

CENTER FOR HEALTH INFORMATION AND ANALYSIS

**PERFORMANCE OF THE
MASSACHUSETTS
HEALTH CARE SYSTEM**

QUALITY

TECHNICAL APPENDIX 2016



Quality

TECHNICAL APPENDIX

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Metrics: Health Care-Associated Infections (HAI)

Measure Steward: Centers for Disease Control and Prevention

CHIA Data Source: CMS Hospital Compare

Population: All Payers, All Ages

MEASURE NAME	DESCRIPTION	PRIMARY DATA SOURCE
Catheter-Associated Urinary Tract Infections (CAUTI)	Standardized Infection Ratio (SIR) of healthcare-associated, catheter-associated urinary tract infections (UTI) among patients in bedded inpatient care locations, except level II or level III neonatal intensive care units (NICU).	Health record
Central-Line Associated Bloodstream Infection (CLABSI)	Standardized Infection Ratio (SIR) of healthcare-associated, central line-associated bloodstream infections (CLABSI) among patients in bedded inpatient care locations.	Health record
Hospital-onset C. difficile	Standardized infection ratio (SIR) of hospital-onset CDI Laboratory-identified events (LabID events) among all inpatients in the facility, excluding well-baby nurseries and neonatal intensive care units (NICUs).	Health record
Hospital-onset MRSA	Standardized infection ratio (SIR) of hospital-onset unique blood source MRSA Laboratory-identified events (LabID events) among all inpatients in the facility.	Health record
SSI Surgical Site Infection: SSI colon, SSI-abdominal hysterectomy	Facility adjusted Standardized Infection Ratio (SIR) of deep incisional and organ/space Surgical Site Infections (SSI) at the primary incision site among adult patients aged ≥ 18 years as reported through the CDC National Health and Safety Network (NHSN). This single prototype measure is applied to two operative procedures, colon surgeries and abdominal hysterectomies, and the measure yields separate SIRs for each procedure.	Health record

Definition:

Performance on these measures is reported as a Standard Infection Ratio (SIR), or the ratio of the observed number of infections to the expected number of infections at a particular facility. The CDC adjusts the SIR for risk factors associated with differences in a facility's infection rates, like hospital type, medical school affiliation, and bed size for CLABSI and CAUTI, and patient and procedural differences for SSI. The pre-calculated SIRs for health care-associated infections were retrieved from CMS Hospital Compare. Where a hospital's performance is not included on Hospital Compare because of small numbers, missing data, or because the measure does not apply, the data is not included in the report.

Metric: Patient Safety Indicator composite, PSI 90

Steward: Agency for Health Research and Quality (AHRQ)

CHIA Data Source: CHIA Hospital Discharge Database

Population: All Payers, Ages 18+

MEASURE NAME	DESCRIPTION	PRIMARY DATA SOURCE
Patient Safety for Selected Indicators (PSI 90)	<p>The weighted average of the reliability-adjusted observed-to-expected ratios (indirect standardization of the smoothed rates) for the following component indicators:</p> <ul style="list-style-type: none">• PSI 03 Pressure Ulcer Rate• PSI 06 Iatrogenic Pneumothorax Rate• PSI 07 Central Venous Catheter-Related Blood Stream Infection Rate• PSI 08 Postoperative Hip Fracture Rate• PSI 09 Perioperative Hemorrhage or Hematoma Rate• PSI 10 Postoperative Physiologic and Metabolic Derangement 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 Accidental Puncture or Laceration Rate	Administrative data derived from health records

Calculation:

The patient safety composite (PSI 90) is a composite of eleven measures. Performance on each measure expressed as a ratio of observed to expected rates of the related adverse event. The composite is the weighted average of the observed-to-expected ratios of the eleven component measures. PIS 90 was calculated according to AHRQ specifications, using data from CHIA's Hospital Discharge Database (HDD) for three fiscal years (2013, 2014, and 2015) and AHRQ software version 5.0.3. Hospitals with fewer than 30 cases in the denominator were not reported. National performance is based on data publicly available on CMS Hospital Compare.

Metrics: Healthcare Effectiveness Data and Information Set (HEDIS) Measures

Steward: Agency for Healthcare Research and Quality

CHIA Data Source: Massachusetts Health Quality Partners

Population: Commercially insured patients from five health plans in Massachusetts (Blue Cross Blue Shield of Massachusetts, Tufts Health Plan, Harvard Pilgrim Health Care, Fallon Community Health Plan, and Health New England). Age varies by measure.

SET	MEASURE NAME AND ID	DESCRIPTION	PRIMARY DATA SOURCE
HEDIS	Use of imaging studies for low back pain	The percent of adult patients ages 18 to 50 who did not get imaging tests within 28 days after being diagnosed with lower back pain. Imaging tests include X-rays, MRIs, and CT-scans. A higher score means that more patients did not get imaging tests during this time - which is good.	Claims
HEDIS	Appropriate Testing for Children with Pharyngitis	Children age 2 to 18 who have a new sore throat, and is given a "strep test" or "throat culture" when the doctor prescribes penicillin or other antibiotic medicine.	Claims
HEDIS	Appropriate Treatment for Children with Upper Respiratory Infection	How often doctors do not prescribe antibiotic medicine (such as penicillin) for children ages 3 months to 18 years who are diagnosed with colds, sore throats, or other upper respiratory infections.	Claims

Metrics: The Leapfrog Group

Steward: The Joint Commission

CHIA Data Source: The Leapfrog Group Hospital Survey

Population: All Payers, All Ages

MEASURE NAME	DESCRIPTION	PRIMARY DATA SOURCE
NTSV Cesarean Section	Percent of cesarean sections for first-time pregnancy (nulliparous) that has reached 37 th week or later (term) and consists of one fetus (singleton) in the head-downposition (vertex).	Hospital Survey derived from health records
Elective Delivery Prior to 39 Completed Weeks Gestation	Elective Delivery Prior to 39 Completed Weeks Gestation	Hospital Survey derived from health records

Definition:

These measure scores were received from The Leapfrog Group as pre-calculated percentages. Participation in the Leapfrog Hospital survey is voluntary; where a hospital does not complete the survey or report on certain items in the survey, the data for that entity is also not included in the report.

Metrics: Prevention Quality Indicators (PQI)

Steward: Agency for Healthcare Research and Quality

CHIA Data Source: CHIA Hospital Discharge Database

Population: All Payers, Ages 18+

MEASURE NAME	DESCRIPTION	PRIMARY DATA SOURCE
Asthma in younger adults admission rate (PQI 15)	Admissions for a principal diagnosis of asthma per 100,000 population, ages 18 to 39 years.	Administrative data
Chronic obstructive pulmonary disease (PQI 5)	Admissions with a principal diagnosis of chronic obstructive pulmonary disease (COPD) or asthma per 100,000 population, ages 40 years and older.	Administrative data
Congestive Heart Failure Admission Rate (PQI 8)	Admissions with a principal diagnosis of heart failure per 100,000 population, ages 18 years and older.	Administrative data
Diabetes Short-Term Complications Admission Rate (PQI 1)	Admissions for a principal diagnosis of diabetes with short-term complications (ketoacidosis, hyperosmolarity, or coma) per 100,000 population, ages 18 years and older.	Administrative data

Definition:

The Prevention Quality Indicators were calculated according to the measure specifications from the Agency for Healthcare Research and Quality (AHRQ), using data from CHIA's Hospital Discharge Database (HDD) for three fiscal years (2013, 2014, and 2015) and AHRQ software version 5.0.3.

These PQR rates are observed rates and not risk-adjusted.

Metrics: Hospital-wide Adult All-Payer Readmissions

Steward: Centers for Medicare & Medicaid Services

CHIA Data Sources: CHIA Hospital Discharge Database

Populations: All Payers, Ages 18+

MEASURE NAME	DESCRIPTION	PRIMARY DATA SOURCE
Hospital-Wide All-Cause Unplanned Readmission Measure (HWR) (All-Payer Measure)	This measure estimates the hospital-wide, all-cause, unplanned 30-day readmission rate for all-payer patients aged 18 and older.	Administrative data derived from health records

Calculation/Definition:

The all-payer risk standardized readmission rates for patients 18+ years of age were calculated according to the measure specifications adopted from CMS, as submitted by the Center for Outcomes Research and Evaluation, Yale New Haven Health Services Corporation. CHIA's Hospital Discharge Database (HDD) was used for this analysis. The measure reports a single summary risk-standardized readmission rate (RSRR), derived from the volume-weighted results of five clinically defined cohorts: surgery/gynecology, general medicine, cardiorespiratory, cardiovascular, and neurology. The risk standardization procedure controls for patient case mix and hospital service mix.

For more details, please see:

- Hospital-Wide Adult All-Payer Readmissions in Massachusetts: 2011-2014, February 2016: <http://www.chiamass.gov/assets/docs/r/pubs/16/chia-readmissions-report-2011-2014.pdf>
- Behavioral Health & Readmissions in Massachusetts Acute Care Hospitals, Technical Appendix, August 2016: <http://www.chiamass.gov/assets/docs/r/pubs/16/Behavioral-Health-Readmissions-2016-Technical-Appendix.pdf>

Metrics: Consumer Assessment of Healthcare Providers and Systems Clinician and Group Patient Centered Medical Home Survey (CAHPS) – Primary Care (Adult and Pediatrics)

Steward: Agency for Healthcare Research and Quality

CHIA Data Source: Massachusetts Health Quality Partners, 2015 Patient Experience Survey (PES)

Population: Commercially insured patients from five health plans in Massachusetts (Blue Cross Blue Shield of Massachusetts, Tufts Health Plan, Harvard Pilgrim Health Care, Fallon Community Health Plan, and Health New England). Adult patients' ages 18+, pediatric patients age 0 to 17.

Adult Primary Care and Pediatric Patient Experience Survey Measures

MEASURE NAME	DESCRIPTION	PRIMARY DATA SOURCE
Organizational Access	Survey respondents' scoring of satisfaction with their ability to get timely appointments, care, and information.	Patient Reported Data/Survey
Office Staff	Survey respondents' scoring of their interactions with office staff.	Patient Reported Data/Survey
Coordination of Care	Survey respondents' scoring of their satisfaction with their providers' coordination of their care.	Patient Reported Data/Survey
Communication	Survey respondents' scoring of their satisfaction with their patient-providers' communication.	Patient Reported Data/Survey
Knowledge of Patient	Survey respondents' scoring of their satisfaction with how well doctors know them.	Patient Reported Data/Survey
Behavioral Health	Survey respondents' scoring of whether doctors talked to them about their mental health.	Patient Reported Data/Survey
Self-Management	Survey respondents' scoring of whether healthcare providers talked with them and their family about goals for good health and ways to meet these goals.	Patient Reported Data/Survey
Willingness to Recommend	Survey respondents reported YES, they would definitely recommend their doctor to family and friends.	Patient Reported Data/Survey
Growth and Development – Pedi Only	Survey respondents' scoring of whether doctors talked to them about how well their child was growing, moving, speaking, learning, and getting along with others.	Patient Reported Data/Survey
Health and Safety – Pedi Only	Survey respondents' scoring of whether doctors gave advice about keeping their child safe and healthy.	Patient Reported Data/Survey

All scores for measures of patient experience in medical groups were pre-calculated by and received from the Massachusetts Health Quality Partners (MHQP).

Patient Experience measures scores are rated on a scale from 0 to 100. Each survey response is converted to numeric format, with 100 as the most favorable response. Related questions are averaged to create a respondent-level score for each measure. The respondents' measure scores are then case mix adjusted before aggregating to the medical group level and a statewide score.

These measures reflect the experience of the adult or a parent or caregiver of a child who received care and who is a commercially insured member of one of five commercial carriers in the Commonwealth: BCBSMA, Fallon Community Health Plan, Harvard Pilgrim Health Care, Health New England, and Tufts Health Plan. This sample represents approximately 70% of the commercial population. The nine Provider Group Networks measured are those serving the five carriers' commercial members. These groups are: Atrius Health, Inc., Baycare Health Partners, Berkshire Health Systems, Beth Israel Deaconess Care Organization LLC, Lahey Health, New England Quality Care Alliance, Partners Community Health Care, Steward Health Care Network, and UMass Memorial Health Care, Inc.

MHQP does not report scores for practices or groups with insufficient sample size, but individuals from these small practices or groups are counted at more aggregated levels, once sufficient sample size is reached.

Metrics: Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS)

Steward: Agency for Healthcare Research and Quality

CHIA Data Source: CMS Hospital Compare

Populations: All Payers, Ages 18+

MEASURE NAME AND ID	DESCRIPTION	PRIMARY DATA SOURCE
Cleanliness of Hospital Environment	Patient response to the individual HCAHPS survey question about the cleanliness of their hospital room during their stay.	Patient Reported Data/Survey
Communication about Medicines	A composite of responses to HCAHPS survey questions about how providers communicated about medications during the hospital stay.	Patient Reported Data/Survey
Communication with Doctors	A composite of responses to HCAHPS survey questions about how doctors communicated during the hospital stay.	Patient Reported Data/Survey
Communication with Nurses	A composite of responses to HCAHPS survey questions about how nurses communicated during the hospital stay.	Patient Reported Data/Survey
Discharge Information	A composite of responses to HCAHPS survey questions about the care instructions given to them by a provider at discharge.	Patient Reported Data/Survey
Overall Hospital Rating	Overall patient rating of the hospital, based on the recent admission, on a scale from 0 (lowest) to 10 (highest).	Patient Reported Data/Survey
Recommend the Hospital	Would the patient recommend the hospital, based on the recent admission.	Patient Reported Data/Survey
Pain Management	A composite of responses to HCAHPS survey questions about how their pain was controlled during their stay.	Patient Reported Data/Survey
Quietness of Hospital Environment	Patient response to the individual HCAHPS survey question about the quietness of their hospital room at night.	Patient Reported Data/Survey
Responsiveness of Hospital Staff	A composite of responses to HCAHPS survey questions about if help was provided when it was needed during the hospital stay.	Patient Reported Data/Survey
Care Transition	A composite of responses to HCAHPS survey questions about how patients understood the care instructions they received at discharge.	Patient Reported Data/Survey

Definition:

All HCAHPS scores were retrieved from CMS Hospital Compare as pre-calculated percentages. Where a hospital's performance is not included on Hospital Compare because of small numbers, missing data, or because the measure does not apply, the measure is also not included in the report. For more information on CMS's methods, see:

http://www.hcahpsonline.org/Files/October_2016_Star%20Ratings_Tech%20Notes.pdf

Metric: CMS Hospital Effective Care Processes

Measure Steward: Centers for Medicare & Medicaid Services

CHIA Data Source: CMS Hospital Compare

Populations: All Payers, Ages 18+

SET	MEASURE NAME AND ID	DESCRIPTION	PRIMARY DATA SOURCE
Hospital Process	Timing of receipt of primary percutaneous coronary intervention (PCI) (AMI 8a)	Percentage of acute myocardial infarction (AMI) patients who received primary PCI during the hospital stay with a time from hospital arrival to PCI of 90 minutes or less.	Claims and health record
Hospital Process	Heart failure patients given an evaluation of left ventricular systolic function (LVS) (HF 2)	Percentage of heart failure patients with documentation in the hospital record that left ventricular systolic (LVS) function was evaluated before arrival, during hospitalization, or is planned for after discharge.	Claims and health record
Hospital Process	Pneumonia patients given the most appropriate initial antibiotic(s) (PN 6)	Percentage of pneumonia patients 18 years of age or older selected for initial receipts of antibiotics for community-acquired pneumonia (CAP).	Claims and health record
Surgical Care Improvement Project	Prophylactic antibiotic received within 1 hour prior to surgical incision (SCIP-Inf-1a)	Surgical patients with prophylactic antibiotics initiated within one hour prior to surgical incision. Patients who received vancomycin or a fluoroquinolone for prophylactic antibiotics should have the antibiotics initiated within two hours prior to surgical incision. The extended window is due to the longer infusion time required for these antibiotics.	Claims and health record
Surgical Care Improvement Project	Prophylactic antibiotic selection for surgical patients (SCIP-Inf-2a)	Surgical patients who received prophylactic antibiotics consistent with current guidelines (specific to each type of surgical procedure).	Claims and health record

SET	MEASURE NAME AND ID	DESCRIPTION	PRIMARY DATA SOURCE
Surgical Care Improvement Project	Urinary catheter removed on Postoperative Day 1 (POD1) or Postoperative Day 2 (POD2) with day of surgery being day zero (SCIP-Inf-9)	Surgical patients with urinary catheter removed on Postoperative Day 1 or Postoperative Day 2 with day of surgery being day zero.	Claims and health record
Surgical Care Improvement Project	Surgery patients who received appropriate venous thromboembolism prophylaxis within 24 hours prior to surgery to 24 hours after surgery (SCIP-VTE-2)	Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to Surgical Incision Time to 24 hours after Surgery End Time.	Claims and health record
Surgical Care Improvement Project	Surgery patients on beta-blocker therapy prior to arrival who received a beta-blocker during the perioperative period (SCIP-Card-2)	Surgery patients on beta-blocker therapy prior to admission who received a beta-blocker during the perioperative period. The perioperative period for the SCIP Cardiac measures is defined as 24 hours prior to surgical incision through discharge from post-anesthesia care/recovery area.	Claims and health record
Surgical Care Improvement Project	Prophylactic antibiotics discontinued within 24 hours after surgery end time (SCIP-Inf-3a)	Surgical patients whose prophylactic antibiotics were discontinued within 24 hours after surgery end time.	Claims and health record

Definition:

All process measure scores were retrieved from CMS Hospital Compare as pre-calculated percentages. Where a hospital's performance is not included on Hospital Compare because of small numbers, missing data, or because the measure does not apply, the data is not included in the report.



For more information, please contact:

CENTER FOR HEALTH INFORMATION AND ANALYSIS

501 Boylston Street
Boston, MA 02116

www.chiamass.gov
[@Mass_CHIA](https://twitter.com/Mass_CHIA)

(617) 701-8100