HCQA Health Care Quality Assessment

Prevention Quality Indicators

New Jersey 2018

Health Care Quality Assessment
Office of the Commissioner

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Philip D. Murphy, Governor
Sheila Y. Oliver, Lt. Governor

Judith M. Persichilli, RN, BSN, MA
Commissioner

Prevention Quality Indicators

New Jersey, 2018

Health Care Quality Assessment
Office of Population Health
New Jersey Department of Health

Markos Ezra, PhD, Research Scientist*, HCQA
Yong Sung Lee, PhD, Research Scientist, HCQA

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* For inquiries, contact Markos Ezra, PhD, by phone at (800) 418-1397 or by email at Markos.Ezra@doh.nj.gov.

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Executive Summary

The Office of Health Care Quality Assessment (HCQA) of the New Jersey Department of Health (Department) assesses health care quality using quantitative data reported mainly by hospitals to support performance monitoring related to patient care and safety. Specifically, HCQA produces consumer reports on cardiac surgery, hospital performance, hospital healthcare quality indicators; reviews confidential reports and root-cause analyses of reportable medical errors; and maintains several databases to support licensure requirements. To enrich the information the Department provides to the public on hospital care, HCQA staff routinely evaluate healthcare quality in the State by applying statistical tools developed by the Federal Agency for Healthcare Research and Quality (AHRQ) on the New Jersey hospital Discharge Data Collection System (NJDDCS) commonly known as UB data.

This report presents findings resulting from the application of a statistical tool known as the Prevention Quality Indicators (PQIs) module to the 2018 New Jersey inpatient hospital discharge data (or UB data). The module primarily calculates potentially preventable hospitalizations. Evidence has shown that early intervention to prevent complications and address exacerbations of ambulatory care-sensitive conditions, such as diabetes, chronic obstructive pulmonary disease (COPD), asthma, and congestive heart failure, through good primary care may prevent the need for hospitalization.

PQIs are a set of healthcare quality measures technically specified to identify, using UB data, ambulatory care sensitive conditions (ACSCs) or conditions for which hospitalization could be prevented with good outpatient care or for which early intervention could prevent complications or more severe diseases. PQIs measure outcomes of preventive care for both acute illnesses and chronic conditions, reflecting two important components of the quality of preventive care - effectiveness and timeliness. In short, the indicators identify hospital admissions in geographic areas that research suggests may have been avoided through access to high-quality outpatient care. PQIs are valuable tools that help flag potential health care quality problem areas that need further investigation.

The purpose of this report is to provide hospitals, community leaders, and policy makers with information that would help them identify community-level health care needs to target resources and track the impact of programmatic and policy interventions. The PQIs module facilitates such an effort, and has already been applied at the national level, in the National Healthcare Quality Report and the National Healthcare Disparities Report.

This report presents volume of preventable hospitalizations derived from the 2018 UB data in each of the 21 counties. Observed, expected and risk-adjusted rates along with their 95% confidence intervals for each of the 14 indicators are presented to help assess the quality of preventive health care in each county. Moreover, statewide and national estimates are provided for comparison purposes.

The 2018 PQI statistics show that there are substantial variations in hospitalizations rates by county. Some counties exhibit significantly higher hospitalization rates than others when compared to the statewide rates.

Some Highlights:

- Based on AHRQ's specifications of a 'preventable hospitalization', there were about 93,000 potentially preventable hospitalizations for treatment of medical conditions in NJ Hospitals, in 2018.
- Hospitalization cost estimates derived from application of the HCUP cost-to-charge ratio (CCR) estimators indicate that potentially avoidable hospitalizations on these conditions would have saved approximately 1.4 billion dollars ($1, 434,856,899) in 2018 if the 93,000 hospitalizations were avoided through better health care management (Table 14).

- The 2018 New Jersey data shows a substantial variation in preventable hospital admissions by county. The variations appear to markedly reflect the socio-economic disparities of the county populations, with more affluent counties having significantly lower rates than the statewide average, and the less affluent counties having significantly higher admission rates than the statewide rate (Figures 1 to 5).

- In 2018, there were 4,459 hospital admissions for diabetes with short-term complications in New Jersey for a statewide risk-adjusted rate of 78.4 per 100,000 population ages 18 and over. Hospital admission rates for diabetes with short-term complications in Atlantic, Burlington, Camden, Cape May, Cumberland, Essex, Monmouth, and Salem were statistically significantly higher than the statewide average. By comparison, hospitalization rates for Bergen, Gloucester, Hudson, Hunterdon, Middlesex, Morris, Ocean, Somerset and Union were statistically significantly lower than the statewide average (Table 1).

- Statewide, there were 17,863 preventable hospital admissions for Chronic Obstructive Pulmonary Disease (COPD) in 2018, for a risk-adjusted rate of 486.2 per 100,000 population ages 18 and over. Admission rates for COPD ranged from 324.1 per 100,000 in Bergen County to 1,006.2 per 100,000 in Cumberland County (Table 3).

- Statewide, there were 4,315 preventable hospital admissions for hypertension treatment in 2018, for a risk-adjusted rate of 72.9 per 100,000 population ages 18 and older. Rates of hospital admission for hypertension ranged from a low of 35.3 per 100,000 in Bergen County to a high of 118.2 per 100,000 in Atlantic County (Table 4).

- Statewide, there were 30,550 preventable Heart Failure (HF) hospital admissions for a risk-adjusted average rate of 463.7 per 100,000 adults ages 18 or older. Seven counties (Atlantic, Burlington, Camden, Cumberland, Essex, Mercer and Monmouth) had significantly higher HF admission rates than the statewide rate. By comparison, seven counties (Bergen, Hudson, Hunterdon, Middlesex, Morris, Passaic and Somerset) had rates that were significantly lower than the statewide HF admission rate (Table 5).

- Similar variations are observed on other PQIs among the 21 counties, which suggest that these indicators may be used as important baseline indicators to help examine determinants that led to variations in preventable hospital admissions.

- Compared to the 2016 national benchmark data (the latest available), New Jersey's hospitalization rates are considerably higher than the national averages for all 14 indicators (Table 13).

Introduction

The Office of Health Care Quality Assessment (HCQA) of the New Jersey Department of Health (Department) assesses health care quality using quantitative data reported mainly by hospitals to support performance monitoring related to patient care and safety. Specifically, HCQA produces consumer reports on cardiac surgery, hospital performance, 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 routinely apply statistical tools developed by the Federal Agency for Healthcare Research and Quality (AHRQ) on the New Jersey hospital discharge data commonly known as Uniform Billing (UB) 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 purpose they are designed to serve can be found at: http://www.qualityindicators.ahrq.gov/. The modules get updated with new and enhanced information regularly in order to improve the reliability of the quality indicators.

This report presents findings from the application of the latest Prevention Quality Indicator (PQI) module (Version 2019) to the 2018 New Jersey UB data. The report is organized into sections. The description of the Prevention Quality Indicators Module, Interpretation of the PQI Measures including definitions of individual indicators presented in subsequent sections are, for the most part, excerpted from AHRQ's Guide and Software Documentation to Prevention Quality Indicators. These sources are provided in the reference section. The PQI report also serves as a supplement to the Department's (i.e., HCQA) other quality indicator reports such as the Inpatient Quality Indicators Report, Patient Safety Indicators Report, the Hospital Performance Report, the Cardiac Surgery Report, and the Patient Safety Reporting System Summary Report.

The 2018 New Jersey data shows that there are substantial variations in potentially preventable hospital admission rates by county. Some counties exhibit significantly higher rates (i.e., hospital admission rates) than the corresponding statewide rates while others have significantly lower rates.

The Prevention Quality Indicators (PQIs) Module

The Prevention Quality Indicators (PQIs) are a set of measures that can be used with hospital inpatient discharge data to identify "ambulatory care sensitive conditions" (ACSCs). ACSCs are conditions for which good outpatient-care can potentially prevent

the need for hospitalization, or for which early intervention can prevent complications or more severe diseases. The PQIs are of most interest to comprehensive health care delivery systems, such as health maintenance organizations (HMOs), or public health agencies.

Although other factors outside the direct control of the health care system, such as poor environmental conditions or lack of patient adherence to treatment recommendations can result in hospitalization, PQIs provide a good starting point for assessing quality of health services in the community. Because PQIs are calculated using readily available hospital administrative data, they provide an easy-to-use and inexpensive regional screening tool. They can be used to provide a window into the community - to identify unmet community healthcare needs, to monitor how well complications from some common diseases are being avoided in the outpatient setting, and to compare performance of local healthcare systems across communities.

These indicators measure outcomes of preventive care for both acute illnesses and chronic conditions, reflecting two important components of the quality of preventive care - effectiveness and timeliness. For example, with effective drug therapy in the outpatient setting, hospital admissions for hypertension can be prevented. Likewise, accurate diagnosis and timely access to asthma treatment will help reduce the incidence of COPD hospitalizations. Thus, the PQI module, which focuses on preventive care services, represents the current state of the art in assessing quality of health services in local communities using inpatient discharge data. It is a valuable tool for identifying potential health care quality problems in outpatient care so that they get timely attention for a more in-depth investigation.

PQIs are used to assess the quality of a health care system as a whole, and especially the quality of ambulatory care, in preventing medical complications. That is why these measures are of greater value when reported at the population level. Such information is valuable for public health groups, state data organizations, and others concerned with community-wide health problems. Most importantly, policy makers and health care providers can use PQIs to answer questions such as: Does the admission rate for diabetes complications in my community suggest a problem in the provision of appropriate outpatient care to this population? How does the admission rate for heart failure vary over time and from one county to another?

Both researchers and policy makers agree that UB data offer useful information on the quality of preventive care in the community. The goal is for hospitals, community leaders, and policy makers to use such readily available data to identify community-level health care needs, target resources, and track the impact of programmatic and policy interventions. The PQI module is intended to facilitate such an effort, and has already been applied, at the national level, in the National Healthcare Quality Report and National Healthcare Disparities Report.

The PQIs consist of the following 14 indicators that measure hospital admissions for ambulatory care sensitive conditions (ACSC) across geographic areas. AHRQ developed these indicators after a comprehensive literature review, analysis of the International

Classification of Diseases, 9th Revision, Clinical Modification, (ICD-09-CM) codes, review by a clinician panel, implementation of risk adjustment, and empirical analyses. It should be noted at this juncture that the latest PQIs module (Version 2019) is based on the latest International Classification of Diseases Codes (i.e., ICD-10-CM Diagnosis & Procedure Codes). Here are the 14 PQIs included in latest version of the module.

- Diabetes Short-term Complications Admission Rate (PQI.01)
- Diabetes Long-term Complications Admission Rate (PQI.03)
- Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults (PQI.05)
- Hypertension Admission Rate (PQI.07)
- Heart Failure (HF) Admission Rate (PQI.08)
- Community Acquired Pneumonia Admission Rate (PQI.11)
- Urinary Tract Infection Admission Rate (PQI.12)
- Uncontrolled Diabetes Admission Rate (PQI.14)
- Asthma in Younger Adults Admission Rate (PQI.15)
- Lower-extremity Amputation Among Patients with Diabetes Rate (PQI.16)
- Composite - Overall PQIs (PQI.90)
- Composite - Acute PQIs (PQI.91)
- Composite - Chronic PQIs (PQI.92)
- Composite - Diabetes PQIs (PQI.93)

Effective Version 2019, Perforated Appendix (PQI.02), Low Birth Weight (PQI.09), Dehydration (PQI.10) and Angina Without Procedure (PQI.13) have been retired and are no longer considered quality measures.

The PQIs Software produces county-level volume of admissions, observed, expected, and risk-adjusted rates for each of the 14 indicators. This report presents the volume of hospital admissions in a county along with the observed, expected, and risk-adjusted rates generated by Version 2019 of the AHRQ's SAS Software program. Interpretations and guidelines on when to use the observed, expected, and risk adjusted rates are discussed below. At the outset, however, it should be clear that there are no "right or perfect admission rates" for these conditions. 'Very low' rates could signal inappropriate underutilization of health care resources while 'Very high' rates could indicate potential overuse of inpatient care. Therefore, hospital admission for ACSCs is not a measure of hospital quality but a potential indicator of outpatient and community health care needs at the county level. For example, if an area has a relatively high hospital admission rate for diabetes complications, local health care providers should work with the community to identify reasons and strategies to address the problem.

Observed and expected rates

The *observed rate, which is defined as* the number of events of interest (numerator) divided by the population at risk (denominator), is the raw rate generated by the Software from the data under analysis. The population at risk (the denominator for calculating a

PQI rate) is derived from census population figures defined by county. The *observed rate* is primarily used to help identify cases for further follow-up and quality improvement. Counties or communities needing improvement can be identified by the magnitude of the observed rate by comparing the rate to available benchmarks and/or by the number of patients impacted. In this case, the national and statewide rates would be benchmarks for comparison.

Another approach to identify areas that need more attention for focus is to compare the *observed and expected rates*. The *expected rate* is the rate the county would have if it had the same patient case-mix (i.e. by age, gender, DRG, and comorbidity categories) as the reference population. If the observed rate is higher than the expected rate (i.e., the ratio of observed/expected is greater than 1.0), then the implication is that the county performed worse than expected for that specific 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 county performed better than the reference population.

Risk-adjusted rates

Risk-adjusted rates are derived from applying to the observed rates, the average case-mix of a baseline data called State Inpatient Data (SID) that represents national average patient mix for that year. Healthcare Cost & Utilization Project (HCUP) compiles and provides the SID dataset to users at no cost. the County-level risk-adjusted admission rates reflect the age, sex, DRG, and comorbidity distribution of the data in the baseline file rather than the distributions of patients in the user's data. The risk-adjusted rate is the rate the county would have if it had the same patient case-mix as the reference population. Alternatively, a risk-adjusted rate is defined as the estimated performance of a county on the PQI assuming that the county has the case-mix of the reference population.

Readers may use the statewide risk-adjusted rate as a benchmark to compare county-level risk-adjusted admission rates. If the statewide risk-adjusted rate is completely above the county's confidence interval, then the county's patient case-mix is less severe than the statewide average. On the other hand, if the statewide risk-adjusted rate is completely below the county's confidence interval, then the county's patient case-mix is more severe than that of the statewide average. If the statewide risk-adjusted rate falls within the county's confidence interval, then the county's patient case-mix is the same as the statewide average.

Interpretation of PQI Measures

- Prevention Quality Indicators are not intended to be used as definitive quality measures. But they are useful, low-cost measures that can potentially illuminate differences across geographic areas that hospitals serve by assessing hospital admission rates for ambulatory care sensitive conditions (ACSC).

- Performance on a single PQI often cannot reliably show actual quality differences. For this reason, some indicators have been developed as **measure sets**. For instance, four indicators are related to diabetes – *uncontrolled diabetes, diabetes short-term complications, diabetes long-term complications, and lower-extremity amputation among patients with diabetes*. Examining these indicators together is likely to produce a more complete picture of overall quality of care for this condition. It is in realization of this fact that AHRQ developed a new indicator named Diabetes Composite (PQI.93) in the latest version.

- Since there are no "*right or perfect admission rates"* established for most indicators, it is often better to compare county-level rates with other similar areas. These "peer groups" would ideally be as similar as possible in potentially important factors, such as socioeconomic status of the population, and urban or rural location. However, the most commonly applied approach is to compare a county's risk-adjusted rate with the statewide risk-adjusted rate.

- A county's performance is measured by comparing its confidence interval to the statewide risk-adjusted rate to see if the 95% confidence interval for its risk-adjusted estimate contains within its lower and upper limits, the statewide risk-adjusted estimate for a given indicator.

    - If a county's confidence interval for its rate contains the statewide risk-adjusted rate, then the county's risk-adjusted rate is not statistically significantly different from the statewide rate.

    - If a county's confidence interval for its rate falls entirely below the statewide risk-adjusted rate, then the county's risk-adjusted rate is significantly lower than the statewide rate. In the tables, these rates are marked by single asterisk (*). Note that lower rates imply better performance.

    - If a county's confidence interval falls entirely above the statewide risk-adjusted rate, then the county's risk-adjusted rate is significantly higher than the statewide rate. In the tables, these rates are marked by double asterisks (**).

- This report is only a guide for consumers and should not be used by itself to draw a conclusion about a county's overall performance in population health.

- Readers can also compare a county's *risk-adjusted rate* with its own *observed and expected rates*. The difference will indicate the impact of risk-adjustment or the impact of differences in case-mix on the indicator.

- It should be noted that lower rates (*) imply better performance while higher rates (**) imply worse performance – rates being measures of avoidable hospitalizations.

Strengths and Limitations of PQIs

- Even though these indicators are based on hospital inpatient data, they provide insight into the quality of the health care system *outside* the hospital setting. Patients with diabetes may be hospitalized for diabetic complications if their conditions are not adequately monitored or if they do not receive the patient education needed for appropriate self-management. Patients may be hospitalized for asthma if primary care providers fail to adhere to practice guidelines or to prescribe appropriate treatments. Patients with long-term diabetes and poor foot care who do not have proper and continued treatment and glucose control may end up having to go for lower-extremity amputation. Thus, the PQIs are measures of the impact of preventive care for both acute illnesses and chronic conditions, reflecting two important components of the quality of preventive care - effectiveness and timeliness. In short, the PQI module is a valuable tool to help flag potential health care quality problem areas that need further investigation. Moreover, the indicators can provide a quick check on access to health care or outpatient services in a community by using patient data found in a typical hospital discharge abstract.

- Despite the strengths, however, there are several issues that should be considered when using these indicators. For some PQIs, differences in socioeconomic status have been shown to explain a substantial part of the variation in rates across counties. The complexity of the relationship between socioeconomic status and PQI rates makes it difficult to delineate how much of the observed relationships are due to true access to care in potentially underserved populations, or due to other patient characteristics, unrelated to quality of care. In addition, environmental conditions that are not under the direct control of the health care system can substantially influence some of the PQIs. For example, COPD and asthma admission rates are likely to be higher in areas with poorer air quality.

- The other issue is that not many studies have directly addressed the question of whether effective treatments in outpatient settings would reduce the overall incidence of hospitalizations. Moreover, the extent to which the reporting of admission rates for ambulatory care sensitive conditions (ACSC) may lead to changes in ambulatory care practices and admission rates is still unknown. Providers may admit patients who do not clinically require inpatient care, or they may do the opposite - fail to hospitalize patients who would benefit from inpatient care.

PQI Measures for New Jersey

This section presents county-level PQI estimates for New Jersey in 2018. First, the definition of the indicator is provided. Then a summary table showing the number of hospital admissions among residents of the county, the corresponding observed and expected admission rates, and the risk-adjusted rates with their respective 95% confidence intervals is presented. In this section, county-level performance assessments will be made using risk-adjusted rates.

The national rates for all 14 PQIs presented here as benchmarks for comparison purposes, are based on the 2016 HCUP - State Inpatient Data (SID) reported in the AHRQ PQI documentation (see Benchmark Data Tables via this link: file:///C:/Users/mezra/AppData/Local/Microsoft/Windows/INetCache/IE/9BNXXWYL/Version_2019_Benchmark_Tables_PQI.pdf. Comparison of a specific county-level PQI rate to the statewide average for the same indicator is one appropriate way to see how well a county does among its peers. Following the recommendation of AHRQ, we have compared county rates against statewide rates. However, one may equally compare the county rates against the national rates since the risk-adjustment was based on national parameters.

1. Diabetes with Short-term Complications (PQI.01)

Diabetes with short-term complications (PQI.01) is an indicator of an avoidable hospitalization or ambulatory care sensitive condition (ACSC). This indicator is not a measure of hospital quality, but rather a measure of outpatient care and other healthcare not related to hospitalizations. Short-term complications of diabetes mellitus include diabetic ketoacidosis, hyperosmolarity, and coma. These life-threatening emergencies arise when a patient experiences an excess of glucose (hyperglycemia) or insulin (hypoglycemia). Hospital admission for diabetes short-term complications is a PQI that would be of most interest to comprehensive health care delivery systems. The assumption is that proper outpatient treatment and adherence to care may reduce the incidence of diabetic short-term complications resulting in lower admission rates, which implies better quality of care. The rate is defined as admissions for diabetic short-term complications per 100,000 (18 years and older) county population. The indicator includes all non-maternal/non-neonatal discharges of age 18 years and older with ICD-10-CM (International Classification of Diseases, 10th Revision, Clinical Modification) diagnosis codes for diabetes short-term complications (ketoacidosis, hyperosmolarity, coma); excluding transfers from another institution, Major Diagnostic Category (MDC) 14 (pregnancy, childbirth and puerperium) and MDC 15 (newborn and other neonates).

Table 1 shows the number of hospital admissions for *diabetes short-term complications* by county along with *observed, expected* and *risk-adjusted rates,* while Tables 16, 17 and 18 show the same numbers distributed by patient's age, sex and race/ethnicity.

- Statewide, there were 4,459 hospital admissions for diabetes with short-term complications in 2018 for a risk-adjusted rate of 78.4 per 100,000 adult population. The national hospital admission rate for diabetes with short-term complications was 47.6 per 100,000 in 2016.

- County-level risk-adjusted rates can be conveniently compared to the statewide risk-adjusted rate to see if there is statistical significance in the difference. For example, the risk-adjusted hospital admission rate for *diabetes with short-term complications* among the adult population of Atlantic County is 107.8 per 100,000 with a 95% confidence interval of 98.6 to 117.1 The statewide risk-adjusted rate of 78.4 is far below the lower limit of the confidence interval - implying that the hospital admission rate for *diabetes with short-term complications* in Atlantic County, which is 107.8 is statistically significantly higher than that of the statewide average. This can be used as a signal for policy makers to do further investigation into the health care provisions for diabetic patients in the county. In another example, the risk-adjusted rate of 30.1 per 100,000 in Morris County is statistically significantly lower than the statewide average – suggesting that Morris County performed better on this indicator compared to the statewide average. See Tables 16, 17 and 18 for variations by patient's demographic characteristics.

Table 1. Hospital Admissions for Diabetes Short-term Complications (per 100,000 county population, age 18+)

County	Hospital admissions	Observed rate	Expected rate^	Risk-adjusted rate	95% Confidence Interval
Statewide	**4,459**	**64.1**	**38.9**	**78.4**	**76.6 - 80.2**
Atlantic	229	109.5	48.3	107.8 **	98.6 - 117.1
Bergen	209	28.3	27.2	49.5 *	42.9 - 56.1
Burlington	319	90.4	27.5	156.8 **	147.3 - 166.3
Camden	424	108.2	44.7	115.2 **	108.2 - 122.2
Cape May	88	115.2	39.3	139.5 **	122.5 - 156.5
Cumberland	168	146.3	56.3	123.6 **	112.0 - 135.2
Essex	596	97.6	49.1	94.6 **	89.2 - 100.0
Gloucester	94	41.2	35.3	55.6 *	45.2 - 66.0
Hudson	330	61.4	51.8	56.4 *	50.8 - 62.0
Hunterdon	25	24.9	26.2	45.2 *	27.0 - 63.4
Mercer	240	82.4	46.6	84.2	76.2 - 92.3
Middlesex	323	49.7	36.3	65.2 *	59.1 - 71.2
Monmouth	281	57.4	26.9	101.7 **	93.6 - 109.8
Morris	67	17.2	27.2	30.1 *	21.0 - 39.1
Ocean	282	61.7	41.1	71.3 *	64.5 - 78.1
Passaic	327	85.3	56.2	72.2	65.9 - 78.6
Salem	56	113.8	47.0	115.2 **	95.8 - 134.6
Somerset	46	17.8	27.4	30.9 *	19.9 - 42.0
Sussex	45	39.9	26.7	71.1	54.1 - 88.1
Union	264	61.8	43.5	67.6 *	60.7 - 74.4
Warren	46	54.1	33.9	76.0	58.6 - 93.4

Source: **New Jersey 2018 UB Data**.

* = Statistically significantly below state average (i.e. better than average).

** = Statistically significantly above state average (i.e. worse than average).

^ Expected rate = (Observed rate/Risk-adjusted rate) * Standard deviation. It is the rate the county would have if it performed the same as the statewide average (reference population) given the county's actual case-mix (e.g., age, gender, DRG, and comorbidity categories). If the observed rate is higher than the expected rate (i.e., the ratio of observed/expected is greater than 1.0), then the implication is that the county performed worse than the reference population 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 county performed better than the reference population (the reference population being the total NJ Poulation during the year).

2. Diabetes with Long-term Complications (PQI.03)

Area-level hospital admission rate for diabetes with long-term complications is a good indicator of an avoidable hospitalization or ambulatory care sensitive condition (ACSC). This indicator is not a measure of hospital quality, but rather a measure of outpatient care and other healthcare issues not related to hospitalizations. Long-term complications of diabetes mellitus include renal, eye, neurological, and circulatory disorders. Hospital admission for diabetes with long-term complications is a PQI that would be of most interest to comprehensive health care delivery systems. Long-term diabetes complications are thought to arise from sustained long-term poor control of diabetes. Intensive treatment programs have been shown to decrease the incidence of long-term complications in both Type 1 and Type 2 diabetes. The indicator relates to quality because research shows that proper outpatient treatment and adherence to care reduces the incidence of diabetic long-term complications, and that lower rates suggest better quality of care. The rate is defined as admissions for diabetic long-term complications per 100,000 adult county population (i.e., all persons, age 18 years and older). The indicator includes all discharges age 18 years and older with ICD-10-CM principal diagnosis codes for long-term complications of diabetes (renal, eye, neurological, circulatory, or complications not otherwise specified), but excludes cases transferred from another institution, MDC 14 (pregnancy, childbirth, and puerperium), and MDC 15 (newborn and other neonates).

Table 2 shows the number of hospital admissions in New Jersey hospitals in 2018 for diabetes with long-term complications by county along with observed, expected and risk-adjusted rates.

- Statewide, there were 8,271 hospital admissions in 2018 for diabetes with long-term complications. The statewide average risk-adjusted hospital admission rate for diabetes with long-term complications is 138.4 per 100,000 and is much higher than the 2016 national rate (see Table 13).

- Readers may compare their counties' performances against the statewide as well as the national averages to assess the extent of the problem among their populations.

Table 2. Hospital Admissions for Diabetes Long-term Complications (per 100,000 county population, age 18+)

County	Hospital admissions	Observed rate	Expected rate^	Risk-adjusted rate	95% Confidence Interval
Statewide	**8,271**	**118.9**	**66.6**	**138.4**	**136.2 - 140.6**
Atlantic	299	143.0	85.0	130.3	119.0 - 141.7
Bergen	592	80.2	51.7	120.3 *	112.5 - 128.0
Burlington	452	128.1	51.4	193.0 **	181.8 - 204.3
Camden	635	161.9	70.3	178.5 **	169.3 - 187.6
Cape May	88	115.2	82.2	108.6 *	89.4 - 127.7
Cumberland	303	263.8	89.6	228.2 **	213.3 - 243.2
Essex	922	150.9	88.0	132.9	126.3 - 139.4
Gloucester	221	96.9	58.1	129.4	116.2 - 142.6
Hudson	816	151.7	79.9	147.1 **	139.8 - 154.4
Hunterdon	59	58.6	55.6	81.7 *	61.4 - 102.0
Mercer	430	147.7	68.5	167.0 **	156.2 - 177.7
Middlesex	665	102.4	55.9	141.9	133.9 - 149.9
Monmouth	598	122.1	53.2	177.8 **	168.4 - 187.2
Morris	249	63.9	52.4	94.4 *	83.8 - 105.0
Ocean	604	132.0	77.5	131.9	123.9 - 140.0
Passaic	493	128.6	91.4	109.0 *	100.9 - 117.1
Salem	43	87.4	81.7	82.8 *	58.9 - 106.7
Somerset	143	55.3	51.8	82.8 *	69.6 - 95.9
Sussex	122	108.0	54.4	153.9	134.5 - 173.2
Union	447	104.5	63.7	127.2 *	118.0 - 136.4
Warren	90	105.9	61.4	133.7	112.7 - 154.7

Source: **New Jersey 2018 UB Data**.

* = Statistically significantly below state average (i.e. better than average).

** = Statistically significantly above state average (i.e. worse than average).

^ Expected rate = (Observed rate/Risk-adjusted rate) * Standard deviation. It is the rate the county would have if it performed the same as the statewide average (reference population) given the county's actual case-mix (e.g., age, gender, DRG, and comorbidity categories). If the observed rate is higher than the expected rate (i.e., the ratio of observed/expected is greater than 1.0), then the implication is that the county performed worse than the reference population 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 county performed better than the reference population (the reference population being the total NJ Poulation during the year).

3. Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults (PQI.05)

Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults includes three primary diseases that cause respiratory dysfunction - asthma, emphysema, and chronic bronchitis - each with distinct etiologies, treatments, and outcomes. This indicator examines emphysema, bronchitis and asthma in older adults. Asthma in younger adults and children is discussed separately. COPD or Asthma in older adults can often be controlled in an outpatient setting. Admissions for COPD include exacerbations of COPD, respiratory failure, and (rarely) lung volume reduction surgery or lung transplantation.

With appropriate outpatient treatment and compliance, hospitalizations for exacerbations of COPD and decline in lung function should be minimized. Counties may wish to use chart reviews to understand more clearly whether admissions are a result of poor healthcare quality or other problems. Counties may also wish to identify hospitals that contribute the most to the overall area rate for this indicator. Proper outpatient treatment may reduce admissions for COPD, and lower rates suggest better quality of care. Evidence has shown that hospital admission rate for COPD is a good indicator of avoidable hospitalization or ambulatory care sensitive condition (ACSC). The rate is defined as admissions for COPD per 100,000 county population (i.e., all persons, age 18 and older in a county). In other words, all non-maternal discharges age 18 and older with ICD-10-CM principal diagnosis codes for COPD except for MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborn and other neonates), are included in the rate calculation.

Table 3 shows the number of hospital admissions for c*hronic obstructive pulmonary disease (COPD)* or asthma in older adults by county along with their *observed, expected* and *risk-adjusted rates*.

- In New Jersey, there were 17,863 hospital admissions for *COPD* or asthma in older adults in 2018. The statewide risk-adjusted hospital admissions rate for *COPD* or asthma in older adults was 486.2 per 100,000 with a 95% confidence interval of 479.2 to 492.7. The national *COPD* or asthma admission rate in 2016 was 413.0 per 100,000.

- Readers may assess county performance on COPD admissions by comparing the county rate against the statewide rate. Tables 16, 17 and 18 show COPD or adult asthma patients by demographic characteristics.

Table 3. Hospital Admissions for Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults (per 100,000 county population, age 40+)

County	Hospital admissions	Observed rate	Expected rate^	Risk-adjusted rate	95% Confidence Interval
Statewide	**17,863**	**400.3**	**340.1**	**486.2**	**479.6 - 492.7**
Atlantic	971	698.4	462.0	624.4 **	592.5 - 656.2
Bergen	1,062	215.8	275.0	324.1 *	302.2 - 346.1
Burlington	1,072	461.6	275.7	691.6 **	659.7 - 723.5
Camden	1,456	589.6	369.6	658.9 **	632.1 - 685.6
Cape May	254	457.9	434.7	435.0	383.0 - 487.0
Cumberland	867	1,219.7	500.7	1,006.2 **	963.4 - 1,048.9
Essex	1,803	481.7	395.6	502.9	481.9 - 523.9
Gloucester	625	421.8	276.1	630.8 **	590.9 - 670.8
Hudson	1,575	558.7	387.9	594.8 **	570.4 - 619.2
Hunterdon	166	230.7	276.5	344.5 *	287.2 - 401.8
Mercer	832	462.3	361.8	527.7 **	496.1 - 559.4
Middlesex	1,344	333.7	272.6	505.6	481.2 - 530.0
Monmouth	1,266	376.0	276.3	562.0 *	535.5 - 588.5
Morris	389	147.8	273.5	223.2 *	193.1 - 253.3
Ocean	1,718	541.2	427.0	523.5 **	501.6 - 545.5
Passaic	687	292.9	481.0	251.5 *	227.5 - 275.5
Salem	224	677.0	483.9	577.8 **	514.1 - 641.6
Somerset	365	209.8	264.3	327.9 *	290.2 - 365.5
Sussex	226	288.5	270.4	440.6	385.1 - 496.2
Union	787	291.2	357.0	336.9 *	310.9 - 362.9
Warren	174	298.0	287.1	428.8	366.4 - 491.2

Source: **New Jersey 2018 UB Data**.

* = Statistically significantly below state average (i.e. better than average).

** = Statistically significantly above state average (i.e. worse than average).

^ Expected rate = (Observed rate/Risk-adjusted rate) * Standard deviation. It is the rate the county would have if it performed the same as the statewide average (reference population) given the county's actual case-mix (e.g., age, gender, DRG, and comorbidity categories). If the observed rate is higher than the expected rate (i.e., the ratio of observed/expected is greater than 1.0), then the implication is that the county performed worse than the reference population 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 county performed better than the reference population (the reference population being the total NJ Poulation during the year).

4. Hypertension (PQI.07)

Hypertension or high blood pressure is a chronic cardiac medical condition in which systemic arterial blood pressure is elevated. Hypertension is a good indicator of avoidable hospitalizations. Hypertension is a chronic condition that is often controllable in an outpatient setting with appropriate use of drug therapy. Hospital admission for hypertension is a PQI that would be of most interest to comprehensive health care delivery systems. Counties may wish to identify hospitals that contribute the most to the overall county rate for this indicator. As a PQI, hypertension is not a measure of hospital quality per se, but rather one measure of outpatient health care. Providers may reduce admission rates without necessarily improving quality by shifting care to an outpatient setting. Proper outpatient treatment may reduce admissions for hypertension, and lower admission rates represent better quality of community healthcare. The rate is defined as admissions for hypertension per 100,000 adult county population (i.e., all persons in the county age 18 and older). The indicator includes all non-maternal discharges age 18 or older with ICD-10-CM principal diagnosis codes for hypertension, but excludes transfers from another institution, MDC 14 (pregnancy, childbirth, and puerperium), MDC 15 (newborn and other neonates) and cases with cardiac procedure codes in any field.

Table 4 shows the number of hospital admissions for hypertension by county along with their observed, expected and risk-adjusted rates, while Tables 16, 17 and 18 show distribution of hypertension patients by demographic characteristics.

- Statewide, there were 4,315 potentially preventable hospital admissions for hypertension treatment in 2018, for a risk-adjusted rate of 72.9 per 100,000 adults of age 18 or older. Rates of hospital admission for hypertension ranged from 31.7 per 100,000 in Salem County to 118.2 in Atlantic and 115.8 in Mercer.

- Eight counties (Atlantic, Burlington, Camden, Cumberland, Essex, Gloucester, Mercer, and Union) have statistically significantly higher admission rates for hypertension compared to the statewide average. New Jersey rate is much higher than the national rate (see Table 13).

Table 4. Hospital Admissions for Hypertension (per 100,000 population, age 18+)

County	Hospital admissions	Observed rate	Expected rate^	Risk-adjusted rate	95% Confidence Interval
Statewide	**4,315**	**62.0**	**39.5**	**72.9**	**71.1 - 74.6**
Atlantic	279	133.4	52.4	118.2 **	109.5 - 126.9
Bergen	188	25.5	33.5	35.3 *	29.5 - 41.1
Burlington	229	64.9	32.7	92.2 **	83.7 - 100.6
Camden	361	92.1	37.9	112.7 **	105.2 - 120.2
Cape May	32	41.9	46.0	42.2 *	26.9 - 57.6
Cumberland	163	141.9	57.9	113.7 **	102.6 - 124.9
Essex	656	107.4	51.5	96.7 **	91.6 - 101.9
Gloucester	134	58.8	32.2	84.6 **	74.0 - 95.2
Hudson	297	55.2	45.8	56.0 *	50.2 - 61.7
Hunterdon	29	28.8	34.3	38.9 *	23.5 - 54.4
Mercer	268	92.1	36.9	115.8 **	107.0 - 124.6
Middlesex	337	51.9	31.4	76.8	70.4 - 83.1
Monmouth	255	52.1	33.8	71.5	64.5 - 78.6
Morris	138	35.4	33.4	49.2 *	41.2 - 57.2
Ocean	253	55.3	45.1	56.9 *	50.6 - 63.2
Passaic	231	60.2	55.4	50.4 *	44.2 - 56.6
Salem	19	38.6	56.5	31.7 *	14.5 - 48.9
Somerset	85	32.9	32.8	46.5 *	36.7 - 56.4
Sussex	43	38.1	32.8	53.9 *	38.9 - 68.8
Union	268	62.7	35.6	81.6 **	74.3 - 89.0
Warren	50	58.8	34.8	78.4	61.7 - 95.1

Source: **New Jersey 2018 UB Data**.

* = Statistically significantly below state average (i.e. better than average).

** = Statistically significantly above state average (i.e. worse than average).

^ Expected rate = (Observed rate/Risk-adjusted rate) * Standard deviation. It is the rate the county would have if it performed the same as the statewide average (reference population) given the county's actual case-mix (e.g., age, gender, DRG, and comorbidity categories). If the observed rate is higher than the expected rate (i.e., the ratio of observed/expected is greater than 1.0), then the implication is that the county performed worse than the reference population 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 county performed better than the reference population (the reference population being the total NJ Poulation during the year).

5. Heart Failure (PQI.08)

It is estimated that about 6.2 million people in the United States had heart failure (HF) from 2013 – 2016; about half of the people who developed heart failure die within 5 years of diagnosis; heart failure leads to about 1 million annual hospital admissions and is the most common reason for admission for patients 65 and older. In 2015 there was 75,251 deaths due to HF[1]. It is also estimated that HF costs more than $30.0 billion a year at a national level, which includes the cost of health care services, medicines to treat heart failure, and missed days of work. The most common causes of HF are coronary artery disease (CAD), high blood pressure, and diabetes (AHRQ)[2]

Usually heart failure (HF) can be controlled in an outpatient setting. However, the disease is a chronic progressive disorder for which some hospitalizations are appropriate. Congestive heart failure relates to quality because research shows that proper outpatient treatment reduces admissions for HF, which in turn lowers admission rates, suggesting a better quality of care. Congestive heart failure is a PQI that would be of most interest to comprehensive health care delivery systems. As the causes for HF admissions may include poor quality of care, lack of patient compliance, or problems of access to care, counties may wish to review HF patient records to identify precipitating causes and potential targets for intervention. As a PQI, HF is not a measure of hospital quality, but rather a measure of outpatient care and other community level health conditions. The rate is defined as admissions with a principal diagnosis of heart failure per 100,000 population ages 18 years and older. The measure excludes cardiac procedure admissions, obstetric admissions, and transfers from other institutions.

Table 5 shows the number of hospital admissions for heart failure by county along with their observed, expected and risk-adjusted rates, while Tables 16, 17 and 18 show the distribution of these patients by age, sex and race/ethnicity.

- Statewide, there were 30,550 hospital admissions for *heart failure* in 2018. The risk-adjusted hospital admissions rate for *heart failure* was 463.7 per 100,000.

- Admission rates for HF ranged from a low of 311.3 per 100,000 in Hunterdon to a high of 797.0 per 100,000 in Cumberland.

[1] Mozaffarian D, Benjamin EJ, Go AS, et al. on behalf of the American Heart Association Statistics Committee and Stroke Statistics Subcommittee. Heart disease and stroke statistics – 2016 update: a report from the American Heart Association, Circulation. 2016.
[2] http://www.qualitymeasures.ahrq.gov/search/search.aspx?term=prevention+quality+indicators.

Table 5. Hospital Admissions for Heart Failure (per 100,000 population, age 18+)

County	Hospital admissions	Observed rate	Expected rate^	Risk-adjusted rate	95% Confidence Interval
Statewide	**30,550**	**437.9**	**344.8**	**463.7**	459.1 - 468.3
Atlantic	1,246	593.3	423.5	511.6 **	487.7 - 535.4
Bergen	2,378	321.3	313.0	374.8 *	360.0 - 389.6
Burlington	1,716	484.7	301.6	586.7 **	565.0 - 608.5
Camden	2,257	573.5	350.1	598.2 **	579.0 - 617.3
Cape May	448	583.9	491.5	433.8	397.3 - 470.4
Cumberland	1,114	965.2	442.2	797.0 **	765.6 - 828.4
Essex	3,346	545.9	371.5	536.5 **	521.7 - 551.4
Gloucester	891	389.7	308.3	461.6	434.8 - 488.4
Hudson	1,893	351.3	312.6	410.4 *	393.0 - 427.7
Hunterdon	275	272.7	319.8	311.3 *	271.7 - 351.0
Mercer	1,384	473.7	339.7	509.2 **	486.6 - 531.8
Middlesex	2,177	334.4	299.4	407.8 *	391.7 - 424.0
Monmouth	2,283	464.5	315.1	538.3 **	520.2 - 556.4
Morris	1,173	300.2	310.1	353.5 *	333.0 - 373.9
Ocean	2,737	595.3	479.3	453.5	438.4 - 468.7
Passaic	1,696	441.3	420.5	383.2 *	365.6 - 400.9
Salem	265	536.5	405.2	483.4	433.2 - 533.6
Somerset	718	277.0	294.6	343.4 *	317.6 - 369.1
Sussex	416	367.3	293.2	457.5	418.4 - 496.6
Union	1,729	403.5	328.8	448.1	429.1 - 467.0
Warren	408	478.4	352.8	495.2	454.2 - 536.2

Source: New Jersey 2018 UB Data.

* = Statistically significantly below the state average.

** = Statistically significantly above the state average.

^ Expected rate = (Observed rate/Risk-adjusted rate) * Standard deviation. It is the rate the county would have if it performed the same as the statewide average (reference population) given the county's actual case-mix (e.g., age, gender, DRG, and comorbidity categories). If the observed rate is higher than the expected rate (i.e., the ratio of observed/expected is greater than 1.0), then the implication is that the county performed worse than the reference population 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 county performed better than the reference population (the reference population being the total NJ Poulation during the year).

6. Community Acquired Pneumonia (PQI.11)

Community Acquired or Bacterial pneumonia is a relatively common acute condition, treatable for the most part with antibiotics. If left untreated in susceptible individuals - such as the elderly - pneumonia can lead to death. Proper outpatient treatment may reduce admissions for bacterial pneumonia in non-susceptible individuals, and lower admission rates represent better quality of care. Specifically, bacterial pneumonia is a good indicator of an avoidable hospitalization or ambulatory care sensitive condition (ACSC). High admission rates are often a reflection of large number of inappropriate admissions or low-quality treatment with antibiotics. As a PQI, admission for bacterial pneumonia is not a measure of hospital quality, but rather a measure of outpatient care and other community-level health care issues.

The elderly population is particularly susceptible to pneumonia, and in this population, a vaccine is suggested to prevent pneumonia. Areas may wish to examine the outpatient care for pneumonia and pneumococcal vaccination rates to identify potential processes of care that may reduce admission rates. Appropriateness of admissions appears to be a problem for this indicator. High rates may reflect large number of inappropriate admissions and/or poor outpatient care, among other things.

The rate is defined as admissions for bacterial pneumonia per 100,000 county population. The indicator includes all non-maternal discharges age 18 and older with the ICD-10-CM principal diagnosis code for bacterial pneumonia. It excludes transfer cases, MDC 14 (pregnancy, childbirth, and puerperium), MDC 15 (newborn and other neonates), and those with diagnosis code for sickle cell anemia or HB-S disease.

Table 6 shows the number of hospital admissions for bacterial pneumonia by county along with the observed, expected and risk-adjusted rates, while Tables 16, 17 and 18 present hospital admission rates of bacterial pneumonia patients by age, sex, and race/ethnicity.

- The national average admission rate for bacterial pneumonia in 2016 was 201.2 per 100,000 population, age 18+.

- In New Jersey, there were 11,651 hospital admissions for bacterial pneumonia in 2018. With a risk-adjusted rate of 182.8 per 100,000, New Jersey had a significantly lower rate than the 2016 national benchmark rate of 201.2.

- Readers are advised to assess individual county performance by comparing them against the statewide rate; and the national average bacterial pneumonia admission rate shown in Table 13.

Table 6. Hospital Admissions for Community-Acquired Pneumonia (per 100,000 population, age 18+)

County	Hospital admissions	Observed rate	Expected rate^	Risk-adjusted rate	95% Confidence Interval
Statewide	**11,651**	**167.4**	**184.2**	**182.8**	**179.4 - 186.3**
Atlantic	523	249.9	232.4	216.3 **	198.5 - 234.1
Bergen	953	129.0	168.8	153.8 *	142.6 - 164.9
Burlington	698	197.7	162.8	244.3 **	227.9 - 260.7
Camden	734	187.1	195.7	192.3	178.1 - 206.5
Cape May	194	253.7	265.7	192.1	164.5 - 219.6
Cumberland	505	439.1	244.8	360.8 **	337.4 - 384.2
Essex	1,019	166.8	188.0	178.5	166.9 - 190.1
Gloucester	277	121.5	154.9	157.8 *	136.8 - 178.7
Hudson	795	147.8	162.1	183.4	170.1 - 196.7
Hunterdon	150	148.9	171.9	174.3	144.4 - 204.2
Mercer	558	191.5	190.2	202.5 **	185.8 - 219.2
Middlesex	977	150.3	151.1	200.1 **	187.6 - 212.7
Monmouth	1,025	209.1	169.1	248.7 **	235.0 - 262.4
Morris	308	79.0	167.2	95.0 *	79.6 - 110.4
Ocean	1,139	248.6	259.5	192.7	181.3 - 204.1
Passaic	589	153.5	212.3	145.5 *	131.7 - 159.2
Salem	106	215.2	241.6	179.2	143.1 - 215.2
Somerset	252	97.4	159.7	122.7 *	103.3 - 142.0
Sussex	145	128.3	158.9	162.5	133.1 - 191.8
Union	596	139.4	194.4	144.2 *	130.6 - 157.9
Warren	108	127.0	174.0	146.9 *	114.6 - 179.3

Source: **New Jersey 2018 UB Data**.

* = Statistically significantly below the state average.

** = Statistically significantly above the state average.

PQI 11 - Community-Acquired Pneumonia was formerly called Bacterial Pneumonia

^ Expected rate = (Observed rate/Risk-adjusted rate) * Standard deviation. It is the rate the county would have if it performed the same as the statewide average (reference population) given the county's actual case-mix (e.g., age, gender, DRG, and comorbidity categories). If the observed rate is higher than the expected rate (i.e., the ratio of observed/expected is greater than 1.0), then the implication is that the county performed worse than the reference population 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 county performed better than the reference population.

7. Urinary Tract Infection (PQI.12)

Urinary tract infection (UTI) is a common acute condition that can, for the most part, be treated with antibiotics in an outpatient setting. However, this condition can progress to more clinically significant infections, such as pyelonephritis, in vulnerable individuals with inadequate treatment. Proper outpatient treatment is believed to reduce admissions for urinary tract infection, and lower admission rates represent better quality of care at a community level. Hospital admission for urinary tract infection is a PQI that would be of most interest to comprehensive health care delivery systems. As a PQI, admission for urinary tract infection is not a measure of hospital quality, but rather one measure of outpatient care and other health care issues.

The rate is defined as admissions for urinary tract infection per 100,000 adult county population. The indicator includes all non-maternal discharges age 18 and older with ICD-10-CM principal diagnosis code for urinary tract infection. It excludes transfer cases, MDC 14 (pregnancy, childbirth, and puerperium), MDC 15 (newborn and other neonates), patients with diagnosis code of kidney/urinary tract disorder, patients with diagnosis code of immunocompromised state, and those with immunocompromised state procedure code.

Table 7 shows the number of hospital admissions for urinary tract infection by county along with the observed, expected and risk-adjusted rates.

- In New Jersey, there were 10,822 hospital admissions for urinary tract infection in 2018. The risk-adjusted hospital admissions rate for urinary tract infection is 162.3 per 100,000.

- The national average admission rate for urinary tract infection in 2016 was 141.8 per 100,000 population, age 18+.

- County-level urinary tract infection rates can be compared to the statewide average as well as the national average to see where specific counties stand on this specific indicator. Admission rate variations by age, sex and race/ethnicity are shown in Tables 16, 17 and 18.

Table 7. Hospital Admissions for Urinary Tract Infection (per 100,000 population, age 18+)

County	Hospital admissions	Observed rate	Expected rate^	Risk-adjusted rate	95% Confidence Interval
Statewide	**10,822**	**155.5**	**135.9**	**162.3**	**159.4 - 165.1**
Atlantic	507	242.2	159.1	215.9 **	200.7 - 231.1
Bergen	745	100.8	134.5	106.4 *	97.6 - 115.1
Burlington	830	235.0	127.9	260.4 **	247.4 - 273.5
Camden	937	238.7	132.9	254.8 **	242.7 - 266.9
Cape May	109	142.7	177.6	113.9 *	90.1 - 137.7
Cumberland	382	332.2	160.1	294.2 **	273.8 - 314.6
Essex	885	144.8	142.9	143.7 *	134.3 - 153.1
Gloucester	301	131.9	111.6	167.6	150.2 - 185.0
Hudson	745	138.5	122.3	160.6	149.8 - 171.4
Hunterdon	162	160.8	131.7	173.2	149.2 - 197.3
Mercer	542	186.0	129.2	204.1 **	189.9 - 218.4
Middlesex	903	138.9	110.2	178.8 **	168.4 - 189.1
Monmouth	836	170.6	132.9	182.0 **	171.1 - 192.8
Morris	417	106.9	131.2	115.6 *	103.3 - 127.8
Ocean	894	195.2	179.9	153.9	144.2 - 163.5
Passaic	542	141.3	164.2	122.0 *	111.0 - 133.0
Salem	122	247.6	179.6	195.5	166.1 - 224.9
Somerset	248	95.8	126.2	107.7 *	92.4 - 123.1
Sussex	125	110.6	118.9	131.9 *	108.0 - 155.8
Union	486	113.6	129.3	124.6 *	112.8 - 136.4
Warren	104	122.3	127.0	136.6	109.9 - 163.2

Source: **New Jersey 2018 UB Data.**

* = Statistically significantly below the state average.

** = Statistically significantly above the state average.

^ Expected rate = (Observed rate/Risk-adjusted rate) * Standard deviation. It is the rate the county would have if it performed the same as the statewide average (reference population) given the county's actual case-mix (e.g., age, gender, DRG, and comorbidity categories). If the observed rate is higher than the expected rate (i.e., the ratio of observed/expected is greater than 1.0), then the implication is that the county performed worse than the reference population 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 county performed better than the reference population.

8. Uncontrolled Diabetes (PQI.14)

Uncontrolled diabetes indicates an excess of glucose in a patient's bloodstream. In diabetics, glucose levels are stabilized by proper administration of insulin, and may involve other activities such as home blood-glucose monitoring, that contribute to the overall problems with glycemic control. However, it is unclear whether poor glycemic control arises from poor quality medical care, non-compliance of patients, lack of education, or problems of access to care. Areas with high rates may wish to examine these factors when interpreting this indicator. Proper outpatient treatment and adherence to care may reduce the incidence of uncontrolled diabetes, and lower admission rates represent better quality of care.

Uncontrolled diabetes is an avoidable hospitalization/ambulatory care sensitive condition (ACSC) indicator. The indicator is not a measure of hospital quality, but rather a measure of outpatient care and other healthcare issues not related to hospitalizations. Hospital admission for uncontrolled diabetes is a PQI that would be of most interest to comprehensive health care delivery systems, such as some health maintenance organizations (HMOs), or public health agencies. Uncontrolled diabetes as a measure of potentially avoidable hospitalizations should be used in conjunction with short-term complications of diabetes (PQI.01).

The rate is defined as admissions for uncontrolled diabetes per 100,000 adult county population. The indicator includes all non-maternal discharges age 18 and older with ICD-10-CM principal diagnosis codes for uncontrolled diabetes, without mention of a short-term or long-term complication. It excludes transfer cases, MDC 14 (pregnancy, childbirth, and puerperium), and MDC 15 (newborn and other neonates).

Table 8 shows the number of hospital admissions for uncontrolled diabetes by county along with the observed, expected and risk-adjusted rates

- In New Jersey, there were 3,256 hospital admissions for uncontrolled diabetes in 2018. The risk-adjusted rate is 55.7 per 100,000. By comparison, the national admission rate for uncontrolled diabetes in 2016 was 41.6 per 100,000.

- Hospital admission rates for uncontrolled diabetes in Atlantic, Burlington, Camden, Cumberland, and Essex counties were statistically significantly higher compared to the statewide average.

Table 8. Hospital Admissions for Uncontrolled Diabetes (per 100,000 population, age 18+)

County	Hospital admissions	Observed rate	Expected rate^	Risk-adjusted rate	95% Confidence Interval
Statewide	**3,256**	**46.8**	**35.0**	**55.7**	**54.1 - 57.4**
Atlantic	198	94.7	48.8	80.8 **	72.7 - 88.8
Bergen	160	21.7	28.1	32.1 *	26.4 - 37.7
Burlington	153	43.4	27.8	65.0 **	56.8 - 73.2
Camden	246	62.8	35.0	74.7 **	67.7 - 81.6
Cape May	31	40.6	42.9	39.4 *	25.1 - 53.6
Cumberland	135	117.5	48.6	100.5 **	89.6 - 111.4
Essex	473	77.4	45.0	71.6 **	66.7 - 76.5
Gloucester	100	43.9	29.3	62.4	52.4 - 72.4
Hudson	302	56.2	40.8	57.2	51.7 - 62.7
Hunterdon	27	26.8	29.3	38.1 *	23.1 - 53.1
Mercer	145	49.8	34.1	60.9	52.7 - 69.0
Middlesex	266	41.0	28.4	60.1	54.1 - 66.1
Monmouth	183	37.4	28.6	54.4	47.6 - 61.3
Morris	134	34.4	28.2	50.6	42.9 - 58.4
Ocean	193	42.2	41.2	42.6 *	36.7 - 48.5
Passaic	188	49.0	50.4	40.5 *	34.6 - 46.3
Salem	24	48.8	48.2	42.1	25.4 - 58.9
Somerset	54	20.9	27.5	31.6 *	21.9 - 41.2
Sussex	46	40.7	28.3	59.9	45.5 - 74.3
Union	163	38.1	32.4	49.0	42.1 - 55.9
Warren	35	41.2	31.3	54.8	39.0 - 70.6

Source: **New Jersey 2018 UB Data**.

* = Statistically significantly below the state average.

** = Statistically significantly above the state average.

^ Expected rate = (Observed rate/Risk-adjusted rate) * Standard deviation. It is the rate the county would have if it performed the same as the statewide average (reference population) given the county's actual case-mix (e.g., age, gender, DRG, and comorbidity categories). If the observed rate is higher than the expected rate (i.e., the ratio of observed/expected is greater than 1.0), then the implication is that the county performed worse than the reference population 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 county performed better than the reference population.

9. Asthma in Younger Adults (PQI.15)

Asthma is one of the most common reasons for hospital admission and emergency room care. Most cases of asthma can be managed with proper ongoing therapy on an outpatient basis. The assumption is that proper outpatient treatment may reduce the incidence or exacerbation of asthma requiring hospitalization, and that lower admission rates suggest better quality of care at community level. Environmental factors such as air pollution, occupational exposure to irritants, or other exposure to allergens have been shown to increase hospitalization rates or exacerbate asthma symptoms. Counties may wish to identify hospitals that contribute the most to the overall county rate for this indicator. The patient populations served by these hospitals may be a starting point for interventions.

As a PQI, asthma in young adults is not a measure of hospital quality, but rather one measure of overall outpatient care in a community. The rate is defined as admissions for asthma per 100,000 population age 18 to 40. The measure includes all non-maternal discharges age 18 to 40 with ICD-10-CM principal diagnosis codes for asthma, but excludes transfer cases, MDC 14 (pregnancy, childbirth, and puerperium)**,** MDC 15 (newborn and other neonates), and those with any diagnosis code of cystic fibrosis and anomalies of the respiratory system.

Table 9 shows the number of hospital admissions for asthma in younger adults by county along with their observed, expected and risk-adjusted rates (Disparities in admissions for asthma in younger adults by sex and race/ethnicity is shown in Tables 17 and 18).

- In New Jersey, there were 1,058 hospital admissions for asthma in young adults (ages 18 to 40) in 2018 for a risk-adjusted rate of 49.0 per 100,000. The rate shows that asthma is still a significant problem in New Jersey as evidenced by the significantly higher statewide admission rate compared to the national young adult asthma admission rate of 30.6 per 100,000 in 2016.

- Atlantic, Burlington, Camden, Cumberland, and Essex counties have young adult asthma admission rates that are statistically significantly higher than the statewide average.

Table 9. Hospital Admissions for Asthma in Younger Adults (per 100,000 population, age 18-39)

County	Hospital admissions	Observed rate	Expected rate^	Risk-adjusted rate	95% Confidence Interval
Statewide	**1,058**	**42.3**	**26.4**	**49.0**	**46.7 - 51.4**
Atlantic	61	86.3	33.6	78.6 **	66.3 - 90.9
Bergen	52	21.1	22.3	28.9 *	20.8 - 37.0
Burlington	62	51.2	22.0	71.4 **	59.7 - 83.0
Camden	124	85.0	26.6	97.9 **	88.3 - 107.6
Cape May	7	33.3	25.7	39.6	13.8 - 65.4
Cumberland	38	86.3	31.7	83.4 **	67.3 - 99.4
Essex	193	81.3	31.5	79.0 **	72.1 - 86.0
Gloucester	36	44.9	22.9	60.0	46.0 - 74.0
Hudson	75	29.2	31.5	28.4 *	21.8 - 35.1
Hunterdon	2	7.0	21.6	9.9 *	0.0 - 34.0
Mercer	46	41.2	25.7	49.1	37.9 - 60.3
Middlesex	84	33.9	22.9	45.3	37.4 - 53.3
Monmouth	58	37.7	22.0	52.6	42.3 - 62.9
Morris	26	20.5	22.0	28.6 *	17.2 - 39.9
Ocean	55	38.9	26.1	45.7	35.8 - 55.5
Passaic	61	40.9	33.0	37.9 *	29.4 - 46.5
Salem	5	30.8	32.8	28.7	2.7 - 54.6
Somerset	16	18.9	22.2	26.0 *	12.2 - 39.9
Sussex	7	20.2	21.8	28.3	6.5 - 50.1
Union	46	29.2	29.1	30.7 *	21.9 - 39.6
Warren	4	15.0	22.7	20.3 *	0.0 - 44.7

Source: **New Jersey 2018 UB Data**.

* = Statistically significantly below the state average.

** = Statistically significantly above the state average.

^ Expected rate = (Observed rate/Risk-adjusted rate) * Standard deviation. It is the rate the county would have if it performed the same as the statewide average (reference population) given the county's actual case-mix (e.g., age, gender, DRG, and comorbidity categories). If the observed rate is higher than the expected rate (i.e., the ratio of observed/expected is greater than 1.0), then the implication is that the county performed worse than the reference population 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 county performed better than the reference population.

10. Lower-extremity Amputation among Patients with Diabetes (PQI.16)

Diabetes is a major risk factor for lower-extremity amputation, which can be caused by infection, neuropathy, and microvascular disease. Proper long-term glucose control, diabetes education, and foot care are some of the interventions that can reduce the incidence of infection, neuropathy, and microvascular diseases. As a PQI, lower-extremity amputations among patients with diabetes, is not a measure of hospital quality but rather one measure of outpatient care and other health care problems in a community. Proper and continued treatment and glucose control may reduce the incidence of lower-extremity amputation; and lower hospitalization rates represent better quality of care. Areas may wish to identify hospitals that contribute the most to the overall area rate for this indicator. The patient populations served by these hospitals may be a starting point for interventions.

The rate is defined as admissions for lower-extremity amputation in patients with diabetes per 100,000 county population age 18 years and older. The indicator includes all non-maternal discharges age 18 and older with ICD-10-CM procedure codes for lower-extremity amputation and diagnosis code for diabetes and excludes transfer cases, MDC 14 (pregnancy, childbirth, and puerperium), MDC 15 (newborn and other neonates), and those with trauma diagnosis code.

Table 10 shows the number of hospital admissions for lower-extremity amputation by county along with their observed, expected and risk-adjusted rates.

- In New Jersey, there were 1,998 admissions for lower-extremity amputation in 2018. The risk-adjusted hospital admissions rate for lower-extremity amputation was 34.0 per 100,000, suggesting that the rate at which incidence of lower-extremity amputation occurs in New Jersey is slightly higher than the national average rate in 2016, of 24.4 per 100,000.

- Burlington, Camden, and Cumberland counties have rates that are statistically significantly higher than the statewide average.

- Disparities in hospitalizations for lower-extremity amputation in patients with diabetes by age, sex and race/ethnicity are shown in Tables 16, 17 and 18.

Table 10. Hospital Admissions for Lower-Extremity Amputation among Patients with Diabetes (per 100,000 population, age 18+)

County	Hospital admissions	Observed rate	Expected rate^	Risk-adjusted rate	95% Confidence Interval
Statewide	**1,998**	**28.7**	**20.6**	**34.0**	**32.8 - 35.3**
Atlantic	53	25.4	27.5	22.5 *	16.2 - 28.8
Bergen	126	17.1	15.1	27.5 *	23.0 - 32.0
Burlington	154	43.7	15.1	70.5 **	63.9 - 77.0
Camden	183	46.7	21.6	52.6 **	47.4 - 57.8
Cape May	18	23.6	27.5	20.9 *	10.5 - 31.3
Cumberland	95	82.7	29.9	67.5 **	59.4 - 75.7
Essex	254	41.6	27.4	37.0	33.3 - 40.7
Gloucester	50	21.9	18.7	28.5	21.2 - 35.8
Hudson	154	28.6	23.9	29.2 *	25.0 - 33.4
Hunterdon	10	9.9	16.8	14.4 *	2.8 - 26.0
Mercer	76	26.1	21.0	30.2	24.1 - 36.3
Middlesex	132	20.3	17.8	27.9 *	23.4 - 32.3
Monmouth	117	23.9	15.8	36.8	31.4 - 42.2
Morris	63	16.2	15.5	25.5 *	19.3 - 31.6
Ocean	155	33.9	25.3	32.7	28.2 - 37.1
Passaic	138	36.0	29.6	29.6	25.1 - 34.1
Salem	19	38.6	24.7	38.1	24.4 - 51.8
Somerset	30	11.6	15.1	18.7 *	11.1 - 26.4
Sussex	23	20.4	16.3	30.5	19.4 - 41.6
Union	136	31.8	19.3	40.1	34.9 - 45.4
Warren	12	14.1	20.3	17.0 *	5.5 - 28.5

Source: **New Jersey 2018 UB Data**.

* = Statistically significantly below the state average.

** = Statistically significantly above the state average.

^ Expected rate = (Observed rate/Risk-adjusted rate) * Standard deviation. It is the rate the county would have if it performed the same as the statewide average (reference population) given the county's actual case-mix (e.g., age, gender, DRG, and comorbidity categories). If the observed rate is higher than the expected rate (i.e., the ratio of observed/expected is greater than 1.0), then the implication is that the county performed worse than the reference population 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 county performed better than the reference population.

11. Composite PQIs (Overall-PQI.90, Acute-PQI.91, and Chronic-PQI.92)

As mentioned earlier, the PQIs are currently implemented at the county level based on the location of the patient's residence, not on the location of the hospital. In other words, the PQI are hospitalization rates for residents of the county, regardless of whether the hospital is located inside or outside the county (or state). The PQI composites are intended to improve the statistical precision of the individual PQI, allowing for greater discrimination in performance among areas, and improved ability to identify potentially determining factors in performance.

An overall composite captures the general concept of potentially avoidable hospitalization connecting the individual PQI measures, which are all rates at the area level. The composite measures - acute and chronic – are created to investigate different factors influencing hospitalization rates for acute and chronic conditions. Table 11 shows composite PQI measures for New Jersey for 2018.

The PQI composites are designed to help provide quick information on issues such as assessment of quality and disparity, baselines to track progress, and identify information gaps, and emphasize interdependence of quality and disparities. They are also intended to provide national, state and county level estimates that can be tracked over time.

Table 11 shows the number of hospital admissions for overall, acute and chronic conditions by county along with their risk-adjusted rates (observed and expected rates are excluded for reasons of brevity).

- The national overall, acute and chronic composite rates, respectively, in 2016, were 1,200.4, 343.0 and 857.6 per 100,000 age 18.

- Readers can compare the corresponding composite rates for New Jersey for 2016, 2017 and 2018 with the 2016 national rates presented in Table 13.

Table 11. Composite PQIs (per 100,000 population, age 18+)

County	Overall (PQI.90)		Acute (PQI.91)		Chronic (PQI.92)	
	Volume	Rate	Volume	Rate	Volume	Rate
Statewide	**93,010**	**1,444.5**	**22,473**	**344.1**	**70,538**	**1,123.2**
Atlantic	4,330	1,733.2 **	1,030	427.9 **	3,300	1,335.6 **
Bergen	6,384	1,068.1 *	1,698	259.0 *	4,686	828.1 **
Burlington	5,583	1,981.6 **	1,528	506.5 **	4,055	1,520.5 **
Camden	7,249	1,913.3 **	1,671	441.0 **	5,578	1,510.2 **
Cape May	1,259	1,298.7 *	303	305.0 *	956	1,016.0 *
Cumberland	3,706	2,548.7 **	887	645.6 **	2,819	1,976.5 **
Essex	10,009	1,588.1 **	1,904	321.6 *	8,105	1,279.1 **
Gloucester	2,697	1,491.5	578	324.5	2,119	1,187.3 **
Hudson	6,892	1,438.7	1,540	344.0	5,352	1,105.1
Hunterdon	901	1,072.5 *	312	347.8	589	733.7 *
Mercer	4,472	1,641.9 **	1,100	402.5 **	3,372	1,267.8 **
Middlesex	7,115	1,429.3	1,880	377.8 **	5,235	1,069.5 *
Monmouth	6,825	1,687.8 **	1,861	428.4 **	4,964	1,294.1 **
Morris	2,928	936.2 *	725	213.0 *	2,203	739.1 *
Ocean	7,942	1,398.9 *	2,033	343.9	5,909	1,084.7 *
Passaic	4,870	1,088.5 *	1,131	267.4 *	3,739	829.7 *
Salem	876	1,467.6	228	374.0	648	1,122.1
Somerset	1,936	969.2 *	500	231.0 *	1,436	753.4 *
Sussex	1,186	1,347.2 *	270	293.6 *	916	1,076.2
Union	4,828	1,239.7 *	1,082	267.1 *	3,747	990.6 *
Warren	1,022	1,367.8	410	282.9 *	810	1,105.4

Source: **New Jersey 2018 UBJ Data**.

* = Statistically significantly below the state average.

** = Statistically significantly above the state average.

OVERALL - includes all 10 PQIs (i.e., PQI.1, PQI.3, PQI.5, PQI.7, PQI.8, PQI.11, PQI.12, PQI.14, PQI.15, and PQI.16)

ACUTE - includes PQI.11 and PQI.12 only

CHRONIC - includes all 8 of the non-acute PQIs included under the composite - OVERALL.

12. Diabetes Composite (PQI.93)

As stated earlier, the PQIs are area-level indicators that enable tracking of potentially preventable hospitalizations, including diabetes, in a community or region. PQIs are proved to be key tool for community health needs assessments. To enhance this objective, AHRQ in its latest module (Version 2019) has added a fourth PQI composite measure - PQI.93 (i.e., Prevention Quality Diabetes Composite).

Diabetes Composite (PQI.93) is composed of Diabetes Short-Term Complications (PQI.01), Diabetes Long-Term Complications (PQI.03), Uncontrolled Diabetes (PQI.14), and Lower-Extremity Amputation (PQI.16). The Diabetes Composite (PQI.93) rate represents hospital admissions per 100,000 population, ages 18 years and older; and it includes admissions for any one or more of the following conditions: diabetes with short-term complications, diabetes with long-term complications, uncontrolled diabetes without complications, diabetes with lower-extremity amputation.

Table 12 shows the number of hospital admissions for Diabetes Composite conditions by county along with their risk-adjusted rates (observed and expected rates are excluded for reasons of brevity). As stated earlier, the PQI composites are intended to be used to provide national estimates that can be tracked over time and to provide State and county level estimates that can be compared with the national estimate and to each other.

- In New Jersey, there were 16,760 admissions for Diabetes Composite (i.e., diabetes with short-term complications, diabetes with long-term complications, uncontrolled diabetes without complications, and diabetes with lower-extremity amputation) in 2018, with a risk-adjusted rate of 285.5 per 100,000 (Table 12).

- Atlantic, Burlington, Camden, Cumberland, Essex, Mercer and Monmouth counties have rates that are statistically significantly higher than the statewide average.

- Readers can compare Diabetes Composite hospitalization rates for New Jersey for 2016, 2017 and 2018 with the 2016 national rate presented in Table 13.

- Disparities in hospitalizations for Diabetes Composite by age, sex and race/ethnicity are shown in Tables 16, 17 and 18.

Table 12. Prevention Quality Diabetes Composite (per 100,000 population, age 18+)

County	Hospital admissions	Observed rate	Expected rate^	Risk-adjusted rate	95% Confidence Interval
Statewide	**16,760**	**240.8**	**152.5**	**285.5**	**282.1 - 289.0**
Atlantic	743	354.8	198.7	323.0 **	305.7 - 340.4
Bergen	1,006	136.2	115.9	212.6 *	200.5 - 224.7
Burlington	976	276.4	115.5	432.7 **	415.2 - 450.3
Camden	1,381	351.8	162.7	391.2 **	377.2 - 405.2
Cape May	215	281.2	181.9	279.7 *	249.7 - 309.8
Cumberland	637	554.4	212.3	472.4 **	449.7 - 495.1
Essex	2,109	344.9	197.7	315.6 **	305.4 - 325.8
Gloucester	433	189.8	133.9	256.5 *	236.2 - 276.8
Hudson	1,513	281.0	186.6	272.4 *	261.3 - 283.6
Hunterdon	117	116.2	120.9	173.9 *	141.8 - 206.0
Mercer	842	288.9	161.3	324.1 **	307.7 - 340.4
Middlesex	1,293	198.9	131.2	274.4	262.3 - 286.5
Monmouth	1,103	225.0	117.9	345.2 **	330.5 - 360.0
Morris	477	122.3	116.9	189.2 *	172.6 - 205.8
Ocean	1,147	250.4	175.6	257.9 *	245.4 - 270.4
Passaic	1,064	277.3	215.0	233.3 *	221.0 - 245.7
Salem	135	274.1	191.8	258.6	222.1 - 295.0
Somerset	252	97.4	115.5	152.6 *	132.1 - 173.1
Sussex	224	198.2	118.9	301.5	270.9 - 332.0
Union	919	214.8	150.5	258.3 *	244.3 - 272.2
Warren	174	204.6	139.0	266.3	233.7 - 298.9

Source: **New Jersey 2018 UB Data**.

* = Statistically significantly below the state average.

** = Statistically significantly above the state average.

Diabetes Composite - Includes PQI.1, PQI.3, PQI.14, and PQI.16)

^ Expected rate = (Observed rate/Risk-adjusted rate) * Standard deviation. It is the rate the county would have if it performed the same as the statewide average (reference population) given the county's actual case-mix (e.g., age, gender, DRG, and comorbidity categories). If the observed rate is higher than the expected rate (i.e., the ratio of observed/expected is greater than 1.0), then the implication is that the county performed worse than the reference population 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 county performed better than the reference population.

Prevention Quality Indicator Patterns by County

Prevention quality indicators are best understood by grouping indicators that potentially describe similar health problems. As an example, all risk-adjusted diabetes related admission rates by county are presented on a map side-by-side to assess patterns (Figure 2). In some instances, (e.g. Figures 3 and 4) our maps may not necessarily suggest similarities of health indicators. In Figures 3 and 4, the maps include indicators that we found easier to show on the same page for presentation purposes only.

The 2018 New Jersey data show a substantial variation in preventable hospital admissions by county. Not surprisingly, the variations appear to reflect the socio-economic disparities of the county populations, with more affluent counties having significantly lower rates than the statewide average, and the less affluent counties having significantly higher admission rates than the statewide rate. Figure 1 shows county-level median household income in New Jersey in 2018.

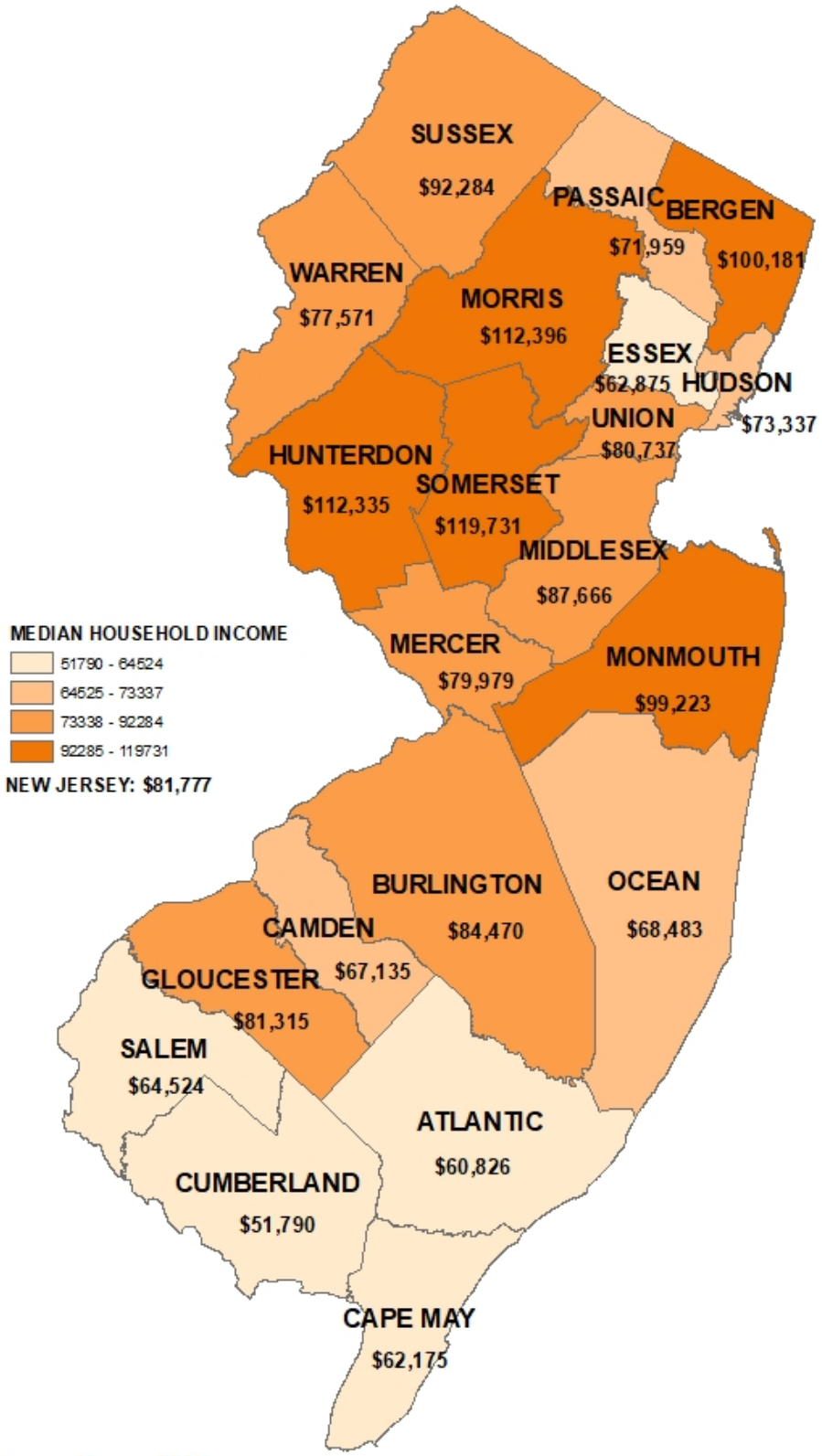
We observe a remarkable consistency in levels of admission rates by county for diabetes with short term complications, diabetes with long term complications, uncontrolled diabetes, and lower-extremity amputation among patients with diabetes (See Figure 2). Note that on the map, they are denoted as Diab_St, Diab_Lt, Diab_Uncon, and Amputation, respectively.

Figure 3 presents hospital admission rates for hypertension, heart failure (HF) and urinary tract infection (UTI) by county. These three indicators (i.e., Hypertension, HF and UTI) point to potentially associated health problems. We observe that counties have similar patterns in admission rates, with Warren, Hunterdon and Sussex showing stronger similarities in patterns of admission for hypertension, and HF.

The top panel of Figure 4 presents asthma and chronic obstructive pulmonary disease (COPD) admission rates by county. Not surprisingly, asthma and COPD admission rates show similar patterns by county. Figure 4 also presents community-acquired or bacterial pneumonia (represented on the map by Pneumonia) admission rates by county and shows that the patterns are remarkably consistent.

Figure 5 shows composite PQIs by county. Note that the following two questions were examined while creating the composite measures: 1) Does disease prevalence impact variability? As anticipated, areas with higher rates of diabetes and hypertension show higher hospitalizations, particularly in the chronic composite. However, for asthma the contrary relation is true suggesting other confounding factors; 2) Is variability driven by poverty status? Areas with low levels of poverty also show lower hospitalization rates for each of the PQI composites, which is independent of access to care.

Figure 1. Median Household Income by County New Jersey, 2018



Data Source: Census Bureau 2018
American Community Survey

Figure 2. Diabetes-Related Hospital Admission Rates (per 100,000 population) by County, New Jersey 2018

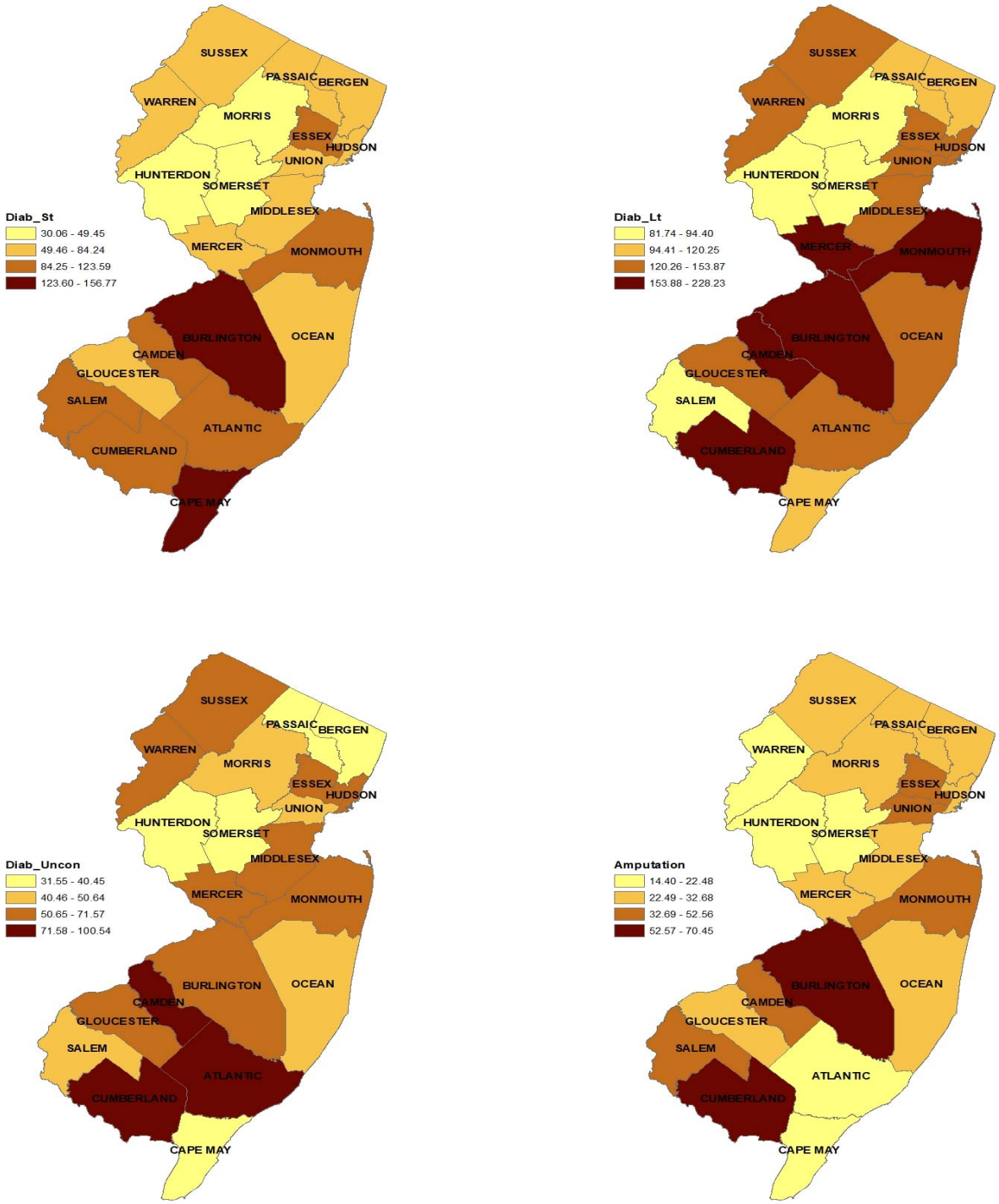


Figure 3. Hospital Admission Rates (per 100,000 population) for Hypertension, Congestive Heart Failure, and Urinary Tract Infection by County, New Jersey 2018

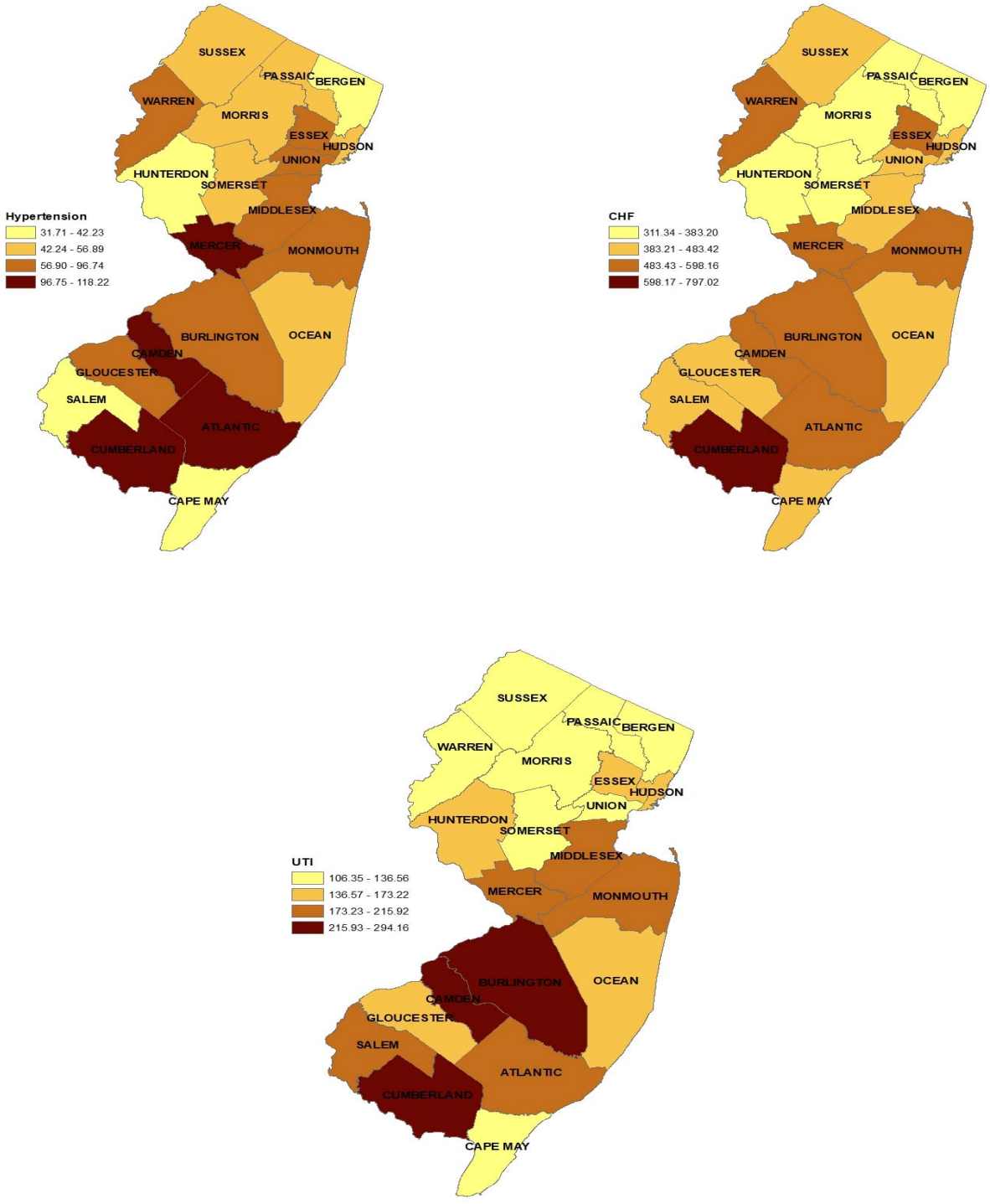


Figure 4. Hospital Admission Rates for Asthma, COPD, and Pneumonia (per 1,000 population) by County, New Jersey 2018

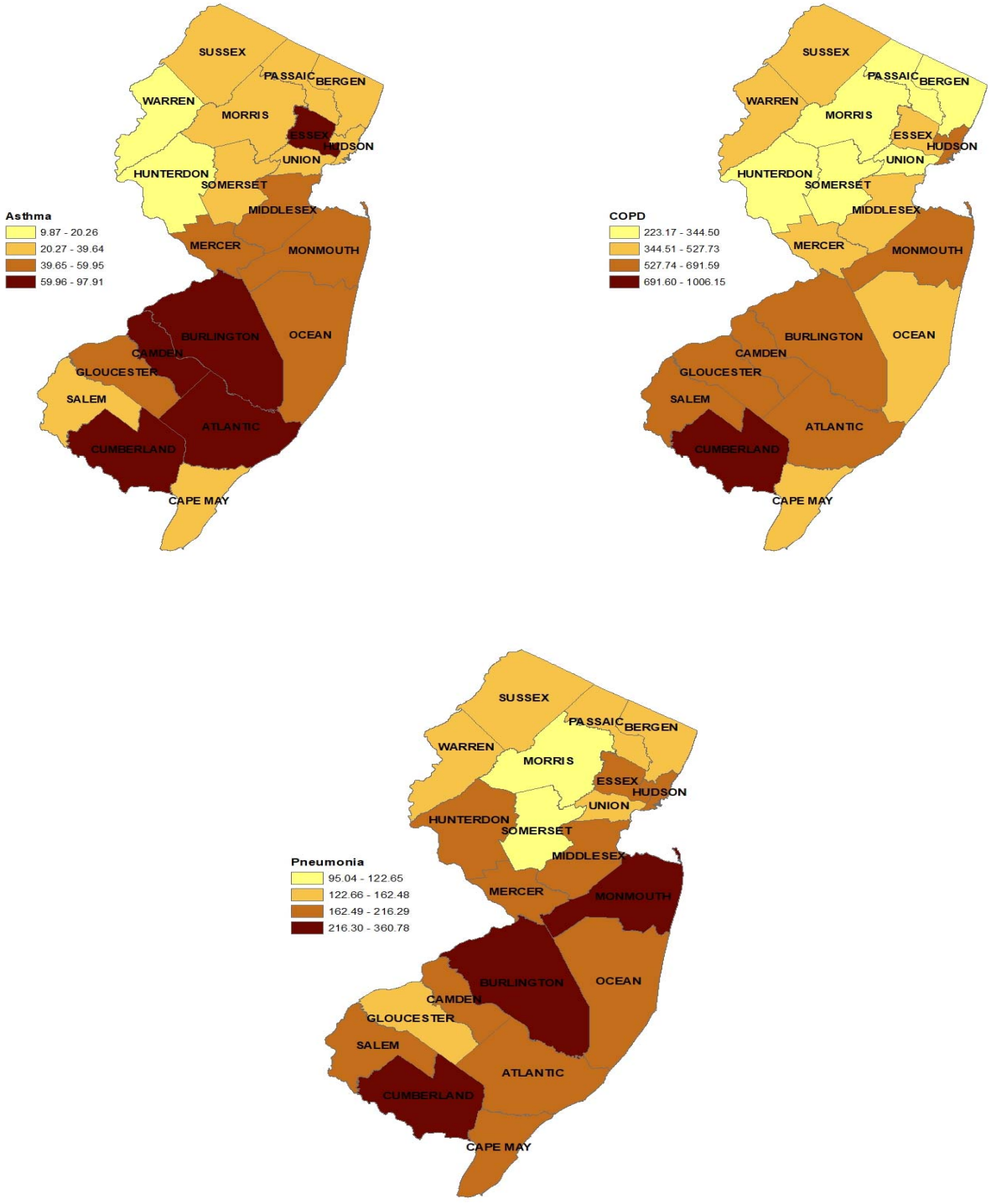
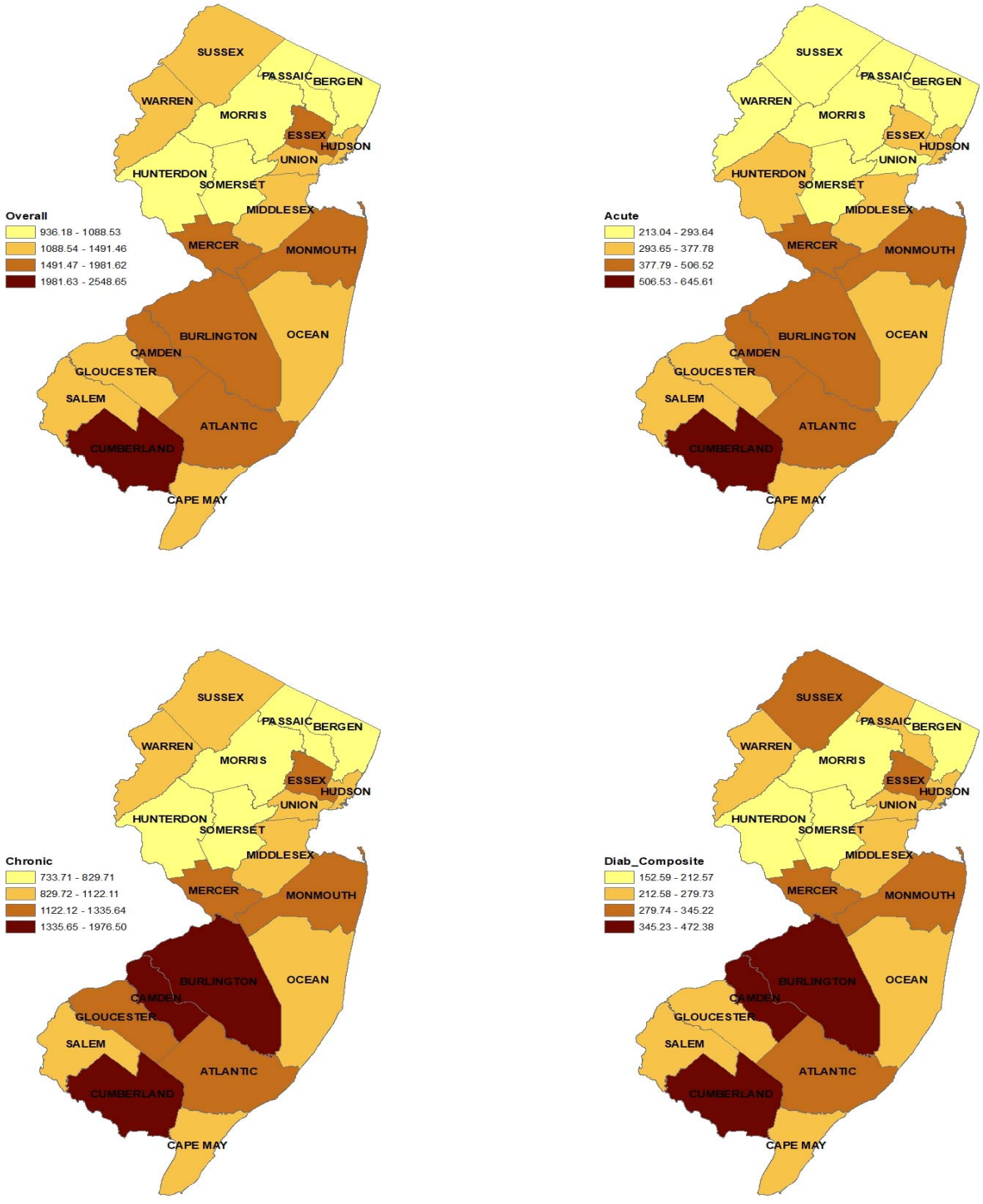


Figure 5. Composite Indicators by County, New Jersey 2018



Statewide PQI Measures Compared to National Estimates

National rates for PQIs are derived from the State Inpatient Data (SID), which is a national dataset dealing with inpatients only. SID is built from UB datasets coming from all 49 participating states. In 2016, the SID database represented more than 97 percent of all annual discharges in the United States. The uniform format of the SID helps facilitate cross-state comparisons because it contains all-payer, encounter-level information on inpatient discharges, including clinical and resource information typically found on a billing record, such as patient demographics, up to 30 ICD-10-CM/PCS diagnoses and procedures, length of stay, expected payer, admission and discharge dates, and discharge disposition.

The transition from ICD-9-CM to ICD-10-CM/PCS represents substantial differences across the two code sets. According to AHRQ, specifications have been carefully reviewed to achieve as much consistency as possible. However, differences are expected to exist between AHRQ QI measures calculated by the ICD-9 based versions such as v5.0 and the previous ones; and those calculated by the ICD-10-CM/PCS based versions such v2018 and v2019.

Table 13 shows national and New Jersey's statewide-level prevention quality indicator estimates for the 10 individual PQIs and the 4 Composite PQIs analyzed in this report. New Jersey's statewide estimated rates for 2016, 2017 and 2018 are presented along with the 2016 National rates (the latest available) for readers to make comparisons. All rates in the table including the national rates are calculated using the PQIs module (SAS Version 2019). Readers ought to note that Version 2019, which is the latest one, is based on the ICD-10-CM Coding system.

- Data in Table 13 clearly demonstrates that New Jersey's hospitalization rates for almost all the PQIs including the composite measures are considerably higher than the national averages.

Table 13. Comparing New Jersey's Statewide PQI Rates with National Rates (per 100,000 population)

	National	New Jersey		
	2016	2016	2017	2018
Diabetes with Short Term Complications (PQI.01)	47.6	49.9	57.9	78.4
Diabetes with Long Term Complication (PQI.03)	77.5	109.5	135.9	138.4
COPD or Asthma in Older Adults (PQI.05)	413.0	565.6	600.4	486.2
Hypertension (PQI.07)	46.4	59.6	72.6	72.9
Heart Failure (PQI.08)	365.1	442.4	453.0	463.7
Community-Acquired Pneumonia (PQI.11)	201.2	220.0	167.2	182.8
Urinary Tract Infection (PQI.12)	141.8	173.7	162.4	162.3
Uncontrolled Diabetes (PQI.14)	41.6	59.7	57.7	55.7
Asthma in Younger Adults (PQI.15)	30.6	61.6	51.8	49.0
Lower Extremity Amputation (PQI.16)	24.4	27.6	31.3	34.0
Overall PQIs - Composite (PQI.90)	1,200.4	1,497.2	1,563.8	1,444.5
Acute PQIs - Composite (PQI.91)	343.0	394.3	329.1	344.1
Chronic PQIs - Composite (PQI.92)	857.6	1,105.2	1,158.8	1,123.2
Diabetes PQIs - Composite (PQI.93)	180.9	235.1	264.4	285.5

Note: Both the National and NJ Rates are calculated using the latest Version of AHRQ SAS Software - a version based on the ICD-10-CM Diagnosis & Procedure Codes.

Costs of Potentially Preventable Hospitalizations

This section presents potentially preventable hospitalizations and their associated costs. The terms “preventable hospitalizations” and “unnecessary hospitalizations” are often used interchangeably with “avoidable hospitalizations” to indicate the presence of hospital care for patients whose primary condition or diagnosis is one that, if detected and cared for effectively at an earlier point, may not lead to hospitalization. While not every hospitalization can be prevented through improvement in health care delivery, early detection, care, and education of persons with ambulatory care sensitive conditions is believed to reduce rates of potentially avoidable hospitalizations and save both lives and cost.

Table 14 shows the amount of money that could be saved by reducing potentially avoidable hospitalizations as estimated by the PQIs. These statistics would assist health care planners in identifying communities for future interventions to improve preventive and primary care services, improve patient safety as well as in tracking the impacts of such interventions over time. Such information is particularly relevant in assessing the role hospitals and physicians may play in containing health care expenditures arising from potentially avoidable hospitalizations.

As is well known, the UB database contains information on total charges for each patient’s in-hospital stay. This hospital charge information represents the amount that hospitals bill for services they provide but does not reflect how much they realistically cost; or the specific amounts that hospitals received in payment. Often, users are interested in seeing how hospital charges translate into actual costs. The HCUP Cost-to-Charge Ratio (CCR) Files enable this conversion.

The HCUP Cost-to-Charge Ratio (CCR) files contains hospital-specific cost-to-charge ratios based on all-payer inpatient cost for nearly every hospital in the corresponding National Inpatient Sample (NIS) or State Inpatient Data (SID) sets. Cost information is obtained from the hospital accounting reports collected by the Centers for Medicare and Medicaid Services (CMS).

Hospitalization costs presented in this report are calculated using the HCUP Cost-to-charge-ratio (CCR) estimators. These estimates are obtained by multiplying total charges reported in the UB by cost-to-charge ratio (CCR) after data elements on the HCUP prepared CCR file for New Jersey were merged with our UB data using the appropriate procedure of merging different data sets.

In 2018, NJ hospitals reported about 93,010 hospitalizations for treatment of all the medical conditions outlined under the PQIs, which according to AHRQ’s specifications, are considered preventable. Using the cost-to-charge ratio estimators, potentially avoidable hospitalizations on the conditions presented in this report would have saved about 1.4 billion dollars ($1,434,856,899.10) in 2018 alone.

Table 14. Estimated Costs over Potentially Preventable Hospitalizations (in $)

Prevention Quality Indicators (PQIs)	# of Preventable Hospitaliza-tions	Average length of in-hospital stay (days)	Average estimated cost per patient per day ($)	Average estimated cost per patient for all days ($)	Total estimated cost for all the Preventable Hospitaliza-tions ($)
Diabetes with Short Term Complications	**4,459**	4.6	3,310	15,356	68,472,404
Diabetes with Long Term Complication	**8,271**	4.7	3,324	15,509	128,274,939
COPD or Asthma in Older Adults	**17,863**	4.7	3,271	15,298	273,268,174
Hypertension (PQI.07)	**4,315**	4.8	3,285	15,861	68,440,215
Heart Failure	**30,550**	4.7	3,274	15,389	470,130,284
Community-Acquired Pneumonia	**11,651**	4.7	3,272	15,378	179,166,631
Urinary Tract Infection	**10,822**	4.8	3,226	15,485	167,581,159
Uncontrolled Diabetes	**3,256**	4.7	3,288	15,454	50,318,843
Asthma in Younger Adults	**1,058**	4.7	3,302	15,520	16,420,615
Lower Extremity Amputation	**1,998**	5.0	3,245	16,227	32,420,967
Overall PQIs - Composite	**93,010**	4.7	3,270	15,427	1,434,856,899
Acute PQIs - Composite	**22,473**	4.8	3,246	15,430	346,747,828
Chronic PQIs - Composite	**70,538**	4.7	3,277	15,431	1,088,467,646
Diabetes PQIs - Composite	**16,760**	4.7	3,282	15,536	260,380,678

Source: NJ UB 2018.

Cost = TOTCHG * GAPICC.

TOTCHG stands for Total Charges reported in UB data, while GAPICC stands for Group average all-payer inpatient cost/charge ratio (CCR). HCUP constructed the CCR files using all-payer, inpatient cost and charge information that hospitals report to CMS. CCR provides an estimate of all-payer inpatient cost-to-charge ratio for hospitals in states that participate in HCUP.

Note: The HCUP Cost-to-Charge Ratio (CCR) Files enable users to convert total charges reported in UB databases to estimated actual costs. Each file contains hospital-specific cost-to-charge ratios based on all-payer inpatient cost for nearly every hospital in the corresponding National Inpatient Sample (NIS) or State Inpatient Data (SID). Cost information was obtained from the hospital accounting reports collected by the Centers for Medicare and Medicaid Services (CMS). Using the merged data elements from the cost-to-charge ratio files and the total charges reported in the UB data sets, users may convert the hospital total charge data to cost estimates by simply multiplying total charges with the appropriate cost-to-charge ratio.

Potentially Preventable Hospitalizations by Payer Type

Table 15 shows the percentage distribution of potentially preventable hospitalizations for each PQI by health insurance payer type as reported in the NJ 2018 UB data.

- Of the 30,550 potentially preventable hospitalizations for heart failure, 41 percent were paid for by Medicare. Similarly, 41 percent of the 17,863 hospitalizations for COPD, and 40.9 percent of the 4.315 for were paid for by Medicare.

- Not surprisingly, about 42 percent of all the potentially preventable hospitalizations for community-acquired or bacterial pneumonia and urinary tract infections were paid for by Medicare.

- Overall, more than 40 percent of the potentially preventable hospitalizations both for acute and chronic conditions were paid for by Medicare. The data also shows that payment by private insurance for both acute and chronic conditions was about 32 percent.

- It should also be noted that 34 percent of hospital admissions for asthma in younger adults (ages 18-39) were paid by private insurance, implying significant gain in health insurance coverage among young adults.

- Both HCUP and AHRQ reports have shown that hospital stays paid for by Medicare were over three times more likely to be potentially preventable than were stays paid for by private insurance.

Table 15. Preventable Hospitalizations by Payer Type

PQIs	# of Preventable hospitaliza-tions	Paid by (%)					
		Medicare	Medicaid	Private	Self Pay	Indigent	Other
Diabetes with Short Term Complications	**4,459**	39.5	14.4	30.5	2.6	1.8	11.2
Diabetes with Long Term Complication	**8,271**	40.3	13.1	31.7	2.3	1.7	10.8
COPD or Asthma in Older Adults	**17,863**	41.0	13.9	31.1	2.9	1.3	9.9
Hypertension	**4,315**	40.9	13.9	30.3	3.0	1.8	10.5
Heart Failure	**30,550**	41.0	12.1	33.1	2.7	1.4	9.7
Community-Acquired Pneumonia	**11,651**	41.9	13.4	30.8	2.9	1.6	9.5
Urinary Tract Infection	**10,822**	41.8	12.8	31.6	2.7	1.4	9.7
Uncontrolled Diabetes	**3,256**	38.4	14.2	32.7	2.4	1.6	10.8
Asthma in Younger Adults	**1,058**	36.1	14.6	33.6	2.8	1.4	11.4
Lower Extremity Amputation	**1,998**	38.3	13.7	31.5	2.0	1.8	12.7
Overall PQIs - Composite	**93,010**	40.9	13.1	31.9	2.7	1.5	10.0
Acute PQIs - Composite	**22,473**	41.8	13.2	31.2	2.8	1.5	9.6
Chronic PQIs - Composite	**70,538**	40.6	13.0	32.1	2.7	1.5	10.1
Diabetes PQIs - Composite	**16,760**	39.7	13.7	31.5	2.4	1.7	11.0

Source: NJ UB 2018

OVERALL Composite - includes all 10 PQIs.

ACUTE Composite - includes PQI.11 and PQI.12 only

CHRONIC Composite - includes all 8 of the non-acute PQIs included under the composite - OVERALL.

Diabetes Composite - Includes PQI.1, PQI.3, PQI.14, and PQI.16)

Selected Preventable Hospitalizations by Age, Sex and Race/Ethnicity

Tables 16, 17 and 18 show the breakdown by age, sex and race/ethnicity, respectively, of the total number of potentially preventable hospital admissions along with their corresponding observed rates for all the 10 individual PQIs and for only 2 composite measures (PQI.90 and PQI.93 are excluded for purposes of brevity). The purpose of including these tables is to assess the extent to which hospitalizations vary by socio-demographic characteristics with the hope that such information will shine some light for prevention services planning.

Table 16 presents hospital admission rates by broad age groups. Among the 18-39 years old, hospitalization rates were higher for Diabetes with Long Term Complication at 70.6 per 100,000 followed by Asthma in Younger Adults at 42.3 per 100,000; compared to other indicators. Among 40-64 years old, COPD hospitalizations were more distinct at 235.7 per 100,000 followed by Heart Failure at 199.7, and Diabetes with Long Term Complication at 135.0 per 100,000. Among the age group 65-74, the rate of hospitalizations for Heart Failure was the highest at 1,014 per 100,000 followed by COPD at 592.9, Community-Acquired or Bacterial Pneumonia at 272.6, and Diabetes with Long Term Complication at 238.9 per 100,000. Among the 75 and older population, the highest hospitalization rate was due to Heart Failure at 2,532.8 per 100,000 followed by Urinary Tract Infection at 1,013.3, COPD at 947.9 and Community-Acquired or Bacterial Pneumonia at 832.2 per 100,000. For all age groups, hospitalizations for chronic conditions were consistently higher compared with hospitalizations for acute conditions.

Table 17 shows potentially preventable hospitalizations of patients by gender for all 10 PQIs and two composite measures. Among males, Heart Failure (HF) with 398.8 per 100,000 hospitalizations rate was the most noticeable closely followed by COPD at 230.9/100,000. Likewise, Heart Failure at 471.4 and COPD at 351.8 per 100,000 stood out to reflect the highest hospital admission rates among females. Both gender categories reflected higher hospitalization rates for chronic conditions than for acute conditions.

Table 18 shows variations in potentially preventable hospitalizations of patients by race/ethnicity for all the 10 individual PQIs and two composite measures (i.e., excluding PQI.90 and PQI.93). Diabetes w/short term complication hospitalization rate was much higher for Blacks (109.9) compared to the statewide average of 64.1 per 100,000. Except for Asian NH, COPD hospitalizations were associated with the highest rates followed by Heart Failure for all race/ethnic groups. The highest rate for Asian NH was Heart Failure (151.9/100,000). Avoidable hospitalizations (i.e., rates) for all the measures displayed in this table are markedly higher for blacks (African Americans) compared to other race/ethnic groups. The race/ethnic group ‘Asian NH’ showed consistently, lower rates of hospitalizations, than all the other race/ethnic groups.

Preventable hospitalization rates by socio-demographic characteristics clearly show wide variation. Some of these variations may result from lifestyle differences, lack of access to the healthcare system, or other social determinants of health.

Table 16. Hospitalized Patients for Selected PQIs by Age

(Rates are per 100,000 population)

Selected PQIs	18 to 39		40 to 64		65 to 74		75+		Total (18+)	
	# of Hospital Admissions	Rate	# of Hospital Admissions	Rate	# of Hospital Admissions	Rate	# of Hospital Admissions	Rate	# of Hospital Admissions	Rate
Diabetes with Short Term Complications	1,767	70.6	1,895	62.9	458	56.5	339	53.9	**4,459**	**64.1**
Diabetes with Long Term Complication	572	22.8	4,067	135.0	1,935	238.9	1,697	270.0	**8,271**	**118.9**
COPD or Asthma in Older Adults (age 40+)	-	-	7,103	235.7	4,803	592.9	5,957	947.9	**17,863**	**256.8**
Hypertension	433	17.3	1,849	61.4	782	96.5	1,251	199.1	**4,315**	**62.0**
Heart Failure	397	15.9	6,018	199.7	8,218	1,014.4	15,917	2,532.8	**30,550**	**439.3**
Community-Acquired Pneumonia	931	37.2	3,282	108.9	2,208	272.6	5,230	832.2	**11,651**	**167.5**
Urinary Tract Infection	828	33.1	1,888	62.7	1,738	214.5	6,368	1,013.3	**10,822**	**155.6**
Uncontrolled Diabetes	320	12.8	1,192	39.6	714	88.1	1,030	163.9	**3,256**	**46.8**
Asthma in Younger Adults	1,058	42.3	-	-	-	-	-	-	**1,058**	**15.2**
Lower Extremity Amputation	53	2.1	979	32.5	546	67.4	420	66.8	**1,998**	**28.7**
Acute PQIs - Composite	1,759	70.3	5,170	171.6	3,946	487.1	11,598	1,845.6	**22,473**	**323.1**
Chronic PQIs - Composite	4,444	177.5	22,219	737.4	17,141	2,115.9	26,734	4,254.1	**70,538**	**1,014.2**
NJ 2018 Population Estimate	**2,503,332**		**3,013,018**		**810,098**		**628,429**		**6,954,877**	

Source: NJ UB 2018.

COPD or Asthma in Older Adults (PQI.05) - covers population 40 years of age and over. It does not apply to population ages 18-39.

Asthma in Younger Adults (PQI.15) - covers population 18 to 39 years of age only.

Note that rates in this table are not risk adjusted. They are simply observed/row rates obtained by dividing # of hospitalization in the age group by the total population in that same age group.

Note: According to the Department of Labor and Workforce Development, NJ's estimated total population on July 2018 was 8,908,520.

Table 17. Hospitalized Patients for Selected PQIs by Sex

(Rates are per 100,000 population)

Selected PQIs	Male		Female		Total	
	# of Hospital Admissions	Rate	# of Hospital Admissions	Rate	# of Hospital Admissions	Rate
Diabetes with Short Term Complications	1,892	56.4	2,567	71.3	**4,459**	**64.1**
Diabetes with Long Term Complication	3,570	106.4	4,701	130.6	**8,271**	**118.9**
COPD or Asthma in Older Adults	7,747	230.9	10,116	281.0	**17,863**	**256.8**
Hypertension	1,904	56.7	2,411	67.0	**4,315**	**62.0**
Heart Failure	13,381	398.8	17,169	477.0	**30,550**	**439.3**
Community-Acquired Pneumonia	5,062	150.9	6,589	183.0	**11,651**	**167.5**
Urinary Tract Infection	4,717	140.6	6,105	169.6	**10,822**	**155.6**
Uncontrolled Diabetes	1,429	42.6	1,827	50.8	**3,256**	**46.8**
Asthma in Younger Adults	453	13.5	605	16.8	**1,058**	**15.2**
Lower Extremity Amputation	861	25.7	1,137	31.6	**1,998**	**28.7**
Acute PQIs - Composite	9,686	288.7	12,787	355.2	**22,473**	**323.1**
Chronic PQIs - Composite	30,402	906.1	40,136	1,115.0	**70,538**	**1,014.2**
NJ 2018 Population Estimate	**3,355,277**		**3,599,600**		**6,954,877**	

Source: NJ UB 2018.

COPD or Asthma in Older Adults (PQI.05) - covers population 40 years of age and over. It does not apply to population ages 18-39.

Asthma in Younger Adults (PQI.15) - covers population 18 to 39 years of age only.

Note that rates in this table are not risk adjusted. They are simply observed/row rates obtained by dividing # of hospitalization in the age group by the total population in that same age group.

Note: According to the Department of Labor and Workforce Development, NJ's estimated total population on July 2018 was 8,908,520.

Table 18. Hospitalized Patients for Selected PQIs by Race/Ethnicity

(Rates are per 100,000 population)

Selected PQIs	White NH		Black NH		Hispanic		Asian NH		Other		Total	
	# of Hospital Admissions	Rate	# of Hospital Admissions	Rate	# of Hospital Admissions	Rate	# of Hospital Admissions	Rate	# of Hospital Admissions	Rate	# of Hospital Admissions	Rate
Diabetes with Short Term Complications	2,300	57.6	968	109.0	744	57.1	142	20.8	305	347.6	**4,459**	**64.1**
Diabetes with Long Term Complication	4,470	112.0	1,435	161.6	1,343	103.1	365	53.3	658	749.8	**8,271**	**118.9**
COPD or Asthma in Older Adults	10,022	251.1	3,220	362.6	2,645	203.0	627	91.6	1,349	1,537.3	**17,863**	**256.8**
Hypertension	2,248	56.3	877	98.8	734	56.3	154	22.5	302	344.2	**4,315**	**62.0**
Heart Failure	17,597	440.8	5,346	602.0	4,583	351.8	1,039	151.9	1,986	2,263.2	**30,550**	**439.3**
Community-Acquired Pneumonia	6,573	164.7	1,909	215.0	1,831	140.5	511	74.7	827	942.4	**11,651**	**167.5**
Urinary Tract Infection	6,280	157.3	1,725	194.2	1,624	124.6	417	60.9	776	884.3	**10,822**	**155.6**
Uncontrolled Diabetes	1,717	43.0	612	68.9	558	42.8	130	19.0	239	272.4	**3,256**	**46.8**
Asthma in Younger Adults	499	12.5	266	30.0	175	13.4	33	4.8	85	96.9	**1,058**	**15.2**
Lower Extremity Amputation	1,050	26.3	410	46.2	333	25.6	67	9.8	138	157.3	**1,998**	**28.7**
Acute PQIs - Composite	12,852	321.9	3,634	409.2	3,455	265.2	928	135.6	1,604	1,827.9	**22,473**	**323.1**
Chronic PQIs - Composite	39,290	984.2	12,838	1,445.7	10,933	839.2	2,539	371.1	4,938	5,627.2	**70,538**	**1,014.2**
NJ 2018 Population Estimate	**3,992,012**		**888,041**		**1,302,861**		**684,211**		**87,752**		**6,954,877**	

Source: NJ UB 2018.

COPD or Asthma in Older Adults (PQI.05) - covers population 40 years of age and over. It does not apply to population ages 18-39.

Asthma in Younger Adults (PQI.15) - covers population 18 to 39 years of age only.

Note that rates in this table are not risk adjusted. They are simply observed/row rates obtained by dividing # of hospitalization in the age group by the total population in that same age group.

Note: According to the Department of Labor and Workforce Development, NJ's estimated total population on July 2018 was 8,908,520.

Summary of Findings

Potentially preventable hospitalizations (inpatient stays that might be avoided with the delivery of quality outpatient treatments and disease management) serve as useful indicators of possible unmet community health needs. By measuring the frequency of such hospitalizations among patient subpopulations, policymakers and providers can identify those communities most in need of improvements in outpatient care as well as the conditions for which care is most needed. Rates of potentially preventable hospitalizations are higher for vulnerable populations with limited access to care. Targeting issues in access to primary care may serve to narrow disparities in health outcomes and improve the quality of care while reducing costs.

This report presents the number of preventable hospital admissions in each of the 21 counties. In addition to volume of hospitalizations, observed, expected and risk-adjusted rates for all the 10 individual and 4 composite prevention quality indicators are provided to help assess the quality of health care in each county. Statewide and national estimates are also provided to facilitate county to state and county to national comparisons.

According to the 2018 New Jersey data, there are substantial variations in preventable hospital admissions by county. Some counties exhibit significantly higher admission rates than the state while others have significantly lower rates. Not surprisingly, the variations appear to reflect the socio-economic disparities of the county populations, with more affluent counties having significantly lower rates than the state and the less affluent counties having significantly higher admission rates than the state. For example, hospital admissions for diabetes with short-term complications in Morris, Somerset, Hunterdon and Bergen counties are 30.1, 30.9, 45.2, and 49.5 per 100,000, respectively. By comparison, the rates for Burlington, Cape May, Cumberland, and Camden counties are 156.8, 139.5, 123.6, and 115.2 per 100, 000, respectively.

In another example, the lowest rate of admission for hypertension is recorded in Salem county (31.7 per 100,000) followed by Bergen (35.3/100,000), Hunterdon (38.9/100,000) and Cape May (42.2/100,000) counties. By comparison, the highest rate of hospital admission for hypertension is reported in Atlantic county (118.2 per 100,000) followed by Mercer county (115.8 per 100,000), Cumberland county (113.7 per 100,000) and Camden county (112.7 per 100,000).

Other indicators also show similar variations by county, suggesting that PQIs are useful as baseline measures for the study of health disparities in geographic areas. A closer examination of PQI measures may help planners identify the socio-economic determinants of such huge variation in costly and potentially preventable hospitalizations. More importantly, this report can be used in promoting the expansion of primary health care facilities to provide better health care access to those in need. This will lower preventable and costly hospital admissions.

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For inquiries, contact the New Jersey Department of Health, Office of Health Care Quality Assessment, by phone at (800) 418-1397 or by email at Markos.Ezra@doh.nj.gov.

Prevention Quality Indicators

Application of the AHRQ Module to New Jersey Data

C2795