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Avoidable Hospital Utilization, High Use and Cost in 13 Low-Income New Jersey Communities: Further Analysis by Payer

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Background

The New Jersey Medicaid ACO Demonstration Project provides new opportunities to improve population health and lower costs through providers organized within the framework of Accountable Care Organizations (ACOs). Our previous work (Chakravarty et al. 2013) examined opportunities for improving population care through ACO development in 13 low income communities in New Jersey by identifying hospital utilization that indicates gaps in the effectiveness of community-based care.

Within Camden, Trenton, Newark, and 10 other low income communities, we identified the extent of hospital inpatient (IP) and emergency department (ED) utilization that is likely to be avoidable with adequate access to well organized care within the community, and also high users of hospital resources who make repeated visits over a period of time due to complex health problems and barriers to effective care. We identified demographic characteristics and source of health insurance for these patient populations to allow better targeting by delivery system initiatives that seek to improve the care of these high-need, high-use patients.

Our current project builds on this previous work in two important ways, utilizing the framework of avoidable hospital use and high IP and ED use of our prior report. (See methods section and appendices for details relating to these metrics). First, we separate the category of Medicare-paid patients into those who were dually eligible for Medicare and Medicaid from other Medicare beneficiaries. It is important to identify the dual-eligible population separately from the other-Medicare beneficiaries for several reasons. Dual eligibles comprise a complex, vulnerable patient group, and represent an important part of the safety net population along with Medicaid beneficiaries and charity care patients. They are thus a natural priority for safety net ACO care management initiatives. Financial incentives within the NJ ACO framework, however, may not be adequate to address the care management gaps among duals eligibles since savings from reduced hospital utilization in this population would substantially accrue to Medicare rather than the state Medicaid program. It is thus important to distinguish hospital utilization by the dual eligible population and the associated costs.

Second, our earlier report described avoidable/preventable use and high use as two separate measures, in this report we examine the overlap of these metrics, i.e., measuring the extent to which IP and ED utilization *by hospital high users* is avoidable/preventable. If high users exhibit higher proportion of avoidable utilization compared to the average hospital user, then they would be natural candidates for targeting of community care-management initiatives. More generally, if a significant proportion of high use was found to be avoidable, that would indicate the potentially modifiable nature of such repeated, expensive hospital utilization through ambulatory care initiatives, and furthermore the need to prioritize high users for achieving efficiencies in care. To examine the prevalence of avoidable use among high users, our analysis calculates the extent to which IP and ED high use and associated costs would be categorized as avoidable/preventable.

Methods

Our data sources and methods for classifying avoidable/preventable use and high use are similar to those in our previous work (Chakravarty et al. 2013).

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 IP hospitalization and treat-and-release 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 and secondary payer (Medicare-Medicaid dual eligible, other 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 IP/ED high use was conducted with this dataset. We also received charity care information related to hospital discharges that allowed us to identify patients eligible for charity care within the self-pay/uninsured group in the public use dataset. As a result we are able to identify charity care patients separately from self-pay patients who were responsible for their cost of care.

Study Areas: Our study areas include three low-income communities of Camden, Trenton and Newark 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 appendices A and B.

Measures: We characterize two categories of hospital utilization that are designed to reflect gaps in care and corresponding opportunities for improving care processes and reducing costs. The first is avoidable/preventable hospital stays and ED visits that arise from inadequate ambulatory care in the community. The second is repeated use of hospital and ED by patients whom we classify as high-users.

We calculate and compare these rates of hospital utilization across different payer categories for the 13 regions as well as NJ overall, focusing on the distribution and stratification of these rates by health insurance payer category. We further examine the extent of overlap

between avoidable use and high use and its variation across payer categories. Below we outline the methods for identifying avoidable and high use.

Ambulatory Care Sensitive (ACS) Inpatient Hospitalizations and Emergency Department Visits: We calculate rates of ACS IP hospitalizations and treat-and-release ED visits that may occur due to inadequate ambulatory care within communities. Avoidable hospitalizations have been widely used in previous research to measure access to primary care, and disparities in health outcomes (Basu, Friedman, and Burstin 2004; Billings et al. 1993; 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 this analysis. Appendix C gives a list of ACS conditions that constitute a composite index that measures the overall rate of avoidable IP hospitalizations per unit of population. Appendix C also lists the constituents of the two other composite indicators (based on acute and chronic conditions). Our focus throughout this analysis is on the overall composite since it gives a comprehensive measure for the community.

We also calculate avoidable treat-and-release (i.e., without an IP admission) ED visits based on the 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 D.

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. Effective care coordination for these high-cost patients may also provide the highest potential savings in hospital costs. We calculated a benchmark level of 'high use' based on the statewide distribution of hospital use among all patients in New Jersey. Specifically, we defined high user of IP resources as a patient who has four or more IP visits (95.7^{th} percentile statewide) over 2008-2010. Similarly a high ED user is a patient having greater than or equal to six visits over 2008-2010 (95^{th} percentile statewide). We calculate percentages of hospital users who demonstrated high IP or ED use for our study areas. We further examine high use rates stratified by payer information along with payer distribution of high use.

Results

We summarize below key findings comparing Medicare dual-eligible patients to patients in other payer categories and assessing rates of avoidable use among hospital high users for the 13 ACO regions. The corresponding tables have more detailed findings relating to the individual regions and NJ overall.

- The rate of avoidable inpatient hospitalizations was the highest among dual eligible patients (20.8%) and the rate of avoidable ED visits was the highest among Medicaid beneficiaries (56.8%). (See Figure 1 and Tables 1 and 2).
- In the 13 regions, 4.2% of hospital users were inpatient high users and 7.7% were ED high users; only 1% were both inpatient and ED high users. Dual eligible hospital users were most likely to be inpatient high users (19.4%) while Medicaid beneficiaries were most likely to be ED high users (15.7%). (See Figure 2 and Table 3).
- Other (non-dual) Medicare beneficiaries accounted for the highest share of avoidable inpatient use and associated costs (36.0% and 40.1%, respectively) while private insurance accounted for the highest share of avoidable ED use and associated costs (34.7% and 35.0%, respectively). (See Figure 3 and Tables 4-7).
- Similarly, non-dual eligible Medicare beneficiaries also accounted for the highest share of inpatient high use and associated costs (35.3% and 36.9%, respectively) and patients with private insurance accounted for the highest share of ED high use and costs (29.8% and 26.8%, respectively). (See Figure 4 and Tables 8-11).
- Figure 5 and Table 12 report the share of inpatient high use that was avoidable. Medicare beneficiaries, whether dual eligible or not, had the highest shares of inpatient high use that was avoidable (23.0% and 23.7%) respectively.
- Figure 5 and Table 12 further demonstrate that for Medicaid beneficiaries and those with private insurance, inpatient high users had a substantially higher prevalence of avoidable use (19.2% and 18.7%) compared to all hospital users (9.9% and 10.6% respectively, see Figure 1). These differences are not observed for ED high users (see Figures 1 and 6).
- Examining costs, 17.9% of inpatient high use costs were classified as avoidable. Among specific payers, nearly one-fifth of inpatient high-use costs were avoidable for dual eligibles and other Medicare beneficiaries (19.4% and 19.8%, respectively; see Figure 5 and Table 13). More than half of the costs for ED high users who were Medicaid beneficiaries or with private insurance was avoidable (53.0% and 57.1%, respectively). Overall 52.5% of ED high use costs were avoidable, see Figure 6 and Table 15).
- Figure 7 and Tables 16 and 17 compare elderly dual-eligible high users to non-elderly dual eligible high users in their share of avoidable hospitalizations. Compared to non-

elderly inpatient high users, elderly inpatient high users have higher shares of avoidable utilization and costs (25.1% versus 19.3% and 20.9% versus 16.4%). Similarly, elderly dual eligible ED high users have higher shares of avoidable utilization and cost compared to non-elderly high users.

- Figures 8-11 and Tables 18-21 report levels of avoidable inpatient and ED costs and also inpatient and ED high use costs for 13 ACO regions. These are annualized estimates adjusted to 2010 dollars:
    - Avoidable inpatient costs were $336.1 million with non-dual eligible Medicare beneficiaries accounting for the largest share comprising $134.9 million.
    - Avoidable ED costs were $161.7 million with patients with private insurance accounting for the largest share at $56.6 million.
    - Inpatient high use cost was $1.1 billion out of which $202 million was classified as avoidable.
    - ED high use cost was $117.9 million out of which $61.9 million was classified as avoidable.

Figure 1. Rates of Avoidable Inpatient Stays and ED Visits in 13 ACO Regions, by Payer

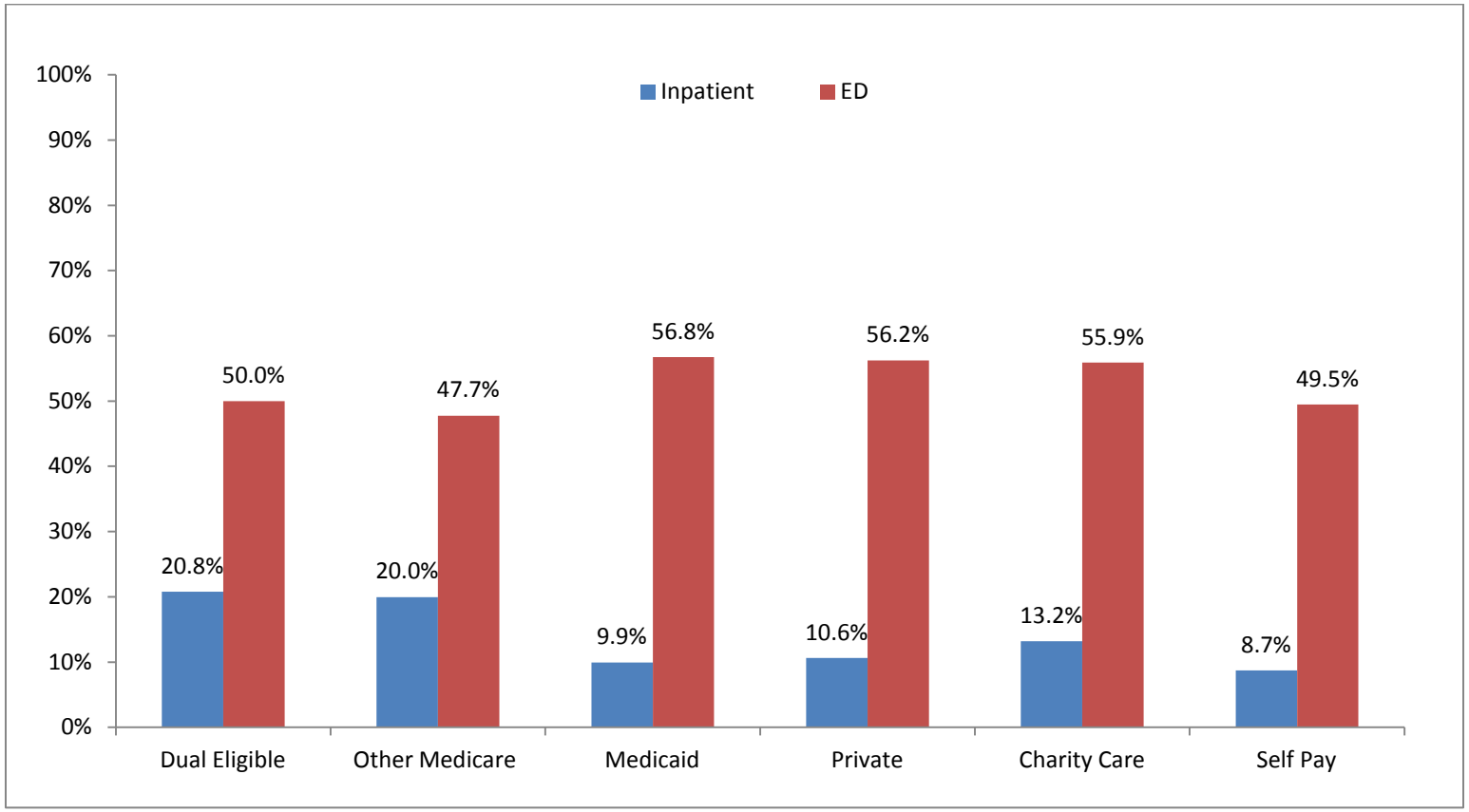

Table 1. Rates of Avoidable Inpatient Hospitalizations, by Payer

ACO Regions	Dual Eligible	Other Medicare	Medicaid	Private	Charity Care	Self Pay	All Payers
Asbury Park	15.4	15.3	11.2	9.0	13.8	15.7	12.7
Atlantic City	20.0	19.8	7.9	11.4	15.3	7.9	14.6
Camden	22.8	23.3	11.1	13.0	13.4	10.2	15.6
Elizabeth	19.0	18.9	7.7	9.7	13.6	8.3	13.1
Jersey City	23.1	21.5	13.0	10.3	13.5	11.2	15.5
New Brunswick	16.6	15.8	3.0	8.5	10.8	7.2	10.7
Newark	20.5	20.8	10.5	12.2	13.9	12.3	15.1
Paterson	23.3	20.4	9.7	10.6	11.8	4.2	13.8
Perth Amboy	16.7	18.2	8.5	8.3	14.9	9.7	12.9
Plainfield	23.3	19.0	4.8	8.8	11.8	9.4	12.5
Trenton	16.7	19.6	9.8	11.8	12.7	7.4	13.9
Union City	22.1	19.5	8.6	10.0	12.5	7.5	14.6
Vineland	22.6	21.9	8.3	8.7	11.6	12.0	15.3
13 ACO Regions	20.8	20.0	9.9	10.6	13.2	8.7	14.3
All NJ	19.0	18.0	8.8	8.3	12.1	9.0	13.0

Note: Numbers denote percentages out of all inpatient hospitalizations.

Table 2. Rate of Avoidable ED Visits, by Payer

ACO Regions	Dual Eligible	Other Medicare	Medicaid	Private	Charity Care	Self Pay	All Payers
Asbury Park	47.7	42.3	57.4	49.6	54.6	48.4	48.8
Atlantic City	48.5	49.7	53.6	56.8	52.3	47.8	51.6
Camden	52.1	53.1	55.6	62.9	54.8	53.8	56.0
Elizabeth	50.0	46.3	54.2	55.2	56.8	51.2	51.5
Jersey City	50.4	48.4	58.2	55.7	53.9	48.5	52.9
New Brunswick	48.4	43.8	54.5	54.6	60.9	48.3	51.4
Newark	51.8	52.0	58.3	58.7	60.0	52.5	55.6
Paterson	49.3	45.0	53.4	54.1	53.8	43.8	49.9
Perth Amboy	50.0	45.6	59.3	55.2	54.1	50.9	51.4
Plainfield	52.5	46.1	59.4	56.5	57.6	48.8	51.5
Trenton	49.4	49.5	57.1	55.6	52.4	48.3	51.4
Union City	47.8	45.5	57.0	54.3	57.3	43.5	50.4
Vineland	43.4	44.0	53.2	49.7	52.1	45.9	46.6
13 ACO Regions	50.0	47.7	56.8	56.2	55.9	49.5	52.4
All NJ	45.8	41.6	54.6	48.6	54.5	47.3	46.8

Note: Numbers denote percentages out of all ED visits.

Figure 2. Percent of Hospital Users Who Were High Users in 13 ACO Regions, by Payer

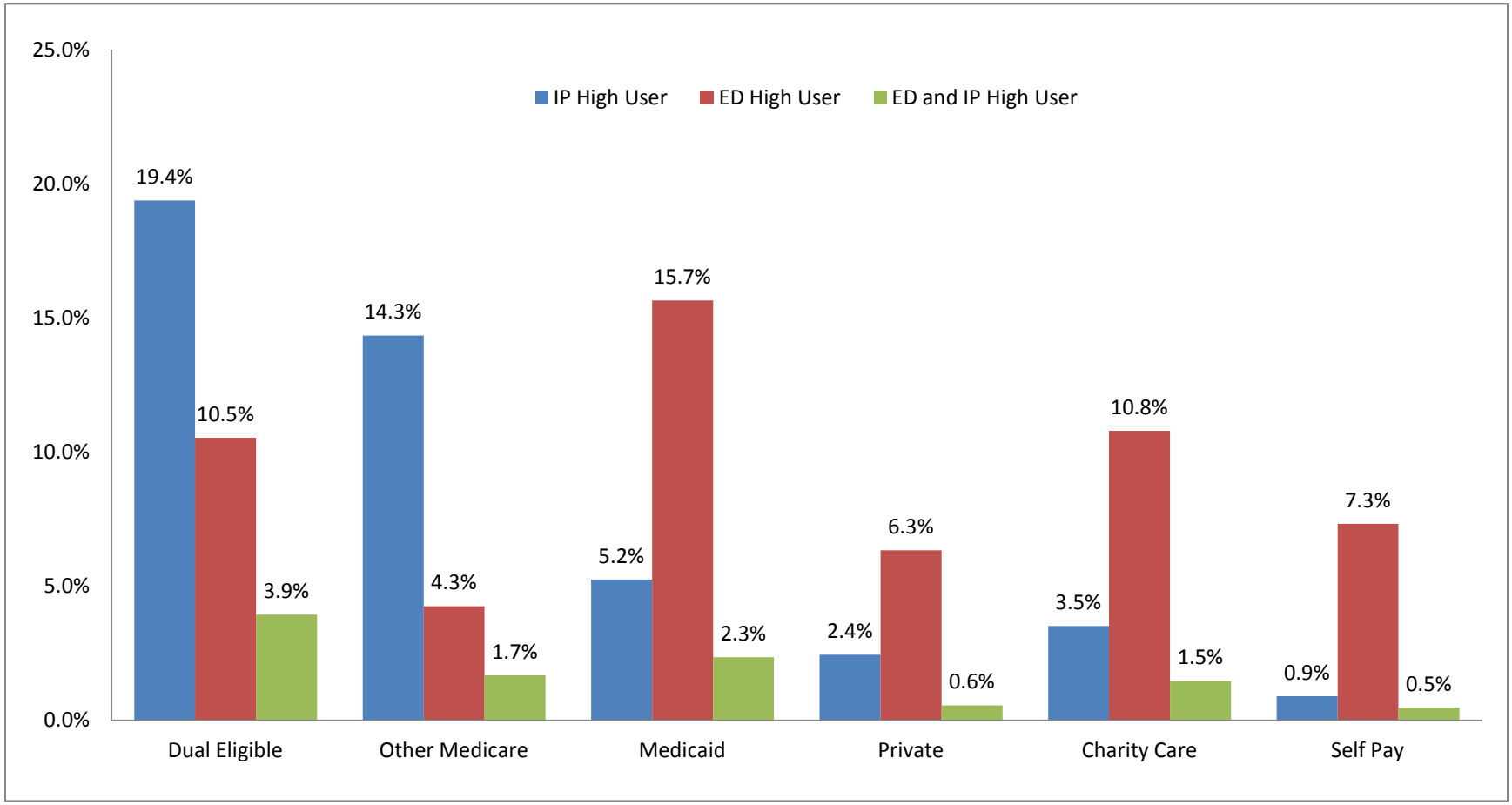

Table 3. Percent of Hospital Users Who Were High Users, by Payer

ACO Regions	Dual Eligible			Other Medicare			Medicaid			Private		
	IP	ED	IP & ED	IP	ED	IP & ED	IP	ED	IP & ED	IP	ED	IP & ED
Asbury Park	19.5%	14.5%	5.1%	13.8%	3.3%	1.4%	4.9%	23.6%	2.5%	2.5%	3.7%	0.5%
Atlantic City	20.8%	15.5%	6.7%	14.3%	7.8%	2.7%	7.7%	17.9%	3.8%	3.2%	11.1%	1.2%
Camden	14.3%	16.0%	5.0%	13.0%	10.2%	3.1%	5.3%	22.3%	2.8%	2.5%	20.0%	1.0%
Elizabeth	12.0%	4.4%	1.7%	13.6%	4.4%	1.7%	3.6%	10.3%	1.3%	2.2%	5.5%	0.5%
Jersey City	19.2%	6.9%	2.7%	16.0%	3.4%	1.5%	5.1%	12.9%	1.9%	2.2%	3.8%	0.4%
New Brunswick	17.8%	9.8%	2.8%	13.0%	3.8%	1.3%	3.6%	9.5%	1.3%	2.1%	5.6%	0.4%
Newark	22.9%	10.5%	4.3%	17.2%	5.3%	2.4%	7.2%	16.5%	3.2%	2.8%	7.7%	0.6%
Paterson	17.5%	8.7%	3.5%	13.0%	3.2%	1.4%	5.1%	11.5%	2.3%	2.6%	5.4%	0.6%
Perth Amboy	20.9%	9.1%	3.7%	15.0%	3.1%	1.3%	3.5%	13.4%	1.3%	2.1%	4.8%	0.4%
Plainfield	16.3%	11.7%	3.8%	12.6%	4.0%	1.1%	2.8%	13.3%	1.3%	2.2%	6.0%	0.5%
Trenton	19.8%	19.6%	6.7%	13.8%	5.8%	2.2%	5.4%	25.4%	3.2%	2.8%	9.0%	0.9%
Union City	18.7%	3.1%	1.3%	14.3%	2.3%	0.9%	3.7%	7.3%	1.2%	2.2%	2.8%	0.3%
Vineland	17.4%	19.4%	5.9%	10.8%	2.7%	1.0%	2.9%	15.5%	1.4%	1.6%	3.5%	0.3%
13 ACO Regions	19.4%	10.5%	3.9%	14.3%	4.3%	1.7%	5.2%	15.7%	2.3%	2.4%	6.3%	0.6%
All NJ	17.6%	10.0%	3.6%	12.2%	2.8%	1.1%	4.9%	14.4%	2.2%	2.0%	3.4%	0.4%

Table 3. (cont'd) - Percent of Hospital Users Who Were High Users, by Payer

ACO Regions	Charity Care			Self Pay			All Payers		
	IP	ED	IP & ED	IP	ED	IP & ED	IP	ED	IP & ED
Asbury Park	4.5%	13.9%	1.9%	1.1%	11.4%	0.7%	5.2%	8.1%	1.1%
Atlantic City	4.9%	20.0%	2.7%	1.1%	9.7%	0.6%	5.0%	12.0%	1.8%
Camden	4.7%	17.8%	2.6%	1.0%	13.9%	0.7%	3.9%	16.8%	1.6%
Elizabeth	2.2%	9.7%	0.9%	0.5%	5.8%	0.2%	3.3%	6.2%	0.7%
Jersey City	3.9%	9.5%	1.6%	0.9%	5.9%	0.4%	4.6%	5.9%	0.9%
New Brunswick	2.3%	10.3%	0.9%	0.6%	5.3%	0.3%	3.1%	5.9%	0.6%
Newark	4.1%	11.7%	1.6%	1.1%	8.2%	0.7%	4.8%	9.0%	1.3%
Paterson	3.2%	9.4%	1.2%	0.8%	4.6%	0.3%	3.9%	6.0%	0.9%
Perth Amboy	3.0%	7.8%	0.9%	0.7%	5.3%	0.4%	4.0%	6.3%	0.8%
Plainfield	2.7%	8.2%	0.8%	0.4%	5.6%	0.1%	3.1%	6.3%	0.6%
Trenton	4.8%	14.7%	2.6%	1.0%	9.7%	0.6%	4.6%	11.4%	1.6%
Union City	1.9%	5.2%	0.5%	0.6%	3.2%	0.2%	4.0%	3.6%	0.5%
Vineland	2.9%	10.5%	1.2%	1.0%	8.3%	0.4%	3.9%	6.5%	0.8%
13 ACO Regions	3.5%	10.8%	1.5%	0.9%	7.3%	0.5%	4.2%	7.7%	1.0%
All NJ	3.9%	10.6%	1.6%	1.0%	7.3%	0.5%	4.3%	5.0%	0.8%

Figure 3. Payer Distribution of Inpatient and ED Avoidable Use and Costs in 13 ACO Regions

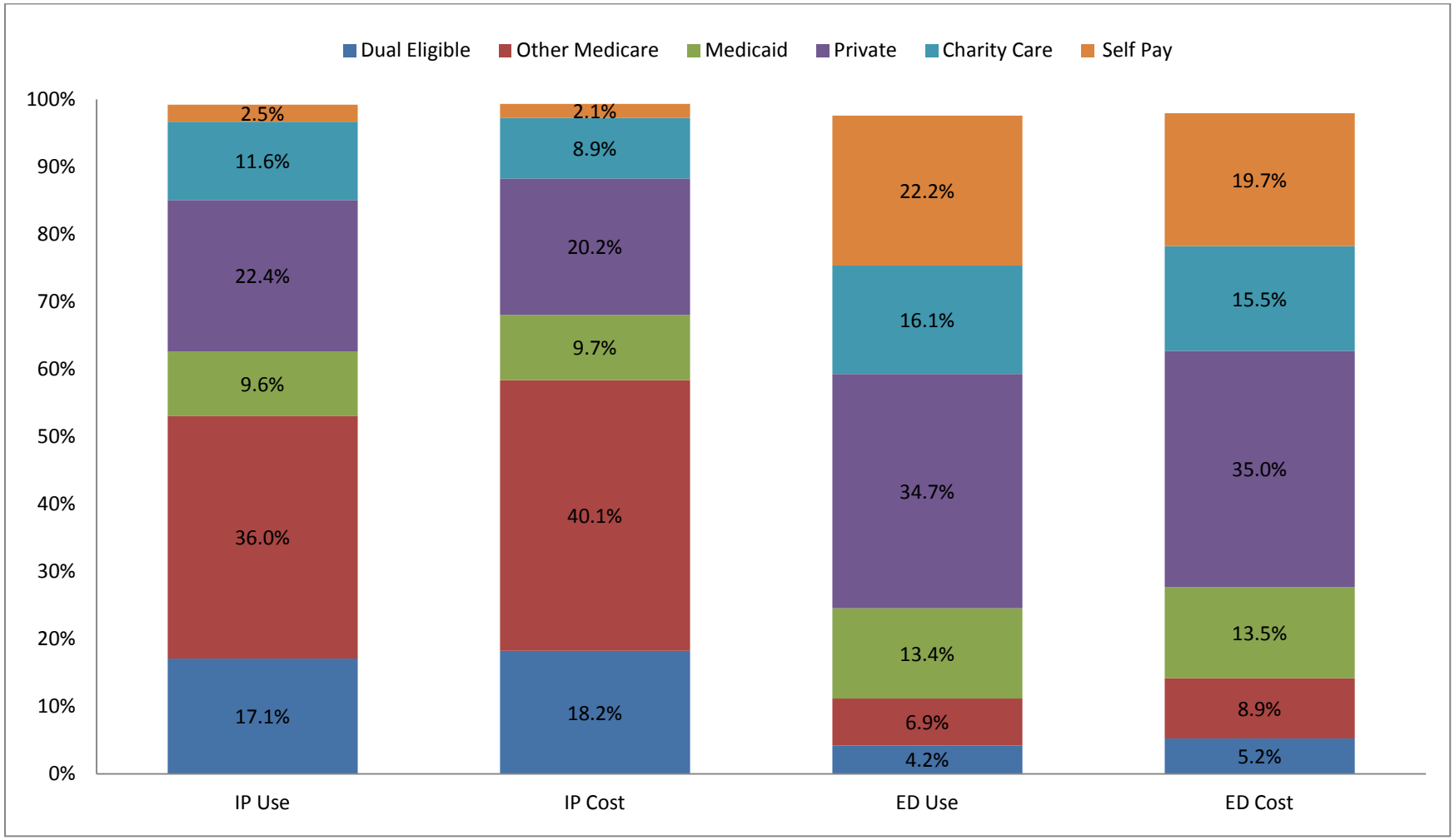

Table 4. Payer Distribution of Avoidable Inpatient Hospitalizations

ACO Regions	Dual Eligible	Other Medicare	Medicaid	Private	Charity Care	Self Pay
Asbury Park	12.3%	44.5%	11.2%	19.9%	8.1%	3.7%
Atlantic City	19.0%	32.2%	5.5%	24.6%	15.5%	2.7%
Camden	19.9%	27.0%	18.9%	18.0%	13.3%	2.4%
Elizabeth-Linden	8.6%	42.9%	7.4%	25.8%	12.4%	2.0%
Jersey City	12.4%	42.0%	10.8%	20.7%	12.0%	1.7%
New Brunswick	11.4%	41.2%	2.3%	31.6%	9.8%	3.2%
Newark	21.0%	27.7%	12.4%	22.5%	12.8%	2.7%
Paterson	20.5%	31.5%	5.8%	27.1%	12.5%	2.1%
Perth Amboy	22.1%	33.6%	11.4%	15.6%	14.1%	1.9%
Plainfield	14.1%	40.2%	4.2%	26.4%	10.8%	2.9%
Trenton	13.1%	36.5%	10.7%	22.6%	13.6%	2.8%
Union City	24.9%	36.2%	6.3%	19.8%	8.3%	2.3%
Vineland	7.3%	62.6%	7.7%	15.0%	2.6%	4.1%
13 ACO Regions	17.1%	36.0%	9.6%	22.4%	11.6%	2.5%
All NJ	10.2%	52.7%	4.8%	23.2%	6.5%	1.9%

Notes: Numbers denote percentage of avoidable inpatient stays corresponding to specific payer information. Payer distribution may not add to 100% since 'other' category of insurance is not reported.

Table 5. Payer Distribution of Avoidable Inpatient Hospitalization Costs

ACO Regions	Dual Eligible	Other Medicare	Medicaid	Private	Charity Care	Self Pay
Asbury Park	13.0%	49.7%	10.1%	18.4%	5.8%	2.6%
Atlantic City	19.6%	37.6%	5.8%	21.6%	13.0%	2.1%
Camden	22.4%	29.5%	19.2%	15.8%	11.0%	1.7%
Elizabeth	9.1%	45.4%	9.2%	23.7%	9.8%	2.1%
Jersey City	13.6%	47.2%	10.5%	18.1%	8.7%	1.4%
New Brunswick	12.8%	47.0%	2.6%	28.4%	6.6%	2.2%
Newark	21.6%	31.4%	13.0%	21.1%	9.9%	2.4%
Paterson	22.8%	35.4%	5.1%	24.5%	9.6%	2.1%
Perth Amboy	22.6%	40.8%	10.6%	13.9%	9.2%	1.5%
Plainfield	14.8%	44.7%	3.6%	25.0%	8.7%	2.3%
Trenton	13.9%	41.4%	11.3%	19.8%	10.8%	2.1%
Union City	27.9%	39.3%	6.5%	15.8%	6.6%	2.1%
Vineland	8.4%	65.1%	7.2%	13.7%	2.1%	3.2%
13 ACO Regions	18.2%	40.1%	9.7%	20.2%	8.9%	2.1%
All NJ	11.0%	56.4%	4.7%	20.5%	5.1%	1.5%

Notes: Costs correspond to avoidable inpatient stays. Numbers denote percentage of avoidable inpatient costs corresponding to specific payer information. Payer distribution may not add to 100% since 'other' category of insurance is not reported.

Table 6. Payer Distributions of Avoidable Emergency Department Visits

ACO Regions	Dual Eligible	Other Medicare	Medicaid	Private	Charity Pay	Self Pay
Asbury Park	5.5%	9.6%	22.9%	26.4%	10.7%	22.4%
Atlantic City	5.9%	8.3%	6.0%	36.4%	21.8%	20.9%
Camden	4.9%	5.5%	16.3%	36.3%	9.1%	26.0%
Elizabeth	2.0%	7.8%	10.0%	36.3%	22.9%	18.3%
Jersey City	3.0%	8.4%	14.9%	35.3%	19.8%	16.5%
New Brunswick	2.6%	6.5%	3.8%	43.1%	14.2%	28.4%
Newark	4.4%	5.2%	13.5%	33.2%	15.0%	26.1%
Paterson	5.0%	5.5%	7.5%	40.5%	22.3%	17.2%
Perth Amboy	5.9%	5.9%	21.7%	28.2%	11.0%	24.2%
Plainfield	3.3%	7.4%	12.0%	38.7%	10.6%	24.5%
Trenton	5.0%	7.7%	20.1%	28.5%	14.4%	23.2%
Union City	4.4%	7.3%	10.5%	34.8%	17.1%	19.8%
Vineland	2.9%	15.5%	22.1%	31.4%	5.4%	20.4%
13 ACO Regions	4.2%	6.9%	13.4%	34.7%	16.1%	22.2%
All NJ	3.5%	11.9%	9.9%	42.7%	10.9%	18.1%

Notes: Numbers denote percentage of ED visits corresponding to specific payer information. Payer distribution may not add to 100% since 'other' category of insurance is not reported.

Table 7. Payer Distribution of Avoidable Emergency Department Costs

ACO Regions	Dual Eligible	Other Medicare	Medicaid	Private	Charity Care	Self Pay
Asbury Park	6.2%	12.8%	19.8%	30.0%	10.6%	18.5%
Atlantic City	6.6%	9.5%	5.5%	37.6%	21.2%	18.8%
Camden	7.4%	7.6%	18.3%	32.6%	9.9%	22.5%
Elizabeth	2.8%	10.5%	9.6%	38.0%	20.7%	16.1%
Jersey City	4.5%	10.7%	14.1%	35.5%	18.5%	14.6%
New Brunswick	3.4%	9.0%	3.1%	44.4%	16.1%	22.6%
Newark	5.0%	6.5%	13.6%	34.5%	15.4%	23.1%
Paterson	5.9%	7.3%	8.1%	40.5%	20.6%	15.9%
Perth Amboy	8.2%	8.2%	20.9%	27.3%	13.5%	19.1%
Plainfield	3.6%	8.9%	9.9%	40.5%	11.3%	22.7%
Trenton	5.4%	9.3%	20.7%	29.0%	14.2%	20.2%
Union City	5.8%	8.2%	9.2%	36.0%	16.6%	18.3%
Vineland	3.1%	19.9%	20.2%	33.1%	5.0%	16.7%
13 ACO Regions	5.2%	8.9%	13.5%	35.0%	15.5%	19.7%
All NJ	3.9%	16.1%	8.5%	45.0%	9.4%	14.3%

Notes: Costs correspond to avoidable ED visits. Numbers denote percentage of avoidable ED costs corresponding to specific payer information. Payer distribution may not add to 100% since 'other' category of insurance is not reported.

Figure 4. Payer Distribution of Inpatient and ED High Use and Costs for 13 ACO Regions

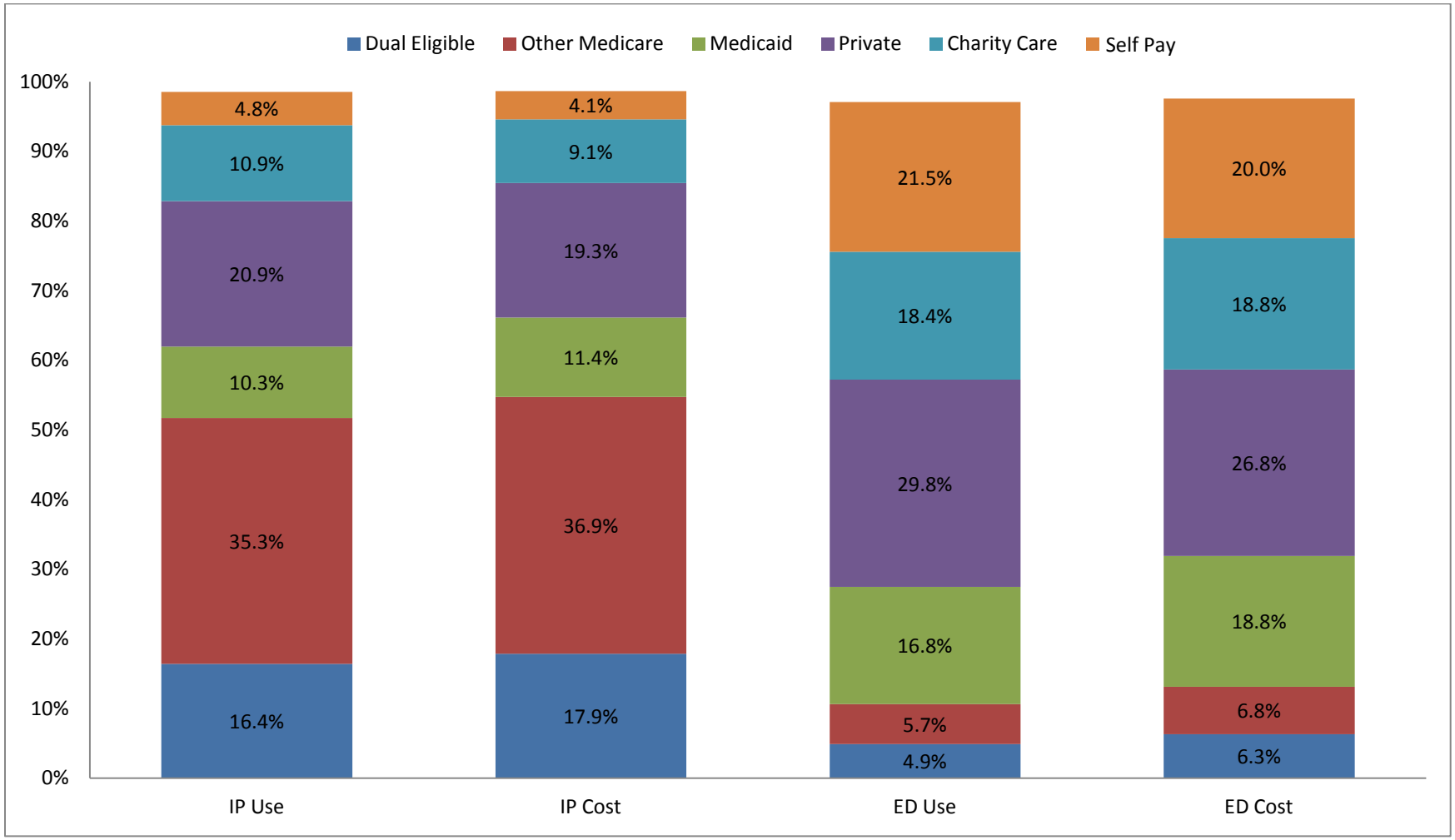

Table 8. Payer Distribution of Inpatient High Users

ACO Regions	Dual Eligible	Other Medicare	Medicaid	Private	Charity Care	Self Pay
Asbury Park	13.8%	47.4%	9.6%	18.0%	6.4%	3.6%
Atlantic City	19.2%	30.3%	7.3%	22.2%	14.4%	5.7%
Camden	17.1%	24.7%	18.1%	18.9%	12.1%	7.8%
Elizabeth	4.5%	47.8%	6.9%	25.2%	11.3%	3.0%
Jersey City	10.8%	42.4%	10.2%	19.2%	13.5%	3.0%
New Brunswick	12.0%	40.9%	4.0%	29.4%	6.9%	5.3%
Newark	20.0%	27.6%	13.9%	19.7%	10.7%	6.5%
Paterson	18.7%	29.9%	6.2%	26.1%	14.0%	4.3%
Perth Amboy	24.8%	33.8%	11.0%	16.0%	7.8%	4.2%
Plainfield	12.6%	41.2%	6.4%	25.5%	8.1%	3.1%
Trenton	13.9%	34.0%	12.2%	19.2%	13.8%	5.4%
Union City	23.5%	38.4%	7.2%	19.0%	6.4%	3.2%
Vineland	15.5%	49.9%	9.1%	15.5%	3.3%	4.5%
13 ACO Regions	16.4%	35.3%	10.3%	20.9%	10.9%	4.8%
All NJ	9.7%	50.9%	5.3%	22.9%	6.1%	3.4%

Notes: Numbers denote percentage of inpatient high users belonging to each category. Payer distribution may not add to 100% since 'other' category of insurance is not reported.

Table 9. Payer Distribution of Inpatient High User Costs

ACO Regions	Dual Eligible	Other Medicare	Medicaid	Private	Charity Care	Self Pay
Asbury Park	15.7%	46.4%	11.8%	16.2%	6.3%	2.8%
Atlantic City	20.0%	32.9%	6.1%	21.1%	14.9%	4.2%
Camden	19.4%	25.4%	19.1%	18.6%	10.1%	6.1%
Elizabeth	6.1%	47.6%	8.0%	24.2%	10.4%	2.5%
Jersey City	12.4%	44.5%	12.2%	17.7%	9.7%	2.6%
New Brunswick	13.6%	44.7%	4.3%	26.9%	5.2%	4.2%
Newark	21.0%	29.6%	15.5%	18.4%	8.8%	5.2%
Paterson	20.1%	32.9%	6.3%	24.1%	11.9%	3.9%
Perth Amboy	27.6%	34.8%	11.2%	14.5%	6.0%	3.7%
Plainfield	13.8%	41.2%	7.5%	24.3%	7.8%	2.5%
Trenton	16.5%	35.5%	13.2%	16.4%	12.2%	4.7%
Union City	24.8%	39.2%	7.7%	16.8%	6.0%	3.4%
Vineland	15.8%	51.0%	8.8%	14.7%	2.8%	4.3%
13 ACO Regions	17.9%	36.9%	11.4%	19.3%	9.1%	4.1%
All NJ	10.8%	51.4%	5.9%	22.1%	5.4%	2.8%

Notes: Numbers denote percentage of IP high use costs in each category. Costs are based on inpatient discharges of inpatient high users.

Table 10. Payer Distribution of ED High Users

ACO Regions	Dual Eligible	Other Medicare	Medicaid	Private	Charity Care	Self Pay
Asbury Park	6.5%	7.2%	29.5%	16.9%	12.7%	24.3%
Atlantic City	6.0%	6.9%	7.1%	32.8%	24.7%	21.4%
Camden	4.4%	4.5%	17.6%	35.4%	10.6%	24.3%
Elizabeth	0.9%	8.3%	10.4%	33.2%	26.4%	17.1%
Jersey City	3.0%	7.0%	20.1%	26.6%	25.4%	16.0%
New Brunswick	3.5%	6.4%	5.6%	41.1%	16.4%	25.5%
Newark	4.9%	4.6%	17.0%	28.8%	16.5%	25.2%
Paterson	6.0%	4.8%	9.0%	35.8%	26.8%	15.4%
Perth Amboy	6.9%	4.4%	26.9%	23.8%	13.0%	19.8%
Plainfield	4.5%	6.6%	14.9%	35.1%	12.2%	22.3%
Trenton	5.6%	5.8%	23.0%	24.6%	17.0%	21.5%
Union City	4.3%	6.8%	15.6%	27.1%	19.2%	19.4%
Vineland	10.5%	7.4%	28.9%	20.2%	7.2%	22.3%
13 ACO Regions	4.9%	5.7%	16.8%	29.8%	18.4%	21.5%
All NJ	4.8%	9.9%	13.5%	33.3%	14.5%	20.2%

Notes: Numbers denote percentage of ED high users belonging to each category. Payer distribution may not add to 100% since 'other' category of insurance is not reported.

Table 11. Payer Distribution of ED High User Costs

ACO Regions	Dual Eligible	Other Medicare	Medicaid	Private	Charity Pay	Self Pay
Asbury Park	7.5%	8.2%	29.6%	16.3%	13.1%	23.2%
Atlantic City	7.9%	7.3%	7.3%	31.7%	26.8%	18.0%
Camden	6.4%	5.9%	20.0%	31.0%	12.1%	21.8%
Elizabeth	1.6%	10.8%	10.8%	32.3%	25.9%	15.5%
Jersey City	4.0%	8.6%	21.4%	23.0%	27.4%	14.2%
New Brunswick	4.1%	9.0%	6.1%	38.8%	17.0%	23.7%
Newark	6.0%	5.4%	20.0%	25.0%	16.9%	24.3%
Paterson	7.2%	5.6%	10.7%	33.2%	26.9%	14.6%
Perth Amboy	8.9%	5.8%	27.0%	23.1%	16.0%	15.8%
Plainfield	5.3%	6.5%	16.8%	33.6%	13.3%	20.6%
Trenton	6.6%	7.0%	24.5%	22.3%	18.7%	18.7%
Union City	6.0%	7.7%	15.1%	25.5%	19.8%	18.0%
Vineland	11.4%	9.3%	29.2%	21.0%	7.1%	19.3%
13 ACO Regions	6.3%	6.8%	18.8%	26.8%	18.8%	20.0%
All NJ	6.0%	11.9%	14.1%	31.9%	14.4%	18.3%

Notes: Numbers denote percentage of ED high use costs in each category. Costs are based on ED visits of ED high users.

Figure 5. Avoidable Hospitalizations as Share of Inpatient High Use and Costs in 13 ACO Regions

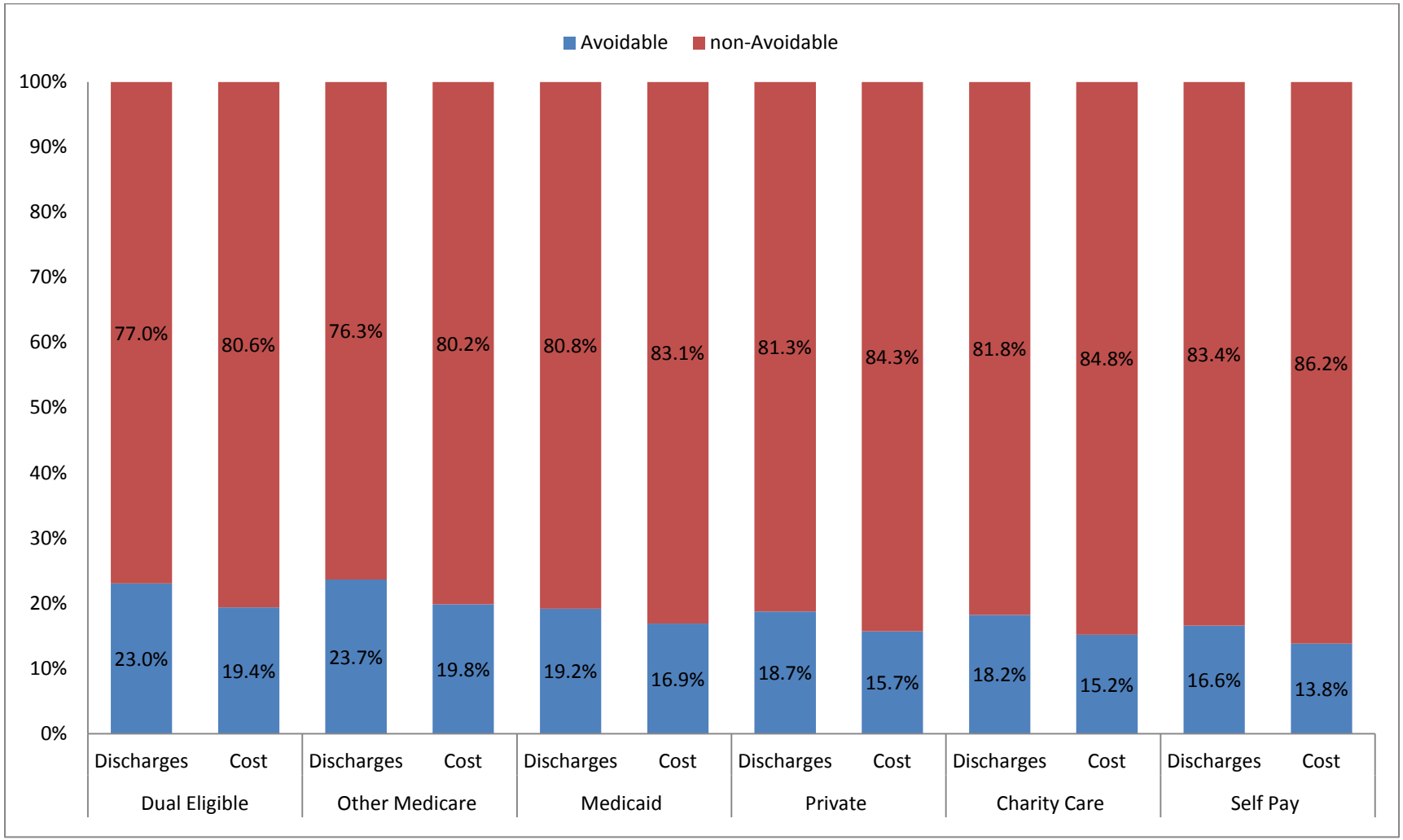

Figure 6. Avoidable ED Visits as a Share of ED High Use and Costs in 13 ACO Regions

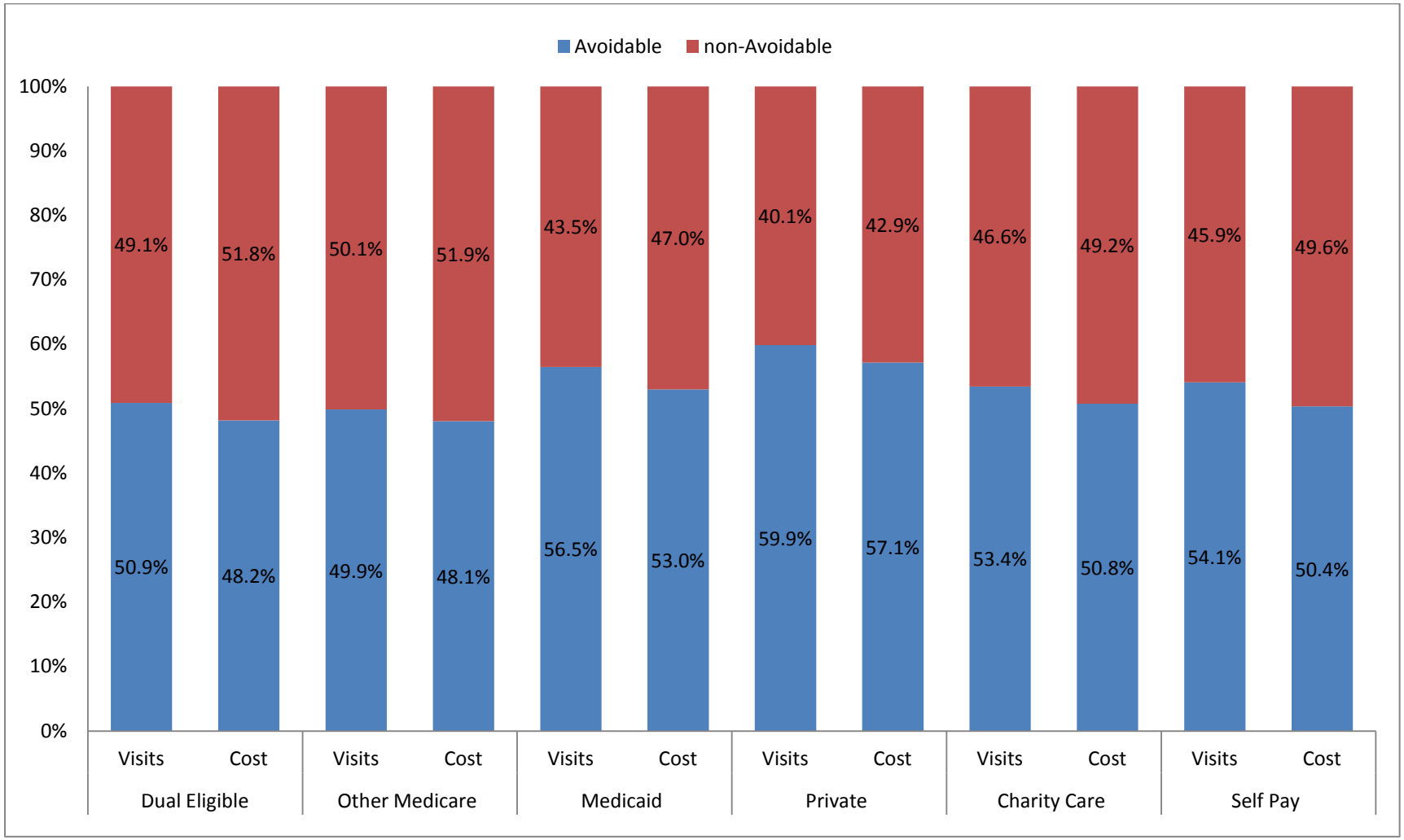

Table 12. Payer Distribution of Inpatient High Use Stays and Share of Avoidable Hospitalization

ACO Regions	Dual Eligible		Other Medicare		Medicaid		Private		Charity Care		Self Pay		All Payers
	% payer	Avoidable	% payer	Avoidable	% payer	Avoidable	% payer	Avoidable	% payer	Avoidable	% payer	Avoidable	Avoidable
Asbury Park	14.6%	16.3%	44.1%	17.4%	13.4%	22.2%	17.0%	15.8%	6.6%	13.9%	3.6%	20.3%	17.4%
Atlantic City	18.9%	23.0%	30.0%	23.5%	7.4%	17.5%	22.0%	20.0%	15.2%	20.3%	5.5%	16.9%	21.4%
Camden	17.8%	26.4%	24.0%	28.4%	20.5%	24.2%	17.4%	22.2%	11.6%	18.6%	7.2%	12.0%	23.7%
Elizabeth	5.4%	21.1%	46.7%	22.5%	7.8%	15.8%	24.9%	17.9%	11.0%	20.1%	3.0%	12.4%	20.1%
Jersey City	12.0%	25.4%	40.6%	25.0%	13.0%	23.3%	17.7%	18.7%	13.0%	17.6%	2.9%	20.9%	22.6%
New Brunswick	13.1%	16.9%	41.2%	19.2%	4.3%	15.8%	27.7%	17.0%	6.9%	12.8%	5.4%	16.3%	17.4%
Newark	21.1%	22.3%	26.9%	24.0%	16.0%	17.1%	18.0%	19.4%	10.3%	20.1%	6.0%	15.8%	20.7%
Paterson	19.2%	25.7%	28.9%	25.6%	6.9%	18.5%	25.1%	19.9%	14.6%	15.8%	4.5%	17.6%	21.8%
Perth Amboy	27.2%	18.0%	32.4%	21.3%	11.8%	15.7%	15.3%	16.4%	6.9%	22.9%	4.2%	16.9%	18.7%
Plainfield	13.8%	24.6%	40.3%	22.4%	7.8%	16.9%	23.8%	16.5%	8.4%	19.2%	3.0%	15.5%	20.2%
Trenton	15.2%	18.1%	32.4%	23.4%	14.0%	18.4%	17.3%	18.4%	14.4%	17.5%	5.4%	17.6%	19.7%
Union City	24.0%	25.3%	38.3%	23.6%	7.8%	21.5%	17.9%	17.1%	6.6%	17.3%	3.2%	14.1%	22.0%
Vineland	17.3%	28.9%	48.5%	25.6%	10.2%	16.8%	14.6%	17.2%	3.1%	17.5%	4.2%	20.9%	23.3%
13 ACO Regions	17.5%	23.0%	34.0%	23.7%	12.1%	19.2%	19.5%	18.7%	10.8%	18.2%	4.7%	16.6%	21.0%
All NJ	10.7%	21.4%	49.2%	22.2%	6.4%	17.3%	22.2%	15.8%	6.5%	16.3%	3.4%	13.9%	19.6%

Notes: These are discharge based percentages. High user payer information is based on the first stay/visit and applied to subsequent discharge records of the patient. % payer denotes percentage of inpatient discharges in each specific payer category (i.e., row percentage). Avoidable denotes percentage of discharges among high users that are classified as avoidable/preventable.

Table 13. Payer Distribution of Inpatient High Use Costs and Share of Avoidable Hospitalizations

ACO Regions	Dual Eligible		Other Medicare		Medicaid		Private		Charity Care		Self Pay		All Payers
	% payer	Avoidable	% payer	Avoidable	% payer	Avoidable	% payer	Avoidable	% payer	Avoidable	% payer	Avoidable	Avoidable
Asbury Park	15.7%	13.5%	46.4%	15.1%	11.8%	18.8%	16.2%	13.7%	6.3%	12.9%	2.8%	14.6%	14.8%
Atlantic City	20.0%	18.9%	32.9%	19.8%	6.1%	15.9%	21.1%	16.7%	14.9%	15.5%	4.2%	14.7%	17.9%
Camden	19.4%	20.9%	25.4%	20.6%	19.1%	21.4%	18.6%	17.8%	10.1%	15.9%	6.1%	10.2%	19.2%
Elizabeth	6.1%	16.1%	47.6%	17.4%	8.0%	16.7%	24.2%	14.4%	10.4%	13.4%	2.5%	9.7%	15.9%
Jersey City	12.4%	21.5%	44.5%	20.9%	12.2%	20.8%	17.7%	15.7%	9.7%	15.5%	2.6%	16.2%	19.3%
New Brunswick	13.6%	14.3%	44.7%	15.8%	4.3%	14.1%	26.9%	13.0%	5.2%	9.4%	4.2%	11.2%	14.2%
Newark	21.0%	18.6%	29.6%	20.2%	15.5%	14.8%	18.4%	15.7%	8.8%	16.2%	5.2%	12.8%	17.4%
Paterson	20.1%	23.3%	32.9%	22.5%	6.3%	15.4%	24.1%	18.6%	11.9%	14.7%	3.9%	16.4%	20.0%
Perth Amboy	27.6%	15.2%	34.8%	18.1%	11.2%	12.7%	14.5%	14.5%	6.0%	17.5%	3.7%	8.8%	15.7%
Plainfield	13.8%	21.1%	41.2%	20.4%	7.5%	12.9%	24.3%	14.2%	7.8%	13.3%	2.5%	20.2%	17.6%
Trenton	16.5%	15.2%	35.5%	19.7%	13.2%	17.6%	16.4%	15.4%	12.2%	16.4%	4.7%	15.9%	17.3%
Union City	24.8%	21.2%	39.2%	20.0%	7.7%	18.6%	16.8%	13.5%	6.0%	12.6%	3.4%	14.6%	18.5%
Vineland	15.8%	24.7%	51.0%	21.8%	8.8%	15.1%	14.7%	16.3%	2.8%	13.2%	4.3%	16.3%	19.9%
13 ACO Regions	17.9%	19.4%	36.9%	19.8%	11.4%	16.9%	19.3%	15.7%	9.1%	15.2%	4.1%	13.8%	17.9%
All NJ	10.8%	18.3%	51.4%	18.6%	5.9%	15.1%	22.1%	13.3%	5.4%	14.1%	2.8%	12.0%	16.6%

Notes: These are inpatient discharge based percentages. High user payer information is based on the first stay/visit and applied to subsequent discharge records of the patient. % payer denotes percentage of inpatient costs in each specific payer category (i.e., row percentage). Avoidable denotes percentage of cost among high users that is classified as avoidable/preventable.

Table 14. Payer Distribution of ED High Use Visits and Share of Avoidable ED Visits

ACO Regions	Dual Eligible		Other Medicare		Medicaid		Private		Charity Care		Self Pay		All Payers
	% payer	Avoidable	% payer	Avoidable	% payer	Avoidable	% payer	Avoidable	% payer	Avoidable	% payer	Avoidable	Avoidable
Asbury Park	6.9%	48.6%	6.5%	45.0%	30.7%	58.3%	15.3%	56.5%	12.7%	54.3%	25.8%	49.1%	53.4%
Atlantic City	7.3%	48.3%	6.9%	48.8%	7.6%	53.9%	30.8%	59.3%	27.2%	51.6%	19.3%	50.2%	53.4%
Camden	4.6%	53.2%	4.5%	54.4%	19.2%	58.4%	33.9%	63.3%	11.7%	53.6%	23.3%	55.8%	58.4%
Elizabeth	1.1%	47.7%	8.9%	50.4%	10.9%	52.9%	32.4%	58.2%	27.2%	55.8%	16.3%	53.8%	55.2%
Jersey City	3.2%	52.2%	7.5%	49.2%	21.1%	58.1%	23.2%	60.1%	28.4%	49.4%	15.1%	50.7%	54.0%
New Brunswick	3.5%	48.5%	7.5%	49.7%	6.9%	52.3%	39.6%	59.2%	15.6%	59.2%	25.7%	55.8%	56.6%
Newark	5.6%	54.1%	4.9%	52.0%	19.5%	56.2%	25.4%	62.2%	16.5%	58.5%	25.2%	57.4%	58.1%
Paterson	6.9%	49.8%	4.6%	46.7%	10.4%	54.0%	33.4%	56.7%	28.2%	51.5%	14.7%	49.3%	52.8%
Perth Amboy	6.6%	52.5%	4.8%	47.5%	26.7%	57.6%	23.0%	59.5%	14.5%	48.1%	20.0%	54.5%	55.1%
Plainfield	4.6%	51.3%	6.0%	47.9%	19.3%	60.6%	33.0%	60.5%	12.0%	58.5%	21.3%	55.7%	58.0%
Trenton	6.3%	49.5%	6.4%	49.9%	24.4%	57.6%	21.6%	57.7%	18.7%	48.4%	20.4%	53.3%	53.8%
Union City	5.4%	58.3%	7.2%	50.0%	16.1%	57.4%	24.7%	57.6%	19.3%	55.5%	19.7%	51.3%	54.6%
Vineland	10.9%	41.0%	7.4%	45.6%	30.5%	50.3%	20.0%	53.6%	6.8%	47.4%	21.3%	48.5%	48.9%
13 ACO Regions	5.4%	50.9%	6.0%	49.9%	18.4%	56.5%	27.3%	59.9%	19.3%	53.4%	21.1%	54.1%	55.5%
All NJ	5.4%	46.6%	9.5%	46.0%	15.1%	54.5%	31.0%	55.0%	15.1%	52.3%	20.5%	51.8%	52.4%

Notes: These are visit based percentages. High user payer information is based on the first stay/visit and applied to subsequent discharge records of the patient. % payer denotes percentage of ED visits in each specific payer categories (i.e., row percentage). Avoidable denotes percentage of visits among high users that are classified as avoidable/preventable.

Table 15. Payer Distribution of ED High Use Costs and Share of Avoidable ED Visits

ACO Regions	Dual Eligible		Other Medicare		Medicaid		Private		Charity Care		Self Pay		All Payers
	% payer	Avoidable	% payer	Avoidable	% payer	Avoidable	% payer	Avoidable	% payer	Avoidable	% payer	Avoidable	Avoidable
Asbury Park	7.5%	46.8%	8.2%	44.2%	29.6%	56.7%	16.3%	55.3%	13.1%	51.0%	23.2%	47.5%	51.7%
Atlantic City	7.9%	46.0%	7.3%	47.2%	7.3%	51.9%	31.7%	56.7%	26.8%	48.0%	18.0%	48.2%	50.9%
Camden	6.4%	51.0%	5.9%	50.5%	20.0%	54.8%	31.0%	60.1%	12.1%	50.3%	21.8%	51.1%	54.5%
Elizabeth	1.6%	48.7%	10.8%	47.8%	10.8%	48.6%	32.3%	55.8%	25.9%	50.2%	15.5%	49.3%	51.3%
Jersey City	4.0%	47.3%	8.6%	48.1%	21.4%	54.9%	23.0%	57.6%	27.4%	50.2%	14.2%	48.4%	52.4%
New Brunswick	4.1%	44.6%	9.0%	47.3%	6.1%	46.0%	38.8%	57.0%	17.0%	57.7%	23.7%	53.5%	54.1%
Newark	6.0%	49.5%	5.4%	49.5%	20.0%	51.1%	25.0%	58.6%	16.9%	53.9%	24.3%	52.2%	53.6%
Paterson	7.2%	47.6%	5.6%	45.3%	10.7%	53.0%	33.2%	55.4%	26.9%	50.5%	14.6%	47.2%	51.4%
Perth Amboy	8.9%	50.5%	5.8%	46.1%	27.0%	54.8%	23.1%	56.0%	16.0%	48.5%	15.8%	51.8%	52.8%
Plainfield	5.3%	44.5%	6.5%	47.9%	16.8%	57.0%	33.6%	56.2%	13.3%	50.9%	20.6%	51.4%	53.5%
Trenton	6.6%	47.7%	7.0%	49.1%	24.5%	54.8%	22.3%	54.8%	18.7%	47.2%	18.7%	49.7%	51.3%
Union City	6.0%	56.0%	7.7%	47.0%	15.1%	55.2%	25.5%	56.6%	19.8%	54.6%	18.0%	50.0%	53.8%
Vineland	11.4%	42.8%	9.3%	45.4%	29.2%	49.9%	21.0%	52.3%	7.1%	41.6%	19.3%	45.6%	47.6%
13 ACO Regions	6.3%	48.2%	6.8%	48.1%	18.8%	53.0%	26.8%	57.1%	18.8%	50.8%	20.0%	50.4%	52.5%
All NJ	6.0%	44.9%	11.9%	45.1%	14.1%	51.1%	31.9%	52.7%	14.4%	49.4%	18.3%	48.0%	49.6%

Notes: These are visit based percentages. High user payer information is based on the first stay/visit and applied to subsequent discharge records of the patient. % payer denotes percentage of ED costs in each specific payer categories (i.e., row percentage). Avoidable denotes percentage of costs among high users that is classified as avoidable/preventable.

Figure 7. Shares of Discharges and Cost among Elderly and Non-Elderly Dual-Eligible High Users That Are Avoidable in 13 ACO Regions

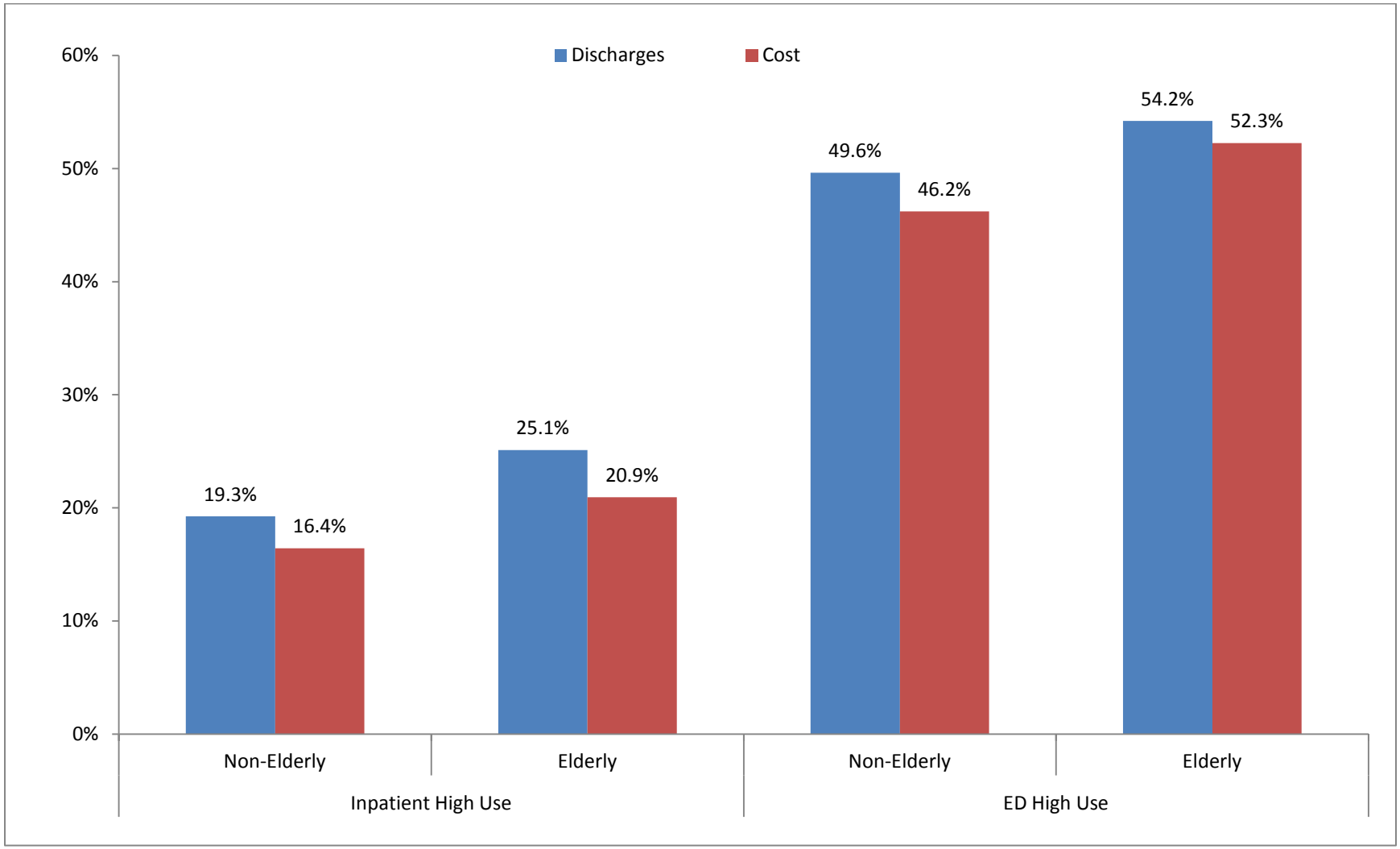

Table 16. Share of Discharges among Elderly and Non-Elderly Dual-Eligible High Users That Are Avoidable

ACO Regions	Inpatient Stays				Emergency Department Visits			
	Non-Elderly		Elderly		Non-Elderly		Elderly	
	% stays	Avoidable	% stays	Avoidable	% visits	Avoidable	% visits	Avoidable
Asbury Park	45.8%	16.9%	54.2%	15.8%	81.0%	48.0%	19.0%	51.0%
Atlantic City	34.1%	21.9%	65.9%	23.6%	72.8%	48.1%	27.2%	48.7%
Camden	39.5%	18.5%	60.5%	31.6%	63.2%	50.4%	36.8%	58.1%
Elizabeth	44.5%	15.7%	55.5%	25.5%	69.6%	48.0%	30.4%	47.1%
Jersey City	35.9%	22.8%	64.1%	26.8%	73.1%	52.9%	26.9%	50.1%
New Brunswick	34.8%	15.8%	65.2%	17.5%	76.4%	45.4%	23.6%	58.7%
Newark	36.8%	19.0%	63.2%	24.2%	72.9%	52.3%	27.1%	58.8%
Paterson	32.2%	20.4%	67.8%	28.1%	67.0%	47.5%	33.0%	54.4%
Perth Amboy	32.4%	13.8%	67.6%	20.0%	65.6%	51.8%	34.4%	53.8%
Plainfield	48.9%	18.6%	51.1%	30.4%	82.1%	49.3%	17.9%	60.3%
Trenton	46.9%	16.3%	53.1%	19.7%	77.0%	49.6%	23.0%	49.1%
Union City	13.7%	22.5%	86.3%	25.7%	62.5%	61.6%	37.5%	52.8%
Vineland	48.4%	21.7%	51.6%	35.7%	76.4%	39.1%	23.6%	47.2%
13 ACO Regions	35.4%	19.3%	64.6%	25.1%	72.1%	49.6%	27.9%	54.2%
All NJ	37.0%	17.4%	63.0%	23.8%	77.0%	45.9%	23.0%	49.2%

Notes: % stays/visits denotes percentage of dual eligible high user discharges that are elderly (65+) or non-elderly. Avoidable denotes the percentage of high use stays/visits that are avoidable/preventable.

Table 17. Share of Costs among Elderly and Non-Elderly Dual-Eligible High Users That Are Avoidable

ACO Regions	IP				ED			
	Non-Elderly		Elderly		Non-Elderly		Elderly	
	% cost	Avoidable	% cost	Avoidable	% cost	Avoidable	% cost	Avoidable
Asbury Park	46.6%	14.4%	53.4%	12.8%	77.8%	45.0%	22.2%	52.8%
Atlantic City	30.8%	19.0%	69.2%	18.9%	68.6%	45.8%	31.4%	46.5%
Camden	43.7%	15.5%	56.3%	25.0%	59.9%	48.4%	40.1%	54.9%
Elizabeth	45.9%	11.8%	54.1%	19.9%	55.8%	46.5%	44.2%	51.4%
Jersey City	33.9%	19.8%	66.1%	22.4%	66.7%	48.5%	33.3%	44.8%
New Brunswick	37.5%	11.7%	62.5%	15.9%	67.9%	38.1%	32.1%	58.3%
Newark	35.1%	16.3%	64.9%	19.8%	70.4%	46.4%	29.6%	56.9%
Paterson	31.3%	18.7%	68.7%	25.4%	60.3%	43.6%	39.7%	53.8%
Perth Amboy	34.3%	11.7%	65.7%	17.0%	55.7%	49.7%	44.3%	51.6%
Plainfield	51.1%	15.6%	48.9%	26.8%	81.4%	41.3%	18.6%	58.5%
Trenton	44.4%	13.3%	55.6%	16.7%	73.6%	46.9%	26.4%	49.9%
Union City	12.7%	19.2%	87.3%	21.5%	52.9%	59.2%	47.1%	52.5%
Vineland	47.2%	20.4%	52.8%	28.6%	71.5%	42.5%	28.5%	43.6%
13 ACO Regions	34.5%	16.4%	65.5%	20.9%	67.7%	46.2%	32.3%	52.3%
All NJ	36.4%	15.2%	63.6%	20.1%	72.1%	43.5%	27.9%	48.4%

Notes: % cost denotes percentage of dual eligible high user costs that are by elderly (65+) or non-elderly high users. Avoidable denotes the percentage of costs associated with high use stays/visits that are avoidable/preventable.

Figure 8. Avoidable Inpatient Annual Costs for 13 ACO Regions (millions of 2010 dollars)

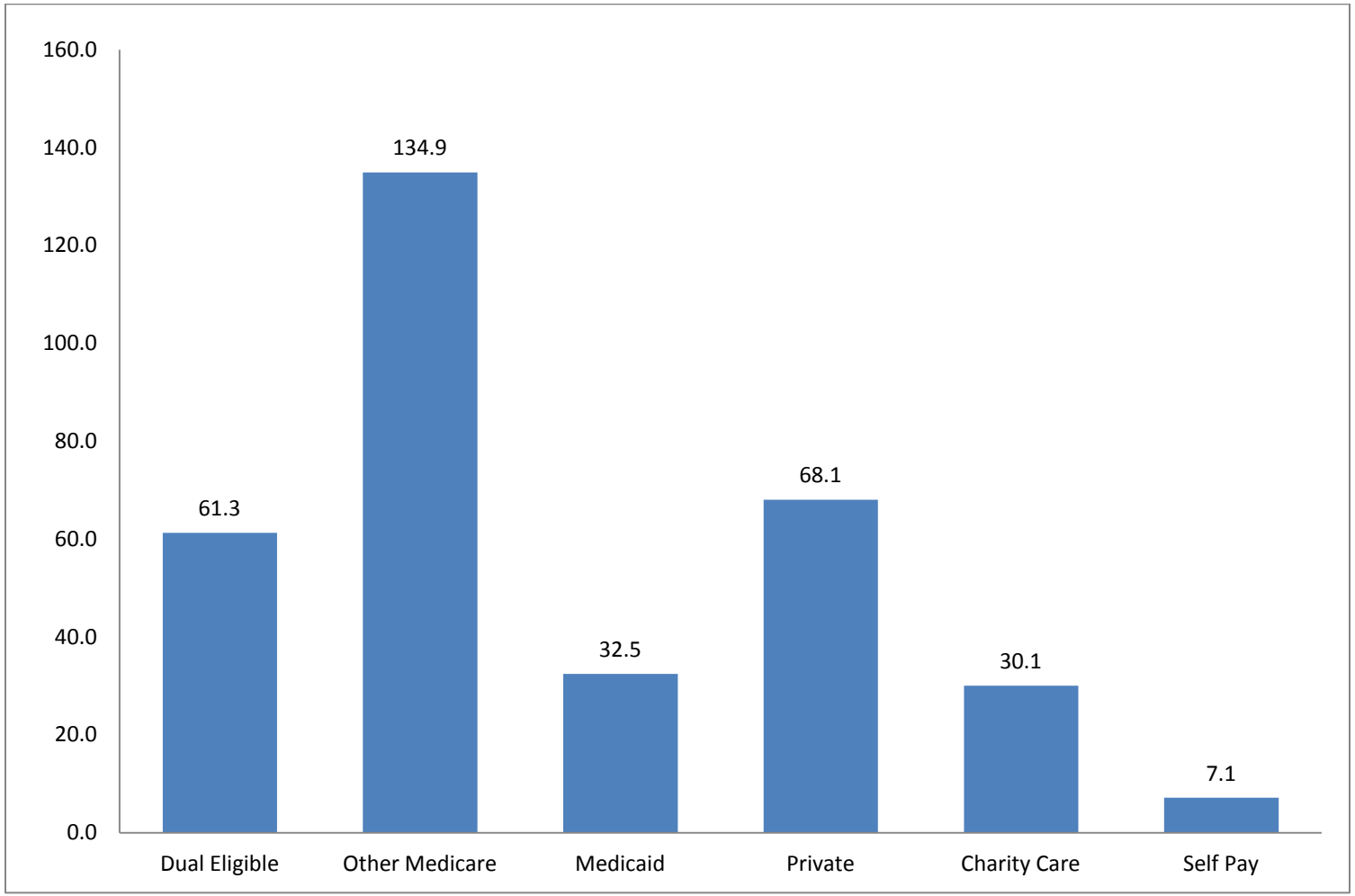

Figure 9. Avoidable ED Annual Costs for the 13 ACO Regions (millions of 2010 dollars)

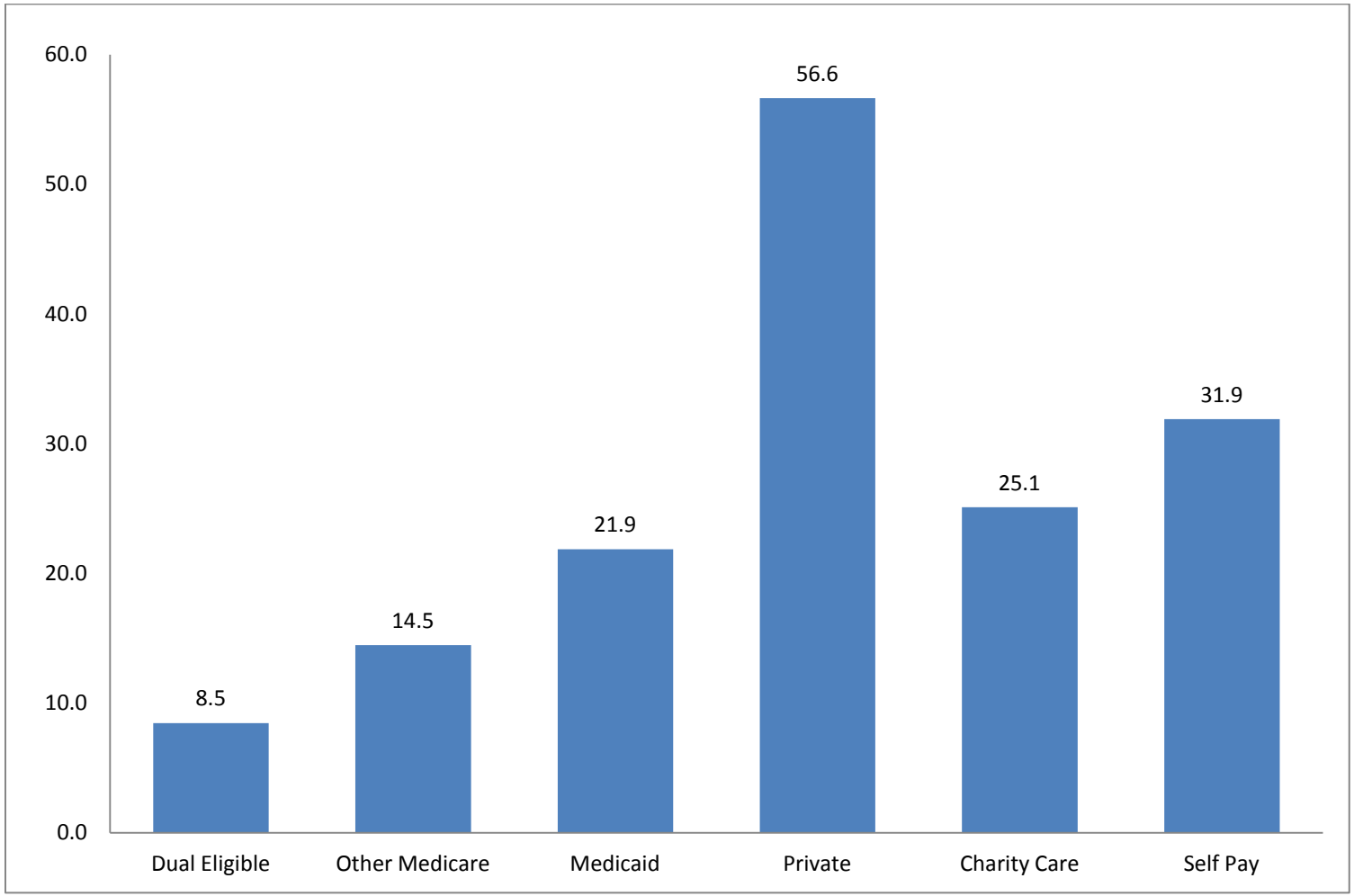

Table 18. Annual Avoidable Inpatient Hospitalization Costs

ACO Regions	Dual Eligible	Other Medicare	Medicaid	Private	Charity Care	Self Pay	All Payers
Asbury Park	1,563,967	5,984,064	1,221,175	2,215,290	700,194	317,041	12,036,074
Atlantic City	2,732,875	5,245,737	814,417	3,011,404	1,809,636	292,351	13,949,740
Camden	3,445,345	4,534,973	2,955,598	2,428,938	1,690,978	265,636	15,378,984
Elizabeth	1,861,505	9,323,188	1,882,876	4,873,024	2,016,538	423,033	20,518,538
Jersey City	6,903,085	23,873,340	5,333,166	9,131,451	4,402,773	722,509	50,581,490
New Brunswick	1,600,464	5,871,521	327,192	3,551,481	828,332	271,209	12,496,594
Newark	18,349,884	26,757,279	11,038,411	17,939,638	8,424,247	2,038,308	85,104,052
Paterson	9,790,706	15,181,538	2,190,436	10,490,000	4,103,336	903,765	42,854,553
Perth Amboy	1,728,394	3,110,889	808,266	1,061,657	698,871	112,068	7,633,674
Plainfield	1,361,118	4,119,251	335,377	2,301,997	800,998	214,842	9,213,500
Trenton	3,252,377	9,663,010	2,642,798	4,617,253	2,515,134	496,175	23,324,875
Union City	7,306,855	10,279,446	1,697,246	4,131,638	1,727,797	537,323	26,168,878
Vineland	1,419,840	10,982,875	1,209,651	2,306,702	356,132	545,551	16,881,771
13 ACO Regions	61,316,413	134,927,109	32,456,609	68,060,475	30,074,967	7,139,813	336,142,723
All NJ	125,595,927	647,058,690	53,836,864	235,572,169	58,045,495	17,533,438	1,146,509,493

Notes: These represent costs associated with inpatient stays that were categorized as avoidable. Figures are annualized and adjusted to 2010 dollars using the CPI-Medical Care.

Table 19. Annual Avoidable ED Visit Costs

ACO Regions	Dual Eligible	Other Medicare	Medicaid	Private	Charity Care	Self Pay	Total
Asbury Park	288,910	600,848	928,629	1,405,647	498,391	869,279	4,692,968
Atlantic City	663,664	945,957	549,879	3,761,639	2,118,867	1,875,134	9,996,696
Camden	958,292	992,707	2,382,894	4,238,431	1,286,599	2,920,686	12,997,447
Elizabeth	249,606	948,304	861,262	3,423,119	1,864,938	1,444,393	8,996,444
Jersey City	681,876	1,624,081	2,131,069	5,370,270	2,802,585	2,217,465	15,141,222
New Brunswick	209,200	563,905	193,199	2,770,504	1,004,410	1,408,905	6,240,042
Newark	2,260,690	2,912,607	6,138,217	15,566,013	6,956,507	10,431,815	45,152,980
Paterson	912,261	1,131,734	1,256,971	6,295,243	3,197,781	2,468,757	15,533,202
Perth Amboy	413,776	414,388	1,049,823	1,370,802	676,938	962,316	5,028,657
Plainfield	132,440	330,684	368,497	1,508,454	420,695	844,005	3,722,684
Trenton	900,707	1,532,770	3,416,423	4,801,389	2,342,715	3,344,066	16,534,711
Union City	516,247	734,615	824,332	3,227,755	1,490,036	1,643,585	8,968,173
Vineland	268,593	1,736,951	1,767,869	2,895,705	438,734	1,463,433	8,744,087
13 ACO Regions	8,456,263	14,469,552	21,869,065	56,634,969	25,099,197	31,893,839	161,749,313
All NJ	19,092,992	78,150,385	40,961,903	217,697,535	45,519,237	69,389,108	484,172,569

Notes: These represent costs associated with ED visits that were categorized as avoidable. Figures are annualized and adjusted to 2010 dollars using the CPI-Medical Care.

Figure 10. Inpatient High Use Annual Costs for the 13 ACO Regions – Total and Avoidable (millions of 2010 dollars)

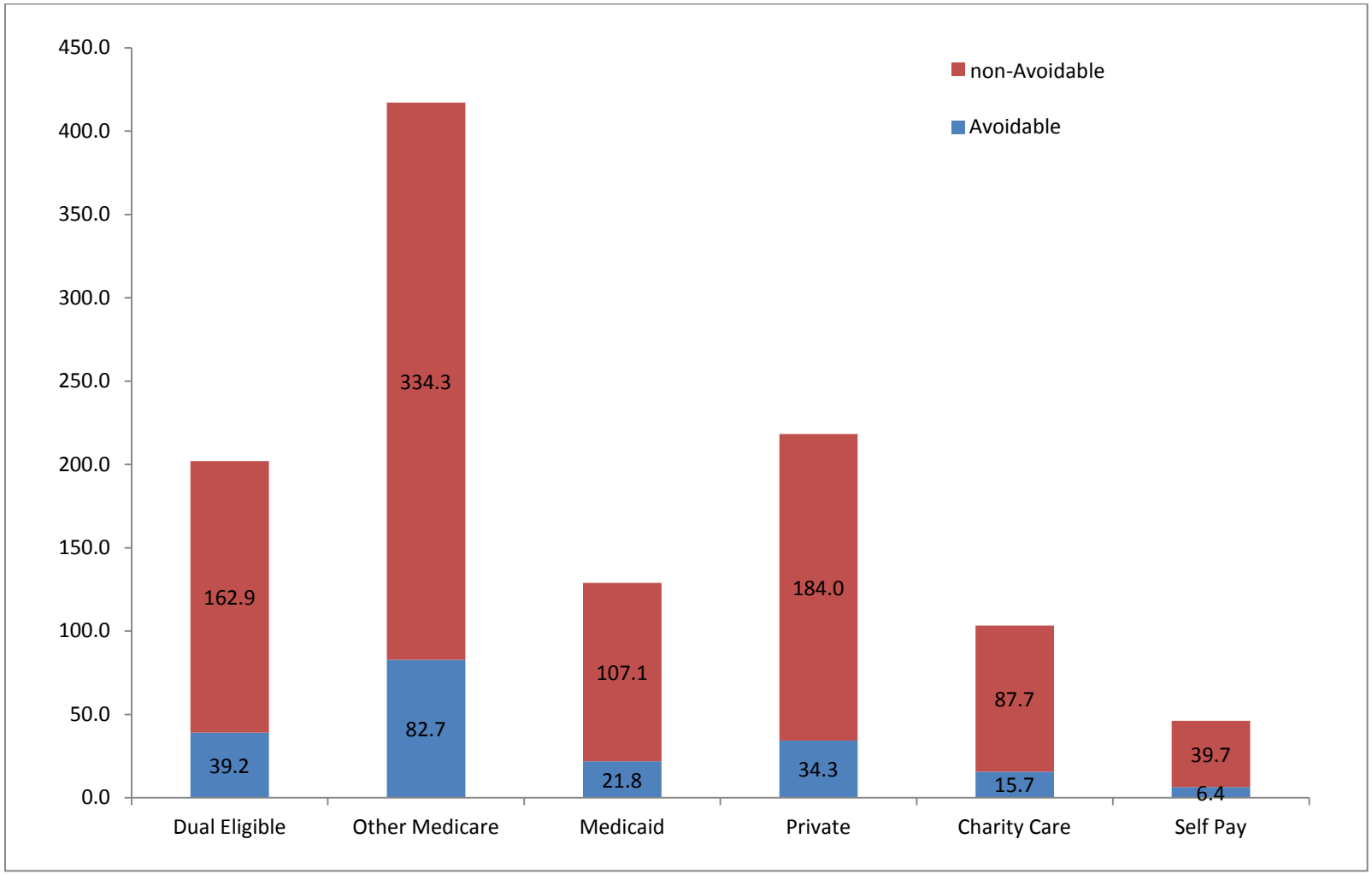

Figure 11. ED High Use Annual Costs for the 13 ACO Regions – Total and Avoidable (millions of 2010 dollars)

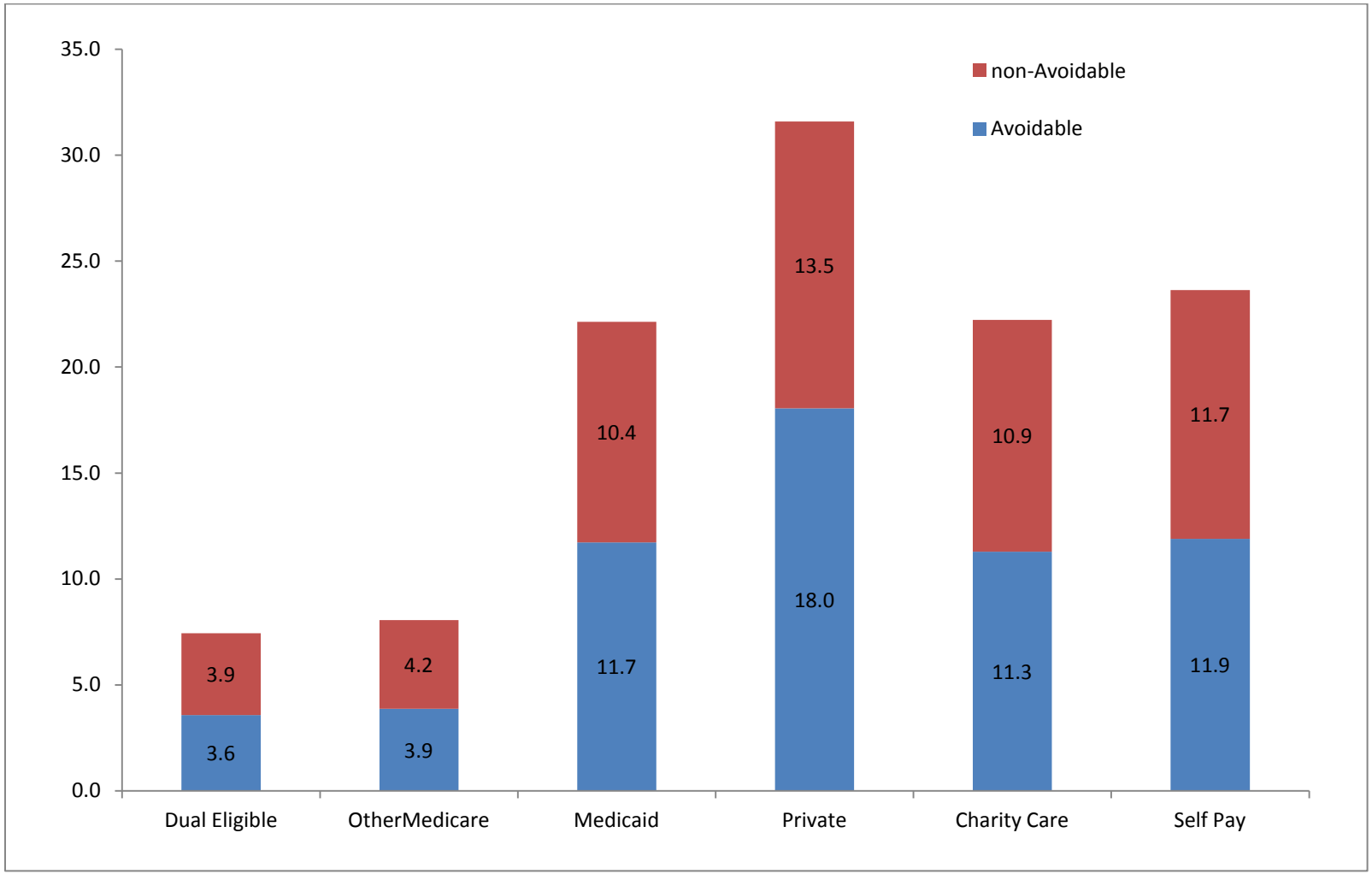

Table 20. Total and Avoidable Annual Inpatient Costs among Inpatient High Users

ACO Regions	Dual Eligible		Other Medicare		Medicaid		Private	
	Total	Avoidable	Total	Avoidable	Total	Avoidable	Total	Avoidable
Asbury Park	7,394,854	1,000,862	21,875,093	3,297,065	5,581,079	1,048,096	7,629,287	1,048,018
Atlantic City	9,220,063	1,747,134	15,187,181	3,000,601	2,818,959	449,280	9,727,477	1,624,469
Camden	10,174,496	2,125,138	13,330,394	2,740,115	10,004,912	2,139,556	9,781,709	1,738,583
Elizabeth	4,057,962	654,991	31,539,195	5,502,147	5,265,037	879,674	16,016,279	2,303,529
Jersey City	20,269,646	4,358,796	72,848,012	15,196,632	20,026,830	4,158,052	29,024,732	4,569,962
New Brunswick	6,381,378	913,145	20,988,453	3,323,455	2,015,406	284,423	12,617,723	1,635,722
Newark	65,898,410	12,247,180	92,965,201	18,800,185	48,557,908	7,210,706	57,828,319	9,066,759
Paterson	25,344,448	5,904,467	41,448,515	9,323,581	7,919,372	1,220,138	30,330,229	5,629,952
Perth Amboy	8,101,670	1,230,397	10,214,776	1,852,915	3,282,193	416,801	4,265,555	616,486
Plainfield	3,922,520	827,131	11,763,471	2,403,406	2,133,317	275,866	6,941,434	987,503
Trenton	13,918,790	2,116,765	29,918,011	5,888,136	11,115,710	1,960,410	13,798,270	2,126,996
Union City	20,211,073	4,278,690	31,923,169	6,389,185	6,242,105	1,159,934	13,697,286	1,850,355
Vineland	7,142,254	1,766,219	23,033,598	5,014,606	3,967,346	598,150	6,650,294	1,085,002
13 ACO Regions	202,037,564	39,170,915	417,035,068	82,732,029	128,930,173	21,801,086	218,308,592	34,283,338
All NJ	408,638,319	74,806,390	1,937,551,412	360,064,312	222,906,053	33,751,830	832,255,205	110,481,576

Notes: These represent total costs associated with IP high use overall and that categorized as avoidable. Figures are annualized and adjusted to 2010 dollars using the CPI-Medical Care.

Table 20. (cont'd) - Total and Avoidable Annual Inpatient Costs among Inpatient High Users

ACO Regions	Charity Care		Self Pay		All Payers	
	Total	Avoidable	Total	Avoidable	Total	Avoidable
Asbury Park	2,966,105	381,650	1,331,739	194,181	47,130,070	6,992,767
Atlantic City	6,889,651	1,066,846	1,925,547	283,100	46,172,348	8,261,357
Camden	5,293,129	843,743	3,192,559	324,995	52,501,440	10,098,809
Elizabeth	6,917,900	929,606	1,675,450	162,298	66,200,923	10,510,907
Jersey City	15,898,693	2,469,578	4,326,770	699,627	163,803,443	31,632,508
New Brunswick	2,420,963	226,735	1,957,032	219,832	46,965,989	6,654,091
Newark	27,568,759	4,471,271	16,349,733	2,086,881	313,584,821	54,429,395
Paterson	15,014,076	2,209,569	4,862,489	795,907	126,034,936	25,153,457
Perth Amboy	1,768,965	309,355	1,070,688	93,791	29,322,938	4,600,864
Plainfield	2,227,449	295,504	725,494	146,362	28,520,378	5,030,567
Trenton	10,286,294	1,691,498	3,997,644	636,884	84,176,642	14,520,974
Union City	4,882,149	612,765	2,751,199	402,765	81,517,365	15,112,966
Vineland	1,248,743	164,834	1,926,916	313,987	45,155,481	9,006,942
13 ACO Regions	103,382,876	15,672,952	46,093,259	6,360,610	1,131,086,773	202,005,603
All NJ	201,970,044	28,510,778	106,282,926	12,728,819	3,769,223,830	627,411,555

Notes: These represent total costs associated with IP high use overall and that categorized as avoidable. Figures are annualized and adjusted to 2010 dollars using the CPI-Medical Care.

Table 21. Total and Avoidable Annual ED Costs among ED High Users

ACO Regions	Dual Eligible		Other Medicare		Medicaid		Private	
	% payer	Avoidable	% payer	Avoidable	% payer	Avoidable	% payer	Avoidable
Asbury Park	263,347	123,137	286,492	126,691	1,038,976	588,802	570,790	315,615
Atlantic City	740,897	340,972	686,077	323,960	680,927	353,395	2,969,683	1,685,167
Camden	821,023	418,953	760,638	383,860	2,574,303	1,411,981	3,988,393	2,398,794
Elizabeth	88,684	43,152	587,000	280,582	587,408	285,758	1,759,970	981,895
Jersey City	372,773	176,173	800,722	385,320	1,997,306	1,096,932	2,145,923	1,236,464
New Brunswick	151,857	67,683	336,041	158,938	228,110	104,991	1,444,110	823,095
Newark	2,062,016	1,021,130	1,868,984	925,629	6,904,998	3,530,195	8,615,519	5,049,383
Paterson	677,036	322,471	529,286	239,937	1,004,948	532,177	3,120,246	1,729,766
Perth Amboy	257,476	130,144	167,321	77,077	783,473	429,584	668,303	374,554
Plainfield	122,331	54,479	149,152	71,491	386,031	220,019	772,203	434,297
Trenton	995,813	475,031	1,058,094	519,239	3,689,829	2,020,507	3,354,836	1,839,258
Union City	229,631	128,609	293,539	137,995	576,429	318,093	972,641	550,265
Vineland	653,301	279,862	536,815	243,890	1,680,957	839,070	1,206,585	630,565
13 ACO Regions	7,436,187	3,581,796	8,060,159	3,874,610	22,133,695	11,731,504	31,589,202	18,049,119
All NJ	17,380,414	7,803,942	34,428,256	15,511,936	40,967,285	20,931,227	92,480,314	48,749,691

Notes: These represent total costs associated with ED high use overall and that categorized as avoidable. Figures are annualized and adjusted to 2010 dollars using the CPI-Medical Care.

Table 21. (cont'd) - Total and Avoidable Annual ED Costs among ED High Users

ACO Regions	Charity Care		Self Pay		Total	
	% payer	Avoidable	% payer	Avoidable	% payer	Avoidable
Asbury Park	458,364	233,789	812,652	385,974	3,506,620	1,812,015
Atlantic City	2,506,953	1,202,756	1,687,412	812,861	9,367,532	4,763,913
Camden	1,554,793	782,541	2,800,857	1,430,868	12,858,658	7,011,088
Elizabeth	1,411,455	708,399	846,283	416,947	5,448,898	2,797,043
Jersey City	2,552,504	1,280,740	1,319,520	638,469	9,323,013	4,888,698
New Brunswick	631,039	364,009	882,567	472,553	3,722,239	2,013,737
Newark	5,841,303	3,150,981	8,384,469	4,372,731	34,523,844	18,509,185
Paterson	2,525,068	1,275,931	1,370,172	646,422	9,390,036	4,828,815
Perth Amboy	462,728	224,654	457,238	236,900	2,896,997	1,530,145
Plainfield	306,505	155,918	473,952	243,802	2,300,257	1,231,704
Trenton	2,819,526	1,329,531	2,805,963	1,395,847	15,044,678	7,725,041
Union City	752,904	410,995	684,912	342,327	3,807,162	2,046,801
Vineland	408,495	169,932	1,108,219	505,867	5,752,694	2,738,879
13 ACO Regions	22,231,637	11,290,175	23,634,214	11,901,568	117,942,628	61,897,062
All NJ	41,715,515	20,590,848	53,148,190	25,505,740	290,122,990	143,870,384

Notes: These represent total costs associated with ED high use overall and that categorized as avoidable. Figures are annualized and adjusted to 2010 dollars using the CPI-Medical Care.

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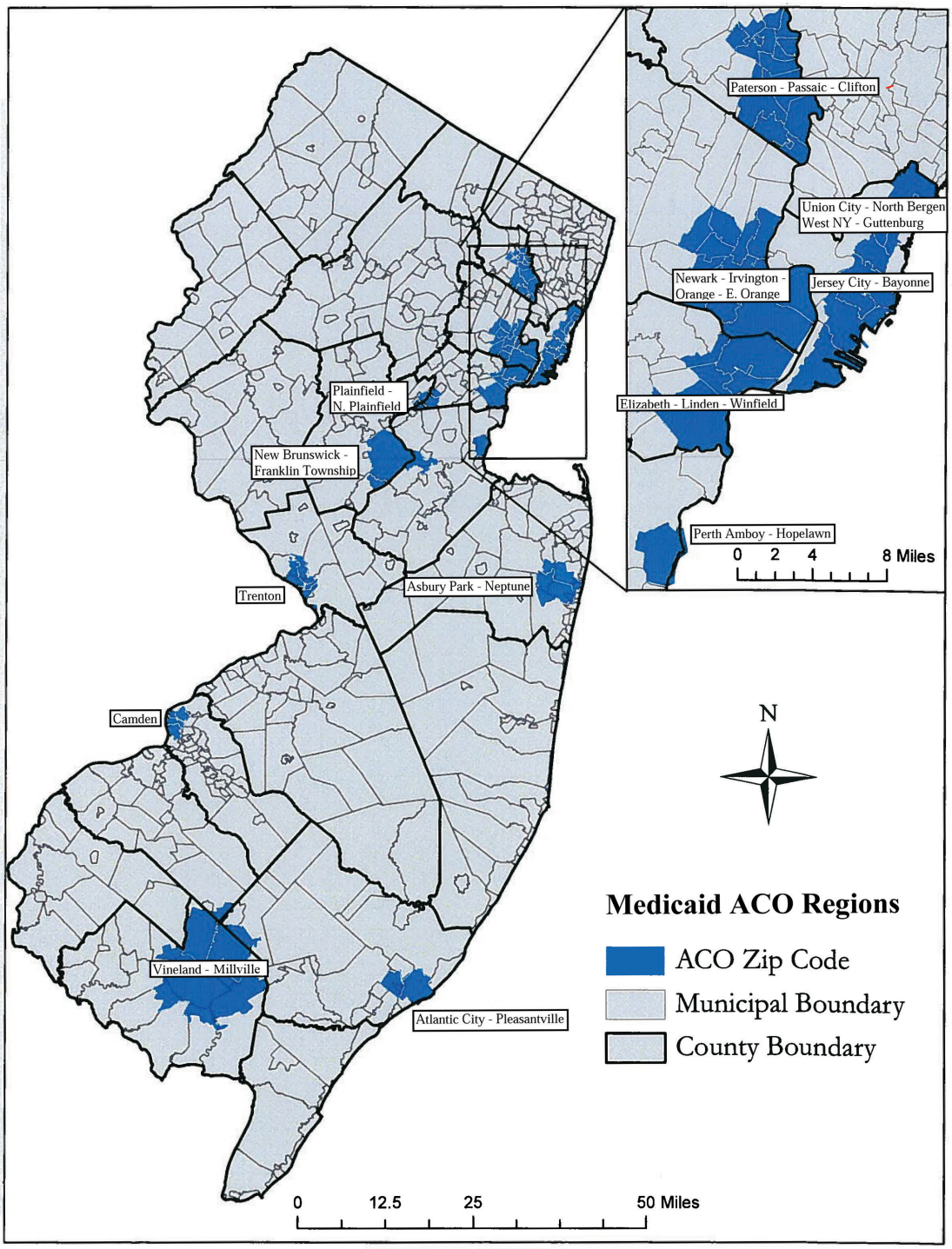
Appendix A: ACO Study Communities

	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: ACO Regions Map



Source: Kathe Newman, Rutgers University.

Appendix C: 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 D: 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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