Patient Safety Indicators

Technical Report

A Supplement to the 2012

Hospital Performance Report

Health Care Quality Assessment

Office of Policy and Strategic Planning
New Jersey Department of Health

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Executive Summary

The Office of Health Care Quality Assessment (HCQA) of the New Jersey Department of Health and Senior Services assesses health care quality using qualitative and quantitative data reported by hospitals to support performance monitoring related to patient care and safety. Specifically, HCQA produces consumer reports on cardiac surgery, hospital performance, and hospital quality indicators; reviews confidential reports and root-cause analyses of reportable medical errors; and maintains several databases to support licensure requirements. In an effort to enhance the information the Department provides to the public on hospital care, HCQA staff apply statistical tools developed by the Federal Agency for Healthcare Research and Quality (AHRQ) to the New Jersey hospital discharge data commonly known as Uniform Billing (UB) data. This report, presents findings resulting from the application of a statistical tool known as the Patient Safety Indicator (PSI) module to the 2011 New Jersey hospital discharge data. The revised PSI module currently in use contains 18 hospital-level and seven area-level indicators that reflect the quality of care by hospitals. These indicators serve as flags for potential quality problems (adverse events) rather than provide definitive measures of quality of care. According to the AHRQ, the 18 indicators are selected based on their ability to screen out conditions present on admission from conditions that develop after admission, the potential preventability of the complication, and the ability of the indicator to identify medical error.

This report is a supplement to the Hospital Performance Report and covers only the 12 PSIs mandated for public reporting by law. In 2009, legislation (S2471) was signed into law requiring that hospital-specific data on patient-safety performance and serious medical errors be included in the annual New Jersey Hospital Performance Report. The data in this report present adverse events during hospitalization in each of the 72 licensed hospitals currently operating in the state. For the seven PSIs, risk-adjusted rates are provided along with confidence intervals to help make a statistical assessment of patient safety in the hospital. Statewide and national estimates are also provided to help compare hospital performance to the state or to the national rates.

Comparison of a hospital's rate to the statewide rate (presented in the top row of each of the PSI tables (Tables 1-11) is one way to assess how well that hospital performed among its peers in the state. A hospital's peers could be defined at many levels (e.g., teaching hospitals, urban hospitals, suburban hospitals, etc.). It is suggested that a hospital's performance be assessed by looking at its performance across the several PSI estimates presented in the PSI tables.

The 2011 New Jersey data show that there are substantial variations in risk-adjusted rates of adverse events by hospital. Some hospitals exhibit significantly higher risk-adjusted rates (risk-adjusted adverse event rates) than the

corresponding statewide rates while others have significantly lower rates than the statewide rates.

Some Highlights

- In 2011, there were a total of 38 cases identified as '*Foreign body left during procedure*' in New Jersey. These 38 events were reported by 21 hospitals, with two hospitals (Hackensack University MC and RWJ University Hospital) reporting 6 cases each. Table 1 shows the distribution of these adverse events by hospital.

- Overall, there were 258 cases of *Iatrogenic pneumothorax* in 2011, for a risk-adjusted rate of 0.3 per 1,000 medical and surgical discharges. Hospital-specific rates for this indicator ranged from a low of 0.0 to a high of 0.9 per 1,000 medical and surgical discharges.

- *Postoperative hip fracture* is a rare event. There were a total of only 6 cases of '*Postoperative hip fracture*' in 2011 for a corresponding risk-adjusted rate of 0.1 per 1,000 surgical discharges.

- Statewide, there were 412 *Postoperative hemorrhage or hematoma* cases in 2011, for a risk-adjusted rate of 2.1 per 1,000 surgical discharges. Hospital-specific rates for this indicator ranged from a low of 0.0 to a high of 5.4 per 1,000 surgical discharges.

- Statewide, there were 1,362 cases of *Postoperative deep vein thrombosis (DVT) or pulmonary embolism (PE)* in 2011, for a risk-adjusted rate of 6.3 per 1,000 surgical discharges. Hospital-specific rates for this indicator ranged from a low of 0.0 to a high of 18.8 per 1,000 surgical discharges.

- Statewide, there were 210 *Postoperative sepsis* cases reported in 2011 for a risk-adjusted rate of 12.4 per 1,000 elective surgery discharges. Nine hospitals had risk-adjusted rates that were statistically significantly higher than the statewide rate, while 4 hospitals had statistically significantly lower rates. Note that lower rate implies better performance.

- In New Jersey, there were 54 *Postoperative wound dehiscence* cases reported in 2011 for a statewide risk-adjusted rate of 0.8 per 1,000 abdominopelvic surgical discharges. Only Newton Memorial Hospital, RWJ University Hospital at Rahway, South Jersey Hospital-Elmer, St. Clare's Hospital-Sussex, had risk-adjusted rates that were statistically significantly higher than the statewide rate. All others had risk-adjusted rates that were not statistically significantly different from the statewide rate of 0.8 per 1,000.

- Statewide, there were 1,128 cases of *Accidental punctures or lacerations* reported in 2011 for a risk-adjusted rate of 1.6 per 1,000 discharges. Hospital-specific rates for this indicator ranged from a low of 0.0 to a high of 4.5 per 1,000 discharges.

- There were 198cases of *Birth trauma - injury to neonate* reported statewide in 2011 for a rate of 2.0 per 1,000 live births. Similarly, there were 502 cases of obstetric trauma among instrument-assisted vaginal deliveries (for a rate of 130.6 per 1,000 deliveries) and 1,184 cases of obstetric trauma among vaginal deliveries without instrument (for a rate of 20.6 per 1,000).

- Compared to the 2009 national estimates for PSIs (see Table 12), New Jersey appeared to have rates that were better for 7 of the 10 PSIs that are measured using rates. New Jersey rates were higher than the national rates only for 'post-operative hip fracture', 'post-operative pulmonary embolism or deep vein thrombosis' and, 'post-operative sepsis'. These differences may in part, be due to differences in years of data used and/or differences in data reporting by states.

Introduction

The Office of Health Care Quality Assessment (HCQA) of the New Jersey Department of Health and Senior Services (NJDHSS) assesses health care quality using qualitative and quantitative data reported by hospitals to support performance monitoring related to patient care and safety. Specifically, HCQA produces consumer reports on cardiac surgery, hospital performance, and hospital quality indicators; reviews confidential reports and root-cause analyses of reportable medical errors; and maintains several databases to support licensure requirements. In an effort to enhance the information the Department provides to the public on hospital care, HCQA staff apply statistical tools developed by the Federal Agency for Healthcare Research and Quality (AHRQ) to the New Jersey hospital discharge data commonly known as UB (Uniform Billing) data.

The AHRQ Quality Indicators (QIs) are a set of quality indicators organized into four modules, each of which measures quality associated, by and large, with patient care in an outpatient or inpatient setting. These four modules are: Prevention Quality Indicators (PQIs); Inpatient Quality Indicators (IQIs); Patient Safety Indicators (PSIs); and Pediatric Quality Indicators (PDIs). Background information on the development of these modules and the primary purposes they are designed to serve can be found at: www.nj.gov//health/healthcarequality/qi.shtml.

This report, presents findings resulting from the application of the Patient Safety Indicator (PSI) module to the 2011 New Jersey hospital discharge (UB) data. The PSI module contains 18 hospital-level indicators that reflect the quality of care provided by hospitals. These indicators serve as flags for potential quality problems (adverse events) rather than provide definitive measures of quality of care. According to the AHRQ, these indicators are selected based on their ability to screen out conditions present on admission from conditions that develop after admission, the potential preventability of the complication, and the ability of the indicator to identify medical error.

This report is a supplement to the Hospital Performance Report and covers only the 12 PSIs mandated for public reporting by law. In 2009, legislation (S2471) was signed into law requiring that hospital-specific data on patient-safety performance, and serious medical errors be included in the annual New Jersey Hospital Performance Report. Description of the Patient Safety Indicators module, Interpretation of the PSI measures as well as definitions of individual indicators presented in subsequent sections are, for the most part, excerpted from AHRQ's Guide and Software Documentation to Patient Safety Indicators. These sources are listed in the reference section of this report.

The tables present adverse events during hospitalization in each of the hospitals in the state. Risk-adjusted rates are provided along with confidence intervals for seven PSIs to help make a statistical assessment of patient safety in the hospital. Only observed rates are reported for the three birth delivery related PSIs because the

module does not risk-adjust these indicators. Two indicators – 'foreign body left during procedure' and 'transfusion reaction' - are reported in volume only because they are very rare events, commonly referred to as 'never-events'. Statewide and national estimates are also provided to help compare hospital performance to the statewide or to the national average rates.

Comparison of a hospital's rate to the statewide rate (presented in the top row of each of the PSI tables [Table 1-Table 11]) is one way to assess how well that hospital performed among its peers in the state. A hospital's peers could be defined at many levels (e.g., teaching hospitals, urban hospitals, suburban hospitals, etc.). It is suggested that a hospital's performance be assessed by looking at its performance across the several PSI estimates presented in the PSI tables.

The Patient Safety Indicators (PSIs) Module

Patient safety has been an issue of major national interest. Policy makers, providers, and consumers have made the safety of health care in U.S. hospitals a top priority. AHRQ states that the need to assess, monitor, track, and improve the safety of inpatient care became apparent with the publication of the Institute of Medicine's series of reports describing the problems of medical errors.

One way of detecting and reporting potentially preventable adverse events is to develop screening measures based on routinely collected UB data. UB data provide adequate information (data elements) about health care services delivered in hospitals on patients' diagnoses, procedures, age, gender, admission source, and discharge status. From these data elements, it is possible to construct a picture of the quality and safety of health care. Although quality assessments based on UB data cannot be definitive, they can be used to flag potential safety problems and success stories, which can then be further investigated. UB data can be used to identify indicators of potential problems that result from exposure to the health care system and are likely to be prevented as a result of system-level changes.

With this background, AHRQ developed the Patient Safety Indicators (PSIs) module in an effort to assess the quality of care inside hospitals with a focus on potentially preventable and other iatrogenic events, resulting from exposure to the health care system. The Patient Safety Indicators (PSIs) module is a tool specifically designed to help health care system leaders identify potential adverse events occurring during hospitalization for surgeries, procedures and childbirth. The PSIs (listed below) were developed after a comprehensive literature review, analysis of the International Classification of Diseases, 9th Revision, Clinical Modification, (ICD-9-CM) codes, review by a clinician panel, implementation of risk adjustment, and empirical analyses.

- Death in low mortality DRGs (PSI.02)
- Pressure ulcer (PSI.03)

- Death among surgical inpatients (PSI.04)
- Foreign body left in during procedure (PSI.05)*
- Iatrogenic pneumothorax (PSI.06)*
- Central venous catheter-related bloodstream infections (PSI.07)
- Postoperative hip fracture (PSI.08)*
- Postoperative hemorrhage or hematoma (PSI.09)*
- Postoperative physiologic and metabolic derangements (PSI.10)
- Postoperative respiratory failure (PSI.11)
- Postoperative pulmonary embolism or deep vein thrombosis (PSI.12)*
- Postoperative sepsis (PSI.13)*
- Postoperative wound dehiscence (PSI.14)*
- Accidental puncture and laceration (PSI.15)*
- Transfusion reaction (PSI.16)*
- Birth trauma - injury to neonate (PSI.17)*
- Obstetric trauma - vaginal delivery with instrument (PSI.18)*
- Obstetric trauma - vaginal delivery without instrument (PSI.19)*

The indicators have been shown to have complication/adverse event rates that vary substantially across institutions and for which evidence suggests that high complication/adverse event rates may be associated with deficiencies in the quality of care.

It is important to note that PSIs are intended to measure the occurrence rate of adverse events from: i) complications of medical conditions after admission, ii) complications from surgical procedures, and iii) complications from obstetric procedures. Fifteen of the 18 PSIs are related to surgical or medical discharges while the remaining three are for obstetric discharges. Six indicators (PSIs 03, 09, 10, 11, 12, 14), incorporate information about when procedures were performed (relative to the admission date), which is important in the risk-adjustment process. Admission type is used by four PSIs (PSIs 10, 11, 13, and 17) to identify elective surgeries and newborn admissions.

As stated earlier, this report focuses on the 12 PSIs (denoted by an asterisk in the list above) mandated for public reporting by the New Jersey legislature and provides comprehensive definitions for each along with their specific qualifications for their inclusion in the module.

How are PSI Rates Calculated?

The PSIs software module generates observed, expected, and risk-adjusted rates, as well as lower and upper 95% confidence limits for risk-adjusted rates, when applicable, for each indicator at a hospital level. Observed rates are the raw rates, while the expected and risk-adjusted rates are rates derived from applying the average case-mix of a baseline file that reflects a large proportion of the U.S. hospitalized population.

Observed rates: Observed rates are raw rates generated by the software from the data under analysis. An observed rate is defined as the number of events of interest (numerator) divided by the population at risk (denominator). For hospital-level observed rates, the populations at risk are derived from hospital discharge records. The AHRQ software program calculates observed PSI rates regardless of the number of cases available. It is recommended that performance measurement assessment based on fewer than 30 cases in the denominator should be interpreted with caution.

Expected rates: Unlike observed rates, expected rates are derived from applying the average case-mix of a reference population that reflects a large proportion of the U.S. hospitalized population. The expected rate is the rate a hospital would have if it performed the same as the reference population, given the hospital's actual case-mix (e.g., age, gender, modified DRG and comorbidities).

Risk-adjusted rates: A hospital's risk-adjusted rate is obtained after its observed rate is adjusted to account for the difference between the patient case-mix of the reference population and that of the hospital. Regression coefficients from a baseline database reflecting a large proportion of the U.S. population (based on State Inpatient Databases (SID) compiled from about 44 states) are applied to observed rates for the purpose of making risk-adjustments. The baseline file of regression coefficients representing the average case-mix of the U.S. population is provided as part of the PSI software. The risk-adjusted rates reflect the age, sex, DRG, and comorbidity distribution of the data in the baseline file rather than the distributions of patients in the users' data. Thus, the observed rate (raw indicator) is adjusted using a logistic regression to account for differences among hospitals and areas in demographics. This will allow risk-adjusted rates produced by various states to be compared directly to one another. The interpretation of risk-adjusted rates becomes clear when we compare risk-adjusted rates with the observed rates. Hospitals that exhibit large differences between their observed and risk-adjusted rates tend to have a more complex case-mix.

Risk-adjustment in the latter version of the PSI module includes an adjustment for the Present on Admission (POA) indicator. The POA indicator identifies instances in which a condition was present on admission (i.e. pre-existing condition) and those that occur during the hospital stay. The POA indicator enables conditions present on admission to be identified and excluded from the quality measures, when appropriate.

Interpretation of PSI Rates

The purpose of the analysis determines which rates one should use in evaluating the performance of a hospital. If the user's primary interest is to focus on a particular hospital, to identify cases for further follow-up and quality improvement without comparisons made to other hospitals, then he/she ought to simply examine the observed rate. But, if the purpose of the analysis is to compare the performance of a particular hospital with national, state, or regional averages or performances of other

selected hospitals, then all rates (observed, expected and risk-adjusted) should be examined.

Hospitals can compare their expected rates to the population rate to see how their patient case-mix compares to the reference population. The population rate refers to the overall rate for the reference population. If the population rate is higher than the expected rate, then the hospital's case-mix is less severe than the reference population. If the population rate is lower than the expected rate, then the hospital's case-mix is more severe than the reference population.

Comparing the observed rate to the expected rate allows hospitals to see how far or how close they are from what is expected of them, based on the reference population. If the observed rate is higher than the expected rate for any given indicator (i.e., the ratio of observed/expected is greater than 1.0), then the implication is that the hospital performed worse than expected for that particular indicator. If the observed rate is lower than the expected rate (i.e., the ratio of observed/expected is less than 1.0), then the implication is that the hospital performed better than expected.

Comparing a hospital's risk-adjusted rate to its expected rate shows the effect of risk-adjustment on the patient safety indicator measurement. The risk-adjusted rate accounts for the difference between the case-mix of the reference population and the hospital's case-mix. For that reason, risk-adjusted rates should be used for better hospital-to-hospital comparisons. Risk-adjusted rates are given along with their respective 95% confidence intervals.

- Even in the best hospital, some patients will experience complications either after an operation or as a result of other care. The rates in this report are calculated by comparing the number of complications (adverse events) expected in a particular hospital (based on the number of operations they do or patients they see, usually after adjusting for how old and how sick their patients are) and how many patients actually experienced the adverse events (complications).
- Confidence Intervals are used to identify which hospitals had statistically significantly more or fewer complications than expected given the risk factors of their patients. Hospitals with significantly higher rates than expected, after adjusting for risk factors, are those where the confidence interval range falls entirely above the statewide risk-adjusted complication rate. Hospitals with statistically significantly lower rates than expected have their confidence interval range entirely below the statewide risk-adjusted complication rate.
- Comparison of a hospital's rate to the statewide rate (presented in the top row of each PSI Table), is one way to assess how well that hospital performed among its peers in the state. A hospital's peers could be defined at many levels (e.g., teaching hospitals, urban hospitals, suburban hospitals, etc.). It is

suggested that a hospital's performance be assessed by looking at its performance across the 12 PSI estimates presented in the Tables.

A hospital's rate is statistically significantly above (designated by double asterisks) the statewide rate if the statewide rate falls completely below the hospital's 95% confidence interval. By comparison, a hospital's rate is significantly below (designated by a single asterisk) the statewide rate if the statewide rate falls completely above the hospital confidence interval for that indicator. Some rates that appear large are not marked as statistically significantly higher than the statewide rate while others that appear small are not marked as statistically lower than the statewide rate. The reason may be that rates calculated from small numbers of events tend to have wider confidence intervals that make the statewide rate fall within the interval, giving the appearance of good performance by those hospitals compared to hospitals with rates based on large numbers of events. For example, the risk-adjusted rates for Post-operative sepsis (Table 6) for Cooper Hospital/University Medical Center and Kennedy Memorial Hospitals UMC-Stratford are 21.2 and 38.9 per 1,000 elective surgical discharges, respectively. Cooper's rate of 21.2 which is derived from 21 adverse events among 771 elective surgical discharges has a 95% confidence interval of 14.9 – 27.6 and is considered statistically significantly higher than the statewide rate of 12.4 per 1,000 because the confidence interval range is completely above the statewide average. By comparison, Kennedy's rate of 38.9, which is derived from 2 adverse events among 53 elective surgeries has a 95% confidence interval of 10.8 – 66.9 and is not statistically significantly different from the statewide rate of 12.4 per 1,000 because the statewide average falls within the confidence interval range.

In general, PSIs are not intended as definitive quality measures because quality of performance may be influenced by several other factors. However, there is strong evidence that PSI measures indicate differences in hospital performance, which are potentially clinically important. They do measure differences in the hospitals' ability to reduce severe and potentially preventable complications and adverse events. Performance on a single PSI often cannot reliably indicate actual quality differences. AHRQ recommends that examining all the indicators together is likely to produce a more complete picture of overall quality of care.

Limitations of PSI Measures

These PSI rates should only be seen as a starting point for examining the quality of care at a particular hospital. They should not be used to make strong conclusions. There are a few issues to keep in mind when looking at these measures.

- The PSIs do not address all aspects of quality. For example, they do not include information on what patients say about their care in the hospital, or information on whether hospitals consistently follow steps known to lead to better results.

- In some cases, the PSIs track serious failures in a hospital's performance which happen only once in a while. One has to be careful when comparing hospitals on these very rare events. The numbers are so small that it is difficult to know when a difference is meaningful or occurs due to chance alone. For example, a major reaction to a blood transfusion occurs in only a few cases out of a million people each year.

- One obvious limitation is that many important quality concerns including adverse drug events cannot be monitored using UB data because these data are unlikely to capture all cases of patient complications. The indicators in the PSIs module contain a large proportion of surgical indicators rather than medical or psychiatric indicators because medical complications are often difficult to distinguish from comorbidities that are present on admission. In addition, patients with medical conditions tend to be more heterogeneous than surgical patients, especially elective surgical patients, making it more difficult to account for case-mix.

- Incomplete reporting is an issue in the accuracy of any data source used for identifying patient safety problems, as medical providers might fear adverse consequences as a result of "full disclosure" in potentially public records such as discharge abstracts.

- The ability of administrative data to distinguish between adverse events in which no error occurred from true medical errors is limited. A number of factors such as heterogeneity of clinical conditions included in some codes, lack of information about event timing available in these data sets, and limited clinical detail for risk adjustment, contribute to the difficulty in identifying complications that represent medical error or may at least be in some part preventable.

- Questions about the clinical accuracy of discharge-based diagnosis coding lead to concerns about the interpretation of reported diagnoses that may represent safety problems. Specifically, UB data are unlikely to capture all cases of a complication, regardless of the preventability, without false positives and false negatives (sensitivity and specificity). Also, when the codes are accurate in defining an event, the clinical vagueness inherent in the description of the code itself (e.g., "hypotension") may lead to a highly heterogeneous pool of clinical states represented by that code.

Patient Safety Indicator Estimates for New Jersey

As indicated earlier, this report is based on an application of the AHRQ PSIs module to the New Jersey hospital discharge data. In this section, we provide an abbreviated description or definition for each of the 12 indicators used, followed by a table showing the numbers of adverse events, total hospital discharges, and the corresponding observed, expected and risk-adjusted rates, along with 95%

confidence intervals, when applicable. Where the cell entry is missing, it is designated by "." to indicate that the hospital did not perform that particular procedure or it did less than 3 procedures (risk-adjusted rate is not computed when the denominator is less than 3).

Comparison of a specific hospital-level PSI rate to the statewide average for the same indicator is one appropriate way to see how well a hospital performs among its peers. Following AHRQ's recommendation, we have compared hospital rates against statewide rates to assess performance.

PSI.05 - Foreign body left in during procedure

- This indicator is designed to identify patients who had a foreign object accidentally left in their body during a procedure. The indicator is measured using volume of occurrence – not a rate**.** It tells you the number of patients who had a foreign object accidentally left in their body during surgical or medical procedures. It is considered a never-event and happens very rarely. All cases with pre-existing conditions are excluded from the measure.

- The measure refers to discharges 18 years and older **or** MDC 14 (pregnancy, childbirth, and puerperium), with ICD-9-CM codes for foreign body left in during procedure in any secondary diagnosis field of medical and surgical discharges defined by specific DRGs or MS-DRGs.

- Patients with ICD-9-CM codes for foreign body left in during procedure in the principal diagnosis field or secondary diagnosis present on admission are excluded from the measure.

- Table 1 shows that, Statewide there were 38 cases of foreign body accidentally left in a patient during a procedure.

Table 1. Foreign body left during procedure (volume of occurrences among eligible medical and surgical discharges).

Hospital	# of Cases
Statewide	**38**
Atlanticare Regional Medical Center-Mainland	1
Capital Health Medical Center - Hopewell	1
Chilton Memorial Hospital	1
Clara Maass Medical Center	1
Community Medical Center	2
Cooper Hospital/University Medical Center	1
Hackensack University Medical Center	6
Holy Name Medical Center	1
Jersey Shore University Medical Center	2
Lourdes Medical Center of Burlington Cty.	1
Mountainside Hospital	1
RWJ University Hospital	6
Shore Medical Center	2
Somerset Medical Center	1
St. Barnabas Medical Center	1
St. Clare's Hospital-Denville	1
St. Clare's Hospital-Sussex	1
St. Peter's University Hospital	1
UMDNJ-University Hospital	4
Valley Hospital	2
Virtua-West Jersey Hospital Marlton	1

Source: New Jersey 2011 UB Data.

PSI.06 - Iatrogenic pneumothorax

- This indicator flags cases of iatrogenic pneumothorax (i.e. patients who had air leaking out of their lungs due to an accidental puncture during a medical or surgical procedure) occurring in a facility. The rate, which is risk-adjusted by age, sex, DRG, and comorbidity categories, is defined as the number of iatrogenic pneumothorax cases per 1,000 discharges.
- The numerator refers to the number of discharges with ICD-9-CM code of 512.1 in any secondary diagnosis field among cases meeting the inclusion and exclusion rules for the denominator.
- The denominator refers to all medical and surgical discharges age 18 years and older defined by specific DRGs.
- The following cases are excluded from the denominator or from the rate calculation:
    - cases with ICD-9-CM code of 512.1 as the principal diagnosis or secondary diagnosis present on admission, if known;
    - cases with ICD-9-CM diagnosis code of chest trauma or pleural effusion;
    - cases with ICD-9-CM procedure code of diaphragmatic surgery repair;
    - cases with any code indicating thoracic surgery or lung or pleural biopsy or assigned to cardiac surgery DRGs; and
    - MDC 14 (pregnancy, childbirth, and puerperium).
- Table 2 shows the number of iatrogenic pneumothorax cases by hospital, as well as the observed, expected and risk-adjusted rates with their corresponding 95% confidence intervals. Statewide, there were 258 cases of iatrogenic pneumothorax out of 722,862 eligible discharges reported in 2011 for a risk-adjusted rate of 0.3 per 1,000 discharges.

Table 2. Iatrogenic pneumothorax (per 1,000 medical and surgical discharges)

Hospital	# of cases	# of discharges	Obs. rate	Exp. RateΔ	Risk-adjusted rate	95% Confidence interval
Statewide	**258**	**722,862**	**0.4**	**0.5**	**0.3**	**0.3 - 0.4**
Atlanticare Regional Medical Center-City	1	8,779	0.1	0.4	0.1	0.0 - 0.5
Atlanticare Regional Medical Center-Mainland	5	14,845	0.3	0.4	0.3	0.0 - 0.7
Bayonne Medical Center	2	5,443	0.4	0.4	0.4	0.0 - 0.9
Bayshore Community Hospital	1	6,961	0.1	0.5	0.1	0.0 - 0.6
Bergen Regional Medical Center	0	6,361	0.0	0.4	0.0	0.0 - 0.5
Cape Regional Medical Center	2	8,356	0.2	0.3	0.3	0.0 - 0.8
Capital Health Regional Medical Center	2	8,534	0.2	0.4	0.2	0.0 - 0.7
Capital Health Medical Center - Hopewell	0	5,402	0.0	0.4	0.0	0.0 - 0.6
CentraState Medical Center	3	11,101	0.3	0.4	0.3	0.0 - 0.6
Chilton Memorial Hospital	4	7,319	0.5	0.4	0.5	0.1 - 1.0
Christ Hospital	0	8,181	0.0	0.4	0.0	0.0 - 0.5
Clara Maass Medical Center	5	14,247	0.4	0.4	0.3	0.0 - 0.7
Community Medical Center	7	23,847	0.3	0.4	0.3	0.0 - 0.5
Cooper Hospital/University Medical Center	17	15,797	1.1	0.5	0.9 **	0.6 - 1.1
Deborah Heart and Lung Center	2	3,663	0.5	1.2	0.2	0.0 - 0.6
East Orange General Hospital	0	7,293	0.0	0.5	0.0	0.0 - 0.4
Englewood Hospital and Medical Center	2	12,747	0.2	0.5	0.1	0.0 - 0.5
Hackensack University Medical Center	13	26,437	0.5	0.6	0.4	0.1 - 0.6
Hackettstown Regional Medical Center	1	4,355	0.2	0.4	0.2	0.0 - 0.8
Hoboken University Medical Center	1	5,127	0.2	0.3	0.3	0.0 - 0.9
Holy Name Medical Center	4	11,226	0.4	0.5	0.3	0.0 - 0.7
Hunterdon Medical Center	4	5,604	0.7	0.4	0.7	0.2 - 1.2
Jersey City Medical Center	1	11,634	0.1	0.4	0.1	0.0 - 0.5
Jersey Shore University Medical Center	10	18,081	0.6	0.8	0.3	0.1 - 0.5
JFK Medical Center/Anthony M. Yalensics	6	14,163	0.4	0.6	0.3	0.0 - 0.6
Kennedy University Hospital - Cherry Hill	2	8,185	0.2	0.3	0.3	0.0 - 0.8
Kennedy University Hospital - Stratford	0	6,559	0.0	0.4	0.0	0.0 - 0.5
Kennedy University Hospital - Wash. Twp.	2	11,932	0.2	0.4	0.2	0.0 - 0.6
Kimball Medical Center	0	9,279	0.0	0.3	0.0	0.0 - 0.5
Lourdes Medical Center of Burlington Cty.	2	7,158	0.3	0.3	0.4	0.0 - 1.0
Meadowlands Hospital Medical Center	1	2,649	0.4	0.4	0.4	0.0 - 1.1
Memorial Hospital of Salem County	1	4,346	0.2	0.3	0.3	0.0 - 1.0
Monmouth Medical Center	2	9,322	0.2	0.4	0.2	0.0 - 0.7
Morristown Memmorial Hospital	8	21,885	0.4	0.6	0.3	0.0 - 0.5
Mountainside Hospital	4	7,396	0.5	0.4	0.5	0.1 - 1.0
Newark Beth Israel Medical Center	11	13,357	0.8	0.5	0.6	0.3 - 1.0
Newton Memorial Hospital	2	6,460	0.3	0.4	0.4	0.0 - 0.9
Ocean Medical Center - Bricktown	5	11,850	0.4	0.4	0.4	0.0 - 0.8
Our Lady of Lourdes Medical Center	7	10,016	0.7	0.6	0.5	0.2 - 0.8
Overlook Medical Center	6	17,181	0.3	0.4	0.3	0.0 - 0.6
Palisades Medical Center of NY PHS	2	7,140	0.3	0.4	0.3	0.0 - 0.8
Raritan Bay Medical Center-Old Bridge	3	4,707	0.6	0.5	0.5	0.0 - 1.1
Raritan Bay Medical Center-Perth Amboy	1	6,888	0.1	0.5	0.1	0.0 - 0.6

Table 2. Iatrogenic pneumothorax (per 1,000 medical and surgical discharges)

Hospital	# of cases	# of discharges	Obs. rate	Exp. RateΔ	Risk-adjusted rate	95% Confidence interval
Statewide	**258**	**722,862**	**0.4**	**0.5**	**0.3**	**0.3 - 0.4**
Riverview Medical Center	2	9,513	0.2	0.6	0.1	0.0 - 0.5
RWJ University Hospital	20	23,044	0.9	0.6	0.6	0.4 - 0.8
RWJ University Hospital at Hamilton	1	11,244	0.1	0.4	0.1	0.0 - 0.5
RWJ University Hospital at Rahway	3	5,664	0.5	0.7	0.3	0.0 - 0.8
Shore Medical Center	1	8,561	0.1	0.4	0.1	0.0 - 0.5
Somerset Medical Center	6	12,204	0.5	0.5	0.4	0.1 - 0.8
South Jersey Healthcare Regional MC	1	12,378	0.1	0.5	0.1	0.0 - 0.4
South Jersey Hospital-Elmer	0	3,367	0.0	0.4	0.0	0.0 - 0.7
Southern Ocean Medical Center	1	5,202	0.2	0.4	0.2	0.0 - 0.7
St. Barnabas Medical Center	9	17,508	0.5	0.5	0.4	0.2 - 0.7
St. Clare's Hospital-Denville	3	10,067	0.3	0.4	0.3	0.0 - 0.7
St. Clare's Hospital-Dover	2	3,638	0.5	0.4	0.6	0.0 - 1.3
St. Clare's Hospital-Sussex	0	1,041	0.0	0.2	0.0	0.0 - 1.6
St. Francis Medical Center-Trenton	5	5,739	0.9	0.4	0.9 **	0.4 - 1.4
St. Joseph's Hospital and Medical Center	5	19,577	0.3	0.4	0.3	0.0 - 0.5
St. Joseph's Wayne Hospital	1	5,476	0.2	0.5	0.2	0.0 0.7
St. Mary's Hospital (Passaic)	0	7,103	0.0	0.6	0.0	0.0 - 0.4
St. Michael's Medical Center	6	10,334	0.6	0.5	0.5	0.2 - 0.9
St. Peter's University Hospital	5	10,084	0.5	0.5	0.4	0.1 - 0.8
Trinitas Regional Medical Center	4	9,957	0.4	0.4	0.4	0.0 - 0.8
UMDNJ-University Hospital	2	12,468	0.2	0.5	0.1	0.0 - 0.5
Underwood-Memorial Hospital	1	9,654	0.1	0.4	0.1	0.0 - 0.5
University Medical Center at Princeton	6	9,779	0.6	0.5	0.5	0.2 - 0.9
Valley Hospital	10	21,576	0.5	0.4	0.4	0.2 - 0.7
Virtua-Memorial Hospital Burlington Cty.	4	14,362	0.3	0.5	0.2	0.0 - 0.6
Virtua-West Jersey Hospital Berlin	0	3,961	0.0	0.5	0.0	0.0 - 0.6
Virtua-West Jersey Hospital Marlton	3	10,660	0.3	0.5	0.2	0.0 - 0.6
Virtua-West Jersey Hospital Voorhees	3	10,998	0.3	0.5	0.2	0.0 - 0.6
St. Likes's Warren Hospital	2	5,890	0.3	0.3	0.4	0.0 - 1.0

Source: New Jersey 2011 UB Data.

**: Statistically significantly above statewide average (i.e., worse than statewide average).

Δ: Expected rate is the rate the hospital would have if it had the same case-mix (e.g., age, gender, DRG, and comorbidity categories) as the reference or statewide population. If the observed rate is higher than the expected rate (i.e., the ratio of observed to expected is greater than 1.0), it suggests that the hospital performed worse than the reference population on that indicator.

PSI.08 – Post-operative hip fracture

- This indicator intends to capture cases of in-hospital hip fractures and includes only secondary diagnosis codes to eliminate fractures that were present on admission. The rate, which is risk-adjusted for age, sex, DRG, and comorbidity categories, is defined as the number of cases of in-hospital hip fracture per 1,000 surgical discharges with an operating room procedure.

- The numerator refers to discharges with ICD-9-CM code for hip fracture in any secondary diagnosis field among cases meeting the inclusion and exclusion rules for the denominator.

- The denominator refers to all surgical discharges 18 years and older defined by specific DRGs and an ICD-9-CM code for an operating room procedure.

- The following cases are excluded from the denominator or from rate calculation:

    - cases with ICD-9-CM code for hip fracture in the principal diagnosis field or secondary diagnosis present on admission, if known;

    - cases where the only operating room procedure is hip fracture repair; and where a procedure for hip fracture repair occurs before or on the same day as the first operating room procedure (i*f day of procedure is not available in the input data file, the rate may be slightly lower than if the information was available);*

    - cases with diseases and disorders of the musculoskeletal system and connective tissue (MDC 8);

    - cases with principal diagnosis or secondary diagnosis (present on admission, if known) of seizure, syncope, stroke, coma, cardiac arrest, poisoning, trauma, delirium and other psychoses, or anoxic brain injury;

    - cases with any diagnosis of metastatic cancer, lymphoid malignancy or bone malignancy, or self-inflicted injury; and

    - MDC 14 (pregnancy, childbirth and the puerperium).

- Table 3 shows the number, by hospital, of discharges with postoperative hip fracture among all surgical discharges age 18 and older, the observed rates, expected rates and risk-adjusted rates with their corresponding 95% confidence intervals. Statewide, there were only 6 postoperative hip fracture cases reported out of 128,511 eligible discharges in 2011.

Table 3. Post-operative hip fracture (per 1,000 surgical discharges)

Hospital	# of cases	# of discharges	Obs. rate	Exp. RateΔ	Risk-adjusted rate	95% Confidence interval
Statewide	**6**	**128,511**	**0.0**	**0.0**	**0.1**	**0.0 - 0.1**
Atlanticare Regional Medical Center-City	0	1,042	0.0	0.0	0.0	0.0 - 0.4
Atlanticare Regional Medical Center-Mainland	0	2,398	0.0	0.0	0.0	0.0 - 0.2
Bayonne Medical Center	0	591	0.0	0.0	0.0	0.0 - 0.5
Bayshore Community Hospital	0	703	0.0	0.0	0.0	0.0 - 0.5
Bergen Regional Medical Center	0	96	0.0	0.0	0.0	0.0 - 1.2
Cape Regional Medical Center	0	722	0.0	0.0	0.0	0.0 - 0.4
Capital Health Regional Medical Center	0	757	0.0	0.0	0.0	0.0 - 0.4
Capital Health Medical Center - Hopewell	0	1,088	0.0	0.0	0.0	0.0 - 0.4
CentraState Medical Center	0	1,946	0.0	0.0	0.0	0.0 - 0.3
Chilton Memorial Hospital	0	1,227	0.0	0.0	0.0	0.0 - 0.3
Christ Hospital	0	1,220	0.0	0.0	0.0	0.0 - 0.3
Clara Maass Medical Center	0	2,762	0.0	0.0	0.0	0.0 - 0.2
Community Medical Center	0	2,845	0.0	0.0	0.0	0.0 - 0.2
Cooper Hospital/University Medical Center	0	4,280	0.0	0.0	0.0	0.0 - 0.2
Deborah Heart and Lung Center	0	2,527	0.0	0.0	0.0	0.0 - 0.2
East Orange General Hospital	0	544	0.0	0.0	0.0	0.0 - 0.5
Englewood Hospital and Medical Center	0	3,390	0.0	0.0	0.0	0.0 - 0.2
Hackensack University Medical Center	1	6,918	0.1	0.0	0.2	0.0 - 0.3
Hackettstown Regional Medical Center	0	495	0.0	0.0	0.0	0.0 - 0.5
Hoboken University Medical Center	0	656	0.0	0.0	0.0	0.0 - 0.5
Holy Name Medical Center	0	1,942	0.0	0.0	0.0	0.0 - 0.3
Hunterdon Medical Center	0	663	0.0	0.0	0.0	0.0 - 0.5
Jersey City Medical Center	0	1,654	0.0	0.0	0.0	0.0 - 0.3
Jersey Shore University Medical Center	0	4,552	0.0	0.0	0.0	0.0 - 0.2
JFK Medical Center/Anthony M. Yalensics	2	2,440	0.8	0.0	0.9 **	0.7 - 1.2
Kennedy University Hospital - Cherry Hill	0	399	0.0	0.0	0.0	0.0 - 0.6
Kennedy University Hospital - Stratford	0	781	0.0	0.0	0.0	0.0 - 0.4
Kennedy University Hospital - Wash. Twp.	0	1,522	0.0	0.0	0.0	0.0 - 0.3
Kimball Medical Center	0	609	0.0	0.0	0.0	0.0 - 0.5
Lourdes Medical Center of Burlington Cty.	0	886	0.0	0.0	0.0	0.0 - 0.4
Meadowlands Hospital Medical Center	0	411	0.0	0.0	0.0	0.0 - 0.6
Memorial Hospital of Salem County	0	430	0.0	0.0	0.0	0.0 - 0.6
Monmouth Medical Center	0	1,459	0.0	0.0	0.0	0.0 - 0.3
Morristown Memmorial Hospital	0	7,004	0.0	0.0	0.0	0.0 - 0.1
Mountainside Hospital	0	1,239	0.0	0.0	0.0	0.0 - 0.3
Newark Beth Israel Medical Center	1	3,772	0.3	0.0	0.3	0.1 - 0.5
Newton Memorial Hospital	0	670	0.0	0.0	0.0	0.0 - 0.5
Ocean Medical Center - Bricktown	0	1,418	0.0	0.0	0.0	0.0 - 0.3
Our Lady of Lourdes Medical Center	0	3,298	0.0	0.0	0.0	0.0 - 0.2
Overlook Medical Center	0	3,272	0.0	0.0	0.0	0.0 - 0.2
Palisades Medical Center of NY PHS	0	765	0.0	0.0	0.0	0.0 - 0.4
Raritan Bay Medical Center-Old Bridge	0	478	0.0	0.0	0.0	0.0 - 0.6
Raritan Bay Medical Center-Perth Amboy	0	878	0.0	0.0	0.0	0.0 - 0.4

Table 3. Post-operative hip fracture (per 1,000 surgical discharges)

Hospital	# of cases	# of discharges	Obs. rate	Exp. RateΔ	Risk-adjusted rate	95% Confidence interval
Statewide	**6**	**128,511**	**0.0**	**0.0**	**0.1**	**0.0 - 0.1**
Riverview Medical Center	0	1,619	0.0	0.0	0.0	0.0 - 0.3
RWJ University Hospital	0	6,567	0.0	0.0	0.0	0.0 - 0.1
RWJ University Hospital at Hamilton	0	1,572	0.0	0.0	0.0	0.0 - 0.3
RWJ University Hospital at Rahway	0	560	0.0	0.0	0.0	0.0 - 0.5
Shore Medical Center	1	1,119	0.9	0.0	1.0 **	0.7 - 1.4
Somerset Medical Center	0	2,014	0.0	0.0	0.0	0.0 - 0.3
South Jersey Healthcare Regional MC	0	1,834	0.0	0.0	0.0	0.0 - 0.3
South Jersey Hospital-Elmer	0	376	0.0	0.0	0.0	0.0 - 0.6
Southern Ocean Medical Center	0	676	0.0	0.0	0.0	0.0 - 0.5
St. Barnabas Medical Center	0	4,591	0.0	0.0	0.0	0.0 - 0.2
St. Clare's Hospital-Denville	0	1,313	0.0	0.0	0.0	0.0 - 0.3
St. Clare's Hospital-Dover	0	532	0.0	0.0	0.0	0.0 - 0.5
St. Clare's Hospital-Sussex	0	77	0.0	0.0	0.0	0.0 - 1.4
St. Francis Medical Center-Trenton	0	1,030	0.0	0.0	0.0	0.0 - 0.4
St. Joseph's Hospital and Medical Center	0	3,250	0.0	0.0	0.0	0.0 - 0.2
St. Joseph's Wayne Hospital	0	595	0.0	0.0	0.0	0.0 0.5
St. Mary's Hospital (Passaic)	0	1,631	0.0	0.0	0.0	0.0 - 0.3
St. Michael's Medical Center	0	1,596	0.0	0.0	0.0	0.0 - 0.3
St. Peter's University Hospital	0	2,235	0.0	0.0	0.0	0.0 - 0.3
Trinitas Regional Medical Center	0	1,528	0.0	0.0	0.0	0.0 - 0.3
UMDNJ-University Hospital	0	2,266	0.0	0.0	0.0	0.0 - 0.3
Underwood-Memorial Hospital	0	1,305	0.0	0.0	0.0	0.0 - 0.3
University Medical Center at Princeton	0	1,632	0.0	0.0	0.0	0.0 - 0.3
Valley Hospital	1	4,473	0.2	0.0	0.3	0.1 - 0.4
Virtua-Memorial Hospital Burlington Cty.	0	2,474	0.0	0.0	0.0	0.0 - 0.2
Virtua-West Jersey Hospital Berlin	0	272	0.0	0.0	0.0	0.0 - 0.7
Virtua-West Jersey Hospital Marlton	0	1,860	0.0	0.0	0.0	0.0 - 0.3
Virtua-West Jersey Hospital Voorhees	0	2,080	0.0	0.0	0.0	0.0 - 0.3
St. Likes's Warren Hospital	0	685	0.0	0.0	0.0	0.0 - 0.5

Source: New Jersey 2011 UB Data.

**: Statistically significantly above statewide average (i.e., worse than statewide average).

Δ: Expected rate is the rate the hospital would have if it had the same case-mix (e.g., age, gender, DRG, and comorbidity categories) as the reference or statewide population. If the observed rate is higher than the expected rate (i.e., the ratio of observed to expected is greater than 1.0), it suggests that the hospital performed worse than the reference population on that indicator.

PSI.09 – Post-operative hemorrhage or hematoma

- This indicator is designed to capture hemorrhage or hematoma cases following a surgical procedure and is limited to secondary procedure and diagnosis codes, respectively, to isolate those that can be linked to a surgical procedure. The rate, which is risk-adjusted for age, sex, DRG, and comorbidity categories, is defined as the number of patients with postoperative hemorrhage (too much bleeding) or postoperative hematoma (drainage of hematoma) per 1,000 surgical discharges.

- The numerator refers to the number of discharges with ICD-9-CM codes for postoperative hemorrhage or postoperative hematoma in any secondary diagnosis field or discharges with ICD-9-CM codes for postoperative control of hemorrhage or drainage of hematoma in any secondary procedure field.

- The denominator refers to all surgical discharges age 18 years and older defined by specific DRGs and an ICD-9-CM code for an operating room procedure.

- The following cases are excluded from the denominator or from rate calculation:

    - cases with preexisting conditions (present on admission, if known) of postoperative hemorrhage or postoperative hematoma;

    - cases where the only operating room procedure is postoperative control of hemorrhage or drainage of hematoma;

    - cases where a procedure for postoperative control of hemorrhage or drainage of hematoma occurs before the first operating room procedure (i*f day of procedure is not available in the input data file, the rate may be slightly lower than if the information was available)*; and

    - MDC 14 (pregnancy, childbirth and the puerperium) are excluded from the denominator.

- Table 4 shows the number of post-operative hemorrhage or hematoma cases by hospital, the number of eligible surgical discharges, observed rates, expected rates, and risk-adjusted rates along with their corresponding 95% confidence intervals. Statewide, there were 412 postoperative hemorrhage or hematoma cases out of 194,419 eligible surgical discharges reported in 2011 for a statewide risk-adjusted rate of 2.1 per 1,000.

Table 4. Post-operative hemorrhage or hematoma (per 1,000 surgical discharges)

Hospital	# of cases	# of discharges	Obs. rate	Exp. Rate∆	Risk-adjusted rate	95% Confidence interval
Statewide	**412**	**194,419**	**2.1**	**2.3**	**2.1**	**1.9 - 2.3**
Atlanticare Regional Medical Center-City	1	1,853	0.5	2.4	0.5	0.0 - 2.7
Atlanticare Regional Medical Center-Mainland	2	4,598	0.4	1.5	0.7	0.0 - 2.4
Bayonne Medical Center	2	770	2.6	2.5	2.5	0.0 - 5.8
Bayshore Community Hospital	2	1,074	1.9	2.5	1.8	0.0 - 4.6
Bergen Regional Medical Center	0	161	0.0	2.1	0.0	0.0 - 7.8
Cape Regional Medical Center	2	1,229	1.6	2.4	1.6	0.0 - 4.2
Capital Health Regional Medical Center	1	1,700	0.6	2.0	0.7	0.0 - 3.1
Capital Health Medical Center - Hopewell	3	1,536	2.0	2.6	1.8	0.0 - 4.1
CentraState Medical Center	8	2,795	2.9	2.4	2.8	1.0 - 4.5
Chilton Memorial Hospital	6	1,824	3.3	2.4	3.2	1.0 - 5.4
Christ Hospital	3	1,454	2.1	2.8	1.7	0.0 - 4.0
Clara Maass Medical Center	8	3,617	2.2	2.5	2.1	0.6 - 3.6
Community Medical Center	9	4,441	2.0	2.3	2.0	0.6 - 3.5
Cooper Hospital/University Medical Center	22	6,325	3.5	2.7	3.0	1.9 - 4.1
Deborah Heart and Lung Center	10	2,566	3.9	2.6	3.5	1.7 - 5.3
East Orange General Hospital	0	672	0.0	2.9	0.0	0.0 - 3.3
Englewood Hospital and Medical Center	8	4,958	1.6	2.2	1.7	0.3 - 3.1
Hackensack University Medical Center	30	11,299	2.7	2.3	2.8	1.9 - 3.7
Hackettstown Regional Medical Center	2	881	2.3	2.1	2.5	0.0 - 5.8
Hoboken University Medical Center	1	936	1.1	2.2	1.2	0.0 - 4.4
Holy Name Medical Center	7	2,966	2.4	2.3	2.5	0.7 - 4.2
Hunterdon Medical Center	3	1,249	2.4	2.0	2.8	0.0 - 5.7
Jersey City Medical Center	1	2,326	0.4	2.2	0.5	0.0 - 2.5
Jersey Shore University Medical Center	14	6,790	2.1	2.2	2.2	1.0 - 3.4
JFK Medical Center/Anthony M. Yalensics	8	3,782	2.1	2.2	2.2	0.6 - 3.8
Kennedy University Hospital - Cherry Hill	2	661	3.0	2.1	3.4	0.0 - 7.3
Kennedy University Hospital - Stratford	2	1,015	2.0	2.3	2.0	0.0 - 5.0
Kennedy University Hospital - Wash. Twp.	3	2,393	1.3	2.2	1.3	0.0 - 3.3
Kimball Medical Center	1	830	1.2	2.6	1.1	0.0 - 4.2
Lourdes Medical Center of Burlington Cty.	4	1,193	3.4	2.4	3.3	0.6 - 6.1
Meadowlands Hospital Medical Center	3	606	5.0	2.1	5.4	1.4 - 9.4
Memorial Hospital of Salem County	1	580	1.7	2.2	1.8	0.0 - 5.9
Monmouth Medical Center	6	2,636	2.3	2.2	2.5	0.6 - 4.4
Morristown Memmorial Hospital	16	11,491	1.4	2.1	1.5	0.6 - 2.5
Mountainside Hospital	5	1,771	2.8	2.4	2.8	0.5 - 5.0
Newark Beth Israel Medical Center	10	4,318	2.3	2.7	2.0	0.6 - 3.3
Newton Memorial Hospital	3	1,029	2.9	2.3	3.0	0.0 - 6.0
Ocean Medical Center - Bricktown	8	2,902	2.8	2.1	3.1	1.3 - 5.0
Our Lady of Lourdes Medical Center	5	3,741	1.3	2.8	1.1	0.0 - 2.5
Overlook Medical Center	16	5,537	2.9	2.2	3.0	1.7 - 4.3
Palisades Medical Center of NY PHS	0	990	0.0	2.6	0.0	0.0 - 2.9
Raritan Bay Medical Center-Old Bridge	1	660	1.5	2.5	1.4	0.0 - 4.9
Raritan Bay Medical Center-Perth Amboy	0	1,123	0.0	2.3	0.0	0.0 - 2.8
Riverview Medical Center	7	2,834	2.5	2.1	2.7	0.8 - 4.6

Table 4. Post-operative hemorrhage or hematoma (per 1,000 surgical discharges)

Hospital	# of cases	# of discharges	Obs. rate	Exp. Rate∆	Risk-adjusted rate	95% Confidence interval
Statewide	**412**	**194,419**	**2.1**	**2.3**	**2.1**	**1.9 - 2.3**
RWJ University Hospital	18	9,015	2.0	2.5	1.8	0.9 - 2.8
RWJ University Hospital at Hamilton	7	2,448	2.9	2.2	3.1	1.1 - 5.0
RWJ University Hospital at Rahway	3	948	3.2	2.1	3.5	0.3 - 6.7
Shore Medical Center	7	2,266	3.1	2.0	3.6	1.5 - 5.8
Somerset Medical Center	10	3,073	3.3	2.1	3.6	1.8 - 5.4
South Jersey Healthcare Regional MC	0	2,587	0.0	2.4	0.0 *	0.0 - 1.8
South Jersey Hospital-Elmer	0	757	0.0	1.8	0.0	0.0 - 4.0
Southern Ocean Medical Center	1	1,053	0.9	2.4	0.9	0.0 - 3.8
St. Barnabas Medical Center	29	6,343	4.6	3.0	3.6 **	2.6 - 4.7
St. Clare's Hospital-Denville	3	2,155	1.4	2.2	1.5	0.0 - 3.6
St. Clare's Hospital-Dover	2	733	2.7	2.2	3.0	0.0 - 6.6
St. Clare's Hospital-Sussex	0	83	0.0	2.4	0.0	0.0 - 10.2
St. Francis Medical Center-Trenton	3	1,228	2.4	2.2	2.6	0.0 - 5.3
St. Joseph's Hospital and Medical Center	7	4,818	1.5	2.2	1.5	0.1 - 2.9
St. Joseph's Wayne Hospital	3	979	3.1	2.2	3.3	0.2 6.5
St. Mary's Hospital (Passaic)	4	2,016	2.0	2.5	1.9	0.0 - 3.9
St. Michael's Medical Center	9	2,019	4.5	2.4	4.3 **	2.2 - 6.4
St. Peter's University Hospital	3	3,177	0.9	2.4	0.9	0.0 - 2.5
Trinitas Regional Medical Center	2	2,123	0.9	2.4	0.9	0.0 - 2.9
UMDNJ-University Hospital	24	4,549	5.3	3.3	3.7 **	2.6 - 4.9
Underwood-Memorial Hospital	1	1,933	0.5	2.5	0.5	0.0 - 2.6
University Medical Center at Princeton	2	3,051	0.7	1.9	0.8	0.0 - 2.7
Valley Hospital	12	7,222	1.7	2.2	1.7	0.6 - 2.9
Virtua-Memorial Hospital Burlington Cty.	7	4,510	1.6	2.1	1.7	0.2 - 3.2
Virtua-West Jersey Hospital Berlin	0	369	0.0	2.4	0.0	0.0 - 4.9
Virtua-West Jersey Hospital Marlton	5	3,415	1.5	1.9	1.8	0.0 - 3.5
Virtua-West Jersey Hospital Voorhees	3	2,404	1.2	3.0	1.0	0.0 - 2.7
St. Likes's Warren Hospital	1	1,033	1.0	2.3	1.0	0.0 - 3.9

Source: New Jersey 2011 UB Data.

*: Statistically significantly below statewide average (i.e., better than statewide average).

**: Statistically significantly above statewide average (i.e., worse than statewide average).

∆: Expected rate is the rate the hospital would have if it had the same case-mix (e.g., age, gender, DRG, and comorbidity categories) as the reference or statewide population. If the observed rate is higher than the expected rate (i.e., the ratio of observed to expected is greater than 1.0), it suggests that the hospital performed worse than the reference population on that indicator.

PSI.12- Post-operative pulmonary embolism (PE) or deep vein thrombosis (DVT)

- This indicator measures incidences of PE (blood clot in the lungs) or DVT (blood clot in a large vein) occurring during a surgical procedure. The rate, which is risk-adjusted for age, sex, DRG, and comorbidity, is defined as the number of pulmonary embolism (PE) or deep vein thrombosis (DVT) cases per 1,000 surgical discharges with an operating room procedure.

- The numerator includes discharges with ICD-9-CM codes for deep vein thrombosis or pulmonary embolism in any secondary diagnosis field.

- The denominator includes all surgical discharges age 18 and older defined by specific DRGs and an ICD-9-CM code for an operating room procedure.

- The following cases are excluded from the denominator or from rate calculation:

    - cases with pre-existing conditions (present on admission, if known) of deep vein thrombosis or pulmonary embolism where a procedure for interruption of vena cava is the only operating room procedure;
    - cases where a procedure for interruption of vena cava occurs before or on the same day as the first operating room procedure (*if day of procedure is not available in the input data file, the rate may be slightly lower than if the information was available);* and
    - MDC 14 (pregnancy, childbirth and the puerperium).

- Table 5 presents the number of post-operative pulmonary embolism or deep vein thrombosis cases among all surgical discharges age 18 and older by hospital, observed rates, expected rates, risk-adjusted rates, and the 95% confidence intervals computed for the risk-adjusted rates. Statewide, there were 1,362 cases of postoperative pulmonary embolism or deep vein thrombosis reported in 2011 for a statewide risk-adjusted rate of 6.3 per 1,000 surgical discharges.

Table 5. Post-operative pulmonary embolism or deep vein thrombosis (per 1,000 surgical discharges)

Hospital	# of cases	# of discharges	Obs. rate	Exp. Rate∆	Risk-adjusted rate	95% Confidence interval
Statewide	**1,362**	**193,693**	**7.0**	**5.4**	**6.3**	**6.0 - 6.6**
Atlanticare Regional Medical Center-City	7	1,852	3.8	7.2	2.6 *	0.1 - 5.1
Atlanticare Regional Medical Center-Mainland	31	4,559	6.8	6.8	4.9	3.2 - 6.5
Bayonne Medical Center	4	777	5.1	4.9	5.1	0.3 - 9.9
Bayshore Community Hospital	3	1,077	2.8	5.0	2.7	0.0 - 6.7
Bergen Regional Medical Center	2	161	12.4	5.3	11.4	1.2 - 21.5
Cape Regional Medical Center	5	1,234	4.1	8.3	2.4 *	0.0 - 5.2
Capital Health Regional Medical Center	46	1,679	27.4	12.5	10.6 **	8.7 - 12.6
Capital Health Medical Center - Hopewell	9	1,534	5.9	5.6	5.1	2.0 - 8.3
CentraState Medical Center	7	2,779	2.5	4.9	2.5 *	0.0 - 5.0
Chilton Memorial Hospital	10	1,826	5.5	5.2	5.1	2.1 - 8.2
Christ Hospital	7	1,449	4.8	4.0	5.9	2.0 - 9.8
Clara Maass Medical Center	10	3,620	2.8	4.5	3.0 *	0.7 - 5.3
Community Medical Center	19	4,440	4.3	5.7	3.7 *	1.8 - 5.5
Cooper Hospital/University Medical Center	62	6,289	9.9	5.2	9.3 **	7.6 - 11.0
Deborah Heart and Lung Center	4	2,559	1.6	4.2	1.8 *	0.0 - 4.6
East Orange General Hospital	3	666	4.5	5.7	3.8	0.0 - 8.6
Englewood Hospital and Medical Center	15	4,950	3.0	4.4	3.4 *	1.3 - 5.4
Hackensack University Medical Center	134	11,201	12.0	5.8	10.0 **	8.9 - 11.2
Hackettstown Regional Medical Center	10	880	11.4	3.5	15.8 **	10.4 - 21.3
Hoboken University Medical Center	2	940	2.1	3.7	2.8	0.0 - 7.8
Holy Name Medical Center	16	2,954	5.4	4.8	5.5	3.0 - 8.0
Hunterdon Medical Center	4	1,248	3.2	5.9	2.6 *	0.0 - 6.0
Jersey City Medical Center	3	2,311	1.3	4.8	1.3 *	0.0 - 4.1
Jersey Shore University Medical Center	31	6,770	4.6	7.2	3.1 *	1.8 - 4.4
JFK Medical Center/Anthony M. Yalensics	73	3,722	19.6	5.1	18.8 **	16.7 - 21.0
Kennedy University Hospital - Cherry Hill	6	651	9.2	6.5	6.9	2.4 - 11.3
Kennedy University Hospital - Stratford	3	1,015	3.0	4.6	3.1	0.0 - 7.4
Kennedy University Hospital - Wash. Twp.	8	2,387	3.4	4.8	3.4 *	0.7 - 6.1
Kimball Medical Center	5	830	6.0	7.6	3.8	0.4 - 7.3
Lourdes Medical Center of Burlington Cty.	4	1,193	3.4	4.0	4.0	0.0 - 8.3
Meadowlands Hospital Medical Center	1	609	1.6	3.7	2.2	0.0 - 8.5
Memorial Hospital of Salem County	5	579	8.6	2.9	14.2 **	7.0 - 21.5
Monmouth Medical Center	9	2,647	3.4	4.3	3.9	1.1 - 6.7
Morristown Memmorial Hospital	91	11,427	8.0	5.4	7.2	6.0 - 8.4
Mountainside Hospital	12	1,771	6.8	5.0	6.6	3.5 - 9.7
Newark Beth Israel Medical Center	26	4,284	6.1	4.9	6.0	4.0 - 8.1
Newton Memorial Hospital	4	1,032	3.9	5.4	3.5	0.0 - 7.4
Ocean Medical Center - Bricktown	14	2,896	4.8	6.6	3.6 *	1.5 - 5.7
Our Lady of Lourdes Medical Center	11	3,733	2.9	4.8	3.0 *	0.8 - 5.2
Overlook Medical Center	65	5,489	11.8	6.2	9.3 **	7.7 - 10.9
Palisades Medical Center of NY PHS	5	992	5.0	4.1	5.9	1.3 - 10.6
Raritan Bay Medical Center-Old Bridge	3	660	4.5	4.7	4.7	0.0 - 10.0

Table 5. Post-operative pulmonary embolism or deep vein thrombosis (per 1,000 surgical discharges)

Hospital	# of cases	# of discharges	Obs. rate	Exp. Rate∆	Risk-adjusted rate	95% Confidence interval
Statewide	**1,362**	**193,693**	**7.0**	**5.4**	**6.3**	**6.0 - 6.6**
Raritan Bay Medical Center-Perth Amboy	10	1,126	8.9	4.4	9.8	5.7 - 13.8
Riverview Medical Center	8	2,832	2.8	8.0	1.7 *	0.0 - 3.6
RWJ University Hospital	123	8,974	13.7	6.2	10.7 **	9.4 - 11.9
RWJ University Hospital at Hamilton	11	2,443	4.5	6.6	3.3 *	1.0 - 5.6
RWJ University Hospital at Rahway	6	943	6.4	6.0	5.1	1.3 - 9.0
Shore Medical Center	9	2,268	4.0	4.9	3.9	1.1 - 6.7
Somerset Medical Center	33	3,055	10.8	5.1	10.3 **	8.0 - 12.7
South Jersey Healthcare Regional MC	0	2,586	0.0	4.3	0.0 *	0.0 - 2.8
South Jersey Hospital-Elmer	0	759	0.0	4.9	0.0 *	0.0 - 4.9
Southern Ocean Medical Center	5	1,048	4.8	7.7	3.0 *	0.0 - 6.2
St. Barnabas Medical Center	65	6,314	10.3	5.2	9.6 **	7.9 - 11.2
St. Clare's Hospital-Denville	14	2,145	6.5	4.5	7.0	4.0 - 10.1
St. Clare's Hospital-Dover	4	732	5.5	4.8	5.6	0.6 - 10.6
St. Clare's Hospital-Sussex	1	83	12.0	3.1	18.8	0.1 - 37.4
St. Francis Medical Center-Trenton	7	1,232	5.7	4.2	6.6	2.5 - 10.7
St. Joseph's Hospital and Medical Center	16	4,829	3.3	4.5	3.6 *	1.6 - 5.6
St. Joseph's Wayne Hospital	2	979	2.0	5.3	1.9 *	0.0 6.0
St. Mary's Hospital (Passaic)	9	2,017	4.5	4.2	5.2	2.0 - 8.4
St. Michael's Medical Center	4	2,004	2.0	4.7	2.0 *	0.0 - 5.1
St. Peter's University Hospital	29	3,176	9.1	4.3	10.2 **	7.7 - 12.8
Trinitas Regional Medical Center	9	2,117	4.3	4.0	5.1	1.9 - 8.3
UMDNJ-University Hospital	75	4,470	16.8	6.3	12.9 **	11.2 - 14.7
Underwood-Memorial Hospital	6	1,927	3.1	5.5	2.7 *	0.0 - 5.5
University Medical Center at Princeton	13	3,050	4.3	4.3	4.8	2.2 - 7.4
Valley Hospital	66	7,188	9.2	5.3	8.4 **	6.9 - 9.9
Virtua-Memorial Hospital Burlington Cty.	18	4,504	4.0	4.9	4.0 *	2.0 - 6.0
Virtua-West Jersey Hospital Berlin	3	372	8.1	6.0	6.5	0.3 - 12.7
Virtua-West Jersey Hospital Marlton	10	3,414	2.9	4.6	3.1 *	0.7 - 5.5
Virtua-West Jersey Hospital Voorhees	10	2,408	4.2	6.8	3.0 *	0.8 - 5.2
St. Likes's Warren Hospital	7	1,026	6.8	5.3	6.3	2.3 - 10.2

Source: New Jersey 2011 UB Data.

*: Statistically significantly below statewide average (i.e., better than statewide average).

**: Statistically significantly above statewide average (i.e., worse than statewide average).

∆: Expected rate is the rate the hospital would have if it had the same case-mix (e.g., age, gender, DRG, and comorbidity categories) as the reference or statewide population. If the observed rate is higher than the expected rate (i.e., the ratio of observed to expected is greater than 1.0), it suggests that the hospital performed worse than the reference population on that indicator.

PSI.13 – Post-operative sepsis

- This indicator flags how often hospitalized patients get a serious bloodstream infection (nosocomial postoperative sepsis) following an operation (a serious infection of the bloodstream caused by toxin-producing bacteria, known as sepsis, can occur after surgery). The rate, which is risk-adjusted for age, sex, DRG, and comorbidity categories, is defined as the number of sepsis cases per 1,000 elective surgery patients with an operating room procedure and a length of stay of 4 days or more.

- The numerator includes discharges with ICD-9-CM code for sepsis in any secondary diagnosis field while the denominator includes all elective surgical discharges age 18 and older defined by specific DRGs and an ICD-9-CM code for an operating room procedure.

- The following cases are excluded from the denominator or from rate calculation:

    - cases with pre-existing condition (present on admission, if known) of sepsis or infection;

    - cases with any code for immunocompromised state or cancer;

    - MDC 14 (pregnancy, childbirth, and puerperium); and

    - cases with a length of stay of less than 4 days.

- Table 6 shows the number of post-operative sepsis cases among elective surgery patients by hospital, as well as the observed, expected and risk-adjusted rates along with their corresponding 95% confidence intervals. Statewide, there were 210 post-operative sepsis cases reported in 2011 for a statewide risk-adjusted rate of 12.4 per 1,000 elective discharges.

Table 6. Post-operative sepsis (per 1,000 elective surgical discharges)

Hospital	# of cases	# of discharges	Obs. rate	Exp. Rate∆	Risk-adjusted rate	95% Confidence interval
Statewide	**210**	**14,721**	**14.3**	**12.4**	**12.4**	**10.9 - 13.9**
Atlanticare Regional Medical Center-City	0	71	0.0	10.5	0.0	0.0 - 24.1
Atlanticare Regional Medical Center-Mainland	1	395	2.5	9.5	2.8	0.0 - 13.5
Bayonne Medical Center	2	38	52.6	14.4	39.1	11.0 - 67.2
Bayshore Community Hospital	0	37	0.0	15.4	0.0	0.0 - 26.9
Bergen Regional Medical Center	0	41	0.0	4.7	0.0	0.0 - 47.9
Cape Regional Medical Center	3	45	66.7	11.9	60.1 **	31.6 - 88.5
Capital Health Regional Medical Center	0	67	0.0	8.5	0.0	0.0 - 27.6
Capital Health Medical Center - Hopewell	2	119	16.8	11.4	15.8	0.0 - 33.6
CentraState Medical Center	2	103	19.4	9.5	21.9	0.8 - 43.0
Chilton Memorial Hospital	1	98	10.2	13.4	8.1	0.0 - 26.2
Christ Hospital	0	74	0.0	10.8	0.0	0.0 - 23.4
Clara Maass Medical Center	2	135	14.8	15.9	10.0	0.0 - 24.0
Community Medical Center	5	210	23.8	13.4	19.0	6.8 - 31.3
Cooper Hospital/University Medical Center	21	771	27.2	13.8	21.2 **	14.9 - 27.6
Deborah Heart and Lung Center	0	5	0.0	17.9	0.0 ^	0.0 - 69.5
East Orange General Hospital	1	31	32.3	10.7	32.3	0.0 - 68.3
Englewood Hospital and Medical Center	5	594	8.4	11.8	7.6	0.0 - 15.5
Hackensack University Medical Center	12	840	14.3	12.2	12.6	6.1 - 19.1
Hackettstown Regional Medical Center	2	66	30.3	8.8	37.0	9.7 - 64.4
Hoboken University Medical Center	0	86	0.0	7.5	0.0	0.0 - 26.0
Holy Name Medical Center	2	143	14.0	8.9	16.9	0.0 - 35.4
Hunterdon Medical Center	2	79	25.3	10.3	26.5	3.3 - 49.6
Jersey City Medical Center	2	154	13.0	8.9	15.6	0.0 - 33.4
Jersey Shore University Medical Center	3	369	8.1	25.9	3.4 *	0.0 - 9.9
JFK Medical Center/Anthony M. Yalensics	4	456	8.8	10.8	8.7	0.0 - 18.1
Kennedy University Hospital - Cherry Hill	0	18	0.0	5.2	0.0 ^	0.0 - 68.4
Kennedy University Hospital - Stratford	2	53	37.7	10.4	38.9	10.8 - 66.9
Kennedy University Hospital - Wash. Twp.	0	88	0.0	10.9	0.0	0.0 - 21.3
Kimball Medical Center	0	16	0.0	6.0	0.0 ^	0.0 - 67.6
Lourdes Medical Center of Burlington Cty.	0	78	0.0	14.3	0.0	0.0 - 19.6
Meadowlands Hospital Medical Center	0	7	0.0	4.1	0.0 ^	0.0 - 124.4
Memorial Hospital of Salem County	3	23	130.4	8.9	157.6 ^**	111.4 - 203.8
Monmouth Medical Center	1	172	5.8	8.0	7.8	0.0 - 25.7
Morristown Memmorial Hospital	2	1,219	1.6	13.0	1.4 *	0.0 - 6.6
Mountainside Hospital	1	90	11.1	14.6	8.2	0.0 - 26.0
Newark Beth Israel Medical Center	10	398	25.1	12.4	21.8	12.4 - 31.2
Newton Memorial Hospital	0	76	0.0	7.9	0.0	0.0 - 26.8
Ocean Medical Center - Bricktown	4	140	28.6	8.7	35.3 **	16.4 - 54.2
Our Lady of Lourdes Medical Center	8	549	14.6	16.6	9.4	2.6 - 16.2
Overlook Medical Center	8	360	22.2	11.2	21.3	10.9 - 31.6
Palisades Medical Center of NY PHS	1	42	23.8	11.8	21.6	0.0 - 51.0
Raritan Bay Medical Center-Old Bridge	0	25	0.0	12.6	0.0 ^	0.0 - 37.2
Raritan Bay Medical Center-Perth Amboy	0	20	0.0	9.6	0.0 ^	0.0 - 47.7
Riverview Medical Center	0	103	0.0	15.8	0.0	0.0 - 16.1

Table 6. Post-operative sepsis (per 1,000 elective surgical discharges)

Hospital	# of cases	# of discharges	Obs. rate	Exp. RateΔ	Risk-adjusted rate	95% Confidence interval
Statewide	**210**	**14,721**	**14.3**	**12.4**	**12.4**	**10.9 - 13.9**
RWJ University Hospital	12	915	13.1	12.8	11.0	5.0 - 17.1
RWJ University Hospital at Hamilton	3	187	16.0	10.2	16.9	1.9 - 31.9
RWJ University Hospital at Rahway	0	45	0.0	14.2	0.0	0.0 - 25.9
Shore Medical Center	4	120	33.3	9.9	36.2 **	17.1 - 55.3
Somerset Medical Center	6	308	19.5	10.9	19.2	7.8 - 30.5
South Jersey Healthcare Regional MC	0	247	0.0	14.8	0.0 *	0.0 - 10.9
South Jersey Hospital-Elmer	0	74	0.0	13.1	0.0	0.0 - 21.2
Southern Ocean Medical Center	0	44	0.0	16.7	0.0	0.0 - 23.8
St. Barnabas Medical Center	10	601	16.6	12.0	14.9	7.2 - 22.6
St. Clare's Hospital-Denville	0	60	0.0	11.4	0.0	0.0 - 25.1
St. Clare's Hospital-Dover	0	20	0.0	15.7	0.0	0.0 - 37.0
St. Clare's Hospital-Sussex	0	1	0.0	.	.	. - .
St. Francis Medical Center-Trenton	2	160	12.5	14.7	9.1	0.0 22.5
St. Joseph's Hospital and Medical Center	6	437	13.7	10.4	14.2	4.4 - 23.9
St. Joseph's Wayne Hospital	1	75	13.3	8.0	17.8	0.0 - 44.7
St. Mary's Hospital (Passaic)	4	171	23.4	13.3	18.9	5.1 - 32.7
St. Michael's Medical Center	11	206	53.4	13.6	42.1 **	29.7 - 54.5
St. Peter's University Hospital	7	185	37.8	11.2	36.4 **	21.9 - 50.9
Trinitas Regional Medical Center	2	101	19.8	9.8	21.7	0.7 - 42.7
UMDNJ-University Hospital	12	463	25.9	9.5	29.4 **	19.5 - 39.3
Underwood-Memorial Hospital	0	119	0.0	8.0	0.0	0.0 - 21.2
University Medical Center at Princeton	2	239	8.4	11.0	8.2	0.0 - 20.9
Valley Hospital	7	539	13.0	11.7	11.9	3.6 - 20.2
Virtua-Memorial Hospital Burlington Cty.	1	331	3.0	14.1	2.3 *	0.0 11.6
Virtua-West Jersey Hospital Berlin	1	16	62.5	17.3	38.8 ^	0.0 - 78.1
Virtua-West Jersey Hospital Marlton	1	340	2.9	10.1	3.1	0.0 14.3
Virtua-West Jersey Hospital Voorhees	3	143	21.0	18.5	12.2	0.0 - 24.8
St. Likes's Warren Hospital	3	70	42.9	10.5	43.7 **	19.5 - 68.0

Source: New Jersey 2011 UB Data.

*: Statistically significantly below statewide average (i.e., better than statewide average).

**: Statistically significantly above statewide average (i.e., worse than statewide average).

@: Could be coding error.

Δ: Expected rate is the rate the hospital would have if it had the same case-mix (e.g., age, gender, DRG, and comorbidity categories) as the reference or statewide population. If the observed rate is higher than the expected rate (i.e., the ratio of observed to expected is greater than 1.0), it suggests that the hospital performed worse than the reference population on that indicator.

PSI.14 – Post-operative wound dehiscence

- This indicator flags cases of wound dehiscence (i.e. when surgical wound in the stomach or pelvic area is split open after an operation) in patients who have undergone abdominal and pelvic surgery. Some or all of these complications may require treatment with another major operation to fix the wound. Wound dehiscence following surgery is a medical error that can be avoided. The rate, which is risk-adjusted for age, sex, DRG, and comorbidity categories, is defined as the number of cases of re-closure of postoperative disruption of abdominal wall per 1,000 cases of abdominopelvic surgery.

- The numerator includes discharges with ICD-9-CM code (5461) for re-closure of postoperative disruption of abdominal wall in any procedure field, while the denominator includes all abdominopelvic surgical discharges age 18 and older.

- The following cases are excluded from the denominator or from rate calculation:

    - cases where a procedure for re-closure of postoperative disruption of abdominal wall occurs before or on the same day as the first abdominopelvic surgery procedure (*if day of procedure is not available in the input data file, the rate may be slightly lower than if the information was available);*

    - cases with pre-existing conditions (POA) and all obstetric admissions;

    - cases where length of stay is less than 2 days;

    - cases with immunocompromised state; and

    - MDC 14 (pregnancy, childbirth, and puerperium).

- Table 7 shows the number of post-operative wound dehiscence cases among patients who have undergone abdominal and pelvic surgery by hospital, observed rates, expected rates, and risk-adjusted rates along with their corresponding 95% confidence intervals. Statewide, there were 54 postoperative wound dehiscence cases reported in 2011 for a statewide risk-adjusted rate of 0.8per 1,000 abdominopelvic surgical discharges.

Table 7. Post-operative wound dehiscence (per 1,000 abdominopelvic surgical discharges)

Hospital	# of cases	# of discharges	Obs. rate	Exp. Rate Δ	Risk-adjusted rate	95% Confidence interval
Statewide	**54**	**30,619**	**1.8**	**2.3**	**0.8**	**0.6 - 1.1**
Atlanticare Regional Medical Center-City	0	287	0.0	2.4	0.0	0.0 - 2.6
Atlanticare Regional Medical Center-Mainland	0	385	0.0	2.4	0.0	0.0 - 2.2
Bayonne Medical Center	0	179	0.0	2.8	0.0	0.0 - 3.0
Bayshore Community Hospital	1	148	6.8	2.6	2.9	0.0 - 6.4
Bergen Regional Medical Center	0	27	0.0	2.5	0.0 ^	0.0 - 8.3
Cape Regional Medical Center	0	255	0.0	2.9	0.0	0.0 - 2.5
Capital Health Regional Medical Center	1	180	5.6	2.9	2.1	0.0 - 5.1
Capital Health Medical Center - Hopewell	2	337	5.9	2.0	3.2	0.6 - 5.8
CentraState Medical Center	1	508	2.0	2.6	0.8	0.0 - 2.7
Chilton Memorial Hospital	0	335	0.0	2.8	0.0	0.0 - 2.2
Christ Hospital	1	289	3.5	2.1	1.8	0.0 - 4.5
Clara Maass Medical Center	0	529	0.0	2.8	0.0	0.0 - 1.8
Community Medical Center	3	876	3.4	3.0	1.3	0.0 - 2.6
Cooper Hospital/University Medical Center	0	1,362	0.0	1.7	0.0	0.0 - 1.4
Deborah Heart and Lung Center	0	15	0.0	2.6	0.0 ^	0.0 - 10.8
East Orange General Hospital	0	111	0.0	2.8	0.0	0.0 - 3.9
Englewood Hospital and Medical Center	1	589	1.7	2.2	0.9	0.0 - 2.7
Hackensack University Medical Center	4	1,309	3.1	2.5	1.4	0.2 - 2.6
Hackettstown Regional Medical Center	0	123	0.0	2.7	0.0	0.0 - 3.7
Hoboken University Medical Center	0	114	0.0	2.0	0.0	0.0 - 4.5
Holy Name Medical Center	0	540	0.0	1.9	0.0	0.0 - 2.1
Hunterdon Medical Center	0	189	0.0	2.6	0.0	0.0 - 3.1
Jersey City Medical Center	0	286	0.0	2.8	0.0	0.0 - 2.4
Jersey Shore University Medical Center	1	812	1.2	2.9	0.5	0.0 - 1.9
JFK Medical Center/Anthony M. Yalensics	0	650	0.0	2.2	0.0	0.0 - 1.8
Kennedy University Hospital - Cherry Hill	0	83	0.0	2.4	0.0	0.0 - 4.8
Kennedy University Hospital - Stratford	0	193	0.0	1.9	0.0	0.0 - 3.5
Kennedy University Hospital - Wash. Twp.	0	374	0.0	2.3	0.0	0.0 - 2.3
Kimball Medical Center	0	198	0.0	2.3	0.0	0.0 - 3.2
Lourdes Medical Center of Burlington Cty.	0	269	0.0	2.1	0.0	0.0 - 2.8
Meadowlands Hospital Medical Center	0	149	0.0	1.5	0.0	0.0 - 4.5
Memorial Hospital of Salem County	0	127	0.0	1.8	0.0	0.0 - 4.5
Monmouth Medical Center	0	458	0.0	1.9	0.0	0.0 - 2.3
Morristown Memmorial Hospital	4	1,195	3.3	2.2	1.7	0.4 - 3.0
Mountainside Hospital	0	293	0.0	2.4	0.0	0.0 - 2.5
Newark Beth Israel Medical Center	1	568	1.8	1.5	1.3	0.0 - 3.6
Newton Memorial Hospital	4	199	20.1	3.4	6.5 **	3.9 - 9.1
Ocean Medical Center - Bricktown	1	455	2.2	3.1	0.8	0.0 - 2.6
Our Lady of Lourdes Medical Center	2	513	3.9	2.5	1.7	0.0 - 3.6
Overlook Medical Center	1	1,010	1.0	2.2	0.5	0.0 - 1.9
Palisades Medical Center of NY PHS	1	146	6.8	2.4	3.1	0.0 - 6.7
Raritan Bay Medical Center-Old Bridge	0	95	0.0	2.6	0.0	0.0 - 4.3
Raritan Bay Medical Center-Perth Amboy	0	195	0.0	2.0	0.0	0.0 - 3.4
Riverview Medical Center	1	454	2.2	3.5	0.7	0.0 - 2.4

Table 7. Post-operative wound dehiscence (per 1,000 abdominopelvic surgical discharges)

Hospital	# of cases	# of discharges	Obs. rate	Exp. Rate Δ	Risk-adjusted rate	95% Confidence interval
Statewide	**54**	**30,619**	**1.8**	**2.3**	**0.8**	**0.6 - 1.1**
RWJ University Hospital	1	1,375	0.7	2.0	0.4	0.0 - 1.7
RWJ University Hospital at Hamilton	0	456	0.0	2.4	0.0	0.0 - 2.0
RWJ University Hospital at Rahway	2	148	13.5	3.0	4.9 **	1.7 - 8.1
Shore Medical Center	0	342	0.0	2.4	0.0	0.0 - 2.4
Somerset Medical Center	2	429	4.7	2.8	1.8	0.0 - 3.8
South Jersey Healthcare Regional MC	0	674	0.0	1.5	0.0	0.0 - 2.2
South Jersey Hospital-Elmer	1	96	10.4	2.0	5.8 **	0.9 - 10.8
Southern Ocean Medical Center	0	206	0.0	3.2	0.0	0.0 - 2.6
St. Barnabas Medical Center	3	1,341	2.2	1.7	1.4	0.0 - 2.8
St. Clare's Hospital-Denville	1	344	2.9	2.1	1.5	0.0 - 4.0
St. Clare's Hospital-Dover	0	162	0.0	1.8	0.0	0.0 - 4.0
St. Clare's Hospital-Sussex	1	21	47.6	2.1	25.0 ^**	14.8 - 35.3
St. Francis Medical Center-Trenton	1	153	6.5	2.9	2.5	0.0 - 5.7
St. Joseph's Hospital and Medical Center	0	659	0.0	2.1	0.0	0.0 - 1.8
St. Joseph's Wayne Hospital	0	184	0.0	3.5	0.0	0.0 2.7
St. Mary's Hospital (Passaic)	1	373	2.7	2.5	1.2	0.0 - 3.4
St. Michael's Medical Center	0	257	0.0	2.6	0.0	0.0 - 2.6
St. Peter's University Hospital	1	855	1.2	1.6	0.8	0.0 - 2.7
Trinitas Regional Medical Center	0	338	0.0	2.1	0.0	0.0 - 2.5
UMDNJ-University Hospital	1	556	1.8	2.4	0.8	0.0 - 2.7
Underwood-Memorial Hospital	2	310	6.5	2.5	2.8	0.4 - 5.3
University Medical Center at Princeton	1	388	2.6	2.3	1.2	0.0 - 3.5
Valley Hospital	2	1,164	1.7	2.4	0.8	0.0 - 2.1
Virtua-Memorial Hospital Burlington Cty.	2	685	2.9	2.6	1.2	0.0 - 2.9
Virtua-West Jersey Hospital Berlin	0	50	0.0	3.7	0.0	0.0 - 5.0
Virtua-West Jersey Hospital Marlton	0	461	0.0	2.6	0.0	0.0 - 1.9
Virtua-West Jersey Hospital Voorhees	1	944	1.1	2.2	0.5	0.0 - 2.0
St. Likes's Warren Hospital	1	239	4.2	2.6	1.7	0.0 - 4.4

Source: New Jersey 2011 UB Data.

**: Statistically significantly above statewide average (i.e., worse than statewide average).

^: Rates based on denominators less than 30 should be taken with caution.

Δ: Expected rate is the rate the hospital would have if it had the same case-mix (e.g., age, gender, DRG, and comorbidity categories) as the reference or statewide population. If the observed rate is higher than the expected rate (i.e., the ratio of observed to expected is greater than 1.0), it suggests that the hospital performed worse than the reference population on that indicator.

PSI.15 - Accidental puncture or laceration

- This indicator measures the occurrence of complications that arise due to technical difficulties in medical care, specifically, those involving an accidental puncture or laceration. The rate, which is risk-adjusted for age, sex, DRG, and comorbidity categories, is defined as the number of patients who had an accidental cut or lacerations during a medical procedure per 1,000 discharges.

- The numerator refers to all discharges with ICD-9-CM code denoting technical difficulty (e.g., accidental cut, puncture, perforation, or laceration) in any secondary diagnosis field.

- The denominator refers to all medical and surgical discharges age 18 and older defined by specific DRGs, excluding cases:

    - with ICD-9-CM code denoting technical difficulty (e.g., accidental cut, puncture, perforation, or laceration) in the principal diagnosis field or secondary diagnosis present on admission, if known;

    - MDC 14 (pregnancy, childbirth, and puerperium); and

    - with ICD-9-CM code for spine surgery.

- Table 8 shows the number of cases of accidental puncture or laceration among all discharges with ICD-9-CM code denoting technical difficulty (e.g., accidental cut, puncture, perforation, or laceration) in any secondary diagnosis field by hospital along with observed and expected rates as well as risk-adjusted rates with their corresponding 95% confidence intervals. Statewide, there were 1,128 cases of accidental punctures or lacerations reported in 2011 for a risk-adjusted rate of 1.6 per 1,000 discharges.

Table 8. Accidental puncture or laceration (per 1,000 medical and surgical discharges)

Hospital	# of cases	# of discharges	Obs. rate	Exp. Rate∆	Risk-adjusted rate	95% Confidence interval
Statewide	**1,128**	**755,735**	**1.5**	**2.6**	**1.6**	**1.5 - 1.7**
Atlanticare Regional Medical Center-City	4	9,262	0.4	1.7	0.7	0.0 - 2.1
Atlanticare Regional Medical Center-Mainland	18	15,533	1.2	2.0	1.6	0.7 - 2.6
Bayonne Medical Center	0	5,648	0.0	1.9	0.0	0.0 - 1.7
Bayshore Community Hospital	6	7,153	0.8	1.5	1.5	0.0 - 3.2
Bergen Regional Medical Center	0	6,434	0.0	0.4	0.0	0.0 - 3.5
Cape Regional Medical Center	4	8,713	0.5	1.6	0.8	0.0 - 2.3
Capital Health Regional Medical Center	3	8,922	0.3	1.5	0.6	0.0 - 2.1
Capital Health Medical Center - Hopewell	7	5,568	1.3	3.1	1.1	0.0 - 2.5
CentraState Medical Center	30	11,601	2.6	2.6	2.8 **	1.8 - 3.8
Chilton Memorial Hospital	29	7,874	3.7	2.6	3.9 **	2.8 - 5.1
Christ Hospital	14	8,418	1.7	2.0	2.3	1.0 - 3.7
Clara Maass Medical Center	7	14,615	0.5	2.3	0.6 *	0.0 - 1.5
Community Medical Center	25	24,842	1.0	2.1	1.4	0.6 - 2.1
Cooper Hospital/University Medical Center	32	17,263	1.9	4.1	1.3	0.6 - 1.9
Deborah Heart and Lung Center	16	4,302	3.7	4.9	2.1	0.9 - 3.3
East Orange General Hospital	1	7,450	0.1	1.2	0.3	0.0 - 2.2
Englewood Hospital and Medical Center	8	13,198	0.6	3.3	0.5 *	0.0 - 1.3
Hackensack University Medical Center	72	28,111	2.6	3.6	2.0	1.5 - 2.6
Hackettstown Regional Medical Center	5	4,381	1.1	1.8	1.8	0.0 - 3.7
Hoboken University Medical Center	0	5,283	0.0	1.5	0.0	0.0 - 1.9
Holy Name Medical Center	11	11,697	0.9	2.8	0.9	0.0 - 1.9
Hunterdon Medical Center	7	5,945	1.2	2.1	1.6	0.0 - 3.1
Jersey City Medical Center	8	12,063	0.7	1.9	1.0	0.0 - 2.2
Jersey Shore University Medical Center	47	19,783	2.4	3.7	1.8	1.2 - 2.4
JFK Medical Center/Anthony M. Yalensics	21	14,477	1.5	2.7	1.5	0.6 - 2.4
Kennedy University Hospital - Cherry Hill	1	8,418	0.1	0.9	0.4	0.0 - 2.4
Kennedy University Hospital - Stratford	4	6,778	0.6	1.5	1.1	0.0 - 2.8
Kennedy University Hospital - Wash. Twp.	6	12,417	0.5	2.0	0.7	0.0 - 1.8
Kimball Medical Center	4	9,576	0.4	1.1	1.0	0.0 - 2.7
Lourdes Medical Center of Burlington Cty.	7	7,313	1.0	1.7	1.6	0.0 - 3.1
Meadowlands Hospital Medical Center	3	2,633	1.1	2.4	1.4	0.0 - 3.5
Memorial Hospital of Salem County	0	4,471	0.0	1.5	0.0	0.0 - 2.1
Monmouth Medical Center	11	9,320	1.2	2.9	1.2	0.1 - 2.2
Morristown Memmorial Hospital	54	23,818	2.3	4.3	1.5	0.9 - 2.0
Mountainside Hospital	2	7,789	0.3	2.4	0.3	0.0 - 1.6
Newark Beth Israel Medical Center	30	14,534	2.1	3.1	1.9	1.1 - 2.7
Newton Memorial Hospital	4	6,641	0.6	1.7	1.0	0.0 - 2.6
Ocean Medical Center - Bricktown	33	12,297	2.7	2.4	3.2 **	2.2 - 4.2
Our Lady of Lourdes Medical Center	13	10,905	1.2	3.3	1.0	0.1 - 1.9
Overlook Medical Center	34	17,845	1.9	3.4	1.6	0.9 - 2.3
Palisades Medical Center of NY PHS	10	7,381	1.4	1.5	2.6	0.9 - 4.2
Raritan Bay Medical Center-Old Bridge	1	4,890	0.2	1.4	0.4	0.0 - 2.5
Raritan Bay Medical Center-Perth Amboy	7	7,097	1.0	1.6	1.7	0.1 - 3.3
Riverview Medical Center	19	9,692	2.0	3.1	1.7	0.8 - 2.7

Table 8. Accidental puncture or laceration (per 1,000 medical and surgical discharges)

Hospital	# of cases	# of discharges	Obs. rate	Exp. Rate∆	Risk-adjusted rate	95% Confidence interval
Statewide	**1,128**	**755,735**	**1.5**	**2.6**	**1.6**	**1.5 - 1.7**
RWJ University Hospital	96	25,297	3.8	3.9	2.8 **	2.2 - 3.3
RWJ University Hospital at Hamilton	22	11,731	1.9	2.1	2.6	1.5 - 3.7
RWJ University Hospital at Rahway	4	5,884	0.7	1.7	1.1	0.0 - 2.8
Shore Medical Center	6	8,497	0.7	2.2	0.9	0.0 - 2.2
Somerset Medical Center	18	12,740	1.4	2.6	1.5	0.6 - 2.5
South Jersey Healthcare Regional MC	1	12,424	0.1	2.4	0.1 *	0.0 - 1.1
South Jersey Hospital-Elmer	0	3,286	0.0	1.7	0.0	0.0 - 2.3
Southern Ocean Medical Center	5	5,565	0.9	2.0	1.2	0.0 - 2.8
St. Barnabas Medical Center	75	18,424	4.1	3.9	3.0 **	2.3 - 3.6
St. Clare's Hospital-Denville	15	10,227	1.5	2.3	1.8	0.7 - 2.9
St. Clare's Hospital-Dover	12	3,831	3.1	2.0	4.5 **	2.5 - 6.5
St. Clare's Hospital-Sussex	1	1,071	0.9	1.1	2.3	0.0 - 7.2
St. Francis Medical Center-Trenton	13	5,980	2.2	1.8	3.4 **	1.7 - 5.0
St. Joseph's Hospital and Medical Center	37	20,293	1.8	2.2	2.4	1.6 - 3.2
St. Joseph's Wayne Hospital	2	5,614	0.4	1.8	0.5	0.0 2.2
St. Mary's Hospital (Passaic)	13	7,537	1.7	3.0	1.6	0.5 - 2.8
St. Michael's Medical Center	4	10,830	0.4	1.8	0.6	0.0 - 1.8
St. Peter's University Hospital	22	10,501	2.1	3.7	1.6	0.7 - 2.4
Trinitas Regional Medical Center	9	10,275	0.9	2.1	1.2	0.0 - 2.3
UMDNJ-University Hospital	9	13,356	0.7	2.5	0.8	0.0 - 1.7
Underwood-Memorial Hospital	13	9,962	1.3	2.2	1.7	0.5 - 2.8
University Medical Center at Princeton	20	9,961	2.0	2.7	2.1	1.0 - 3.1
Valley Hospital	29	22,944	1.3	3.3	1.1	0.5 - 1.7
Virtua-Memorial Hospital Burlington Cty.	31	14,544	2.1	2.9	2.1	1.2 - 2.9
Virtua-West Jersey Hospital Berlin	3	4,153	0.7	1.2	1.7	0.0 - 4.1
Virtua-West Jersey Hospital Marlton	15	10,913	1.4	2.7	1.4	0.4 - 2.4
Virtua-West Jersey Hospital Voorhees	30	11,472	2.6	3.6	2.0	1.2 - 2.9
St. Likes's Warren Hospital	5	6,072	0.8	2.0	1.2	0.0 - 2.7

Source: New Jersey 2011 UB Data.

*: Statistically significantly below statewide average (i.e., better than statewide average).

**: Statistically significantly above statewide average (i.e., worse than statewide average).

∆: Expected rate is the rate the hospital would have if it had the same case-mix (e.g., age, gender, DRG, and comorbidity categories) as the reference or statewide population. If the observed rate is higher than the expected rate (i.e., the ratio of observed to expected is greater than 1.0), it suggests that the hospital performed worse than the reference population on that indicator.

PSI.16 - Transfusion reaction

- This indicator flags cases of major reactions due to transfusions (ABO and Rh). It measures the occurrence of major reactions to blood transfusions. Using the wrong type of blood or blood substitute are examples of why this type of medical error may occur. The indicator is measured using volume of occurrence – not a rate. It tells you the number of patients who had a transfusion reaction during hospital stay. It is considered a never-event and happens very rarely.
- The measure refers to discharges 18 years and older or in MDC 14 with ICD-9-CM codes for transfusion reaction in any secondary diagnosis field of all medical and surgical discharges defined by specific DRGs or MS-DRGs.
- Patients with principal diagnosis of transfusion reaction or secondary diagnosis present on admission are excluded from the measure.
- Transfusion reaction is considered a never-event and happens very rarely. Statewide, only 3 cases of transfusion reaction were reported in 2011. They were reported by Hackensack University Medical Center, Jersey Shore University Medical Center and University Medical Center at Princeton.

PSI.17 - Birth trauma - injury to neonate

- This indicator flags cases of birth trauma among all newborns in a hospital. Birth trauma (injury to neonate) is caused by medical complications during labor and delivery. The rate is defined as the number of cases of birth trauma (injury to neonate) per 1,000 live births. No risk-adjustment is made to this indicator and no significance tests performed as a result.

- The numerator includes discharges with ICD-9-CM code for birth trauma in any diagnosis field excluding infants with a subdural or cerebral hemorrhage and any diagnosis code of pre-term infant (denoting birth weight of <2,500 grams and <37 gestation weeks or <=34 gestation weeks). It also excludes infants with injury to skeleton (CD-9-CM codes - 7673 and 7674) and infants with diagnosis code of osteogenesis imperfecta (CD-9-CM code - 75651).

- The denominator includes all live births (newborns)[1].

- Table 9 shows the number of 'birth trauma - injury to neonate' cases among infants born alive and the observed rates by hospital. Statewide, there were 198 cases of 'birth trauma - injury to neonate' reported in 2011 for an observed rate of 2.0 per 1,000 live births.

[1] Newborn is defined as any neonate with either 1) an ICD-9-CM diagnosis code for an in-hospital live-born birth or 2) an admission type of newborn (ATYPE=4), age in days at admission equaling zero, and not an ICD-9-CM diagnosis code for an out-of-hospital birth. A neonate is defined as any discharge with age in days at admission between zero and 28 days (inclusive). If age in days is missing, then a neonate is defined as any DRG in MDC 15, an admission type of newborn (ATYPE=4), or an ICD-9-CM diagnosis code for an in-hospital live-born birth.)

Table 9. Birth Trauma - Injury to Neonate (per 1,000 livebirths)

(This indicator is calculated using the Pediatric Quality Indicators (PDIs) Module because it is based on pediatric discharges.)

Hospital	# of cases	# of livebirths	Observed rate
Statewide	**198**	**99,218**	**2.0**
Atlanticare Regional Medical Center-City	0	40	0.0
Atlanticare Regional Medical Center-Mainland	4	2,234	1.8
Cape Regional Medical Center	0	524	0.0
Capital Health Regional Medical Center	0	64	0.0
Capital Health Medical Center - Hopewell	2	2,026	1.0
CentraState Medical Center	4	1,558	2.6
Chilton Memorial Hospital	9	915	9.8
Christ Hospital	2	1,347	1.5
Clara Maass Medical Center	0	1,597	0.0
Community Medical Center	0	1,595	0.0
Cooper Hospital/University Medical Center	19	2,065	9.2
Englewood Hospital and Medical Center	3	1,995	1.5
Hackensack University Medical Center	25	5,946	4.2
Hackettstown Regional Medical Center	0	481	0.0
Hoboken University Medical Center	2	1,445	1.4
Holy Name Medical Center	0	1,371	0.0
Hunterdon Medical Center	1	1,025	1.0
Jersey City Medical Center	2	1,652	1.2
Jersey Shore University Medical Center	4	1,833	2.2
JFK Medical Center/Anthony M. Yalensics	6	2,544	2.4
Kennedy University Hospital - Wash. Twp.	4	1,211	3.3
Kimball Medical Center	0	980	0.0
Meadowlands Hospital Medical Center	1	566	1.8
Memorial Hospital of Salem County	1	169	5.9
Monmouth Medical Center	4	4,301	0.9
Morristown Memmorial Hospital	11	4,078	2.7
Mountainside Hospital	6	1,028	5.8
Newark Beth Israel Medical Center	3	3,212	0.9
Newton Memorial Hospital	2	556	3.6
Ocean Medical Center - Bricktown	1	1,000	1.0
Our Lady of Lourdes Medical Center	1	1,017	1.0
Overlook Medical Center	5	2,333	2.1

Table 9. Birth Trauma - Injury to Neonate (per 1,000 livebirths)

(This indicator is calculated using the Pediatric Quality Indicators (PDIs) Module because it is based on pediatric discharges.)

Hospital	# of cases	# of livebirths	Observed rate
Statewide	**198**	**99,218**	**2.0**
Palisades Medical Center of NY PHS	3	1,385	2.2
Raritan Bay Medical Center-Perth Amboy	1	1,195	0.8
Riverview Medical Center	6	1,421	4.2
RWJ University Hospital	4	2,137	1.9
RWJ University Hospital at Hamilton	3	1,248	2.4
Shore Medical Center	2	1,111	1.8
Somerset Medical Center	2	1,066	1.9
South Jersey Healthcare Regional MC	0	2,018	0.0
South Jersey Hospital-Elmer	0	295	0.0
Southern Ocean Medical Center	0	352	0.0
St. Barnabas Medical Center	8	5,363	1.5
St. Clare's Hospital-Denville	2	1,363	1.5
St. Joseph's Hospital and Medical Center	3	3,382	0.9
St. Mary's Hospital (Passaic)	0	1,030	0.0
St. Peter's University Hospital	3	5,498	0.5
Trinitas Regional Medical Center	0	2,301	0.0
UMDNJ-University Hospital	5	1,565	3.2
Underwood-Memorial Hospital	3	901	3.3
University Medical Center at Princeton	4	1,885	2.1
Valley Hospital	8	2,989	2.7
Virtua-Memorial Hospital Burlington Cty.	9	2,757	3.3
Virtua-West Jersey Hospital Voorhees	10	5,248	1.9

Source: New Jersey 2011 UB Data.

^: Rate is based on a denominator less than 30, and should be taken with caution.

Note that this indicator is measured using observed rate only. Risk-adjustment is no more made on this indicator.

PSI.18 - Obstetric trauma - vaginal delivery with instrument

- This indicator flags potentially preventable trauma cases during instrument-assisted vaginal delivery. The rate is defined as the number of obstetric trauma cases (3rd or 4th degree lacerations, other obstetric lacerations) per 1,000 instrument-assisted vaginal deliveries. No risk-adjustment is made to this indicator and no significance tests performed as a result.

- The numerator refers to the number of cases of obstetric trauma on births with instrument-assisted vaginal deliveries.

- The denominator includes all vaginal delivery discharges with any procedure code for instrument-assisted delivery.

- Table 10 shows the number of obstetric trauma cases (obstetric trauma – vaginal delivery with instrument) among instrument-assisted vaginal delivery discharges and their corresponding observed rates, by hospital. Statewide, there were 502 cases of obstetric trauma among instrument-assisted vaginal deliveries reported in 2011 yielding a rate of 130.6 per 1,000 instrument-assisted vaginal delivery discharges.

Table 10. Obstetric trauma - vaginal delivery with instrument (per 1,000 instrument-assisted vaginal deliveries)

Hospital	# of cases	# of discharges	Obs. rate
Statewide	**502**	**3,843**	**130.6**
Atlanticare Regional Medical Center-Mainland	9	105	85.7
Cape Regional Medical Center	1	15	66.7 ^
Capital Health Regional Medical Center	1	1	.
Capital Health Medical Center - Hopewell	15	78	192.3
CentraState Medical Center	3	19	157.9 ^
Chilton Memorial Hospital	7	74	94.6
Christ Hospital	1	17	58.8 ^
Clara Maass Medical Center	7	41	170.7
Community Medical Center	5	85	58.8
Cooper Hospital/University Medical Center	12	69	173.9
Englewood Hospital and Medical Center	6	99	60.6
Hackensack University Medical Center	23	358	64.2
Hackettstown Regional Medical Center	2	20	100.0 ^
Hoboken University Medical Center	7	41	170.7
Holy Name Medical Center	6	43	139.5
Hunterdon Medical Center	9	48	187.5
Jersey City Medical Center	2	61	32.8
Jersey Shore University Medical Center	12	93	129.0
JFK Medical Center/Anthony M. Yalensics	9	64	140.6
Kennedy Memorial Hospital - Wash. Twp.	8	67	119.4
Kimball Medical Center	13	65	200.0
Meadowlands Hospital Medical Center	0	5	0.0 ^
Memorial Hospital of Salem County	0	4	0.0 ^
Monmouth Medical Center	30	213	140.8
Morristown Memmorial Hospital	32	229	139.7
Mountainside Hospital	3	17	176.5 ^
Newark Beth Israel Medical Center	11	37	297.3
Newton Memorial Hospital	1	17	58.8 ^
Ocean Medical Center - Bricktown	3	43	69.8
Our Lady of Lourdes Medical Center	6	46	130.4
Overlook Medical Center	16	138	115.9

Palisades Medical Center of NY PHS	12	62	193.5
Raritan Bay Medical Center-Perth Amboy	2	24	83.3 ^
Riverview Medical Center	10	60	166.7
RWJ University Hospital	10	49	204.1
RWJ University Hospital at Hamilton	10	36	277.8
Shore Medical Center	0	16	0.0 ^
Somerset Medical Center	7	64	109.4
South Jersey Healthcare Regional MC	3	31	96.8
South Jersey Hospital-Elmer	0	5	0.0 ^
Southern Ocean Medical Center	2	9	222.2 ^
St. Barnabas Medical Center	42	296	141.9
St. Clare's Hospital-Denville	6	20	300.0 ^
St. Joseph's Hospital and Medical Center	8	24	333.3 ^
St. Mary's Hospital (Passaic)	0	8	0.0 ^
St. Peter's University Hospital	34	188	180.9
Trinitas Regional Medical Center	7	48	145.8
UMDNJ-University Hospital	0	65	0.0
Underwood-Memorial Hospital	2	23	87.0 ^
University Medical Center at Princeton	15	89	168.5
Valley Hospital	27	143	188.8
Virtua-Memorial Hospital Burlington Cty.	8	135	59.3
Virtua-West Jersey Hospital Voorhees	37	236	156.8

Source: New Jersey 2011 UB Data.

^: Rate is based on a denominator less than 30, and should be taken with caution.

Note that this indicator is measured using observed rate only. Risk-adjustment is no more made on this indicator.

PSI.19 - Obstetric trauma - vaginal delivery without instrument

- This indicator flags cases of potentially preventable obstetric trauma during a vaginal delivery without assistance of medical instrument. The rate is defined as the number of obstetric trauma cases (4^{th} degree lacerations, other obstetric lacerations) per 1,000 vaginal deliveries that occurred without assistance of medical instrument. No risk-adjustment is made to this indicator and no significance tests performed as a result.

- The numerator includes all discharges with ICD-9-CM code for obstetric trauma in any diagnosis or procedure field (excluding instrument-assisted delivery).

- The denominator includes all vaginal delivery discharges.

- Table 11 shows the number of cases of obstetric trauma - vaginal delivery without instrument among all vaginal deliveries by hospital. Statewide, there were 1,184 cases reported for obstetric trauma - vaginal delivery without instrument in 2011. The statewide rate for this indicator is 20.6 per 1,000 vaginal deliveries.

Table 11. Obstetric trauma - vaginal deliveries without instrument (per 1,000 vaginal delivery discharges)

Hospital	# of cases	# of discharges	Observed rate
Statewide	**1,184**	**57,545**	**20.6**
Atlanticare Regional Medical Center-Mainland	19	1,397	13.6
Cape Regional Medical Center	4	298	13.4
Capital Health Regional Medical Center	0	39	0.0
Capital Health System at Mercer	15	1,260	11.9
CentraState Medical Center	22	796	27.6
Chilton Memorial Hospital	21	493	42.6
Christ Hospital	6	655	9.2
Clara Maass Medical Center	8	1,009	7.9
Community Medical Center	11	844	13.0
Cooper Hospital/University Medical Center	43	1,533	28.0
Englewood Hospital and Medical Center	26	1,268	20.5
Hackensack University Medical Center	23	2,637	8.7
Hackettstown Regional Medical Center	7	286	24.5
Hoboken University Medical Center	23	806	28.5
Holy Name Medical Center	25	760	32.9
Hunterdon Medical Center	14	573	24.4
Jersey City Medical Center	12	894	13.4
Jersey Shore University Medical Center	21	1,094	19.2
JFK Medical Center/Anthony M. Yalensics	29	1,470	19.7
Kennedy Memorial Hospital - Wash. Twp.	20	716	27.9
Kimball Medical Center	6	704	8.5
Meadowlands Hospital Medical Center	0	257	0.0
Memorial Hospital of Salem County	1	101	9.9
Monmouth Medical Center	60	3,159	19.0
Morristown Memmorial Hospital	44	2,261	19.5
Mountainside Hospital	15	617	24.3
Newark Beth Israel Medical Center	35	1,953	17.9
Newton Memorial Hospital	8	356	22.5
Ocean Medical Center - Bricktown	18	646	27.9
Our Lady of Lourdes Medical Center	22	679	32.4

Overlook Medical Center	31	1,205	25.7
Palisades Medical Center of NY PHS	31	905	34.3
Raritan Bay Medical Center-Perth Amboy	21	773	27.2
Riverview Medical Center	36	752	47.9
RWJ University Hospital	48	1,384	34.7
RWJ University Hospital at Hamilton	28	792	35.4
Shore Medical Center	7	633	11.1
Somerset Medical Center	16	579	27.6
South Jersey Healthcare Regional MC	8	1,335	6.0
South Jersey Hospital-Elmer	1	255	3.9
Southern Ocean Medical Center	11	182	60.4
St. Barnabas Medical Center	62	2,891	21.4
St. Clare's Hospital-Denville	35	767	45.6
St. Joseph's Hospital and Medical Center	25	2,005	12.5
St. Mary's Hospital (Passaic)	9	540	16.7
St. Peter's University Hospital	66	3,180	20.8
Trinitas Regional Medical Center	14	1,567	8.9
UMDNJ-University Hospital	10	1,003	10.0
Underwood-Memorial Hospital	12	557	21.5
University Medical Center at Princeton	22	1,158	19.0
Valley Hospital	65	1,476	44.0
Virtua-Memorial Hospital Burlington Cty.	25	1,347	18.6
Virtua-West Jersey Hospital Voorhees	43	2,698	15.9

Source: New Jersey 2011 UB Data.

Note that this indicator is measured using observed rate only. Risk-adjustment is no more made on this indicator.

Statewide PSI Estimates Compared to National Estimates

Table 12 shows national and New Jersey statewide hospital-level patient safety indicator estimates for the 12 PSIs analyzed in this report. The national estimates are obtained from AHRQ's Comparative Data derived from the 2009 Nationwide Inpatient Sample (NIS) using PSI SAS Software (Version 4.4) while the New Jersey statewide estimates are derived from the New Jersey 2011 UB data using the same Software.

- Compared to the 2009 national PSI estimates, New Jersey has lower rates of adverse events for 7 of the 10 PSIs that are measured using rates.

- New Jersey rates were higher than the national rates only for 'post-operative hip fracture', 'post-operative pulmonary embolism or deep vein thrombosis' and 'post-operative sepsis'.

- These differences may in part be due to differences in years of data used and/or differences in data reporting by states.

Table 12. Comparing New Jersey's Statewide PSI Rates with National Rates (per 1,000 medical and surgical discharges)

Patient Safety Indicators (PSIs)	National	New Jersey
Foreign Body Left during Procedure Ω	155	38
Iatrogenic Pneumothorax	0.42	0.32
Post-operative Hip Fracture	0.03	0.05
Post-operative Hemorrhage or Hematoma	2.45	2.12
Post-operative Pulmonary Embolism or Deep Vein Thrombosis	6.17	6.29
Post-operative Sepsis	10.62	12.39
Post-operative Wound Dehiscence	1.02	0.84
Accidental Puncture or Laceration	2.66	1.61
Transfusion Reaction Ω	18	3
Birth Trauma - Injury to Neonate	2.09	1.99
Obstetric Trauma - Vaginal Delivery with Instrument	146.40	130.62
Obstetric Trauma - Vaginal Delivery without Instrument	23.80	20.57

National rates are from AHRQ's Comparative data for the PSIs based on the 2009 Nationwide Inpatient Sample, computed using Version 4.4 of the PSI Software while New Jersey's rates are derived from its 2011 UB data using Version 4.4 of the PSI SAS Software.

Ω: Indicator reported in volume instead of rate, because it is a rare event..

Summary of Findings

This report presents adverse events (patient safety indicators) during hospitalization in each of New Jersey hospitals. For 7 of the 12 PSIs, risk-adjusted rates are provided along with confidence intervals to help make a statistical assessment of patient safety in New Jersey hospitals. Statewide and national estimates are also provided to help compare hospital performance to the state or to the national rates.

Comparison of a hospital's rate to the statewide rate (presented in the top row of a hospital-level PSI table) is one way to assess how well that hospital performed among its peers. A hospital's peers could be defined at many levels (e.g., teaching hospitals, urban hospitals, suburban hospitals, etc.). It is suggested that a hospital's performance be assessed by looking at its performance across the several PSI estimates presented in the 12 Tables.

According to the 2011 New Jersey data, there are substantial variations by hospital in rates of adverse events. Some hospitals exhibit significantly higher adverse event rates than the corresponding statewide rates while others have significantly lower rates.

The performances of hospitals suggested by the patient safety indicators in this report may reflect factors that do not relate to hospital performance, such as patient or physician preference, stage of illness, age, other accompanying illnesses or conditions, or the availability of specialized equipment or doctors. While the data analysis method tries to adjust for many of these factors, it is often not possible to account for all of them through statistical analysis.

Consumers should remember that doctors direct and oversee the medical care that is delivered in hospitals, prescribe tests, and prescribe medications and treatments. This report does not separate the effect of the doctor from the effect of the hospital. The quality of patient care provided in a hospital comes from how well its doctors, nurses, support staff and management work together as well as the technology and other resources available in the facility. This report is not designed to help consumers and their families choose treatment options but to help them discuss patient safety issues with their physicians.

References

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http://www.qualityindicators.ahrq.gov/Modules/psi_resources.aspx

Health Care Quality Assessment, *Patient Safety Indicators – Technical Reports*: http://www.nj.gov/health/healthcarequality/qi.shtml.

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