

NEW JERSEY 2008 HOSPITAL PERFORMANCE REPORT

TECHNICAL REPORT: METHODOLOGY

**New Jersey Department of Health and Senior Services
Health Care Quality Assessment
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A. Sources of Hospital Quality Measures and Data

The **New Jersey 2008 Hospital Performance Report** uses data based on the measures developed by The Joint Commission and the Centers for Medicare and Medicaid Services (CMS) for reporting on hospital quality. The New Jersey Department of Health and Senior Services (Department) followed the specifications developed by The Joint Commission and CMS, as defined in Section D of this technical report.

The **New Jersey 2008 Hospital Performance Report** includes information on hospital discharges for the period of January 1, 2007 through December 31, 2007. In addition to the nineteen acute myocardial infarction (AMI or heart attack), pneumonia, heart failure, and surgical care improvement (SCIP) measures reported in the 2007 Report, the 2008 Report provides information on one additional pneumonia measure and three additional surgical care improvement measures. As in the 2007 Report, rates for all hospitals are published, including rates based on fewer than 25 cases.

The report and its methodology have been developed with the guidance of the Department's Quality Improvement Advisory Committee (QIAC). **Table 1** lists the measures collected by the Department and an indication as to its inclusion in the report.

All New Jersey general acute care hospitals and one specialized heart hospital were required to submit the information for AMI, pneumonia, heart failure, and SCIP measures to the Department through their Joint Commission vendors on a quarterly basis. Hospitals collected the basic information for each record by abstracting data from patient medical records and administrative databases. The data were transmitted to Joint Commission vendors, who processed the data according to algorithms established by The Joint Commission to produce scores for each measure. Joint Commission vendors then transmitted both the individual patient files and the hospital level information to the Department. The Department summarized the quarterly data and provided a summary report to each hospital for review. The Department also provided each hospital with a summary report for the full twelve months for review.

Table 1: Joint Commission Core Performance Measures and Inclusion in Report

| Joint Commission Core Performance Measures | Included in Report |
|--|--------------------|
| <u>Acute Myocardial Infarction (AMI)</u> | |
| Aspirin at arrival | Included |
| Aspirin prescribed at discharge | Included |
| Beta blocker at arrival | Included |
| Beta blocker prescribed at discharge | Included |
| ACEI/ARB for LVSD | Included |
| Smoking cessation advice | Included |
| Inpatient mortality | Not Included |
| Time to fibrinolysis | Not Included |
| Fibrinolytic agent received within 30 minutes of hospital arrival | Not Included |
| Time to PCI | Not Included |
| PCI received within 90 minutes of hospital arrival | Included |
| <u>Pneumonia</u> | |
| Oxygenation assessment | Included |
| Pneumococcal vaccination | Included |
| Antibiotic timing | Not Included |
| Initial antibiotic received within 8 hours of arrival | Not Included |
| Initial antibiotic received within 6 hours of arrival* | Included |
| Initial antibiotic received within 4 hours of arrival | Not Included |
| Initial antibiotic selection for PN immunocompetent ICU patient ** | Included |
| Initial antibiotic selection for PN immunocompetent non-ICU patient ** | Included |
| Blood cultures in emergency department | Included |
| Blood cultures within 24 hours | Not Included |
| Smoking cessation advice | Included |
| Influenza vaccination*** | Included |
| <u>Surgical Care Improvement</u> | |
| Preventive antibiotic started | Included |
| Appropriate antibiotic received | Included |
| Preventive antibiotic stopped | Included |
| Venous thromboembolism (VTE) prophylaxis ordered | Included |
| VTE prophylaxis received | Included |
| <u>Heart Failure</u> | |
| LVS assessment | Included |
| ACEI/ARB for LVSD | Included |
| Discharge instructions | Included |
| Smoking cessation advice | Included |

* Measure reported for April 1, 2007 through December 31, 2007 discharges.

** Because of small sample sizes for ICU patients, these two measures were combined into one measure following the CMS methodology.

*** This is a seasonal measure that includes information from January 1, 2007 through February 29, 2007 discharges and October 1, 2007 through December 31, 2007 discharges.

B. Calculation of Hospital Performance Rates

Calculation of individual rates

Each rate was calculated following the Joint Commission methodology described in Section D. The rate for each quality measure represents the proportion of times that the hospital provided the appropriate care. Each measure included only those patients who were eligible for that treatment or test. For example, patients with contraindications for aspirin were excluded from the aspirin at arrival and aspirin prescribed at discharge measures.

Calculation of overall scores

The overall AMI, pneumonia, SCIP, and heart failure scores for each hospital are summary measures of how frequently the hospital provided recommended care based on seven AMI measures, seven pneumonia measures, four SCIP measures, and four heart failure measures, respectively (**Table 2**).

The overall score for each of the four conditions was calculated using the following steps:

- The numerator was the total number of patients who received care and the denominator was the total number of patients who were eligible for care for the selected quality measures.
- The overall score was calculated as a percentage by dividing the numerator by the denominator.
- Overall scores (as well as individual rates) were reported as whole numbers. When hospitals were presented from high to low overall scores, a more detailed calculation using six decimal places was used.

Because of the inclusion of new measures or changes in measure definitions, overall scores are not necessarily comparable to the overall scores from previous years.

Table 2: Measures Included in the AMI, Pneumonia, SCIP, and Heart Failure Overall Scores

| Condition | Measures Included in Overall Score |
|------------------|--|
| AMI | Aspirin at Arrival Aspirin at Discharge Beta Blocker at Arrival Beta Blocker at Discharge ACEI/ARB for LVSD Smoking Cessation Advice PCI Received Within 90 Minutes of Hospital Arrival |
| Pneumonia | Oxygenation Assessment Pneumococcal Vaccination Influenza Vaccination Initial Antibiotic Received Within 6 Hours of Arrival Antibiotic Selection Blood Cultures in Emergency Department Smoking Cessation Advice |
| SCIP | Preventive Antibiotic Started Preventive Antibiotic Stopped Appropriate Antibiotic Received VTE Prophylaxis Received |
| Heart Failure | LVS Assessment ACEI/ARB for LVSD Discharge Instructions Smoking Cessation Advice |

Calculation of top 10% and 50% scores

For each measure, including the overall score, we identified the hospital score that was at the 50th percentile (“median”), and the 90th percentile (“top 10th percentile”). These statistics included all hospitals, including those with fewer than 25 cases for a measure. Scores for hospitals that closed during 2007 or in 2008 prior to publication of this report (Barnert Hospital, Cathedral-St. James Hospital, Greenville Hospital, Pascack Valley Hospital, Union Hospital, and Columbus Hospital) were not included in the calculations.

C. Data Validation

Hospitals have internal processes to check the accuracy of their data collection. The Joint Commission has reviewed the accuracy of the vendors' systems for processing the data and calculating the rates as well as conducted a limited study of the accuracy of the abstraction process in a small sample of hospitals.

CMS reviews the accuracy of the data submitted by hospitals to the federal government for its quality assessment initiatives. Their data validation process examines the abstracted elements of five records per hospital per quarter selected at random from the cases submitted to CMS for AMI, pneumonia, heart failure, and SCIP conditions¹. With assistance from the Healthcare Quality Strategies, Inc. (formerly PRONJ, the Healthcare Quality Improvement Organization of New Jersey), the Department adapted this process to assess the data it received. Validation reports from the last quarter of 2006 and first two quarters of 2007 were examined to determine the validity of the data submitted by New Jersey hospitals. The department followed the CMS methodology in calculating 95% confidence intervals² for this period. The confidence interval had to include or exceed a threshold of 80%, meaning that a hospital was likely to be correct in its reporting of data elements at least 80% of the time. With the exception of one hospital, all hospitals met the 80% threshold. Saint Michael's Medical Center did not submit validation records for one quarter and therefore, did not meet this threshold; that condition was noted in the report.

D. Measure Definitions

Tables 3 through 6 describe the individual quality measures reported for the AMI, pneumonia, SCIP, and heart failure conditions. The definitions for these measures follow the Joint Commission/CMS definitions that were in effect for the reporting period (Specifications Manual for National Hospital Quality Measures versions 2.1d to 2.3b).

This technical report provides the specifications that were in effect for fourth quarter 2007 discharges. For the complete specification manuals and detailed information on definitional changes that were implemented during 2007, we refer the interested reader to the Joint Commission (www.jointcommission.org) and CMS QualityNet (www.qualitynet.org) websites.

¹ More information on the CMS validation process is available at www.qualitynet.org

² Based on the CMS document, "2009 Confidence Interval", available at www.qualitynet.org (accessed July 21, 2008).

Table 3: Acute Myocardial Infarction (Heart Attack) Quality Measures

| Measure | Description | Detailed Specifications |
|---|--|--------------------------------|
| 1. Aspirin at arrival | Percent of eligible heart attack patients that received an aspirin within 24 hours before or after arriving at the hospital | Details |
| 2. Aspirin at discharge | Percent of eligible heart attack patients that were prescribed an aspirin when they were discharged from the hospital | Details |
| 3. Beta blocker at arrival | Percent of eligible heart attack patients that received a beta blocker medication within 24 hours of arrival at the hospital | Details |
| 4. Beta blocker at discharge | Percent of eligible heart attack patients that were prescribed a beta-blocker medication when they were discharged from the hospital | Details |
| 5. ACEI/ARB for LVSD | Percent of eligible heart attack patients with left ventricular systolic dysfunction (LVSD, or low heart function) that were prescribed an angiotensin converting enzyme inhibitor (ACEI) or angiotensin receptor blocker (ARB) medication when they were discharged from the hospital | Details |
| 6. Smoking cessation advice | Percent of eligible heart attack patients with a history of smoking cigarettes, who were given smoking cessation counseling during their hospital stay. | Details |
| 7. PCI received within 90 minutes of hospital arrival | Percent of eligible heart attack patients who received percutaneous coronary intervention (PCI) within 90 minutes after they arrived at hospital | Details |

Table 4: Pneumonia Quality Measures

| Measure | Description | Detailed Specifications |
|--|---|--------------------------------|
| 1. Oxygenation assessment | Percent of eligible pneumonia patients whose arterial oxygenation was assessed by arterial blood gas (ABG) or pulse oximetry within 24 hours prior to or after hospital arrival. | Details |
| 2. Pneumococcal vaccination | Percent of eligible pneumonia patients 65 years and older that were asked if they had received a pneumococcal vaccination, and if they had not, received the vaccination prior to discharge from the hospital, if indicated. | Details |
| 3. Influenza vaccination | Percent of patients discharged during January, February, October, November, or December with pneumonia, age 50 and older, who were screened for influenza vaccine status and were vaccinated prior to discharge, if indicated | Details |
| 4. Initial antibiotic received within 6 hours of arrival | Percent of eligible pneumonia patients admitted to hospital that received their first dose of antibiotics within 6 hours of their arrival at hospital | Details |
| 5. Initial antibiotic selection for immunocompetent patients | Percent of immunocompetent patients with Community-Acquired Pneumonia who received an initial antibiotic regimen during the first 24 hours that is consistent with current guidelines | Details |
| 6. Blood cultures in emergency department | Percent of eligible pneumonia patients whose initial emergency department blood culture was performed prior to the administration of the first hospital dose of antibiotics | Details |
| 7. Smoking cessation advice | Percent of eligible pneumonia patients with a history of smoking cigarettes, that were given smoking cessation counseling during their hospital stay. | Details |

Table 5: Surgical Care Improvement Quality Measures

| Measure | Description | Detailed Specifications |
|------------------------------------|---|--------------------------------|
| 1. Preventive antibiotic started | Percent of eligible surgery patients who received preventive antibiotics within one hour prior to surgical incision. | Details |
| 2. Preventive antibiotic stopped | Percent of eligible surgery patients whose preventive antibiotics were discontinued within 24 hours after surgery end time | Details |
| 3. Appropriate antibiotic received | Percent of eligible surgery patients who received preventive antibiotics recommended for their specific surgical procedure. | Details |
| 4. VTE prophylaxis ordered | Percent of eligible surgery patients who had treatment prescribed for the prevention of blood clots | Details |
| 5. VTE prophylaxis received | Percent of eligible surgery patients who received the appropriate treatment to prevent blood clots, as recommended for the specific type of surgery performed | Details |

Table 6: Heart Failure Quality Measures

| Measure | Description | Detailed Specifications |
|-----------------------------|---|-------------------------|
| 1. LVS assessment | Percent of eligible heart failure patients that were given a test to assess the left ventricular systolic (LVS) function of their heart before or during hospitalization, or had a test planned for soon after discharge from the hospital | Details |
| 2. ACEI/ARB for LVSD | Percent of eligible heart failure patients with low heart function that were prescribed an angiotensin converting enzyme inhibitor (ACE inhibitor) or angiotensin receptor blocker (ARB) medication when they were discharged from the hospital | Details |
| 3. Discharge instructions | Percent of eligible heart failure patients discharged to home with written instructions or educational materials to the patient or caregiver that addresses all of the following: activity level, diet, discharge medications, follow-up appointment, weight monitoring, and what to do if symptoms worsen. | Details |
| 4. Smoking cessation advice | Percent of eligible heart failure patients with history of smoking cigarettes, who were given smoking cessation counseling during their hospital stay. | Details |