

NEW JERSEY 2011 HOSPITAL PERFORMANCE REPORT
TECHNICAL REPORT: METHODOLOGY
RECOMMENDED CARE (PROCESS OF CARE) MEASURES

New Jersey Department of Health and Senior Services
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NEW JERSEY 2011 HOSPITAL PERFORMANCE REPORT

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A. Sources of Hospital Recommended Care (Process of Care) Measures and Data

The **New Jersey 2011 Hospital Performance Report** on Recommended Care (Process of Care) Measures uses data and methodology that were developed by The Joint Commission and the Centers for Medicare and Medicaid Services (CMS) for reporting on hospital quality. In addition, this report follows the measure definitions developed by The Joint Commission and the CMS, as presented in Section D of this technical report.

The **New Jersey 2011 Hospital Performance Report** on Recommended Care (Process of Care) Measures includes information on hospital discharges for the period of January 1, 2010 through December 31, 2010. Twenty-five recommended care measures on acute myocardial infarction (AMI or heart attack), pneumonia, heart failure, and surgical care improvement (SCIP) are reported in the 2011 Report. To be consistent with the CMS' reporting on hospital quality, the 2011 Report provides information on one additional surgical care improvement measure: urinary catheter removed within two days after surgery. As in the 2010 Report, rates for all hospitals are published, including rates based on fewer than 25 cases.

The report and its presentation have been developed with the guidance of the Department's Quality Improvement Advisory Committee (QIAC). **Table 1** lists the measures collected by New Jersey Department of Health (Department) and indicates whether each measure is included 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 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 Primary PCI (median)	Not Included
Primary PCI received within 90 minutes of hospital arrival	Included
<u>Pneumonia</u>	
Pneumococcal vaccination	Included
Antibiotic timing (median)	Not Included
Initial antibiotic received within 8 hours of arrival	Not Included
Initial antibiotic received within 6 hours of arrival	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
Controlled blood sugar for cardiac surgery patients	Included
Surgery patients with safe hair removal	Included
Beta Blocker continued	Included
Urinary catheter removed	Included
<u>Heart Failure</u>	
LVS assessment	Included
ACEI/ARB for LVSD	Included
Discharge instructions	Included
Smoking cessation advice	Included

* 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, 2010 through February 28, 2010 discharges and October 1, 2010 through December 31, 2010 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 recommended care. Each measure included only those patients who were eligible for that form of care. 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 six AMI measures, six pneumonia measures, eight 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 rounded to the nearest 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 Discharge ACEI/ARB for LVSD Smoking Cessation Advice Primary PCI Received Within 90 Minutes of Hospital Arrival
Pneumonia	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 Controlled Blood Sugar for Cardiac Surgery Patients Surgery Patients with Safer Hair Removal Beta Blocker Continued Urinary catheter removed
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.

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 from all hospitals.

CMS conducts the validation reviews for hospitals participating in the Hospital Inpatient Quality Reporting (IQR) Program. CMS verifies, on a quarterly basis, that hospital abstracted data it received is consistent and reproducible. CMS performs a random selection of 800 IQR hospitals for validation reviews on an annual basis. The data validation process randomly selects twelve records per hospital per quarter from the cases submitted to CMS for AMI, pneumonia, heart failure, and SCIP conditions¹. Validation rates are based on measure outcome matches. The Overall Reliability Rate is derived only from the measures required by the Hospital IQR Program. The rate is calculated by dividing the number of measure outcomes that match (numerator) by the total number of Hospital IQR Program required measures (denominator). A hospital must have 75 percent or higher Overall Reliability Rate to pass the validation for the quarter.

17 NJ hospitals were selected in 2010. 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 first three quarters of 2010 were examined to determine the validity of the data submitted by the 17 selected 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 75%, meaning that a hospital was likely to be correct in its reporting of data elements at least 75% of the time. All 17 hospitals met the 75% threshold in 2010.

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 3.0c to 3.2c).

This technical report provides the specifications that were in effect for fourth quarter 2010 discharges. For the complete specification manuals and detailed information on definitional changes that were implemented during 2010, we refer the interested readers 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 (released June 20, 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 discharge	Percent of eligible heart attack patients that were prescribed a beta-blocker medication when they were discharged from the hospital	Details
4. 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
5. 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
6. Primary PCI received within 90 minutes of hospital arrival	Percent of eligible heart attack patients who received primary percutaneous coronary intervention (PCI) within 90 minutes after they arrived at hospital	Details

Table 4: Pneumonia Quality Measures

Measure	Description	Detailed Specifications
1. 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
2. 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
3. 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
4. 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
5. 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
6. 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
6. Controlled blood sugar for heart patients	Percent of cardiac surgery patients with controlled 6 a.m. blood glucose (≤ 200 mg/dL) in the two days right after surgery.	Details
7. Surgery patients with safer hair removal	Percent of surgery patients who had hair removed from the surgical area before surgery using a safe method. No hair removal, or hair removal with clippers or depilatory is considered appropriate. Shaving is considered inappropriate.	Details
8. Beta Blocker continued	Surgery patients on Beta-Blocker therapy prior to arrival who received a Beta-Blocker during the perioperative period.	Details
9. Urinary catheter removed	Urinary catheter removed on postoperative day one or day two with day of surgery being day zero	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

E. Statewide Scores Compared to National Scores

The table below compares statewide scores to national scores for Recommended Care Measures. New Jersey scores for the 25 recommended care measures are based on data collected from hospital medical records for 2010. The National Scores are from the Centers for Medicare and Medicaid Services (CMS) for the same year and from the same database.

For 2010, New Jersey performed better than the national norms on most of the recommended care measures. Of the 25 recommended care measures, New Jersey hospitals exceeded national scores on 15 measures, tied to national norms on eight measures. New Jersey fell below national norms for only two measures, Controlled Blood Sugar for Heart Patients and PCI Within 90 Minutes. However, PCI within 90 minutes improved from 83 in 2009 to 89 in 2010, a 7.2% increase. The national rate is 91. For controlled blood sugar for cardiac surgery patients in the days after surgery, New Jersey scored 93 compared with the national score of 94.

There have been major improvements in performance since the first report which covered 2003 performance. Most measures are now close to the expected 100%. The difference between low and high performing hospitals continues to decrease. This means better care for all NJ patients.

The most dramatic increase from among low score measures was pneumococcal vaccination for pneumonia patients. The shot can help prevent future bacterial pneumonia. The statewide score rose 100%, from 48% in 2003 to 96% in 2010. Among measures that we started to track in 2005 and 2006, the percentage of heart attack patients who underwent angioplasty within 90 minutes after arrival at the hospital has shown a significant 62% increase from 55% in 2006 to 89% in 2010; discharge instructions for heart failure patients has shown a 32% percentage change increasing from 71% in 2005 to 94% in 2010.

**Table 7. New Jersey Hospital Quality Scores, 2003 – 2010
National Hospital Quality Scores, 2010**

Condition	Quality Measure	2003	2004	2005	2006	2007	2008	2009	2010	National	Percent
										2010	Improvement
											First Year-2010
AMI	Aspirin at Arrival	93	95	97	97	98	98	99	99	99 =	6%
	Aspirin at Discharge	91	94	96	97	97	98	98	99	99 =	9%
	Beta Blocker at Discharge	91	94	97	97	98	98	99	99	99 =	9%
	ACEI / ARB at Discharge	80	85	89	90	93	96	97	98	97 ▲	23%
	Smoking Cessation Advice			96	98	99	99	100	100	100 =	4%
	PCI within 90 minutes				55	67	78	83	89	91 ▼	62%
PN	Pneumococcal Vaccination	48	69	80	87	91	93	95	96	95 ▲	100%
	Antibiotic Selection			82	89	92	92	94	95	93 ▲	16%
	Antibiotic Timing						95	96	97	96 ▲	2%
	Blood Cultures				94	94	95	97	97	96 ▲	3%
	Smoking Cessation Advice			90	94	96	97	99	100	98 ▲	11%
	Influenza Vaccination					87	90	93	95	94 ▲	9%
HF	LVS Assessment			95	97	97	98	99	99	99 =	4%
	ACEI / ARB at Discharge			88	89	92	94	95	97	95 ▲	10%
	Discharge Instructions			71	80	84	89	91	94	91 ▲	32%
	Smoking Cessation Advice			92	97	98	99	100	100	99 ▲	9%
SCIP	Preventive Antibiotic Started				91	92	95	97	98	97 ▲	8%
	Preventive Antibiotic Received					95	97	98	98	98 =	3%
	Preventive Antibiotic Stopped				86	90	93	95	96	96 =	12%
	VTE Prophylaxis Ordered					86	92	94	96	95 ▲	12%
	VTE Prophylaxis Received					82	90	92	95	94 ▲	16%
	Controlled Blood Sugar						91	92	93	94 ▼	2%
	Safe Hair Removal						97	99	100	100 =	3%
	Beta Blocker Continued							94	96	94 ▲	2%
	Urinary Catheter Removal								93	91 ▲	

▲ Better than national norm; = Same as national norm; ▼ Below national norm.