., Accuracy of Coding in the Hospital-Acquired Conditions: Present on Admission Program Final Report, June 30, 2012, RTI International, Research Triangle Park, North Carolina, RTI Project Number 0209853.230.001.085.

B. PSI-90 Data Collection Criteria

The Hospitals PSI-90 measure will identify patient Medicaid claims using the criteria outlined below.

1. Medicaid Claims Data File Definitions

- a) **Medicaid Hospital Stay File:** is the standardized extract file gathered from Medicaid Management Information System (MMIS) claims plus Encounter claims data that is transferred to the EOHHS Contractor for measures analysis. This file contains clinical and administrative data on all patient hospitalizations for dates of service pertinent to measurement period noted in Section 7.B.3 below.
- b) **Measure Analysis Working File:** is the hospital-level standardized file extract that reflects a snapshot of Medicaid final action paid claims (adjudicated) taken 6 months following the last day of discharges for applicable measurement data period used to compute the composite measure.
- c) **Measurement Data Period:** The PSI-90 measure uses a 24 month hospital discharge data, whenever feasible, to generate the most reliable results. In RY19, the claims data period used to evaluate performance is October 1, 2013 to September 30, 2015 which includes ICD-9 codes only.
- d) **Claims Run-Out Period:** is the six (6) month period after the end of measurement period to ensure paid claims relevant to analysis period are entered and processed by the claims data warehouse (e.g.: for data period ending September 30, 2015 the run-out period is mid April 2016).
- e) **Claims Paid Status:** the measure analysis working file includes paid claims defined as follows:
 - **MMIS Claims Data:** hospital discharges for members covered by MassHealth fee-for-service and PCC plans where MassHealth is the primary or only payment source.
 - **Encounter Claims Data:** hospital discharges for members covered by managed care capitated insurance plans, where MassHealth is the primary or only payment source.
 - **Excluded Claims:** hospital discharges where Medicaid is a secondary or tertiary payment (third party liability, dual eligible, other insurance carrier) and where claims paid status has been denied.
- f) **Clinical and Administrative Data Fields**
 - **International Classification of Diseases Codes:** includes the ICD Diagnosis and ICD Procedure codes relevant to each PSI-90 component as defined in the AHRQ technical specifications manual.
 - **Diagnosis Related Group Codes:** includes the Medicare Severity Diagnosis Related Group (MS-DRG) codes relevant to PSI-90 measure as defined in the AHRQ technical specifications manual.
 - **Present on Admission (POA):** Some patient safety indicators require ICD Diagnosis/Procedure codes and present on admission (POA) codes associated with each ICD diagnosis code. The POA code is used to determine whether the diagnosis was present at time of admission or occurred during the hospital stay. The principal diagnosis is always assumed to be present on admission, regardless of the coding of the POA data element in the principal field. Secondary diagnosis codes are considered present on admission if it is coded with a Y, W, or 1. The secondary diagnosis code is considered not present on admission if it is coded with N, U or 0.
 - **Age:** includes all patients age greater than 18 years that meet the claims paid criteria noted above.
 - **Other Administrative Data File Content:** The other administrative data identifiers contained in the hospital measure analysis file include claim number, patient ID number, admission date, discharge date, admission type, admission source, length of stay and other case level identifiers applicable to PSI measure specifications. These data variables are required to identify MassHealth eligible discharges for dates of services associated with measurement data period.

Refer to **Appendix A-8** of this EOHHS Manual for a list of data variables that apply to PSI-90 measure.

2. Medicaid Claims Data Completeness

Each hospitals measure working file must meet data accuracy and completeness requirements in order to generate the most reliable results.

- a) **Accurate Data.** The accuracy of hospital claims coding and billing practices can affect measure results. Accurate data is defined as patient-level claims information that is coded correctly to accurately reflect the clinical condition and treatment that occurred during the hospitalization.

Variation may exist in hospital assignment of clinical and administrative billing codes required for measure calculation. Hospital documentation and coding practices can affect accuracy of results and require their evaluation to ensure consistency over time. Hospitals should review their claims on a regular basis.

- b) **Missing and Invalid Data.** Missing data refers to claims data fields required by the AHRQ software that have no values (blank) present for the patient claims submitted whereas, invalid data refers to data field values that are “incorrect” or fall “outside the range of allowable values” as defined by the AHRQ measure technical specifications.

Reducing missing and invalid data is critical to minimizing errors for a measure result because these data may not accurately reflect the observed rate for the patient population. Valid data is required prior to setting performance benchmark thresholds or computing hospital-level performance scores.

- c) **Data File Exclusions.** The hospitals measure working analysis file will exclude hospitalization discharges that contain incomplete, partial, missing or invalid entries in the claims clinical or administrative data fields that are required by the AHRQ software.

Missing or invalid codes in clinical (ICD codes, DRG codes, POA, etc.) or administrative (admission type, source, length of stay, etc.) claims data fields will either default to ‘other’ codes or yield an exclusion. Hospital discharge records that do not contain the data elements required by the applicable version of the AHRQ Quality Indicator Statistical Software will be excluded from measure analysis file.

Refer to **Appendix A-8** of this EOHHS Manual for a list of data variables and exclusions that apply to the data completeness for the hospital measure analysis file.

C. Measure Calculation Methods

The PSI-90 composite measure is computed using the applicable version of the AHRQ technical specifications manual and software tools as described below.

- 1) **Case Minimum Criteria.** The hospital claims-based measure data file must have at least three cases (n=3) for any one of the underlying patient safety indicators for the measurement period noted above (Section 7.B) to generate reliable results for comparison purposes.
- 2) **Reference Population:** each individual PSI measure rate and overall composite index value is computed using the reference population as defined in the applicable version of AHRQ quality indicators software. The reference population is defined as the national “Hospital Cost and Utilization Project” (HCUP) data and the Medicaid population, as defined in Section 8.B above, is the comparison population.
- 3) **Observed Rate:** the observed rate for each PSI indicator is the total number of discharge records where patient experienced the adverse event outcome (numerator) divided by the total number of discharge records at risk for the (denominator) that is computed using the following formula:

Observed Rate =	$\frac{\text{Total Event Outcomes}}{\text{Total Eligible Population at Risk}}$
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The observed rate is the raw rate at which the outcome of interest occurred in the hospital. The observed rate is limited for comparison across hospitals because patient case mix will vary between hospitals. The observed rate can be used to identify cases for further follow up or quality improvement areas that may be of concern.

- 4) **Expected Rate:** the expected rate for each PSI indicator is total number of discharge records where event is expected (numerator) divided by the total number of eligible discharge records at risk (denominator) that is computed using the following formula:

Expected Rate =	$\frac{\text{Total Expected Events}}{\text{Total Eligible Population at Risk}}$
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The expected rate is the rate the hospital would have if its patients experienced the same level of risk exhibited in the reference population.

- 5) **Risk Adjusted Rate (RAR):** the risk-adjusted rate for each PSI indicator is computed using indirect standardization as the observed rate divided by the expected rate with the result multiplied by the reference population rate using the following formula:

Risk Adjusted Rate =	$(\text{Observed Rate} / \text{Expected Rate}) \times \text{Reference Population Rate}$
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The risk-adjusted rate is the estimate of your hospital's performance on each PSI if the hospital had the average patient case mix calculated from the reference population data. Each PSI is scaled by the reference population rate so that it reflects the degree of variation from the overall average.

- 6) **Smoothed Rate:** is a weighted average of the hospital's risk-adjusted rate and the reference population rate using the reliability weight. The smoothed rate for each PSI indicator is computed using the following formula:

Smoothed Rate =	$\text{RAR} \times \text{Reliability weight} + (\text{Reference Population Rate} \times (1 - \text{reliability weight}))$
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The smoothed rate is the hospital's expected performance with a larger population of patients. Rates are smoothed to reflect the fact that indicators for small hospitals are measured less accurately than for larger hospitals. The statistical concept of reliability is used to evaluate the impact of case size on a particular measure.

The reliability weight is derived from the signal-to-noise variance, where the noise variance is calculated for each hospital based on their data and the signal to noise variance is calculated from the reference population. The reliability weight is a value which can vary from 0 to 1. Because smaller hospitals can have less reliable rates than larger hospitals, the weight given to their risk-adjusted rate is smaller (e.g.: weight is closer to zero) and the weight given to the national rate is larger (e.g.: weight closer to 1).

- 7) **Component Indicator Weights:** the composite is the weighted average of the scaled and reliability-adjusted rates for each component indicator (indirect standardization of the smoothed rates).

The AHRQ software applies weights to each of the component indicators in the composite. Starting with AHRQ software version 6.0 the component weights are based on both volume (numerator count) and harm associated with adverse events. Additional information on AHRQ component indicator weights can be found in the AHRQ Quality Indicator Empirical Methods Document noted in section 7.C.9 below.

- 8) **PSI-90 Composite Index:** the composite is constructed using a series of steps that include computing the risk-adjusted rate, scaling the risk-adjusted rate using the reference population, computing the reliability-adjusted rates, and applying the component indicator weights.

The composite index is computed using the following formula:

Composite Index Value =	$[\text{Indicator1 RAR} \times \text{Weight1}] + [\text{Indicator2 RAR} \times \text{Weight2}] + \dots + \dots + \dots + [\text{IndicatorN RAR} \times \text{WeightN}]$
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The final composite index formula reflects the weighted average of all PSI component indicators (IndicatorN) using the selected weights (WeightN), scaled risk-adjusted rates (RAR) and reliability-adjusted indicators.

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- 9) **AHRQ Technical Specification Manual Versions.** The following resources published by the Agency for Healthcare Research and Quality (AHRQ) are used to compute PSI-90 measure results
- a) **AHRQ Quality Indicators Technical Specifications: (version.6.0)** ICD-9-CM Patient Safety Indicators 90, Technical Specifications for Patient Safety and Adverse Events Composite, October 2016; posted as of July 2017 on: http://www.qualityindicators.ahrq.gov/Modules/PSI_TechSpec_ICD09_v60.aspx
 - b) **AHRQ PSI-90 Technical Specification (version 6.0) Appendix Manuals A to M** posted as of July 2017 on http://www.qualityindicators.ahrq.gov/Modules/PSI_TechSpec_ICD09_v60.aspx
 - c) **AHRQ Quality Indicators Software: SAS (version 6.0.2)** posted as of July 2017. This version uses up to 25 ICD-9-CM Diagnosis codes and up to 25 ICD-9-CM Procedure codes and posted on: <http://www.qualityindicators.ahrq.gov/Software/default.aspx>
 - d) **AHRQ Quality Indicators Empirical Methods (November 2014)** Revised as of March 2015 and posted on: <http://www.qualityindicators.ahrq.gov/modules/>
 - e) **AHRQ Patient Safety Indicator (PSI) Parameter Estimates for ICD-9-CM** (July 2017), includes the risk adjustment posted on: http://www.qualityindicators.ahrq.gov/Modules/psi_resources.aspx

D. PSI-90 Hospital Reports

The PSI-90 measure results are computed the by MassQEX vendor as part of the hospital year-end reports. Below is general information that applies to report contents and data review process.

1) Hospital Report Content

- a) **PSI-90 Measure Report:** measure results will display the composite index value, each PSI component observed and expected rate, smoothed rate, reliability weight, risk- adjusted rates, total numerator and denominator, AHRQ software version used, and how to compute your results.
- b) **PSI-90 Self-Serve Report:** this report will display discharge-level detail linked to the PSI-90 measure report for hospitals to review. This self-serve report is only available via the MassQEX secure portal to hospital staff with user accounts and cannot be downloaded. Discharge-level information **will not** be mailed to hospitals with the year-end PSI-90 measure report.

IMPORTANT NOTE: Hospital PSI-90 reports are computed using patient-level claims data that is protected by Health Insurance Portability and Accountability Act (HIPPA). Electronic exchange of discharge-level information that contains protected health information associated with MassHealth PSI claims measure results constitutes a violation of the HIPAA rules.

- 2) **Hospital Report Discrepancy.** The all Medicaid claims discharge level files used for PSI-90 reports may not match the hospitals internal records for following reasons:
 - a) The hospital claim submitted by its billing department differs from the Medicaid hospital stay file records, as defined in Section 7.B of this EOHHS Manual.
 - b) Hospital measure results only reflect changes to final action paid MMIS and encounter claims data processed six months after the end of the discharges that apply to the measurement period.
 - c) The hospital claim was amended and resubmitted by its billing department *after* the final action claims run-out date, as defined in Section 7.B of this EOHHS Manual. The hospital should verify their discharge level reports against claims submitted to MassHealth by the hospital billing department to confirm these claims were submitted prior to the run-out periods cited above.
 - d) EOHHS will not permit hospitals to submit corrections related to the underlying hospital claims used to calculate the PSI measure results. Hospitals cannot add or resubmit claims, or correct claims coding errors that apply to measurement period reports.

Please contact the MassQEX Help Desk at massqexhelp@telligen.com for questions about PSI-90 reports.

Section 8. National Healthcare-Associated Infection Measures

This section outlines the EOHHS data collection and calculation guidelines that apply to the nationally reported healthcare-associated infection measures required by the MassHealth Acute Hospital P4P Program.

A. Measure Description

Rationale: Healthcare-Associated Infections (HAIs) are among the leading causes of death in the United States that put the patient at risk, increase the days of hospitalization required for patients and adds to healthcare costs. According to the Centers for Disease Control, HAIs are among the most common complications of hospital care affecting 1 of 25 hospitalized patients that are largely preventable. These infections can often be prevented when healthcare facilities follow evidence-based guidelines for delivering safe care (WHO, 2016).

Measure Name: The five Healthcare-Associated Infection (HAI) measures are as follows:

- Central Line-Associated Blood Stream Infections (CLABSI)
- Catheter-Associated Urinary Tract Infection (CAUTI)
- Methicillin Resistant Staph Aureus bacteremia (MRSA)
- Clostridium Difficile Infection (CDI)
- Surgical Site Infections for colon and abdominal hysterectomy (SSI's)

Type of Measure: Outcome

Risk Adjustment: Yes

Results Reported As: Standardized Infection Ratio (SIR). The SIR result adjusts for various facility and/or patient-level factors that contribute to healthcare-associated risk within the acute care facility.

Improvement Noted As: Lower SIR values correspond to higher quality.

Measure Interpretation: SIR results are interpreted based on the 2015 national baseline population data. If the SIR is > 1.0 then more HAIs were observed than predicted. If the SIR is < 1.0, then fewer HAIs were observed than predicted. If the SIR is equal to 1.0 then the same number of HAIs were observed as predicted.

National Data Source: The Centers for Disease Control and Prevention (CDC) collects healthcare-associated infection data via the National Healthcare Safety Network (NHSN) registry surveillance system. Acute hospitals report each HAI data from patient care locations as mapped by NHSN below:

HAI event	NHSN Location Mapping
CLABSI	All applicable Adult, Pediatric and neonatal intensive care units (ICUs); and Adult & Pediatric Medical, Surgical, and Medical/Surgical ward locations
CAUTI	Adult and pediatric Intensive care units (ICUs) only; and Medical, Surgical, and Medical/Surgical ward locations
MRSA	Based on Facility-wide level surveillance
CDI	Based on Facility-wide level surveillance
SSI	Procedure related volume (must have more than 9 in previous year)

Refer to the NHSN Patient Safety Components Manual” (January 2018) for more detail on mapped locations and infections reporting protocols at https://www.cdc.gov/nhsn/pdfs/psscmanual/psscmanual_current.pdf

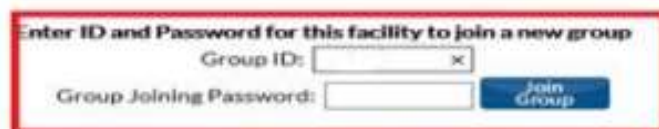
REFERENCES

- National Action Plan to Prevent Healthcare-Associated Infections: Road Map to Elimination (April 2013), Office of Disease Prevention and Health Promotion <https://health.gov/hcq/prevent-hai-action-plan.asp>
- World Health Organization: Guidelines on core components of infection prevention and control programs at the national and acute health care facility level (2016) posted by the Center for Disease Control. Accessed August 2018 at <https://www.cdc.gov/HAI/prevent/prevention.html>

B. MassQEX Data Collection Procedures

Beginning RY19, the procedures described below apply to EOHHS collection of healthcare-associated infection data for hospitals contracted under the Medicaid Acute Hospital RFA.

- 1) **MassHealth NHSN Group.** EOHHS has arranged with the Centers for Disease Control and Prevention (CDC) to establish a user group under the National Healthcare Safety Network (NHSN) registry system as a mechanism to facilitate exchange of Massachusetts acute hospital HAI data reported to NHSN.
- 2) **MassHealth Group Administrator.** EOHHS has designated the MassQEX vendor (Telligen, Inc.) as the MassHealth NHSN “Group Administrator” to manage all aspects of data exchange and analysis of HAI measures on behalf for EOHHS MassHealth Hospital P4P Program. The EOHHS designated “MassHealth Group Administrator” is required to complete all CDC training and security clearance procedures prior to gaining access to NHSN system.
- 3) **MassHealth NHSN Group Enrollment.** For EOHHS to get access to Massachusetts hospital infections data reported to NHSN, each acute hospital facility must confer rights to EOHHS by joining the MassHealth NHSN Group using the steps described below.
 - **Step 1:** The “MassHealth Group Administrator” (MassQEX) will send an email to each Hospital Key Quality Contact that is identified from the most current EOHHS Acute Hospital P4P Program database. The email will contain enrollment information that includes a five digit group identification number and the specific MassHealth NHSN Group joining password.
 - **Step 2:** The Hospital Key Quality Contact must coordinate the MassHealth NHSN Group enrollment process by providing their “**Hospital’s NHSN Facility Administrator**” the joining information from the MassQEX invitation email. Only the current Hospital NHSN Facility Administrator has authority from NHSN to join the MassHealth NHSN Group.
 - **Step 3:** The “**Hospital’s NHSN Facility Administrator**” must select “Group” and then “Join” on the NHSN navigation bar shown below.

A screenshot of a web form titled "Enter ID and Password for this facility to join a new group". It contains two input fields: "Group ID:" with a small 'x' icon in the top right corner, and "Group Joining Password:". To the right of the password field is a blue button labeled "Join Group". The entire form is enclosed in a red rectangular border.
 - **Step 4:** Immediately after joining the MassHealth NHSN Ggroup, the Hospital's NHSN Facility Administrator will be directed to a screen listing the data EOHHS is requesting access to for each of the infections listed in Section 8.A above. **Note** that a Hospital joining the MassHealth NHSN Group does not have access to any data from other facilities.
 - **Step 5:** The Hospital's NHSN Facility Administrator then **REVIEWS** and **ACCEPTS** the **Data Rights Template**. When the data rights template is accepted, data sharing feature is activated and the facility is added to the MassHealth NHSN Group. This step completes the process of enrollment. For more detail on NHSN protocol for joining a group and accepting the Confer Rights template go to <https://www.cdc.gov/nhsn/pdfs/groups-startup/JoinGroup-current.pdf>
- 4) **Hospital Enrollment Compliance:** The MassHealth Group Administrator will monitor enrollment via the NHSN generated “*Rights Acceptance Report*” to ensure Hospitals meet enrollment deadline. EOHHS will be notified of Hospitals that have not complied with Group enrollment instructions.
- 5) **Enrollment Deadline:** The RY19 MassHealth Hospital P4P Program requires all hospitals enroll by the November 1, 2018 deadline. A Hospital that is not enrolled by the deadline this may affect EOHHS access to timely data for performance evaluation purposes and computing incentive payments.

C. MassQEX Measure Calculation Rules

- 1) **Measurement Data Period:** EOHHS will evaluate each individual HAI measures using 24 months of data to generate the most reliable results. For RY19, the HAI measure data period used to evaluate performance is January 1, 2015 to December 31, 2016.
- 2) **NHSN Analysis Tools:** The MassHealth NHSN Group Administrator has access to “NHSN Analysis Reports Tool Set” as part of the CDC arrangement made with EOHHS to establish MassHealth NHSN Group. This NHSN Analysis Tool will be utilized to generate measure results by acute hospital facility for each of the HAI measures listed in Section 8.A above.
- 3) **MassQEX Data Extraction:** Defined datasets will be extracted for each hospital by copying and freezing the data at a specific point in time to facilitate generating hospital output reports. Once the NHSN Analysis Tool generates the data report the “date last generated” screen is updated.
- 4) **Standardized Infection Ratio (SIR):** is the result used by the NHSN to track healthcare-associated infections. The SIR is calculated for each infection measure using the formula shown below.

Standard Infection Ratio (SIR) =	<u>Number of Observed (O) HAI's</u> <u>Number of Predicted (P) HAI's</u>
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- **Number of Observed Infections:** is the number of HAI's for a specific location/facility over a period of time (also listed as event count)
- **Number of Predicted Infections:** is calculated by CDC using multivariate regression models generated from nationally aggregated data during a baseline time period.
- **Standardized Infection Ratio (SIR):** represents the calculated number of Observed Infections divided by the Number of Predicted Infections.

The SIR compares the actual number of HAIs reported to the number that would be predicted, given the standard population (i.e., NHSN 2015 baseline), and adjusting for risk factors found to be significantly associated with differences in infection incidence. The SIR is not generated in NHSN if the expected infection rate is less than 1.0.

Refer to the “NHSN Standardized Infection Ratio: A Guide to SIR Guide (March 2018)” for details on CDC methodology at: <https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/nhsn-sir-guide.pdf>

- 5) **Data Accuracy and Completeness:** The EOHHS definition of data completeness in Section 2.D of this Manual also applies to nationally reported hospital infection measures data. Hospitals are expected to comply with NHSN technical data collection specifications, format instructions, reporting protocols and deadlines, including review and resolve any NHSN submission warnings to ensure complete and accurate data. Refer to CMS guidance for NHSN reporting accuracy on: <https://www.cdc.gov/nhsn/cms/cms-reporting.html>

NOTE: Inaccurate data that are a result of the Hospitals NHSN submission errors is not considered a reason for requesting a recalculation of SIR results after the defined dataset used for the MassQEX report has been extracted. EOHHS accepts the Hospitals SIR result as accurate based on the dataset that was accessed and extracted by the MassQEX vendor at the freeze date as noted in Section 8.C.3 above. EOHHS will not consider data to be “inaccurate” because a hospital did not make necessary corrections to their HAI data prior to the MassQEX freeze date stamp.

D. Hospital HAI Reports

The HAI measure results are computed the by MassQEX vendor as part of the hospital year-end reports. Below is general information that applies to report contents.

1. Hospital Report Content

- a) HAI measure results will contain at minimum the number of observed Infections, number of predicted infections, standardized infection ratio (SIR).
- b) Other information includes the measurement data period, name of campus locations (if applicable) that contributed to results, if the hospital reports to NHSN by service location, and NHSN Module Run Date.

2. Hospital Report Discrepancy

The MassQEX report results for each HAI measure may not match the information in other national summary reports for the following reasons:

- a) The MassQEX report results were generated using different data periods than the Hospitals CMS report or results posted on Hospital Compare
- b) The MassQEX report results were generated using different points in time for freeze dates than ones used in the Hospitals CMS report or results posted on Hospital Compare.
- c) The measurement data periods used to generate CMS hospital reports or Hospital Compare may have used different criteria (e.g.: validation results, case minimum, etc.) not available in the public domain for MassQEX vendor use.
- d) The Hospitals corrections or edits to the underlying NHSN submitted HAI data, for a given data reporting cycle, was calculated after the MassQEX vendor dataset extraction freeze date.
- e) Hospitals may not request recalculation of original MassQEX reports mailed based on hospital corrections or edits to underlying NHSN data. EOHHS will not re-run HAI reports to factor in such corrections or edits to NHSN.
- f) EOHHS recognizes that NHSN Analysis Tool software calculation errors may be identified and are beyond the MassQEX vendor control. EOHHS will notify CDC of such incidents and continue to monitor for any corrections notices posted in the public domain.

Please contact the MassQEX Helpdesk at massgexhelp@telligen.com for questions on HAI generated measure results.

Section 9. National Hospital Patient Experience Survey Measures

This section outlines the EOHHS data collection and calculation guidelines that apply to the nationally reported hospital patient experience survey measures required by the MassHealth Acute Hospital P4P Program.

A. Measure Description

Rationale: Patient experience is an integral component of healthcare quality as it provides insight on various aspects of care delivery and assessing patient-centered care. The patient-centered experience has been linked to what patients place importance on when seeking care (timely appointments, provider communication, easy access to information). The Hospital Consumer Assessment of Healthcare Provider and Systems (HCAHPS) adult survey was developed to evaluate aspects of patient-centered care and identifying improvement in aspects of care delivery. The use of patient experience measures with other quality measures remains an important part of evaluating the overall picture on performance (AHRQ, 2014; AHRQ 2017, AHRQ, 2018).

Measure Name: The HCAHPS survey dimensions include:

Survey Dimension	# Items	General Description
Nurse Communication	3 items	<ul style="list-style-type: none">• how well nurses explained things• nurses - courtesy & respect
Doctor Communication	3 items	<ul style="list-style-type: none">• doctors explain in understandable language• doctors - courtesy & respect
Responsiveness of Hospital staff	2 items	<ul style="list-style-type: none">• help getting to bathroom• help using bedpan
Communication about medicines	2 items	<ul style="list-style-type: none">• explain reason for medicine• explain medicine side effect
Discharge information	2 items	<ul style="list-style-type: none">• staff asked about help needed after Discharge• got written info on health/symptoms to expect
Care Transition (CTM-3)	3 items	<ul style="list-style-type: none">• hospital staff took patient preference into account• understanding of responsibility to manage my health• understood purpose for taking medications
Overall rating	1 items	<ul style="list-style-type: none">• patients' rating of the hospital

Type of Measure: Outcome

Risk Adjustment: Yes. HCAHPS survey data undergo patient mix adjustment and survey mode adjustment.

Results Reported as: The answer percentage of top box responses for each survey dimension.

Improvement Noted as: Increase in rate (top box responses)

Measure Interpretation: Analysis of top box responses can be used to identify areas for improvement.

National Data Source: HCAHPS self-administered by hospitals and/or survey vendors are required to adhere to the HCAHPS Quality Assurance Guidelines specifications, meet rules of participation, and attesting to the accuracy of data collection process. CMS requires survey data be submitted quarterly to the HCAHPS data warehouse for calculations prior to posting results on Hospital Compare for public use. For more detail on survey requirements go to: <https://www.hcahpsonline.org/en/quality-assurance/>.

Select References:

- Development of CAHPS Adult Survey (August 2014), Agency for Healthcare Research and Quality, Rockville, MD., Content last reviewed March 2018. Accessed August 22, 2018., https://www.ahrq.gov/cahps/surveys-guidance/hospital/about/dev_adult_hp_survey.html
- Center for Medicare and Medicaid Services, CAHPS Hospital Survey Quality Assurance Guidelines (v13.0); March 2018 Accessed August 22, 2018 at: <https://www.hcahpsonline.org/en/quality-assurance/>.
- What is Patient Experience? Agency for Healthcare Research and Quality, Rockville, MD., Content last reviewed March 2017. Accessed August 22, 2018 at: <http://www.ahrq.gov/cahps/about-cahps/patient-experience/index.html>

B. MassQEX Data Collection Procedures

In RY19, the procedures described below apply to EOHHS collection and analysis of patient experience survey measures data required under the MassHealth Acute Hospital P4P Program.

- 1) **Measurement Period:** The data measurement periods include CY2016 baseline data (January 1, 2016 to December 31, 2016) and CY2017 as the comparison data (January 1, 2017 – December 31, 2017).
- 2) **MassQEX Data Extract:** The MassQEX Vendor is designated to manage all aspects of data extraction and analysis of HCAHPS measures listed in Section 8.A above, on behalf for EOHHS. The 12 month data snapshots reflect the final result data files downloaded from the CMS Hospital Compare website after the national reporting correction deadlines associated with the measurement period have passed.
- 3) **Hospital Compare Dataset.** The MassQEX vendor will access the Massachusetts Hospital-level HCAHPS survey dimension measure data from the CMS Hospital Compare website data archives posted on: <https://data.medicare.gov/data/archives/hospital-compare> as follows:
 - **Step 1** – Download the dataset for CY16 All Hospital Revised Flat Files
 - **Step 2** – Download the dataset for CY17 All Hospital Archived Flat Files
 - **Step 3** - Download the Cancer Hospital dataset from CY16 All Hospital Revised Flat Files
 - **Step 4** - Download the Cancer Hospital dataset from CY17 All Hospital Archived Flat Files

The specific data fields used for analysis will include Hospital name, HCAHPS measure ID, HCAHPS Question, HCAHPS answer percent, number of completed surveys and footnote, survey response rate percent and footnote, measure start and end date. The MassQEX vendor dataset file downloaded on Hospital Compare include stamp dates and notices on last updates posted. Dataset versions associated with baseline and comparison will be periodically checked.

- 4) **Data Accuracy and Completeness:** The EOHHS definition of data completeness in Section 2.D of this Manual also applies to nationally reported HCAHPS measures data. Hospitals are expected to comply with HCAHPS technical data collection quality assurance guidelines, survey completeness criteria, reporting deadlines, including review and correct any submission warnings to ensure complete and accurate data. For more detail go to: <https://www.hcahpsonline.org/en/quality-assurance/>.

C. HCAHPS Measure Calculation Rules

- 1) **Data File Preparation.** Hospital datasets extracted from Hospital Compare will undergo an additional data cleaning process in preparation for analysis. This includes adjustments within each file that does not correspond to the calendar year data periods, removal of hospitals marked with data results 'not available' or 'suppressed' as posted by CMS.
- 2) **Measure Rates:** MassQEX will obtain the top box responses for each of the survey dimensions listed in Table below by accessing Hospital Compare Results.

Table 9-1: HCAHPS Top Box Responses Extracted

Metric ID #	Answer Percent of "Top Box Response"
HCOMP-1A-P	Patients that reported their nurses "Always" communicated well
HCOMP-2A-P	Patients that reported their doctors "Always" communicated well
HCOMP-3A-P	Patients that reported they "Always" received help as soon as they wanted
HCOMP-5-U-P	Patients that reported staff "Always" explained medicines before giving it to them
HCOMP-6-Y-P	Patients that reported "YES" were given info about what to do during their recovery at home.
HCOMP-7-SA	Patients that reported "Strongly agree" they understood their care when they left the hospital.
HOSP-RTG-9	Patients who gave a hospital rating of 9 or 10 (highest).

D. Hospital HCAHPS Reports

The HCAHPS measure results are computed the by MassQEX vendor as part of the hospital year-end reports. Below is general information that applies to report contents.

1. Hospital Report Content

- a) MassQEX reports will summarize HCAHPS answer percentage of top box response for each survey dimension listed in Section 9.A above, number of surveys completed, survey response rate and pertinent footnotes as applicable. When no data is reported on Hospital Compare for a specific dimension it is not included in report results; and
- b) Other information includes the measurement start and end dated, campus locations (if applicable) that contributed to results, Hospital Compare flat file dates and MassQEX report run date.

2. Hospital Report Discrepancy

The MassQEX report results for the HCHAPS measure may not match the information in other national summary reports for the following reasons:

- a) The MassQEX report results were generated using different data periods than the Hospitals results posted on Hospital Compare
- b) The MassQEX report results were generated using different archived data gile versions than the ones posted on Hospital Compare.
- c) The measurement data periods used to generate Hospital Compare may have used different criteria not available in the public domain for MassQEX vendor use.
- d) The Hospitals corrections or edits to the underlying CMS submitted HCAHPS data, for a given quarter reporting cycle, were calculated after the MassQEX vendor year-end report run date. .
- e) Hospitals may not request recalculation of original MassQEX reports mailed based on hospital corrections or edits to HCAHPS data. EOHHS will not re-run reports to factor in such corrections.
- f) EOHHS recognizes that HCAHPS calculation errors may be identified by CMS and are beyond the MassQEX vendor control. EOHHS will continue to monitor for any corrections notices related to HCAHPS posted in the public domain.

Please contact the MassQEX at massqexhelp@telligen.com for questions on MassHealth HCAHPS reports.