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Hospital Utilization Patterns in 13 Low Income Communities in New Jersey: Opportunities for Better Care and Lower Costs

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Executive Summary

The New Jersey Medicaid ACO Demonstration Program provides new opportunities to improve the delivery of healthcare services through Accountable Care Organizations (ACOs), which create the potential for better population health and containment of healthcare costs. This data book examines specific patterns of hospital utilization for residents of 13 low-income communities – which we refer to as potential *ACO regions* – to identify opportunities to improve care and reduce costs. The utilization measures include rates of 1) avoidable, ambulatory care sensitive inpatient hospitalizations; 2) avoidable/preventable treat-and-release emergency department (ED) visits; 3) inpatient high users; 4) ED high users; and 5) 30 day all-cause readmissions. Out of the five measures, the first two reflect the adequacy of primary care within the community and all five metrics reflect opportunities to improve coordination of healthcare services across care settings. We examine demographics and health insurance sources of these patient populations, information that can help target delivery system initiatives that seek to improve the care of these high-need, high-use patients. Finally we estimated potential savings from reduced costs if regions were able to emulate the best-performing region among them.

The 13 study areas are selected from low-income communities with at least 5,000 Medicaid beneficiaries, the minimum threshold for forming a Medicaid ACO. For our analysis of hospital utilization in these areas, we use New Jersey uniform billing hospital discharge data over 2008-2010 and also an enhanced version where patients are tracked over time.

Findings

Overall, the study reveals wide variation in most of measures examined, suggesting that improvement in low-performing areas is achievable.

- ED high users (4.7 fold variation)

- Avoidable ED visits (3.5 fold variation)
- Avoidable inpatient stays (2.3 fold variation)
- Inpatient high use (1.7 fold variation)
- 30-day readmissions (1.4 fold variation)

Table E1 below illustrates how the different regions compare to each other in terms of individual and overall average ranking and arranges them in order of worst to best performance.

- For three measures including avoidable inpatient hospitalizations, avoidable ED visits, and ED high use Camden was the worst performing region.
- The worst performing regions in terms of inpatient high use and readmissions were Asbury Park and the greater Newark region respectively.
- Atlantic City had the worst overall rank and performed second to last in four out of the five measures.

Table E1. Comparing Performance across 13 New Jersey Low-Income Areas (13=Worst, 1=Best)

Regions	Overall Rank	Avoidable Hospitalizations	Avoidable ED Visits	Inpatient High Use	ED High Use	Hospital Readmissions
Atlantic City-Pleasantville City	13	12	12	12	12	8
Newark City- East Orange City-Irvington Township-City of Orange Township	12	11	10	11	10	13
Trenton City	11	10	11	10	11	12
Camden City	10	13	13	4	13	10
Asbury Park City- Neptune Township	9	4	8	13	9	9
Perth Amboy City-Hopelawn	8	9	9	8	6	7
Jersey City-Bayonne City	7	8	3	9	2	11
Vineland City-Millville City	6	7	4	6	8	2
Paterson City-Passaic City-Clifton City	5	6	5	5	4	6
Elizabeth City-Linden City-Winfield Township	4	2	7	3	5	5
Plainfield City-North Plainfield Borough	3	3	6	2	7	1
Union City-W. New York Town – Guttenberg Town-N. Bergen Township	2	5	1	7	1	4
New Brunswick City-Franklin Township	1	1	2	1	3	3

Rankings: Worst three Next three Intermediate four Best three

Regions are arranged in order of worst to best overall performance rank based on the average of individual measure rankings.
See methods section for performance measure definitions and data sources.

If the 13 regions were able to achieve the performance of the region with the best cost profile on each of the measures, substantial hospital cost savings would be achieved (note, these amounts should not be summed because of overlap in visits across measures):

- $284 million from reduced inpatient high user costs
- $155 million from reduced avoidable inpatient stay and ED visit costs
- $94 million from reduced readmission costs
- $70 million from reduced ED high user costs

The best performing potential ACO regions do about as well as overall NJ average. On average, however, the 13 regions perform worse (i.e., had higher rates of hospital use that is potentially reducible through care improvements) compared to NJ overall. Compared to the statewide average, the 13 regions average higher rates in key indicators of hospital performance:

- Avoidable ED visits (68% higher)
- ED high users (56% higher)
- Avoidable inpatient stays (45% higher)
- Readmissions (14% higher)
- Inpatient high use not substantially different from statewide average

As noted above, reducing costs associated with inpatient high-utilization offers the greatest opportunity for savings. This population is largely distinct from the group of ED high-utilizers, only 1% of hospital users in the 13 communities are high utilizers of *both* inpatient and ED services. The inpatient and ED high utilizer populations differ in important respects reflecting the need for separate care management strategies.

- In all of the study communities - the most common payer for inpatient high users, patients with readmissions and avoidable inpatient hospitalizations was Medicare. Across the 13 regions, Medicare was the principal payer for 51.7% of inpatient high user patients, including Medicare and Medicaid "dual eligible" patients.
- The two types of ED utilization were most frequently by patients classified as self-pay/uninsured or those with private insurance. Across the 13 communities, 39.9% of ED high users and 38.3% of preventable/avoidable ED visits were classified as self pay/uninsured.
- Minorities, women and younger patients accounted for higher proportions of ED utilizers than for inpatient users.
- The most common principal diagnoses for inpatient high users and ED high users are reported in Table E2 below.

Table E2. Most Common High User Diagnoses

Inpatient High Users	ED High Users
Heart failure	Other symptoms involving abdomen and pelvis
Septicemia	Symptoms involving respiratory system and other chest symptoms
Diabetes mellitus	Other and unspecified disorders of back
Other forms of chronic ischemic heart disease	Asthma
Symptoms involving respiratory system and other chest symptoms	General symptoms

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Background

The recently signed legislation establishing the New Jersey Medicaid ACO Demonstration Program provides new opportunities in care coordination leading to better population health through providers organized within the framework of Accountable Care Organizations (ACOs) (NJ P.L. 2011, Ch.114). With its specific focus on Medicaid beneficiaries, this endeavor is motivated by the positive experience of the innovative Camden Coalition of Healthcare Providers (CCHP) – that demonstrates the promise of structured care-coordination programs and access to outpatient community-based care in reducing the high rates of inpatient hospitalization and emergency department (ED) visits that characterize patients with a complex mix of chronic health conditions.

The Nicholson Foundation was an early supporter of the CCHP and has seeded the work of coalitions in Trenton and Newark. This project implemented by the Rutgers Center for State Health Policy and funded by The Nicholson Foundation builds on some of this previous work. Through a multipronged approach that comprises analysis of hospital discharge data and stakeholder interviews, the project aims to generate information and evidence that would advance the development of safety net ACOs in New Jersey. Along with Camden, Newark and Trenton, the study examines 10 other low income communities that are candidates for developing safety net ACOs and identifies within these communities opportunities for reducing cost through improved care. While it is Medicaid beneficiaries who fall under the direct purview of the New Jersey ACO legislation, the nature of challenges regarding patient care-coordination and strategies for successful implementation are common across the entire gamut of safety net patients. As a result, the project examines the utilization patterns of complex, adult patients using hospital care, and is not restricted solely to Medicaid-insured beneficiaries. However, wherever appropriate, we conduct payer-based analysis which allows us to discern findings that may be specific to Medicaid patients and/or Medicaid delivery system.

This data book contains such findings based on analysis of hospital inpatient and emergency department utilization within 13 New Jersey communities with a special focus on

Camden, greater Newark and Trenton regions. We expect these to inform the ACO development and associated strategies for improving care, rationalizing utilization, and lowering avoidable costs. The remaining 10 study communities were selected based on their estimated Medicaid populations in consultation with The Nicholson Foundation staff and others in the state who have been involved with developing ACOs.

Our analytic findings are organized in several broad categories that are described in greater detail in the methods and results sections of this report. First, we focus on hospital inpatient and ED utilization that is likely to be avoidable with adequate access to well organized care within the community. Next, we identify and examine the highest users of hospital and ED resources who make repeated visits over a period of time. Finally, we examine hospital readmissions focusing on patients who had an all-cause readmission within 30 days of discharge. Within all three categories of results, we also identify the demographics and health insurance sources of these patient populations, information that can help better targeting of delivery system initiatives that seek to improve the care of these high-need, high-use patients. We conclude our analysis with some estimates of potential savings from reduced costs if regions were able to emulate the cost profile of the best-performing region among them.

Methods

Data: We use New Jersey uniform billing (UB) data over the period 2008-2010 available from the state Department of Health (DOH). This hospital discharge-level database is the source of inpatient hospitalization and treat-and-release emergency department (ED) utilization by all adult (age 18 or older) hospital patients within our study areas. Each hospital record provides information on patient demographics (age, sex, race/ethnicity), expected primary payer (Medicare, Medicaid, private insurance, self-pay/uninsured), clinical characteristics (primary and secondary diagnoses, procedures), patient residential zip code, time of discharge, hospital charges, and information on the admitting hospital. With the assistance of the DOH Center for Health Statistics, we enhanced the publicly releasable UB files to create a linked database that tracks patients over time. Starting from the discharge-level dataset, DOH used confidential patient identifiers to create a dataset that enables us to follow patients over our study period and calculate counts of hospital stays/visits over time for individual patients. The analysis on inpatient/ED high use and readmissions was conducted with this dataset. Finally, for calculating population based estimates we use zip code level population data available from Nielsen Claritas.

Study Areas: Our study areas include three low-income communities of Camden, Trenton and greater Newark that are being supported by The Nicholson Foundation to develop strategies for successful implementation of ACOs, and 10 other low income communities that were estimated to have at least 5,000 Medicaid beneficiaries. (This threshold is the minimum number that would be required to form a Medicaid ACO under the NJ Medicaid ACO Demonstration Program.) These selected ACO communities shown in Figure 1 are listed in Appendix A.

Measures: We calculate several measures of hospital utilization that are designed to reflect gaps in care and corresponding opportunities for improving care processes and reducing costs. These can be organized into three broad categories: 1) Avoidable hospitalization stays and ED visits from inadequate ambulatory care in the community, 2) High use of hospital and ED resources, and 3) Hospital readmissions. Focusing on these should identify opportunities for improvements in the level of population health that could also potentially generate cost savings for Medicaid and other payers within these communities.

We calculate and compare these rates of hospital utilization to the statewide New Jersey rate. We also highlight the median performing region as well as the variation across the 13 regions for each of these indicators. Wherever relevant, we report age-sex adjusted rates directly standardized to the NJ distribution of gender and age groups (18-39; 40-64; 65+) in 2010. We further examine the distribution and stratification of these rates by patient characteristics and health insurance payer category. This sheds light on the composition of

patients with such utilization as well as those who are at the highest risk of having these types of hospital stays/visits. We also examine the distribution of costs across patient demographic characteristics and types of health insurance which identifies the patient and payer groups where cost is concentrated. We next describe these measures in detail.

Ambulatory Care Sensitive (ACS) Hospitalizations and Emergency Department Visits: We calculate rates of ACS inpatient hospitalizations and treat-and-release ED visits that may occur due to inadequate primary care within communities. We calculate and compare these rates of avoidable hospital visits per 100,000 population. Avoidable hospitalizations have been widely used in previous research to measure access to primary care and disparities in health outcomes (Billings et al. 1993; Basu, Friedman, and Burstin 2004; Bindman et al. 1995; Howard et al. 2007). The federal Agency for Healthcare Research and Quality (AHRQ) provides validated programming algorithms to calculate rates of avoidable ACS hospitalizations, otherwise known as the Prevention Quality Indicators (PQI), which are used in our analysis. Appendix B gives a list of ACS conditions that constitute a composite index that measures the overall rate of avoidable inpatient hospitalizations per unit of population. Appendix B also lists the constituents of the two other composite indicators (based on acute and chronic conditions). While we at places report the rates of individual disease specific ACS conditions and all three composites (overall, chronic and acute), our focus is on the overall composite since it gives a comprehensive measure for the community – it is thus the most useful for making comparisons among different geographic areas.

We also calculate avoidable treat-and-release (i.e., without an inpatient admission) ED visits based on a methodology provided by the New York University, Center for Health and Public Service Research (Billings, Parikh, and Mijanovich 2000), which are part of AHRQ's Safety Net Monitoring Toolkit. These comprise three categories of avoidable ED visits that could have been treated in an outpatient primary care setting or could have been prevented with timely access to primary care. Detailed definitions of these classifications are provided with examples in Appendix C.

High Users of Hospital Resources: Current research demonstrates that health spending in the United States is concentrated in a small proportion of very high users of care (Cohen and Yu 2012). These high utilization, high cost patients typically have complex medical conditions and face social challenges such as homelessness and substance abuse. Patient care improvement initiatives would yield the highest returns by focusing their clinical and social interventions on such high need, high-cost patients. Optimized care coordination for these high-cost patients would also provide the highest savings in hospital costs. We calculated a benchmark level of 'high use' based on the distribution of hospital use among all patients in New Jersey. Specifically, we defined high user of inpatient resources as a patient who has 4 or more

inpatient visits (95.7th percentile statewide) over 2008-2010. Similarly a high ED user is a patient having greater than or equal to 6 visits over 2008-2010 (95th percentile statewide). We calculate percentages of hospital users who demonstrated high inpatient or emergency department use for our study areas. We further examine the characteristics of patients who demonstrate high use, and also high use rates stratified by patient and payer information.

Hospital Readmission Rates: We report 30-day all-cause age-sex adjusted readmission rates for patients, adapting methodology from the federal Centers for Medicare and Medicaid Services (CMS) available at QualityNet (https://www.qualitynet.org/). This represents the percentage of inpatient hospitalizations where patients were readmitted within 30 days of being discharged. This initial hospitalization from where the readmission time-window starts is referred to as the 'index hospitalization'. We examined payer and demographic distribution of persons readmitted within 30 days and also examined readmission rates stratified by patient and payer characteristics.

Savings Methodology: We also include in this report annualized estimates of cost savings that could be realized if the regions are able to reduce costs associated with the respective hospital utilization measures described above to that of the best performing (lowest average cost) region among them. *The savings potential is equal to the difference between their actual costs and costs they would have incurred if they were able to emulate the best performing region.* This is calculated for each of the five categories of hospital utilization. It is important to remember that not all types of utilization are mutually exclusive (e.g., some inpatient stays by high users are also classified as avoidable and some are readmissions) and savings estimates from these five sources should not be added together.

Analytically, we measure costs by first collecting the charge amounts associated with the discharge records and then deflating these hospital 'list-price' charge amounts by hospital specific cost-to-charge ratios available from the AHRQ's Health Care Cost and Utilization Project (HCUP). We next convert these costs to 2010 dollars using consumer price indices (CPI) for medical care from the Bureau of Labor Statistics to adjust for medical care inflation over our study period. As a final step, we identify the region with lowest average cost and calculate potential savings by other regions if they are able to emulate this best-performing region. We describe below the savings methods specific to each category of hospital utilization.

Reducing Costs Associated with Avoidable Inpatient Hospitalizations and ED Visits: For each of these two measures, we identify the region with lowest age-sex adjusted avoidable costs per person and calculate the cost-savings that each of the regions could generate if they are able to emulate the best performing region. For each of the remaining 12 regions, this reduced cost is

calculated by applying the per person age-sex specific avoidable costs in the best performing region to their actual populations with their respective age sex distributions.

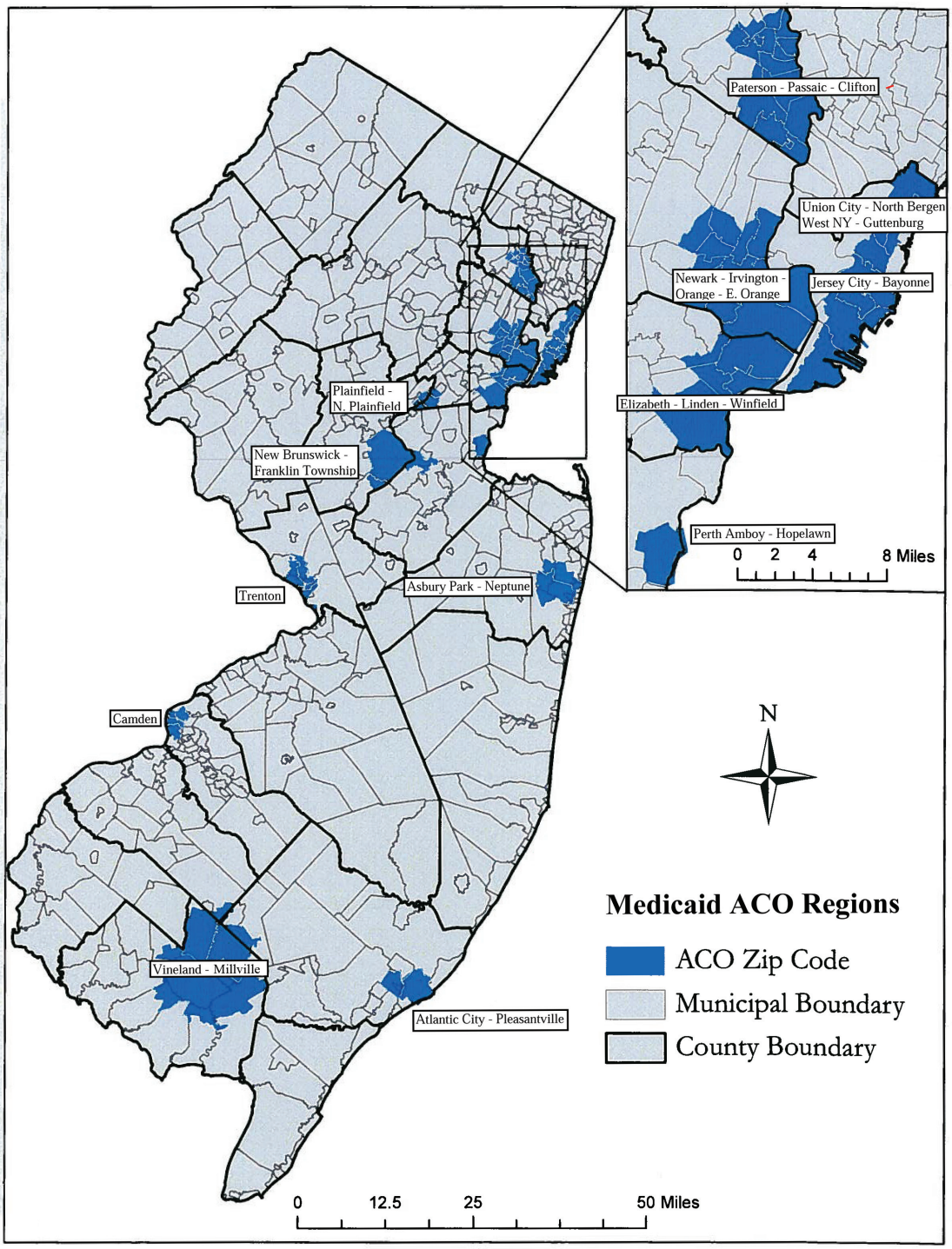
Reducing Cost Associated with Inpatient and Emergency Department High Use: We estimate cost savings that would be realized if each region is able to reduce their inpatient (IP) high use cost per hospital user (or ED high use cost per hospital user) to the level of the best performing regions – those with the lowest IP (or ED) high use cost per hospital user. These lower costs (for IP and ED separately) for the other regions is calculated by applying the two categories of average cost (from the best performing region) to each region's total hospital users.

Reducing Readmission Costs: We first identify the region with the lowest age-sex adjusted readmission costs per index hospitalization. We next calculate cost savings by each region if they are able to reduce their readmission costs per index hospitalization to the level of the best performing region. The average readmission cost per index hospitalization is calculated for each age-sex category in the best performing region. These average costs are then applied to the corresponding categories (of index hospitalizations) for the remaining 12 regions to arrive at the reduced level of costs. Potential savings for each region is calculated as the difference between their actual costs from readmissions and this calculated reduced level of costs.

The sections that follow provide detailed charts and tables summarizing the results of this analysis.

Results

Figure 1. ACO Regions



Source: Kathe Newman, Rutgers University.

Table 1. Comparing Hospital-Based Utilization across 13 NJ ACO Regions

ACO Regions	Avoidable Hospitalizations	Avoidable ED Visits	Inpatient High Use	ED High Use	Hospital Readmissions
Atlantic City	3,207	40,876	5.0	12.0	14.2
Greater Newark	3,098	30,104	4.8	9.0	16.4
Trenton	2,858	34,124	4.6	11.4	15.4
Camden	3,754	51,871	3.9	16.8	14.5
Asbury Park	2,185	21,486	5.2	8.1	14.2
Perth Amboy	2,587	23,582	4.0	6.3	13.9
Jersey City-Bayonne	2,549	18,423	4.6	5.9	14.8
Vineland	2,268	18,912	3.9	6.5	12.4
Paterson	2,262	19,472	3.9	6.0	13.7
Elizabeth-Linden	1,830	20,478	3.3	6.2	12.6
Plainfield	1,839	19,684	3.1	6.3	12.1
Union City-W. NY-N. Bergen	2,215	15,028	4.0	3.6	12.5
New Brunswick	1,658	16,827	3.1	5.9	12.5
13 ACO regions combined	2,504	23,836	4.2	7.7	14.4
All NJ	1,727	14,177	4.3	5.0	12.7

Rankings: Red Worst three Yellow: Next three Green: Best three

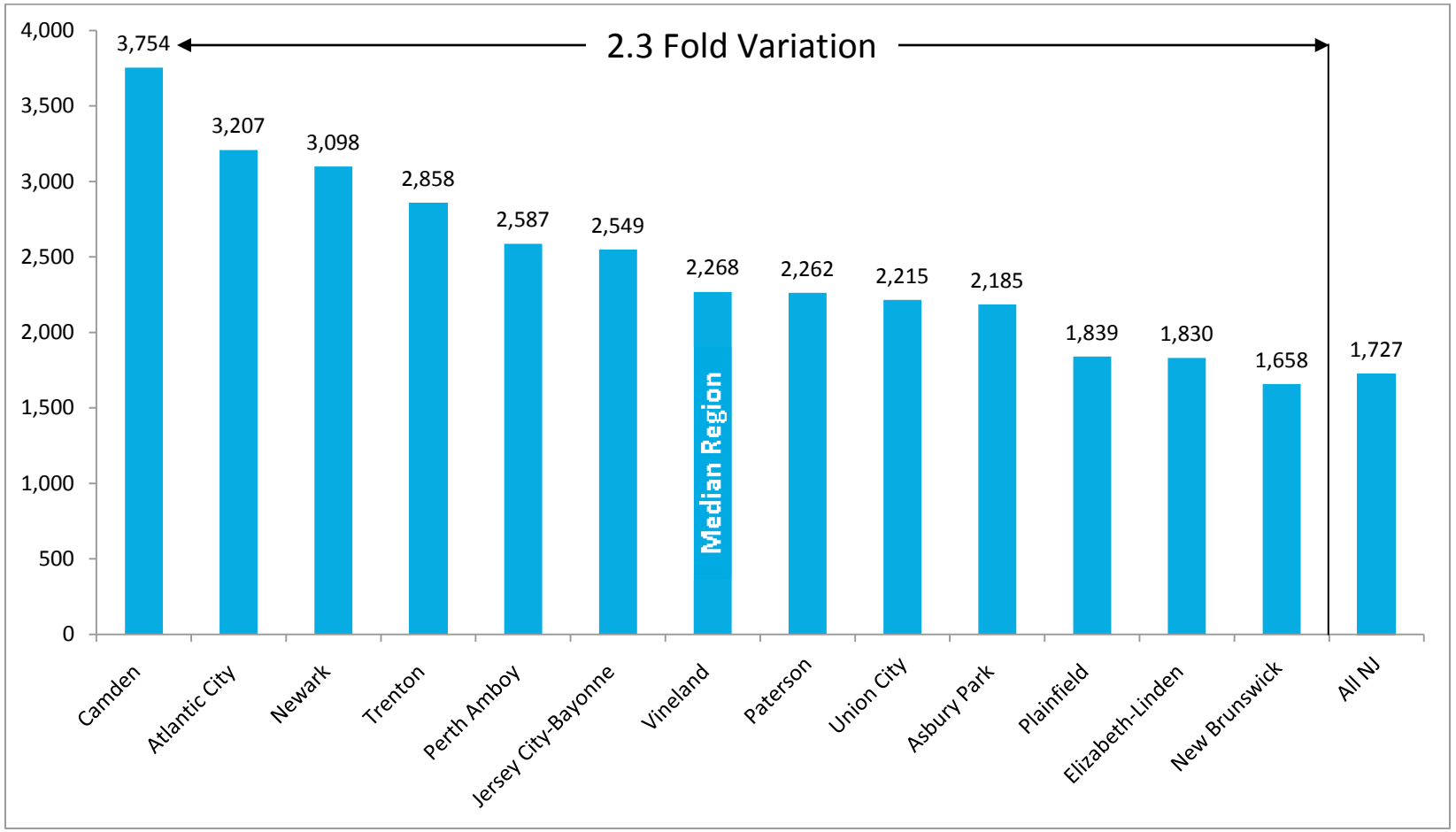
Regions are arranged in order of worst to best performance based on average of individual measure rankings.

Rates of avoidable inpatient hospitalizations and ED visits are calculated per 100,000 population and are age-sex adjusted.

High inpatient use is defined as 4 or more stays over 2008-10 and high ED use is 6 or more visits over 2008-10. High-user rates denote number per 100 hospital users.

Readmission rates are 30-day all-cause, age-sex adjusted per 100 index (initial) hospitalizations.

Figure 2. Rates of Avoidable Inpatient Hospitalizations (per 100,000 population)

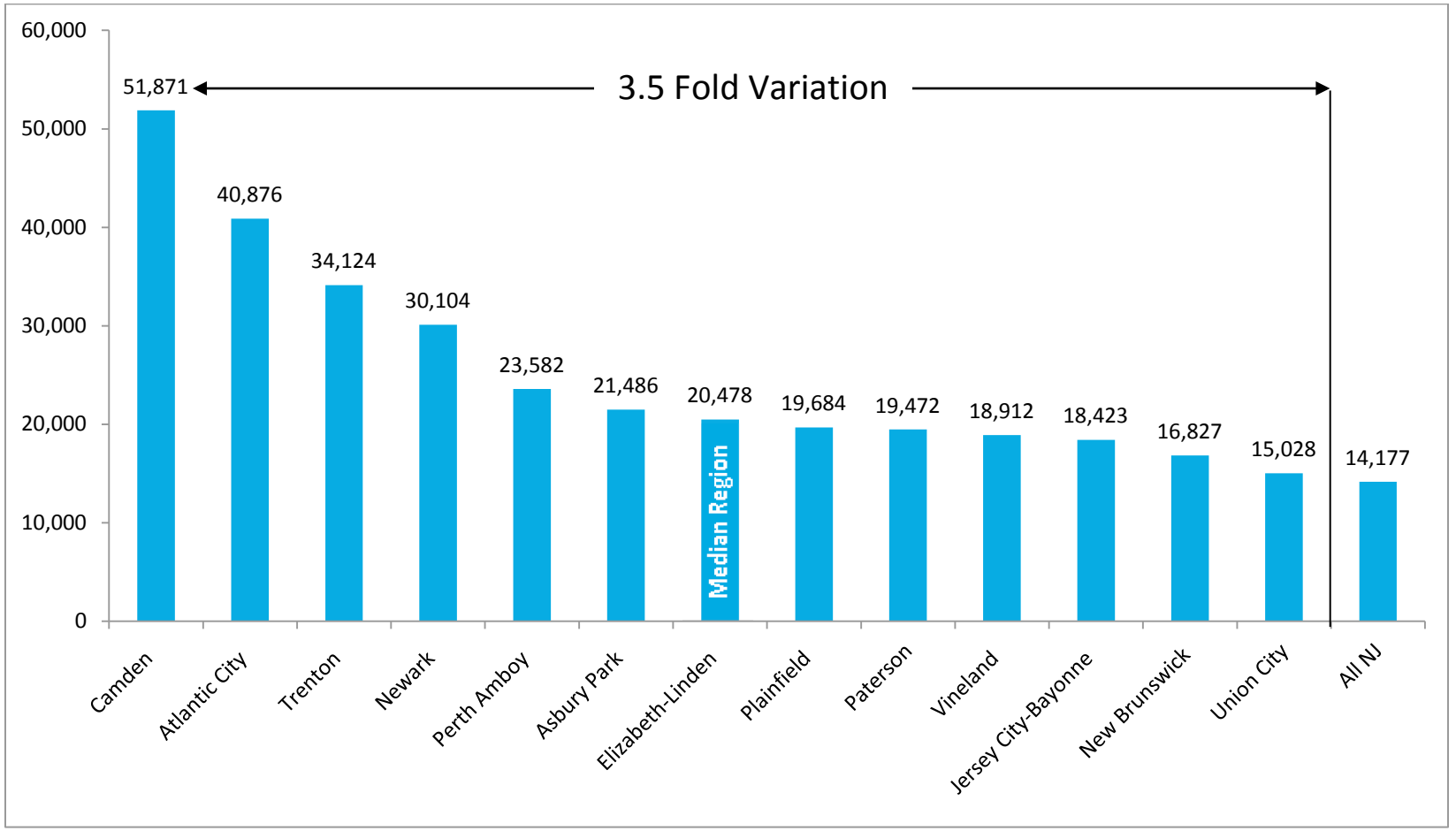


Rates are based on AHRQ Prevention Quality Indicator- Overall Composite Index.

Rates are age-sex adjusted. Numerators are average annual avoidable inpatient hospitalizations in a region over 2008-10.

Denominator: 2010 population from Nielsen/Claritas.

Figure 3. Rates of Avoidable Treat-and-Release Emergency Department Visits (per 100,000 population)



Rates are based on New York University algorithm for identifying avoidable ED visits.

Rates are age-sex adjusted. Numerators are average annual preventable/avoidable ED visits in a region over 2008-10.

Denominator: 2010 population from Nielsen/Claritas.

Table 2. Rates of Avoidable Inpatient Hospitalizations - Stratified by Demographics and Payer

ACO Regions	Medicare	Medicaid	Private	Self-Pay	White	Black	Hispanic	Other	Male	Female	18-39	40-64	65+
Asbury Park	15.3	11.2	9.0	14.4	11.4	15.7	9.1	9.4	13.3	12.4	6.6	13.8	15.1
Atlantic City	19.9	7.9	11.4	13.4	15.3	17.4	9.6	11.6	15.0	14.2	6.6	15.3	20.6
Camden	23.1	11.1	13.0	12.8	13.4	17.6	13.6	8.5	17.2	14.5	6.7	17.6	25.3
Elizabeth-Linden	19.0	7.7	9.7	12.5	14.4	14.8	11.4	7.3	15.6	11.4	4.6	14.2	19.2
Jersey City-Bayonne	21.8	13.0	10.3	13.2	15.6	18.2	13.8	13.3	17.1	14.4	5.2	17.0	22.1
New Brunswick	15.9	3.0	8.5	9.6	11.1	15.2	6.6	6.7	13.3	9.3	3.7	11.9	16.3
Greater Newark	20.7	10.5	12.2	13.6	14.7	16.1	13.1	9.5	16.7	14.1	5.9	16.9	21.6
Paterson	21.5	9.7	10.6	9.3	14.3	17.5	12.8	7.2	15.8	12.5	4.4	14.9	21.7
Perth Amboy	17.6	8.5	8.3	14.0	13.4	16.6	12.7	8.2	13.9	12.2	5.6	14.1	17.8
Plainfield	19.9	4.8	8.8	11.2	13.7	15.0	6.8	8.5	15.2	10.8	4.2	13.1	20.5
Trenton	18.7	9.8	11.8	11.3	13.3	15.3	10.8	10.3	15.1	13.0	6.2	15.5	19.2
Union City-W. NY-N. Bergen	20.5	8.6	10.0	10.9	14.4	14.5	15.3	12.5	16.2	13.6	4.3	14.6	20.8
Vineland	21.9	8.3	8.7	11.7	16.1	15.8	12.3	13.2	17.4	13.8	5.1	13.9	22.6
13 ACO regions combined	20.2	9.9	10.6	12.1	14.2	16.3	12.7	10.7	16.0	13.2	5.3	15.6	20.7
All NJ	18.1	8.8	8.3	11.2	13.0	15.7	11.7	9.2	14.1	12.2	4.5	12.1	18.2

See notes from Figure 2.

Numbers denote percentages out of all hospitalizations. Self pay category in this table includes patients classified as self-pay and uninsured.

Table 3. Rates of Avoidable Emergency Department Visits - Stratified by Demographics and Payer

ACO Regions	Medicare	Medicaid	Private	Self-Pay	White	Black	Hispanic	Other	Male	Female	18-39	40-64	65+
Asbury Park	44.1	57.4	49.6	50.2	41.9	53.2	53.1	49.4	41.7	53.9	51.8	47.1	42.1
Atlantic City	49.2	53.6	56.8	50.0	46.2	54.1	53.2	48.9	45.2	57.3	53.7	50.2	47.2
Camden	52.6	55.6	62.9	54.1	47.6	56.9	56.8	48.7	49.0	60.9	57.8	53.6	51.8
Elizabeth-Linden	47.0	54.2	55.2	54.2	44.9	54.2	52.8	50.7	44.8	56.1	52.9	50.6	46.5
Jersey City-Bayonne	48.9	58.2	55.7	51.3	46.0	56.9	54.7	52.4	45.9	58.5	55.3	50.7	48.0
New Brunswick	45.0	54.5	54.6	51.9	42.4	53.9	55.3	49.0	43.4	57.4	53.9	49.1	43.3
Greater Newark	51.9	58.3	58.7	55.0	47.1	56.8	54.3	53.0	48.5	60.4	57.1	54.2	51.3
Paterson	46.9	53.4	54.1	48.9	43.1	51.7	51.3	49.2	42.5	55.3	50.9	49.0	47.4
Perth Amboy	47.7	59.3	55.2	51.9	42.2	52.6	53.2	47.9	43.3	57.2	54.2	48.7	44.7
Plainfield	47.9	59.4	56.5	51.1	42.4	55.0	49.1	48.6	43.3	56.9	52.1	51.5	47.4
Trenton	49.4	57.1	55.6	49.8	42.9	53.7	53.1	49.0	43.4	57.5	54.0	48.7	46.9
Union City-W. NY-N. Bergen	46.3	57.0	54.3	49.0	46.6	51.2	51.6	49.2	41.6	56.8	52.2	49.7	45.1
Vineland	43.9	53.2	49.7	47.0	43.2	49.9	51.7	48.3	40.4	51.0	48.7	44.3	44.9
13 ACO regions combined	48.6	56.8	56.2	52.0	44.4	55.4	53.1	50.9	45.1	57.8	54.4	50.9	47.6
All NJ	42.5	54.6	48.6	49.8	41.4	54.1	52.3	47.1	40.5	51.5	49.7	45.4	40.7

See notes from Figure 3.

Numbers denote percentages out of all ED visits. Self pay category in this table includes patients classified as self-pay and uninsured.

Table 4. Demographic and Payer Distributions of Avoidable Inpatient Hospitalizations

ACO Regions	Medicare	Medicaid	Private	Charity Care	Self-Pay	White	Black	Hispanic	Other	18-39	40-64	65+	Male	Female
Asbury Park	56.8%	11.2%	19.9%	8.1%	3.7%	49.3%	43.6%	4.7%	2.4%	11.4%	39.5%	49.1%	41.9%	58.1%
Atlantic City	51.1%	5.5%	24.6%	15.5%	2.7%	30.2%	46.2%	11.8%	11.8%	12.5%	42.4%	45.1%	43.0%	57.0%
Camden	46.9%	18.9%	18.0%	13.3%	2.4%	8.1%	60.5%	29.9%	1.5%	14.9%	48.6%	36.5%	44.5%	55.5%
Elizabeth-Linden	51.5%	7.4%	25.8%	12.4%	2.0%	37.4%	29.1%	30.4%	3.1%	10.5%	38.1%	51.4%	46.6%	53.4%
Greater Newark	48.7%	12.4%	22.5%	12.8%	2.7%	9.0%	73.1%	14.6%	3.4%	11.5%	45.1%	43.5%	43.9%	56.1%
Jersey City-Bayonne	54.4%	10.8%	20.7%	12.0%	1.7%	32.1%	33.2%	15.8%	19.0%	9.1%	41.7%	49.1%	44.1%	55.9%
New Brunswick	52.6%	2.3%	31.6%	9.8%	3.2%	39.2%	39.7%	12.8%	8.4%	11.8%	33.6%	54.7%	44.8%	55.2%
Paterson	52.0%	5.8%	27.1%	12.5%	2.1%	30.4%	31.0%	32.9%	5.8%	10.1%	38.5%	51.4%	44.5%	55.5%
Perth Amboy	55.6%	11.4%	15.6%	14.1%	1.9%	28.2%	11.7%	55.8%	4.3%	12.6%	39.4%	47.9%	43.9%	56.1%
Plainfield	54.3%	4.2%	26.4%	10.8%	2.9%	25.7%	57.8%	12.2%	4.3%	11.2%	37.1%	51.6%	45.7%	54.3%
Trenton	49.7%	10.7%	22.6%	13.6%	2.8%	26.1%	59.0%	12.1%	2.8%	13.0%	45.8%	41.1%	44.9%	55.1%
Union City-W. NY-N. Bergen	61.1%	6.3%	19.8%	8.3%	2.3%	23.7%	1.4%	61.4%	13.5%	7.8%	28.3%	64.0%	42.7%	57.3%
Vineland	69.9%	7.7%	15.0%	2.6%	4.1%	65.7%	16.5%	13.0%	4.8%	8.6%	30.1%	61.4%	45.3%	54.7%
13 ACO regions combined	53.0%	9.6%	22.4%	11.6%	2.5%	26.3%	43.7%	22.7%	7.3%	10.8%	40.4%	48.8%	44.2%	55.8%
All NJ	62.9%	4.8%	23.2%	6.5%	1.9%	64.0%	20.2%	10.2%	5.6%	8.0%	31.1%	60.9%	44.1%	55.9%

Numbers denote percentages of hospital stays. Payer distribution may not sum to 100% since 'other' insurance is not reported.

Table 5. Demographic and Payer Distributions of Avoidable ED Visits

ACO Regions	Medicare	Medicaid	Private	Charity pay	Self-Pay	White	Black	Hispanic	Other	18-39	40-64	65+	Male	Female
Asbury Park	15.1%	22.9%	26.4%	10.7%	22.4%	32.3%	53.1%	11.6%	3.1%	52.5%	37.2%	10.3%	35.8%	64.2%
Atlantic City	14.2%	6.0%	36.4%	21.8%	20.9%	21.0%	51.0%	20.1%	7.9%	50.7%	40.8%	8.5%	40.9%	59.1%
Camden	10.4%	16.3%	36.3%	9.1%	26.0%	6.5%	56.5%	35.3%	1.7%	62.1%	32.4%	5.5%	35.8%	64.2%
Elizabeth-Linden	9.8%	10.0%	36.3%	22.9%	18.3%	17.9%	30.1%	47.6%	4.4%	54.8%	36.5%	8.7%	36.0%	64.0%
Greater Newark	9.6%	13.5%	33.2%	15.0%	26.1%	4.9%	71.8%	17.5%	5.8%	56.0%	37.1%	6.9%	35.4%	64.6%
Jersey City-Bayonne	11.4%	14.9%	35.3%	19.8%	16.5%	20.3%	35.3%	22.9%	21.5%	55.3%	36.2%	8.5%	38.4%	61.6%
New Brunswick	9.1%	3.8%	43.1%	14.2%	28.4%	17.6%	34.9%	37.2%	10.3%	61.4%	31.6%	7.0%	36.4%	63.6%
Paterson	10.5%	7.5%	40.5%	22.3%	17.2%	14.4%	27.7%	50.5%	7.4%	54.0%	36.7%	9.3%	36.1%	63.9%
Perth Amboy	11.8%	21.7%	28.2%	11.0%	24.2%	11.5%	9.8%	74.5%	4.2%	58.1%	34.0%	7.9%	35.5%	64.5%
Plainfield	10.7%	12.0%	38.7%	10.6%	24.5%	9.9%	57.8%	26.6%	5.7%	55.8%	35.7%	8.6%	33.7%	66.3%
Trenton	12.7%	20.1%	28.5%	14.4%	23.2%	15.2%	61.9%	18.5%	4.3%	56.5%	36.4%	7.1%	36.1%	63.9%
Union City-W. NY-N. Bergen	11.7%	10.5%	34.8%	17.1%	19.8%	15.0%	1.9%	65.7%	17.4%	52.9%	36.0%	11.1%	35.3%	64.7%
Vineland	18.3%	22.1%	31.4%	5.4%	20.4%	49.4%	21.6%	23.8%	5.2%	53.9%	33.4%	12.7%	35.9%	64.1%
13 ACO regions combined	11.2%	13.4%	34.7%	16.1%	22.2%	14.5%	46.7%	30.8%	8.0%	55.8%	36.1%	8.1%	36.2%	63.8%
All NJ	15.4%	9.9%	42.7%	10.9%	18.1%	45.1%	28.3%	19.2%	7.3%	50.9%	36.7%	12.4%	37.3%	62.7%

Numbers denote percentages of ED visits. Payer distribution may not sum to 100% since 'other' insurance is not reported.

Figure 4. Payer Distribution of Avoidable Inpatient Hospitalizations

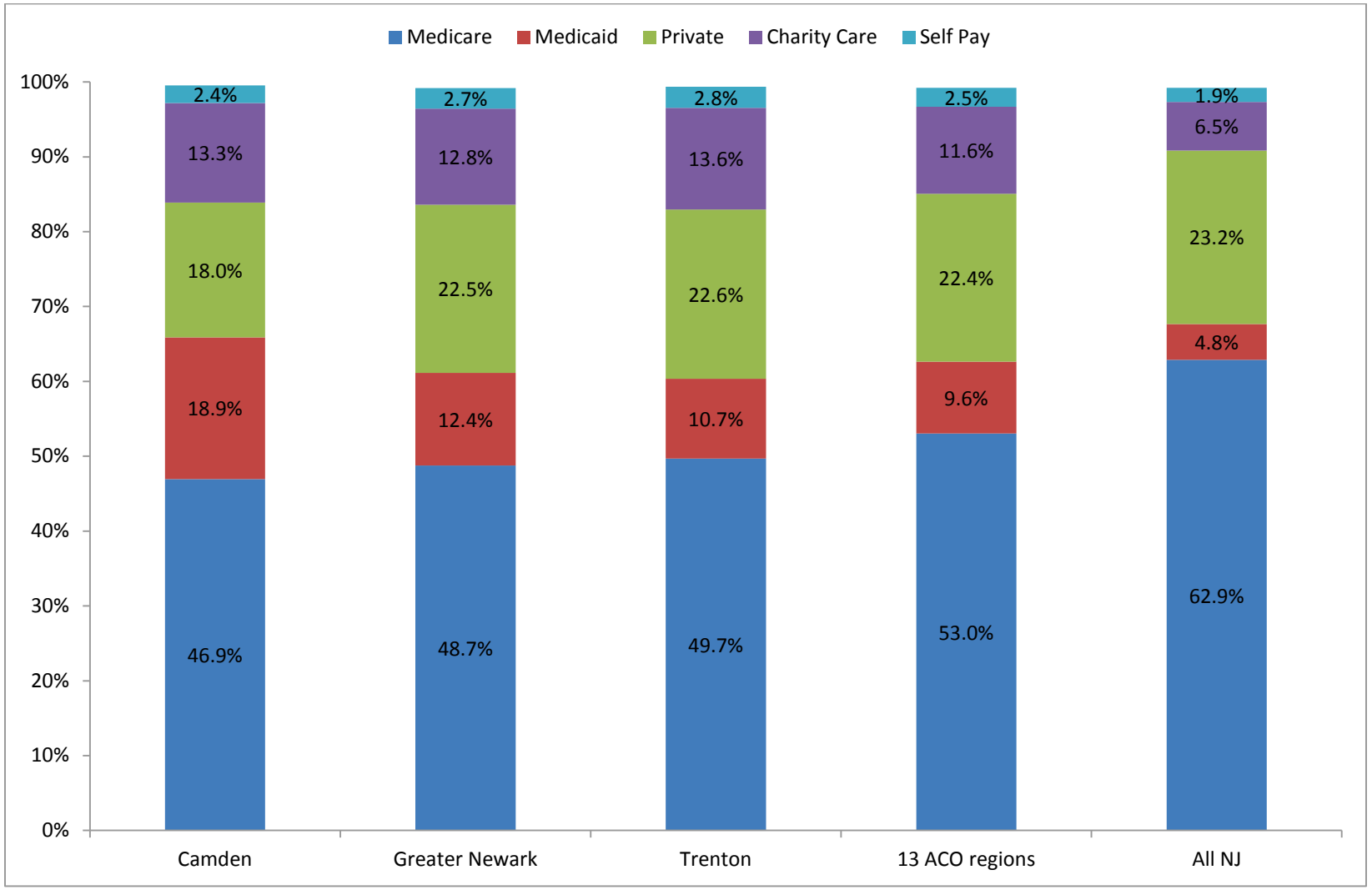


Figure 5. Race/Ethnicity Distribution of Avoidable Inpatient Hospitalizations

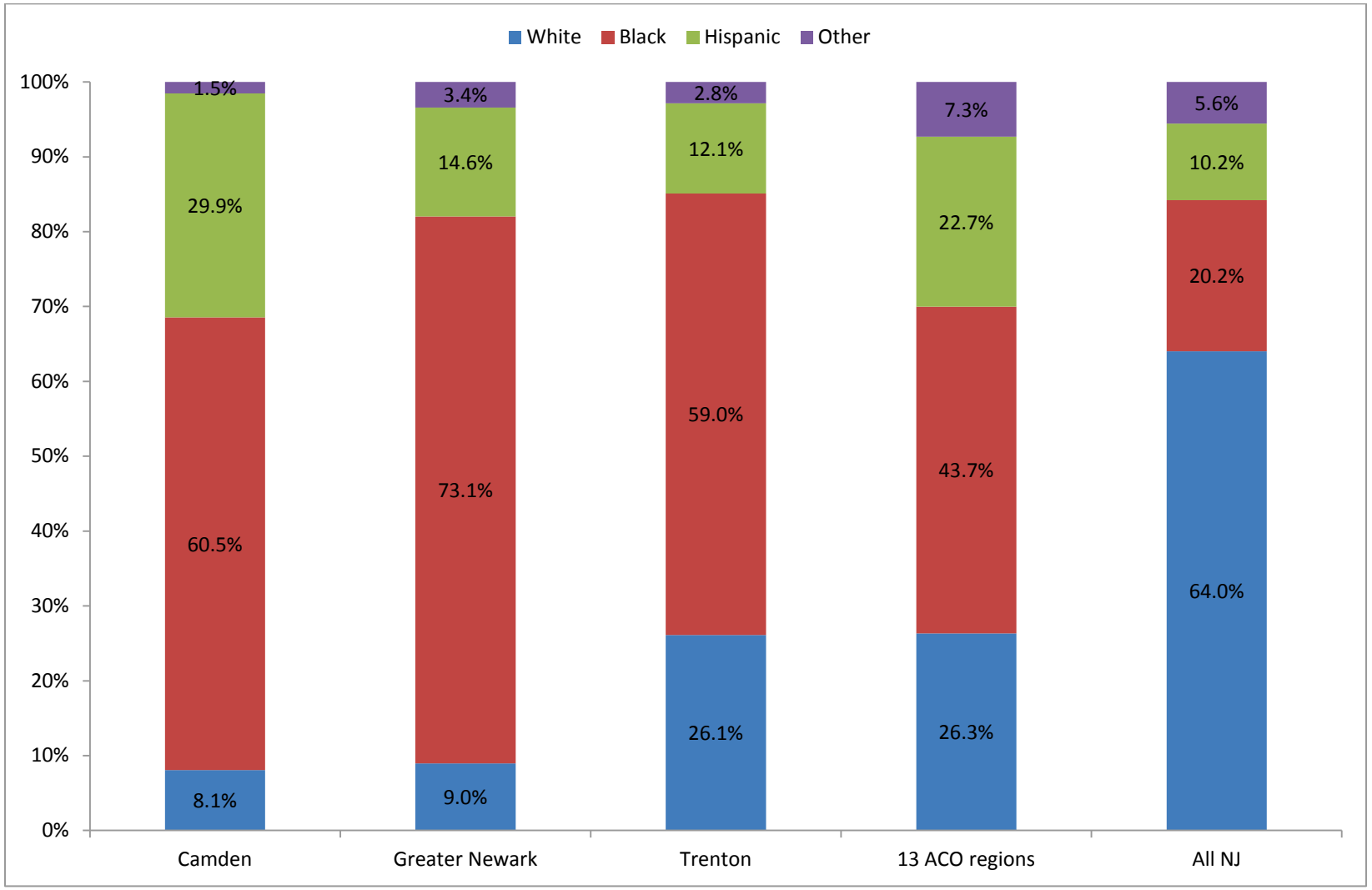


Figure 6. Age Distribution of Avoidable Inpatient Hospitalizations

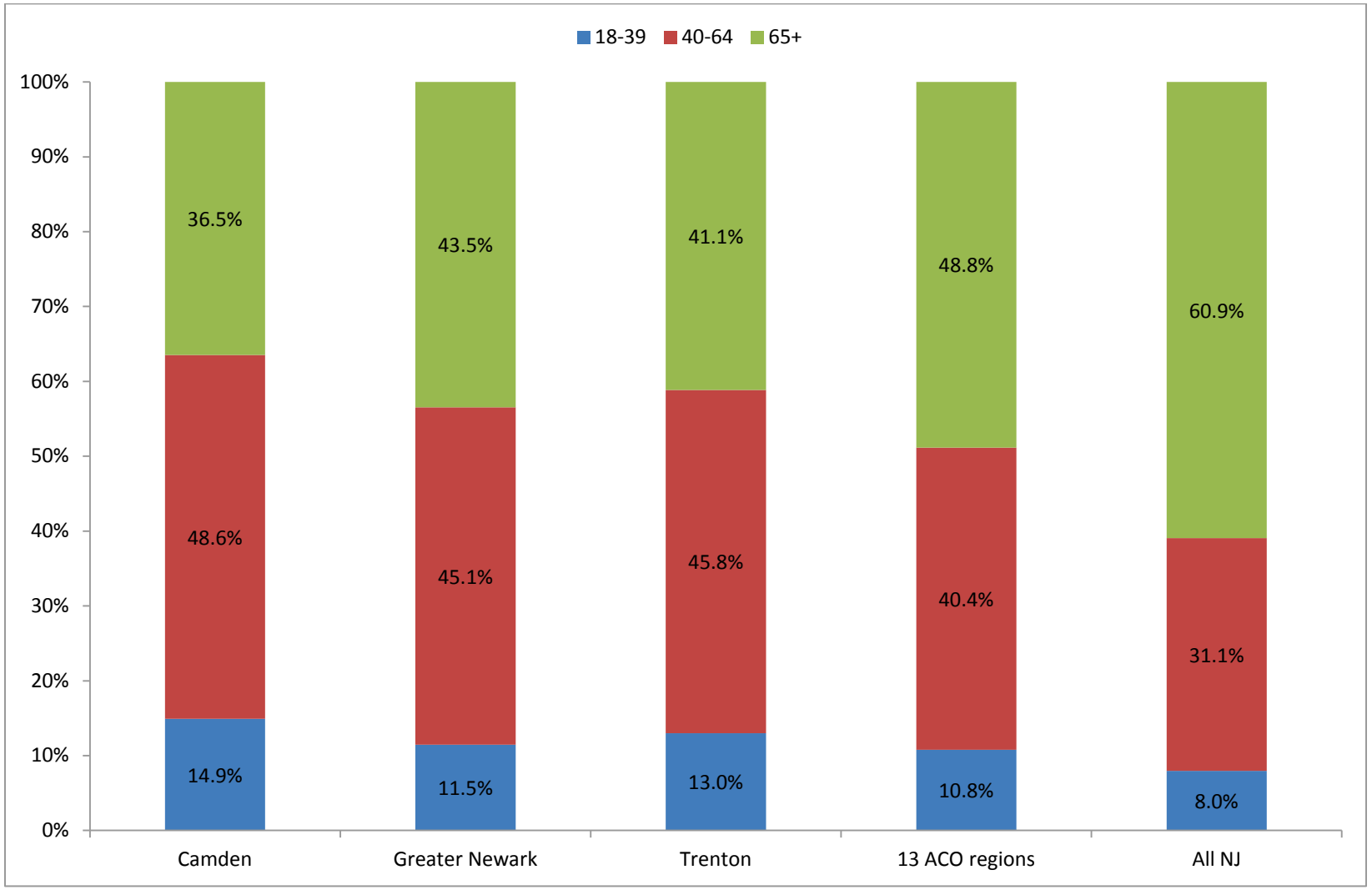


Figure 7. Gender Distribution of Avoidable Inpatient Hospitalizations

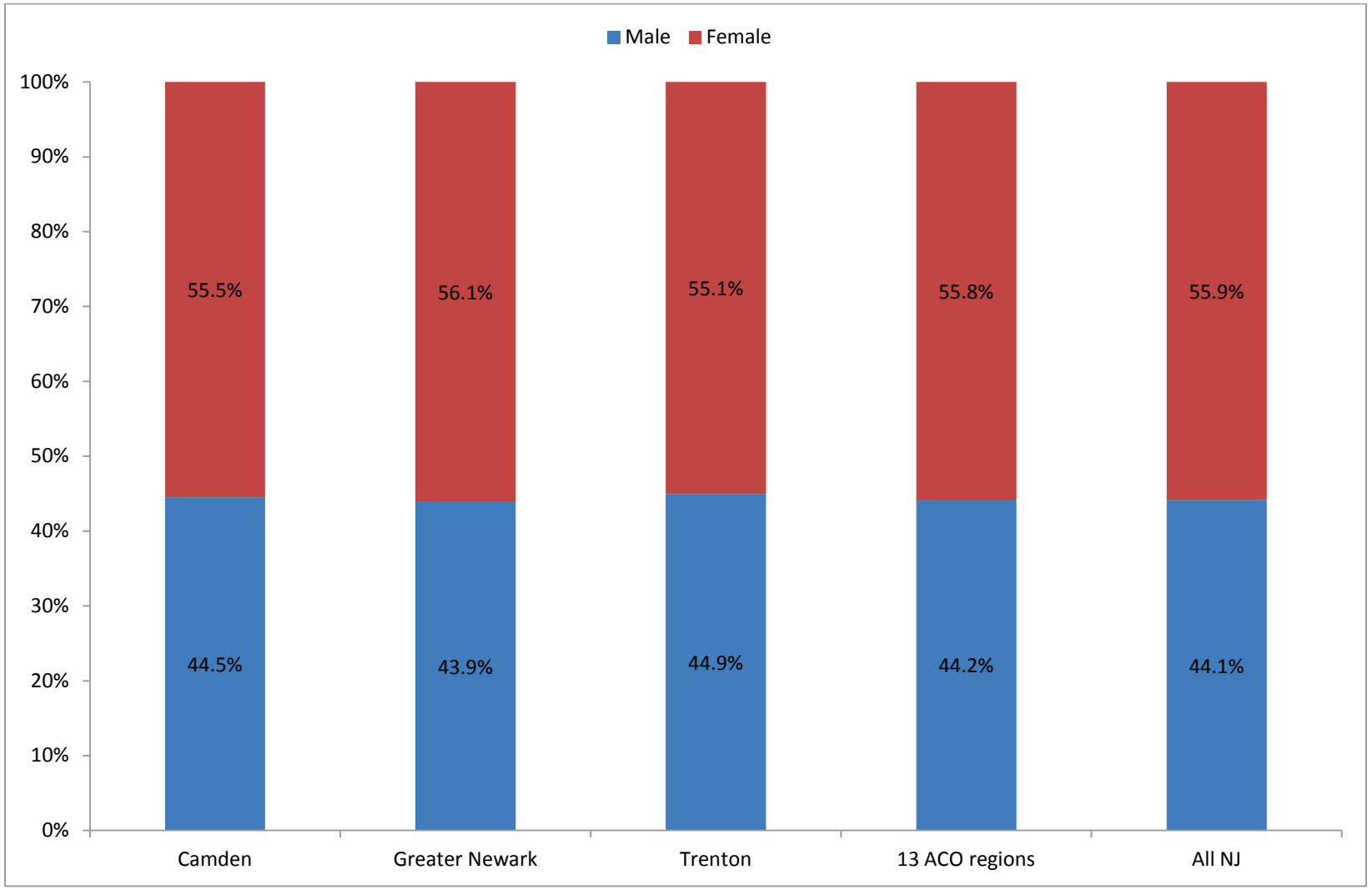


Figure 8. Payer Distribution of Avoidable ED Visits

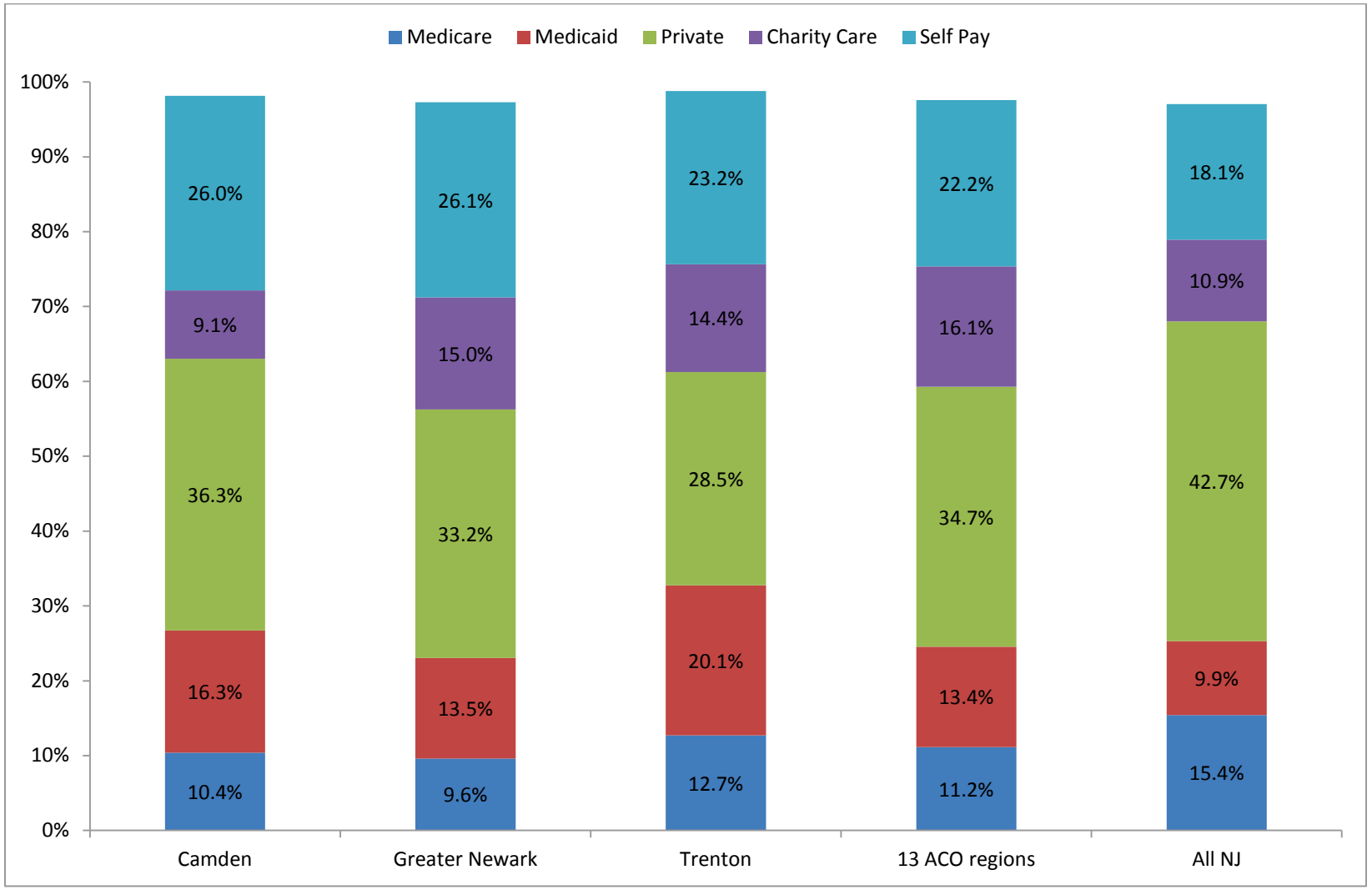


Figure 9. Race/Ethnicity Distribution of Avoidable ED Visits

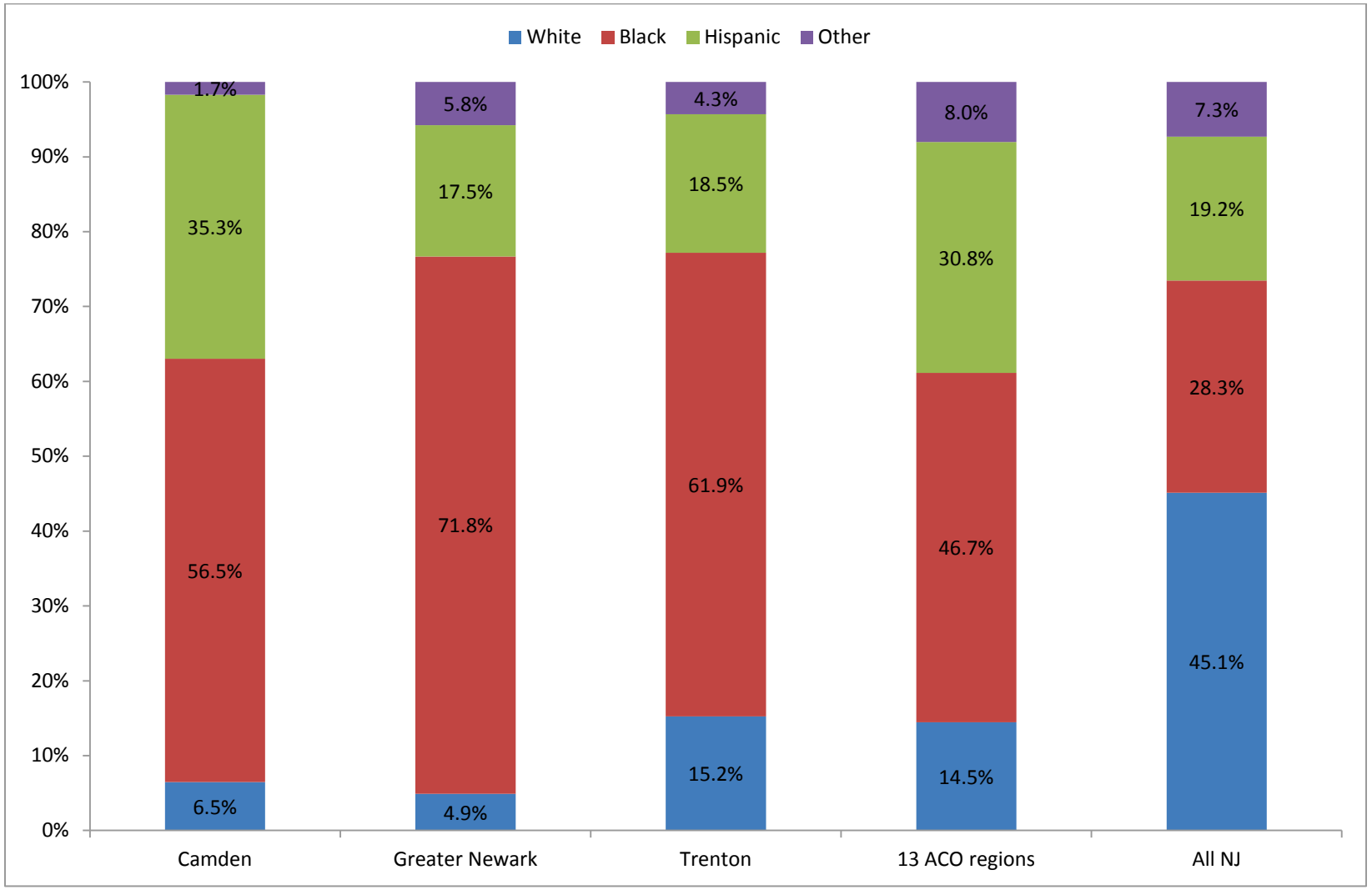


Figure 10. Age Distribution of Avoidable ED Visits

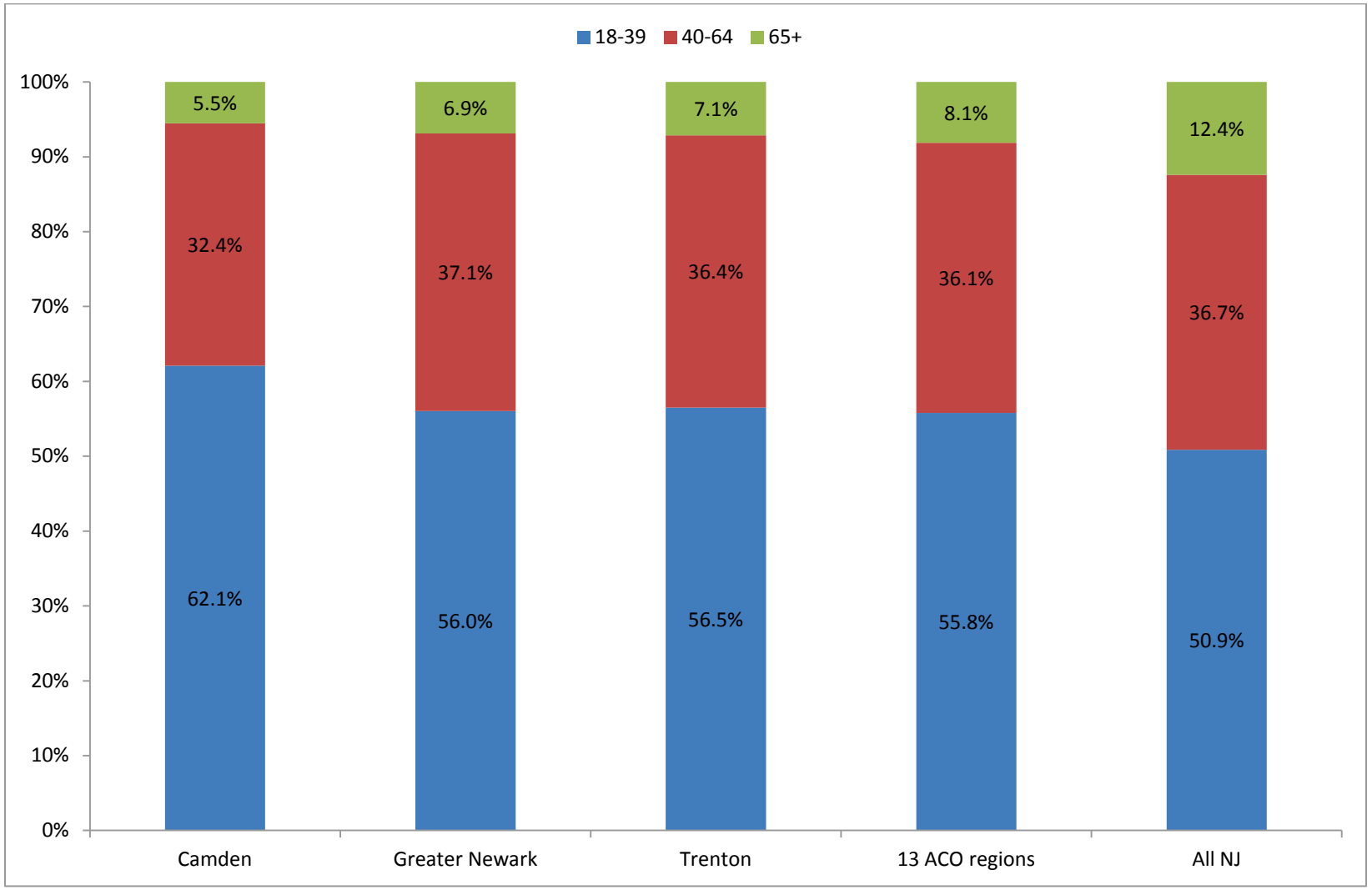


Figure 11. Gender Distribution of Avoidable ED Visits

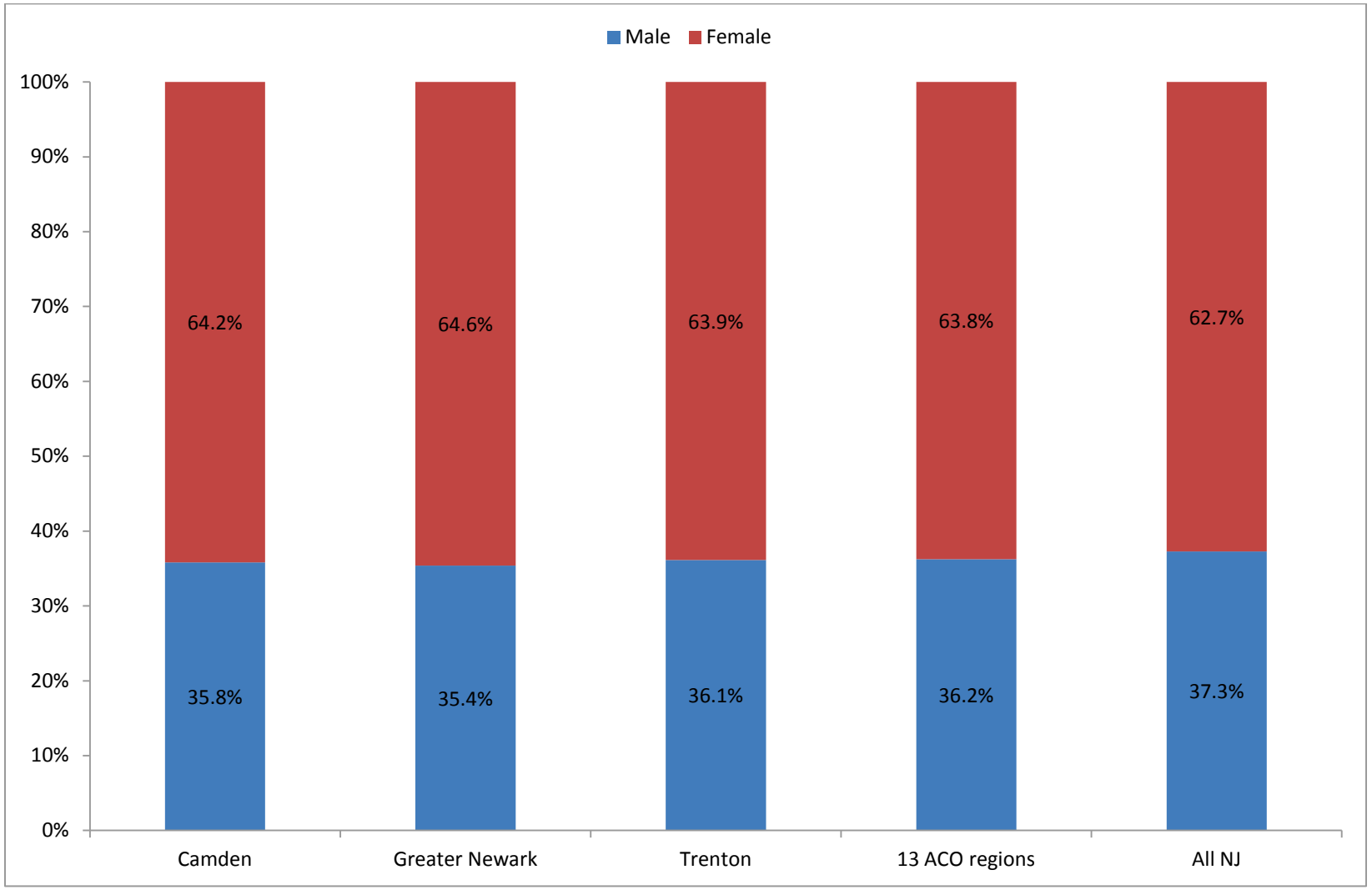


Figure 12. Payer Distribution of Avoidable Inpatient Hospitalization Costs

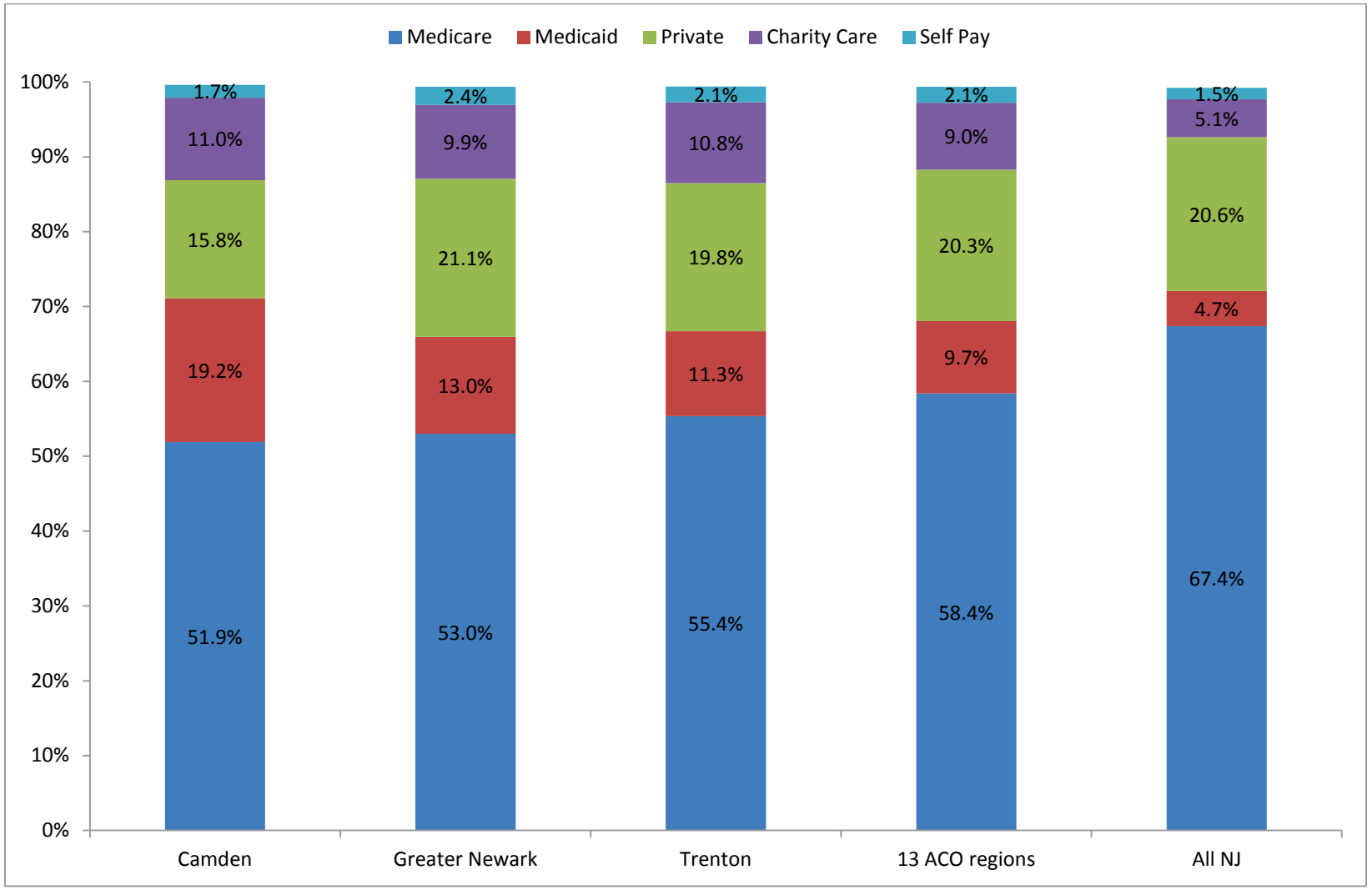


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Figure 13. Race/Ethnicity Distribution of Avoidable Inpatient Hospitalization Costs

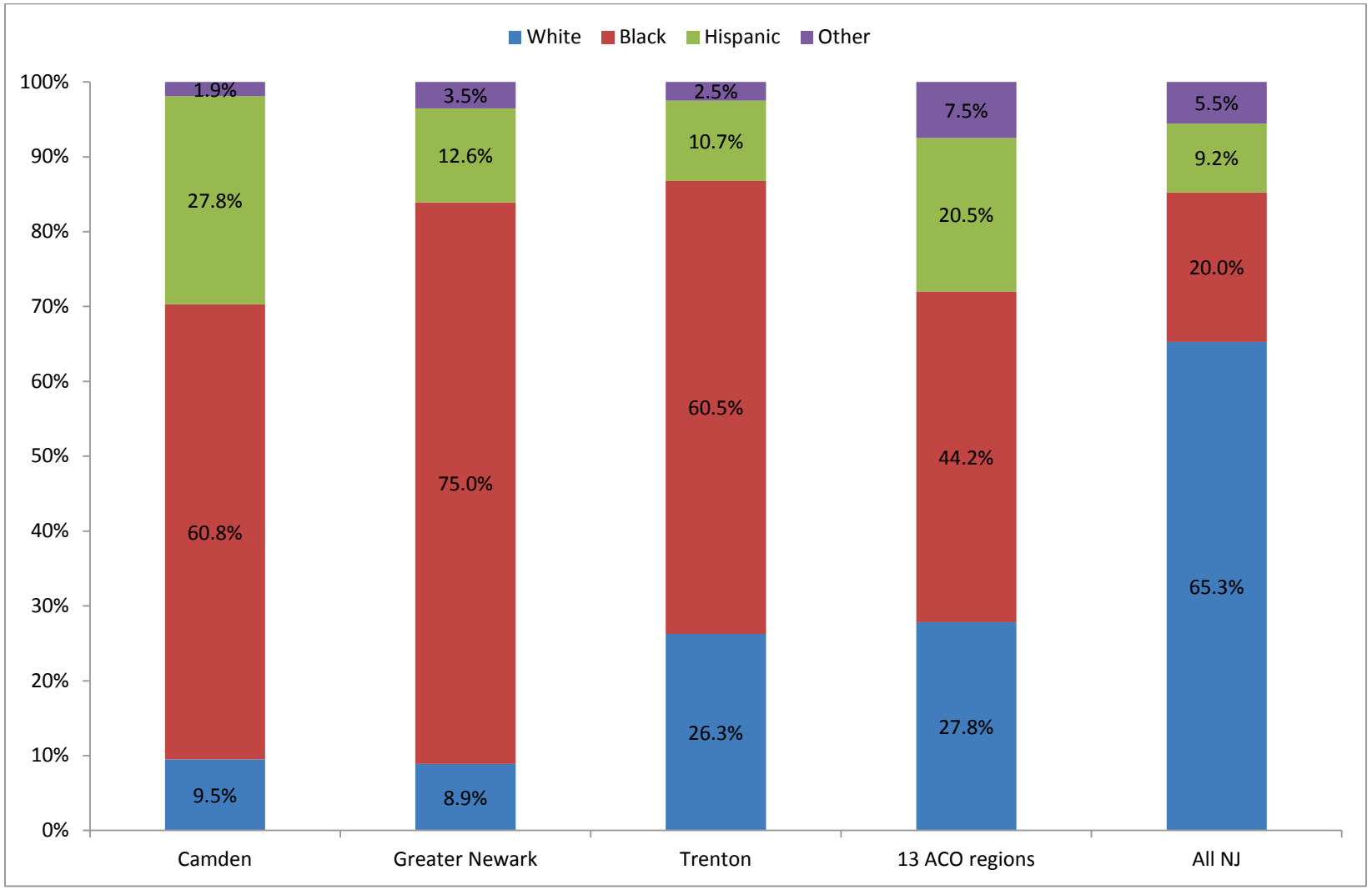


Figure 14. Age Distribution of Avoidable Inpatient Hospitalization Costs

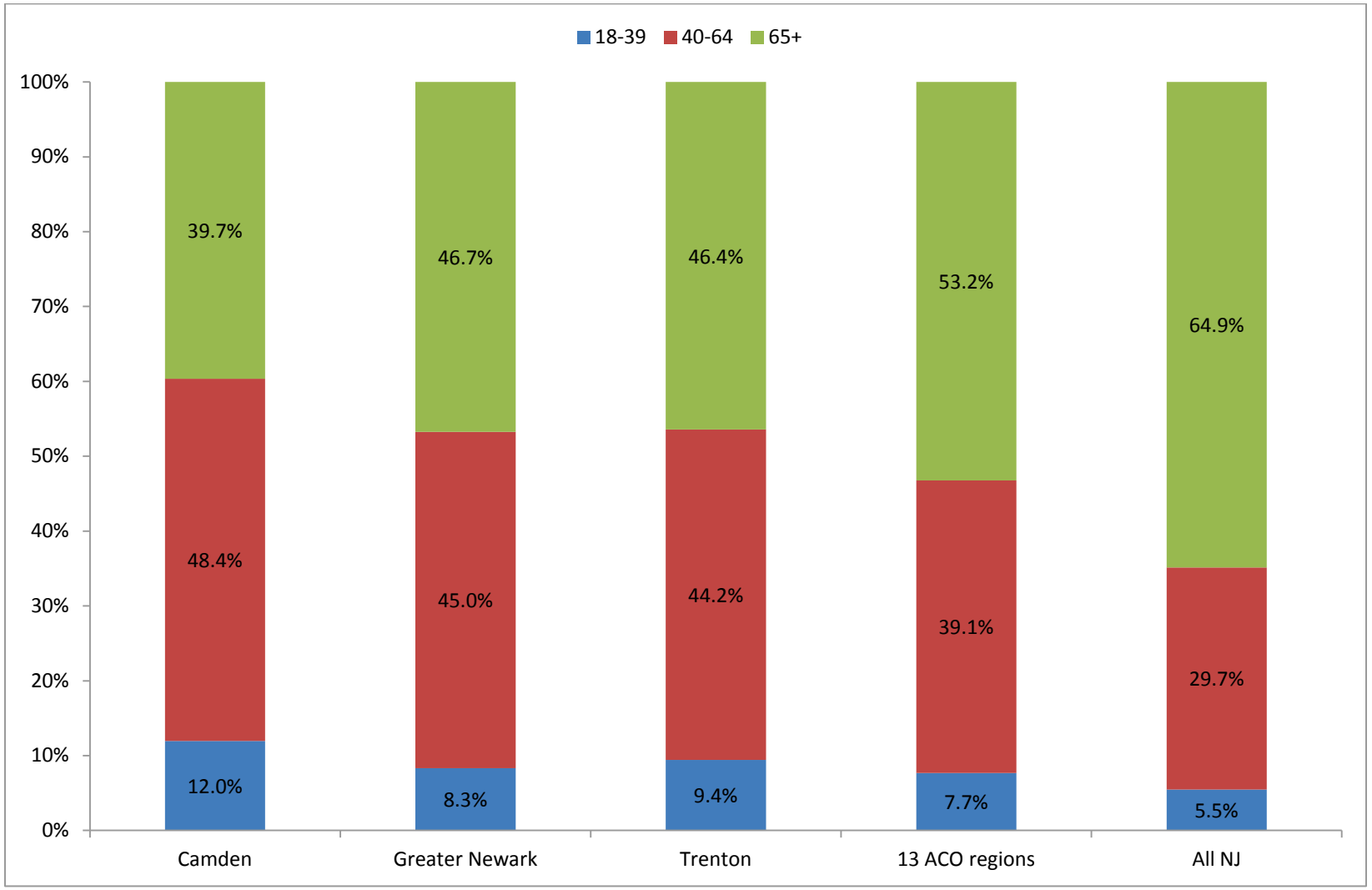


Figure 15. Gender Distribution of Avoidable Inpatient Hospitalization Costs

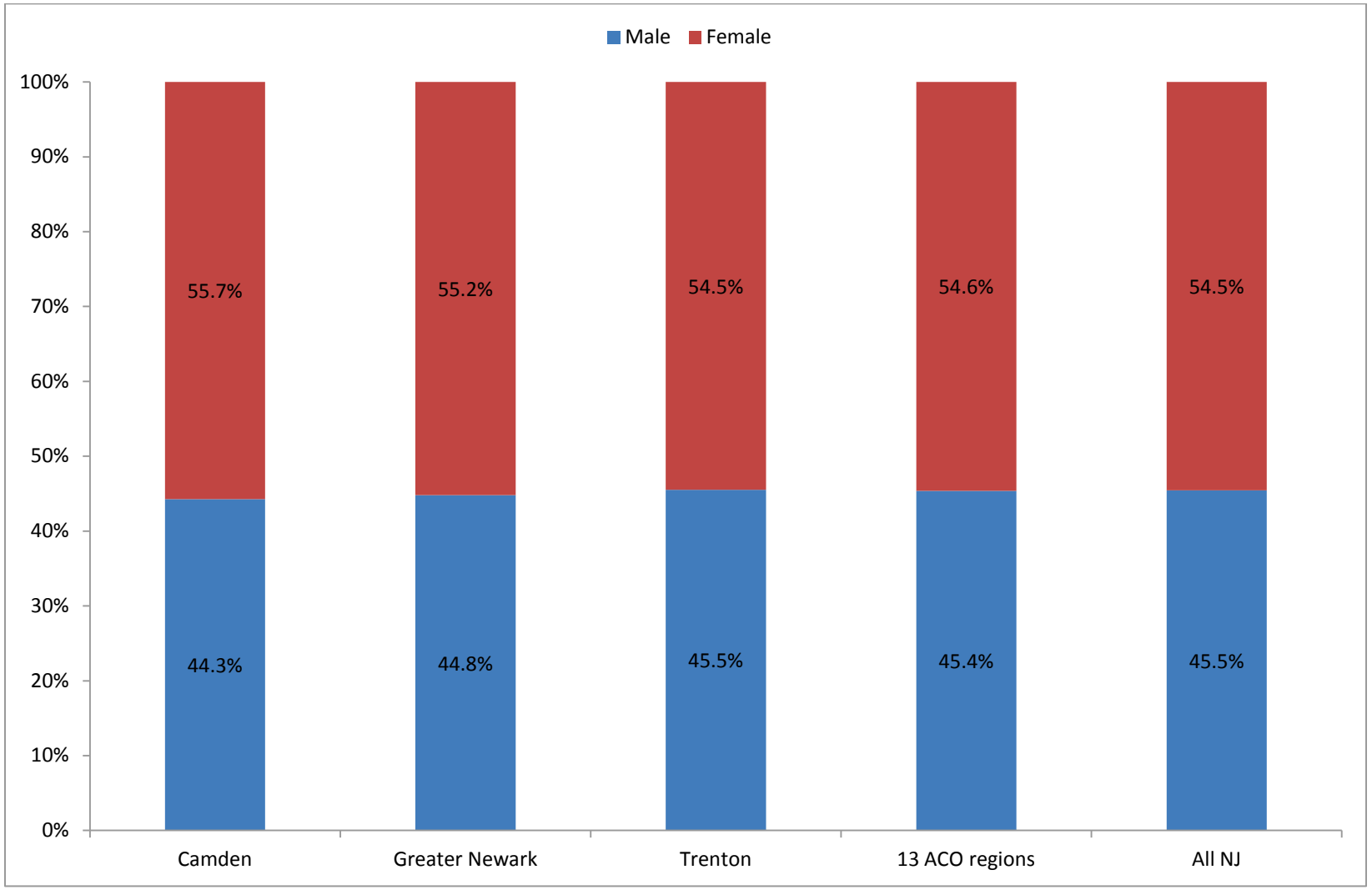


Figure 16. Payer Distributions of Avoidable ED Costs

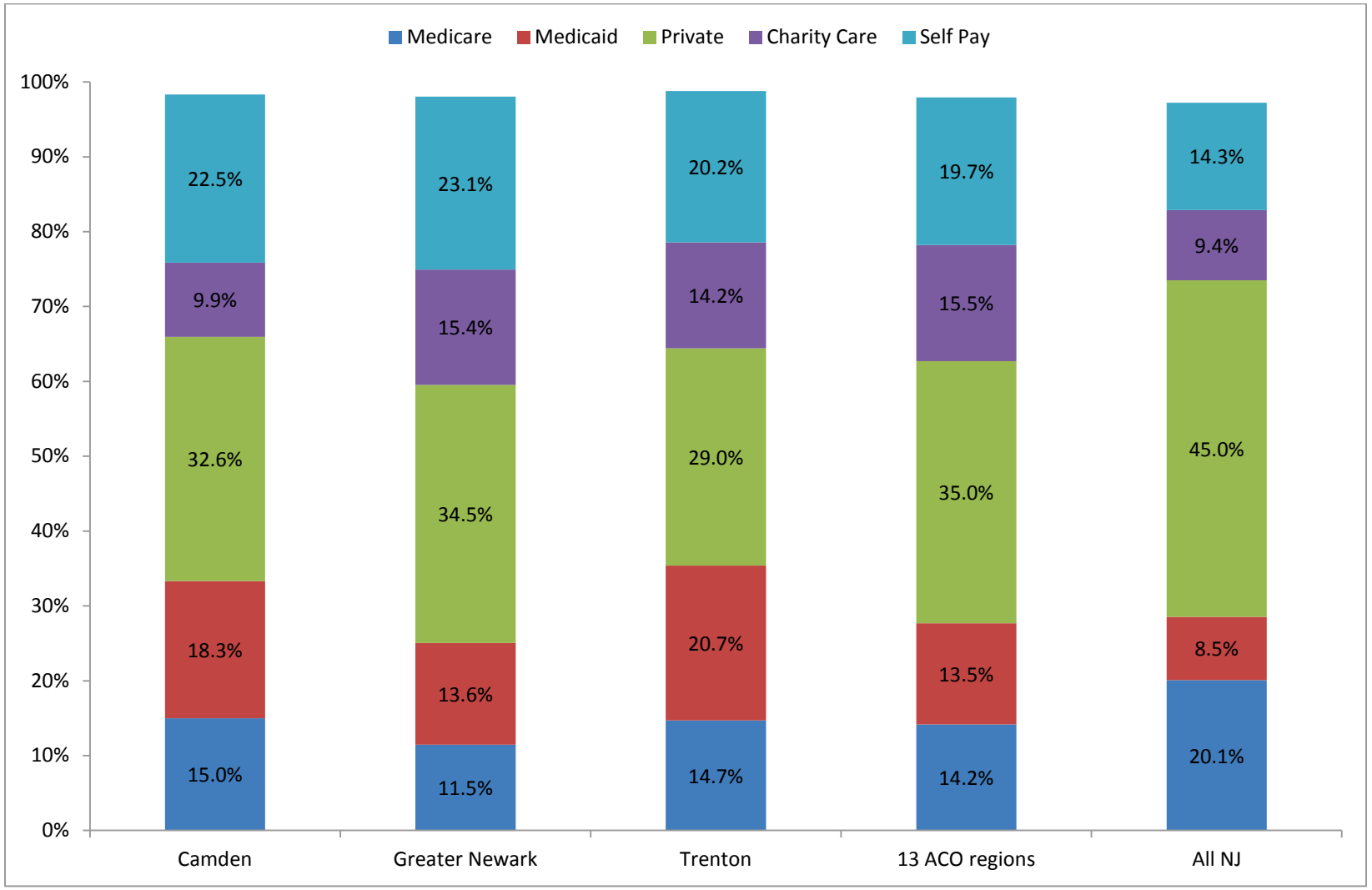


Figure 17. Race/Ethnicity Distribution of Avoidable ED Costs

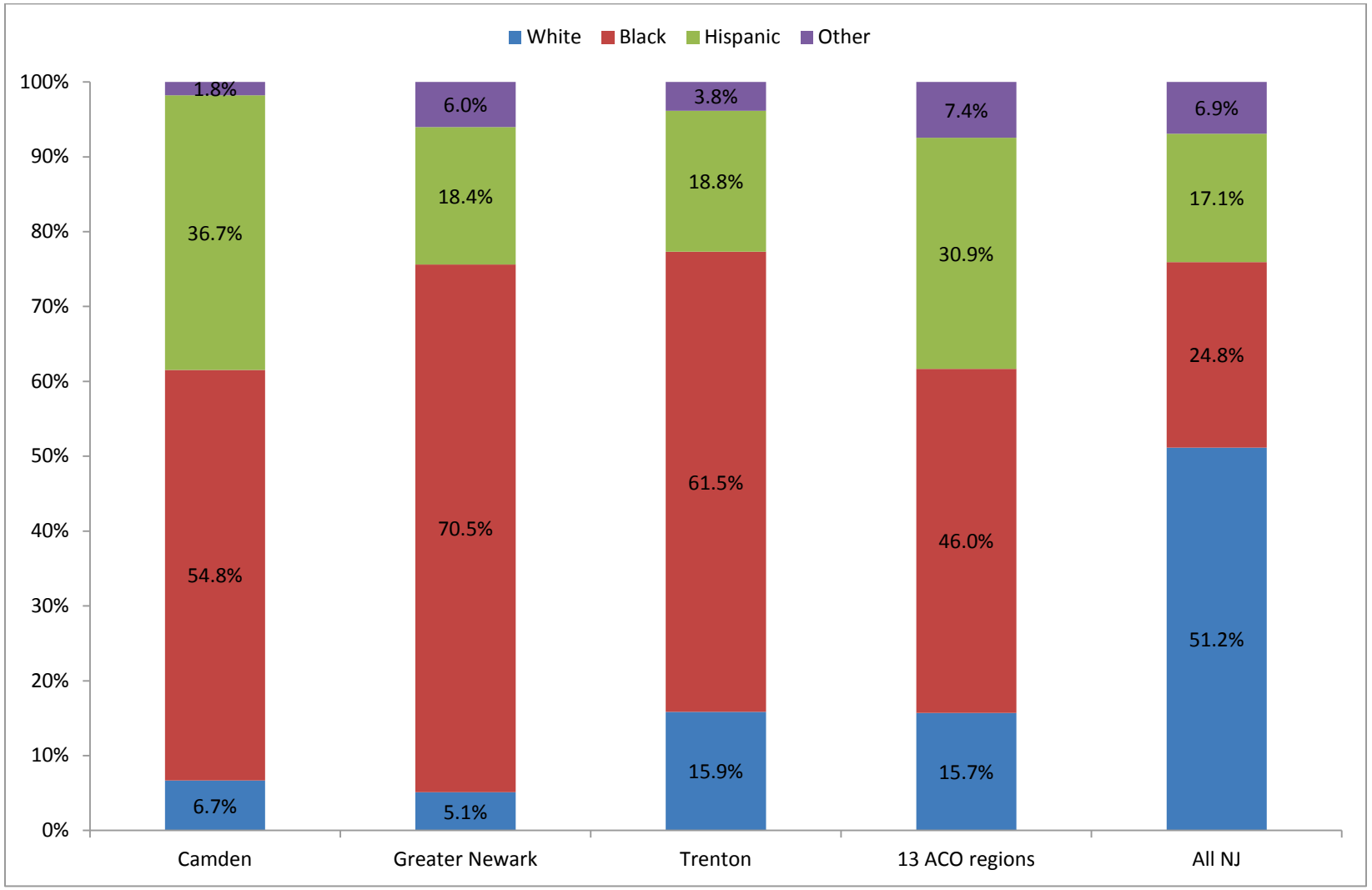


Figure 18. Age Distributions of Avoidable ED Costs

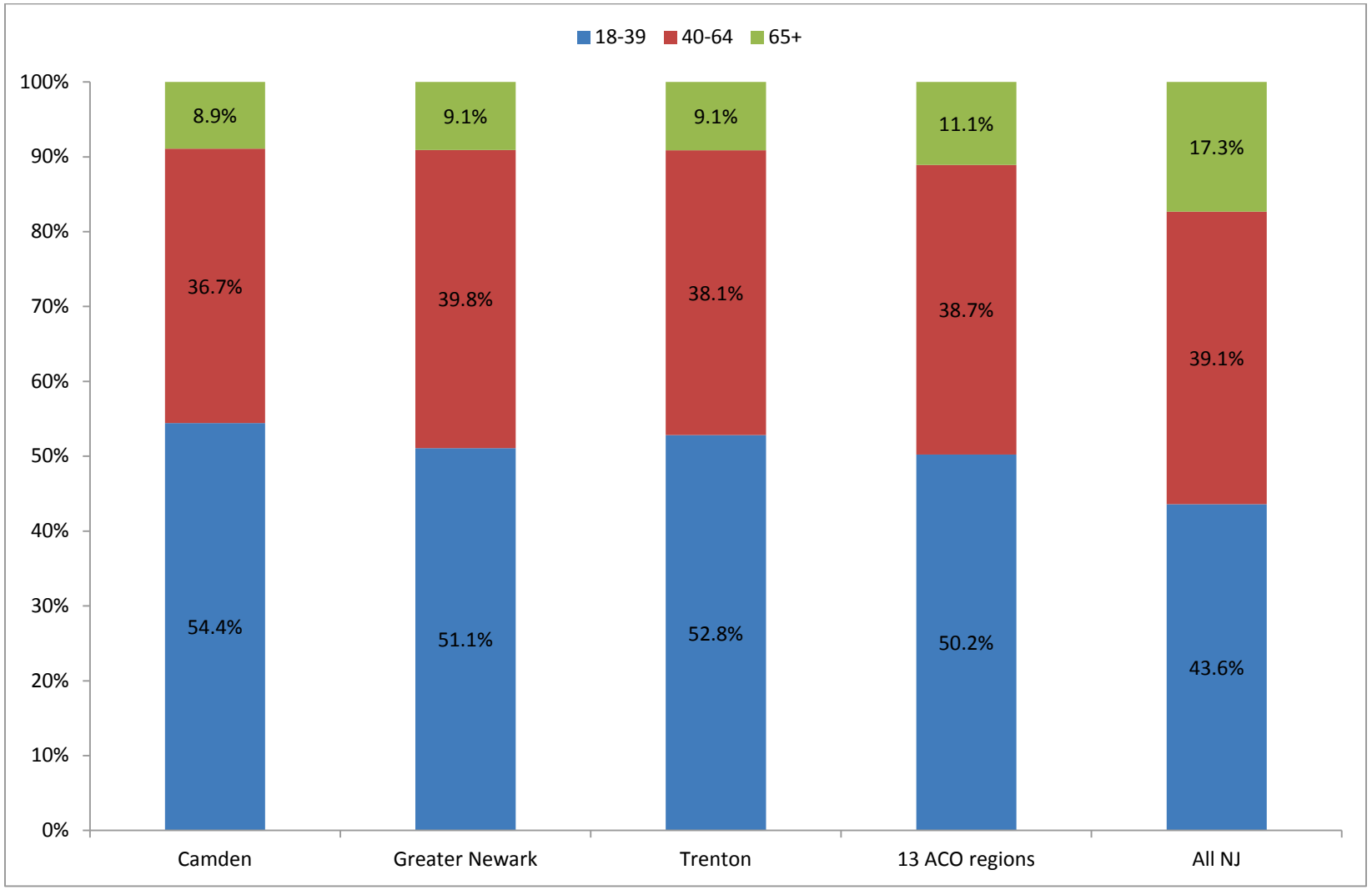


Figure 19. Gender Distribution of Avoidable ED Costs

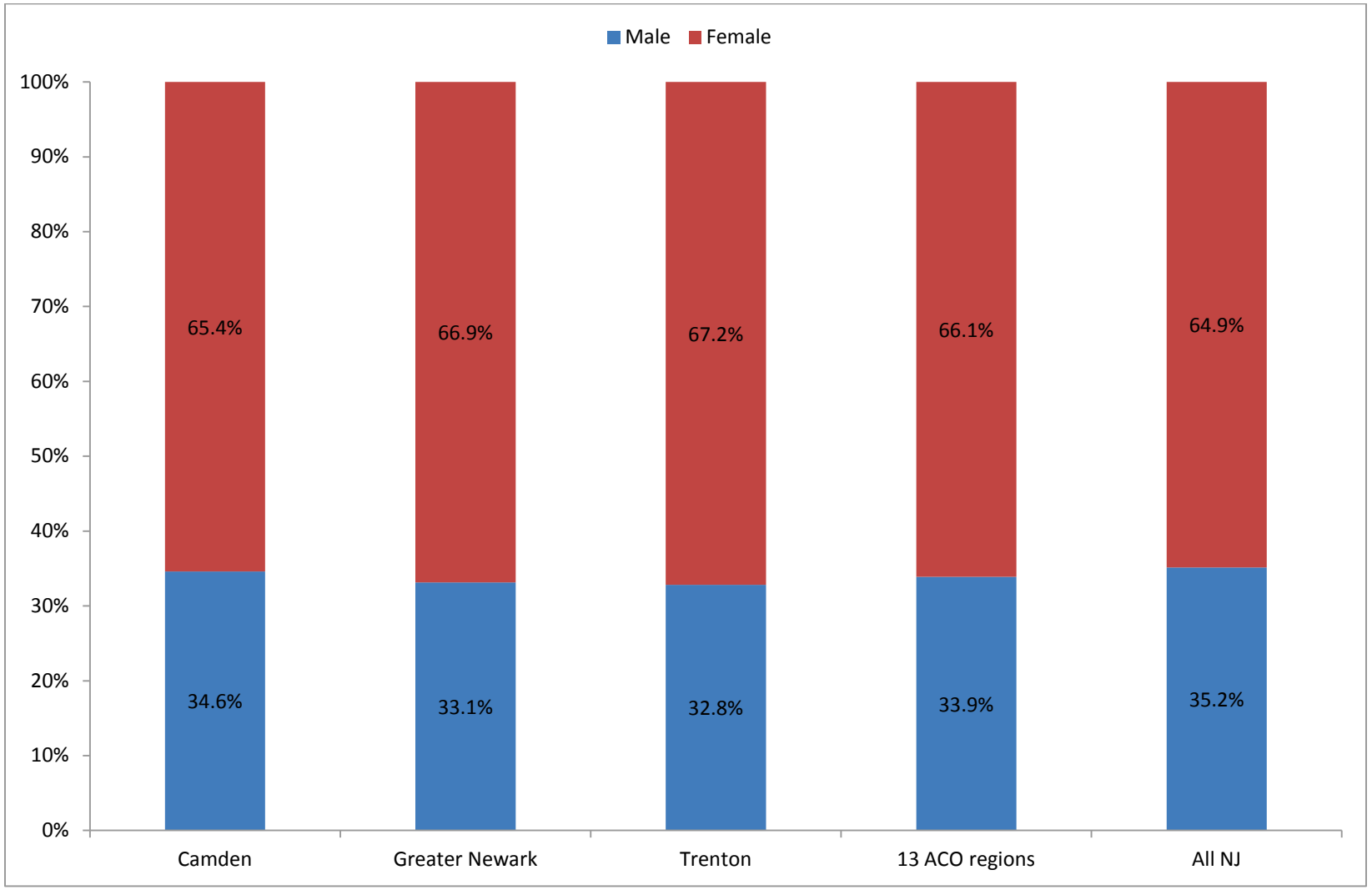


Table 6. Rates of Avoidable Inpatient Hospitalizations (per 100,000 population[1]) –Overall and for Individual Conditions

ACO Regions	Total pop	Overall Composite PQI		Acute PQI	Chronic PQI	DM short-term complication	Perforated appendix*	DM long-term complication	COPD/asthma in older adults
		Observed	Adjusted[2]						
Asbury Park	60,281	2,175	2,185	597	1,578	88	224	218	732
Atlantic City	42,630	3,189	3,207	920	2,269	211	317	375	971
Camden	53,094	3,045	3,754	806	2,239	219	359	285	1,462
Elizabeth-Linden	125,389	1,652	1,830	561	1,090	69	230	201	533
Jersey City-Bayonne	227,627	2,238	2,549	582	1,656	68	171	230	871
New Brunswick	86,069	1,276	1,658	455	821	57	188	113	397
Greater Newark	316,055	2,718	3,098	705	2,013	140	229	307	1,032
Paterson	212,293	2,045	2,262	625	1,420	80	219	159	700
Perth Amboy	37,881	2,159	2,587	673	1,486	86	173	219	823
Plainfield	50,120	1,585	1,839	531	1,054	78	215	148	428
Trenton	87,147	2,556	2,858	708	1,848	150	296	247	1,037
Union City -W. NY – N. Bergen	134,577	2,005	2,215	752	1,253	45	232	149	725
Vineland	73,957	2,266	2,268	837	1,429	89	187	206	608
13 ACO regions combined	1,507,120	2,236	2,504	659	1,577	99	226	222	807
All NJ	6,661,027	1,727	1,727	626	1,101	54	238	142	518

[1] Except when noted. [2]Adjusted for population age-sex distribution.

AHRQ's Prevention Quality Indicators (PQI) represent rates of ambulatory care sensitive admissions. Assessed over 2008-2010.

DM: Diabetes Mellitus; COPD: Chronic Obstructive Pulmonary Disease.

Rates are suppressed if numerator has less than 30 discharges over 2008-2010.

* Appendicitis perforation rate is calculated per 1000 discharges with a diagnosis of appendicitis.

Table 6. (cont'd) - . Rates of Avoidable Inpatient Hospitalizations –Overall and for Individual Conditions

ACO Regions	HTN	CHF	Dehydn	BP	UTI	Angina w/o procedure	Uncontrolled DM	Asthma- young adults	Amputation-DM patients
Asbury Park	195	446	186	248	163	19	56	213	--
Atlantic City	193	705	215	390	315	43	56	195	42
Camden	198	593	149	348	308	--	44	275	45
Elizabeth-Linden	65	325	118	279	164	41	29	86	28
Jersey City-Bayonne	122	570	132	266	183	43	70	123	20
New Brunswick	83	292	107	200	148	19	20	64	--
Greater Newark	145	634	193	303	210	57	63	169	36
Paterson	101	491	141	284	201	67	54	121	23
Perth Amboy	104	443	142	291	240	38	102	89	--
Plainfield	83	400	137	234	160	20	33	72	23
Trenton	122	600	169	321	219	29	49	148	26
Union City -W. NY– N. Bergen	88	393	193	312	247	58	54	87	13
Vineland	71	583	188	343	306	37	32	80	25
13 ACO regions combined	117	514	159	290	209	45	53	131	25
All NJ	71	411	150	281	196	30	27	81	15

HTN: Hypertension; CHF: Congestive Heart Failure; Dehydn: Dehydration; BP: Bacterial Pneumonia; UTI: Urinary Tract Infection; DM: Diabetes Mellitus.

Table 7. Rates of Avoidable Emergency Department Visits (per 100,000 population)

ACO Regions	Total pop	Overall avoidable ED visit rate		Non-emergent	Emergent-PC treatable	ED Care Needed - Preventable/Avoidable
		Observed	Adjusted[1]	Preventable/Avoidable		
Asbury Park	60,281	21,411	21,486	9,797	9,063	2,551
Atlantic City	42,630	41,096	40,876	18,336	17,191	5,569
Camden	53,094	56,293	51,871	26,077	23,065	7,151
Elizabeth-Linden	125,389	21,063	20,478	9,282	9,297	2,484
Jersey City-Bayonne	227,627	19,143	18,423	9,410	8,054	1,679
New Brunswick	86,069	18,110	16,827	8,468	7,829	1,814
Greater Newark	316,055	31,688	30,104	14,742	12,833	4,113
Paterson	212,293	20,128	19,472	8,851	8,758	2,519
Perth Amboy	37,881	24,784	23,582	11,274	10,637	2,873
Plainfield	50,120	20,240	19,684	8,615	8,926	2,699
Trenton	87,147	35,399	34,124	16,184	15,062	4,152
Union City -W. NY- North Bergen	134,577	15,358	15,028	7,350	6,582	1,426
Vineland	73,957	19,296	18,912	8,560	7,918	2,818
13 ACO regions combined	1,507,120	24,821	23,836	11,426	10,435	2,960
All NJ	6,661,027	14,177	14,177	6,404	6,168	1,605

[1]Adjusted for population age-sex distribution. PC: Primary Care.

Table 8. Annualized Cost Savings from Reducing Avoidable Inpatient Hospitalizations

ACO Regions	Population	Actual Per Person Avoid. IP Costs	Adjusted Per Person Avoid. IP Cost	Total Avoid. IP Cost (3-yr average)	Avoid. Cost if Performed as Best Region	Annual Savings
Asbury Park	60,281	200	201	12,054,214	10,910,088	1,144,126
Atlantic City	42,630	327	329	13,955,019	7,861,395	6,093,623
Camden	53,094	290	364	15,389,961	7,480,704	7,909,257
Elizabeth-Linden	***125,389***	***164***	***182***	***20,518,538***	***20,518,538***	**--**
Jersey City-Bayonne	227,627	222	257	50,602,888	36,127,889	14,474,999
New Brunswick	86,069	145	194	12,506,288	12,161,130	345,157
Greater Newark	316,055	269	311	85,107,973	49,394,362	35,713,612
Paterson	212,293	202	226	42,854,553	34,734,648	8,119,905
Perth Amboy	37,881	202	248	7,635,181	5,678,991	1,956,191
Plainfield	50,120	184	217	9,213,500	7,889,778	1,323,722
Trenton	87,147	268	303	23,335,526	13,971,162	9,364,364
Union City-W. NY and N. Bergen	134,577	194	217	26,168,878	22,324,228	3,844,650
Vineland	73,957	229	230	16,919,673	13,410,582	3,509,090
13 ACO regions combined	1,507,120	223	253	336,262,192	242,463,494	93,798,698
All NJ	6,661,027	172	172	1,148,235,098	1,215,461,981	--

Costs estimated at 2010 dollars. Avoid. IP: Avoidable Inpatient.

Age-sex adjustments based on NJ distribution of gender and age.

The Elizabeth-Linden region (shown in bold italics) had the lowest rate of age-sex adjusted ACS IP cost per person among all the regions at $182.

We estimate the cost-savings that each of the regions could generate if they were able to emulate the best performing region – in this case, Elizabeth Linden. This method projects the actual per person age-sex specific ACS costs for Elizabeth Linden (best performing region) onto each of the regions, but takes into account their actual age-sex distributions while aggregating costs across the different age-sex categories.

If all 13 regions were able to replicate average ACS hospitalization costs of Elizabeth-Linden, they would have been able to decrease costs to the effect of $93.8 million.

Table 9. Annualized Cost Savings from Reducing Avoidable ED Visits

ACO Regions	Population	Actual Per Person Avoid. ED Costs	Adjusted Per Person Avoid. ED Costs	Total Avoid. ED Costs (3-yr average)	Avoid. Costs if Performed as Best region	Annual Savings
Asbury Park	60,281	78	78	4,692,968	3,970,207	722,761
Atlantic City	42,630	234	234	9,996,696	2,821,745	7,174,951
Camden	53,094	245	236	12,997,447	3,589,592	9,407,854
Elizabeth-Linden	125,389	72	71	8,996,444	8,295,658	700,786
Jersey City-Bayonne	***227,627***	***67***	***66***	***15,141,222***	***15,141,222***	**--**
New Brunswick	86,069	73	70	6,240,103	5,821,732	418,371
Greater Newark	316,055	143	138	45,152,980	21,214,759	23,938,221
Paterson	212,293	73	72	15,533,202	14,128,570	1,404,632
Perth Amboy	37,881	133	132	5,028,659	2,526,328	2,502,331
Plainfield	50,120	74	73	3,722,684	3,314,917	407,767
Trenton	87,147	190	186	16,534,711	5,785,310	10,749,402
Union City-W. NY-N. Bergen	134,577	67	66	8,968,173	8,894,414	73,759
Vineland	73,957	118	117	8,744,093	4,898,779	3,845,314
13 ACO regions combined	1,507,120	107	105	161,749,381	100,403,232	61,346,149
All NJ	6,661,027	73	73	484,172,772	437,463,491	--

Costs estimated at 2010 dollars. Avoid. ED: Avoidable Emergency Department.

Age-sex adjustments based on NJ distribution of gender and age - age groups were 18-39; 40-64; 65+.

The Jersey City region (shown in bold italics) had the lowest rate of age-sex adjusted avoidable ED cost per person among all the regions at $66.

We estimate the cost-savings that each of the regions could generate if they were able to emulate the best performing region – in this case, Jersey City-Bayonne. This method projects the actual per person age-sex specific avoidable ED costs for Jersey City (best performing region) onto each of the regions, but takes into account their actual age-sex distributions while aggregating costs across the different age-sex categories.

If all 13 regions were able to replicate average avoidable ED visit costs in Jersey City, they would have been able to decrease their costs by $61.3 million.

Figure 20. Regions with Highest Savings Potential from Reducing Avoidable Inpatient Hospitalizations

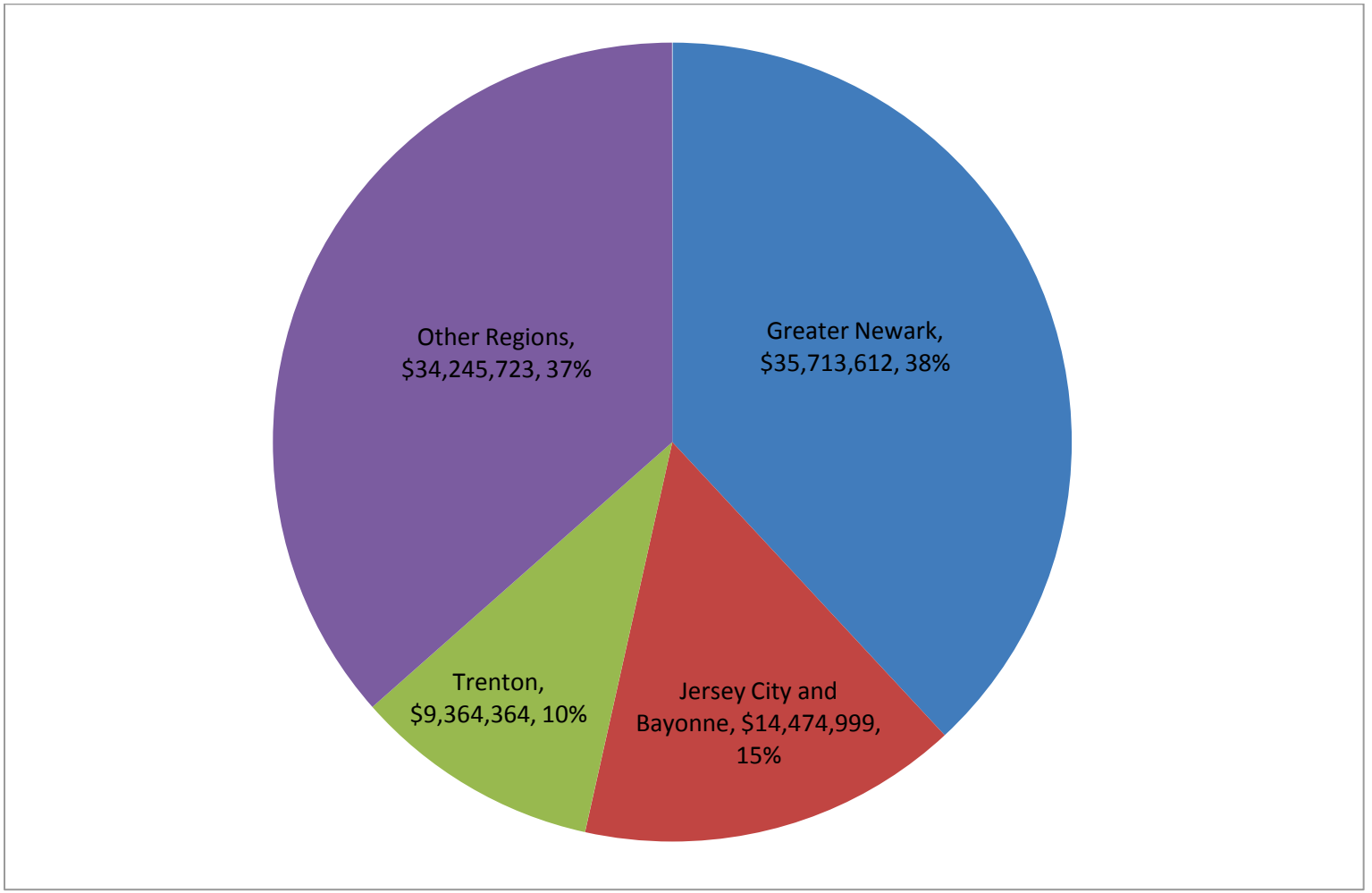


Figure 8a is based on aggregation of IP savings from table 8.

Figure 21. Regions with Highest Savings Potential from Reducing Avoidable ED Visits

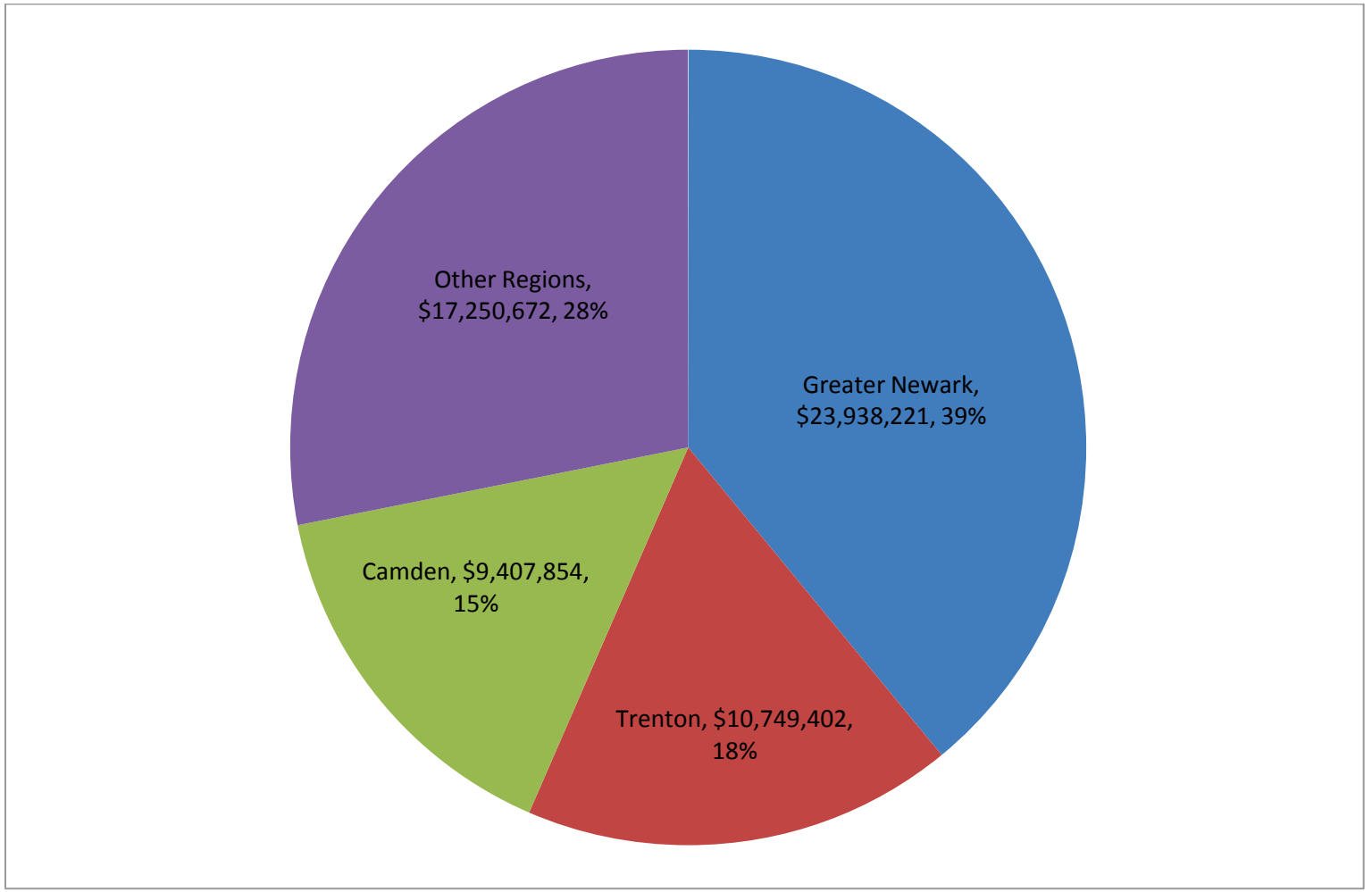


Figure 8b is based on ED savings from table 9.

High Hospital Use: Inpatient and Treat-and-Release Emergency Department

Table 10. Percent of Hospital Users who were Inpatient and/or ED High Users: 2008-2010

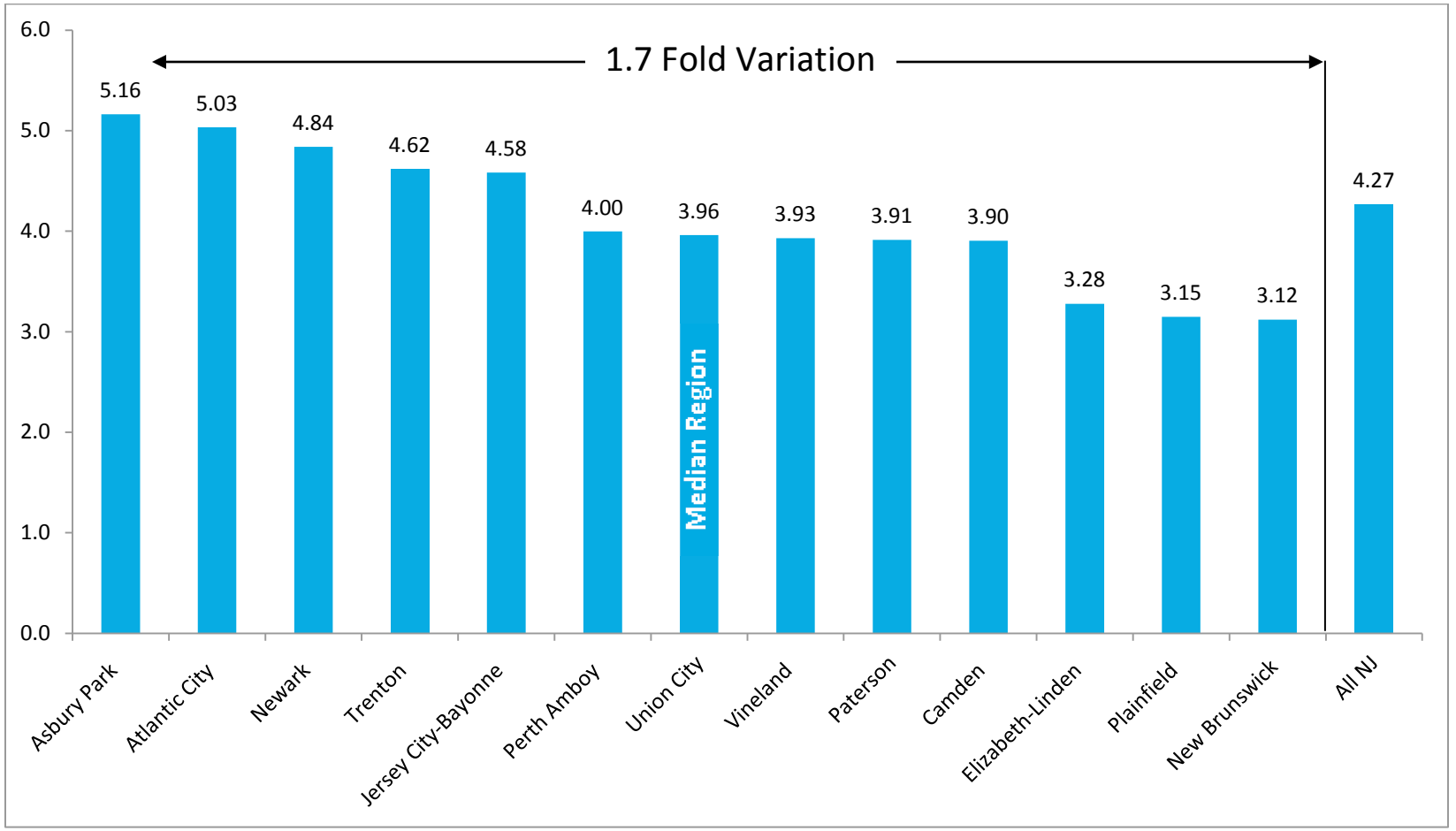
ACO Regions	Inpatient High Use	ED High Use	Inpatient and ED High Use	Inpatient or ED High Use
Asbury Park	5.2	8.1	1.1	12.1
Atlantic city	5.0	12.0	1.8	15.2
Camden	3.9	16.8	1.6	19.1
Elizabeth-Linden	3.3	6.2	0.7	8.8
Jersey City-Bayonne	4.6	5.9	0.9	9.5
New Brunswick	3.1	5.9	0.6	8.4
Greater Newark	4.8	9.0	1.3	12.6
Paterson	3.9	6.0	0.9	9.0
Perth Amboy	4.0	6.3	0.8	9.5
Plainfield	3.1	6.3	0.6	8.8
Trenton	4.6	11.4	1.6	14.5
Union City-W. NY- N. Bergen	4.0	3.6	0.5	7.1
Vineland	3.9	6.5	0.8	9.6
13 ACO regions combined	4.2	7.7	1.0	10.9
All NJ	4.3	5.0	0.8	8.5

This denotes, out of 100 hospital users how many demonstrated high inpatient use and/or high ED use.

High inpatient use is defined as greater than or equal to 4 stays over 2008-2010.

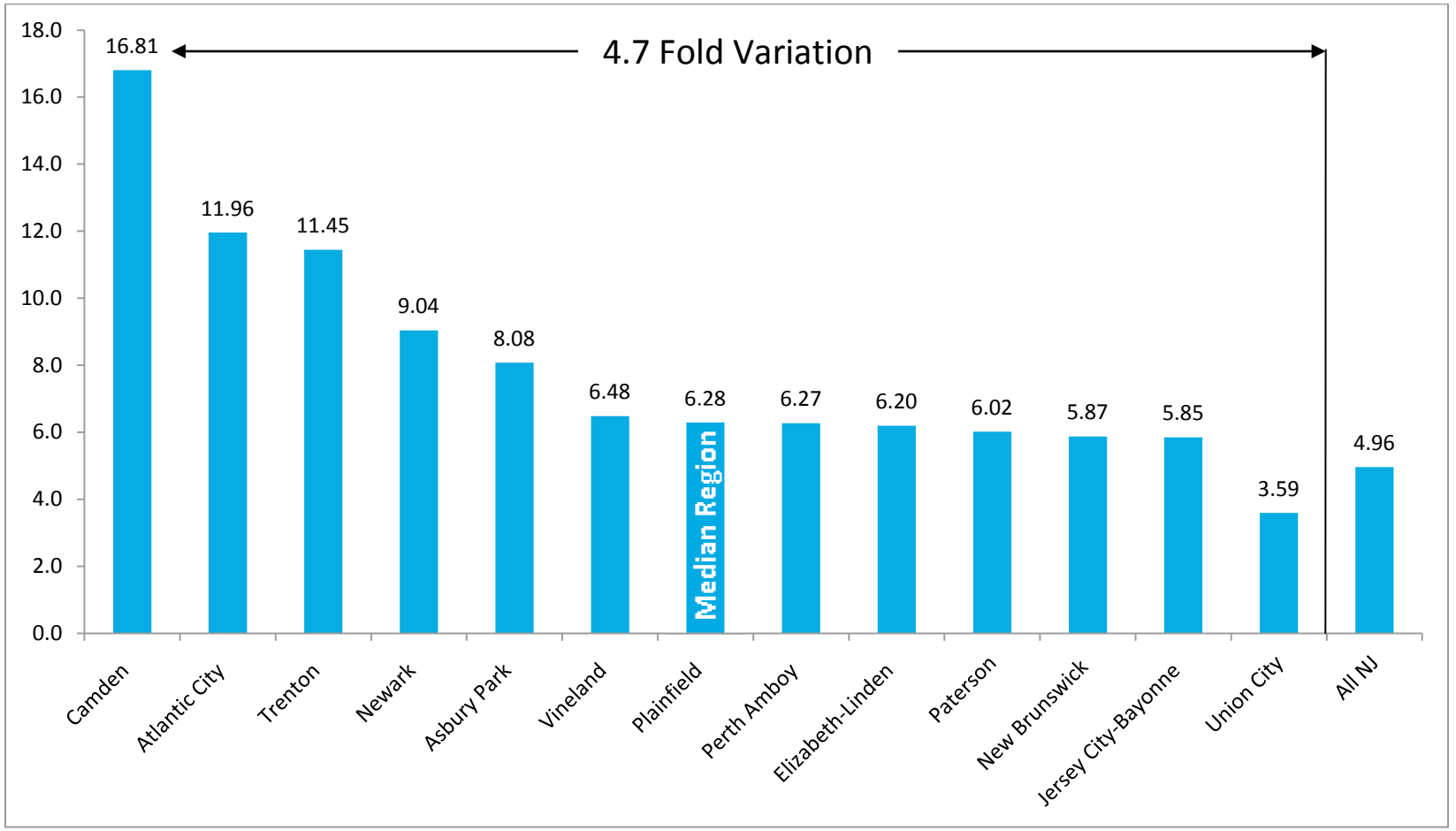
High ED use is greater than or equal to 6 visits over 2008-2010.

Figure 22. Percent of Hospital Users who were Inpatient High Users: 2008-2010



High inpatient use is defined as 4 or more stays over 2008-2010.

Figure 23. Percent of Hospital Users who were ED High Users: 2008-2010



High ED use is 6 or more visits over 2008-2010.

Table 11. Consistency in High Use of Hospital Services

ACO Regions	Percent of high users in 2009 who were also high users in 2008	Percent of high users in 2009 who continued high use in 2010	Percent of high users in 2009 who were also high users in 2008 and 2010
Asbury Park	31.4	32.2	16.1
Atlantic city	34.3	39.3	19.7
Camden	34.7	39.5	20.0
Elizabeth-Linden	24.5	26.8	11.9
Jersey City-Bayonne	27.1	29.6	13.2
New Brunswick	29.1	29.9	14.4
Greater Newark	31.6	31.6	15.4
Paterson	24.8	28.7	11.5
Perth Amboy	29.9	29.7	15.7
Plainfield	28.1	27.7	12.7
Trenton	35.4	36.2	19.2
Union City-W. NY-N. Bergen	22.4	25.2	9.8
Vineland	31.4	29.0	14.5
13 ACO regions combined	29.9	31.6	15.1
All NJ	27.5	28.7	13.3

A high user here is defined as having high IP use or high ED use for that specific year.

High IP use for each of the three years is defined as greater than or equal 3 visits during that year.

High ED use for each of the three years is 4 or more visits during that year.

Table 12. Number of Inpatient and/or ED High Users

ACO Regions	IP	ED	IP and ED	IP or ED
Asbury Park	1,868	2,923	413	4,378
Atlantic city	1,738	4,128	612	5,254
Camden	1,849	7,960	764	9,045
Elizabeth-Linden	2,461	4,654	509	6,606
Jersey City-Bayonne	5,817	7,426	1,153	12,090
New Brunswick	1,488	2,800	284	4,004
Greater Newark	10,661	19,915	2,841	27,735
Paterson	5,097	7,837	1,162	11,772
Perth Amboy	1,069	1,676	209	2,536
Plainfield	954	1,904	178	2,680
Trenton	2,957	7,331	1,019	9,269
Union City-W. NY- N. Bergen	3,028	2,748	382	5,394
Vineland	1,752	2,891	366	4,277
13 ACO regions combined	40,739	74,193	9,892	105,040
All NJ	144,351	167,749	25,628	286,472

IP: Inpatient; ED: Emergency Department. High users identified based on high inpatient or ED use over 2008-2010.

Table 13. Percent of Hospital Users who were High Users - Stratified by Demographics and Payer

ACO Regions	Camden			Trenton			Greater Newark			13 ACO regions combined			All NJ		
	Inpatient high user	ED high user	Inpatient or ED high user	Inpatient high user	ED high user	Inpatient or ED high user	Inpatient high user	ED high user	Inpatient or ED high user	Inpatient high user	ED high user	Inpatient or ED high user	Inpatient high user	ED high user	Inpatient or ED high user
Gender															
Male	3.9	12.4	14.8	4.6	8.7	11.7	5.0	7.0	10.7	4.4	6.1	9.4	4.4	4.1	7.8
Female	3.9	20.7	22.9	4.6	13.9	16.9	4.7	10.6	14.1	4.2	9.0	12.2	4.1	5.6	9.0
Age group															
18-39	1.2	19.3	19.7	1.4	13.1	13.6	1.5	10.5	11.2	1.2	9.1	9.7	1.0	6.8	7.4
40-64	5.9	15.1	18.3	5.8	11.5	14.8	5.8	8.7	12.6	4.8	7.5	10.8	3.7	4.5	7.2
65+	13.2	7.5	17.9	14.5	4.6	17.0	16.6	3.8	18.7	14.0	3.1	15.7	11.7	2.0	12.9
Race-Ethnicity															
White	5.7	14.7	18.3	6.0	7.6	12.0	5.9	5.1	9.7	5.7	5.1	9.8	4.8	3.6	7.8
Black	4.6	19.3	22.0	5.4	15.5	18.9	5.6	10.8	14.8	5.2	11.8	15.5	4.9	10.3	13.8
Hispanic	2.8	14.7	16.3	2.4	8.1	9.6	3.2	6.8	9.1	2.7	6.2	8.2	2.5	5.5	7.4
Other	1.9	8.2	9.9	1.9	5.2	6.3	2.4	4.9	6.8	3.1	4.5	7.0	2.8	3.1	5.5
Payer Type															
Medicare	13.5	12.4	22.1	15.1	8.9	20.8	19.2	7.2	23.3	15.6	5.9	19.2	12.8	3.6	15.1
Medicaid	5.3	22.3	24.9	5.4	25.4	27.6	7.2	16.5	20.5	5.2	15.7	18.6	4.9	14.4	17.1
Private	2.5	20.0	21.5	2.8	9.0	10.9	2.8	7.7	9.9	2.4	6.3	8.2	2.0	3.4	5.1
Self-pay/charity care	2.0	14.9	15.6	2.3	11.5	12.5	2.1	9.3	10.4	1.9	8.6	9.6	2.0	8.4	9.5
No. of high users	1,849	7,960	9,045	2,957	7,331	9,269	10,661	19,915	27,735	40,739	74,193	105,040	144,351	167,749	286,472

Patient and payer information are assessed from the first hospital visit- IP or ED for that patient.

Table 13. (cont'd) - . Percent of Hospital Users who were High Users -Stratified by Demographics and Payer

ACO Regions	Asbury Park			Atlantic City			Elizabeth-Linden			Jersey City-Bayonne			New Brunswick		
	Inpatient high user	ED high user	Inpatient or ED high user	Inpatient high user	ED high user	Inpatient or ED high user	Inpatient high user	ED high user	Inpatient or ED high user	Inpatient high user	ED high user	Inpatient or ED high user	Inpatient high user	ED high user	Inpatient or ED high user
Gender															
Male	5.2	6.6	10.6	4.7	10.1	13.0	3.5	4.7	7.5	4.7	5.1	8.8	3.0	4.5	6.9
Female	5.1	9.3	13.3	5.4	13.6	17.2	3.1	7.4	9.8	4.5	6.4	10.1	3.2	7.0	9.6
Age group															
18-39	1.3	10.8	11.4	1.5	13.6	14.2	0.8	7.3	7.7	1.2	6.9	7.5	0.7	6.5	6.9
40-64	4.9	8.0	11.2	5.8	12.6	15.8	3.4	6.0	8.5	5.1	5.9	9.6	3.5	6.4	8.8
65+	13.6	2.6	15.2	14.2	5.0	17.0	11.6	2.7	13.2	14.8	2.1	16.0	12.5	2.2	13.9
Race-Ethnicity															
White	5.7	4.3	9.1	7.5	11.5	16.5	5.4	4.7	9.3	5.8	4.1	9.1	5.4	4.0	8.7
Black	5.6	14.0	17.9	5.2	16.0	19.2	4.1	10.1	13.0	5.2	9.3	13.2	4.6	11.1	14.5
Hispanic	2.3	7.4	9.1	2.5	9.0	10.5	1.9	5.4	6.9	3.2	6.2	8.7	0.8	4.5	5.0
Other	3.1	4.9	7.3	5.0	6.1	10.1	2.1	4.1	5.7	3.8	4.1	7.3	2.1	4.0	5.8
Payer Type															
Medicare	14.8	5.2	17.9	16.3	10.1	22.5	13.4	4.4	16.2	16.6	4.0	18.9	13.8	4.9	17.2
Medicaid	4.9	23.6	26.0	7.7	17.9	21.8	3.6	10.3	12.6	5.1	12.9	16.1	3.6	9.5	11.7
Private	2.5	3.7	5.7	3.2	11.1	13.1	2.2	5.5	7.2	2.2	3.8	5.6	2.1	5.6	7.3
Self-pay/Charity care	2.1	12.1	13.2	2.5	13.4	14.5	1.3	7.7	8.5	2.4	7.7	9.1	1.0	6.6	7.1
No. of high users	1,868	2,923	4,378	1,738	4,128	5,254	2,461	4,654	6,606	5,817	7,426	12,090	1,488	2,800	4,004

Patient and payer information are assessed from the first hospital visit- IP or ED for that patient.

Table 13. (cont'd) - . Percent of Hospital Users who were High Users -Stratified by Demographics and Payer

ACO Regions	Paterson			Perth Amboy			Plainfield			Union City-W. NY-N. Bergen			Vineland		
	Inpatient high user	ED high user	Inpatient or ED high user	Inpatient high user	ED high user	Inpatient or ED high user	Inpatient high user	ED high user	Inpatient or ED high user	Inpatient high user	ED high user	Inpatient or ED high user	Inpatient high user	ED high user	Inpatient or ED high user
Gender															
Male	4.2	5.1	8.3	4.2	4.6	8.0	3.2	4.3	6.9	4.1	2.8	6.3	4.1	5.3	8.6
Female	3.7	6.7	9.6	3.8	7.7	10.7	3.1	7.9	10.4	3.9	4.2	7.6	3.8	7.5	10.4
Age group															
18-39	1.2	7.1	7.7	0.9	7.2	7.7	0.8	7.4	7.9	0.8	4.2	4.7	0.9	8.6	9.1
40-64	4.2	5.9	8.8	4.4	6.2	9.3	3.5	5.8	8.4	3.1	3.8	6.1	3.8	5.7	8.4
65+	12.5	2.7	14.0	15.3	2.6	16.9	11.5	2.9	13.6	14.3	1.7	15.2	11.3	2.8	13.0
Race-Ethnicity															
White	5.8	4.0	8.9	9.3	6.0	14.0	5.3	3.9	8.5	5.9	3.3	8.6	4.5	5.7	9.4
Black	5.7	9.9	13.9	5.2	9.0	13.1	4.2	9.7	13.1	2.8	3.9	6.2	4.1	9.2	12.2
Hispanic	2.4	5.6	7.3	2.8	6.3	8.5	1.0	3.7	4.5	3.7	3.6	6.8	2.5	6.9	8.6
Other	3.2	4.7	7.2	2.7	3.8	6.1	2.1	3.0	4.8	3.2	3.8	6.5	2.8	5.5	7.8
Payer Type															
Medicare	14.4	4.9	17.3	17.0	5.2	20.1	13.3	5.5	17.2	15.7	2.6	17.2	11.9	5.4	15.5
Medicaid	5.1	11.5	14.2	3.5	13.4	15.5	2.8	13.3	14.8	3.7	7.3	9.8	2.9	15.5	17.0
Private	2.6	5.4	7.4	2.1	4.8	6.5	2.2	6.0	7.7	2.2	2.8	4.6	1.6	3.5	4.8
Self-pay/Charity Care	1.9	6.8	8.0	1.4	6.1	6.9	1.0	6.3	7.0	1.1	4.0	4.8	1.4	8.8	9.6
No. of high users	5,097	7,837	11,772	1,069	1,676	2,536	954	1,904	2,680	3,028	2,748	5,394	1,752	2,891	4,277

Patient and payer information are assessed from the first hospital visit- IP or ED for that patient.

Table 14. Demographic and Payer Distributions of Inpatient High Users

ACO Regions	Medicare	Medicaid	Private	Charity Care	Self-Pay	White	Black	Hispanic	Other	18-39	40-64	65+	Male	Female
Asbury Park	61.2	9.6	18.0	6.4	3.6	54.6	37.7	4.9	2.8	10.7	35.0	54.4	45.1	54.9
Atlantic City	49.4	7.3	22.2	14.4	5.7	31.7	42.1	12.0	14.2	14.6	42.2	43.2	44.2	55.8
Camden	41.8	18.1	18.9	12.1	7.8	11.5	59.2	27.7	1.6	17.4	51.0	31.6	47.5	52.5
Elizabeth-Linden	52.3	6.9	25.2	11.3	3.0	40.1	28.6	27.3	3.9	11.5	37.6	50.9	47.1	52.9
Jersey City-Bayonne	53.2	10.2	19.2	13.5	3.0	32.9	28.5	14.3	24.3	12.8	39.5	47.7	45.4	54.6
New Brunswick	52.9	4.0	29.4	6.9	5.3	44.6	35.8	7.9	11.6	13.6	33.3	53.2	44.0	56.0
Greater Newark	47.6	13.9	19.7	10.7	6.5	9.3	72.6	13.9	4.2	16.0	43.3	40.7	44.9	55.1
Paterson	48.5	6.2	26.1	14.0	4.3	33.4	30.0	27.6	9.0	15.0	38.2	46.8	46.5	53.5
Perth Amboy	58.6	11.0	16.0	7.8	4.2	36.2	9.4	49.6	4.9	12.1	38.4	49.6	48.1	51.9
Plainfield	53.8	6.4	25.5	8.1	3.1	25.8	58.0	10.8	5.5	13.6	38.7	47.7	45.0	55.0
Trenton	47.9	12.2	19.2	13.8	5.4	28.2	57.4	11.2	3.1	15.9	44.2	39.9	46.8	53.2
Union City-W. NY-N. Bergen	62.0	7.2	19.0	6.4	3.2	25.7	1.3	57.0	16.1	9.4	26.5	64.1	45.3	54.7
Vineland	65.5	9.1	15.5	3.3	4.5	66.4	16.9	12.3	4.4	10.9	34.7	54.4	45.9	54.1
13 ACO regions combined	51.7	10.3	20.9	10.9	4.8	28.1	42.7	20.2	9.0	13.9	39.5	46.5	45.7	54.3
All NJ	60.6	5.3	22.9	6.1	3.4	65.1	18.9	9.2	6.8	10.2	32.2	57.6	45.9	54.1

Numbers denote percentage of inpatient high users with these characteristics. Patient characteristics and payer information are assessed from the first hospital stay/ED visit for that patient. Payer distribution may not add up to 100% since 'other' category of insurance is not reported.

Table 15. Demographic and Payer Distributions of Treat-and-Release ED High Users

ACO Regions	Medicare	Medicaid	Private	Charity Care	Self-Pay	White	Black	Hispanic	Other	18-39	40-64	65+	Male	Female
Asbury Park	13.8	29.5	16.9	12.7	24.3	26.5	60.4	10.3	2.8	56.9	36.4	6.7	36.1	63.9
Atlantic City	12.9	7.1	32.8	24.7	21.4	20.4	54.2	18.1	7.2	54.7	38.8	6.4	40.3	59.7
Camden	8.9	17.6	35.4	10.6	24.3	6.9	57.9	33.5	1.6	65.7	30.1	4.2	34.9	65.1
Elizabeth-Linden	9.2	10.4	33.2	26.4	17.1	18.8	36.7	40.5	4.1	59.0	34.7	6.3	33.1	66.9
Jersey City-Bayonne	10.1	20.1	26.6	25.4	16.0	18.2	39.6	21.6	20.5	59.1	35.5	5.4	38.5	61.5
New Brunswick	9.9	5.6	41.1	16.4	25.5	17.5	46.0	24.6	11.9	62.4	32.6	5.0	34.7	65.3
Greater Newark	9.5	17.0	28.8	16.5	25.2	4.3	75.3	15.9	4.5	60.4	34.6	4.9	33.8	66.2
Paterson	10.8	9.0	35.8	26.8	15.4	15.2	34.0	42.3	8.5	59.0	34.6	6.5	37.3	62.7
Perth Amboy	11.3	26.9	23.8	13.0	19.8	14.7	10.4	70.6	4.3	60.4	34.2	5.4	33.7	66.3
Plainfield	11.1	14.9	35.1	12.2	22.3	9.7	67.0	19.4	4.0	61.4	32.5	6.1	30.5	69.5
Trenton	11.3	23.0	24.6	17.0	21.5	14.4	67.0	15.1	3.5	59.5	35.4	5.1	35.5	64.5
Union City-W. NY-N. Bergen	11.2	15.6	27.1	19.2	19.4	15.6	1.9	61.2	21.3	56.4	35.3	8.3	34.2	65.8
Vineland	17.9	28.9	20.2	7.2	22.3	51.4	22.9	20.4	5.3	60.3	31.6	8.2	36.2	63.8
13 ACO regions combined	10.6	16.8	29.8	18.4	21.5	13.9	53.0	26.0	7.1	60.0	34.4	5.6	35.4	64.6
All NJ	14.7	13.5	33.3	14.5	20.2	41.8	34.5	17.2	6.4	57.8	33.8	8.5	37.0	63.0

Numbers denote percentage of ED high users with these characteristic. Patient characteristics and payer information are assessed from the first hospital stay/ED visit for that patient. Payer distribution may not add up to 100% since 'other' category of insurance is not reported.

Figure 24. Payer Distribution of Inpatient High Users

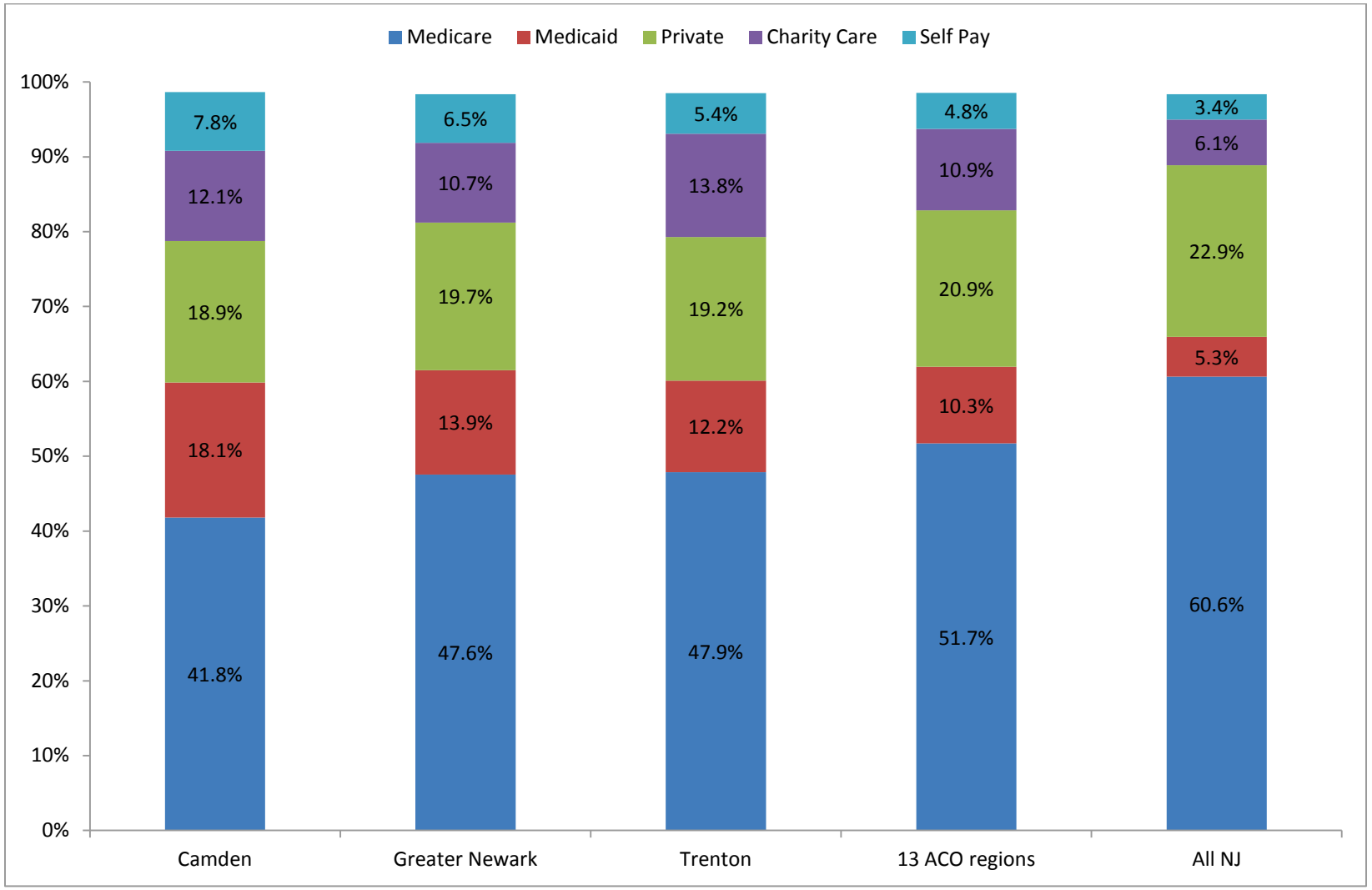


Figure 25. Race/Ethnicity Distribution of Inpatient High Users

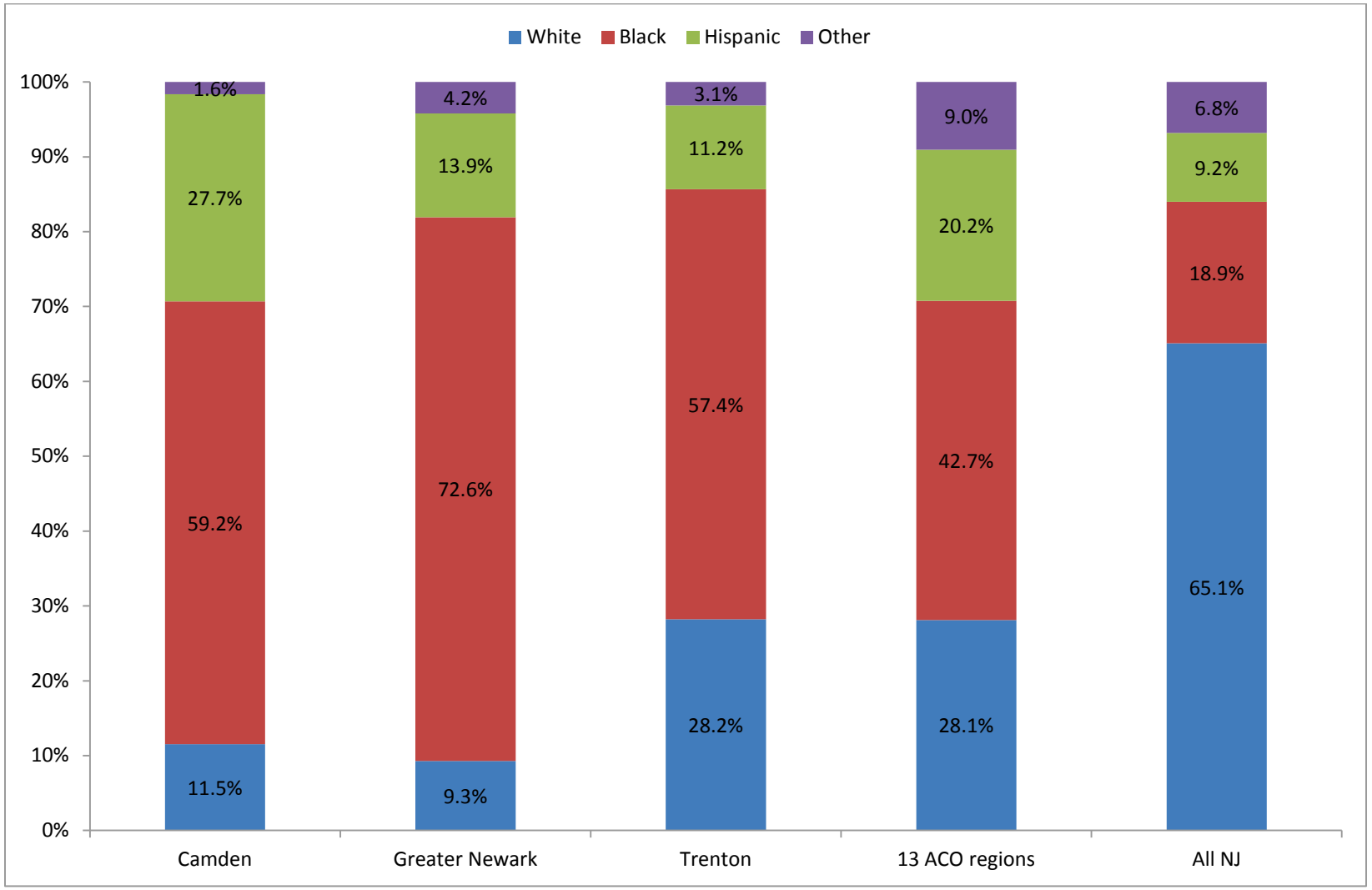


Figure 26. Age Distribution of Inpatient High Users

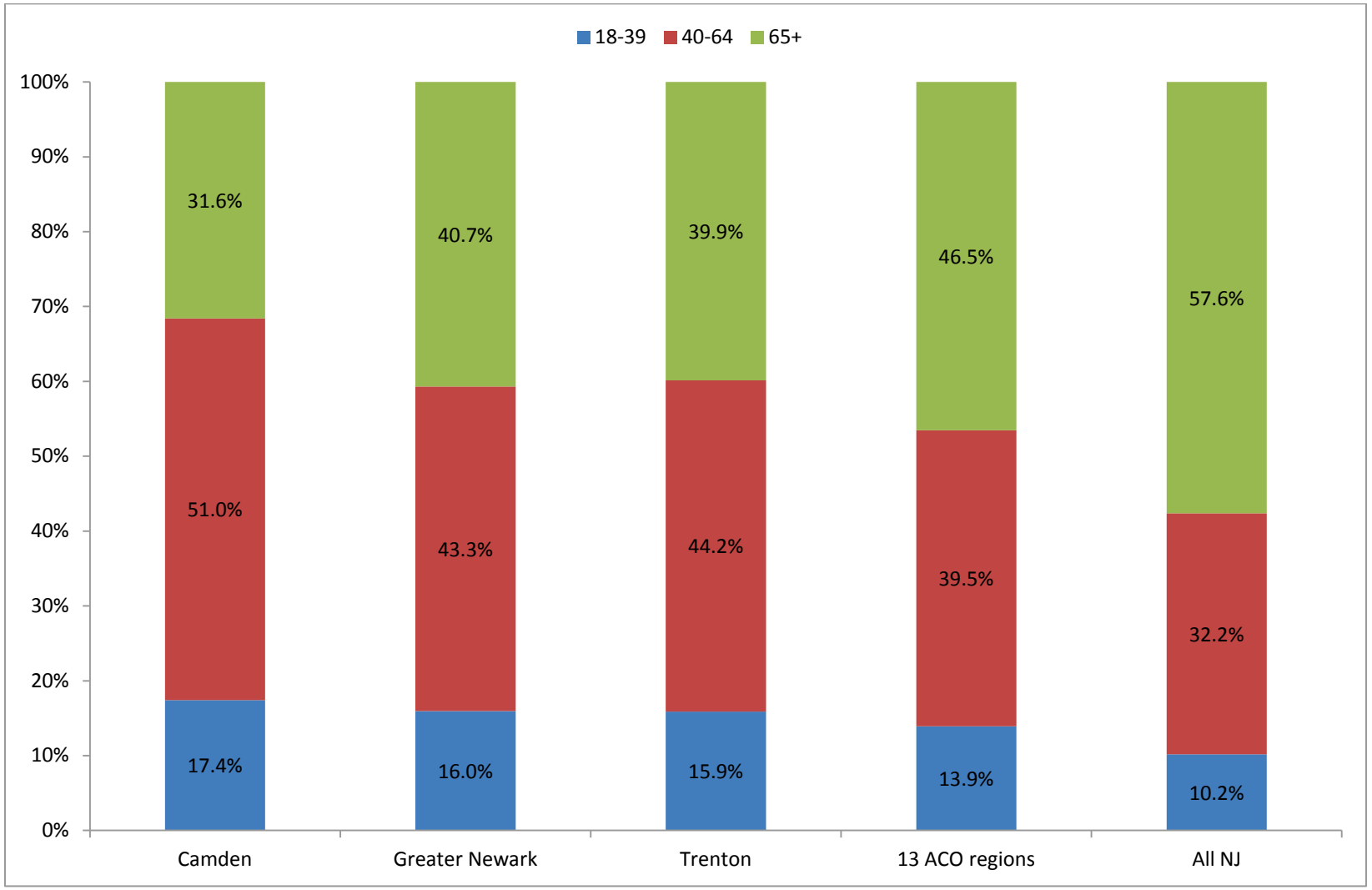


Figure 27. Gender Distribution of Inpatient High Users

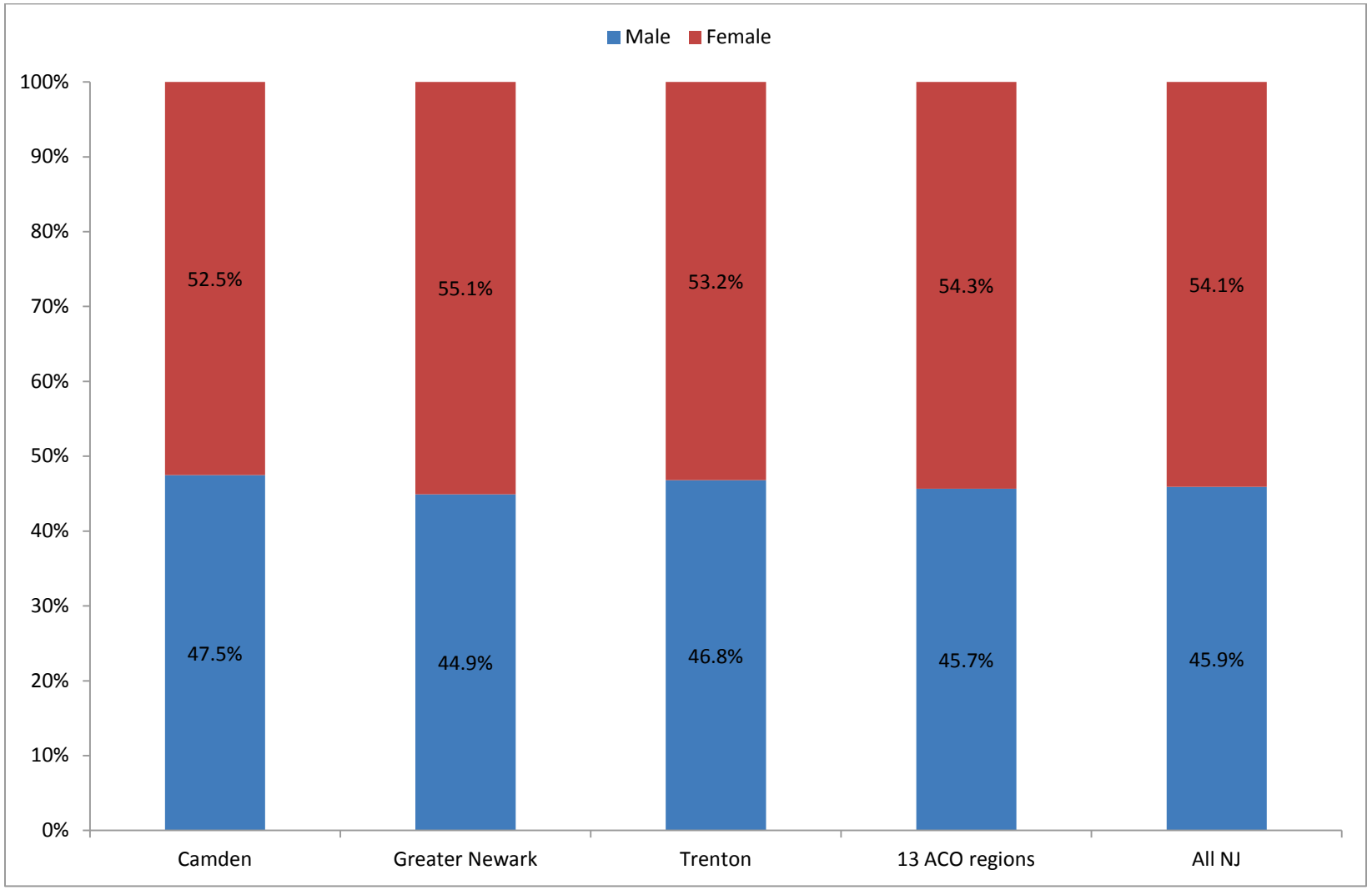


Figure 28. Payer Distribution of ED High Users

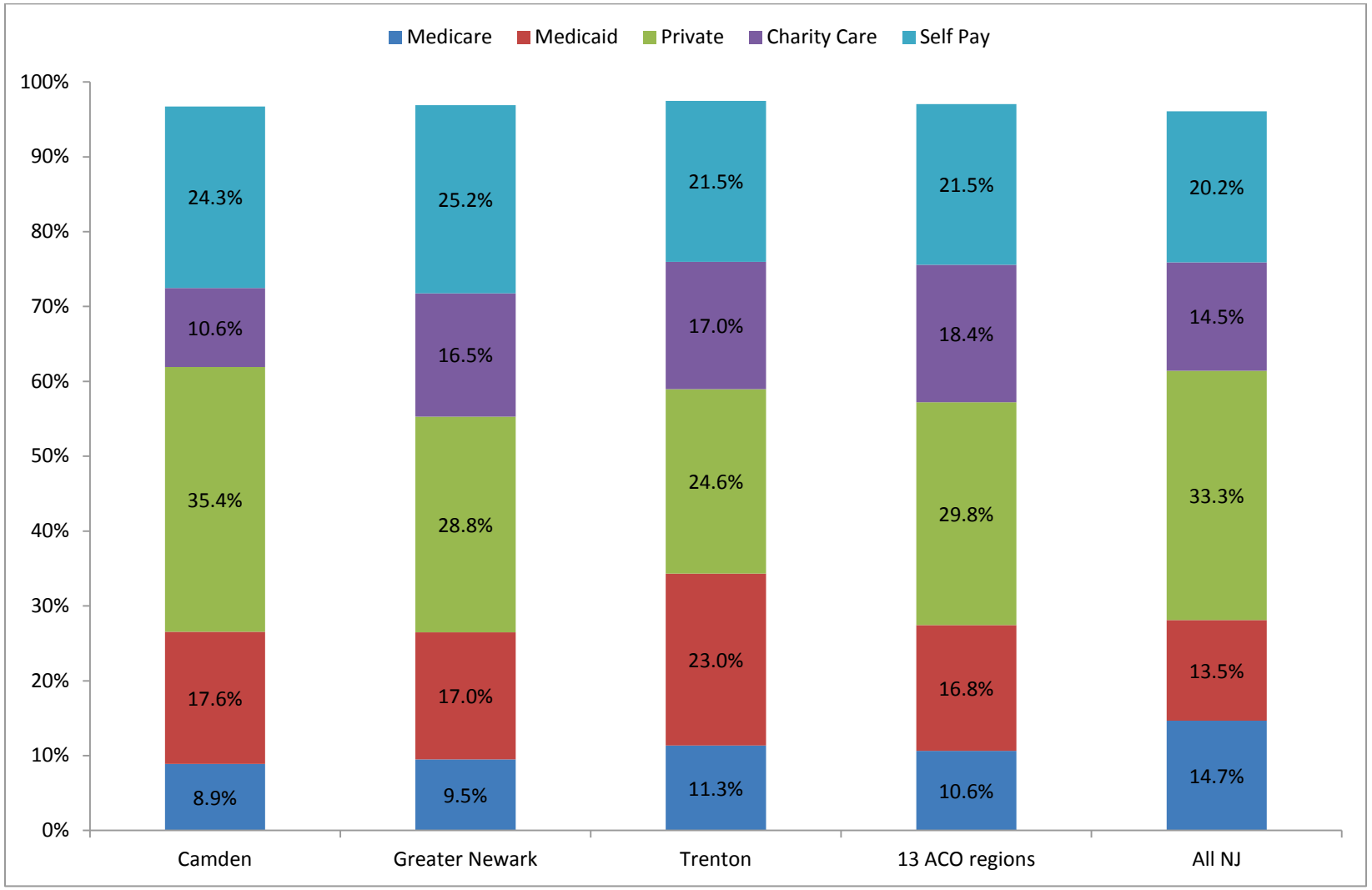


Figure 29. Race/Ethnicity Distribution of ED High Users

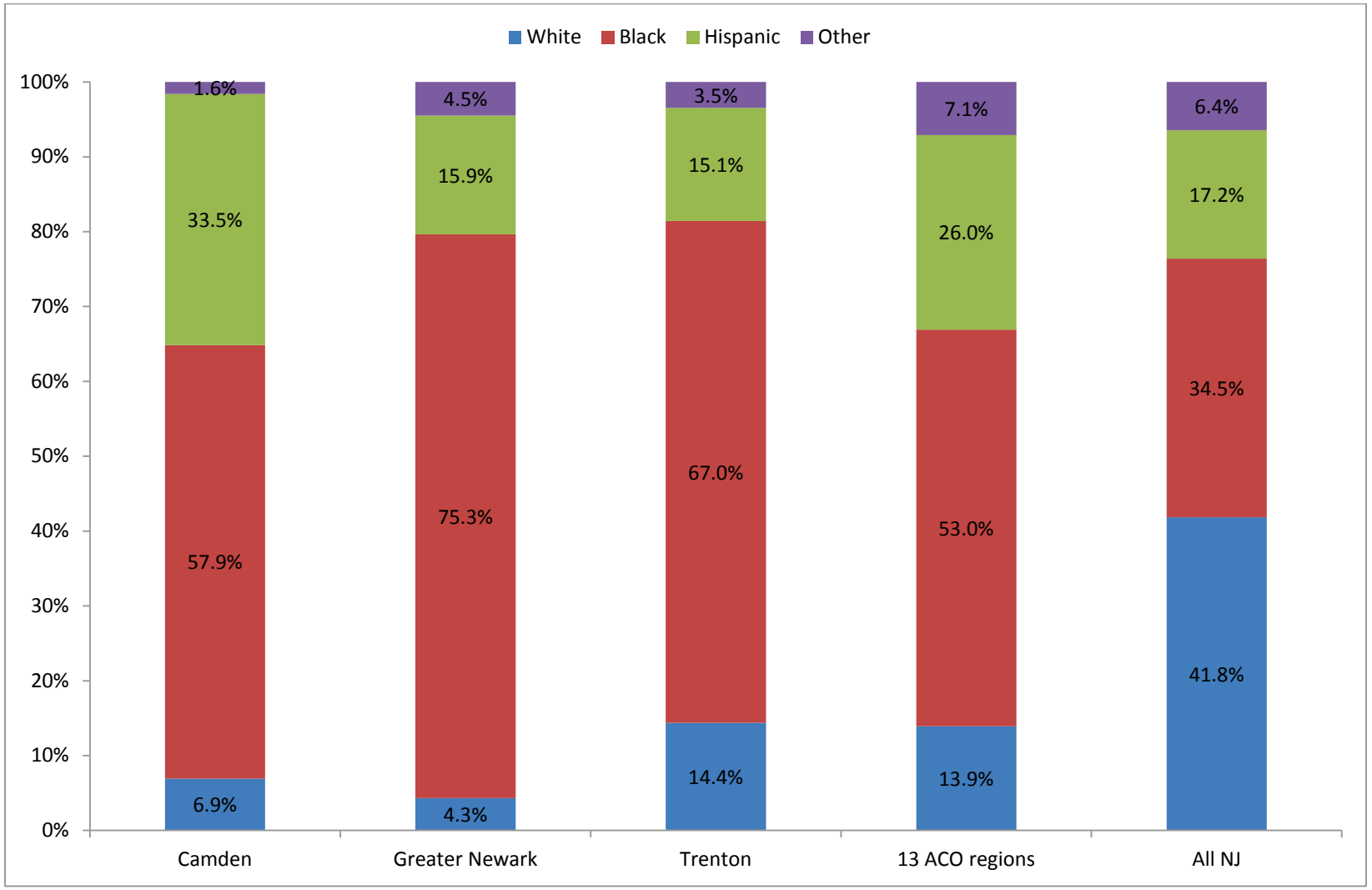


Figure 30. Age Distribution of ED High Users

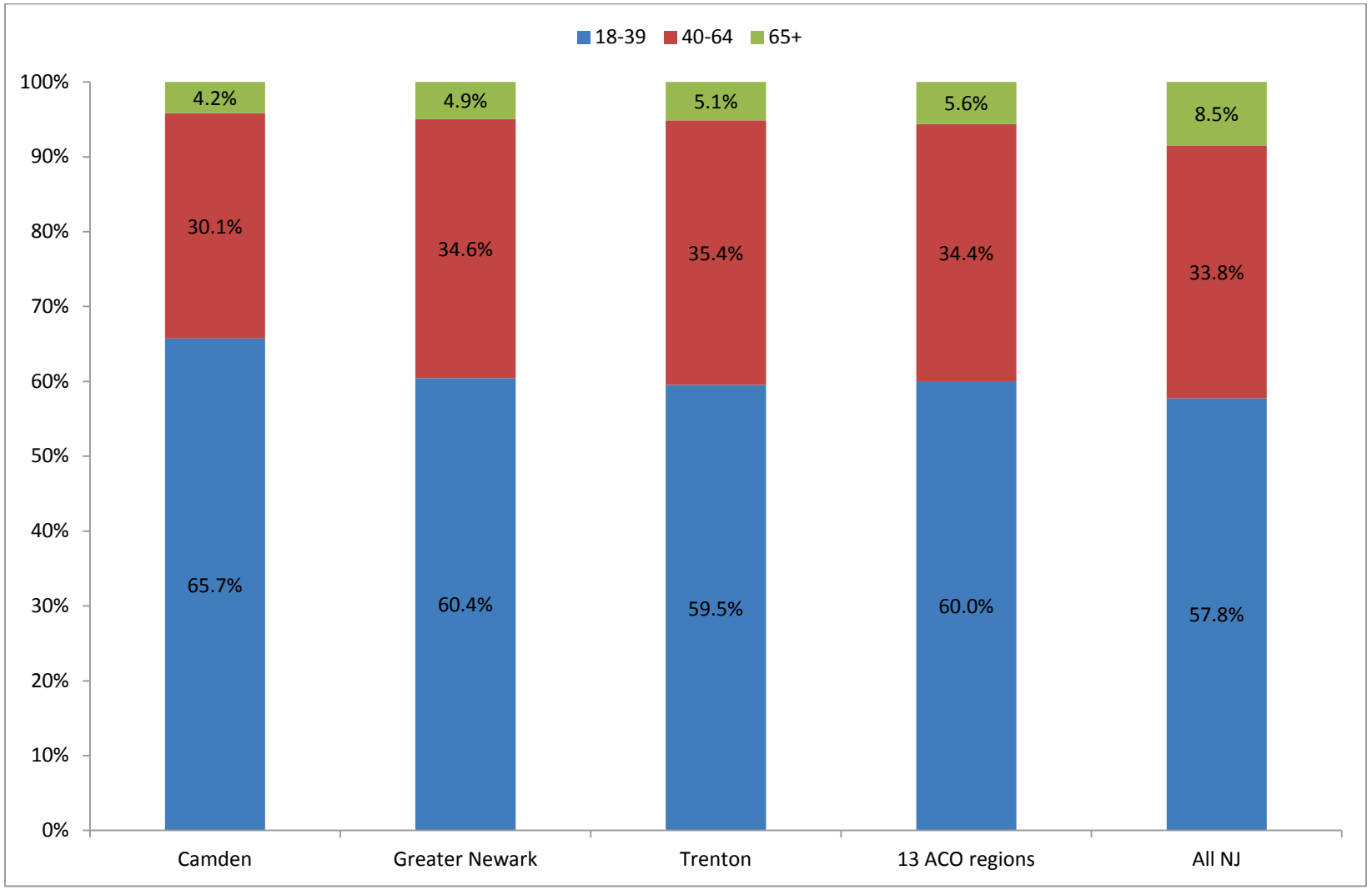


Figure 31. Gender Distribution of ED High Users

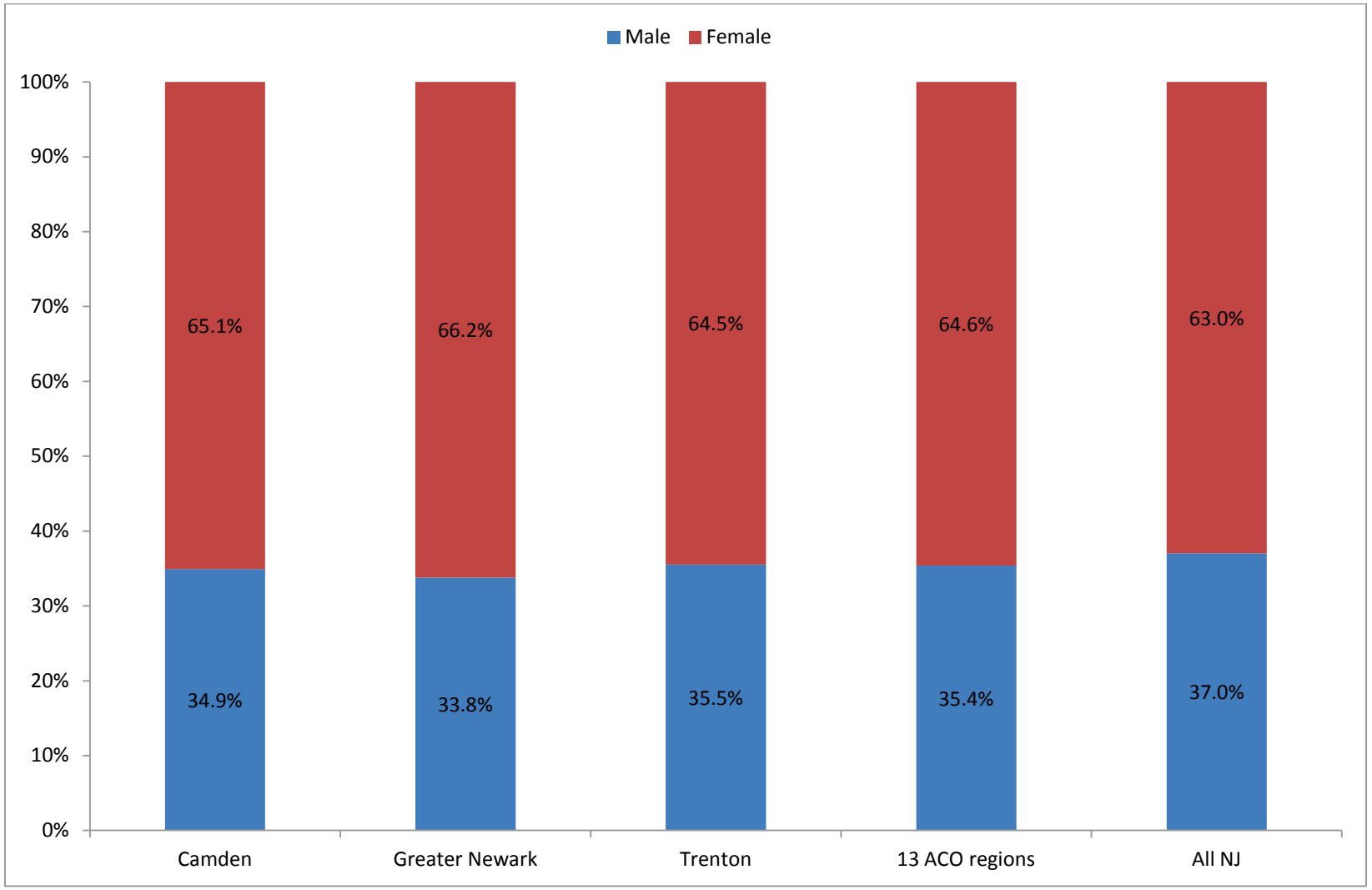
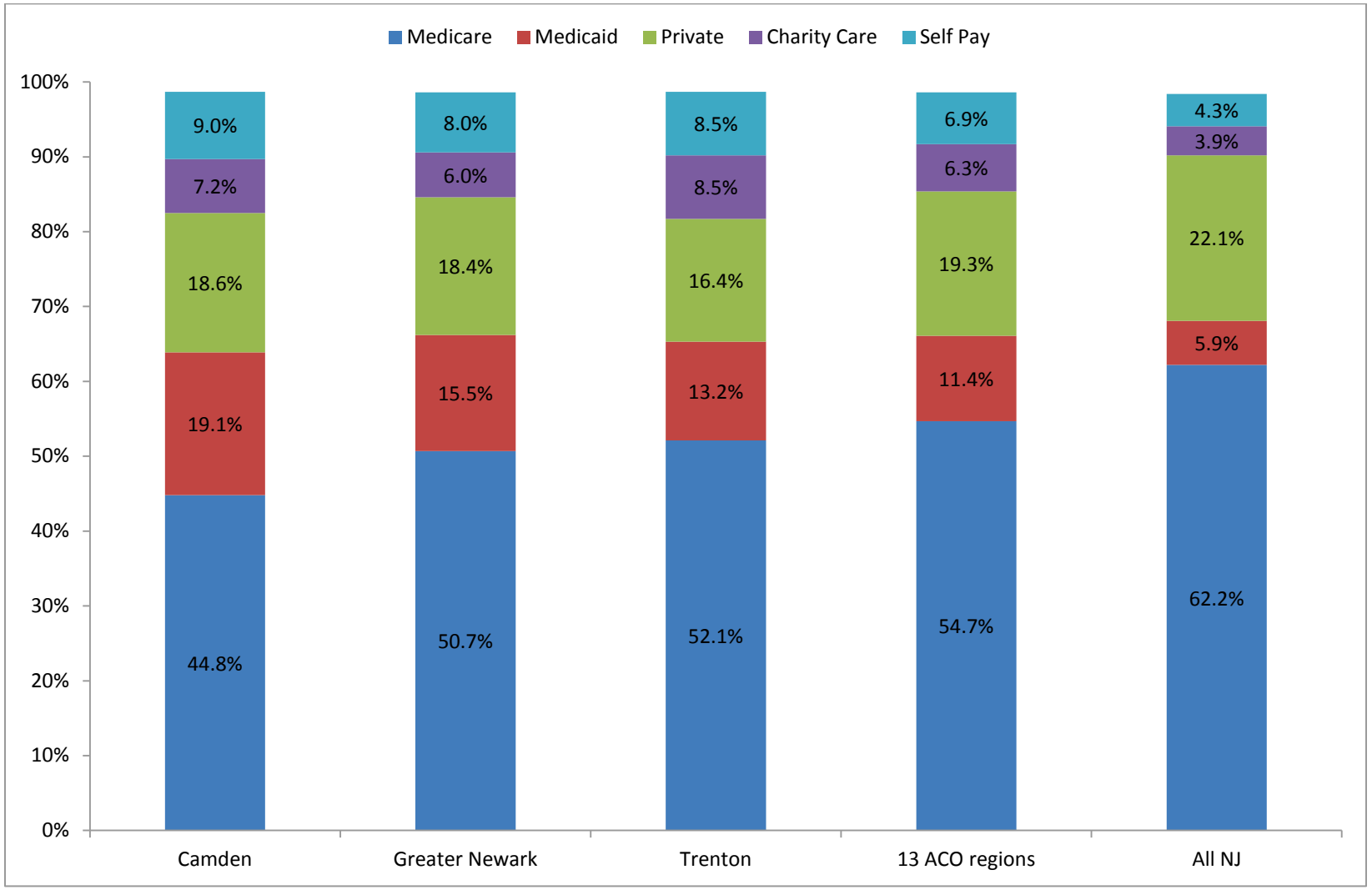
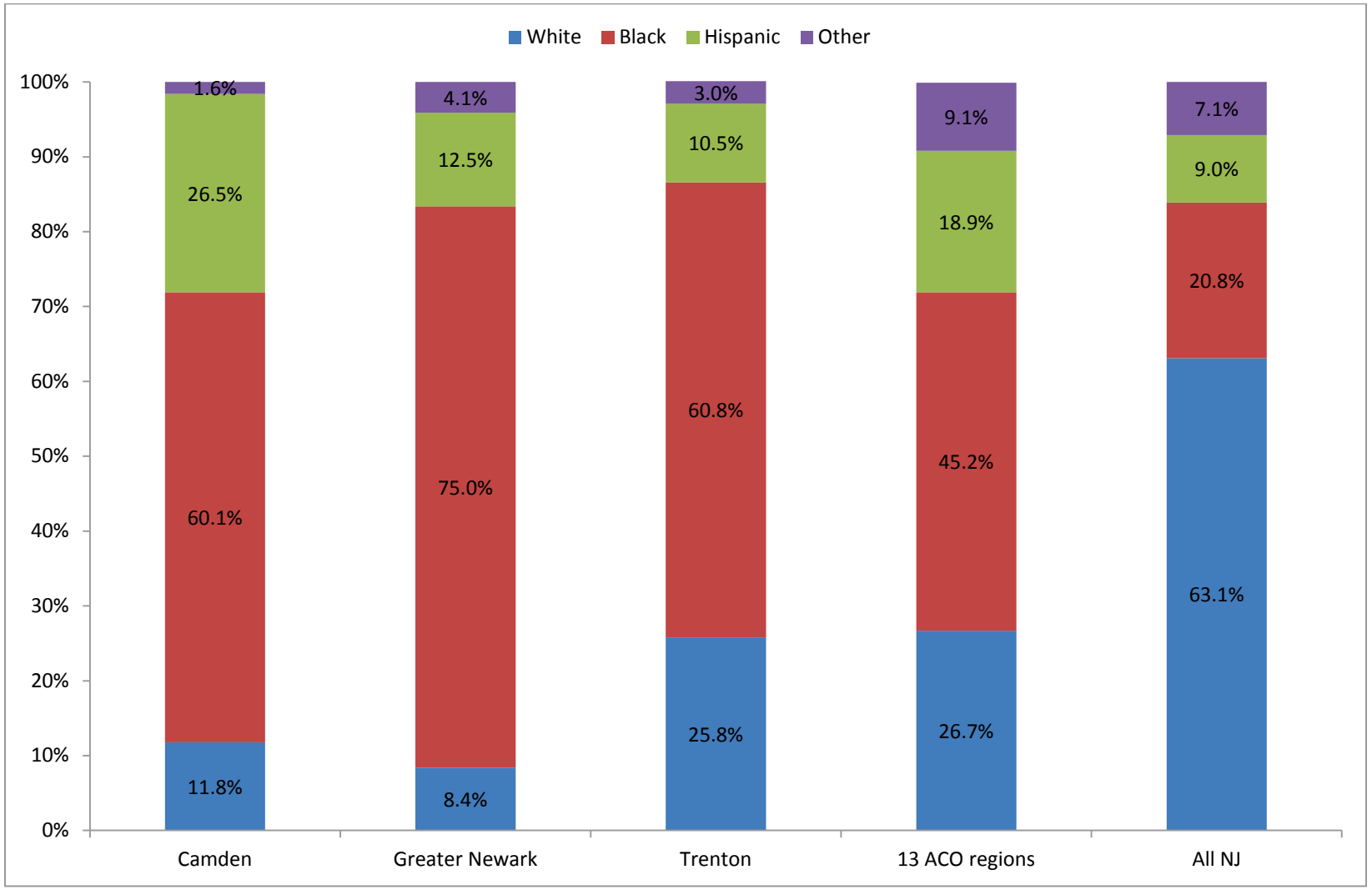


Figure 32. Payer Distribution of Inpatient High User Costs



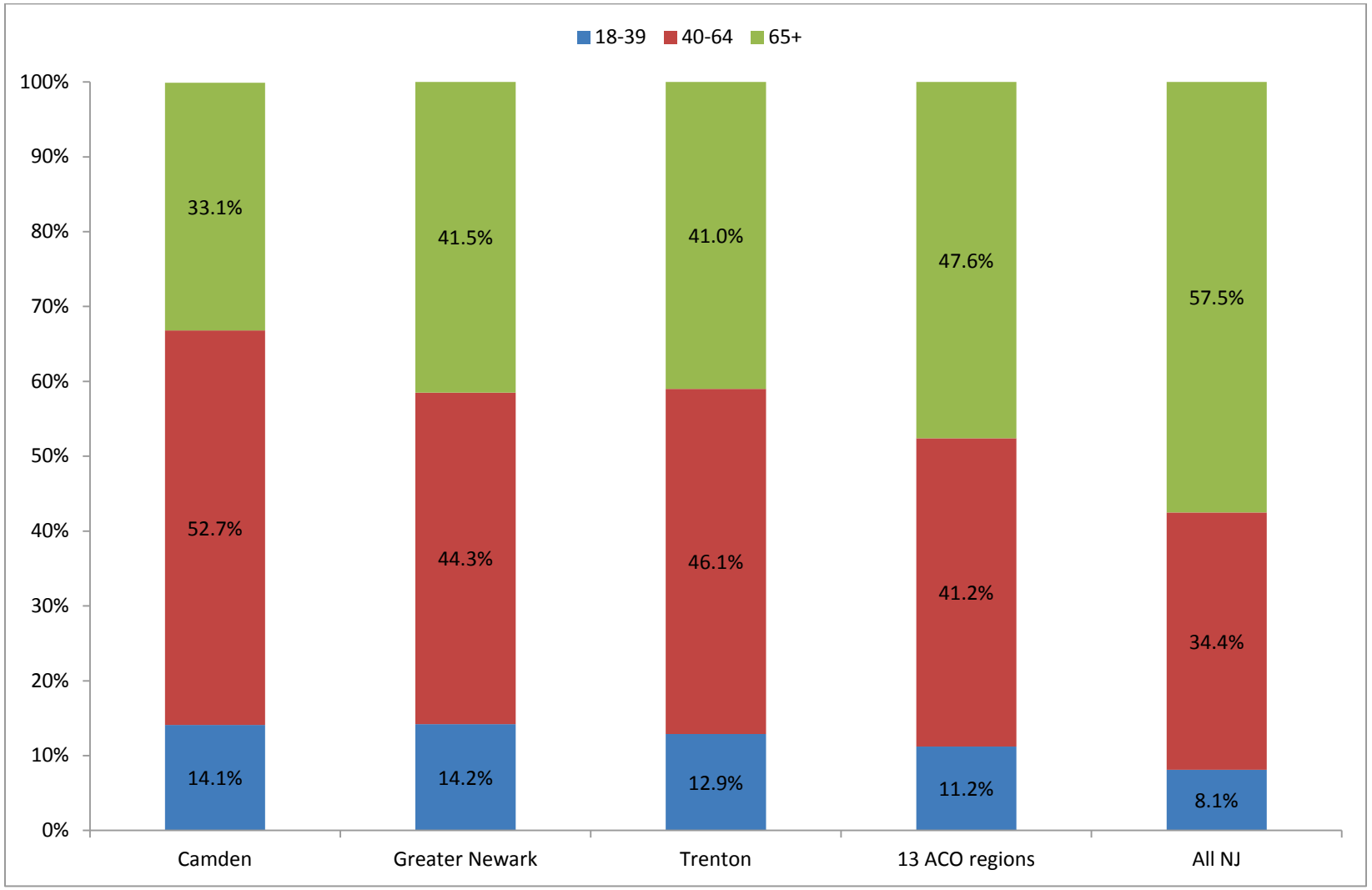
Calculated from discharge based inpatient costs of inpatient high users.

Figure 33. Race/Ethnicity Distribution of Inpatient High User Costs



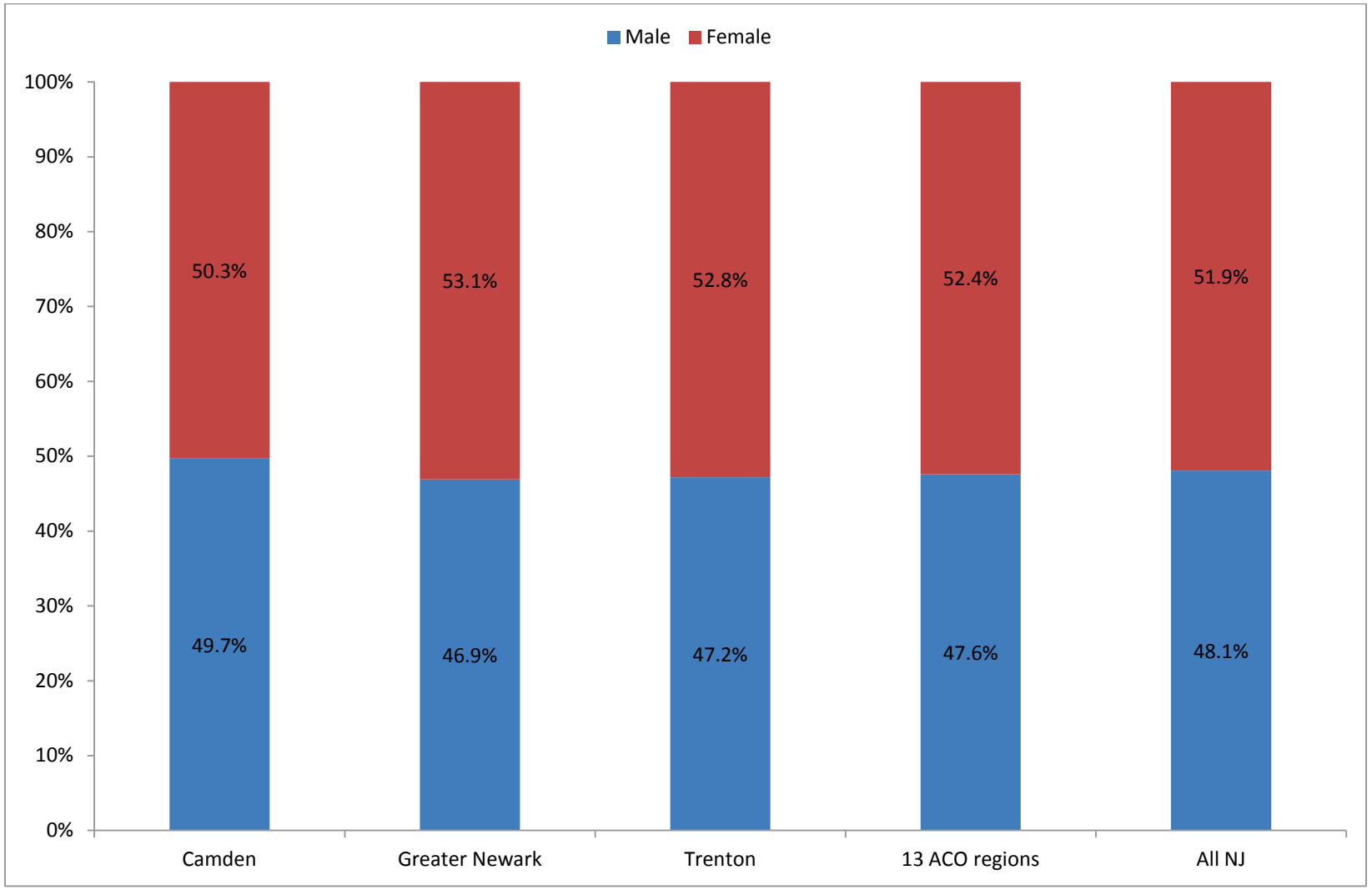
Calculated from discharge based inpatient costs of inpatient high users.

Figure 34. Age Distribution of Inpatient High User Costs



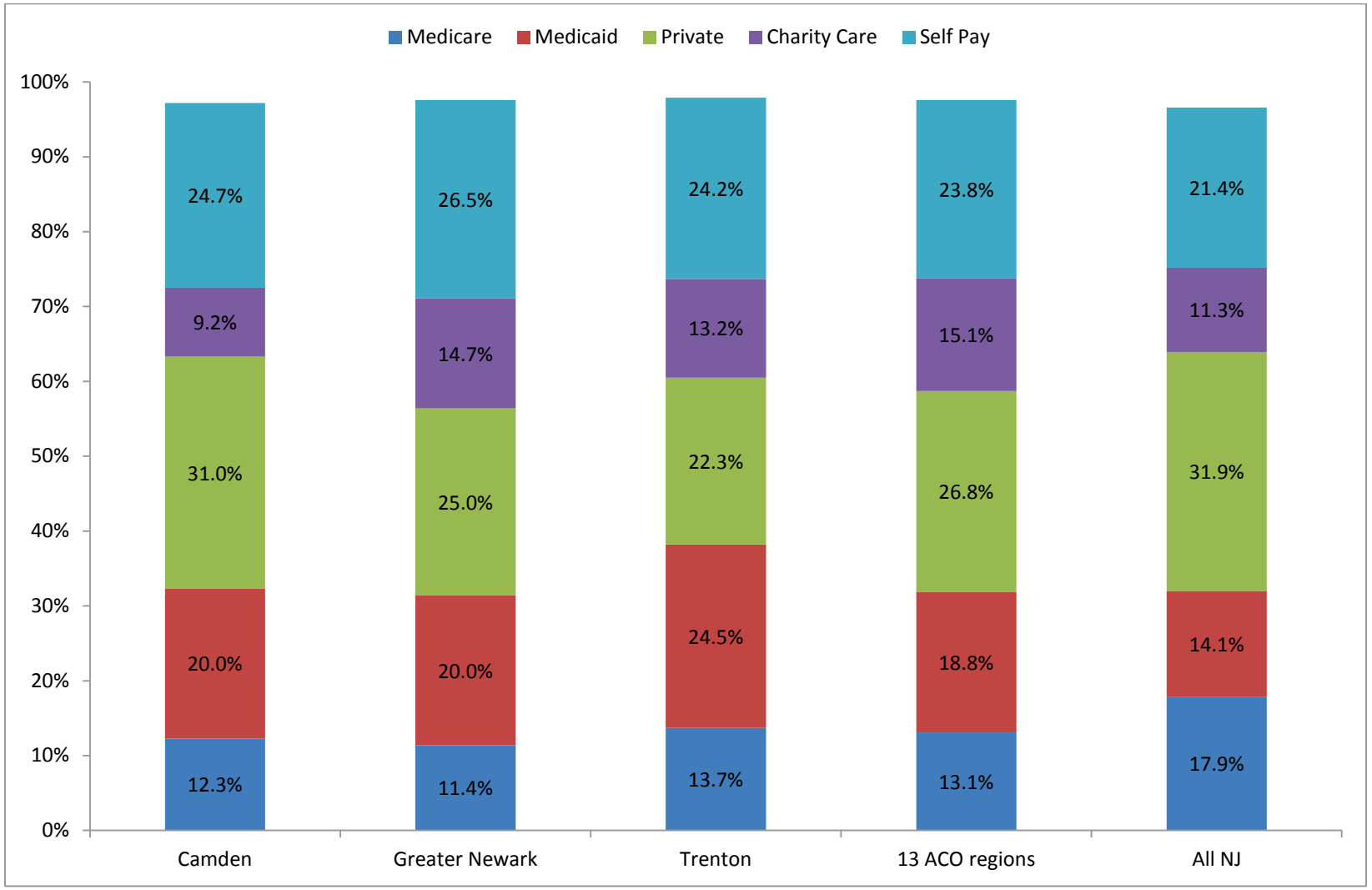
Calculated from discharge based inpatient costs of inpatient high users.

Figure 35. Gender Distribution of Inpatient High User Costs



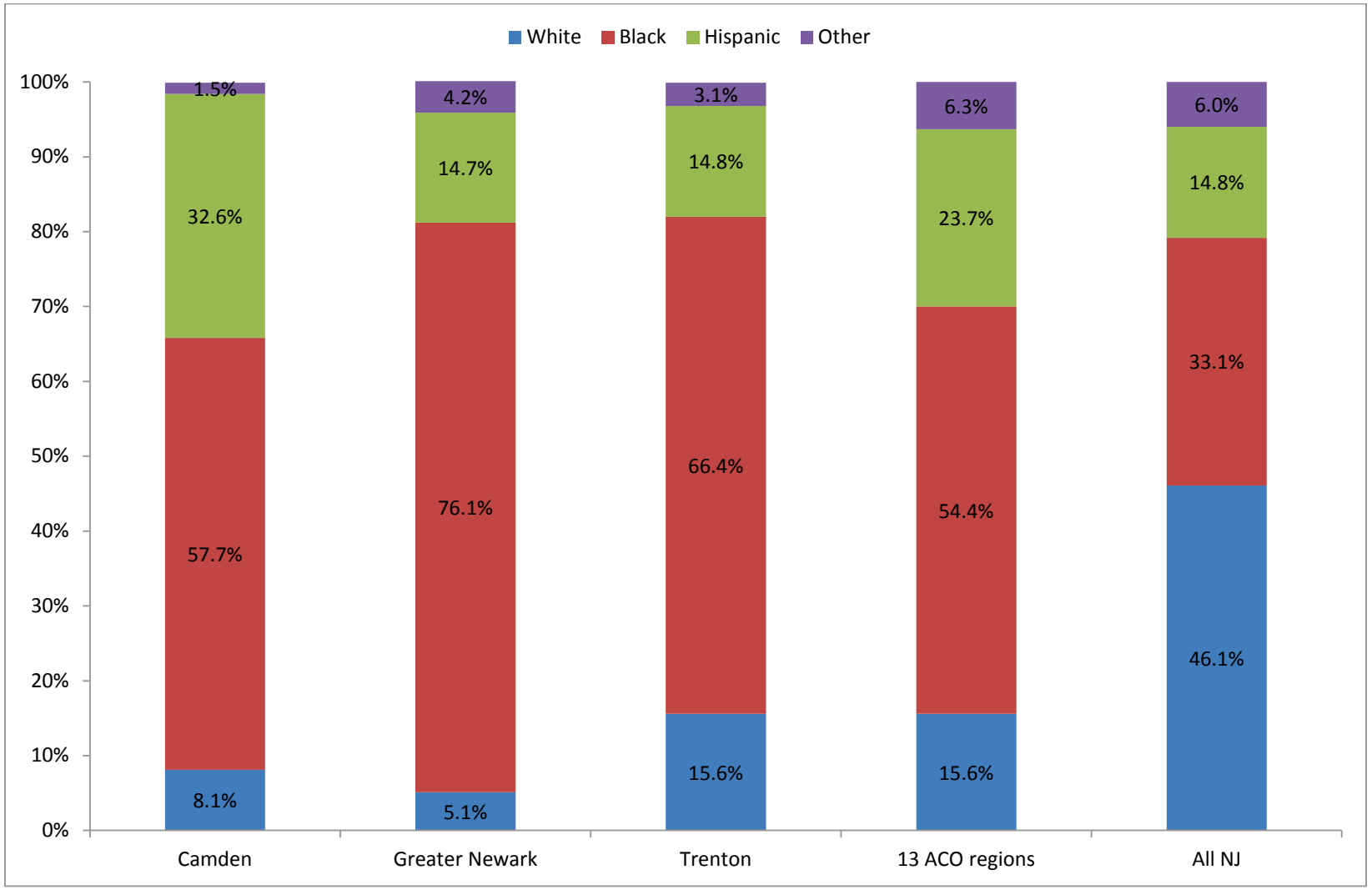
Calculated from discharge based inpatient costs of inpatient high users.

Figure 36. Payer Distribution of ED High User Costs



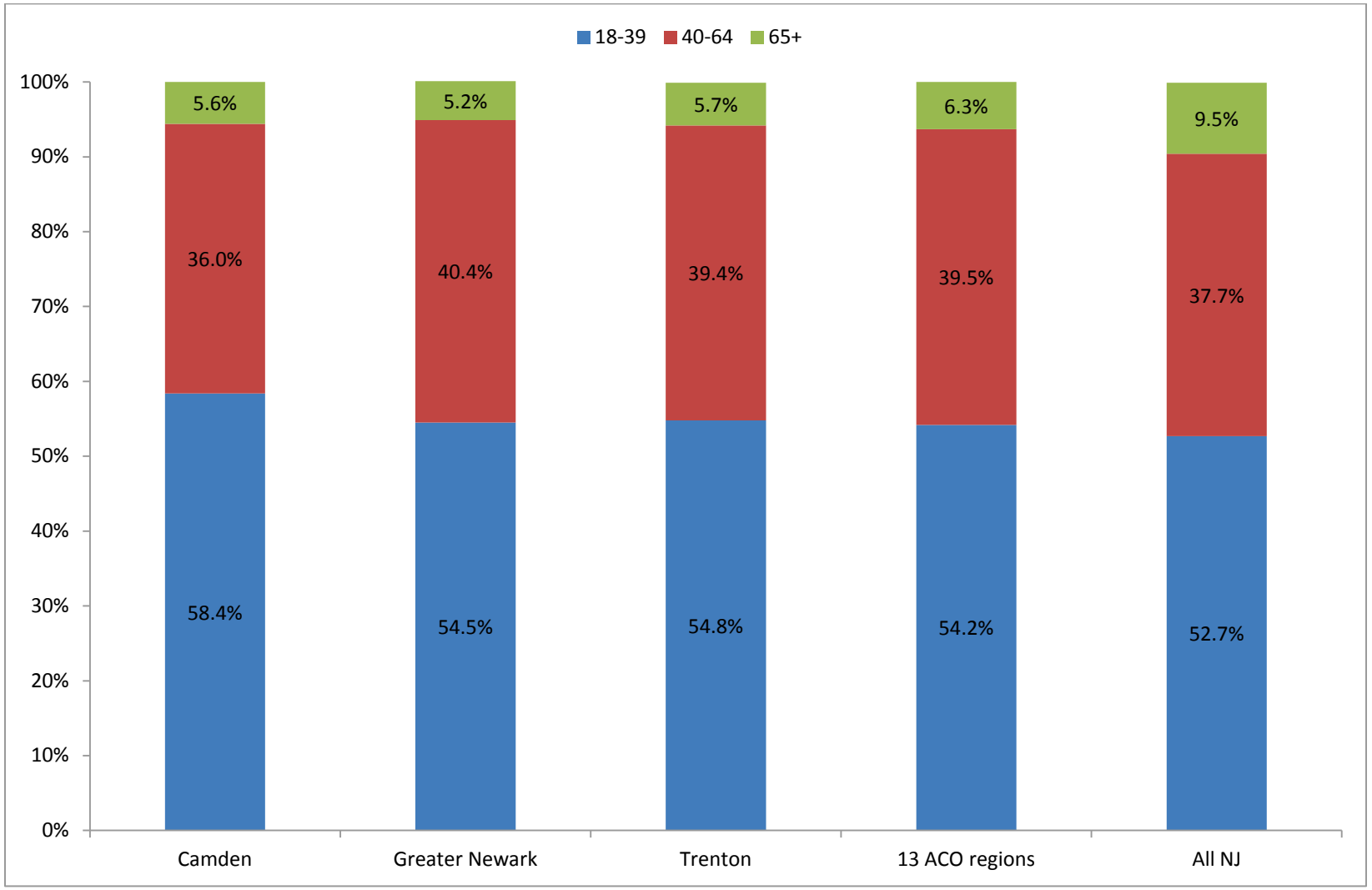
Calculated from discharge based ED costs of ED high users.

Figure 37. Race/Ethnicity Distribution of ED High User Costs



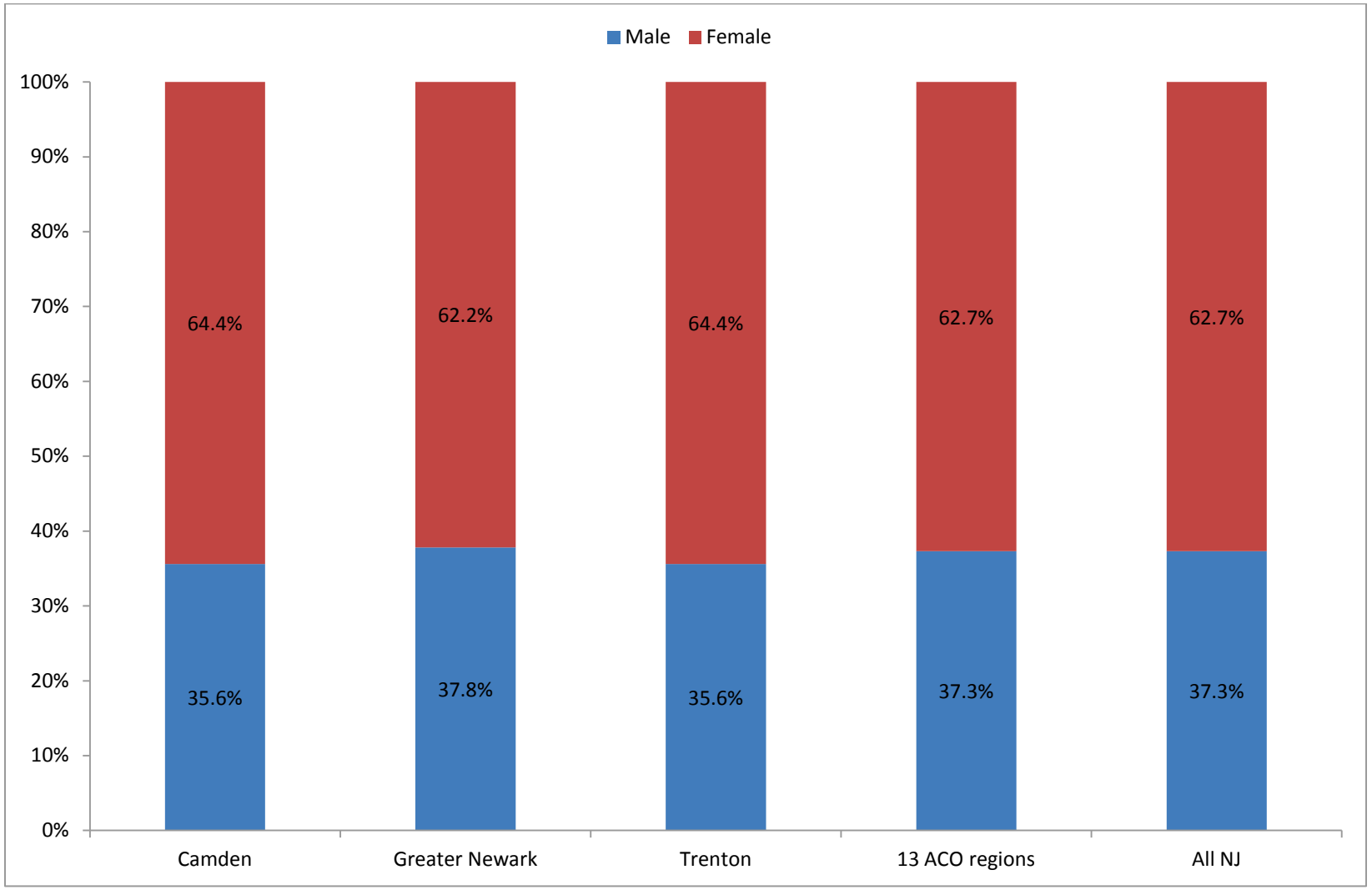
Calculated from discharge based ED costs of ED high users.

Figure 38. Age Distribution of ED High User Costs



Calculated from discharge based ED costs of ED high users.

Figure 39. Gender Distribution of ED High User Costs



Calculated from discharge based ED costs of ED high users.

Table 16. Most Common Principal Diagnoses for Inpatient High Users

Worst Region-Asbury Park		Median Region- Union City		Best Region-New Brunswick		13 ACO Regions	
Top Diagnosis	% of high users	Top Diagnosis	% of high users	Top Diagnosis	% of high users	Top Diagnosis	% of high users
Heart failure	5.54%	Heart failure	6.37%	Heart failure	6.47%	Heart failure	6.93
Chronic bronchitis	3.78%	Septicemia	4.71%	Septicemia	3.72%	Septicemia	4.08
Diabetes mellitus	3.60%	Other forms of chronic ischemic heart disease	3.79%	Pneumonia, organism unspecified	3.07%	Diabetes mellitus	3.81
Symptoms involving respiratory system and other chest symptoms	3.23%	Chronic bronchitis	3.53%	Complications peculiar to certain specified procedures	3.00%	Other forms of chronic ischemic heart disease	3.01
Complications peculiar to certain specified procedures	3.19%	Pneumonia, organism unspecified	3.03%	Diabetes mellitus	2.82%	Symptoms involving respiratory system and other chest symptoms	2.98
Cardiac dysrhythmias	2.81%	Symptoms involving respiratory system and other chest symptoms	3.01%	Symptoms involving respiratory system and other chest symptoms	2.80%	Chronic bronchitis	2.9
Other forms of chronic ischemic heart disease	2.32%	Diabetes mellitus	2.83%	Other forms of chronic ischemic heart disease	2.72%	Asthma	2.78
Asthma	2.23%	Acute myocardial infarction	2.73%	Cardiac dysrhythmias	2.66%	Pneumonia, organism unspecified	2.6
Septicemia	2.20%	Cardiac dysrhythmias	2.62%	General symptoms	2.28%	Complications peculiar to certain specified procedures	2.59
Acute kidney failure	2.05%	General symptoms	2.61%	Acute kidney failure	2.23%	Cardiac dysrhythmias	2.29

Percentages denote proportion of all inpatient discharges by high users.

Table 17. Most Common Principal Diagnoses for ED High Users

ACO Regions							
Worst Region - Camden		**Median Region - Plainfield**		**Best Region – Union City**		**13 ACO Regions**	
Top Diagnosis	**% of high users**	**Top Diagnosis**	**% of high users**	**Top Diagnosis**	**% of high users**	**Top Diagnosis**	**% of high users**
Other symptoms involving abdomen and pelvis	5.60%	Other symptoms involving abdomen and pelvis	5.48%	Other symptoms involving abdomen and pelvis	7.12%	Other symptoms involving abdomen and pelvis	5.78
Symptoms involving respiratory system and other chest symptoms	4.37%	Asthma	4.38%	Other and unspecified disorders of back	5.80%	Symptoms involving respiratory system and other chest symptoms	5.23
Other and unspecified disorders of back	3.66%	Symptoms involving respiratory system and other chest symptoms	4.25%	Symptoms involving respiratory system and other chest symptoms	5.39%	Other and unspecified disorders of back	4.02
Asthma	3.54%	Other and unspecified disorders of back	3.51%	Nondependent use of drugs	4.33%	Asthma	3.60
Other cellulitis and abscess	3.10%	General symptoms	3.21%	General symptoms	3.93%	General symptoms	3.24
Other disorders of urethra and urinary tract	2.96%	Other disorders of urethra and urinary tract	2.95%	Symptoms involving head and neck	3.27%	Nondependent use of drugs	2.93
General symptoms	2.36%	Hereditary hemolytic anemias	2.61%	Other disorders of urethra and urinary tract	2.46%	Symptoms involving head and neck	2.43
Other and unspecified orders of joint	2.29%	Symptoms involving head and neck	2.44%	Asthma	2.25%	Other disorders of urethra and urinary tract	2.34
Acute pharyngitis	2.15%	Other and unspecified noninfectious gastroenteritis and colitis	1.83%	Anxiety, dissociative and somatoform disorders	2.07%	Other cellulitis and abscess	2.05
Symptoms involving head and neck	2.13%	Other cellulitis and abscess	1.80%	Other disorders of soft tissues	1.93%	other disorders of soft tissues	1.93

Percentages denote proportion of all ED discharges by high users.

Table 18. High Users with Mental Disorders and Substance Abuse Comorbidities

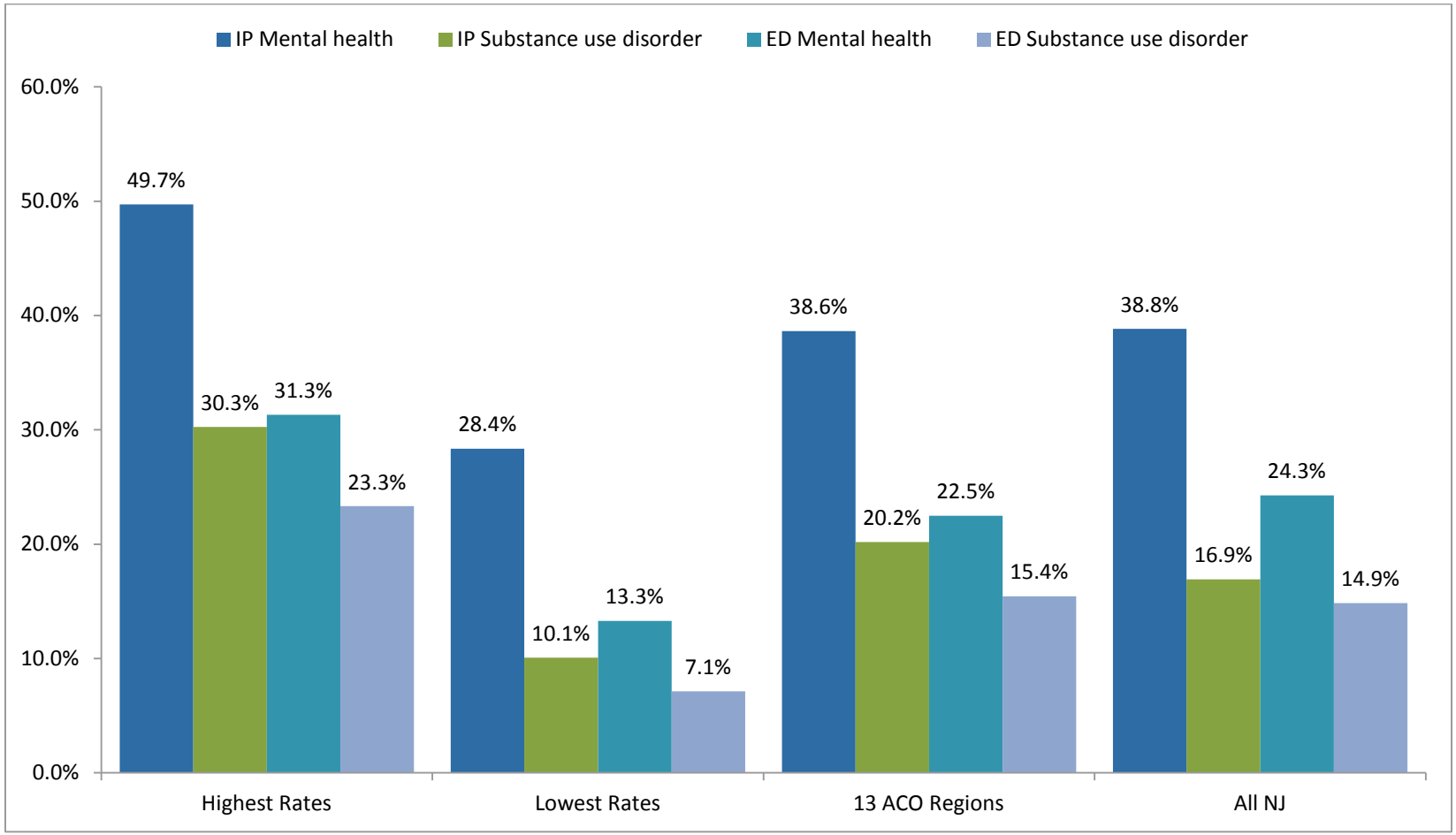
	Inpatient		Emergency Department	
ACO Regions	Mental health	Substance use disorder	Mental health	Substance use disorder
Asbury Park	45.1%	22.3%	29.8%	19.4%
Atlantic City	49.7%	30.3%	31.3%	21.6%
Camden	41.5%	27.2%	13.3%	7.1%
Elizabeth-Linden	32.9%	16.2%	21.4%	12.4%
Jersey City-Bayonne	33.7%	19.1%	18.4%	13.2%
New Brunswick	33.9%	13.8%	16.8%	10.3%
Greater Newark	41.7%	24.4%	28.8%	23.3%
Paterson	35.2%	17.2%	20.4%	13.0%
Perth Amboy	37.5%	13.1%	21.4%	13.1%
Plainfield	28.4%	13.1%	15.7%	7.3%
Trenton	41.6%	23.0%	21.0%	13.2%
Union City-W. NY-N. Bergen	36.3%	10.1%	17.7%	9.8%
Vineland	41.1%	15.1%	16.8%	7.2%
13 ACO regions combined	38.6%	20.2%	22.5%	15.4%
All NJ	38.8%	16.9%	24.3%	14.9%

ICD 9 codes 290-319 were utilized to diagnose mental disorder. For substance use disorder, ICD 9 codes 291, 292, 303-305 were used.

The Inpatient columns denote percentages of inpatient visits by Inpatient high users where these comorbidities were diagnosed.

Similarly, the ED columns denote percentages of Emergency Department visits by ED high users where these comorbidities were diagnosed.

Figure 40. IP/ED High Users with Mental Disorders and Substance Abuse Comorbidities



IP: Inpatient; ED: Emergency Department.

The Inpatient bars denote percentages of stays for Inpatient high users with those comorbidities.

Similarly, the ED bars denote percentages of visits for Emergency Department high users with these comorbidities.

For the 4 measures: proportion of IP high user stays denoting MH/SA disorders and ED high user visits with MH/SA disorders –

The highest rate regions were Atlantic City for the first three measures and Newark for the fourth measure.

The lowest rate regions were Plainfield, Union City for the first two measures and Camden for the remaining two measures.

Table 19. Annualized Savings from Reducing Costs Associated with Inpatient High Use

ACO Regions	No. of Hospital Users	IP High Use Annual Costs Per Hospital User	Annual IP High User Costs	Annual IP High User Costs if Performed as Best Region	Potential Annual Savings
	(1)	(2)	(3)	(4)	(5)=(3-4)
Asbury Park	36,186	1,302	47,130,070	31,902,338	15,227,731
Atlantic City	34,521	1,338	46,172,348	30,434,439	15,737,908
Camden	47,360	1,109	52,501,440	41,753,572	10,747,868
Elizabeth-Linden	***75,090***	***882***	***66,200,923***	***66,200,923***	***0***
Jersey City-Bayonne	126,915	1,291	163,803,443	111,890,932	51,912,511
New Brunswick	47,681	985	46,965,989	42,036,572	4,929,417
Greater Newark	220,353	1,423	313,584,821	194,267,837	119,316,984
Paterson	130,220	968	126,034,936	114,804,690	11,230,246
Perth Amboy	26,747	1,096	29,322,938	23,580,718	5,742,221
Plainfield	30,317	941	28,520,378	26,728,105	1,792,274
Trenton	64,051	1,314	84,176,642	56,468,708	27,707,933
Union City – W. NY-N. Bergen	76,457	1,066	81,517,365	67,406,099	14,111,266
Vineland	44,590	1,013	45,155,481	39,311,481	5,844,000
13 ACO regions combined	960,488	1,178	1,131,086,773	846,786,413	284,300,360
All NJ	3,382,777	1,114	3,769,223,830	2,982,327,320	786,896,510

Note:

Column 1 denotes number of unique hospital users in each region assessed over 2008-2010. We estimate cost savings that would be realized if each region was able to reduce their IP high use associated cost per hospital user to the level of the best performing region which is Elizabeth-Linden. Elizabeth-Linden (shown in bold italics) has the lowest IP high use cost per hospital user at $882. The reduced cost in column 4 is calculated by multiplying this average amount (from the best performing region) by each region's total hospital users. If all 13 regions were able to perform as Elizabeth Linden they would reduce their high user costs by $284.3 million.

Table 20. Annualized Savings from Reducing Costs Associated with ED High Use

ACO Regions	No. of Hospital Users	ED High Use Annual Costs Per Hospital User	Annual ED High User Costs	Annual ED High User Costs if Performed as Best Region	Potential Annual Savings
	(1)	(2)	(3)	(4)	(5)=(3-4)
Asbury Park	36,186	97	3,506,620	1,801,875	1,704,744
Atlantic City	34,521	271	9,367,532	1,718,967	7,648,565
Camden	47,360	272	12,858,658	2,358,283	10,500,376
Elizabeth-Linden	75,090	73	5,448,898	3,739,093	1,709,805
Jersey City-Bayonne	126,915	73	9,323,013	6,319,709	3,003,303
New Brunswick	47,681	78	3,722,239	2,374,267	1,347,973
Greater Newark	220,353	157	34,523,844	10,972,438	23,551,407
Paterson	130,220	72	9,390,036	6,484,281	2,905,754
Perth Amboy	26,747	108	2,896,997	1,331,862	1,565,135
Plainfield	30,317	76	2,300,257	1,509,630	790,628
Trenton	64,051	235	15,044,678	3,189,408	11,855,270
Union City-W. NY-N. Bergen	***76,457***	***50***	***3,807,162***	***3,807,162***	***0***
Vineland	44,590	129	5,752,694	2,220,351	3,532,343
13 ACO region combined	960,488	123	117,942,628	47,827,326	70,115,303
All NJ	3,382,777	86	290,122,990	168,444,766	121,678,224

Note:

Column 1 denotes number of unique hospital users in each region assessed over 2008-2010. We estimate cost savings that would be realized if each region was able to reduce their ED high use associated cost per hospital user to the level of the best performing region which is Union City-W. New York-N. Bergen (shown in bold italics). This region has the lowest ED high use cost per hospital user at $50. The reduced cost in column 4 is calculated by multiplying this average amount (from the best performing region) by each region's total hospital users. If all 13 regions were able to perform as Union City they would reduce their high user costs by $70.1 million.

Figure 41. Regions with Highest Savings Potential from Reducing Costs Associated with Inpatient High Use

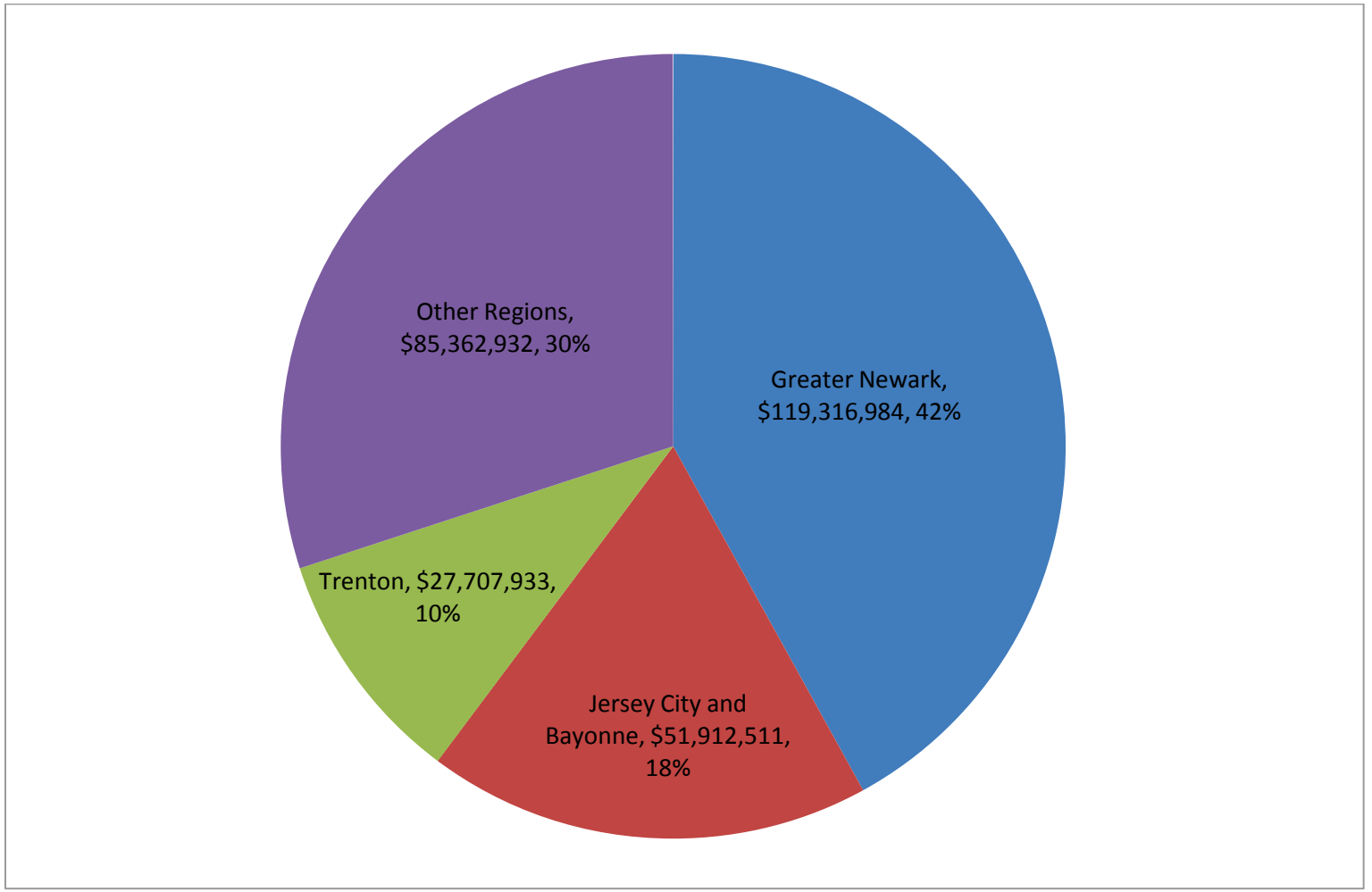


Figure 42. Regions with Highest Savings Potential from Reducing Costs Associated with ED High Use

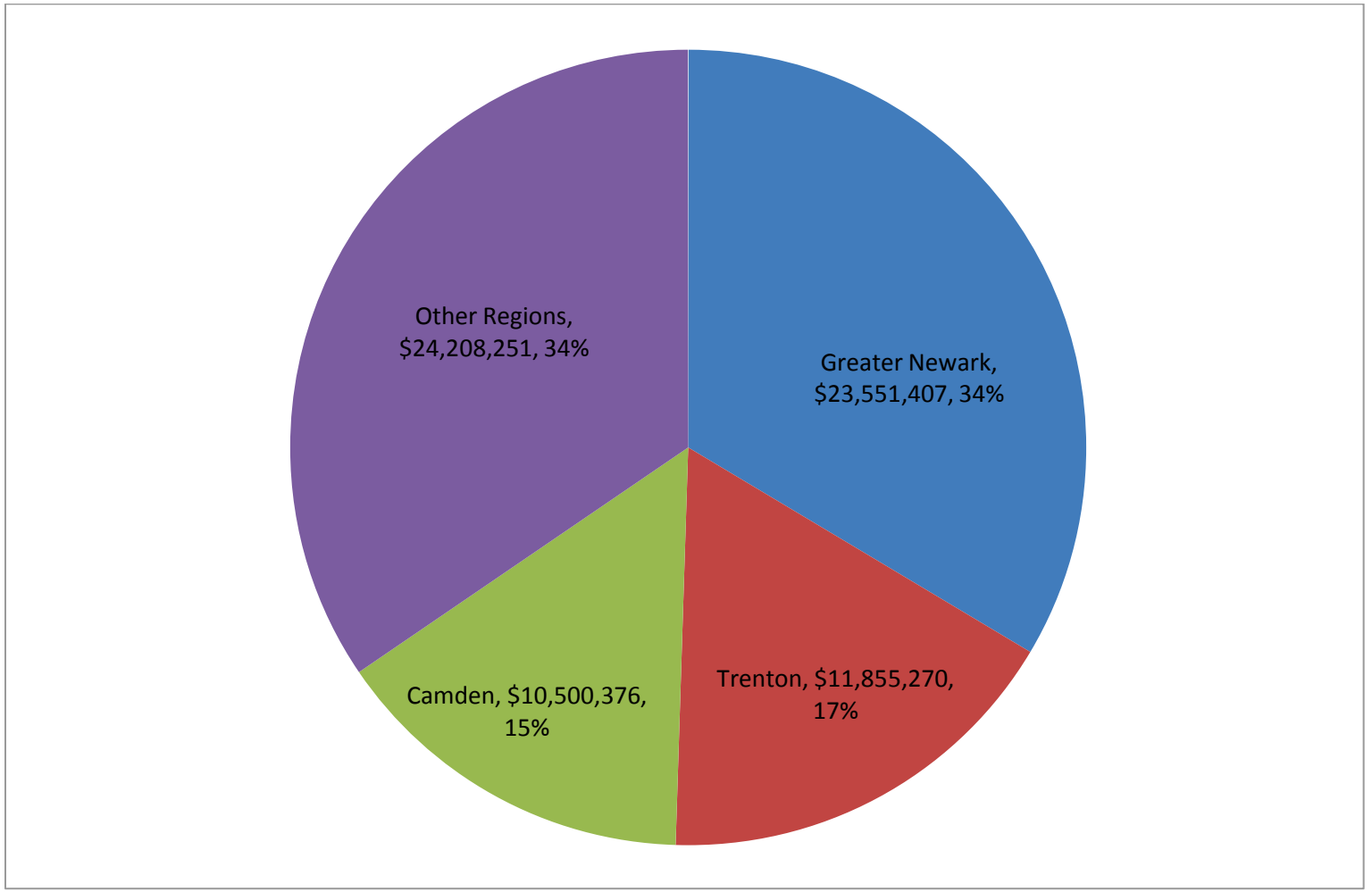


Table 21. Annualized Medicaid Savings from Reducing Costs Associated Inpatient High Use

ACO Regions	Hospital Users	IP High Use Annual Costs Per Hospital User	Annual IP High User costs	Annual IP High User Costs if Performed as Best Region	Potential Annual Savings
	(1)	(2)	(3)	(4)	(5)
Asbury Park	3,652	1,528	5,581,079	2,684,593	2,896,486
Atlantic City	1,649	1,709	2,818,959	1,212,183	1,606,775
Camden	6,282	1,593	10,004,912	4,617,912	5,387,000
Elizabeth-Linden	4,680	1,125	5,265,037	3,440,278	1,824,758
Jersey City-Bayonne	11,619	1,724	20,026,830	8,541,152	11,485,678
New Brunswick	1,648	1,223	2,015,406	1,211,448	803,958
Greater Newark	20,510	2,368	48,557,908	15,076,946	33,480,962
Paterson	6,178	1,282	7,919,372	4,541,461	3,377,911
Perth Amboy	3,372	973	3,282,193	2,478,765	803,428
Plainfield	2,142	996	2,133,317	1,574,589	558,728
Trenton	6,642	1,674	11,115,710	4,882,549	6,233,161
Union City-W. NY-N. Bergen	5,893	1,059	6,242,105	4,331,957	1,910,148
Vineland	***5,397***	***735***	***3,967,346***	***3,967,346***	**--**
13 ACO aggregation	79,664	1,618	128,930,173	58,561,180	70,368,994
All NJ	157,185	1,418	222,906,053	115,547,036	107,359,018

Note:

All numbers in this table relate to patients insured by Medicaid and associated costs of inpatient care for these patients. Methodology adopted is same as that for calculating potential savings for patients insured by all payers.

Column 1 denotes number of unique, Medicaid covered hospital users in each region assessed over 2008-2010. We estimate cost savings that would be realized if each region was able to reduce their IP high use associated cost per hospital user to the level of the best performing region which is Vineland (shown in bold italics). Vineland has the lowest IP high user cost per hospital user (when considering only Medicaid covered patients) at $735. The reduced cost in column 4 is calculated by multiplying this average amount (from the best performing region) by each region's total hospital users. If all 13 regions were able to emulate the cost profile of Vineland they would have saved $70.4 million in Medicaid costs.

Table 22. Annualized Medicaid Savings from Reducing Medicaid Costs Associated with ED High Use

ACO Regions	Hospital users	ED High Use Annual Costs Per Hospital User	Annual ED High User costs	Annual ED High User Costs if Performed as Best Region	Potential Annual Savings
	(1)	(2)	(3)	(4)	(5)
Asbury Park	3,652	284	1,038,976	357,223	681,753
Atlantic City	1,649	413	680,927	161,298	519,628
Camden	6,282	410	2,574,303	614,479	1,959,824
Elizabeth-Linden	4,680	126	587,408	457,778	129,630
Jersey City-Bayonne	11,619	172	1,997,306	1,136,522	860,784
New Brunswick	1,648	138	228,110	161,201	66,909
Greater Newark	20,510	337	6,904,998	2,006,203	4,898,794
Paterson	6,178	163	1,004,948	604,306	400,641
Perth Amboy	3,372	232	783,473	329,835	453,638
Plainfield	2,142	180	386,031	209,522	176,510
Trenton	6,642	556	3,689,829	649,693	3,040,137
Union City-W. NY-N. Bergen	***5,893***	***98***	***576,429***	***576,429***	**--**
Vineland	5,397	311	1,680,957	527,912	1,153,045
13 ACO aggregation	79,664	278	22,133,695	7,792,402	14,341,293
All NJ	157,185	261	40,967,285	15,375,185	25,592,101

Note:

All numbers in this table relate to patients insured by Medicaid and associated costs of ED care for these patients. Methodology adopted is same as that for calculating potential savings for patients insured by all payers.

Column 1 denotes number of unique, Medicaid covered hospital users in each region assessed over 2008-2010. We estimate cost savings that would be realized if each region was able to reduce their ED high use associated cost per hospital user to the level of the best performing region which is Union City (shown in bold italics). This region has the lowest ED high user cost per hospital user (when considering only Medicaid covered patients) at $98. The reduced cost in column 4 is calculated by multiplying this average amount (from the best performing region) by each region's total hospital users. If all 13 regions were able to emulate the cost profile of the Union City region they would have saved $14.3 million in Medicaid costs.

Figure 43. Regions with Highest Medicaid Savings Potential from Reducing Costs Associated with Inpatient High Use

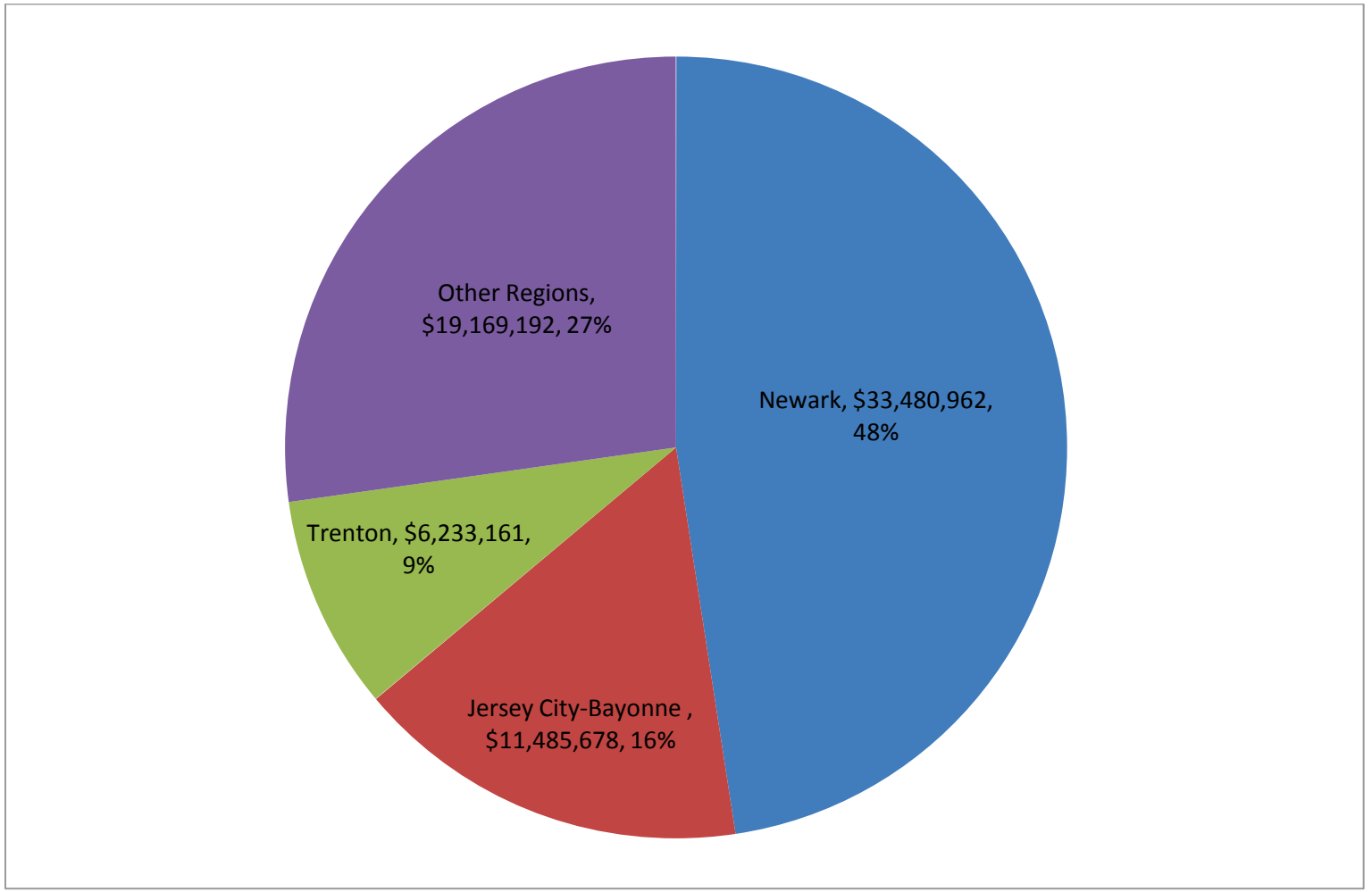
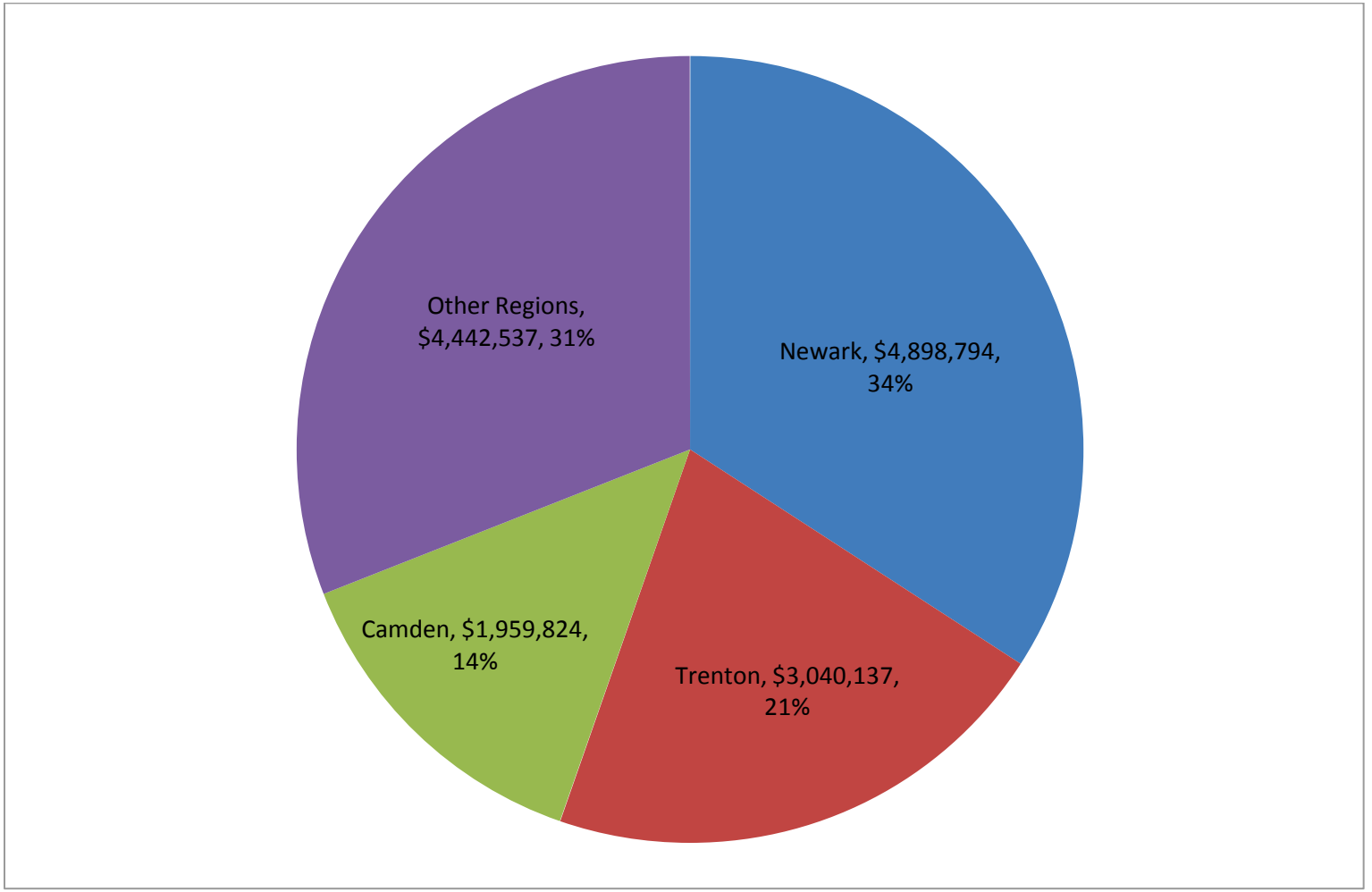


Figure 44. Regions with Highest Medicaid Savings Potential from Costs Associated with ED High Use



All-Cause 30-Day Readmission Rates

Table 23. All Cause 30-Day Readmission Rate (per 100 Index hospitalizations)

ACO Regions	Readmission Rate per 100 Index hospitalizations
Asbury Park	14.2%
Atlantic City	14.2%
Camden	14.5%
Elizabeth-Linden	12.6%
Jersey City-Bayonne	14.8%
New Brunswick	12.5%
Greater Newark	16.4%
Paterson	13.7%
Perth Amboy	13.9%
Plainfield	12.1%
Trenton	15.4%
Union City-W. NY-N. Bergen	12.5%
Vineland	12.4%
13 ACO regions combined	14.4%
All NJ	12.7%

Adjusted for population age-sex distributions.

Figure 45. 30 Day All-Cause Readmission Rates over 2008-2010

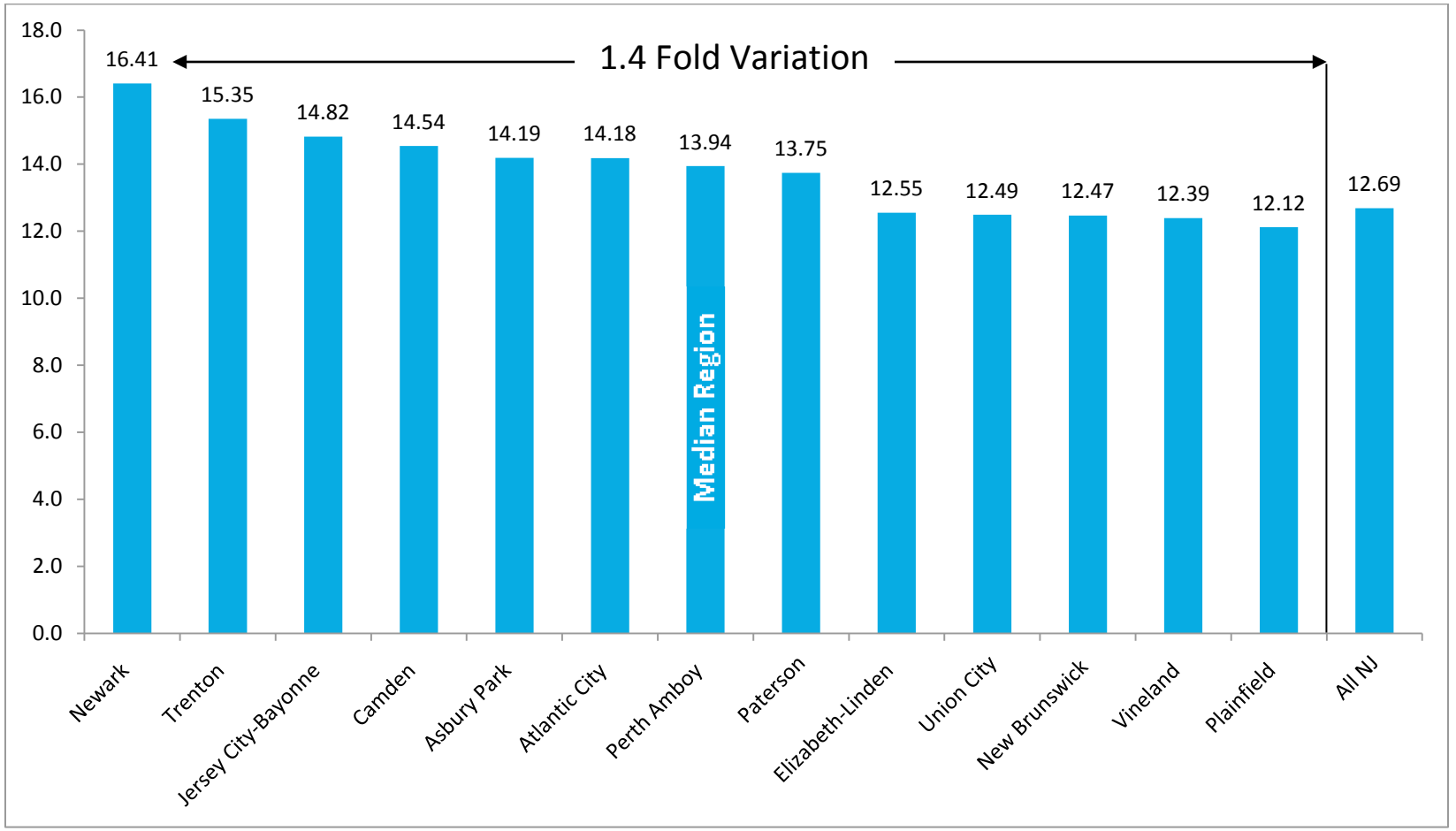


Table 24. Demographic and Payer Distributions of Patients Readmitted within 30 Days

ACO Regions	Medicare	Medicaid	Private	Charity Care	Self-Pay	White	Black	Hispanic	Other	18-39	40-64	65+	Male	Female
Asbury Park	57.1	8.6	21.4	6.2	5.3	57.8	33.0	5.7	3.5	14.3	32.5	53.2	44.0	56.0
Atlantic City	46.3	7.0	25.4	14.4	5.9	32.4	40.7	12.7	14.2	17.8	39.7	42.5	45.1	54.9
Camden	37.2	18.1	21.3	12.2	9.3	11.5	56.1	30.4	2.0	25.5	45.1	29.4	44.3	55.7
Elizabeth-Linden	47.4	7.3	28.7	11.0	3.5	39.1	26.0	29.9	5.0	16.4	35.3	48.2	44.7	55.3
Jersey City-Bayonne	48.7	9.9	23.9	12.4	3.6	34.6	25.8	14.4	25.2	17.0	36.7	46.3	43.0	57.0
New Brunswick	45.8	4.3	33.7	7.1	7.2	44.0	30.7	11.9	13.4	21.3	29.1	49.6	43.2	56.8
Greater Newark	43.8	13.1	23.2	10.7	7.3	9.9	70.5	14.6	5.0	20.6	40.0	39.4	43.7	56.3
Paterson	43.5	5.4	30.0	14.1	5.5	34.7	26.3	29.2	9.8	20.5	35.5	44.0	44.6	55.4
Perth Amboy	52.3	12.1	19.5	8.2	5.1	33.9	9.0	51.2	5.9	18.1	35.9	46.0	45.0	55.0
Plainfield	45.7	6.0	29.7	9.4	5.7	25.7	54.0	14.3	6.0	19.4	38.3	42.4	43.7	56.3
Trenton	43.5	11.7	21.0	15.1	6.7	29.5	54.0	13.2	3.3	23.3	39.2	37.5	43.9	56.1
Union City-W. NY-N. Bergen	55.0	7.0	23.5	7.6	4.4	25.7	1.3	57.0	15.9	14.4	26.9	58.7	43.6	56.4
Vineland	59.6	9.9	18.6	3.3	5.9	66.2	16.3	12.5	4.9	16.7	31.9	51.3	44.4	55.6
13 ACO regions combined	47.1	9.7	24.6	10.9	5.8	29.4	39.1	21.6	9.8	19.1	36.4	44.5	43.9	56.1
All NJ	55.9	4.8	27.8	5.7	3.7	66.8	16.5	9.4	7.4	13.9	30.9	55.3	44.6	55.4

Numbers denote percentages of readmitted patients. Payer distribution may not add up to 100% since 'other' category of insurance is not reported.
Reported characteristics based on the first hospitalization for patients who had 30-day readmission episode(s).

Figure 46. Payer Distribution of Patients Readmitted within 30 Days

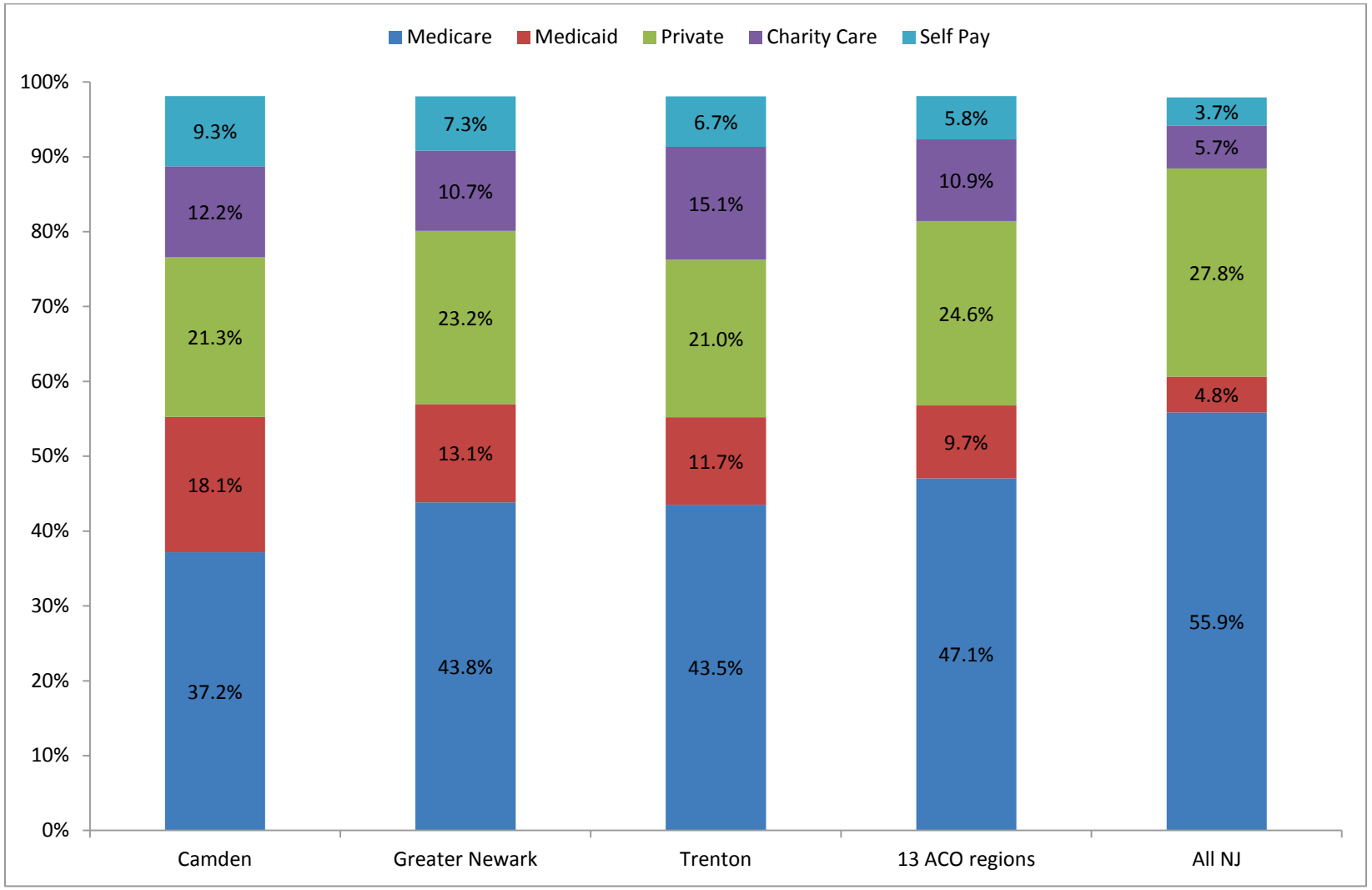


Figure 47. Race/Ethnicity Distribution of Patients Readmitted within 30 Days

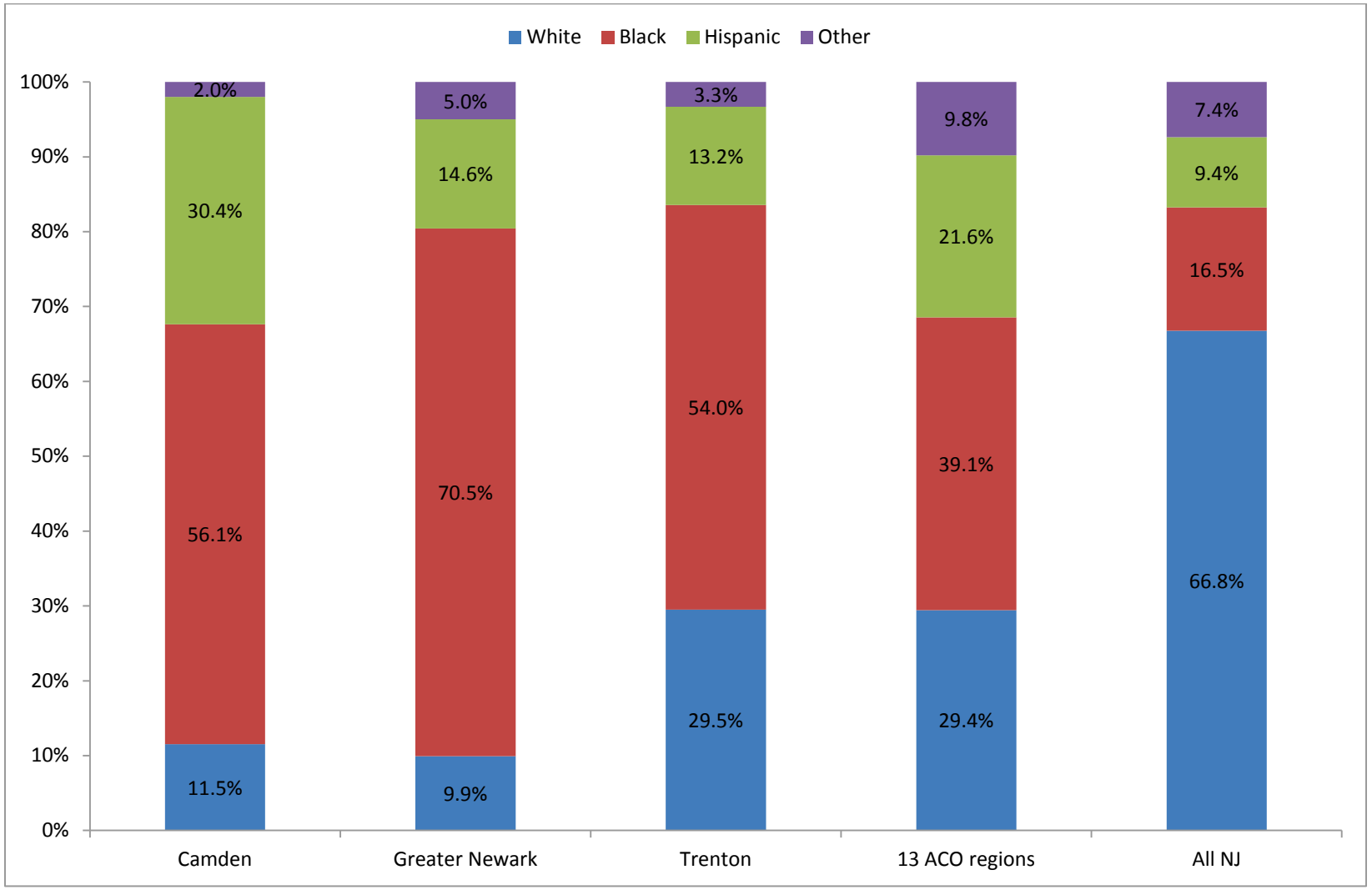


Figure 48. Age Distribution of Patients Readmitted within 30 Days

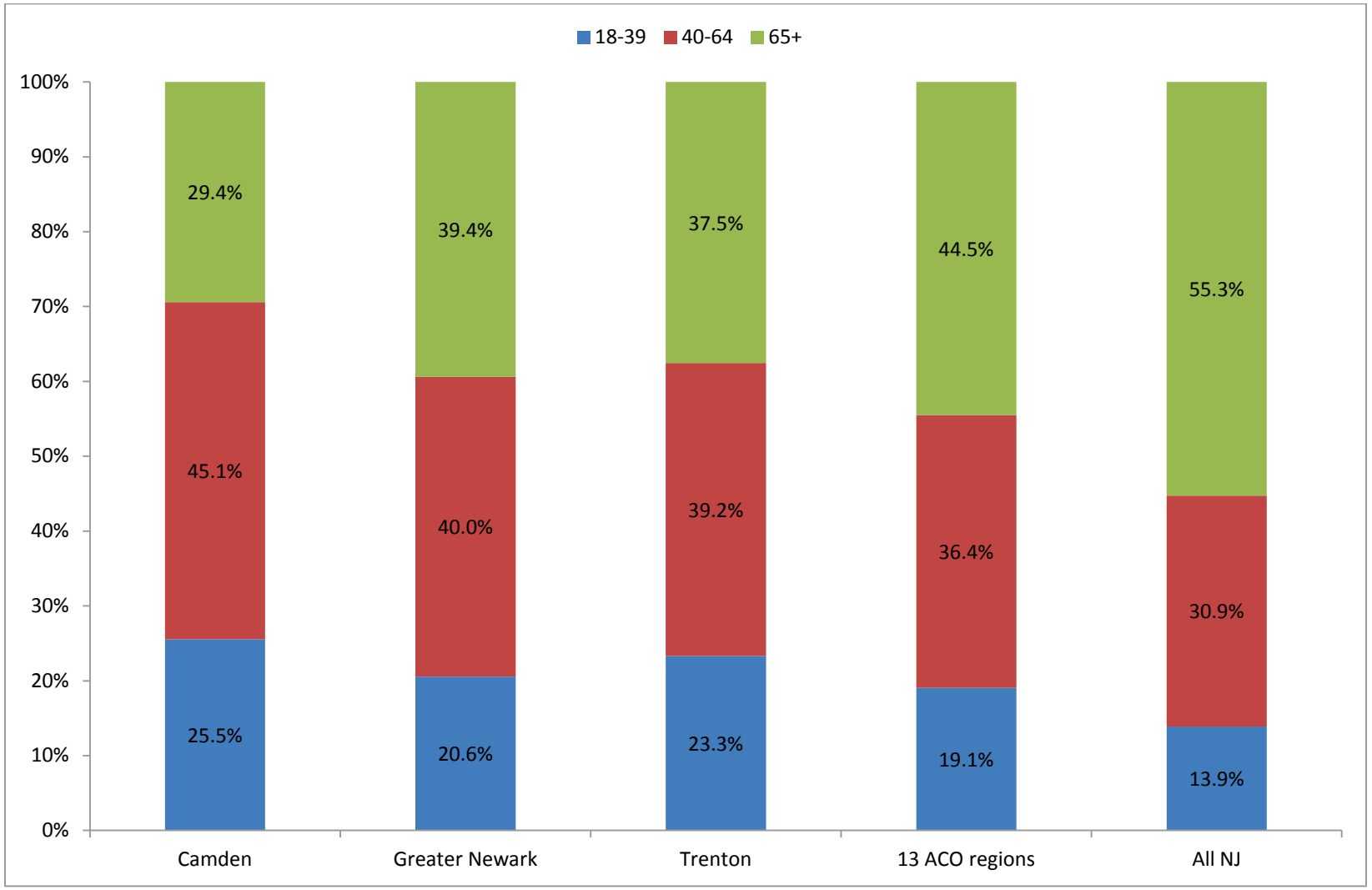


Figure 49. Gender Distribution of Patients Readmitted within 30 Days

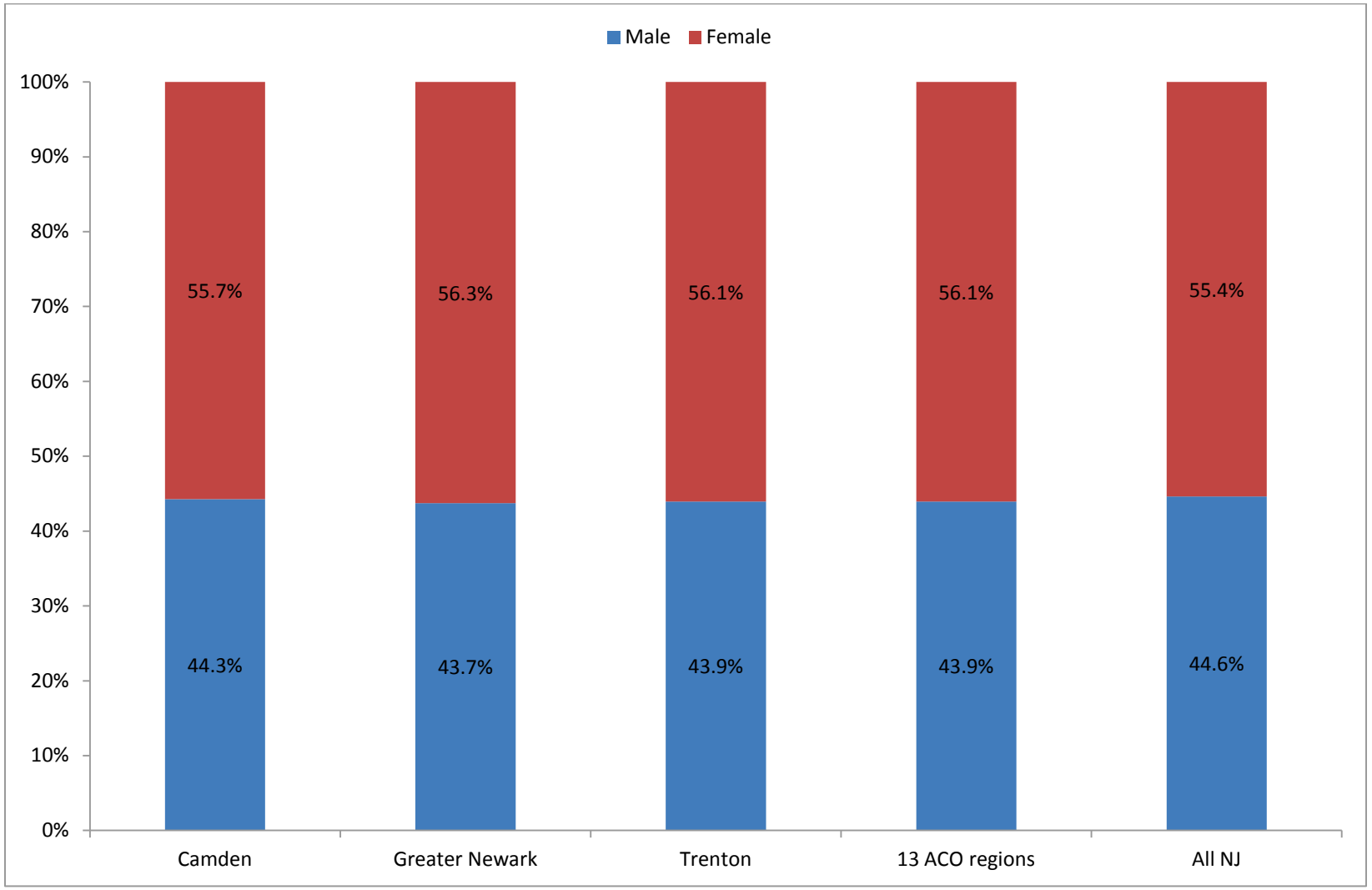
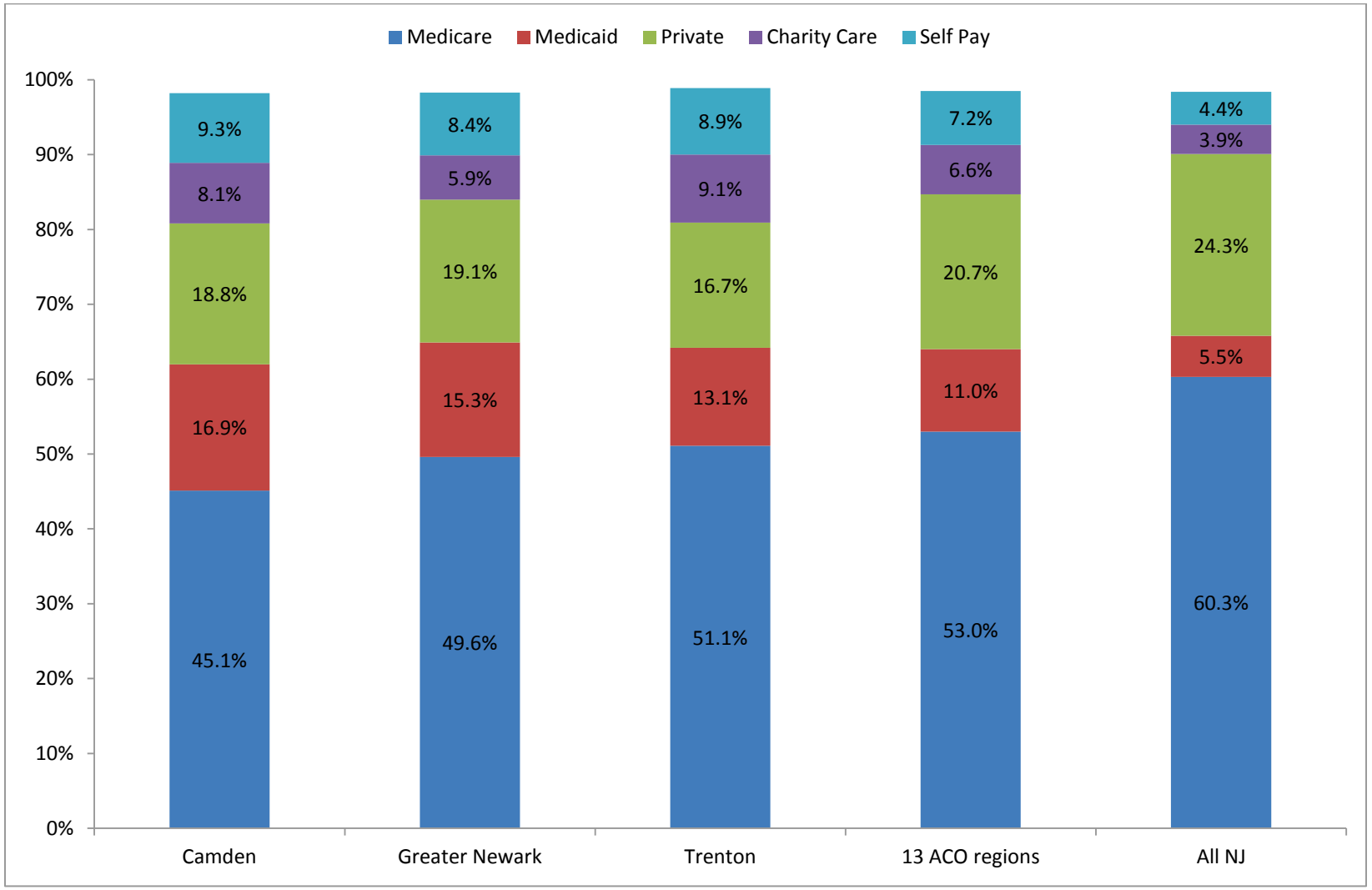
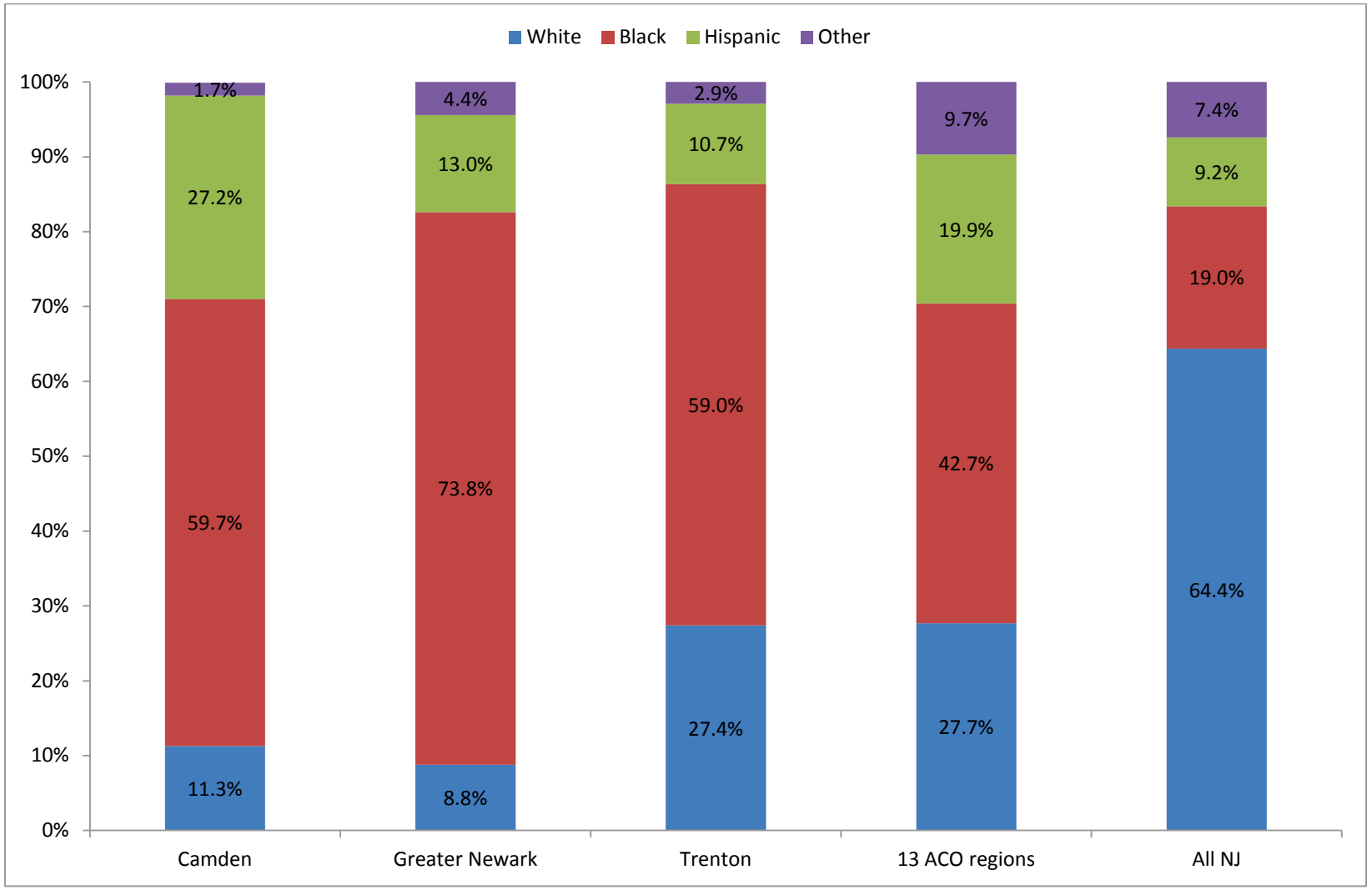


Figure 50. Payer Distribution of Readmission Costs



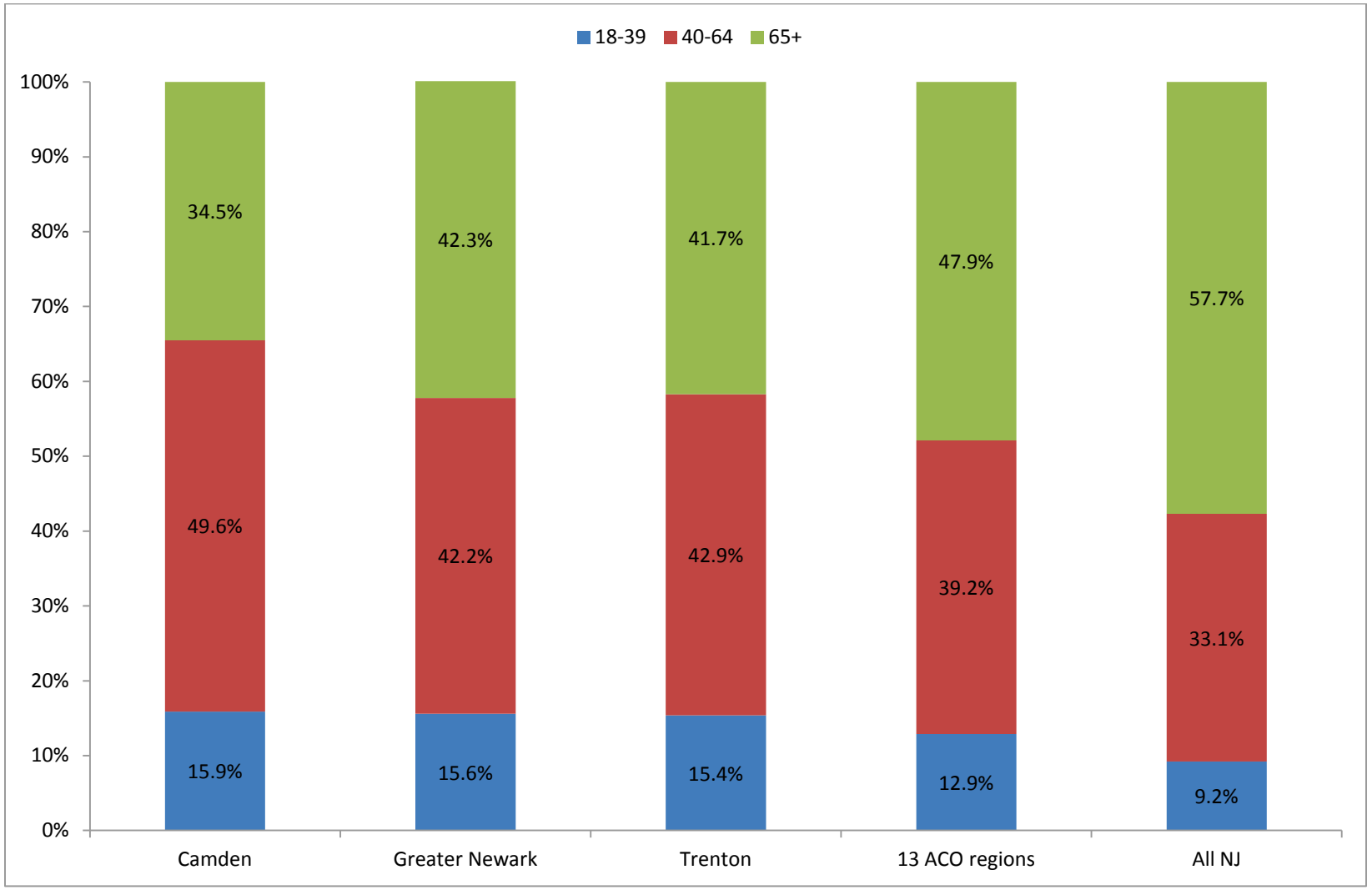
Reported distributions are for costs aggregated across all readmission episodes.

Figure 51. Race/Ethnicity Distributions of Readmission Costs



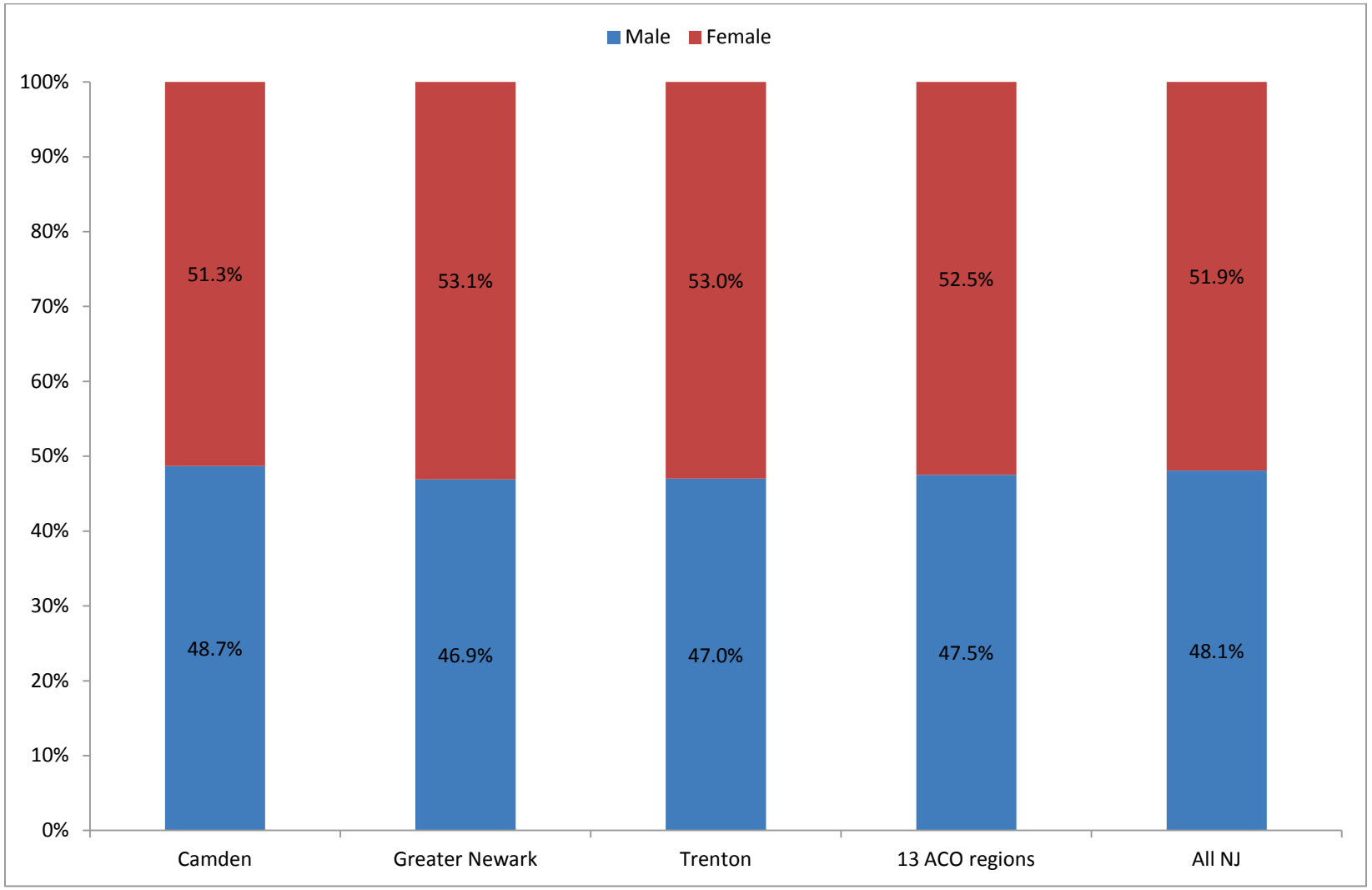
Reported distributions are for costs aggregated across all readmission episodes.

Figure 52. Age Distribution of Readmission Costs



Reported distributions are for costs aggregated across all readmission episodes.

Figure 53. Gender Distributions of Readmission Costs



Reported distributions are for costs aggregated across all readmission episodes.

Table 25. 30 Day All-Cause Readmission Rates Stratified by Demographics and Payer

ACO Regions	Medicare	Medicaid	Private	Self-Pay	White	Black	Hispanic	Other	Male	Female	18-39	40-64	65+
Asbury Park	20.2	15.7	9.8	12.7	15.4	16.1	11.7	11.5	17.7	13.7	8.9	14.9	19.6
Atlantic City	20.9	14.1	11.2	12.1	17.6	15.8	9.4	14.2	16.9	13.4	8.2	15.5	20.9
Camden	20.1	14.2	10.7	11.8	17.2	15.3	12.2	9.4	16.7	12.7	8.9	16.1	20.4
Elizabeth-Linden	20.7	11.1	9.6	9.1	14.8	15.0	10.3	9.9	16.2	11.1	5.9	13.7	19.8
Jersey City-Bayonne	23.1	16.2	9.8	12.7	17.6	16.7	12.8	14.3	18.6	13.9	7.6	16.6	22.4
New Brunswick	19.9	8.7	10.0	9.2	15.3	15.4	7.5	9.3	16.5	10.8	6.4	13.4	19.7
Greater Newark	24.3	17.4	11.7	11.8	17.6	17.7	13.2	11.6	19.9	14.5	9.9	17.3	23.3
Paterson	21.0	12.6	10.4	11.0	15.5	16.3	11.5	11.2	17.3	11.7	7.4	14.9	19.9
Perth Amboy	23.3	11.5	10.0	9.2	20.5	17.4	12.3	11.3	17.4	13.0	6.6	15.8	22.7
Plainfield	19.6	8.9	9.0	9.2	14.3	14.2	6.7	11.5	15.2	10.6	5.9	13.4	19.2
Trenton	21.2	16.1	10.3	13.8	16.4	16.7	12.1	10.3	17.9	14.0	10.2	16.5	20.3
Union City-W. NY-N. Bergen	21.3	10.5	9.7	9.5	15.9	12.8	13.9	12.3	17.9	11.9	5.8	13.4	20.8
Vineland	19.2	10.8	7.9	9.2	13.7	15.3	11.2	11.3	16.0	11.9	7.1	13.3	18.7
13 ACO regions combined	21.2	12.9	9.9	10.8	15.8	15.9	11.7	12.6	17.3	12.3	7.0	14.8	20.5
All NJ	19.7	13.5	9.3	11.7	14.4	15.9	11.5	11.2	16.5	12.5	7.0	13.6	19.1

Calculated as proportion of all index hospitalizations categorized by demographic and payer characteristic. Patient and payer characteristics are available from the first hospitalization. Self pay category in this table includes self pay and uninsured patients.

Table 26. Annualized Cost Savings from Reduced Readmissions

ACO Regions	Annual Index Hospitalizations	Actual Readmission Costs Per Index Hospitalization	Adjusted Readmission Costs Per Index Hospitalization	Annual Readmission Costs	Annual Readmission cost if Performed as Best Region	Potential Savings
	(1)	(2)	(3)	(4)	(5)	(6)
Asbury Park	8,240	2,284	2,035	18,817,377	16,264,368	2,553,008
Atlantic City	7,356	2,223	2,022	16,350,585	13,372,021	2,978,565
Camden	8,499	2,086	2,143	17,726,516	14,115,564	3,610,952
Elizabeth-Linden	12,670	2,149	2,077	27,222,270	22,615,516	4,606,755
Jersey City-Bayonne	25,326	2,515	2,311	63,703,948	46,151,913	17,552,035
New Brunswick	8,304	2,167	2,128	17,990,443	14,390,451	3,599,992
Greater Newark	44,072	2,609	2,558	114,982,890	78,157,917	36,824,974
Paterson	25,535	1,936	1,909	49,424,485	44,927,051	4,497,434
Perth Amboy	4,948	2,225	2,076	11,010,853	8,815,123	2,195,730
Plainfield	5,218	2,061	2,059	10,753,558	8,930,260	1,823,298
Trenton	12,636	2,406	2,342	30,403,248	22,582,992	7,820,256
Union City-W. NY-N. Bergen	14,514	2,298	2,001	33,358,580	27,640,690	5,717,890
Vineland	***8,482***	***1,891***	***1,713***	***16,041,404***	***16,041,404***	**--**
13 ACO regions combined	185,799	2,302	2,203	427,786,158	334,005,268	93,780,889
All NJ	695,280	2,156	1,884	1,499,146,422	1,360,521,872	138,624,550

We calculated cost savings by each region if they were able to reduce their readmission costs per index hospitalization to the level of the best performing region-Vineland (shown in bold italics). The average readmission cost per index hospitalization is calculated for each age-sex category in the best performing region. These average costs are then applied to the corresponding categories for the remaining regions and aggregated to arrive at the estimates in column 5. Potential savings is calculated as the difference between their actual costs and this reduced level of costs.

Figure 54. Regions with Highest Savings Potential from Reducing Costs Associated with Readmissions

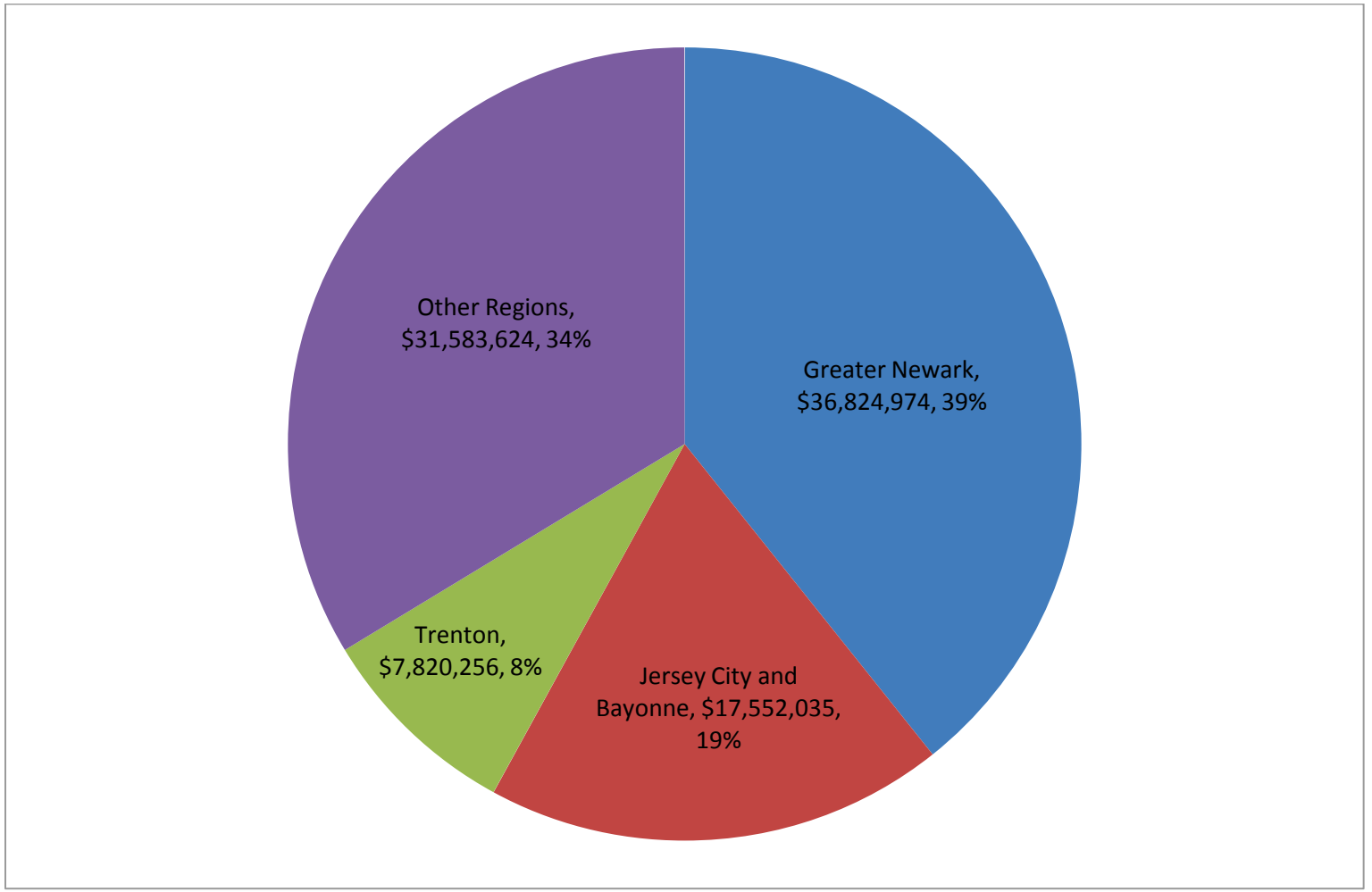


Table 27. Annualized Cost Savings from Reduced Medicaid Readmissions

ACO Regions	Annul Medicaid Index Hospitalization	Actual Medicaid Readmission Costs Per Medicaid Index Hospitalization	Medicaid Readmission Costs Per Index Hospitalization if Performed as Best Region	Annual Medicaid Readmission Costs	Annual Medicaid Readmission cost if Performed as Best Region	Potential Savings
Asbury Park	951	2,411	1,423	2,292,789	1,353,511	939,279
Atlantic City	547	1,891	1,467	1,034,593	802,498	232,095
Camden	1,720	1,746	1,422	3,003,310	2,446,955	556,355
Elizabeth-Linden	1,176	1,814	1,445	2,132,357	1,699,395	432,962
Jersey City-Bayonne	3,053	2,569	1,551	7,841,087	4,734,301	3,106,786
New Brunswick	542	1,621	1,183	878,655	641,095	237,560
Greater Newark	6,410	2,748	1,575	17,616,621	10,097,648	7,518,974
Paterson	1,671	1,660	1,426	2,774,386	2,382,750	391,636
Perth Amboy	765	1,572	1,429	1,203,201	1,093,694	109,507
Plainfield	531	1,378	1,116	731,415	592,252	139,163
Trenton	1,645	2,412	1,496	3,968,408	2,461,533	1,506,875
Union City-W. NY-N. Bergen	1,425	1,548	1,409	2,205,329	2,007,509	197,820
Vineland	***1,109***	***1,249***	***1,249***	***1,384,900***	***1,384,900***	**--**
13 ACO aggregation	21,545	2,185	1,471	47,067,051	31,698,040	15,369,011
All NJ	41,667	1,966	1,455	81,929,488	60,610,297	21,319,191

All numbers in this table relate to patients insured by Medicaid and readmission costs for those patients. We calculated cost savings by each region if they were able to reduce their readmission costs per Medicaid index hospitalization to the level of the best performing region- Vineland (shown in bold italics). The average readmission cost per Medicaid index hospitalization is identified for each age-sex category in the best performing region. These average costs are then applied to the corresponding categories for the remaining regions and aggregated to arrive at the estimates in column 5. Potential savings is calculated as the difference between a region's actual Medicaid costs and this reduced level of costs. If all 13 regions were able to reduce their cost profile to that of Vineland they would reduce their Medicaid covered readmission costs by $15.3 million.

Figure 55. Regions with Highest Medicaid Savings Potential by Reducing Costs Associated with Readmissions

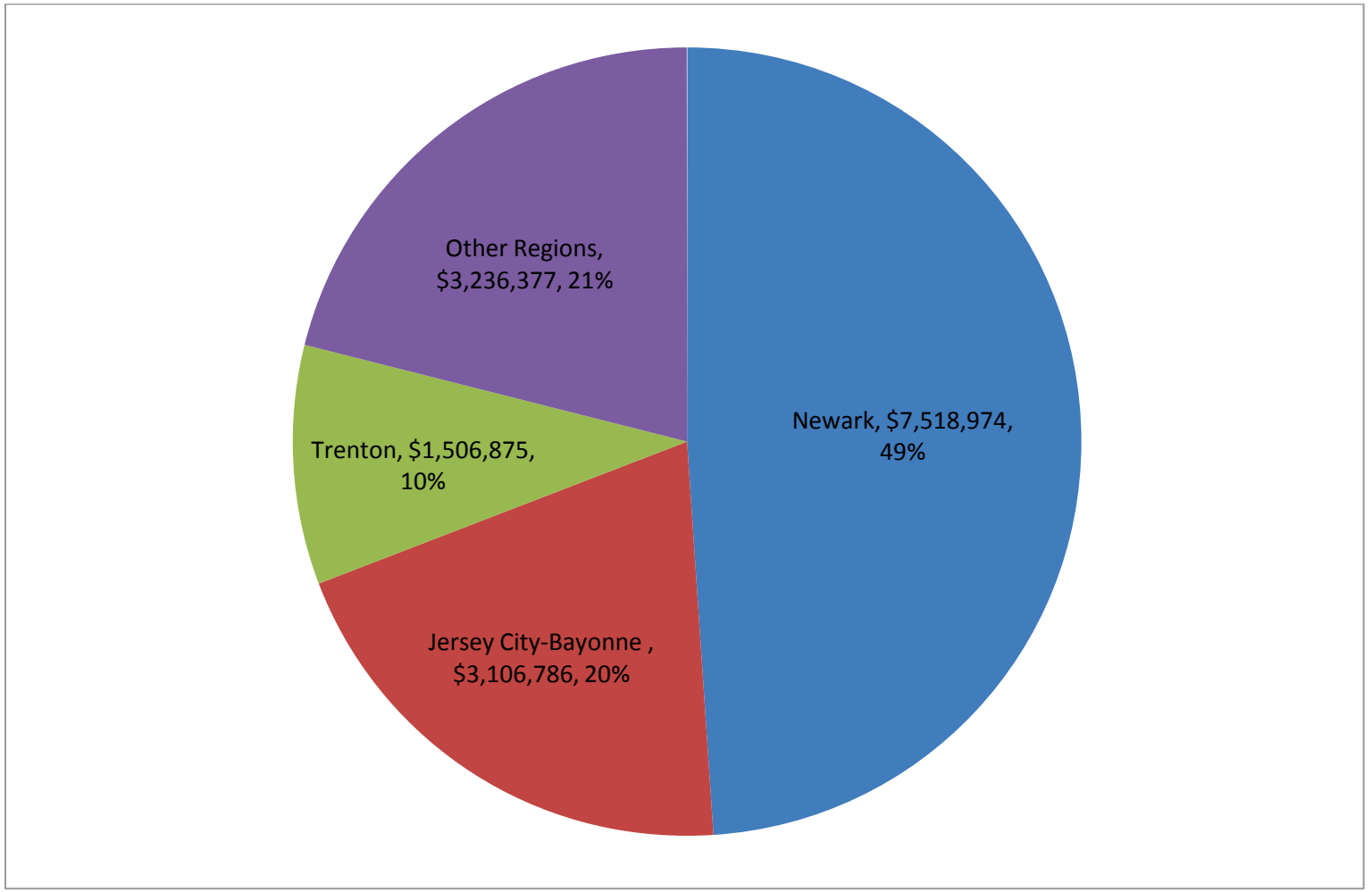
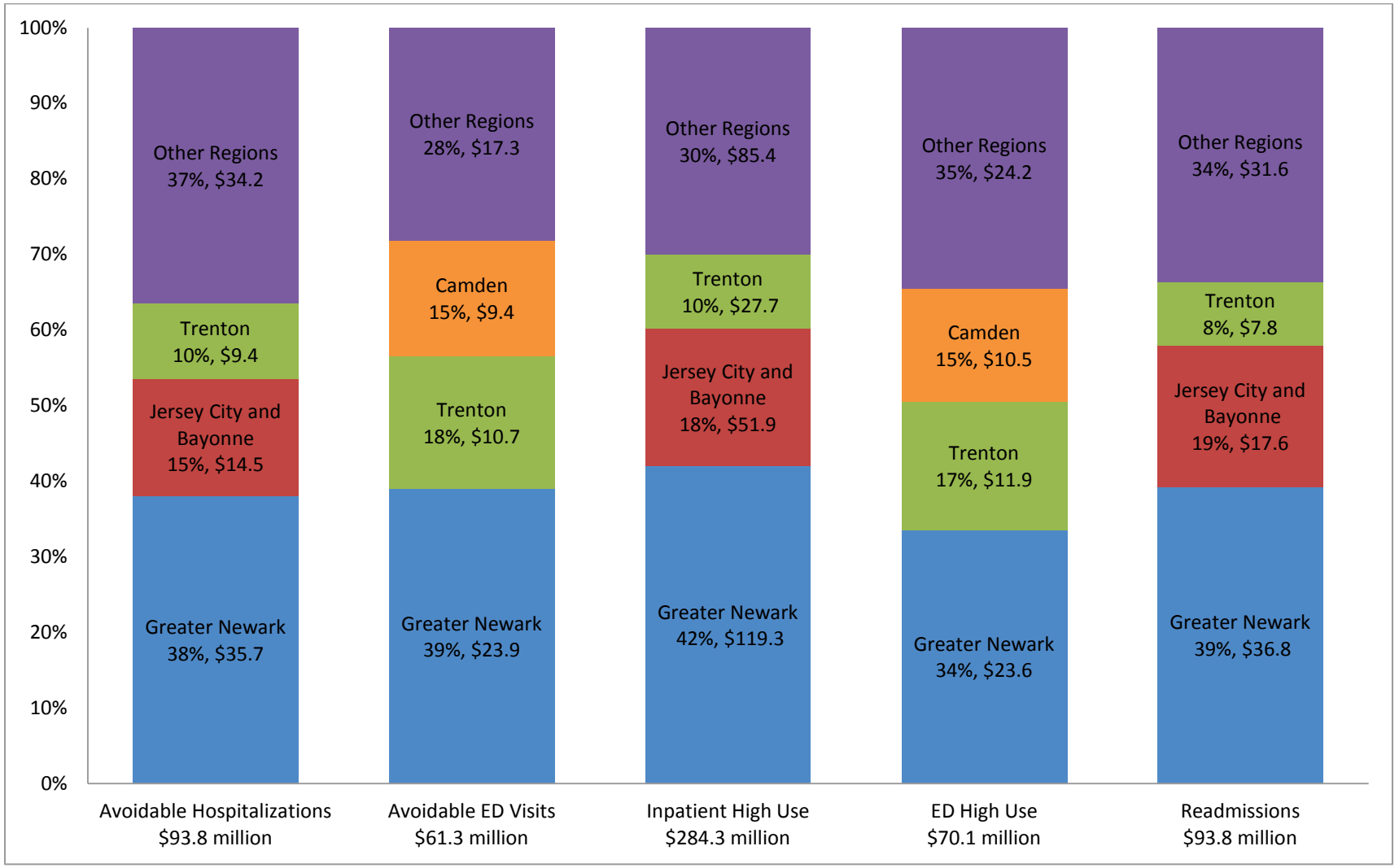


Table 28. 30-Day All-Cause Readmission Rates for AMI, HF and Pneumonia

ACO Regions	Readmission Rate for Acute Myocardial Infarction	Readmission Rate for Heart Failure	Readmission Rate for Pneumonia
Asbury Park	17.9	20.9	8.8
Atlantic City	34.9	23.6	14.8
Camden	22.2	25.4	13.3
Elizabeth-Linden	19.5	20.8	12.6
Jersey City-Bayonne	22.3	29.0	13.7
New Brunswick	9.5	26.4	12.4
Greater Newark	21.6	27.3	15.1
Paterson	21.5	22.9	14.9
Perth Amboy	18.2	34.9	11.7
Plainfield	10.4	36.2	12.3
Trenton	17.8	28.4	15.3
Union City-W. NY-N. Bergen	23.0	28.8	14.2
Vineland	19.8	20.6	14.4
13 ACO regions combined	21.1	26.7	13.9
All NJ	17.5	25.3	12.5

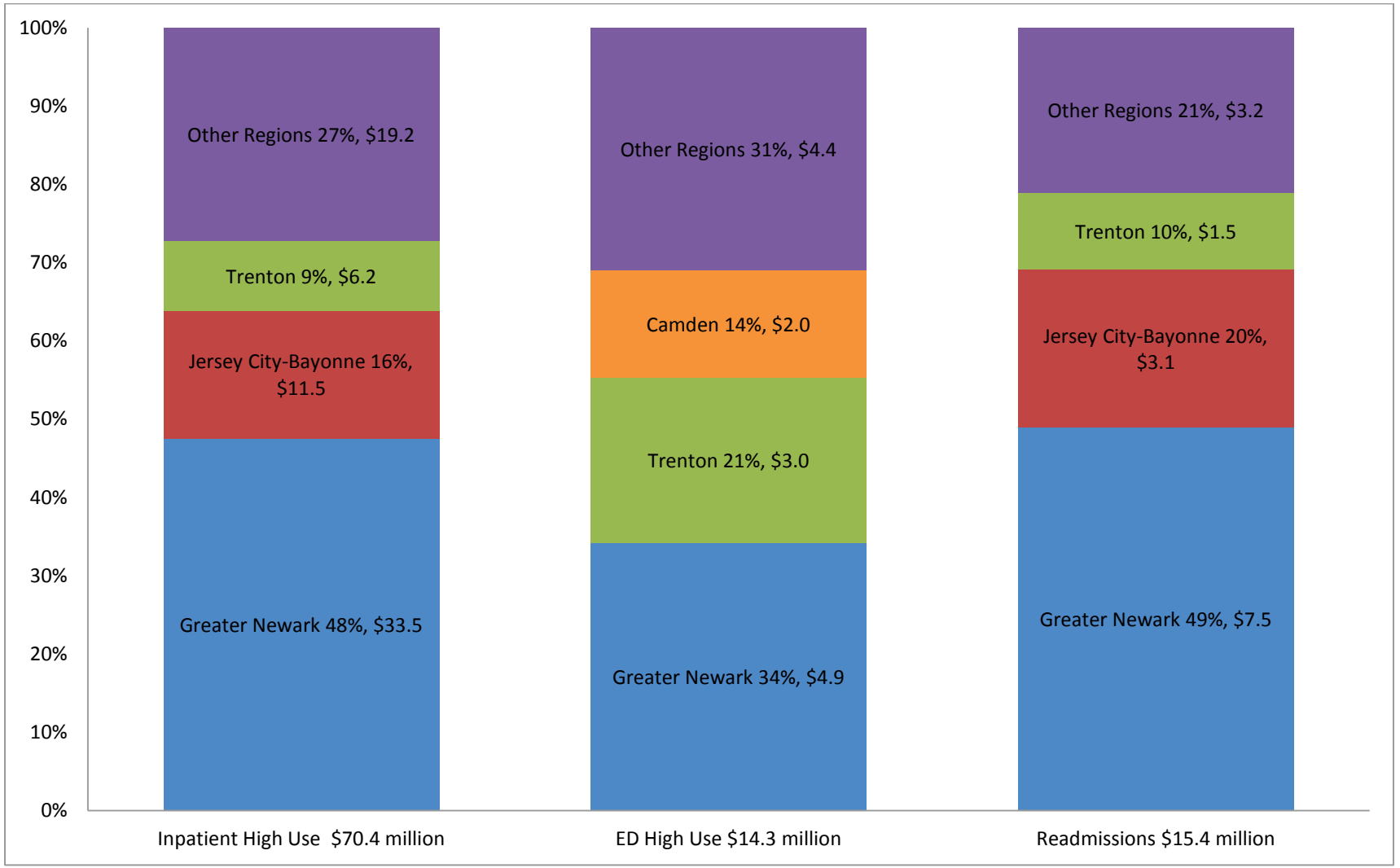
Adjusted for population age-sex distributions. All-cause readmission rates based on index hospitalization for that condition.

Figure 56. Distribution of Potential Savings across Regions



Potential savings from reduced costs if all 13 regions achieved rates of best performing NJ ACO region in each of the 5 measures reported above. Based on 2008-2010 data for area residents regardless of hospital visited. Figures are annualized and adjusted to 2010 dollars using the CPI-Medical Care. Savings should not be aggregated across all measures due to overlap of populations.

Figure 57. Distribution of Potential Medicaid Savings across Regions



Potential Medicaid savings from reduced costs if all 13 regions achieved rates of best performing NJ ACO region in each of the 3 measures reported above. Based on 2008-2010 data for area residents regardless of hospital visited. Figures are annualized and adjusted to 2010 dollars using the CPI-Medical Care. Savings should not be aggregated across all measures due to overlap of populations.

Figure 58. Regions with Highest Potential Savings if ACO Regions Achieved Best Performance ($ Million)

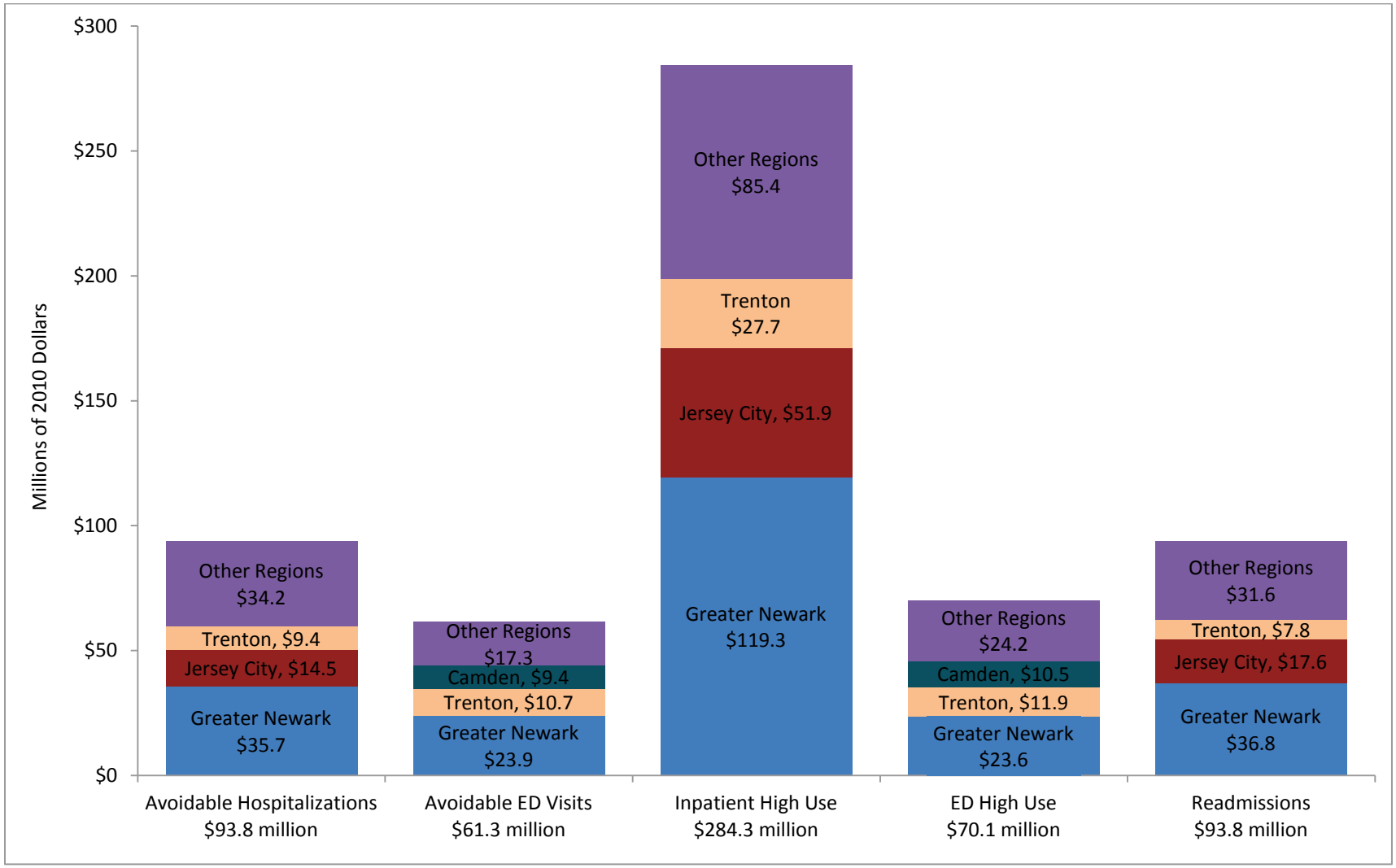


Figure 59. Regions with Highest Potential Medicaid Savings if ACO Regions Achieved Best Performance ($ Million)

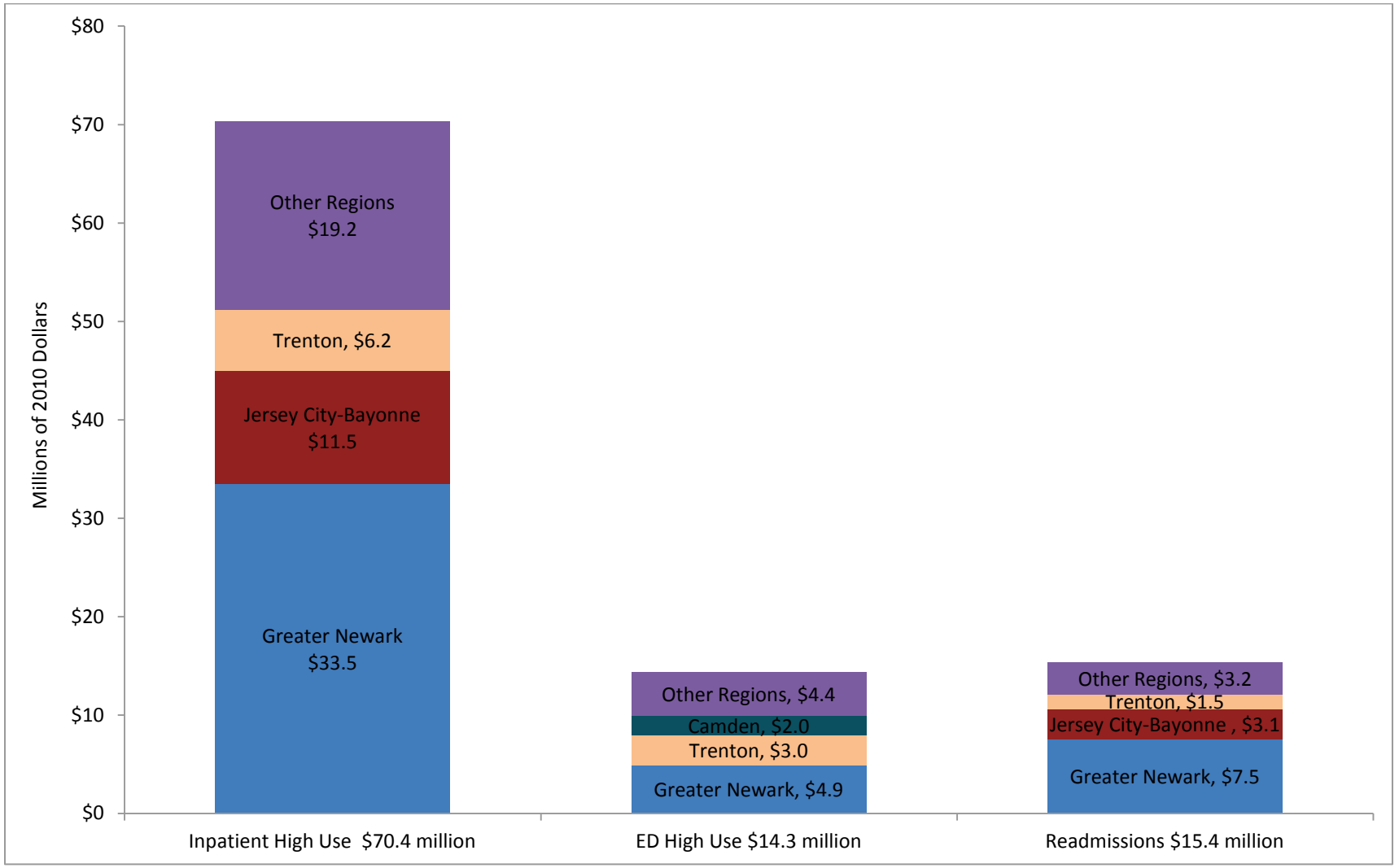


Table 29. Zip Code Level Rates of Hospital Utilization within Individual ACO Regions

ACO Regions	Avoidable Inpatient Hospitalizations	Avoidable ED Visits	IP High User	ED High User	Readmission
Asbury Park (07712)	1,992	22,194	4.8	9.1	14.2
Neptune Township (07753)	2,360	20,634	5.6	7.0	14.1
Asbury Park City- Neptune Township	2,185	21,486	5.2	8.1	14.2
Atlantic City (08401)	3,044	45,116	5.0	13.2	14.0
Pleasantville (08232)	3,598	31,401	5.0	9.1	14.4
Atlantic City-Pleasantville City	3,207	40,876	5.0	12.0	14.2
08102	3,669	41,508	5.0	16.1	15.6
08103	4,299	58,376	4.6	17.1	15.0
08104	3,835	63,614	3.8	20.1	14.5
08105	3,448	43,116	3.3	13.7	13.8
Camden City	3,754	51,871	3.9	16.8	14.5
Total Elizabeth	1,807	22,368	2.9	6.7	12.5
07201	2,006	24,332	3.0	7.3	12.6
07202	1,883	20,817	3.0	5.8	12.2
07206	2,216	28,566	2.6	8.0	12.3
07208	1,284	18,182	2.8	5.9	12.8
Linden, Winfield (07036)	1,859	14,798	4.7	4.6	12.7
Elizabeth City-Linden City-Winfield Township	1,830	20,478	3.3	6.2	12.6
Total Jersey City	2,585	18,610	4.5	6.1	15.1
07302	1,902	12,923	4.2	4.9	15.7
07304	3,003	22,738	4.7	7.3	14.8
07305	3,758	25,966	5.4	7.1	15.8
07306	2,126	17,076	4.2	5.5	14.3
07307	2,099	15,442	3.9	5.0	14.9
07310	869	7,143	2.0	2.7	12.3
Bayonne (07002)	2,444	17,758	4.8	5.0	13.9
Jersey City-Bayonne City	2,549	18,423	4.6	5.9	14.8
New Brunswick (08901)	2,200	24,032	2.4	7.5	13.2
Total Franklin Township	1,401	12,000	4.0	3.9	12.0
08823	795	7,067	3.0	1.9	10.0
08873	1,500	12,934	4.1	4.1	12.3
New Brunswick City-Franklin Township	1,658	16,827	3.1	5.9	12.5

Table 29. (cont'd) - . Zip Code Level Rates of Hospital Utilization within Individual ACO Regions

ACO Regions	Avoidable Inpatient Hospitalizations	Avoidable ED Visits	IP High User	ED High User	Readmission
Total Newark	3,114	31,135	4.8	9.5	16.4
07102	4,871	44,885	6.8	11.3	18.5
07103	4,276	44,411	5.8	11.7	18.2
07104	2,943	27,983	4.9	8.2	15.8
07105	1,397	13,919	2.7	3.7	13.5
07106	2,794	26,678	4.5	8.7	16.3
07107	3,331	32,783	4.3	9.2	15.5
07108	4,641	45,001	5.8	13.0	16.9
07112	3,275	41,169	4.6	12.3	16.6
07114	3,466	32,349	5.2	11.6	17.3
Total East Orange	3,404	31,773	5.9	9.1	17.7
07017	3,457	28,428	6.5	8.2	18.2
07018	3,329	36,136	5.1	10.1	17.0
Irvington (07111)	2,700	26,846	4.0	8.1	14.7
Orange (07050)	2,924	23,369	4.6	6.2	16.3
Greater Newark	3,098	30,104	4.8	9.0	16.4
Total Paterson	3,002	25,834	4.2	7.7	14.5
07501	5,564	41,421	5.3	9.4	15.7
07502	2,281	20,725	3.2	5.6	13.1
07503	2,382	23,172	3.7	7.2	13.9
07504	1,848	19,428	3.7	6.3	15.1
07505	2,397	18,040	4.6	9.9	14.4
07513	1,812	18,853	3.3	6.4	13.2
07514	2,457	20,782	4.1	6.7	13.7
07522	2,664	25,110	4.0	8.3	13.9
07524	2,118	21,660	2.9	6.5	12.9
Passaic (07055)	2,115	17,620	3.2	5.1	13.5
Total Clifton	1,337	9,910	3.9	2.4	11.9
07011	1,735	13,662	3.4	3.2	11.9
07012	1,006	6,711	4.4	1.6	12.1
07013	1,118	6,359	4.7	1.5	11.8
07014	1,127	7,395	4.5	1.9	10.9
Paterson City-Passaic City-Clifton City	2,262	19,472	3.9	6.0	13.7
Perth Amboy, Hopelawn (08861)	2,587	23,582	4.0	6.3	13.9
Perth Amboy City-Hopelawn	2,587	23,582	4.0	6.3	13.9

Table 29. (cont'd) - . Zip Code Level Rates of Hospital Utilization within Individual ACO Regions

ACO Regions		Avoidable Inpatient Hospitalizations	Avoidable ED Visits	IP High User	ED High User	Readmission
	07060	2,059	21,697	3.0	6.1	12.5
	07062	1,612	17,465	3.6	6.7	11.7
	07063	1,309	14,653	3.4	6.8	10.8
Plainfield City-North Plainfield Borough		1,839	19,684	3.1	6.3	12.1
	08608	4,826	35,886	8.8	14.5	18.0
	08609	3,176	43,097	4.5	13.2	16.0
	08611	3,149	39,080	4.0	10.1	16.0
	08618	3,025	37,870	5.3	13.5	15.9
	08629	2,335	30,477	2.9	8.0	10.8
	08638	2,381	23,090	5.1	10.5	14.9
Trenton City		2,858	34,124	4.6	11.4	15.4
	Union City (07087)	2,593	17,808	3.9	4.3	13.5
	West New York, Guttenburg (07093)	1,841	13,111	3.6	3.1	11.4
	North Bergen (07047)	2,228	14,036	4.3	3.3	12.4
Union City-W. New York Town – Guttenberg Town-N. Bergen Township		2,215	15,028	4.0	3.6	12.5
	Total Vineland	2,293	19,103	4.0	6.1	12.1
	08360	3,209	26,118	4.0	6.3	12.3
	08361	367	3,185	3.6	3.1	9.7
	Millville (08332)	2,211	18,540	3.9	7.2	12.9
Vineland City-Millville City		2,268	18,912	3.9	6.5	12.4
13 ACO regions combined		2,504	23,836	4.2	7.7	14.4
All NJ		1,727	14,177	4.3	5.0	12.7

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Appendix A: ACO Study Communities

	ACO Communities	*Constituent municipalities*
1	Asbury Park-Neptune	Asbury Park City Neptune Township
2	Atlantic City-Pleasantville	Atlantic City Pleasantville City
3	Camden	Camden City
4	Elizabeth-Linden	Elizabeth City Linden City Winfield Township
5	Jersey City-Bayonne	Jersey City Bayonne City
6	New Brunswick-Franklin	New Brunswick City Franklin Township
7	Greater Newark	Newark City East Orange City Irvington Township City of Orange Township
8	Paterson-Passaic-Clifton	Paterson City Passaic City Clifton City
9	Perth Amboy-Hopelawn	Perth Amboy City Hopelawn
10	Plainfield, North Plainfield	Plainfield City North Plainfield Borough
11	Trenton	Trenton area zip codes*
12	Union City-W. NY- Guttenberg-N. Bergen	Union City West New York Town Guttenburg Town North Bergen Township
13	Vineland-Millville	Vineland City Millville City

*Trenton Health Team (THT) includes ZIP codes: 08608, 08609, 08611, 08618, 08629, and 08638.

Appendix B: AHRQ Prevention Quality Indicators-Composites and Constituents

Overall Composite (PQI #90)	
PQI #01 Diabetes Short-Term Complications Admission Rate	PQI #11 Bacterial Pneumonia Admission Rate
PQI #03 Diabetes Long-Term Complications Admission Rate	PQI #12 Urinary Tract Infection Admission Rate
PQI #05 Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate	PQI #13 Angina without Procedure Admission Rate
PQI #07 Hypertension Admission Rate	PQI #14 Uncontrolled Diabetes Admission Rate
PQI #08 Congestive Heart Failure (CHF) Admission Rate	PQI #15 Asthma in Younger Adults Admission Rate
PQI #10 Dehydration Admission Rate	PQI #16 Rate of Lower-Extremity Amputation Among Patients With Diabetes
Acute Composite (PQI #91)	
PQI #10 Dehydration Admission Rate	PQI #12 Urinary Tract Infection Admission Rate
PQI #11 Bacterial Pneumonia Admission Rate	
Chronic Composite (PQI #92)	
PQI #01 Diabetes Short-Term Complications Admission Rate	PQI #13 Angina without Procedure Admission Rate
PQI #03 Diabetes Long-Term Complications Admission Rate	PQI #14 Uncontrolled Diabetes Admission Rate
PQI #05 Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate	PQI #15 Asthma in Younger Adults Admission Rate
PQI #07 Hypertension Admission Rate	PQI #16 Rate of Lower-Extremity Amputation Among Patients With Diabetes
PQI #08 Congestive Heart Failure (CHF) Admission Rate	

Source: Prevention Quality Indicators Technical Specifications - Version 4.4, March 2012; http://www.qualityindicators.ahrq.gov/Modules/PQI_TechSpec.aspx

Appendix C: Classification of Emergency Department Visits

Type Description	Diagnoses
Non-Emergent: The patient's initial complaint, presenting symptoms, vital signs, medical history, and age indicated that immediate medical care was not required within 12 hours.	Headache, Dental disorder, Types of migraine
Emergent, Primary Care Treatable: Conditions for which treatment was required within 12 hours, but care could have been provided effectively and safely in a primary care setting. The complaint did not require continuous observation, and no procedures were performed or resources used that are not available in a primary care setting (e.g., CAT scan or certain lab tests)	Acute bronchitis, Painful respiration, etc
Emergent, ED Care Needed, Preventable/Avoidable: Emergency department care was required based on the complaint or procedures performed/resources used, but the emergent nature of the condition was potentially preventable/avoidable if timely and effective ambulatory care had been received during the episode of illness	flare-ups of asthma, diabetes, congestive heart failure, etc
Emergent, ED Care Needed, Not Preventable/Avoidable: Emergency department care was required and ambulatory care treatment could not have prevented the condition	trauma, appendicitis, myocardial infarction

The first three categories are considered to be avoidable/preventable.

Type descriptions taken from http://wagner.nyu.edu/faculty/billings/nyued-background.php

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