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2016 Community Health Needs Assessment for Saint Peter's University Hospital & Robert Wood Johnson University Hospital:

Findings from the Behavioral Risk Factor & Surveillance System (BRFSS), Hospital Discharge Data, and Key Informant Interviews

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March 2016

Table of Contents

Chapter 4: Discussion

Content Note: Pages 106–107 discuss the necessity of sensitivity to patients with the example of treatment for a patient who has experienced a sexual assault.

List of Figures

List of Tables

Acknowledgments

Funding for this project was provided through a collaborative grant between Saint Peter's University Hospital and Robert Wood Johnson University Hospital. We are grateful for valuable comments on the design and content of this study by Zachary Taylor, M.Ed., C.H.E.S., Coordinator, Community Health Consortium for Central Jersey, Saint Peter's University Hospital and Robert Wood Johnson University Hospital, Marge Drozd, M.S.N., R.N., A.P.R.N.-B.C., Director of Community Mobile Health Services at SPUH, Mariam Merced, M.A., Director of Community Health Promotions Program at RWJUH, Camilla Comer-Carruthers, M.P.H., Manager of Community Health Education at RWJUH, and other members of the Project Steering Committee. In addition, we thank the 15 community stakeholders who agreed to be interviewed for this project. Finally, we thank CSHP colleague Bram Poquette for his contributions in formatting this report.

Foreward

Process in Perspective

In reviewing the information that follows, it is important to note that the quantitative data utilized precedes the activities of the current Community Health Improvement Plan (CHIP), while the qualitative work coincides with the CHIP work from 2013-2015. The time delay of the quantitative data is due to the reporting procedures of the data sources used, which are standard among research agencies. The delay does not disrupt or negatively influence the value of the information, as it allows analysis of the health trends that are prevalent in the hospital service area over a period of six years, defining those areas that are the most impactful in the community.

Identifying pervasive trends and aligning them with the 2013 CHIP focus areas will lead to the creation of a more robust and evidence-based 2016 CHIP. During this process the new and emerging trends that occur throughout both the qualitative and quantitative measures will be highlighted.

In addition to the above, there was a purposeful decision to focus on an update, rather than a duplication of the 2012 Community Health Needs Assessment (CHNA). Consistency throughout the assessment was of paramount importance, leading to a focus on the quantitative measures and key informant interviews, allowing pervasive trends to emerge more readily. The key informant interviews of this CHNA were conducted with many of the same community based organizations as the 2012 CHNA. Furthermore, by shifting some allocation of resources from the assessment to implementation, the hospitals can continue funding current and future programs, with the intention of cycling through a comprehensive assessment every nine years, in order to identify long-term health changes over time.

These decisions represent the correct approach to not only effectively evaluate the community, but the right strategic approach to providing the actual implementation of the programs and policies that affect the health of the community in Middlesex and Somerset counties.

Saint Peter's University Hospital and Robert Wood Johnson University Hospital

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Executive Summary

Under the 2010 Patient Protection and Affordable Care Act (ACA), non-profit hospitals must conduct a community health needs assessment and identify an implementation strategy to address those needs every three years. In order to continue compliance with this requirement, Saint Peter's University Hospital and Robert Wood Johnson University Hospital again teamed together and engaged the Rutgers University Center for State Health Policy (CSHP) to complete a series of multi-method analytic activities to inform the second round of the community health needs assessment and implementation strategy. As part of that work, CSHP conducted secondary data analyses of the 2012 Behavioral Risk Factor and Surveillance System (BRFSS) data and Uniform Billing hospital discharge data over the period 2011-2013. A separate qualitative part of the project reached out to broad constituencies via a series of key informant interviews. Findings converged in several key themes across all three data components.

Chapter 1 of this report includes findings from an analysis of 2012 BRFSS data. CSHP analyzed data for counties included in the designated hospital service area (all of Middlesex and Somerset counties combined as the BRFSS data is only available at the county level) as well as statewide comparative data. Health topics of interest were analyzed by key demographics (age, gender, race/ethnicity), income, and health insurance status. General pattern changes over time from the first Community Health Needs Assessment are also noted.

- Overall findings:
    - For nearly all measures overall, the combined county sample fared better than the New Jersey sample.
    - The counties fared worse on only 1 of the 33 measures (never had an HIV test).

- This was an improvement from the 1st CHNA report where the counties fared worse on 3 of the measures (no exercise past month, no PSA test in the past 2 years, and never had an HIV test).

- Findings by age:
  - In general, older adults fared worse on most of the health status and chronic condition measures (self-assessed overall health status, 4+ bad physical health days, diabetes, heart attack, stroke, activity limitation, health problem requiring special equipment), but fared better on 4+ bad mental health days and ever diagnosed with asthma; younger adults reported more problems with the healthcare access measures such as not having a regular doctor, cost barriers to care, or not having recent medical/dental check-ups.
  - Younger adults also fared worse on the risky behaviors such as binge drinking, smoking, and seatbelt use, but better on overweight/obesity, exercise, and falls; older adults were more likely to engage in some preventive behaviors (flu shot, blood stool test, sigmoidoscopy/colonoscopy, PSA test), although they were less likely to have had a recent mammogram, pap test, or HIV test.
  - These patterns were identical to those in the 1st CHNA report except the results for HIV tests since this was not asked of older adults in the earlier questionnaire.
- Findings by gender:
  - Females fared worse on most of the health status measures (self-assessed overall health status, 4+ bad mental health days, asthma, stroke, activity limitation, health problem requiring special equipment), but fared better on 4+ bad physical health days, diabetes, and heart attack.
  - Males reported more problems with three of the healthcare access measures (not having a regular doctor and not having recent medical or dental check-ups), but females reported more problems with cost barriers to care.
  - Males fared worse on the risky behaviors such as binge drinking, smoking, overweight/obesity, and seatbelt use, but females fared worse on exercise and falls. The results were mixed for gender in the preventive behaviors.
  - These patterns were identical to those in the 1st CHNA report except the results for 4+ bad physical health days and heart attack.
- Findings by race/ethnicity:
  - The results were mixed for race-ethnicity on the health status and chronic condition measures. Black non-Hispanics fared worse on 4+ bad physical health and 4+ bad mental health days, diabetes, activity limitation, and health problem requiring special equipment. Hispanics fared worse on overall self-assessed health and asthma. White non-Hispanics fared worse on 4+ bad physical health days,

heart attack, and stroke. Asian non-Hispanics fared better on all the health status and chronic condition measures.
    - Black non-Hispanics and Hispanics reported more problems with most of the healthcare access measures, and Asian non-Hispanics also fared worse on the dental access measure.
    - The results were mixed for race-ethnicity on the risky behaviors, and cell sizes were too small to report results for most of the preventive behaviors.
    - Most of these patterns were the same as in the 1st CHNA report.
- Findings by income:
    - Low income respondents fared worse on most measures, although they fared better than one or both of the other income groups on binge drinking, overweight and obesity, seatbelt use, flu shot past year age 65+, pneumonia shot ever, and ever had an HIV test.
    - These results are the same as in the 1st CHNA report with the exception of obesity, flu shot past year age 65+, and pneumonia shot ever, where the low income respondents fared worse in the 1st report.
- Findings by insurance status:
    - The uninsured fared worse across almost all measures, although they fared better on heart attack, stroke, health problem requiring special equipment, binge drinking, smoking, overweight (but not obese), and exercise.
    - These patterns were the same as in the 1st CHNA report with the exception of stroke, binge drinking, and HIV test.

Chapter 2 contains findings from secondary data analysis of New Jersey Uniform Billing hospital discharge data over the period 2011-2013. This data provides population-based rates of hospital inpatient and emergency department (ED) utilization that are useful for community health improvement strategies. Analyses focused on inpatient admissions for "ambulatory care sensitive" conditions that could be avoided by high quality primary care within the community and treat-and-release ED visits that could have been treated in a primary care setting or could have been prevented with adequate access to primary care within the community. Population-based rates of these indicators were examined within the designated hospital service area and compared to New Jersey overall, and by patient characteristics (e.g., health insurance payer, demographics). We also examined the demographic and health insurance distribution for patients who had avoidable visits. Key findings are outlined below. General trends over time from the first Community Health Needs Assessment are also noted.

- Population-based rates of avoidable hospitalizations and ED visits are lower for the combined service area of the hospitals compared to NJ overall, suggesting higher access to health care resources that ensure adequate primary care.

- Compared to the 1st CHNA report, avoidable hospitalizations decreased and avoidable ED visits increased for both the hospital service area and NJ overall.
    - Compared to NJ overall, avoidable hospitalizations decreased more for the hospital service area, and avoidable ED visits increased less.
- For the combined service area of the hospitals, the rate of avoidable inpatient hospitalizations and avoidable ED visits were 1.32 and 13.06 per 100 population. The corresponding rates for NJ overall were 1.65 and 15.34, respectively, per 100 population).
- Examining the health insurance information for patients who had avoidable hospitalizations and ED visits, we found the following:
    - Within the service area, the majority (62.57%) of avoidable hospitalizations was Medicare-paid and more than a quarter (23.42%) was paid for by private insurance. The pattern for payer was similar to the 1st CHNA report, with slight increases in the percentages of Medicaid-paid and self-pay, and a slight decrease in the percentage paid by private insurance.
    - In contrast to avoidable hospitalizations, for avoidable ED visits the majority of the visits within the hospital service area were paid by private insurance (41.27%). This rate was down over 10 percentage points from the 1st CHNA report.
    - The decrease in private pay ED visits compared to a roughly 10 percentage point increase in Medicaid-paid ED visits (22.72%) from the 1st CHNA report.
    - Next to private pay, visits from self-pay/uninsured patients comprised the highest percentage of avoidable ED visits (23.8%), similar to the 1st report.
- We also examined *percentage of avoidable hospitalizations out of all hospitalizations* categorized by patient health insurance and demographics. We similarly examined avoidable ED visits. These patterns help identify patient and payer characteristics with the highest risk of these hospitalizations. Our results indicated:
    - Percentage of avoidable hospitalizations within the hospital service area was highest within Medicare-paid hospitalizations (17.58%) followed by those with payer type uninsured/self-pay (11.28%). Both rates increased slightly from the 1st report.
    - For avoidable ED visits, unlike avoidable hospitalizations, Medicaid-paid visits had the highest percentage of avoidable visits (56.06%), down slightly from the 1st report. The next highest group for avoidable ED visits was again the self-pay/uninsured group (50.11%), up slightly from the 1st report.
- We examined percentages of avoidable inpatient hospitalizations among all hospitalizations characterized by race/ethnicity. We similarly examined avoidable ED visits.

- For the hospital service area, avoidable hospitalizations were highest among black patients (14.93%), and for New Jersey overall it was also highest among black patients (16.43%). Both increased from the 1st report.
- For the hospital service area, avoidable ED visits were highest among Hispanic patients (55.65%), and for New Jersey overall it was also highest among Hispanic patients (53.36%). Both rates were down slightly from the 1st report.
- Minorities had higher rates of avoidable visits than white patients.
- Black and Hispanic children had higher rates of avoidable hospitalizations (out of all hospitalizations) than white patients. However their rates of avoidable hospitalizations were lower within the hospital service area compared to NJ overall.

Chapter 3 contains findings from a series of in-depth key informant interviews that were conducted to ascertain health needs of a broad array of populations within the hospitals' catchment area. Findings shown here reflect the opinions and perceptions of stakeholders, and are grouped into four major themes. General trends over time from the first Community Health Needs Assessment are also noted.

- The first theme discusses the diversity found in the hospitals' service area, making attention to cultural competence and person-centered care essential for effective service delivery.
  - Diversity exists among patients in languages, cultural practices, life experiences, literacy levels, and various disabilities that may affect their ability to physically access care and/or to communicate with providers.
  - There has been an increase in immigrants from Central America who are fleeing violence, and safety-net providers noted an increase in Asian clients.
  - Immigrants may not speak Spanish or have high literacy levels in Spanish, so forms in Spanish are not user-friendly and bilingual staff members have difficulty communicating with them.
  - Some cultural practices may be important for residents' psychological well-being and helpful to their health, but other practices may pose a danger.
- The second theme discusses the kinds of health conditions that were of most concern to interviewees—chronic, often co-occurring, conditions.
  - Findings in this area were similar to the last assessment (Chakravarty 2012).
  - A variety of chronic health concerns were mentioned, including diabetes, heart disease, obesity, behavioral health conditions, dental problems, asthma, chronic kidney disease, vision problems, and workplace injuries.

    - Poverty, personal trauma history, poor housing quality, lack of available healthy food options, low health literacy, and time spent working multiple jobs may contribute to poor eating habits.
    - The addition of the RWJ Fitness and Wellness Center in downtown New Brunswick, with reduced rates for New Brunswick residents, was noted as a welcome addition to recreational opportunities.
- The third theme discusses the gaps and barriers to resident health that remain or have expanded since the 2012 assessment.
    - Interviewees appreciated the expansion of health insurance under the Affordable Care Act and Medicaid expansion, the health care resources available at the two New Brunswick hospitals, and the robust relationships among stakeholders and service providers in the area.
    - However, system gaps or barriers remain or expanded since the 2012 assessment, leading residents to forgo/delay preventive care, thus disrupting care continuity important for the successful management of chronic health conditions.
        - Significant numbers of undocumented people are left out of the expansion, and thus have no coverage or charity care only.
        - There is a shortage of providers willing to accept Medicaid patients, leading to long wait times for appointments. This is also the case for some private insurance plans that have narrow networks of providers.
        - Those with private insurance face high premiums, deductibles, and co-payments that make them hesitant to use their insurance.
    - Gaps in primary care services
        - Gaps in insurance coverage lead to access problems for people throughout the catchment area.
        - St. John's Clinic, a safety net provider in downtown New Brunswick that served 815 individuals in 2012, has closed.
        - Other safety net providers mentioned as resources for people throughout the catchment area (Promise Clinic, the Eric B. Chandler Center, the New Brunswick High School, the Saint Peter's Family Health Center, and the Saint Peter's Community Mobile Health Services) offer good quality care.
        - Shortfalls mentioned were wait times to get an appointment, cutbacks in social work services, and physical crowding at the Chandler clinic; transportation and limited women's health services were mentioned for the Family Health Center.
    - Barriers in access to specialists

        - Despite many specialists in the New Brunswick area, many do not accept Medicaid, and transportation is often an issue, particularly for patients outside the New Brunswick area.
        - Wait times to get an appointment and to be seen once in the office were particularly serious for patients with multiple chronic health problems that require many appointments and careful management.
    - Barriers in access to behavioral health services
        - Interviewees noted a lack of service capacity and coverage gaps in behavioral health, regardless of insurance status.
    - Barriers for access to dental care for Medicaid and under/uninsured patients
        - Few dental providers accept Medicaid, particularly for patients needing complicated procedures.
    - Transportation barriers
        - Patients spend large amounts of time in transit. Long wait times for medical appointments (past the time of the scheduled appointment) create uncertainty for patients and operational difficulties for medical transportation providers.
    - Access to medication
        - Medication costs leave some residents without access.
    - Housing quality and affordability
        - The general lack of affordability of housing was mentioned, and undocumented immigrants may be afraid to complain about housing quality issues.
    - Fear among undocumented residents
        - Recent raids in New Jersey by Immigration and Customs Enforcement have led some undocumented individuals to fear accessing community services, including social and health services.
    - Accessibility for people with disabilities
        - Interviewees noted scheduling/transportation and accessibility issues for patients with Medicaid as well as other types of insurance.
- The final theme discusses resident needs for information/education about health issues, the health care system, and nutrition, as well as help navigating the health care system.
    - New online resources and directories are being developed to address some of the information and education needs of residents.
    - Educational resources are available through Health departments in Middlesex and Somerset County, the RWJ Community Health Promotions Program, the RWJ Safety Ambassador program, and the Saint Peter's Community Mobile Health Services.

In summary, common themes were evident across all three efforts, both quantitative (BRFSS data, hospital discharge data) and qualitative (key informant interviews) methods:

- The uninsured fared poorly in the BRFSS data and the hospital discharge records, and many key informants highlighted the health care challenges this group faces.
- Low income respondents had poor health care access in the BRFSS data and qualitative component.
- Hispanics, particularly the undocumented, face many access challenges as seen in all three components.
- Navigation of the health care system was highlighted as problematic across several sub-groups (i.e., Asian non-Hispanics, Central American immigrants, non-English speakers, the undocumented, and the uninsured) in the qualitative component.
- Problems with dental health and access to dental care were evident in the BRFSS data and qualitative component.
- Access to mental health care and mental health problems were highlighted in the BRFSS data and qualitative component.
- Asthma, diabetes, and obesity remain as major health concerns across many sub-groups, and this was seen in the BRFSS data and qualitative component.
- Emergency department use is high among vulnerable groups (seen in all three components).

On a positive note and similar to the 1st CHNA report, most health and access-based indicators in the hospitals' primary service area are still consistently better than benchmark rates for the state of New Jersey overall (found in the BRFSS data and hospital discharge records). However, disparities for the uninsured and low income respondents still continue and are quite large and this is seen in all three components of the study. Some racial-ethnic disparities also remain, although not consistently across all measures. Finally, changing demographics have brought new health challenges, particularly with language barriers and other health care system navigation issues among growing Asian and Central American sub-groups and the undocumented. Although health reform has increased insurance coverage for many, access issues continue for the under-insured.

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Introduction

Section 9007 ("Additional Requirements for Charitable Hospitals") of the 2010 Patient Protection and Affordable Care Act (ACA) legislates that non-profit hospitals must complete a community health needs assessment and identify an implementation strategy to address those needs every three years. In order to comply with this requirement, Saint Peter's University Hospital (SPUH) and Robert Wood Johnson University Hospital (RWJUH) again teamed together to conduct a second round of the joint community health needs assessment for their primary patient service area (all of Middlesex County and two towns in Somerset County, Somerset and Franklin Park).

The hospitals engaged the Rutgers University Center for State Health Policy (CSHP) to complete a series of multi-method analytic activities to inform the community health needs assessment and implementation strategy. As part of that work, CSHP conducted secondary data analyses of the 2012 Behavioral Risk Factor and Surveillance Analysis (BRFSS) data and Uniform Billing (UB) hospital discharge data over the period 2011-2013. The ACA also requires that the community health needs assessment should include "input from persons who represent the broad interests of the community served by the hospital facility, including those with special knowledge of or expertise in public health" (U.S. Congress. 2010. "The Patient Protection and Affordable Care Act, Public Law 111–148." U.S. Government Printing Office). This was addressed by the qualitative part of the project that reached out to broad constituencies via a series of key informant interviews. The Institutional Review Board of Rutgers University approved this study. Findings from all three of these research efforts are compiled in this report. A brief description of each data source is provided below.

Chapter 1: Health Indicators and Risky/Preventive Behaviors: An Analysis of 2012 Behavioral Risk Factor Surveillance System (BRFSS) (analyzed by CSHP): This Centers for Disease Control and Prevention-sponsored survey is conducted annually by the NJ Department of Health and Senior Services. The BRFSS supports analysis of a representative sample of NJ adults and is capable of generating county-level estimates. CSHP analyzed BRFSS data for counties included in the designated service area (Middlesex, Somerset) as well as statewide comparative data. Health topics of interest such as health status, health care access and utilization, risky and preventive behaviors, etc., were analyzed by key demographics (age, gender, race/ethnicity, income, and health insurance status). General changes in patterns over time from the first Community Health Needs Assessment are also noted.

Chapter 2: Avoidable Hospitalizations and Emergency Department Visits: An Analysis of Hospital Discharge Data (analyzed by CSHP): New Jersey UB data supports examination of ambulatory care sensitive hospital inpatient and emergency department (ED) utilization that reflects inadequacy of primary care within the community. Population-based rates of these indicators were examined along with patient demographic and health insurance payer characteristics. General trends over time from the first Community Health Needs Assessment are also noted.

Chapter 3: Community Input: 2015-2016 Key Informant Interviews: In-depth interviews were conducted with 15 key informants in the community who had particular knowledge about a topic or setting such as safety net personnel, staff members from community based organizations (CBO), or other experts focused on specific sub-populations or on specific health issues. Many organizations interviewed were interviewed for the 2012 assessment as well, and all were asked about recent changes in health needs and resources.

Chapter 4: Discussion: This chapter summarizes key findings from each of the above chapters, notes common themes across one or more data sources, identifies potential limitations, and discusses the strengths of the project.

Chapter 1: Health Indicators and Risky/Preventive Behaviors: An Analysis of 2012 Behavioral Risk Factor Surveillance System (BRFSS)

Introduction

This chapter presents findings using data from the 2012 Behavioral Risk Factor Surveillance System (BRFSS) for Middlesex County and Somerset County in New Jersey (BRFSS data is only available at the county level so all of Somerset County is included). The BRFSS is an annual health survey conducted in all 50 states, the District of Columbia, and three territories. It is overseen by the CDC and administered by the individual states. The BRFSS was established in 1984 in a number of states, and New Jersey began data collection in 1991. It is a random-digit-dial telephone survey of non-institutionalized adults ages 18 and over and provides timely data on a number of health-related measures including health status, risk behaviors, preventive behaviors, and health care utilization. Detailed information on the BRFSS can be found at http://www.cdc.gov/brfss/.

The 2012 questionnaire can be found at http://www.cdc.gov/brfss/questionnaires/pdf-ques/2012_brfss.pdf. The 2012 data is the most recent BRFSS county data available at the time of this report.

Methods

The findings presented here include data from 884 adults in Middlesex County and 640 adults in Somerset County. Due to cell size limitations in the unweighted data among several racial/ethnic groups and the uninsured (see yellow highlighted cells in Table 1.1), data for the two counties were combined and then analyzed by age, gender, race/ethnicity, income, and non-elderly health insurance coverage groups. In addition, comparisons are provided to data for the state of New Jersey overall. All results shown (with the exception of Table 1.1) use data weighted to population demographics for age, race, and gender for these regions and likelihood of selection based on number of adults and telephones in the household. Due to an increase in number of BRFSS cell phone interviews since the 1st CHNA report and the use of county weights, trends over time should be interpreted with caution due to the different methodologies. Consequently, we only

report large pattern changes in the Conclusions section, not level changes in the sections on individual measures.

Nearly all of the survey questions had item non-response below 5%. For these variables, missing values are excluded from the analysis. For income, a separate "don't know/refused" category is included as about 16% of the respondents did not provide their income (see green highlighted cell in Table 1.1).

Estimates are not shown in the tables if the denominator for the cross-tabulation is less than 50 as the estimate would not be reliable. This primarily impacts all the cross-tabulations by race-ethnicity for the "other non-Hispanic" group, and some of the preventive behavior cross-tabulations which have age or gender restrictions (e.g., mammograms for women ages 50+).

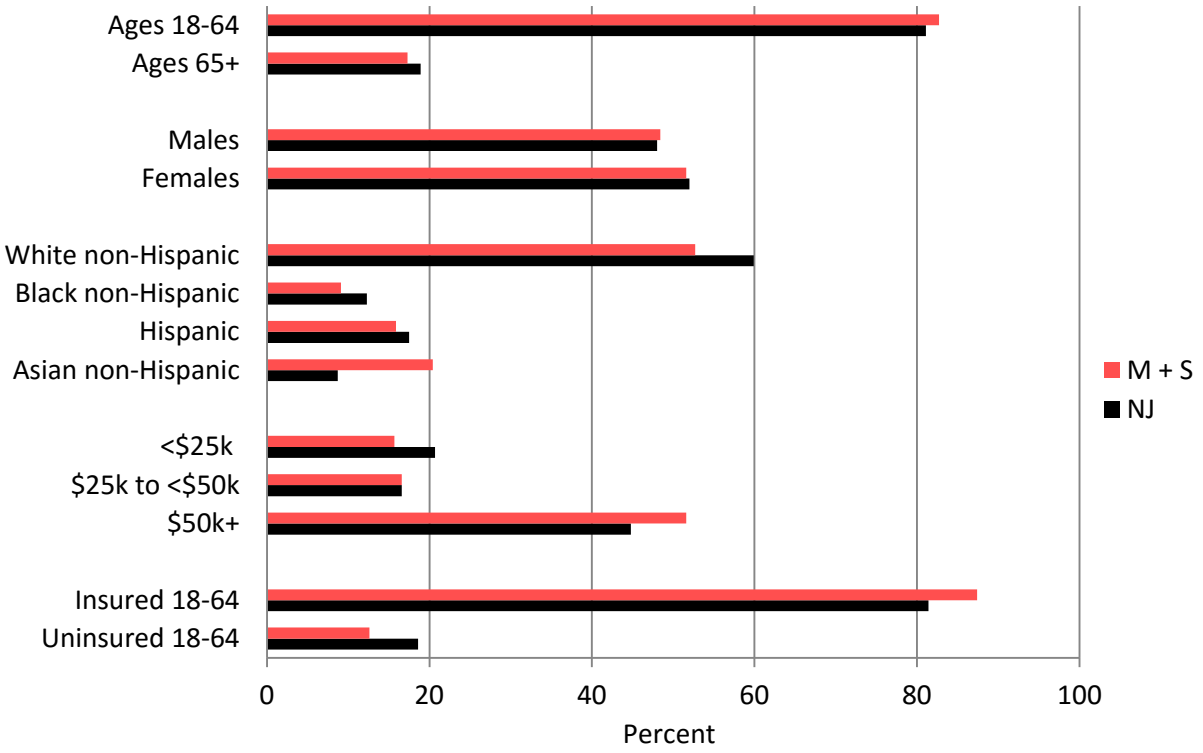
Findings

Table 1.2 contains the weighted frequencies for the same five measures used in the cross-tabulations. These are shown for each county separately in order to understand how the counties differ. They are also shown for the combined counties and for New Jersey. Frequencies for the health measures and other demographics are listed in Table 1.3. These are shown for the combined counties and for New Jersey. The cross-tabulations of the health measures by age, gender, race/ethnicity, income, and health insurance coverage are shown in Tables 1.4-1.13, and are provided for the combined counties and New Jersey.

Description of Crosstab Groups (Age, Gender, Race-Ethnicity, Income, Health Insurance Coverage)

As shown in Table 1.2 and Figure 1.1 for the combined county sample, 17.3% of the respondents are older adults. The Somerset County group has more older adults than the Middlesex County group (17.9% vs. 17.0%), but both counties have fewer older adults than the state of New Jersey overall (18.9%). For gender, both counties are similar to New Jersey overall, with slightly more females than males.

Figure 1.1: Individual Characteristics
Adults Ages 18+, Middlesex + Somerset Counties (M+S) and Total New Jersey (NJ)



Source: Data from 2012 BRFSS; tabulations by Rutgers Center for State Health Policy.

Middlesex County is more diverse than Somerset County and New Jersey overall for race-ethnicity. In Middlesex County, 49.2% are white non-Hispanic, followed by 22.3% Asian non-Hispanic, 17.9% Hispanic, 8.4% black non-Hispanic, and 2.2% other non-Hispanic. Somerset County has a larger white non-Hispanic population and smaller Hispanic and Asian populations (61.6%, 10.9%, and 15.4% respectively), while New Jersey overall has a larger white non-Hispanic population and a smaller Asian non-Hispanic population (59.9% and 8.7% respectively).

Both counties have fewer people with low incomes than New Jersey overall, and Somerset County has higher incomes than Middlesex County. It should be noted that the BRFSS does not look at more detailed higher income ranges so the data shown here is for low and middle income versus all others.

Similarly, both counties have fewer uninsured non-elderly adults than the state of New Jersey overall, and Somerset County has less uninsured than Middlesex County.

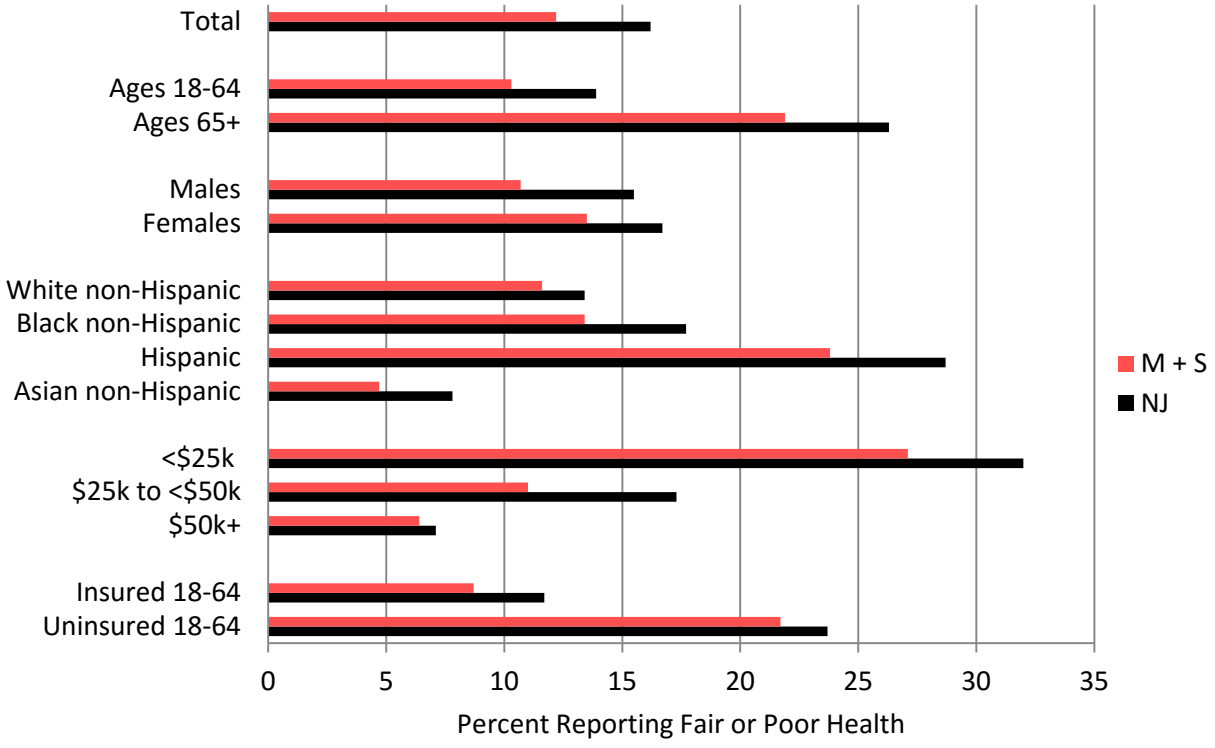
Health Status

Three measures of health status were examined: overall health status, number of days in the past 30 days that physical health was not good, and number of days in the past 30 days that mental health was not good (see Table 1.4).

For overall health status (also shown in Figure 1.2), respondents were asked "Would you say that in general your health is excellent, very good, good, fair or poor?". This is a widely-used measure that is a reliable predictor of morbidity and mortality.

- Overall, the combined county sample was slightly less likely to report fair or poor health than the full New Jersey sample (12.2% vs. 16.2% respectively).
- Not surprisingly, older adults were about twice as likely to report fair or poor health compared to adults ages 18-64.
- Women were slightly more likely to report fair or poor health than men, and both men and women were less likely to report fair or poor health in the combined county sample than in the state.

Figure 1.2: Percent Reporting Fair or Poor Self-Assessed Overall Health Status
Adults Ages 18+, Middlesex + Somerset Counties (M+S) and Total New Jersey (NJ)



Source: Data from 2012 BRFSS; tabulations by Rutgers Center for State Health Policy.

- All of the racial-ethnic groups were slightly less likely to report fair or poor health in the combined county sample compared to the state. In both the county and state samples, Hispanics were the most likely to report fair or poor health and Asian non-Hispanics were the least likely.
- Those with lower incomes and the uninsured were more likely to report fair or poor health, and these rates were lower in the combined county sample than in the state overall.

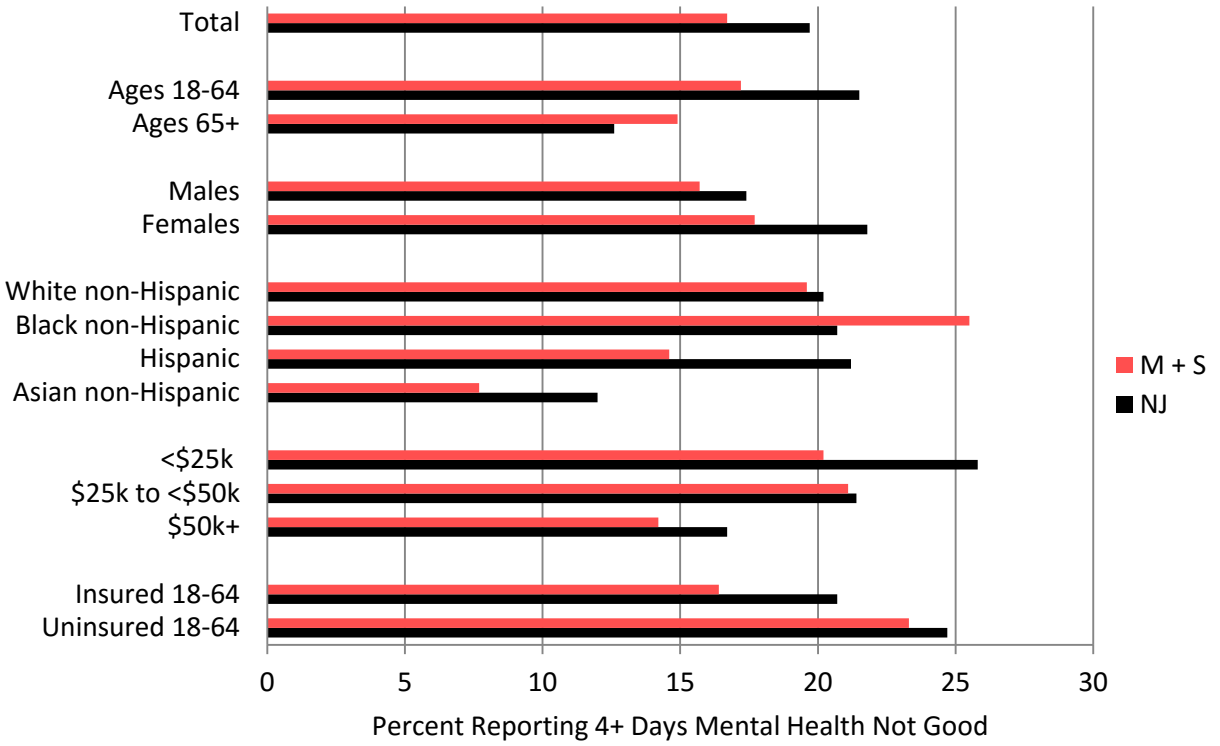
Respondents were then asked "Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good?".

- About 15.7% reported 4 or more days that their physical health was not good, and the rates were lower for the combined county sample versus the state sample.
- The patterns across the crosstab groups were similar to those for the overall health status question for most groups, with older adults (16.4%), those with low incomes (21.3%), and the uninsured (22.6%) more likely to report 4 or more days in the past 30 days that their physical health was not good, and Asian non-Hispanics less likely (6.8%).
- However, Hispanics fared better than in the overall health status question and the higher rate of overall fair or poor health status reported by black non-Hispanics in the combined county sample was not repeated for number of days physical health not good, with black non-Hispanics reporting similar rates as white non-Hispanics.

A parallel question for mental health was then asked: "Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?" (also shown in Figure 1.3).

- Although the overall rate of reported poor mental health days was similar to reported poor physical health days, the patterns across the crosstab groups for this measure differed somewhat from both of the two physical health measures.
- Specifically, older adults were less likely to report 4 or more days of poor mental health, and the gender and racial-ethnic differences were more pronounced for poor mental health.

Figure 1.3: Percent Reporting 4+ Days Mental Health Not Good Past 30 Days
Adults Ages 18+, Middlesex + Somerset Counties (M+S) and Total New Jersey (NJ)



Source: Data from 2012 BRFSS; tabulations by Rutgers Center for State Health Policy.

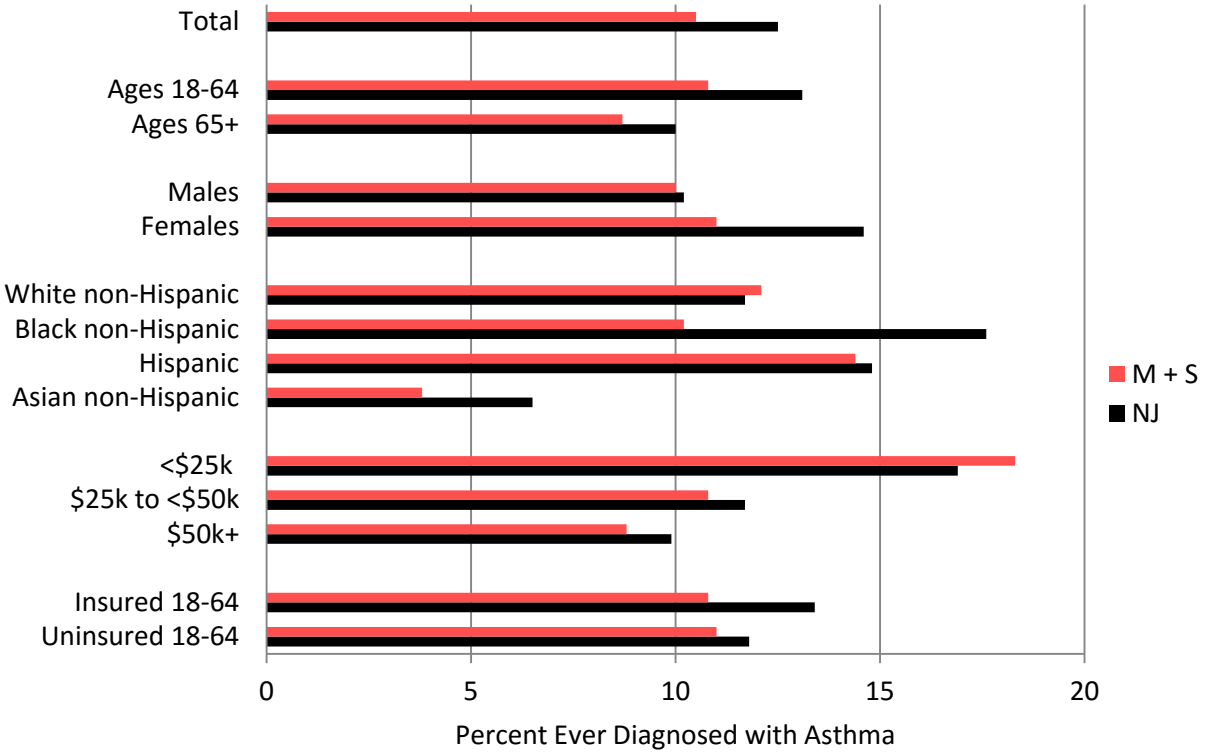
Chronic Conditions and Disability

Each of four chronic conditions (asthma, diabetes, heart attack, stroke) were assessed using the following question: "Have you ever been told by a doctor, nurse, or other health professional that you had …?". In addition, two measures of disability were asked: "Are you limited in any way in any activities because of physical, mental, or emotional problems?" and "Do you now have any health problem that requires you to use special equipment, such as a cane, a wheelchair, a special bed, or a special telephone? (Include occasional use or use in certain circumstances.)" (see Table 1.5, 2 pages).

Overall, 10.5% of the combined county sample reported ever being diagnosed with asthma compared to 12.5% of the New Jersey sample (also shown in Figure 1.4).

- In the combined county sample, younger adults had a higher rate of asthma diagnosis than older adults.
- Females were slightly more likely than males to have been diagnosed with asthma.

Figure 1.4: Percent Ever Diagnosed with Asthma
Adults Ages 18+, Middlesex + Somerset Counties (M+S) and Total New Jersey (NJ)



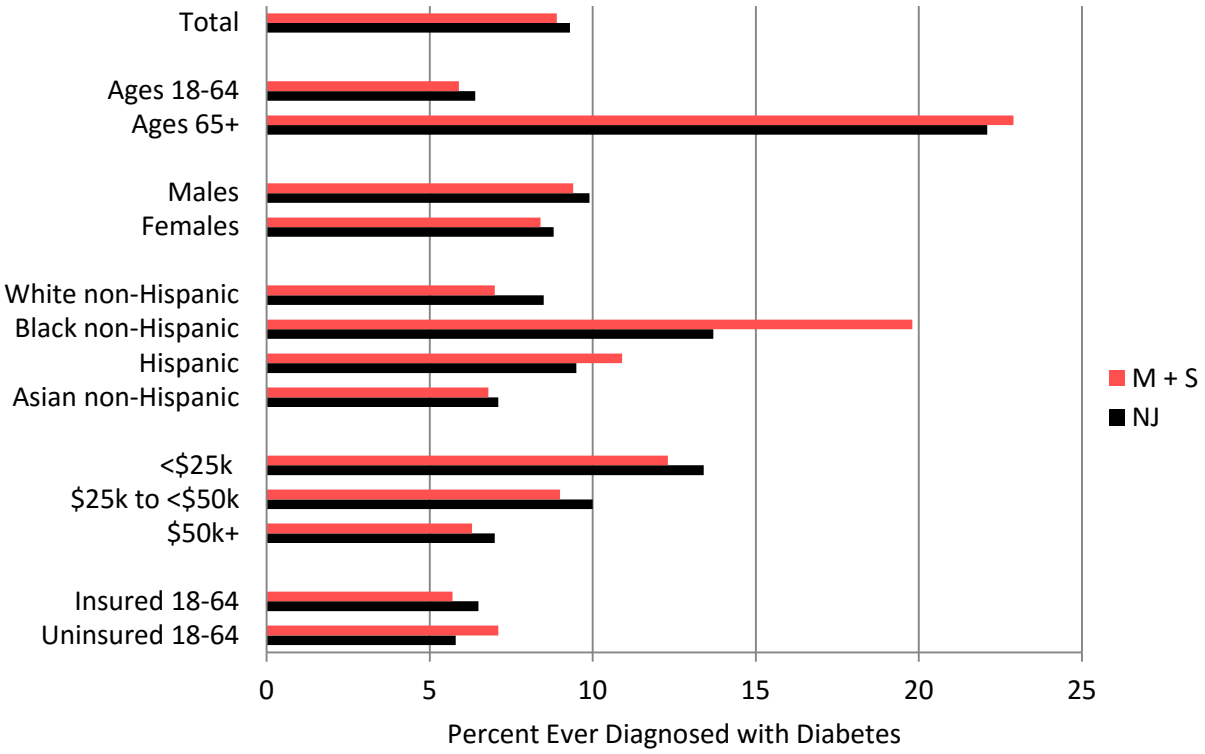
Source: Data from 2012 BRFSS; tabulations by Rutgers Center for State Health Policy.

- Hispanics were the most likely to report an asthma diagnosis and Asian non-Hispanics were the least likely.
- Low income respondents were more than twice as likely as high income respondents to have been diagnosed with asthma.
- The uninsured and insured rates of asthma diagnosis were similar.
- Low income respondents were more likely to have had an asthma diagnosis in the combined county sample than in the state sample, while younger adults, females, black non-Hispanics, and Asian non-Hispanics in the combined county sample were less likely to report an asthma diagnosis than in the state sample.

For diabetes, 8.9% in the combined county sample reported a diagnosis compared to 9.3% in the state sample (also shown in Figure 1.5).

- In the combined county sample, older adults and males were more likely to have been diagnosed with diabetes, as were black non-Hispanics.

Figure 1.5: Percent Ever Diagnosed with Diabetes
Adults Ages 18+, Middlesex + Somerset Counties (M+S) and Total New Jersey (NJ)



Source: Data from 2012 BRFSS; tabulations by Rutgers Center for State Health Policy.

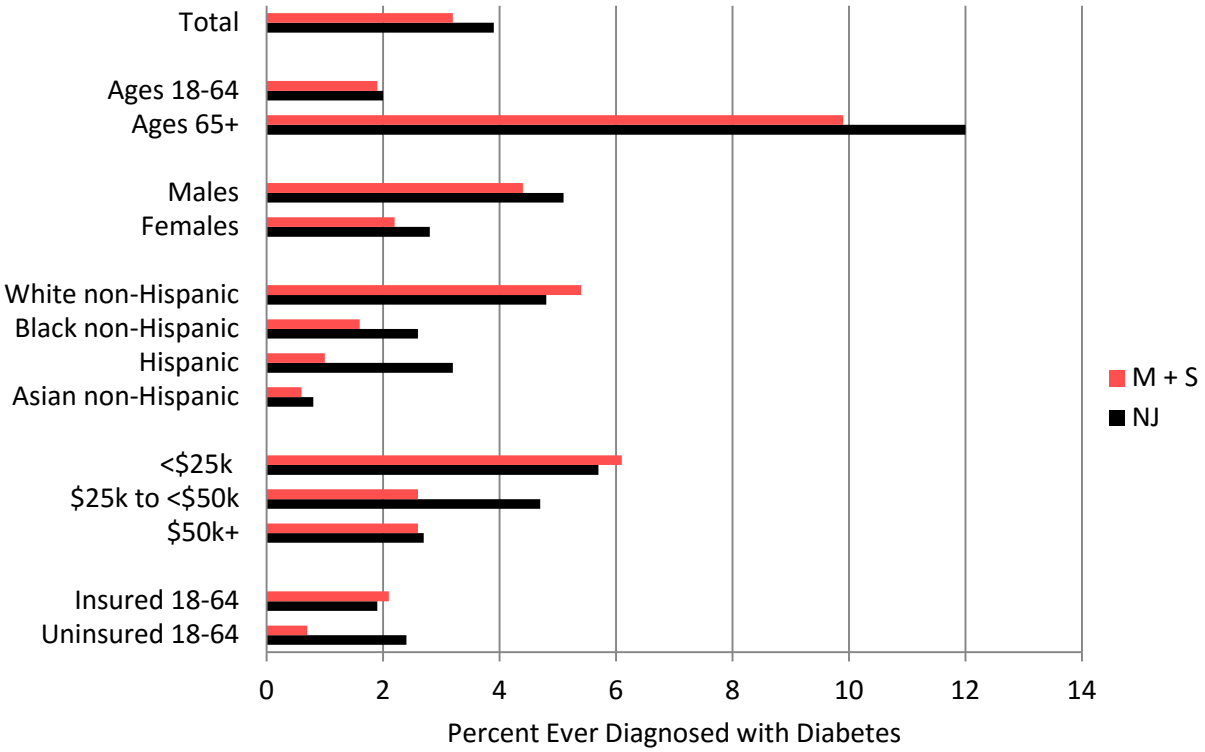
- Low income respondents were much more likely to report a diagnosis, but the uninsured were only slightly more likely to report having been diagnosed with diabetes.
- Compared to the state sample, the patterns of diabetes diagnosis were similar across most cross-tab groups, although black non-Hispanics and the uninsured had higher rates in the county sample.

The incidence of heart attack diagnosis was 3.2% in the combined county sample and 3.9% in the state (also shown in Figure 1.6).

- For the counties, older adults and males were more likely to report a heart attack, as were white non-Hispanics.
- Low income respondents were also more likely to have been diagnosed with a heart attack, but the uninsured were about three times less likely as the insured to report a heart attack.
- In the state sample, the patterns were similar across most cross-tab groups, but reversed for the uninsured, and the rates for black non-Hispanics and Hispanics were two to three

times higher, although still lower than white non-Hispanics. The rate for middle income respondents was also twice as high, although still lower than low income respondents.

Figure 1.6: Percent Ever Diagnosed with Heart Attack
Adults Ages 18+, Middlesex + Somerset Counties (M+S) and Total New Jersey (NJ)

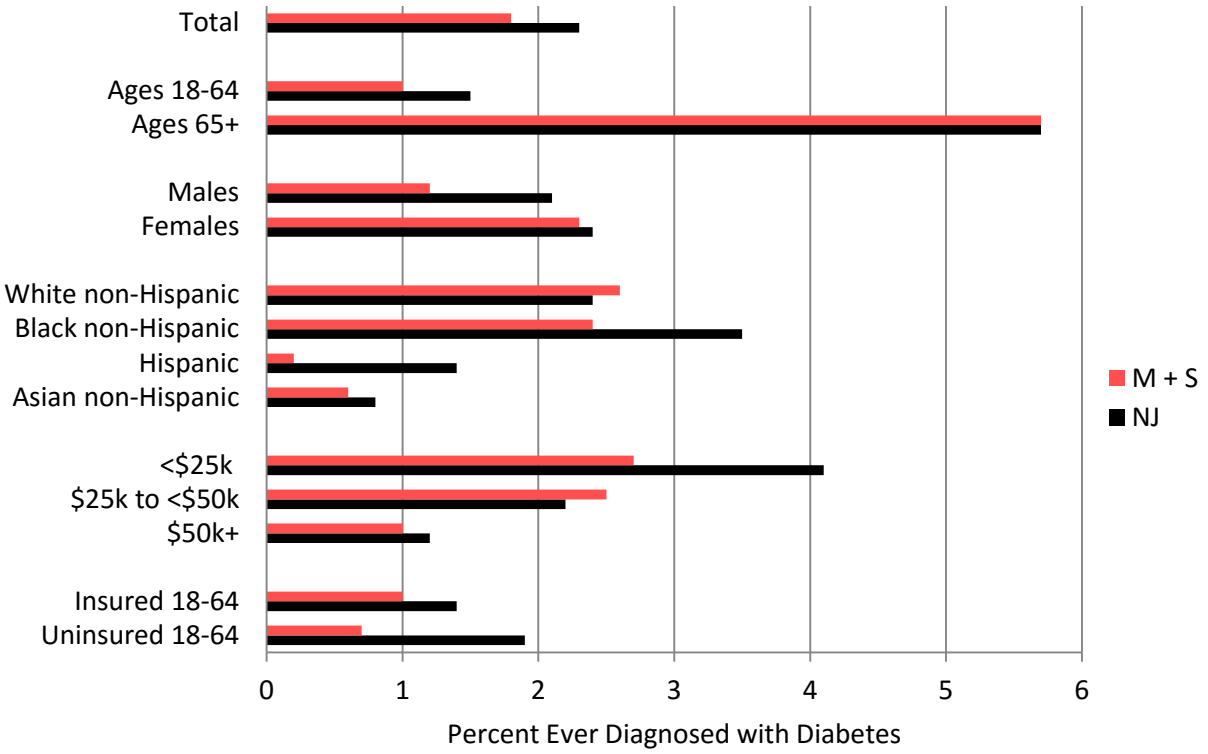


Source: Data from 2012 BRFSS; tabulations by Rutgers Center for State Health Policy.

Although the incidence overall was low, stroke diagnoses in the combined county sample were lower than in the state (1.8% vs. 2.3%) (also shown in Figure 1.7).

- In the counties, older adults and females were much more likely to have had a stroke, as were white non-Hispanics and black non-Hispanics.
- Low and middle income respondents also were more likely to report a stroke diagnosis, but there was little difference between the insured and the uninsured.
- Compared to the state, males, black non-Hispanics, Hispanics, low income respondents, and the uninsured in the combined county sample were much less likely to report a stroke.

Figure 1.7: Percent Ever Diagnosed with Stroke
Adults Ages 18+, Middlesex + Somerset Counties (M+S) and Total New Jersey (NJ)

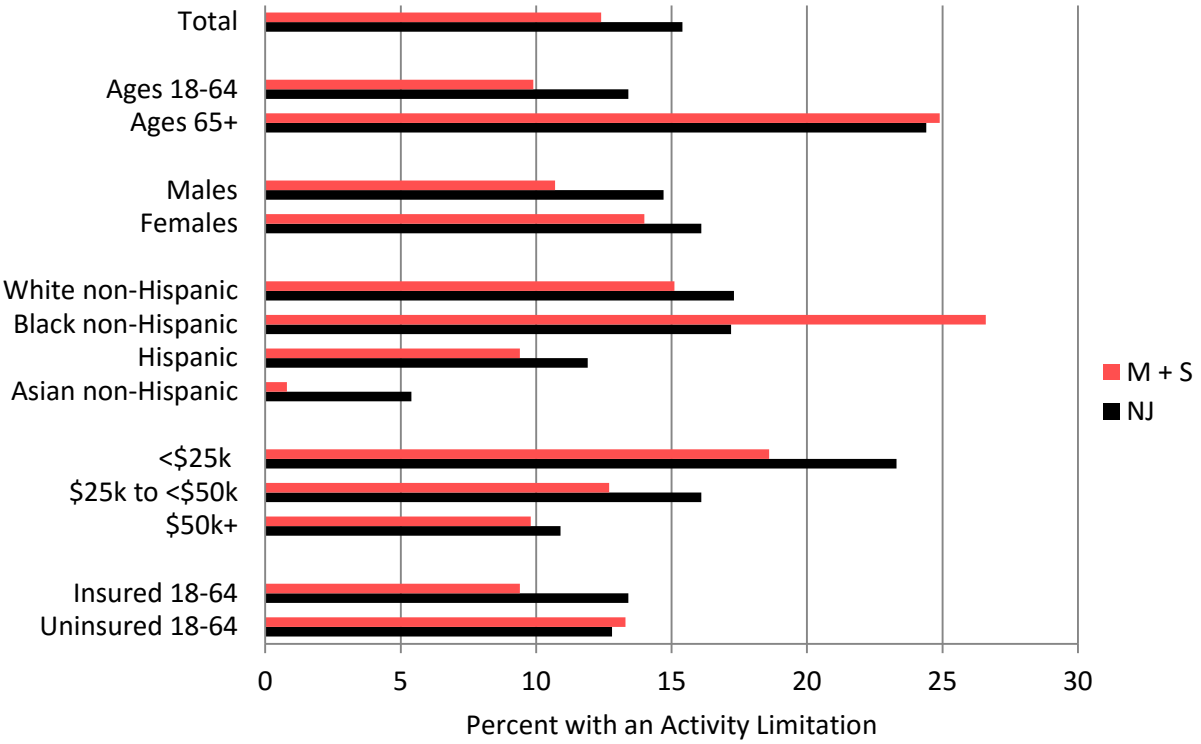


Source: Data from 2012 BRFSS; tabulations by Rutgers Center for State Health Policy.

For the activity limitation question, 12.4% in the county sample reported a limitation compared to 15.4% in the state (also shown in Figure 1.8).

- For the counties, older adults were more than twice as likely as younger adults and females about 1.5 times as likely as males to have an activity limitation.
- Black non-Hispanics, low income respondents, and the uninsured were more likely to report a limitation compared to the other groups.
- These same patterns held in the state sample with the exception of black non-Hispanics, who reported lower rates in the state (comparable to the white non-Hispanic group), and Asian non-Hispanics reported much higher rates. Also, the uninsured reported lower rates in the state sample.

Figure 1.8: Percent with an Activity Limitation
Adults Ages 18+, Middlesex + Somerset Counties (M+S) and Total New Jersey (NJ)



Source: Data from 2012 BRFSS; tabulations by Rutgers Center for State Health Policy.

For use of special equipment due to a health problem, 5.7% of respondents in the combined county sample and 6.4% in the state sample indicated that they used such equipment.

- In the county sample, older adults were much more likely to use special equipment, as were females.
- Black non-Hispanics had the highest incidence of special equipment use and Asian non-Hispanics the lowest.
- Low income respondents were much more likely to require special equipment, but the uninsured were equally as likely as the insured to do so.
- These patterns were similar in the state sample across all groups except for Hispanics who were more likely in the state sample to need special equipment, while black non-Hispanics and the uninsured were less likely.

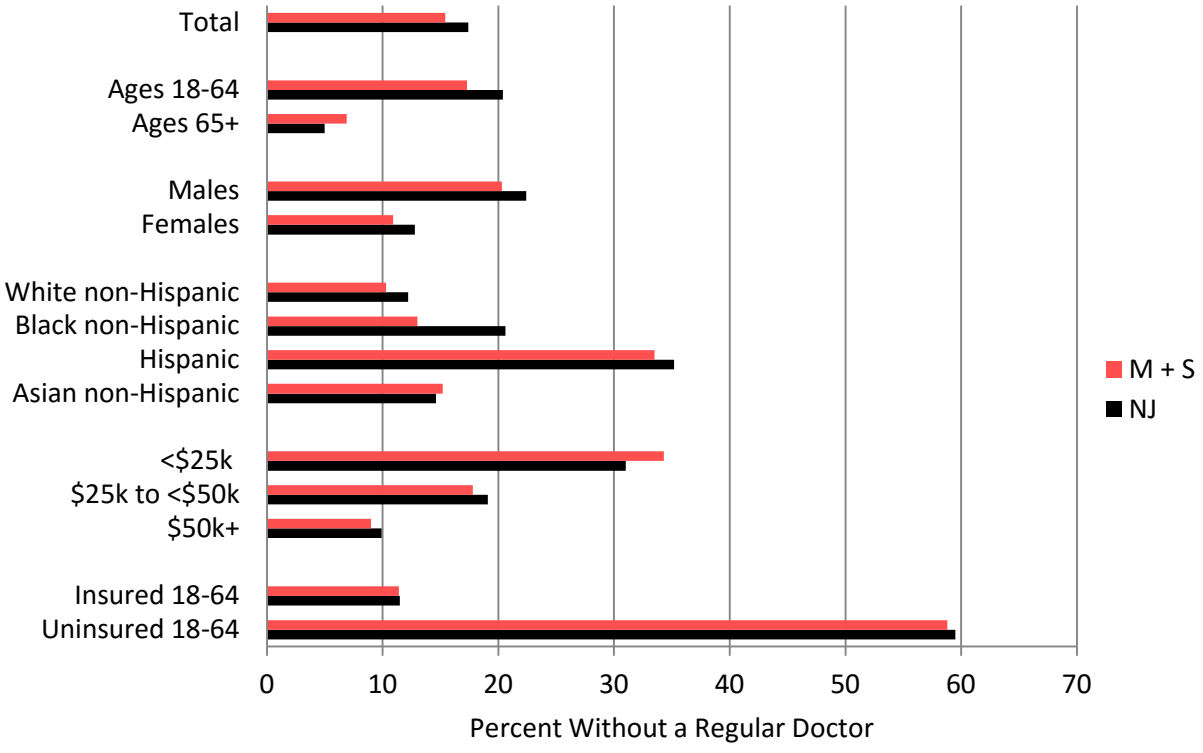
Medical Utilization and Access

Three questions were used to measure utilization and access (see Table 1.6). Respondents were asked if they had a "personal doctor or health care provider". They were then asked if they had any problem accessing care ("Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?"). The third item asked when they had last had a routine check-up.

In the combined county sample, 15.4% of the respondents did not have a personal doctor or health care provider, compared to 17.4% of the state sample (also shown in Figure 1.9).

- In the county sample, younger adults were about 2.5 times more likely than older adults to not have a regular doctor.
- Males were about twice as likely as females to not have a regular doctor.
- Hispanics were much more likely to not have a regular doctor, while white non-Hispanics were less likely.

Figure 1.9: Percent without a Regular Doctor
Adults Ages 18+, Middlesex + Somerset Counties (M+S) and Total New Jersey (NJ)



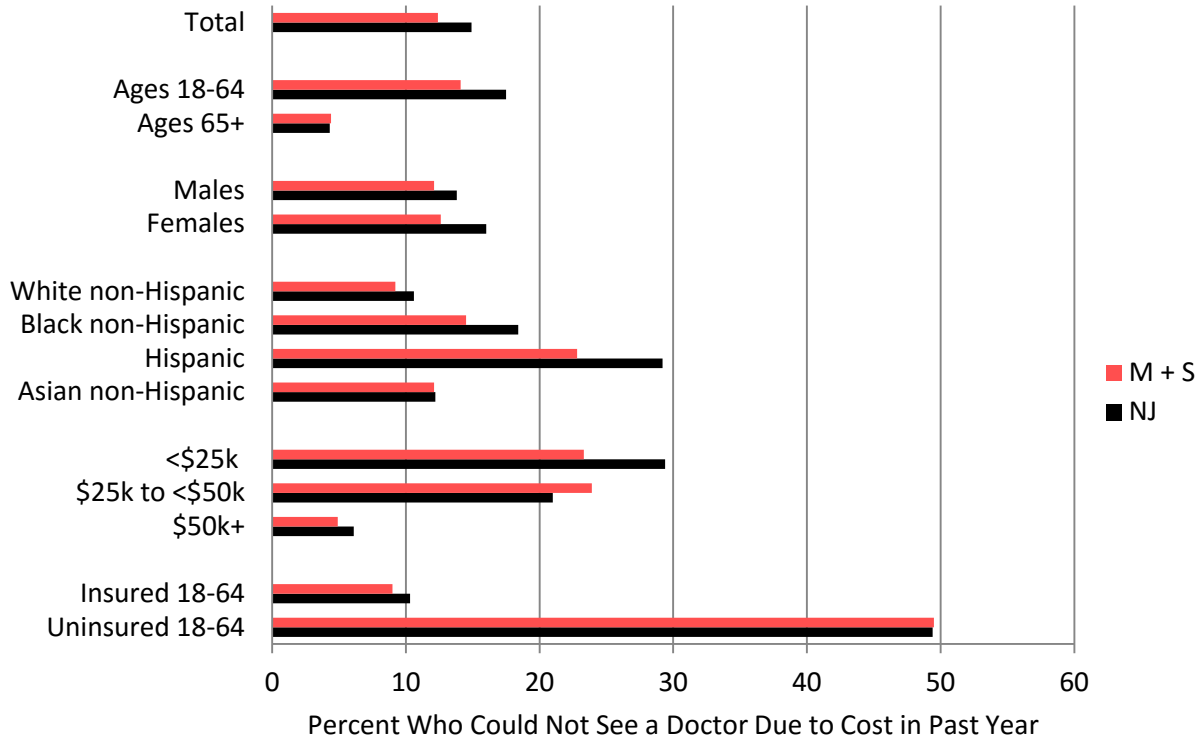
Source: Data from 2012 BRFSS; tabulations by Rutgers Center for State Health Policy.

- Low income respondents and the uninsured were also much more likely to not have a regular doctor.
- These patterns held in the state sample except that black non-Hispanics were more likely to not have a regular doctor compared to the counties.

Cost barriers in not accessing health care in the past year were reported by 12.4% in the combined county sample and 14.9% in the state sample (also shown in Figure 1.10).

- In the counties, older adults and females were more likely to report a cost barrier.
- Black non-Hispanics were about 1.5 times as likely and Hispanics about twice as likely as white non-Hispanics and Asian non-Hispanics to report a barrier.
- Low and middle income respondents had barrier rates five times higher than the high income group, and the uninsured were also about 5 times more likely to report a barrier.
- These patterns were quite similar in the state, although barrier rates for black non-Hispanics, Hispanics, and low income respondents were somewhat higher in the state compared to the counties.

Figure 1.10: Percent Who Could Not See a Doctor Due to Cost in Past Year
Adults Ages 18+, Middlesex + Somerset Counties (M+S) and Total New Jersey (NJ)



Source: Data from 2012 BRFSS; tabulations by Rutgers Center for State Health Policy.

In the combined county sample, 10.9% of the respondents had not had a routine check-up in the past 2 years. This rate was lower than in the state (12.6%).

- In the counties, younger adults were much more likely than older adults and males were more likely than females to go without a check-up within the past 2 years.
- Black non-Hispanics were less likely and Hispanics somewhat more likely to forego a check-up.
- The rates differed much more greatly for the income and coverage groups, with low income respondents about twice as likely and the uninsured over three times more likely to not have had a check-up within 2 years.
- These patterns were again quite similar in the state, although black non-Hispanics were more likely to forego a check-up in the state compared to the counties.

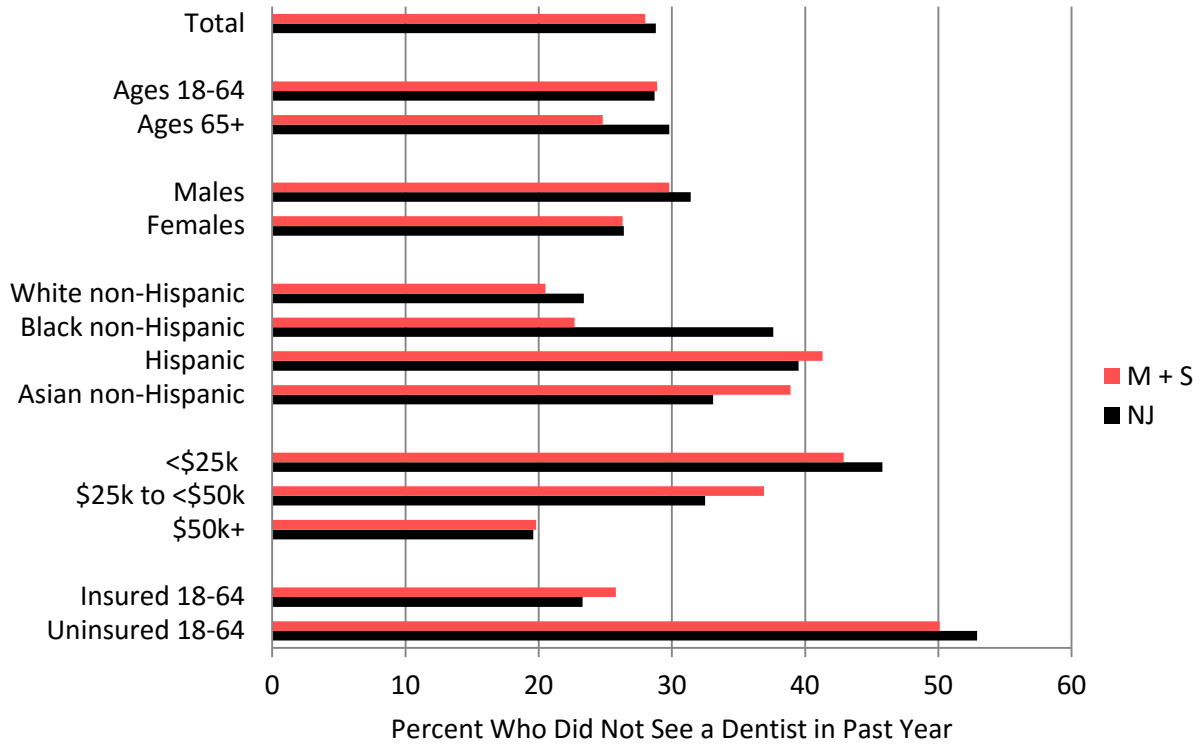
Dental Utilization

Two measures assessed dental utilization (see Table 1.7). Last visit to a dentist was measured with the item "How long has it been since you last visited a dentist or a dental clinic for any reason? Include visits to dental specialists, such as orthodontists" and number of permanent teeth extracted due to decay was measured with the item "How many of your permanent teeth have been removed because of tooth decay or gum disease? Include teeth lost to infection, but do not include teeth lost for other reasons, such as injury or orthodontics. (If wisdom teeth are removed because of tooth decay or gum disease, they should be included in the count for lost teeth)". Responses were grouped into "dental visit in past year" or not, and 0 versus 1+ teeth extracted.

In the combined county sample, 28.0% had not visited a dentist for any reason within the previous year compared to 28.8% in the state sample (also shown in Figure 1.11).

- For the counties, younger adults and males were more likely to have foregone a dental visit in the past year.
- Hispanics and Asian non-Hispanics were most likely to have not seen a dentist in the past year and white non-Hispanics and black non-Hispanics were least likely.
- More than a third of low and middle income respondents had not seen a dentist in the previous year, and about 50% of the uninsured had not.
- In the state sample, older adults and black non-Hispanics were more likely to have not seen a dentist in the past year and Asian non-Hispanics were less likely, but patterns for the income and coverage groups were similar to the counties.

Figure 1.11: Percent Who Did Not See a Dentist in Past Year
Adults Ages 18+, Middlesex + Somerset Counties (M+S) and Total New Jersey (NJ)



Source: Data from 2012 BRFSS; tabulations by Rutgers Center for State Health Policy.

For teeth extraction, 40.8% of the combined county sample reported at least one permanent tooth removed due to decay compared to 46.3% of the state sample.

- In the combined county sample, older adults, males, black non-Hispanics, low and middle income respondents, and the uninsured were more likely to have had permanent teeth extracted due to decay, while Hispanics and Asian non-Hispanics were less likely to have had teeth extractions.
- The patterns for all the groups were quite similar (though somewhat higher) in the state sample, with the exception of Hispanics who reported a higher prevalence of teeth extractions compared to the counties.

Risk Behaviors and Risk Factors (including BMI)

Six risk behaviors and risk factors were analyzed in this section, including alcohol and tobacco use, overweight and obesity, lack of exercise, falls, and seatbelt use (see Tables 1.8-1.10). For alcohol use, binge drinking was assessed. This is a standard alcohol use risk behavior measure that indicates whether males had had 5 or more drinks and females 4 or more drinks on one occasion at least once in the past 30 days. Tobacco use was assessed using current smoking status. Body mass index (calculated from reported height and weight) was used to measure overweight and obesity. Any exercise outside of work in the past month was used to assess exercise as it was the only measure available ("During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?"). Lack of sleep was assessed on the 1st CHNA report using the following item "During the past 30 days, for about how many days have you felt you did not get enough rest or sleep?", but there was no data available for this item in the 2012 BRFSS and therefore results for this item are not included in this report. Falls were changed from in the previous 3 months to the previous 12 months and were assessed for adults ages 45 and over; respondents were grouped into those who had fallen at least once versus the others. Finally, seatbelt use was assessed by grouping those who always used a seatbelt versus those who did not.

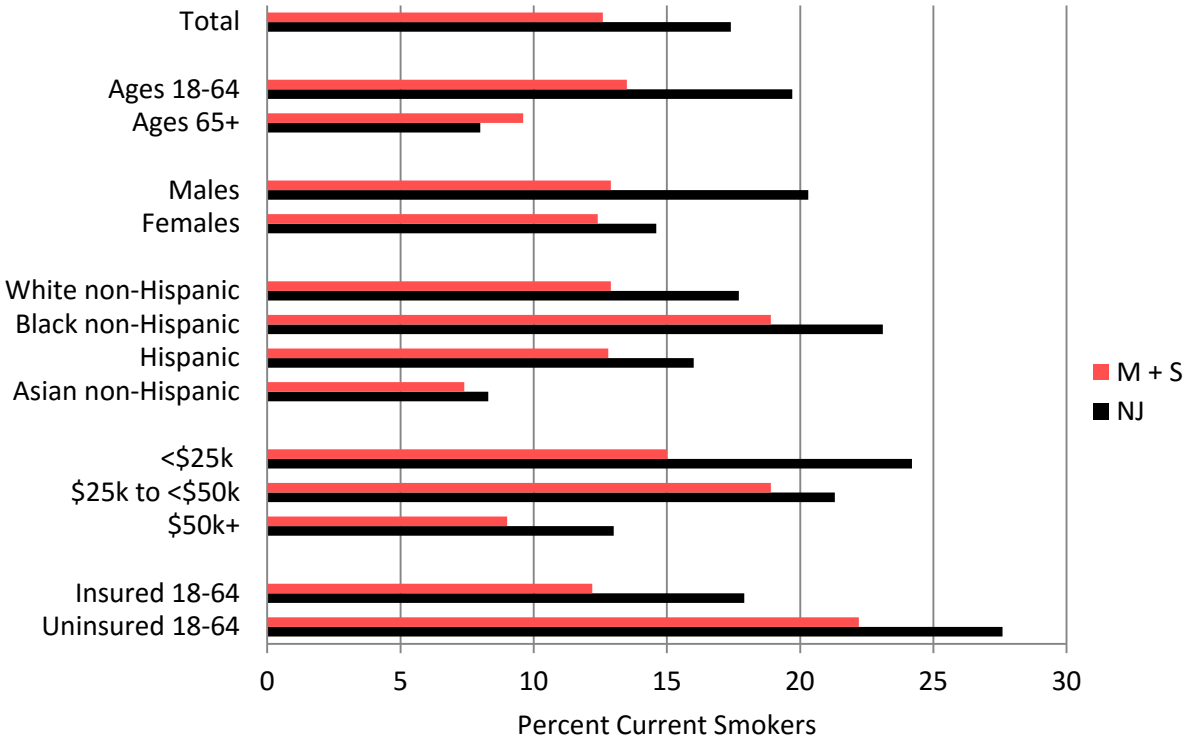
For the combined county sample, 14.8% of the respondents reported binge drinking in the past 30 days compared to 17.8% of the state sample (see Table 1.8).

- In the counties, younger adults and males were more likely to binge drink.
- White non-Hispanics and Hispanics were more likely to binge drink, while black non-Hispanics and Asian non-Hispanics were less likely.
- Higher income respondents were more likely to report binge drinking, as were the insured.
- In the state sample, the incidence of reported binge drinking, although slightly higher in each of the groups, followed the same patterns across all of them.

For smoking status, 12.6% of the respondents in the combined county sample were current smokers compared to 17.4% in the state sample (see Table 1.8; also shown in Figure 1.12).

- In the counties, similar to binge drinking, younger adults and males were more likely to smoke, but the pattern was reversed for black non-Hispanics, low and middle income respondents, and uninsured respondents who were more likely to smoke.
- There were more smokers in most groups in the state sample, but the general patterns held with the exception that males were more likely than females to smoke than in the county sample.

Figure 1.12: Percent Current Smokers
Adults Ages 18+, Middlesex + Somerset Counties (M+S) and Total New Jersey (NJ)

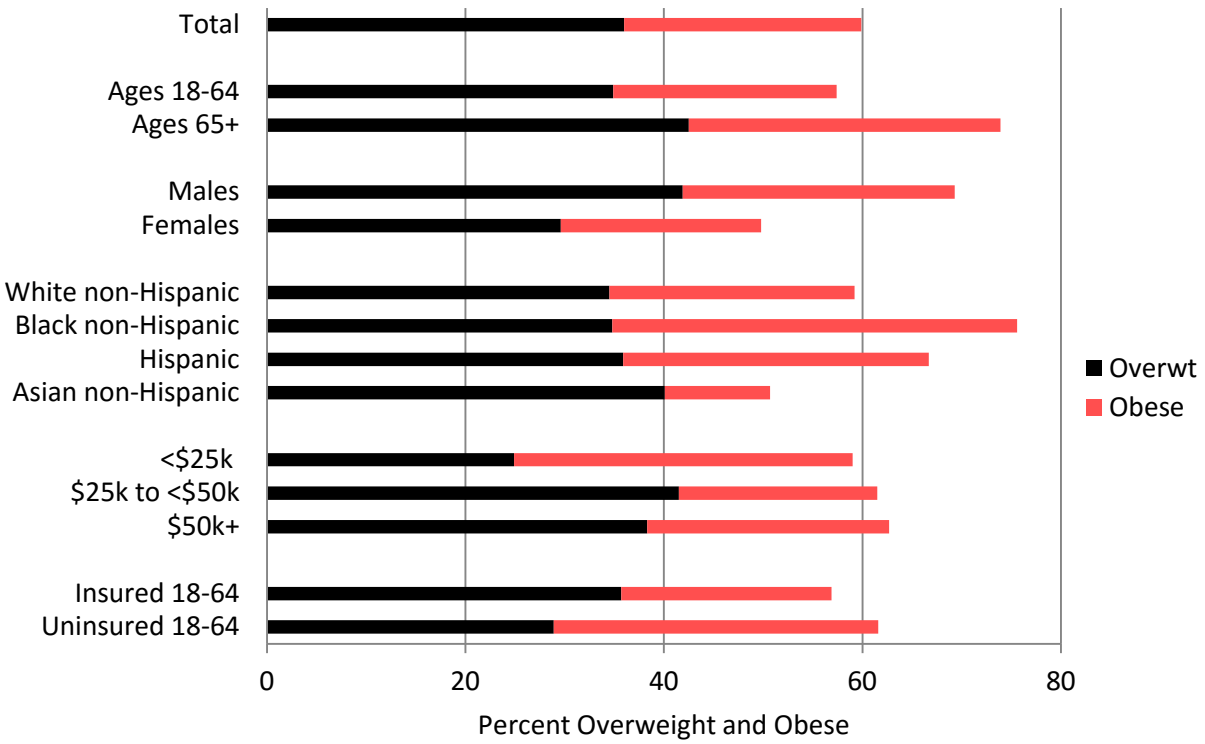


Source: Data from 2012 BRFSS; tabulations by Rutgers Center for State Health Policy.

Rates for overweight and obesity in the combined county sample (36.0% and 23.9%) were slightly lower than in the state (36.9% and 24.6%) (see Table 1.9; combined county data also shown in Figure 1.13).

- For the counties, older adults and males were more likely to be overweight and obese than younger adults and females.
- Asian non-Hispanics were more likely to be overweight and black non-Hispanics were more likely to be obese. Asian non-Hispanics reported much lower rates of obesity.
- Middle income respondents were more likely to be overweight, while low income respondents were more likely to be obese.
- The insured reported more overweight, but the uninsured reported more obesity.
- Age and gender patterns in the state sample were similar, but Hispanics were more likely and Asian non-Hispanics less likely to be overweight. Also, unlike in the counties, the incidence of overweight did not differ substantially among the income and coverage groups in the state, but low income respondents were still more likely to be obese.

Figure 1.13: Percent Overweight and Obese
Adults Ages 18+, Middlesex + Somerset Counties (M+S)



Source: Data from 2012 BRFSS; tabulations by Rutgers Center for State Health Policy.

For exercise, 20.0% of respondents in the county sample and 25.0% in the state sample reported no exercise at all outside of work in the past 30 days (see Table 1.9).

- In the counties, older adults, females, and Hispanics were more likely to not exercise outside of work, as were low income respondents and the insured.
- The patterns were quite similar in the state, with the exception of black non-Hispanics who were more likely to not exercise in the state sample than in the counties.

As mentioned earlier, the data was not available for whether respondents got enough sleep on more than 2 nights a week in the previous 30 days, therefore no results can be shown for this item.

Falls in the past 12 months (the 1st CHNA report was past 3 months) among those ages 45 and over were reported by 18.4% in the counties and 20.3% in the state (see Table 1.10).

- In the combined county sample, older adults, females, and low income respondents were more likely to fall. Due to the age restriction, cell sizes were too small to assess differences among the race-ethnicity and coverage groups.

- The age, gender, and income patterns were similar in the state. Asian non-Hispanics were least likely to report a fall, and there was little difference between the coverage groups.

Not wearing seatbelts all the time was less prevalent in the county sample than in the state (7.9% vs. 11.2%) (see Table 1.10).

- In the combined county sample, younger adults, males, Hispanics, middle income respondents, and the uninsured were more likely to not wear a seatbelt all the time.
- Although higher across all groups, similar patterns held in the state for age, gender, and insurance status, but black non-Hispanics and low income respondents were more likely to not wear a seatbelt compared to the county sample.

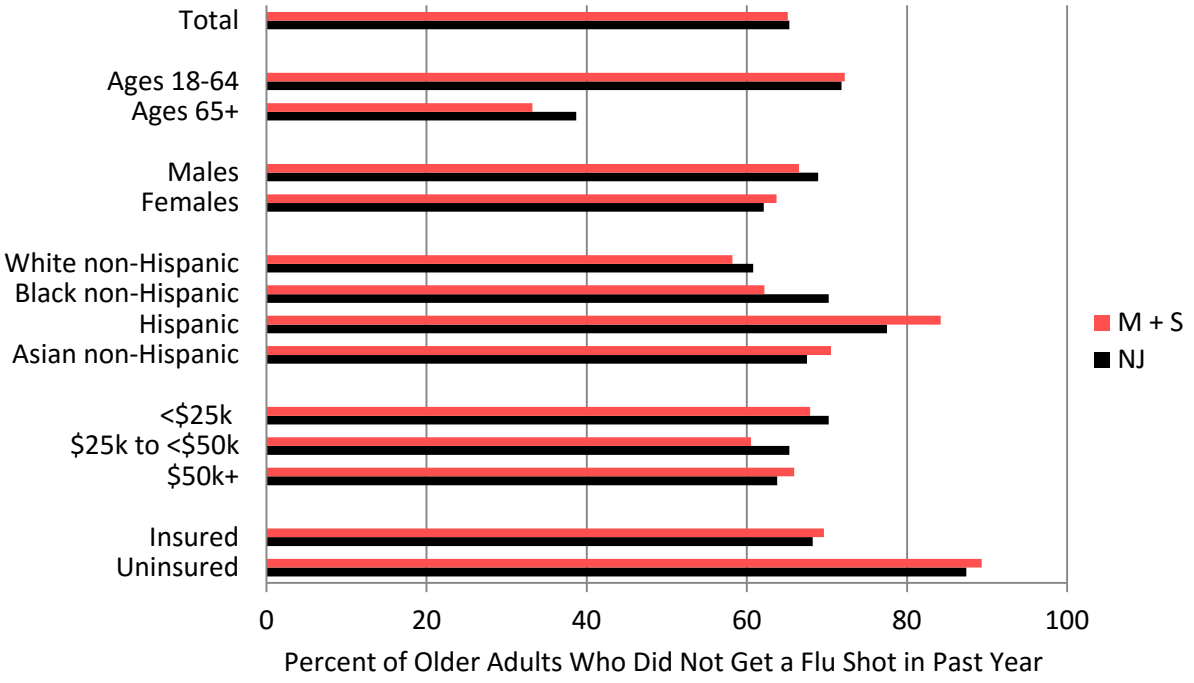
Preventive Behaviors

Immunizations, preventive measures for women's health, and other preventive behaviors were assessed using 10 measures (see Tables 1.11-1.13). Influenza immunization in the past year was examined for all adults (flu shot and flu spray combined in this report) and for adults ages 65+ (flu shot). For women's health behaviors, mammogram in the past 2 years (women ages 50+), pap test in the past 3 years (women ages 18+), and ever had a hysterectomy were assessed. Other preventive behaviors included blood stool test in the past 2 years (ages 50+), pneumonia shot ever (ages 65+), ever had a sigmoidoscopy or colonoscopy (ages 50+), PSA test in the past 2 years (men ages 40+), and ever had an HIV test (ages 18-64 on 1st CHNA report, but ages 18+ on this report). Due to the age and gender restrictions in most of the measures, cell sizes in the combined county sample were too small to assess differences among some groups, particularly among the race-ethnicity and coverage groups.

About 2/3 of all adults in both the county and state samples did not receive a flu shot or flu spray (combined) in the previous year (65.1% and 65.3%, respectively) (see Table 1.11) (also shown in Figure 1.14).

- In the counties, younger adults and males were more likely to not get a flu shot, as were Hispanics, Asian non-Hispanics, lower income respondents, and the uninsured.
- The patterns were quite similar in the state, although the rates were higher for black non-Hispanics and lower for Hispanics and Asian non-Hispanics.
- For older adults, 33.2% in the counties and 38.7% in the state did not receive a flu shot in the previous year. Females and high income older adults were more likely to not get a flu shot. Cell sizes in the combined county sample were too small to assess differences among the race-ethnicity groups. In the state, Hispanics, black non-Hispanics, and low income respondents were more likely to not get a flu shot.

Figure 1.14: Percent Who Did Not Get a Flu Shot in Past Year
Adults Ages 18+, Middlesex + Somerset Counties (M+S) and Total New Jersey (NJ)

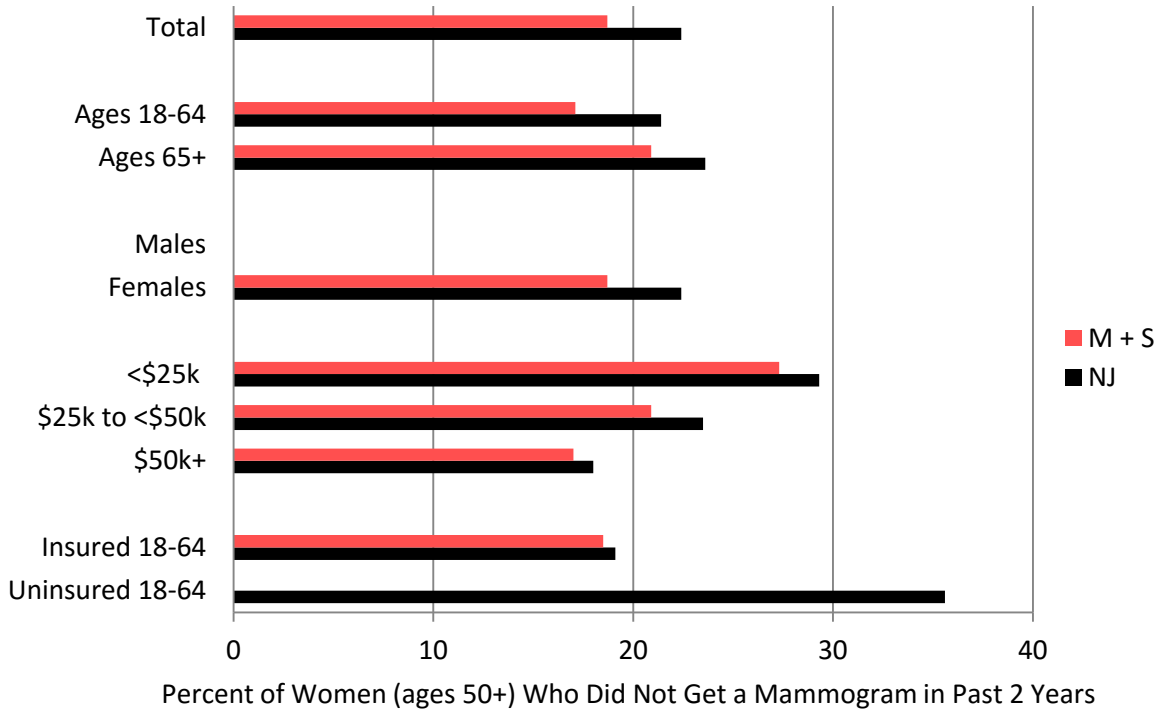


Source: Data from 2012 BRFSS; tabulations by Rutgers Center for State Health Policy.

For mammograms, 18.7% of the women ages 50 and over in the combined county sample had not had a mammogram in the past 2 years and the rate was slightly higher in the state sample (22.4%) (see Table 1.12; also shown in Figure 1.15).

- For the counties, older and lower income women were more likely to have not had a mammogram within 2 years. Cell sizes in the combined county sample were too small to assess differences among the race-ethnicity and coverage groups.
- In the state sample, older women, white non-Hispanic women, Asian non-Hispanic women, low income women, and uninsured women were more likely to forego a mammogram in the past 2 years.

Figure 1.15: Percent of Women Who Did Not Get a Mammogram in Past 2 Years
Women Ages 50+, Middlesex + Somerset Counties (M+S) and Total New Jersey (NJ)
(Data not shown for some groups due to insufficient cell sizes or restricted gender)



Source: Data from 2012 BRFSS; tabulations by Rutgers Center for State Health Policy.

For pap tests, 21.0% of women ages 18+ in the combined county sample and 21.5% in the state sample had not had a pap test in the previous 3 years (see Table 1.12).

- In the counties, older, Asian non-Hispanic, and low income women were more likely and Hispanic women were less likely to have not had a pap test within 3 years. Cell sizes in the combined county sample were too small to assess differences among the other race-ethnicity groups and the coverage groups.
- In the state sample, older women, Asian non-Hispanic women, low income women, and uninsured women were more likely to forego a pap test in the previous 3 years, and black non-Hispanic women were less likely to forego a pap test.

Hysterectomy prevalence rates of women ages 18+ were lower in the combined county compared to the state sample (11.6% and 14.1%, respectively) (see Table 1.12).

- In the counties, older women, white non-Hispanic women, and lower income women were more likely to have had a hysterectomy, while Hispanic and Asian non-Hispanic women were less likely. Cell sizes in the combined county sample were too small to assess rates among black non-Hispanics and the uninsured.

- In the state sample, similar patterns emerged for age and income. In addition, black non-Hispanic women and insured women were more likely to report a hysterectomy, while Asian non-Hispanic and Hispanic women were still less likely.

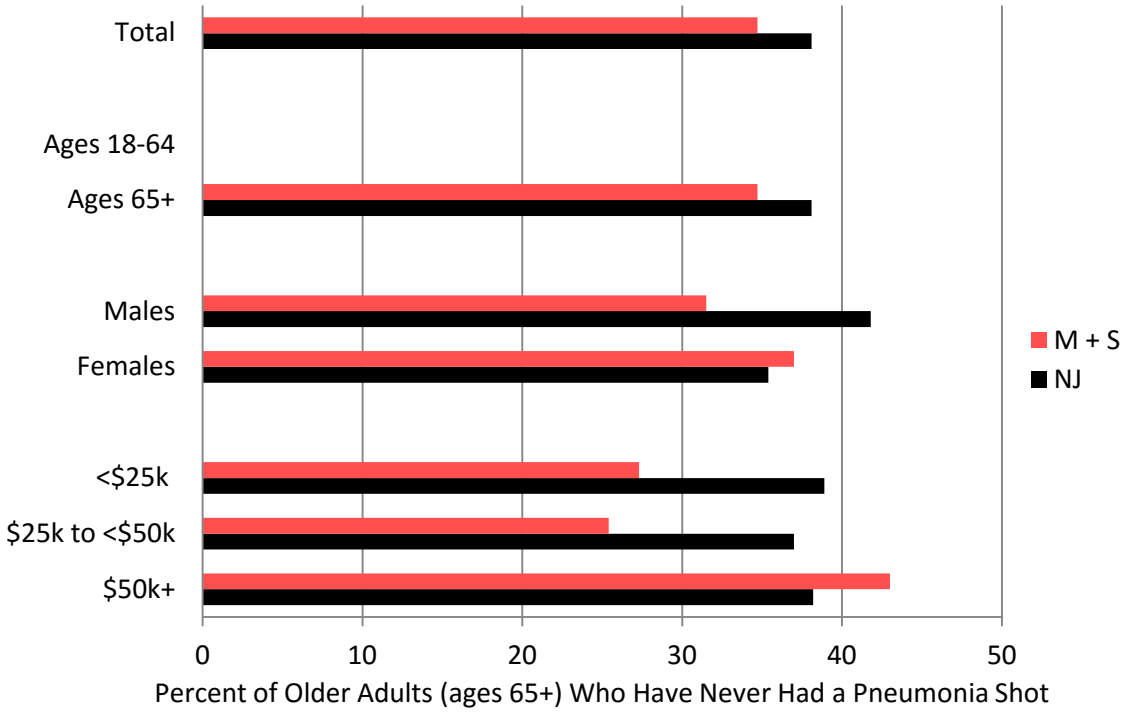
For the blood stool test, 85.7% and 87.2% of respondents ages 50 and over in the combined county and state samples respectively had not had one in the previous 2 years (see Table 1.13, first page).

- Younger adults, women, and low income respondents were more likely to have not had a blood stool test in the past 2 years in the counties. Cell sizes in the combined county sample were too small to assess differences among the race-ethnicity and coverage groups.
- In the state sample, younger adults and females were again more likely to have not had a blood stool test. Asian non-Hispanics, Hispanics, and the uninsured were more likely to have not had a blood stool test within 2 years while black non-Hispanics were less likely. There were no substantial differences among income groups.

Never having had a pneumonia shot was reported by 34.7% of adults ages 65 and over in the counties and by 38.1% in the state sample (see Table 1.13, first page; also shown in Figure 1.16).

- For the counties, females, and high income respondents were more likely to have never had a pneumonia shot. Cell sizes in the combined county sample were too small to assess differences among the race-ethnicity groups. Coverage groups were not compared since only non-elderly coverage was analyzed in this report.
- In the state sample, males, Hispanics, and Asian non-Hispanics were more likely to have never had a pneumonia shot. There were no substantial differences among income groups.

Figure 1.16: Percent of Older Adults Who Have Never Had a Pneumonia Shot
Adults Ages 65+, Middlesex + Somerset Counties (M+S) and Total New Jersey (NJ)
(Data not shown for some groups due to insufficient cell sizes or restricted age)

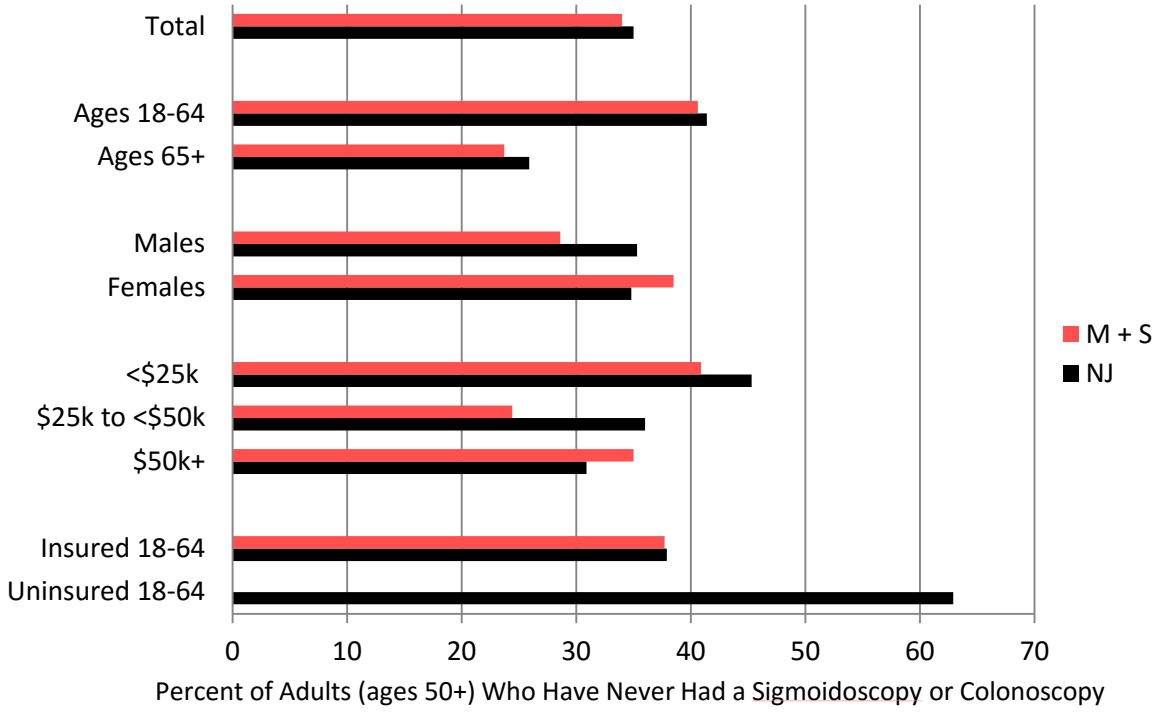


Source: Data from 2012 BRFSS; tabulations by Rutgers Center for State Health Policy.

Respondents ages 50 and over were asked if they had ever had either a sigmoidoscopy or colonoscopy (see Table 1.13, first page; also shown in Figure 1.17). In the combined county sample, 34.0% indicated they had not compared to 35.0% in the state sample.

- For the counties, younger adults (ages 50-64), females, and low income respondents were more likely to have not had either. Cell sizes in the combined county sample were too small to assess differences among the race-ethnicity groups and coverage groups.
- In the state sample, the same pattern held for age but there was no substantial difference for gender. In addition, Asian non-Hispanics, low income respondents, and the uninsured were more likely to have not had either procedure.

Figure 1.17: Percent of Adults Who Have Never Had a Sigmoidoscopy or Colonoscopy Adults Ages 50+, Middlesex + Somerset Counties (M+S) and Total New Jersey (NJ)
(Data not shown for some groups due to insufficient cell sizes)



Source: Data from 2012 BRFSS; tabulations by Rutgers Center for State Health Policy.

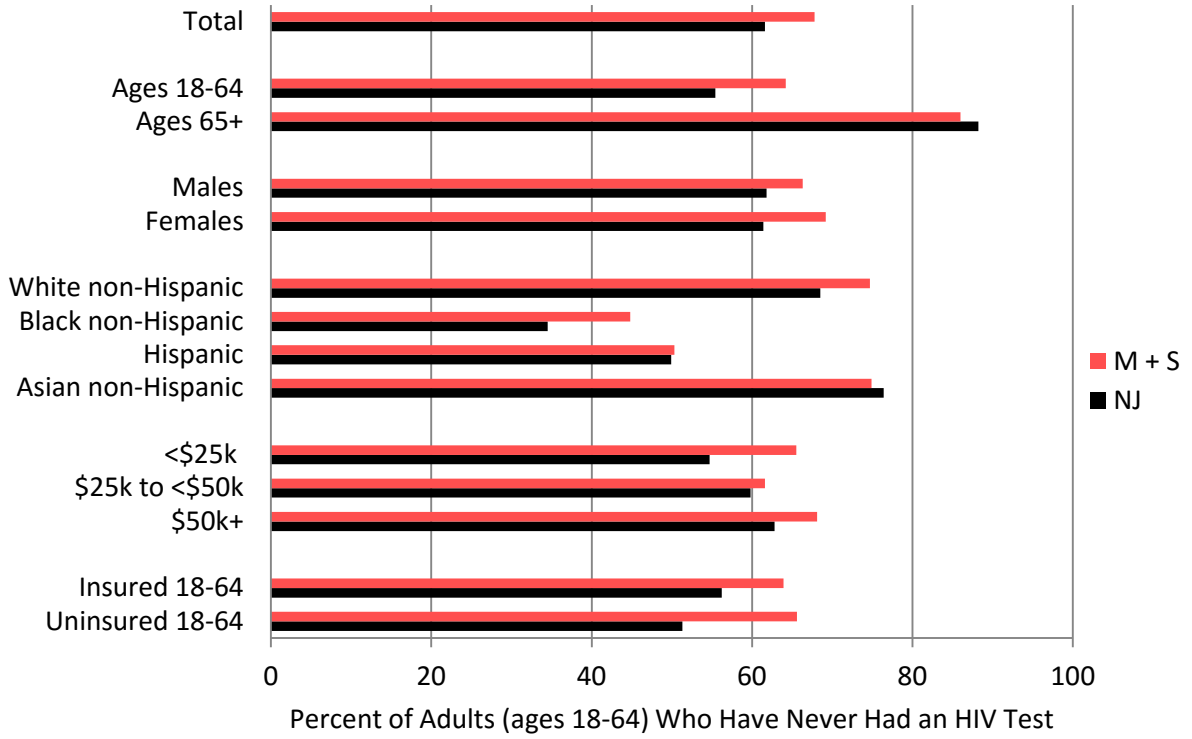
For the PSA test, 55.2% of men ages 40 and over in the combined county sample and 52.2% in the state sample had not had the test in the previous 2 years (see Table 1.13, 2nd page).

- In the counties, younger men were more likely to forego the test, but cell sizes in the combined county sample were too small to assess differences among any of the other groups.
- In the state, younger men, Asian non-Hispanic men, Hispanic men, low income men, and uninsured men were more likely to have not had a PSA test in the past 2 years.

For the combined county sample, 67.8% of adults ages 18+ (ages 18-64 on 1st CHNA report) had never had an HIV test and the rate was lower in the state (61.6%) (see Table 1.13, 2nd page; also shown in Figure 1.18).

- In the counties, older adults, white non-Hispanics, Asian non-Hispanics, and higher income groups were more likely to have never had an HIV test, while the gender and coverage groups did not differ substantially.
- In the state, similar patterns held across all the groups.

Figure 1.18: Percent of Adults Who Have Never Had an HIV Test
Adults Ages 18+, Middlesex + Somerset Counties (M+S) and Total New Jersey (NJ)



Source: Data from 2012 BRFSS; tabulations by Rutgers Center for State Health Policy.

Conclusions

For nearly all measures overall, the combined county sample fared better than the New Jersey sample. The counties fared worse on only 1 of the 33 measures (never had an HIV test). This was an improvement from the 1st CHNA report where the counties fared worse on 3 of the measures (no exercise past month, no PSA test in the past 2 years, and never had an HIV test).

In general, older adults fared worse on most of the health status and chronic condition measures (self-assessed overall health status, 4+ bad physical health days, diabetes, heart attack, stroke, activity limitation, health problem requiring special equipment)), but fared better on asthma and poor mental health. Younger adults reported more problems with the healthcare access measures such as not having a regular doctor, cost barriers to care, or not having recent medical/dental check-ups. Younger adults also fared worse on the risky behaviors such as binge drinking, smoking, and seatbelt use, but better on overweight/obesity, exercise, and falls. Older adults were more likely to engage in some preventive behaviors (flu shot, blood stool test, sigmoidoscopy/colonoscopy, PSA test), although they were less likely to have had a recent

mammogram, pap test, or HIV test. These patterns were identical to those in the 1st CHNA report except the results for HIV tests since this was not asked of older adults in the earlier questionnaire.

Females fared worse on the health status measures (self-assessed overall health status, 4+ bad mental health days, asthma, stroke, activity limitation, health problem requiring special equipment), but fared better on 4+ bad physical health days, diabetes, and heart attack. Males reported more problems with three of the healthcare access measures (not having a regular doctor and not having recent medical or dental check-ups), but females reported more problems with cost barriers to care. Males fared worse on the risky behaviors such as binge drinking, smoking, overweight/obesity, and seatbelt use, but females fared worse on exercise and falls. The results were mixed for gender in the preventive behaviors. These patterns were identical to those in the 1st CHNA report except the results for 4+ bad physical health days and heart attack.

The results were mixed for race-ethnicity on the health status and chronic condition measures. Black non-Hispanics fared worse on 4+ bad physical health and 4+ bad mental health days, diabetes, activity limitation, and health problem requiring special equipment. Hispanics fared worse on overall self-assessed health and asthma. White non-Hispanics fared worse on 4+ bad physical health days, heart attack, and stroke. Asian non-Hispanics fared better on all the health status and chronic condition measures. Black non-Hispanics and Hispanics reported more problems with most of the healthcare access measures, and Asian non-Hispanics also fared worse on the dental access measure. The results were mixed for race-ethnicity on the risky behaviors, and cell sizes were too small to report results for most of the preventive behaviors. Most of these patterns were the same as in the 1st CHNA report.

Low income respondents fared worse on almost all measures, but fared than one or both of the other income groups better on binge drinking, overweight and obesity, seatbelt use, flu shot past year age 65+, pneumonia shot ever, and ever had an HIV test. These results are the same as in the 1st CHNA report with the exception of obesity, flu shot past year age 65+, and pneumonia shot ever, where the low income respondents fared worse in the 1st report.

Similarly, the uninsured fared worse across almost all measures, but fared better on heart attack, stroke, health problem requiring special equipment, binge drinking, smoking, overweight (but not obese), and exercise. These patterns were the same as in the 1st CHNA report with the exception of stroke, binge drinking, and HIV test.

Although the counties fared better than the state overall and generally across age, gender, and racial-ethnic groups, the disparities among the low income respondents and the uninsured are

still quite large for most measures. Some racial-ethnic disparities also remain, although not consistently across all the measures.

Table 1.1: Individual Characteristics, Adults Ages 18+, Middlesex and Somerset Counties (separately and together)

(unweighted)

	Middlesex County	Somerset County	Both Counties
	N	N	N
Total Adult Sample	884	640	1524
Age			
18-64	661	425	1086
65+	208	199	407
Don't know/refused	15	16	31
Gender			
Male	392	258	650
Female	492	382	874
Don't know/refused	0	0	0
Race-ethnicity			
White non-Hispanic	516	481	997
Black non-Hispanic	55	48	103
Hispanic	118	40	158
Asian non-Hispanic	149	44	193
Other non-Hispanic	31	15	46
Don't know/refused	15	12	27
Income (household)			
<$25k	155	83	238
$25k to < $50k	158	79	237
$50k +	423	381	804
Don't know/refused	148	97	245
Health Insurance (18-64)			
Insured	561	392	953
Uninsured	99	33	132
Don't know/refused	0	0	0

Source: Data from 2012 BRFSS; tabulations by Rutgers University Center for State Health Policy.

Yellow highlighting indicates small cell sizes; green highlighting indicates the "Don't' know/refused" category is >10% and will be included as valid.

Table 1.2: Individual Characteristics, Adults Ages 18+, Middlesex and Somerset Counties (separately and together) and Total New Jersey

	Middlesex County		Somerset County		Both Counties		New Jersey	
	%	N	%	N	%	N	%	N
Total Adult Population	100.0	633,821	100.0	247,141	100.0	880,962	100.0	6,811,477
Age								
18-64	83.0	519,506	82.1	199,324	82.7	718,830	81.1	5,463,674
65+	17.0	106,718	17.9	43,331	17.3	150,049	18.9	1,271,410
Gender								
Male	48.5	307,533	48.0	118,558	48.4	426,091	48.0	3,269,095
Female	51.5	326,288	52.0	128,583	51.6	454,871	52.0	3,542,382
Race-ethnicity								
White non-Hispanic	49.2	308,179	61.6	148,915	52.7	457,094	59.9	4,016,752
Black non-Hispanic	8.4	52,438	11.1	26,798	9.1	79,237	12.3	826,021
Hispanic	17.9	111,957	10.9	26,338	15.9	138,295	17.5	1,173,995
Asian non-Hispanic	22.3	139,675	15.4	37,288	20.4	176,963	8.7	585,366
Other non-Hispanic	2.2	13,931	1.0	2,314	1.9	16,245	1.6	106,475
Income (household)								
<$25k	17.3	109,941	11.5	28,399	15.7	138,340	20.7	1,410,693
$25k to < $50k	19.0	120,517	10.4	25,709	16.6	146,225	16.6	1,410,693
$50k +	47.1	298,787	63.0	155,596	51.6	454,383	44.8	3,053,604
Don't know/refused	16.5	104,576	15.1	37,437	16.1	142,013	17.9	1,215,974
Health Insurance (18-64)								
Insured	86.0	446,435	91.1	181,636	87.4	628,071	81.4	4,427,969
Uninsured	14.0	72,832	8.9	17,688	12.6	90,521	18.6	1,009,083

Source: Data from 2012 BRFSS; tabulations by Rutgers University Center for State Health Policy.

Don't know and refused responses excluded unless > 5%, so cell sizes may not total full sample size.

Table 1.3: Item Frequencies, Adults Ages 18+, Middlesex + Somerset Counties and Total New Jersey

		Middlesex + Somerset Counties			New Jersey**	
		N	%	Valid %	%	Valid %
Total Adult Population		848,443	100.0	100.0	100.0	100.0
Self-assessed health						
Valid	1.00 Good or better	769,235	87.3	87.8	83.5	83.8
	2.00 Fair or poor	106,616	12.1	12.2	16.1	16.2
	Total	875,852	99.4	100.0	99.6	100.0
Missing	DK, REF	5,110	0.6		0.4	
Total		848,443	100.0		100.0	
Days in past 30 physical health not good						
Valid	1.00 None	623,658	70.8	72.9	66.1	67.9
	2.00 1-3 days	98,390	11.2	11.5	12.7	13.1
	3.00 4+ days	134,004	15.2	15.7	18.6	19.1
	Total	856,052	97.2	100.0	97.5	100.0
Missing	DK, REF	24,910	2.8		2.5	
Total		880,962	100.0		100.0	
Days in past 30 mental health not good						
Valid	1.00 None	641,963	72.9	74.0	68.4	69.8
	2.00 1-3 days	80,721	9.2	9.3	10.3	10.5
	3.00 4+ days	144,833	16.4	16.7	19.3	19.7
	Total	867,518	98.5	100.0	98.0	100.0
Missing	DK, REF	13,444	1.5		2.0	
Total		880,962	100.0		100.0	
Ever told by doc had asthma						
Valid	1.00 Yes	92,434	10.5	10.5	12.5	12.5
	2.00 No	784,911	89.1	89.5	87.3	87.5
	Total	877,345	99.4	100.0	99.8	100.0
Missing	DK, REF	3,617	0.4		0.2	
Total		880,962	100.0		100.0	

Source: Data from 2012 BRFSS; tabulations by Rutgers University Center for State Health Policy.

* System missing due to question restrictions on age or gender.

** 2012 total adult population ages 18+ for New Jersey =6,811,477.

Table 1.3: Item Frequencies, Adults Ages 18+, Middlesex + Somerset Counties and Total New Jersey

(continued)

		Middlesex + Somerset Counties			New Jersey**	
		N	%	Valid %	%	Valid %
Ever told by doc has diabetes						
Valid	1.00 Yes	78,007	8.9	8.9	9.3	9.3
	2.00 No	798,236	90.6	91.1	90.5	90.7
	Total	876,243	99.5	100.0	99.8	100.0
Missing	DK, REF	4,719	0.5		0.2	
Total		880,962	100.0		100.0	
Ever told by doc had heart attack						
Valid	1.00 Yes	28,533	3.2	3.2	3.9	3.9
	2.00 No	849,620	96.4	96.8	95.9	96.1
	Total	878,153	99.7	100.0	99.8	100.0
Missing	DK, REF	2,809	0.3		0.2	
Total		880,962	100.0		100.0	
Ever told by doc had stroke						
Valid	1.00 Yes	15,567	1.8	1.8	2.3	2.3
	2.00 No	863,135	98.0	98.2	97.6	97.7
	Total	878,702	99.7	100.0	99.9	100.0
Missing	DK, REF	2,260	0.3		0.1	
Total		880,962	100.0		100.0	
Activity limitation due to physical, mental, or emotional problems						
Valid	1.00 Yes	105,850	12.0	12.4	14.8	15.4
	2.00 No	750,389	85.2	87.6	81.2	84.6
	Total	856,239	97.2	100.0	96.0	100.0
Missing	DK, REF	24,723	2.8		4.0	
Total		880,962	100.0		100.0	
Health problems requiring special equipment						
Valid	1 Yes	48,570	5.5	5.7	6.1	6.4
	2 No	806,704	91.6	94.3	90.2	93.6
	Total	855,274	97.1	100.0	96.3	100.0
Missing	DK, REF	25,688	2.9		3.7	
Total		880,962	100.0		100.0	

Source: Data from 2012 BRFSS; tabulations by Rutgers University Center for State Health Policy.

* System missing due to question restrictions on age or gender.

** 2012 total adult population ages 18+ for New Jersey = 6,811,477.

Table 1.3: Item Frequencies, Adults Ages 18+, Middlesex + Somerset Counties and Total New Jersey

(continued)

		Middlesex + Somerset Counties			New Jersey**	
		N	%	Valid %	%	Valid %
Has regular doctor						
Valid	1.00 Yes	743,045	84.3	84.6	82.1	82.6
	2.00 No	135,428	15.4	15.4	17.3	17.4
	Total	878,473	99.7	100.0	99.4	100.0
Missing	DK, REF	2,489	0.3		0.6	
Total		880,962	100.0		100.0	
Could not see doctor due to cost in past year						
Valid	1 Yes	108,463	12.3	12.4	14.9	14.9
	2 No	769,105	87.3	87.6	84.7	85.1
	Total	877,568	99.6	100.0	99.6	100.0
Missing	DK, REF	3,394	0.4		0.4	
Total		880,962	100.0		100.0	
Last routine physical checkup						
Valid	1.00 Within past year	651,488	74.0	75.0	73.9	75.0
	2.00 >1 to 2 years	122,540	13.9	14.1	12.3	12.5
	3.00 >2 years	94,600	10.7	10.9	12.4	12.6
	Total	868,628	98.6	100.0	98.6	100.0
Missing	DK, REF	12,334	1.4		1.4	
Total		880,962	100.0		100.0	
Dental visit past year						
Valid	1.00 Yes	630,342	71.6	72.0	70.4	71.2
	2.00 No	244,914	27.8	28.0	28.5	28.8
	Total	875,256	99.4	100.0	98.8	100.0
Missing	DK, REF	5,706	0.6		1.2	
Total		880,962	100.0		100.0	

Source: Data from 2012 BRFSS; tabulations by Rutgers University Center for State Health Policy.

* System missing due to question restrictions on age or gender.

** 2012 total adult population ages 18+ for New Jersey = 6,811,477.

Table 1.3: Item Frequencies, Adults Ages 18+, Middlesex + Somerset Counties and Total New Jersey

(continued)

		Middlesex + Somerset Counties			New Jersey**	
		N	%	Valid %	%	Valid %
1+ permanent teeth extracted due to decay						
Valid	1.00 Yes	348,788	39.6	40.8	45.1	46.3
	2.00 No	505,885	57.4	59.2	52.3	53.7
	Total	854,673	97.0	100.0	97.4	100.0
Missing	DK, REF	26,289	3.0		2.6	
Total		880.962	100.0		100.0	
Binge Drinker past 30 days (males 5+, females 4+, 1 occasion)						
Valid	1.00 Yes	120,657	13.7	14.8	16.5	17.8
	2.00 No	696,298	79.0	85.2	76.6	82.2
	Total	816,955	92.7	100.0	93.1	100.0
Missing	DK, REF	64,007	7.3		6.9	
Total		880,962	100.0		100.0	
Smoker						
Valid	1.00 Yes	107,430	12.2	12.6	16.6	17.4
	2.00 No	742,207	84.2	87.4	79.0	82.6
	Total	849,637	96.4	100.0	95.5	100.0
Missing	DK, REF	31,325	3.6		4.5	
Total		880,962	100.0		100.0	
BMI categories						
Valid	1.00 Underweight	12,182	1.4	1.5	1.8	1.9
	2.00 Normal	310,767	35.3	38.6	33.5	36.6
	3.00 Overweight	289,519	32.9	36.0	33.8	36.9
	4.00 Obese	192,568	21.9	23.9	33.6	24.6
	Total	805,035	91.4	100.0	91.7	100.0
Missing	DK, REF	75,927	8.6		8.3	
Total		880,962	100.0		100.0	

Source: Data from 2012 BRFSS; tabulations by Rutgers University Center for State Health Policy.

* System missing due to question restrictions on age or gender.

** 2012 total adult population ages 18+ for New Jersey = 6,811,477.

Table 1.3: Item Frequencies, Adults Ages 18+, Middlesex + Somerset Counties and Total New Jersey

(continued)

		Middlesex + Somerset Counties			New Jersey**	
		N	%	Valid %	%	Valid %
Any exercise past month						
Valid	1.00 Yes	703,455	79.9	80.0	74.9	75.0
	2.00 No	176,174	20.0	20.0	24.9	25.0
	Total	879,629	99.8	100.0	99.8	100.0
Missing	DK, REF	1,333	0.2		0.2	
Total		880,962	100.0		100.0	
Days not enough sleep or rest in past 30 days (NOT ASKED ON 2012 SURVEY)						
Valid	1.00 0	-	-	-	-	-
	2.00 1-8	-	-	-	-	-
	3.00 9-30	-	-	-	-	-
	Total	-	-	-	-	-
Missing	DK, REF	-	-		-	
Total		-	-		-	
Fallen past 12 months, age 45+ (CHANGED FROM 3 MONTHS TO 12 MONTHS)						
Valid	1.00 Yes	82,271	9.3	18.4	10.5	20.3
	2.00 No	364,587	41.4	81.6	41.4	79.7
	Total	446,858	50.7	100.0	51.9	100.0
Missing	DK, REF	9,981	1.1		0.7	
	System*	424,123	48.1		47.3	
	Total	434,104	49.3		48.1	
Total		880,962	100.0		100.0	
Always wears seatbelt						
Valid	1.00 Yes	771,147	87.5	92.1	83.9	88.8
	2.00 No	66,409	7.5	7.9	10.5	11.2
	Total	837,556	95.1	100.0	94.5	100.0
Missing	DK, REF	43,406	4.9		5.5	
Total		880,962	100.0		100.0	

Source: Data from 2012 BRFSS; tabulations by Rutgers University Center for State Health Policy.

* System missing due to question restrictions on age or gender.

** 2012 total adult population ages 18+ for New Jersey = 6,811,477.

Table 1.3: Item Frequencies, Adults Ages 18+, Middlesex + Somerset Counties and Total New Jersey

(continued)

		Middlesex + Somerset Counties			New Jersey**	
		N	%	Valid %	%	Valid %
Flu shot past 12 months (age 18+)						
Valid	1.00 Yes	294,223	33.4	34.9	32.8	34.7
	2.00 No	549,005	62.3	65.1	61.9	65.3
	Total	843,228	95.7	100.0	94.7	100.0
Missing	DK, REF	1,367	0.2		5.3	
Total		36,367	4.1		100.0	
Flu spray past 12 months (age 18+) (COMBINED WITH FLU SHOT IN 2012)						
Valid	1.00 Yes	-	-	-	-	-
	2.00 No	-	-	-	-	-
	Total	-	-	-	-	-
	DK, REF	-	-		-	
Total		-	-		-	
Flu shot past 12 months (age 65+)						
Valid	1.00 Yes	96,256	10.9	66.8	10.0	61.3
	2.00 No	47,918	5.4	33.2	6.9	38.7
	Total	144,175	16.4	100.0	17.8	100.0
Missing	DK, REF	17,957	2.0		2.0	
	System*	718,830	81.6		80.2	
	Total	736,787	83.6		82.2	
Total		880,962	100.00		100.0	
Mammogram past 2 years, women age 50+						
Valid	1.00 Yes	159,957	18.2	81.3	18.0	77.6
	2.00 No	36,730	4.2	18.7	5.2	22.4
	Total	196,687	22.3	100.0	23.2	100.0
Missing	DK, REF	17,659	2.0		2.2	
	System*	666,616	75.7		74.6	
	Total	684,275	77.7		76.8	
Total		880,962	100.0		100.0	

Source: Data from 2012 BRFSS; tabulations by Rutgers University Center for State Health Policy.

* System missing due to question restrictions on age or gender.

** 2012 total adult population ages 18+ for New Jersey = 6,811,477.

Table 1.3: Item Frequencies, Adults Ages 18+, Middlesex + Somerset Counties and Total New Jersey

(continued)

		Middlesex + Somerset Counties			New Jersey**	
		N	%	Valid %	%	Valid %
Pap test past 3 years, women age 18+						
Valid	1.00 Yes	291,758	33.1	79.0	32.2	78.5
	2.00 No	77,689	8.8	21.0	8.8	21.5
	Total	369,447	41.9	100.0	41.0	100.0
Missing	DK, REF	11,431	1.3		1.3	
	System*	500,084	56.8		57.7	
	Total	511,515	58.1		59.0	
Total		880,962	100.0		100.0	
Had hysterectomy, women 18+						
Valid	1.00 Yes	47,908	5.4	11.6	6.7	14.1
	2.00 No	364,200	41.3	88.4	41.0	85.9
	Total	412,108	46.8	100.0	47.7	100.0
Missing	DK, REF	3,391	0.4		0.3	
	System*	465,464	52.8		52.0	
	Total	468,854	53.2		52.3	
Total		880,962	100.0		100.0	
Blood stool test past 2 years, age 50+						
Valid	1.00 Yes	50,038	5.7	14.3	5.3	12.8
	2.00 No	299,836	34.0	85.7	36.2	87.2
	Total	349,874	39.7	100.0	41.6	100.0
Missing	DK, REF	22,643	2.6		2.2	
	System*	508,445	57.7		56.2	
	Total	531,088	60.3		58.4	
Total		880,962	100.0		100.0	

Source: Data from 2012 BRFSS; tabulations by Rutgers University Center for State Health Policy.

* System missing due to question restrictions on age or gender.

** 2012 total adult population ages 18+ for New Jersey = 6,811,477.

Table 1.3: Item Frequencies, Adults Ages 18+, Middlesex + Somerset Counties and Total New Jersey

(continued)

		Middlesex + Somerset Counties			New Jersey**	
		N	%	Valid %	%	Valid %
Pneumonia shot ever (age 65+)						
Valid	1.00 Yes	90,454	10.3	65.3	10.4	61.9
	2.00 No	48,067	5.5	34.7	6.4	38.1
	Total	138,521	15.7	100.0	16.8	100.0
Missing	DK, REF	23,611	2.7		3.0	
	System*	718,830	81.6		80.2	
	Total	742,441	84.3		83.2	
Total		880,962	100.0		100.0	
Sigmoidoscopy or colonoscopy ever, age 50+						
Valid	1.00 Yes	237,042	26.9	66.0	27.6	65.0
	2.00 No	122,237	13.9	34.0	14.8	35.0
	Total	359,278	40.8	100.0	42.4	100.0
Missing	DK, REF	13,011	1.5		1.4	
	System*	508,673	57.7		56.2	
	Total	521,684	59.2		57.6	
Total		880,962	100.0		100.0	
PSA test past 2 years, men age 40+						
Valid	1.00 Yes	100,102	11.4	44.8	12.6	47.8
	2.00 No	123,194	14.0	55.2	13.8	52.2
	Total	223,296	25.3	100.0	26.4	100.0
Missing	DK, REF	26,187	3.0		2.0	
	System*	631,479	71.7		71.6	
	Total	657,666	74.7		73.6	
Total		880,962	100.0		100.0	

Source: Data from 2012 BRFSS; tabulations by Rutgers University Center for State Health Policy.

* System missing due to question restrictions on age or gender.

** 2012 total adult population ages 18+ for New Jersey = 6,811,477.

Table 1.3: Item Frequencies, Adults Ages 18+, Middlesex + Somerset Counties and Total New Jersey

(continued)

		Middlesex + Somerset Counties			New Jersey**	
		N	%	Valid %	%	Valid %
HIV test ever, age 18-64						
Valid	1.00 Yes	256,988	29.2	32.2	34.5	38.4
	2.00 No	541,702	61.5	67.8	55.3	61.6
	Total	798,690	90.7	100.0	89.8	100.0
Missing	DK, REF	33,363	3.8		3.5	
	System*	48,909	5.6		6.7	
	Total	82,272	9.3		10.2	
Total		880,962	100.0		100.0	
Age						
Valid	1.00 18-64	718,830	81.6	82.7	80.2	81.1
	2.00 65+	150,049	17.0	17.3	18.7	18.9
	Total	868,879	98.6	100.0	98.9	100.0
Missing	DK, REF	12,083	1.4		1.1	
Total		880,962	100.0		100.0	
Gender						
Valid	1.00 Male	426,091	48.4	48.4	48.0	48.0
	2.00 Female	454,871	51.6	51.6	52.0	52.0
	Total	880,962	100.0	100.0	100.0	100.0
Race-ethnicity						
Valid	1.00 White non-Hispanic	457,094	51.9	52.7	59.0	59.9
	2.00 Black non-Hispanic	79,237	9.0	9.1	12.1	12.3
	3.00 Hispanic	138,295	15.7	15.9	17.2	17.5
	4.00 Asian non-Hispanic	176,963	20.1	20.4	8.6	8.7
	5.00 Other non-Hispanic	16,245	1.8	1.9	1.6	1.6
	Total	867,834	98.5	100.0	98.5	100.0
Missing	DK, REF	13,128	1.5		1.5	
Total		880,962	100.0		100.0	

Source: Data from 2012 BRFSS; tabulations by Rutgers University Center for State Health Policy.

* System missing due to question restrictions on age or gender.

** 2012 total adult population ages 18+ for New Jersey = 6,811,477.

Table 1.3: Item Frequencies, Adults Ages 18+, Middlesex + Somerset Counties and Total New Jersey

(continued)

		Middlesex + Somerset Counties			New Jersey**	
		N	%	Valid %	%	Valid %
Household Income						
Valid	1.00 < $25k	138,340	15.7	15.7	20.7	20.7
	2.00 $25k to < $50k	146,225	16.6	16.6	16.6	16.6
	3.00 $50k +	454,383	51.6	51.6	44.8	44.8
	9.00 DK, REF	142,013	16.1	16.1	17.9	17.9
	Total	880,962	100.0	100.0	100.0	100.0
Health insurance, non-elderly						
Valid	1.00 Insured	628,071	71.3	87.4	65.0	81.4
	2.00 Uninsured	90,521	10.3	12.6	14.8	18.6
	Total	718,592	81.6	100.0	79.8	100.0
Missing	System*, DK, REF	162,370	18.4		20.2	
Total		880,962	100.0		100.0	
Marital status						
Valid	1 Married	483,912	54.9	55.7	50.0	50.6
	2 Divorced	60,621	6.9	7.0	8.0	8.1
	3 Widowed	59,883	6.8	6.9	7.1	7.2
	4 Separated	18,656	2.1	2.1	2.4	2.4
	5 Never married	207,138	23.5	23.8	26.5	26.8
	6 Member of an unmarried couple	38,689	4.4	4.5	4.8	4.8
	Total	868,899	98.6	100.0	98.8	100.0
Missing	DK, REF	12,063	1.4		1.2	
Total		880,962	100.0		100.0	
Education						
Valid	1.00 HS grad or less	322,118	36.6	36.9	41.6	42.0
	2.00 Some college	200,446	22.8	22.9	25.1	25.4
	3.00 College grad+	351,562	39.9	40.2	32.3	32.6
	Total	874,126	99.2	100.0	99.0	100.0
Missing	DK, REF	6,836	0.8		1.0	
Total		880.962	100.0		100.0	

Source: Data from 2012 BRFSS; tabulations by Rutgers University Center for State Health Policy.

* System missing due to question restrictions on age or gender.

** 2012 total adult population ages 18+ for New Jersey = 6,811,477.

Table 1.3: Item Frequencies, Adults Ages 18+, Middlesex + Somerset Counties and Total New Jersey

(continued)

		Middlesex + Somerset Counties			New Jersey**	
		N	%	Valid %	%	Valid %
Employment status						
Valid	1 Employed for wages	504,175	57.2	57.7	52.0	52.6
	2 Self-employed	65,026	7.4	7.4	7.3	7.4
	3 Out of work > 1 year	35,704	4.1	4.1	4.9	5.0
	4 Out of work < 1 year	33,184	3.8	3.8	4.6	4.7
	5 Homemaker	48,878	5.5	5.6	5.0	5.0
	6 Student	44,025	5.0	5.0	5.0	5.1
	7 Retired	113,299	12.9	13.0	15.9	16.0
	8 Unable to work	28,925	3.3	3.3	4.1	4.2
	Total	873,216	99.1	100.0	98.8	100.0
Missing	DK, REF	7,746	0.9		1.2	
Total		880,962	100.0		100.0	

Source: Data from 2012 BRFSS; tabulations by Rutgers University Center for State Health Policy.

* System missing due to question restrictions on age or gender.

** 2012 total adult population ages 18+ for New Jersey = 6,811,477.

Table 1.4: Health Status by Individual Characteristics, Adults Ages 18+, Middlesex + Somerset Counties (M+S) and Total New Jersey (NJ)

	Self-assessed Overall Health Status			Days Physical Health Not Good Past 30 Days			Days Mental Health Not Good Past 30 Days		
	M+S		NJ	M+S		NJ	M+S		NJ
	% Fair or Poor	N	% Fair or Poor	% 4+ Days	N	% 4+ Days	% 4+ Days	N	% 4+ Days
Total Adult Population	12.2	106,616	16.2	15.7	134,004	19.1	16.7	144,833	19.7
Age									
18-64	10.3		13.9	15.6		17.9	17.2		21.5
65+	21.9		26.3	16.4		25.1	14.9		12.6
Gender									
Male	10.7		15.5	15.7		17.6	15.7		17.4
Female	13.5		16.7	15.6		20.5	17.7		21.8
Race-ethnicity									
White non-Hispanic	11.6		13.4	19.2		19.3	19.6		20.2
Black non-Hispanic	13.4		17.7	19.7		20.2	25.5		20.7
Hispanic	23.8		28.7	13.6		21.7	14.6		21.2
Asian non-Hispanic	4.7		7.8	6.8		10.1	7.7		12.0
Other non-Hispanic	--		17.5	--		20.1	--		24.2
Income (household)									
<$25k	27.1		32.0	21.3		27.6	20.2		25.8
$25k to < $50k	11.0		17.3	17.4		22.6	21.1		21.4
$50k +	6.4		7.1	12.8		13.0	14.2		16.7
Don't know/refused	17.2		19.5	17.8		21.5	16.6		18.6
Health Insurance (18-64)									
Insured	8.7		11.7	14.6		17.2	16.4		20.7
Uninsured	21.7		23.7	22.6		21.0	23.3		24.7

Source: Data from 2012 BRFSS; tabulations by Rutgers University Center for State Health Policy.

Data not shown (--) if the unweighted sample size for the denominator was < 50.

Don't know and refused responses excluded unless > 5%, so cell sizes may not total full sample size.

Table 1.5: Chronic Conditions by Individual Characteristics, Adults Ages 18+, Middlesex + Somerset Counties (M+S) and Total New Jersey (NJ)

	Asthma			Diabetes			Heart Attack		
	M+S		NJ	M+S		NJ	M+S		NJ
	% Yes	N	% Yes	% Yes	N	% Yes	% Yes	N	% Yes
Total Adult Population	10.5	92,434	12.5	8.9	78,007	9.3	3.2	28,533	3.9
Age									
18-64	10.8		13.1	5.9		6.4	1.9		2.0
65+	8.7		10.0	22.9		22.1	9.9		12.0
Gender									
Male	10.0		10.2	9.4		9.9	4.4		5.1
Female	11.0		14.6	8.4		8.8	2.2		2.8
Race-ethnicity									
White non-Hispanic	12.1		11.7	7.0		8.5	5.4		4.8
Black non-Hispanic	10.2		17.6	19.8		13.7	1.6		2.6
Hispanic	14.4		14.8	10.9		9.5	1.0		3.2
Asian non-Hispanic	3.8		6.5	6.8		7.1	0.6		0.8
Other non-Hispanic	--		11.8	--		12.3	--		5.0
Income (household)									
<$25k	18.3		16.9	12.3		13.4	6.1		5.7
$25k to < $50k	10.8		11.7	9.0		10.0	2.6		4.7
$50k +	8.8		9.9	6.3		7.0	2.6		2.7
Don't know/refused	8.3		14.8	13.8		9.9	3.3		4.1
Health Insurance (18-64)									
Insured	10.8		13.4	5.7		6.5	2.1		1.9
Uninsured	11.0		11.8	7.1		5.8	0.7		2.4

Source: Data from 2012 BRFSS; tabulations by Rutgers University Center for State Health Policy.

Data not shown (--) if the unweighted sample size for the denominator was < 50.

Don't know and refused responses excluded unless > 5%, so cell sizes may not total full sample size.

Table 1.5: Chronic Conditions by Individual Characteristics, Adults Ages 18+, Middlesex + Somerset Counties (M+S) and Total New Jersey (NJ)

(continued)

	Stroke			Activity Limitation			Health Problem Requiring Special Equipment		
	M+S		NJ	M+S		NJ	M+S		NJ
	% Yes	N	% Yes	% Yes	N	% Yes	% Yes	N	% Yes
Total Adult Population	1.8	15,567	2.3	12.4	105,851	15.4	5.7	48,571	6.4
Age									
18-64	1.0		1.5	9.9		13.4	3.3		3.9
65+	5.7		5.7	24.9		24.4	17.3		17.2
Gender									
Male	1.2		2.1	10.7		14.7	5.1		5.5
Female	2.3		2.4	14.0		16.1	6.3		7.2
Race-ethnicity									
White non-Hispanic	2.6		2.4	15.1		17.3	7.1		7.0
Black non-Hispanic	2.4		3.5	26.6		17.2	17.7		9.7
Hispanic	0.2		1.4	9.4		11.9	1.1		4.3
Asian non-Hispanic	0.6		0.8	0.8		5.4	0.0		1.0
Other non-Hispanic	--		4.4	--		17.7	--		6.6
Income (household)									
<$25k	2.7		4.1	18.6		23.3	12.9		11.9
$25k to < $50k	2.5		2.2	12.7		16.1	7.5		6.8
$50k +	1.0		1.2	9.8		10.9	2.1		2.9
Don't know/refused	2.5		2.9	14.2		17.4	8.3		8.5
Health Insurance (18-64)									
Insured	1.0		1.4	9.4		13.4	3.2		4.1
Uninsured	0.7		1.9	13.3		12.8	3.4		2.7

Source: Data from 2012 BRFSS; tabulations by Rutgers University Center for State Health Policy.

Data not shown (--) if the unweighted sample size for the denominator was < 50.

Don't know and refused responses excluded unless > 5%, so cell sizes may not total full sample size.

Table 1.6: Medical Utilization by Individual Characteristics, Adults Ages 18+, Middlesex + Somerset Counties (M+S) and Total New Jersey (NJ)

	Has Regular Doctor			Could Not See Doctor Due to Cost Past Year			When Last Physical Check-up		
	M+S		NJ	M+S		NJ	M+S		NJ
	% No	N	% No	% Yes	N	% Yes	>2 Years	N	>2 Years
Total Adult Population	15.4	135,427	17.4	12.4	108,463	14.9	10.9	94,600	12.6
Age									
18-64	17.3		20.4	14.1		17.5	12.2		14.4
65+	6.9		5.0	4.4		4.3	5.2		5.0
Gender									
Male	20.3		22.4	12.1		13.8	13.2		15.3
Female	10.9		12.8	12.6		16.0	8.7		10.1
Race-ethnicity									
White non-Hispanic	10.3		12.2	9.2		10.6	11.6		12.9
Black non-Hispanic	13.0		20.6	14.5		18.4	1.9		8.1
Hispanic	33.5		35.2	22.8		29.2	14.8		15.9
Asian non-Hispanic	15.2		14.6	12.1		12.2	9.6		11.1
Other non-Hispanic	--		16.8	--		14.2	--		12.3
Income (household)									
<$25k	34.3		31.0	23.3		29.4	17.6		16.5
$25k to < $50k	17.8		19.1	23.9		21.0	10.6		13.6
$50k +	9.0		9.9	4.9		6.1	8.3		10.8
Don't know/refused	15.1		19.3	14.0		15.0	13.0		11.5
Health Insurance (18-64)									
Insured	11.4		11.5	9.0		10.3	9.3		10.1
Uninsured	58.8		59.5	49.5		49.4	32.5		33.8

Source: Data from 2012 BRFSS; tabulations by Rutgers University Center for State Health Policy.

Data not shown (--) if the unweighted sample size for the denominator was < 50.

Don't know and refused responses excluded unless > 5%, so cell sizes may not total full sample size.

Table 1.7: Dental Utilization by Individual Characteristics, Adults Ages 18+, Middlesex + Somerset Counties (M+S) and Total New Jersey (NJ)

	When Last Dental Visit			1+ Permanent Teeth Removed Due to Decay		
	M+S		NJ	M+S		NJ
	>1 Year	N	>1 Year	% Yes	N	% Yes
Total Adult Population	28.0	244,915	28.8	40.8	348,788	46.3
Age						
18-64	28.9		28.7	34.6		40.1
65+	24.8		29.8	73.3		74.2
Gender						
Male	29.8		31.4	38.5		45.7
Female	26.3		26.4	43.0		46.8
Race-ethnicity						
White non-Hispanic	20.5		23.4	43.0		46.3
Black non-Hispanic	22.7		37.6	51.1		53.6
Hispanic	41.3		39.5	35.6		45.5
Asian non-Hispanic	38.9		33.1	36.7		36.0
Other non-Hispanic	--		30.3	--		47.1
Income (household)						
<$25k	42.9		45.8	50.9		59.3
$25k to < $50k	36.9		32.5	48.0		54.3
$50k +	19.8		19.6	35.7		39.1
Don't know/refused	30.6		28.9	40.0		41.7
Health Insurance (18-64)						
Insured	25.8		23.3	32.4		38.1
Uninsured	50.1		52.9	50.5		49.0

Source: Data from 2012 BRFSS; tabulations by Rutgers University Center for State Health Policy.

Data not shown (--) if the unweighted sample size for the denominator was < 50.

Don't know and refused responses excluded unless > 5%, so cell sizes may not total full sample size.

Table 1.8: Alcohol, Tobacco Use by Individual Characteristics, Adults Ages 18+, Middlesex + Somerset Counties (M+S) and Total New Jersey (NJ)

	Binge Drinker Past 30 days (males 5+, females 4+, 1 occasion)			Current Smoker		
	M+S		NJ	M+S		NJ
	% Yes	N	% Yes	% Yes	N	% Yes
Total Adult Population	14.8	120,656	17.8	12.6	107,430	17.4
Age						
18-64	17.3		21.0	13.5		19.7
65+	3.5		4.4	9.6		8.0
Gender						
Male	20.8		23.8	12.9		20.3
Female	9.3		12.2	12.4		14.6
Race-ethnicity						
White non-Hispanic	18.2		19.8	12.9		17.7
Black non-Hispanic	6.0		11.5	18.9		23.1
Hispanic	16.9		20.5	12.8		16.0
Asian non-Hispanic	7.8		8.5	7.4		8.3
Other non-Hispanic	--		18.0	--		21.7
Income (household)						
<$25k	10.3		14.0	15.0		24.2
$25k to < $50k	12.3		18.5	18.9		21.3
$50k +	18.1		20.8	9.0		13.0
Don't know/refused	10.4		12.9	15.6		16.8
Health Insurance (18-64)						
Insured	18.0		21.4	12.2		17.9
Uninsured	13.2		19.4	22.2		27.6

Source: Data from 2012 BRFSS; tabulations by Rutgers University Center for State Health Policy.

Data not shown (--) if the unweighted sample size for the denominator was < 50.

Don't know and refused responses excluded unless > 5%, so cell sizes may not total full sample size.

Table 1.9: Weight, Exercise by Individual Characteristics, Adults Ages 18+, Middlesex + Somerset Counties (M+S) and Total New Jersey (NJ)

	Weight (BMI Category)						Any Exercise Past 30 Days		
	M+S				NJ		M+S		NJ
	Overweight		Obese		Overweight	Obese			
	%	N	%	N	%	%	% No	N	% No
Total Adult Population	36.0	289,518	23.9	192,568	36.9	24.6	20.0	176,174	25.0
Age									
18-64	34.9		22.5		36.3	24.2	18.7		22.6
65+	42.5		31.4		39.2	27.2	26.6		35.4
Gender									
Male	41.9		27.4		43.9	26.4	17.9		22.6
Female	29.6		20.2		29.8	22.9	22.0		27.1
Race-ethnicity									
White non-Hispanic	34.5		24.7		36.4	24.1	18.5		22.3
Black non-Hispanic	34.8		40.8		36.6	36.2	17.5		27.2
Hispanic	35.9		30.8		40.0	26.2	28.5		34.2
Asian non-Hispanic	40.1		10.6		34.5	8.4	16.8		19.3
Other non-Hispanic	--		--		34.0	21.9	--		29.8
Income (household)									
<$25k	24.9		34.1		35.6	29.1	39.0		36.6
$25k to < $50k	41.5		20.0		38.5	25.4	24.8		29.6
$50k +	38.3		24.4		38.4	23.6	12.9		16.3
Don't know/refused	32.8		15.9		32.0	21.2	19.5		28.9
Health Insurance (18-64)									
Insured	35.7		21.2		35.8	24.4	17.0		20.4
Uninsured	28.9		32.7		39.0	23.3	30.7		32.2

Source: Data from 2012 BRFSS; tabulations by Rutgers University Center for State Health Policy.

Data not shown (--) if the unweighted sample size for the denominator was < 50.

Don't know and refused responses excluded unless > 5%, so cell sizes may not total full sample size.

Table 1.10: Sleep, Falls, Seatbelt Use by Individual Characteristics, Adults 18+, Middlesex + Somerset Counties (M+S) and Total New Jersey (NJ)

	Days Not Enough Rest or Sleep Past 30 Days			Had Fall Past 12 Months (age 45+)			Seatbelt Use		
	M+S		NJ	M+S		NJ	M+S		NJ
	% >2 Days/Wk	N	% >2 Days/Wk	% Yes	N	% Yes	% Not Always	N	% Not Always
Total Adult Population	No Data		No Data	18.4	82,271	20.3	7.9	66,409	11.2
Age									
18-64				17.7		19.3	8.6		11.9
65+				20.1		22.3	4.8		7.7
Gender									
Male				17.9		16.8	10.3		14.7
Female				18.8		23.3	5.7		7.9
Race-ethnicity									
White non-Hispanic				20.8		21.6	7.5		10.7
Black non-Hispanic				--		19.7	9.7		13.7
Hispanic				--		20.2	10.5		12.1
Asian non-Hispanic				--		8.5	5.3		9.0
Other non-Hispanic				--		21.5	21.9		13.5
Income (household)									
<$25k				23.2		24.6	6.9		13.2
$25k to < $50k				22.5		22.3	13.8		11.7
$50k +				15.9		18.1	5.8		9.6
Don't know/refused				18.5		19.4	9.9		12.6
Health Insurance (18-64)									
Insured				17.3		19.6	7.7		10.9
Uninsured				--		17.7	14.7		15.9

Source: Data from 2012 BRFSS; tabulations by Rutgers University Center for State Health Policy.

Data not shown (--) if the unweighted sample size for the denominator was < 50.

Don't know and refused responses excluded unless > 5%, so cell sizes may not total full sample size.

Table 1.11: Influenza Immunization by Individual Characteristics, Adults 18+, Middlesex + Somerset Counties (M+S) and Total New Jersey (NJ)

	Flu Shot/Spray Past Year (all adults)			Flu Spray Past Year (all adults)			Flu Shot Past Year (age 65+)		
	M+S		NJ	M+S		NJ	M+S		NJ
	% No	N	% No	% Yes	N	% Yes	% No	N	% No
Total Adult Population	65.1	549,005	65.3	n/a	n/a	n/a	33.2	47,919	38.7
Age									
18-64	72.2		71.8				n/a		n/a
65+	33.2		38.7				33.2		38.7
Gender									
Male	66.5		68.9				28.7		38.9
Female	63.7		62.1				36.5		38.6
Race-ethnicity									
White non-Hispanic	58.2		60.8				28.6		35.7
Black non-Hispanic	62.2		70.2				--		48.4
Hispanic	84.2		77.5				--		53.7
Asian non-Hispanic	70.5		67.5				--		39.0
Other non-Hispanic	--		66.3				--		52.0
Income (household)									
<$25k	67.9		70.2				29.9		42.5
$25k to < $50k	60.5		65.3				31.1		39.4
$50k +	65.9		63.8				38.4		36.3
Don't know/refused	64.6		63.6				30.8		37.0
Health Insurance (18-64)									
Insured	69.6		68.2				n/a		n/a
Uninsured	89.3		87.4				n/a		n/a

Source: Data from 2012 BRFSS; tabulations by Rutgers University Center for State Health Policy.

Data not shown (--) if the unweighted sample size for the denominator was < 50.

Don't know and refused responses excluded unless > 5%, so cell sizes may not total full sample size.

Table 1.12: Women's Health by Individual Characteristics, Adults 18+, Middlesex + Somerset Counties (M+S) & Total New Jersey (NJ)

	Mammogram Past 2 Years (women age 50+)			Pap Test Past 3 Years (women age 18+)			Had Hysterectomy (women 18+)		
	M+S		NJ	M+S		NJ	M+S		NJ
	% No	N	% No	% No	N	% No	% Yes	N	% Yes
Total Adult Population	18.7	36,730	22.4	21.0	77,689	21.5	11.6	47,908	14.1
Age									
18-64	17.1		21.4	18.3		18.5	7.4		9.1
65+	20.9		23.6	36.1		36.8	28.7		31.9
Gender									
Male	n/a		n/a	n/a		n/a	n/a		n/a
Female	18.7		22.4	21.0		21.5	11.6		14.1
Race-ethnicity									
White non-Hispanic	19.6		23.9	19.0		22.1	13.4		14.8
Black non-Hispanic	--		15.6	--		14.0	--		19.5
Hispanic	--		16.1	13.5		18.2	10.5		9.5
Asian non-Hispanic	--		23.5	37.4		34.8	0.0		6.8
Other non-Hispanic	--		32.7	--		19.2	--		21.9
Income (household)									
<$25k	27.3		29.3	31.0		31.6	19.2		16.1
$25k to < $50k	20.9		23.5	23.6		21.2	20.6		17.1
$50k +	17.0		18.0	15.2		14.2	7.2		11.3
Don't know/refused	12.7		22.9	26.4		27.9	7.6		15.5
Health Insurance (18-64)									
Insured	18.5		19.1	16.3		15.8	7.4		9.2
Uninsured	--		35.6	--		32.0	--		8.7

Source: Data from 2012 BRFSS; tabulations by Rutgers University Center for State Health Policy.

Data not shown (--) if the unweighted sample size for the denominator was < 50.

Don't know and refused responses excluded unless > 5%, so cell sizes may not total full sample size.

Table 1.13: Other Preventive Behaviors by Individual Characteristics, Adults 18+, Middlesex + Somerset Counties (M+S) & Total New Jersey (NJ)

	Blood Stool Test Past 2 Years (age 50+)			Pneumonia Shot Ever (age 65+)			Sigmoidoscopy/Colonoscopy Ever (age 50+)		
	M+S		NJ	M+S		NJ	M+S		NJ
	% No	N	% No	% No	N	% No	% No	N	% No
Total Adult Population	85.7	299,835	87.2	34.7	48,067	38.1	34.0	122,237	35.0
Age									
18-64	89.7		89.3	n/a		n/a	40.6		41.4
65+	79.2		84.2	34.7		38.1	23.7		25.9
Gender									
Male	83.8		86.4	31.5		41.8	28.6		35.3
Female	87.2		87.9	37.0		35.4	38.5		34.8
Race-ethnicity									
White non-Hispanic	83.4		86.6	31.2		32.8	30.9		33.2
Black non-Hispanic	--		84.6	--		42.1	--		35.9
Hispanic	--		90.8	--		64.8	--		37.9
Asian non-Hispanic	--		92.9	--		67.7	--		50.9
Other non-Hispanic	--		84.1	--		61.6	--		43.8
Income (household)									
<$25k	89.3		88.5	27.3		38.9	40.9		45.3
$25k to < $50k	83.5		86.6	25.4		37.0	24.4		36.0
$50k +	86.6		86.9	43.0		38.2	35.0		30.9
Don't know/refused	81.1		87.2	39.0		38.0	34.7		32.9
Health Insurance (18-64)									
Insured	89.7		88.7	n/a		n/a	37.7		37.9
Uninsured	--		93.2	n/a		n/a	--		62.9

Source: Data from 2012 BRFSS; tabulations by Rutgers University Center for State Health Policy.

Data not shown (--) if the unweighted sample size for the denominator was < 50.

Don't know and refused responses excluded unless > 5%, so cell sizes may not total full sample size.

Table 1.13: Other Preventive Behaviors by Individual Characteristics, Adults 18+, Middlesex + Somerset Counties (M+S) & Total New Jersey (NJ)

(continued)

	PSA Test Past 2 Years (men age 40+)			HIV Test Ever (ages 18+)		
	M+S		NJ	M+S		NJ
	% No	N	% No	% No	N	% No
Total Adult Population	55.2	123,194	52.2	67.8	541,702	61.6
Age						
18-64	66.4		61.6	64.2		55.4
65+	20.2		26.0	86.0		88.2
Gender						
Male	55.2		52.2	66.3		61.8
Female	n/a		n/a	69.2		61.4
Race-ethnicity						
White non-Hispanic	44.1		47.1	74.7		68.5
Black non-Hispanic	--		56.9	44.8		34.5
Hispanic	--		65.1	50.3		49.9
Asian non-Hispanic	--		67.8	74.9		76.4
Other non-Hispanic	--		61.4	56.6		59.7
Income (household)						
<$25k	--		63.1	65.5		54.7
$25k to < $50k	--		53.9	61.6		59.8
$50k +	55.3		48.5	68.1		62.8
Don't know/refused	--		50.5	77.0		68.9
Health Insurance (18-64)						
Insured	63.4		57.1	63.9		56.2
Uninsured	--		85.6	65.6		51.3

Source: Data from 2012 BRFSS; tabulations by Rutgers University Center for State Health Policy.

Data not shown (--) if the unweighted sample size for the denominator was < 50.

Don't know and refused responses excluded unless > 5%, so cell sizes may not total full sample size.

Chapter 2: Avoidable Hospitalizations and Emergency Department Visits: An Analysis of Hospital Discharge Data

Introduction

In this chapter, we examine rates of specific inpatient hospitalizations and treat-and-release emergency department (ED) visits by patients that could have been avoided or prevented if these patients had adequate availability of primary care within their communities. We use the all-payer New Jersey uniform billing hospital data to calculate geographic area-level rates of such avoidable hospitalizations and ED visits to assess the extent of primary care available within communities. We examine these within the combined service areas of hospitals (comprising all of Middlesex County along with the townships of Somerset and Franklin Park from Somerset County) and compare to New Jersey overall. We also examine these rates by patient characteristics including age, gender, race/ethnicity and health insurance payer, examine payer, racial, age and gender distribution of avoidable visits, and also illustrate variation in these rates among townships within the hospital's overall service area.

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). These hospitalizations can be used to identify unmet community health care needs since these conditions can be avoided by high quality community based primary care (AHRQ 2012a). Based on easily available hospital discharge data, they allow public health agencies, provider/payer systems, and others interested to assess the health care quality in their communities (AHRQ 2012a) and subsequently devise targeted interventions to address gaps. The avoidable/preventable ED visits are also similarly used for identifying gaps in care, but they utilize outpatient, treat-and-release visits that do not result in an overnight hospital stay (Billings, Parikh, and Mijanovich 2000). The methods used here have been applied successfully in several other studies (DeLia 2006; Ballard et al. 2010) and are included in the Agency for Healthcare Research and Quality (AHRQ) toolkit for monitoring the healthcare safety net (Billings 2003).

Avoidable Hospitalizations: To calculate rates of avoidable hospitalizations (that could have been avoided with sufficient primary care availability), we use a methodology created by the AHRQ

that calculates area-level rates of hospitalizations due to ambulatory care sensitive (ACS) conditions such as asthma or congestive heart failure. As the name suggests, ACS hospitalizations could occur due to insufficient access or poor quality of ambulatory care within the community. AHRQ provides the necessary analytic methodology and clinical information to construct rates of ACS hospitalizations in the population (see methods section for details). The rates constructed on the basis of these methods are known as 'Prevention Quality Indicators' (PQI) and we will use this term in this chapter to refer to rates of avoidable hospitalizations.

Avoidable Emergency Department Visits: In order to construct rates of preventable/avoidable ED visits, we use an algorithm to assess access to primary care within the primary services areas of the two hospitals. Similar in concept to the Prevention Quality Indicators, these avoidable ED rates are calculated from treat-and-release ED visits that could have been treated in a primary care setting or avoided if the patient had sufficient access to timely and effective primary care. The algorithm was created by researchers from the New York University (NYU) Center for Health and Public Service Research. Details regarding the different categories of these ED visits are provided below in the methods section.

Methods

Avoidable Hospitalizations: We use the AHRQ created Prevention Quality Indicators (PQI) which represent rates of avoidable ACS hospitalizations. These ACS hospitalizations are for certain chronic or acute conditions such as diabetes, COPD, angina, heart failure, etc., that could have been potentially avoided with an adequate level of primary care. We utilize an AHRQ defined *overall* PQI composite measure that is used to assess the overall rate of potentially avoidable hospitalizations. The individual PQIs are based on rates of hospitalizations for individual conditions. The composite indicator, constructed from the individual condition specific PQIs should be interpreted as the number of discharges indicating any one of the ACS conditions per unit of population in an area. This overall composite measure can be subdivided into an acute as well as a chronic composite measure depending on the nature of the conditions. Detailed methods on calculating the prevention quality indicators (PQIs) can be found at http://www.qualityindicators.ahrq.gov/modules/pqi_resources.aspx and we follow these methods. Appendix 2.B gives a list of all the ACS conditions while Appendix 2.C lists the constituents of the three composite indicators (overall, acute and chronic). While we report the rates of individual disease specific conditions and all three composites (overall, chronic and acute), our focus is on the overall composite measure since it gives a comprehensive measure of primary care access within the community and is thus the most useful for making comparisons between different geographic areas. The AHRQ Prevention Quality Indicators are assessed for age groups 18 years and above. As a separate analysis, we report selected rates based on

Pediatric Quality Indicators that focus on rates of avoidable hospitalizations within the younger population.

Avoidable Emergency Department Visits: Rates of avoidable ED visits are calculated utilizing a detailed algorithm and programming available at http://wagner.nyu.edu/faculty/billings/nyued-background.php. The New York University Center for Health and Public Service Research (based on advice from a panel of ED and primary care physicians) initially developed an algorithm to classify ED utilization based on information from full medical records. ED utilization was classified into a) Non-emergent: immediate medical care was not required within 12 hours; b) Emergent/Primary Care Treatable: treatment was required within 12 hours, but could have been provided in a primary care setting; c) Emergent – ED Care Needed –Preventable/Avoidable: ED care was needed but the emergent nature of the condition was potentially avoidable if timely ambulatory care had been received; d) Emergent – ED Care Needed – Not Preventable/Avoidable: ED care was required and ambulatory care treatment could not have prevented the condition. Only the first three categories are considered avoidable. Detailed definitions of these classifications are provided with examples in Appendix 2.D. For hospital discharge data, the information in billing records is not sufficient to place ED visits directly into these categories. Therefore, the algorithm uses diagnosis codes from discharge records to impute the probability of a visit belonging to each of these categories. The sum of the probabilities of a visit belonging to the first three categories is the measure of it being avoidable if there was sufficient primary care access within the community. The algorithm allows calculation of these rates for patients of all ages.

Data and Analysis: We calculate the above-mentioned area-level rates of avoidable hospitalizations and ED visits for the hospitals' primary service area and New Jersey overall by using hospital inpatient discharges and ED visits over the period 2011-2013. Pooling of discharges/visits across multiple years ensures stable and reliable rates. For calculating geographic area-level measures, only those discharges with valid zip codes having non-zero population can be used. The 2009-2013 population for each zip code is available from the American Community Survey (ACS). The population for the first Community Health Needs Assessment report used population data from Nielsen Claritas, which derived estimates from the 10-year Census data. As Nielsen has since moved to using ACS data, which is publicly available, we use data for this report directly from the ACS. Please note that trends over time should be used with caution due to the different methodologies. Consequently, we report here trends for the combined hospital catchment area and the state overall, but not for the individual zip codes. For PQI/avoidable hospitalization rates, which are applicable for adult populations, we take population in the age range 18 and above as the relevant denominator. For avoidable ED visit rates which are assessed for all ages, we take total population as the denominator for calculating

population based rates. We report two other categories of measures: (1) the distribution of patient and payer characteristics within all avoidable hospitalizations and ED visits; (2) percentages of avoidable hospitalizations and ED visits out of all hospitalizations and ED visits stratified by patient characteristics (age, gender, and race) and payer type. All these are assessed for the primary service area of the hospitals that for the purposes of this analysis comprise all of Middlesex County and the townships of Somerset and Franklin Park from Somerset County (see Appendix 2.A for the complete list of towns and zip codes). We calculate avoidable hospitalizations and ED visits for individual towns within the primary service areas of the hospitals as well as the aggregated combined service area. We compare these to the benchmark New Jersey overall rate. For computing hospitalization/ED visit measures for different geographic areas, the relevant geographic identifier is patient residence, not the location of the hospital where discharge occurred (AHRQ 2012b). The measures for an area are thus based on avoidable hospitalizations and ED visits for patients residing in that area, but the discharge may be from any hospital even those outside that area.

Findings

Tables 2.1-2.13 at the end of the chapter contain rates of avoidable hospitalizations and emergency department visits – overall and by patient and payer characteristics, and also distribution of these characteristics for avoidable hospitalizations and ED visits. Rates above the average are highlighted in light red and those below the average in light green. Figures 2.1-2.10 interspersed within the text highlight some of the overall findings. The tables are followed by appendices 2.A-2.D which contain details related to the data and methods discussed above.

Overall Rates of Avoidable Visits

Table 2.1 utilizes the overall Prevention Quality Indicator (PQI) composite measure to examine rates of avoidable hospitalization for adults. It also examines rates of avoidable ED visits for children as well as adults. Higher rates suggest lower access to primary care.

- For the combined service area of the hospitals, the rate of avoidable hospitalizations (calculated for adults of age 18 or older) was 1.32 per 100 population, lower than the 1.65 rate for New Jersey overall (also see Figure 2.1). Both of these rates were down slightly from the 1st CHNA report.
    - Avoidable hospitalization rates varied from a low of 0.52 in Plainsboro to a high of 2.32 in Monroe Township and Spotswood.
- For avoidable ED visits (all ages), the combined hospital service area had a rate of 13.06 per 100 population, lower than the benchmark New Jersey rate of 15.34 (also see Figure 2.2). Both of these rates increased slightly from the 1st CHNA report.

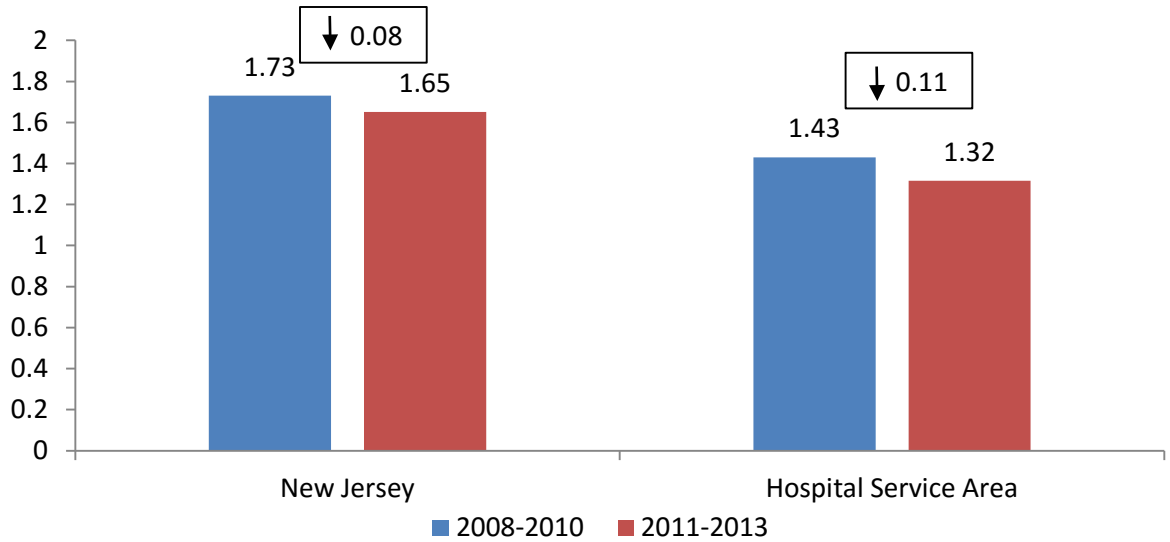
- Avoidable ED visit rates ranged from a low of 5.91 in Dayton to a high of 31.97 in New Brunswick.

- Within the non-adult population (age<18 years) the combined service area had a slightly higher avoidable ED visit rate (16.36) than NJ (15.84). This rate increased slightly for the combined service area, but decreased slightly for the state from the 1st CHNA report. This was more than offset by the lower rate within the adult population of the combined service area (12.10 vs. 15.19). Both these rates increased slightly from the 1st CHNA report.

Table 2.2 examines rates of all hospitalizations and all ED visits out of total population. It further examines avoidable hospitalizations and ED visits as a percentage of all hospitalizations and ED visits.

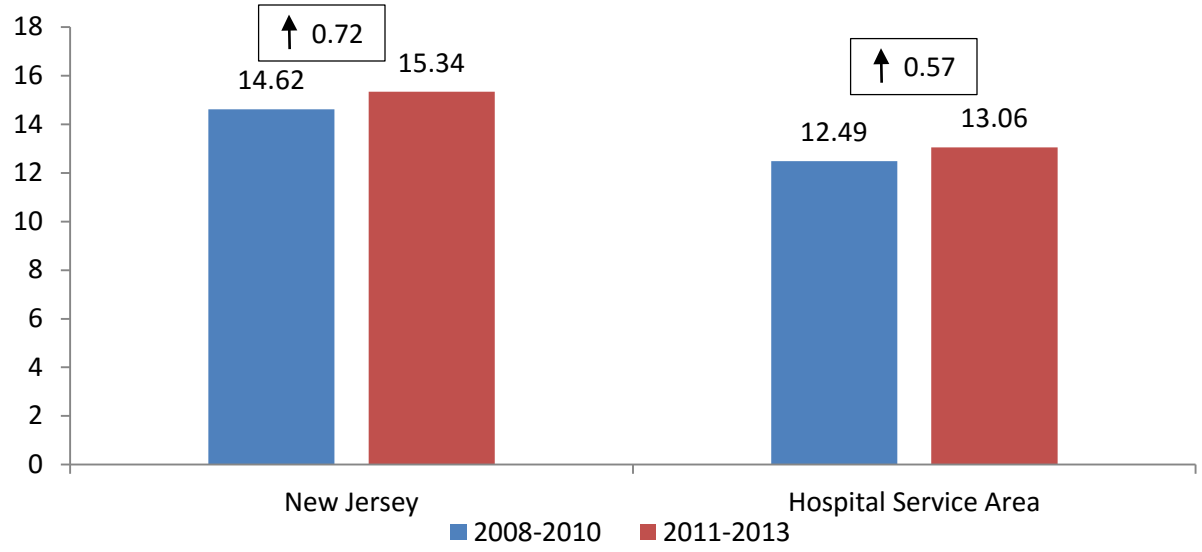
- Rates of all hospitalizations (per 100 population) were 10.66 and 12.05 for the combined service area and NJ respectively. Both rates decreased from the 1st CHNA report.
- Rates of all ED visits (per 100 population) were 27.44 and 32.80 for the combined service area and NJ respectively. Both rates increased slightly from the 1st CHNA report.
- The percentage of avoidable hospitalizations (out of all hospitalizations) was lower and the percentage of ED visits (out of all ED visits) was higher for the combined service area compared to NJ overall (12.34% vs. 13.71% and 47.58% v 46.78% respectively). Hospitalization rates increased slightly for the combined hospital area and the state, while ED visit rates remained virtually the same for both.

Figure 2.1: Avoidable Hospitalization Rate (per 100 population)



2008-2010 Source: Numerator: Average annual visits over 2008-10; Denominator: 2010 population from Nielsen Claritas.
2011-2013 Source: Numerator: Average annual visits over 2011-13; Denominator: 2009-13 population from American Community Survey.

Figure 2.2: Avoidable ED Visit Rate (per 100 population)



2008-2010 Source: Numerator: Average annual visits over 2008-10; Denominator: 2010 population from Nielsen Claritas.
2011-2013 Source: Numerator: Average annual visits over 2011-13; Denominator: 2009-13 population from American Community Survey.

Table 2.3 examines the acute and the chronic composite measures (see appendix 2.C for the specific conditions) for avoidable hospitalizations that make up the overall composite measure.

- The acute and the chronic PQI rates for the combined service area were 0.46 and 0.86 per 100 population, both down from the 1st CHNA report.
- The acute and chronic PQI rates for NJ overall were lower: 0.56 and 1.09 respectively. The acute PQI rate for the state was down from the 1st CHNA report, while the chronic PQI rate remained virtually the same.

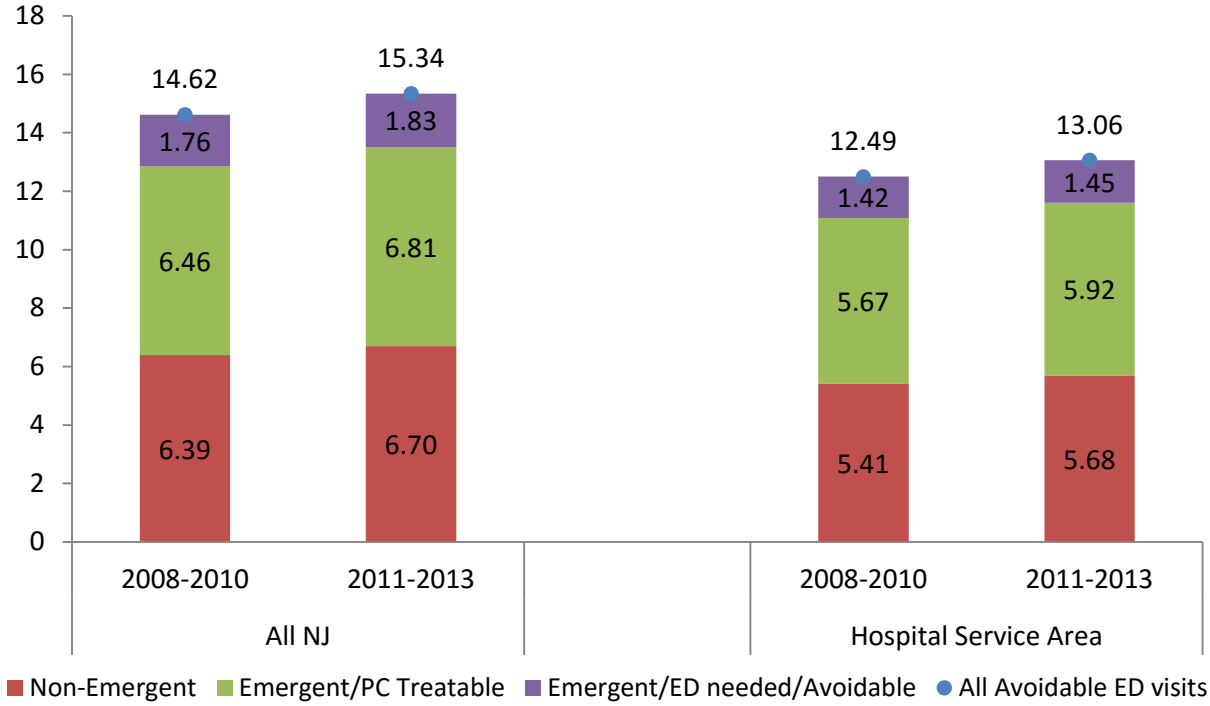
Table 2.4 reports the individual PQI measures (avoidable hospitalizations for individual conditions) as detailed in appendix 2.B.

- Within the combined service area of the hospitals, the highest rates of avoidable hospitalization were for the conditions chronic obstructive pulmonary disease (COPD)/asthma in older adults and congestive heart failure (CHF) (0.26 and 0.34 per 100 population). Rates for both conditions decreased, however, from the 1st CHNA report, particularly for COPD/asthma.
- For overall NJ, the congestive heart failure rate was higher at 0.40 per 100 population, but the same for COPD/asthma at 0.26 per 100 population. Rates for both conditions decreased from the 1st CHNA report, again more so for COPD/asthma.

Table 2.5 reports overall rates of avoidable ED visits as well as the type of visit based on the classification scheme mentioned earlier (also see Figure 2.3).

- Rate of avoidable ED visits per 100 population was 13.06 and 15.34 in the hospital service area and NJ overall respectively, both increases from the 1st CHNA report.
- Within the hospital service area we examined avoidable ED visits based on whether they were a) Non-emergent; b) Emergent/Primary Care Treatable; c) Emergent/ED care Needed/Preventable/Avoidable. Rates of ED visits based on these respective categories were 5.68, 5.92, and 1.452 per 100 population, all increases from the 1st CHNA report
- The corresponding rates for NJ overall were higher at 6.70, 6.81, and 1.83, respectively, also all increases from the 1st CHNA report.

Figure 2.3: Rates and Composition of Avoidable ED Visits (per 100 population)



2008-2010 Source: Numerator: Average annual visits over 2008-10; Denominator: 2010 population from Nielsen Claritas.
2011-2013 Source: Numerator: Average annual visits over 2011-13; Denominator: 2009-13 population from American Community Survey.

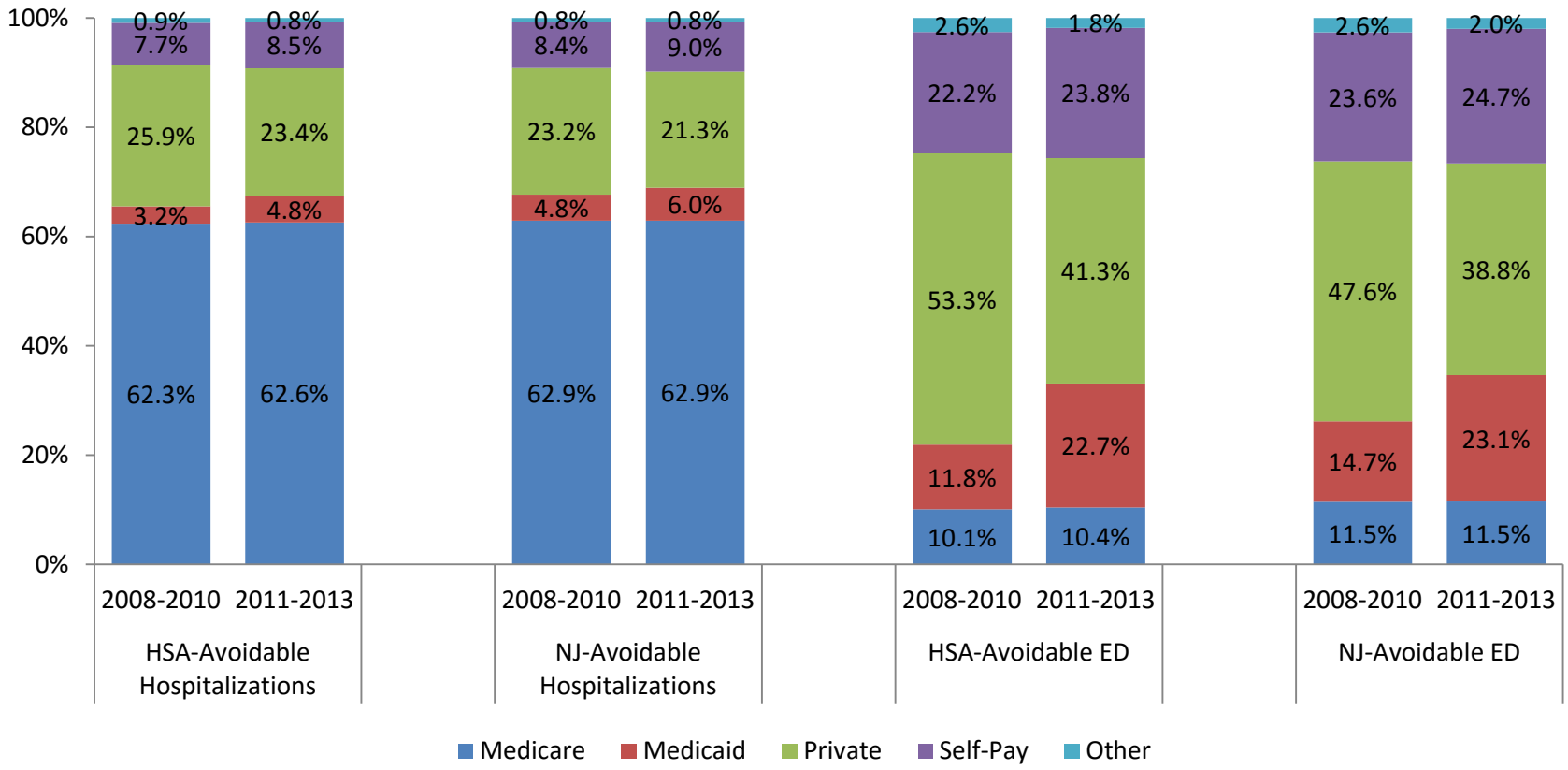
Distribution of Avoidable Visits: Patient and Payer Characteristics

Tables 2.6-2.9 characterize the avoidable hospitalizations and ED visits by examining distribution of patient and payer characteristics for these avoidable visits. Examining the demographic/payer characteristics of specifically those patients who had avoidable hospitalizations/ED visits may inform interventions within areas which experience high rates signifying barriers in access to care.

Tables 2.6a and 2.6b (and also Figure 2.4) examine the payer distribution of avoidable hospitalizations and ED visits. This answers questions such as: out of those hospitalizations that were found to be avoidable, what percentage were Medicare paid, what percentage were Medicaid paid, and so on.

- The payer distribution for avoidable hospitalizations, as well as avoidable ED visits was similar between NJ overall and the hospital service area (see Table 2.6a and Figure 2.4).
- For the hospital service area, the majority (62.57%) of avoidable hospitalizations was Medicare-paid and more than a quarter (23.427%) was paid for by private insurance. The pattern was similar to the 1st CHNA report, with slight increases in % Medicaid and % self-pay, and a slight decrease in % private insurance.
- While the dominant payer was Medicare, there was substantial variation across towns in the percentage of avoidable hospitalizations paid by Medicare. This varied from 43.48% in Helmetta to 79.98% in Monroe Township; some of this variation was likely driven by the age distribution within these avoidable hospitalizations (See Table 2.6a for these details).
- The payer distribution for avoidable ED visits was strikingly different from the above (Table 2.6b and Figure 2.4). The majority of the avoidable ED visits were private insurance-paid (41.27% for the combined hospital service area and 38.27% for NJ overall). However, these rates were down roughly 10 percentage points from the 1st CHNA report.
- The decrease in private pay ED visits compared to a roughly 10 percentage point increase in Medicaid-paid ED visits for both the hospital service area and the state (22.72% and 23.10%, respectively).
- ED visits from self-pay/uninsured patients were similar to Medicaid-paid: 23.83% for the combined service area and 24.66% for NJ overall. However, these changed little from the 1st CHNA report.
- The high percentage of self-pay patients among avoidable ED visits highlights the significant barriers to primary care that are faced by the uninsured population who subsequently visit the ED.
- The higher percentage of Medicare-paid discharges within avoidable hospitalizations suggests patients for whom barriers in access resulted in a hospitalization primarily constituted the elderly.

Figure 2.4: Payer Distribution of Avoidable Hospitalizations and ED Visits



HSA: Hospital service area.
2008-2010 Source: Numerator: Average annual visits over 2008-10; Denominator: 2010 population from Nielsen Claritas.
2011-2013 Source: Numerator: Average annual visits over 2011-13; Denominator: 2009-13 population from American Community Survey.

Table 2.7 examines the age distribution of avoidable hospitalizations and ED visits.

- The majority of the avoidable hospitalizations were by the elderly (age 65+) as the results above (relating to Medicare being a primary payer) had suggested.
- For the combined hospital service area, 63.16% of the discharges representing an avoidable hospitalization was by an elderly person, a slight increase from the 1st CHNA report. The corresponding percentage for NJ overall was 60.77%, unchanged from the 1st CHNA report.
- Those who had an avoidable ED visit were less likely to be elderly and more likely to be in the age groups 0-17 or 18-39. The percentages of avoidable ED visits that were in these age groups for the combined hospital service area were 34.74 (up from the 1st CHNA report) and 34.24, respectively, and for NJ overall were 28.73% and 36.75% respectively, little changed from the 1st report.

Table 2.8 examines the gender distribution of avoidable hospitalizations and ED visits.

- There was little difference in the gender distribution between the hospital service area and NJ overall.
- For avoidable hospitalizations, the percentage of females were slightly lower for the hospital service area (54.31%) compared to NJ overall (55.61%), and both decreased slightly from the 1st report.
- Similarly for avoidable ED visits, the percentage of females were slightly lower for the hospital service area (58.26%) compared to NJ overall (58.81%), and both decreased slightly from the 1st report.

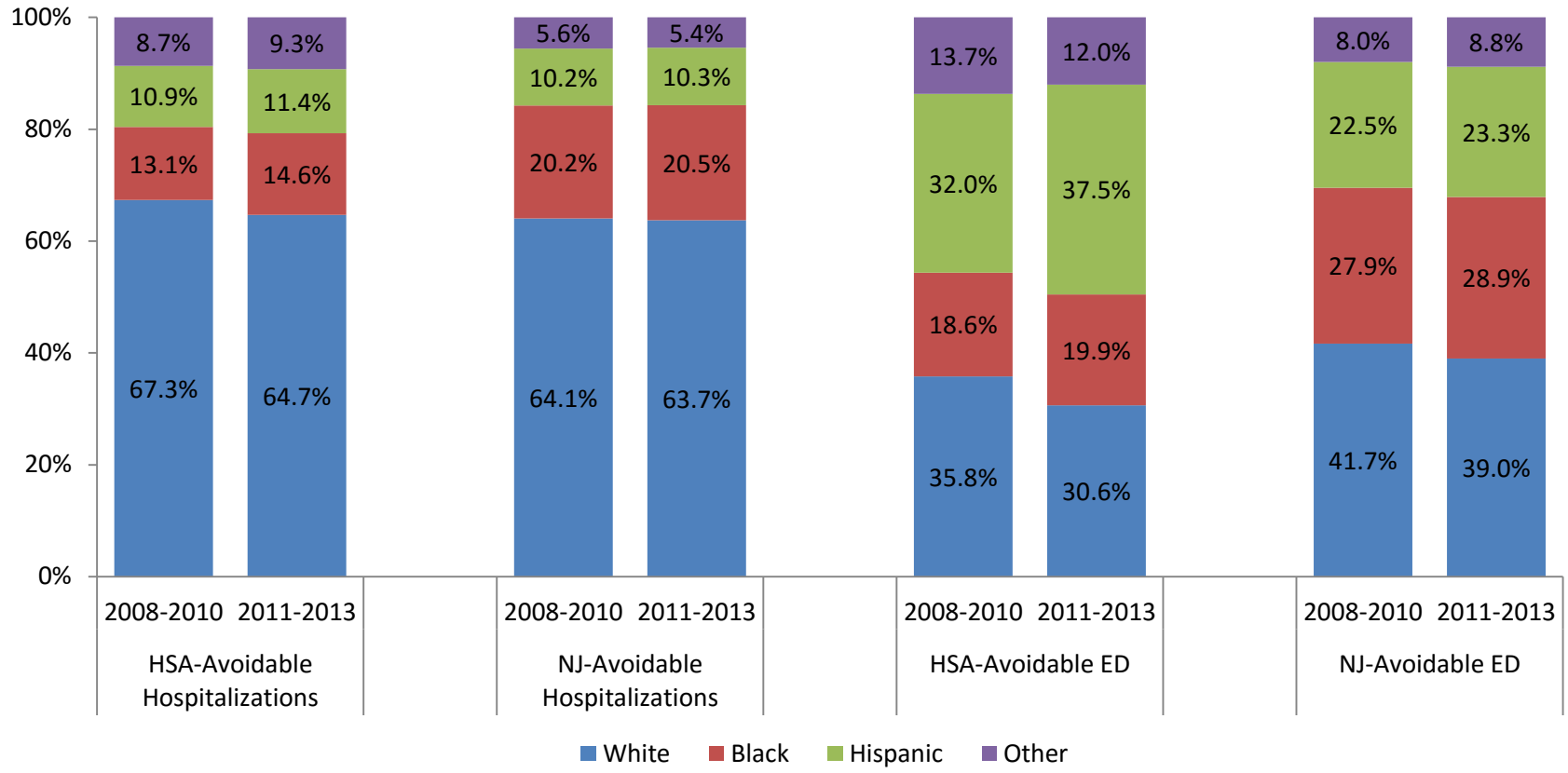
Tables 2.9a and 2.9b (along with Figure 2.5) examine the race/ethnicity distribution of avoidable hospitalizations and ED visits.

- Within the combined hospital service area, the majority of the avoidable hospitalizations comprised patients who were white (64.68%) followed by blacks (14.64%) and Hispanics (11.44%) (see Table 2.9a and Figure 2.5). These rates were down slightly for whites and up slightly for blacks and Hispanics.
- This was similar to the percentage composition of avoidable hospitalizations for NJ overall for white and Hispanics, but not blacks: - whites comprised 63.75% of avoidable hospitalizations and Hispanics comprised 10.31%, but the percentage of avoidable hospitalizations that blacks constituted was considerably higher in NJ (20.54%) than in the service area (14.64%). This pattern was basically the same in the 1st report.
- The racial and ethnic distribution of avoidable ED visits is markedly different from those for avoidable hospitalizations (see Table 2.9b and Figure 2.5). The percentage of whites decreases (30.61% for hospital service area and 38.987% for NJ overall, both down from the 1st report), while the percentage of Hispanics increases sharply to 37.50% for hospital

service area (and higher than the 1st report) and 23.26% for NJ overall (about the same as the 1st report).

- The composition of minority patients among avoidable ED visits is different for the hospital service area compared to NJ overall.
    - Hispanics comprised the largest segment of minority patients with avoidable ED visits (37.50%) for the combined hospital service area. This was also higher than the percentage for whites (30.61%).
    - For NJ overall, blacks accounted for the largest proportion of avoidable ED visits by minorities (28.92%) followed by Hispanics at 23.26%.

Figure 2.5: Race-Ethnicity Distribution of Avoidable Hospitalizations and ED Visits



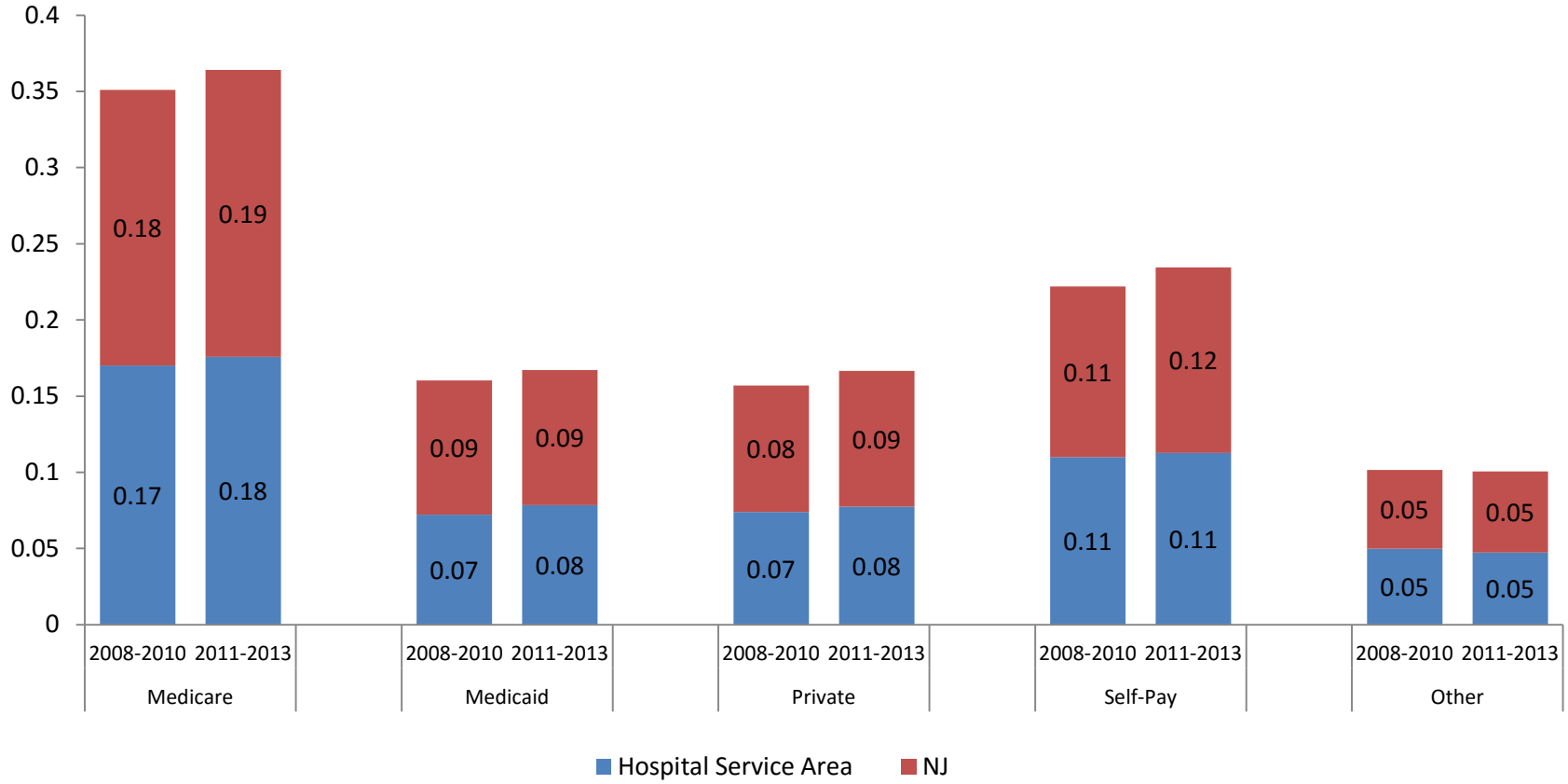
HSA: Hospital service area.
2008-2010 Source: Numerator: Average annual visits over 2008-10; Denominator: 2010 population from Nielsen Claritas.
2011-2013 Source: Numerator: Average annual visits over 2011-13; Denominator: 2009-13 population from American Community Survey.

Avoidable Visits Stratified by Patient and Payer Characteristics

Tables 2.10-2.12 report percentages of avoidable hospitalizations and ED visits out of all hospitalizations and ED visits during 2011-2013 stratified by patient demographics and payer type (also see Figures 2.6-2.9 for stratification of these rates by payer category and patient race). These inform us as to which patient groups (based on demographic characteristics and insurance type) have the greatest likelihood of facing barriers to care within the community. This in turn allows better targeting of interventions to vulnerable and high need patient groups.

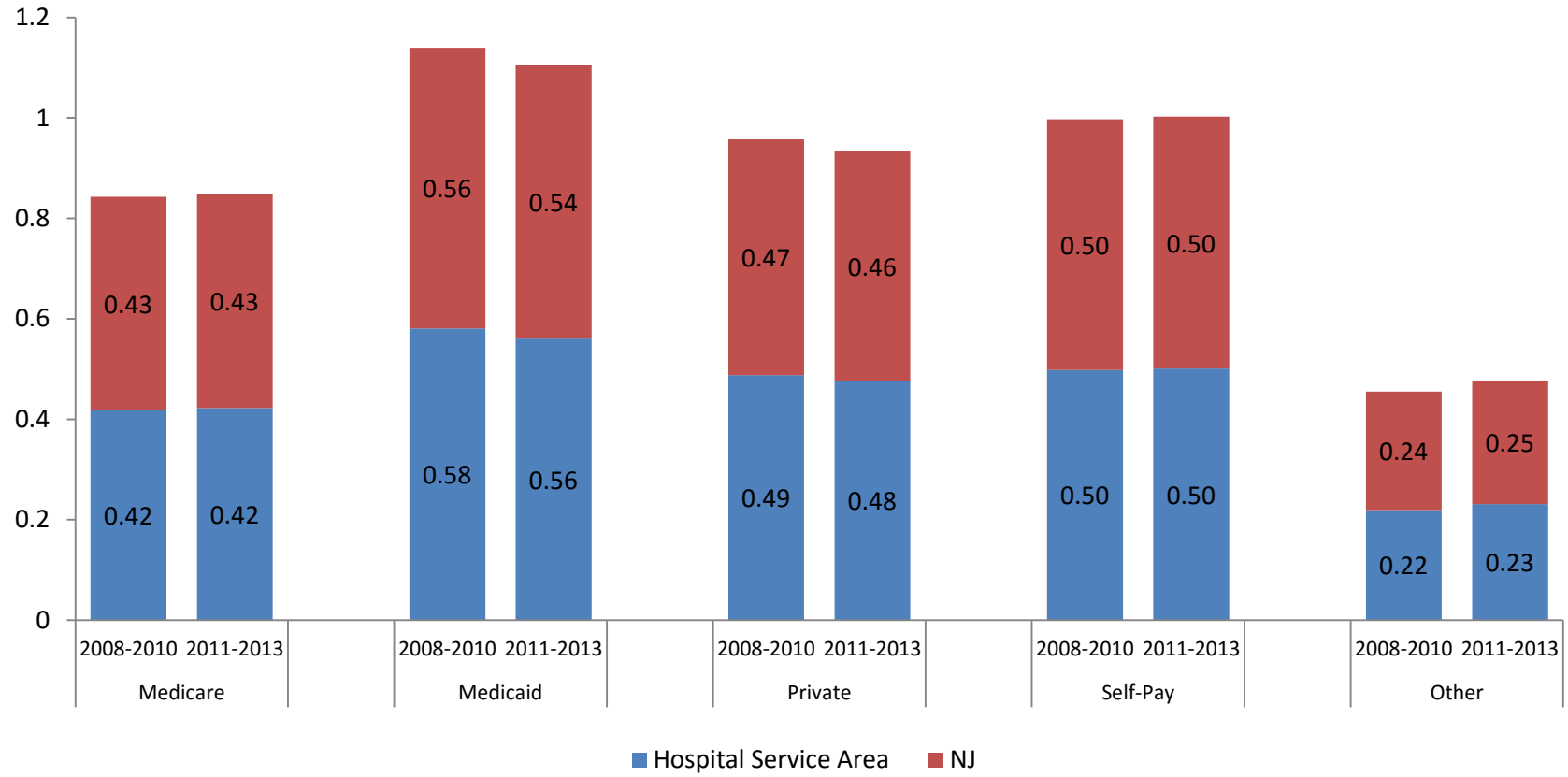
- For the combined hospital service area, the percentage of avoidable hospitalizations were highest within Medicare-paid hospitalizations: out of all hospitalizations that were Medicare paid, 17.58% were deemed avoidable. This was followed by hospitalizations that belonged to payer type uninsured/self-pay (11.28%) (See Table 2.10a and Figure 2.6). Both increased slightly from the 1st report.
- For NJ overall, the percentages of Medicare and self-pay/uninsured inpatient discharges that were avoidable were similar to the service area, but slightly higher (18.83% and 12.18% respectively), and both increased slightly from the 1st report.
- For avoidable ED visits (see Table 2.10b and Figure 2.7), unlike avoidable hospitalizations, Medicaid-paid visits had the highest percentage of avoidable visits (56.06% of Medicaid paid visits in the service area and 54.39% in NJ were avoidable, and both decreased slightly from the 1st report).
- The next highest group for avoidable ED visits was again the self-pay/uninsured group (50.11% for the combined hospital area and 50.13% for the state). These increased very slightly from the 1st report.

Figure 2.6: Percent of Avoidable Hospitalizations by Payer



2008-2010 Source: Numerator: Average annual visits over 2008-10; Denominator: 2010 population from Nielsen Claritas.
2011-2013 Source: Numerator: Average annual visits over 2011-13; Denominator: 2009-13 population from American Community Survey.

Figure 2.7: Percent of Avoidable ED Visits by Payer

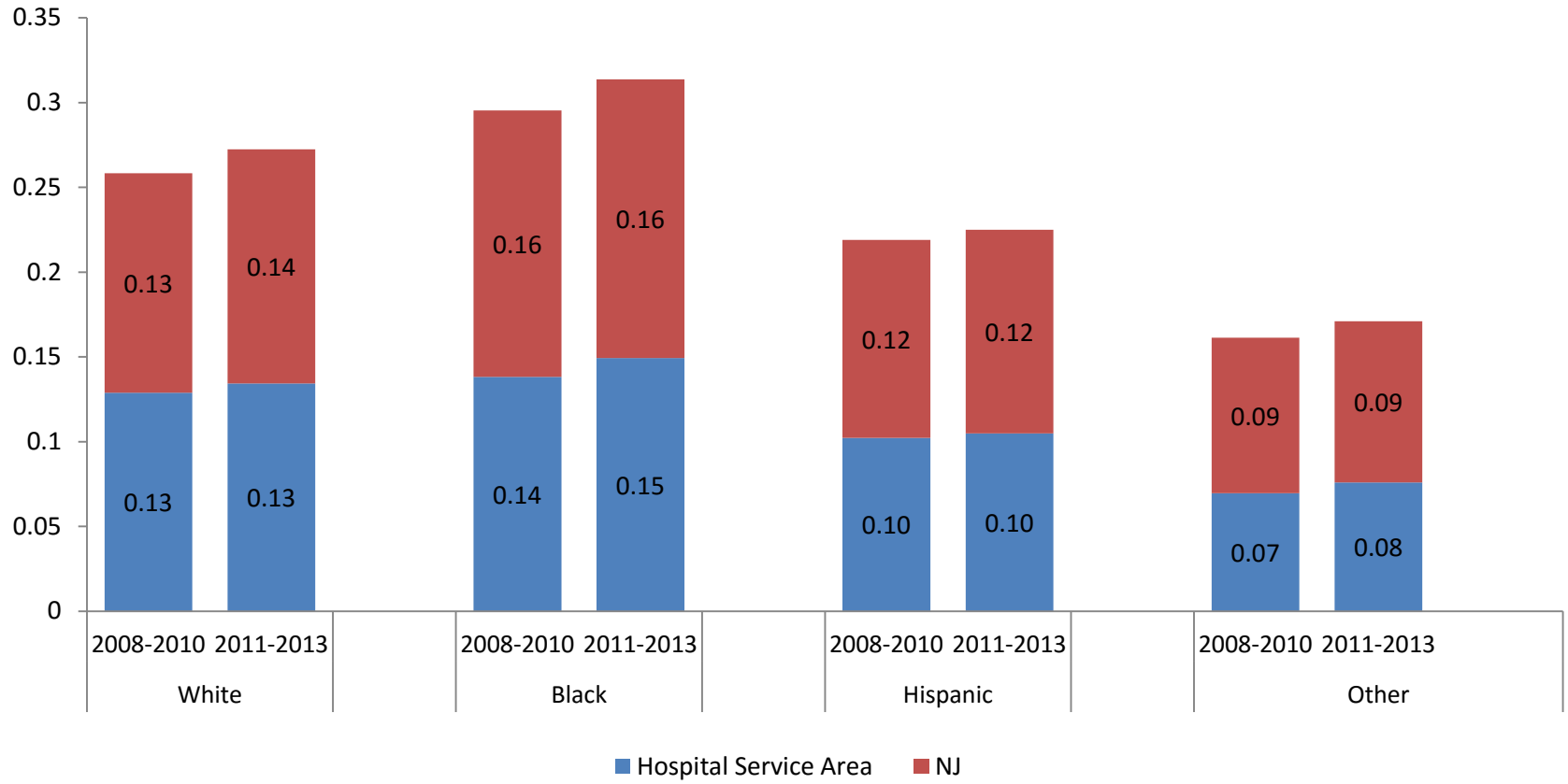


2008-2010 Source: Numerator: Average annual visits over 2008-10; Denominator: 2010 population from Nielsen Claritas.
2011-2013 Source: Numerator: Average annual visits over 2011-13; Denominator: 2009-13 population from American Community Survey.

Tables 2.11a and Figure 2.8 examine percentages of avoidable hospitalizations among all hospitalizations characterized by race/ethnicity. Similarly Table 2.11b and Figure 2.9 examine percentages of avoidable ED visits among all ED visits characterized by race/ethnicity.

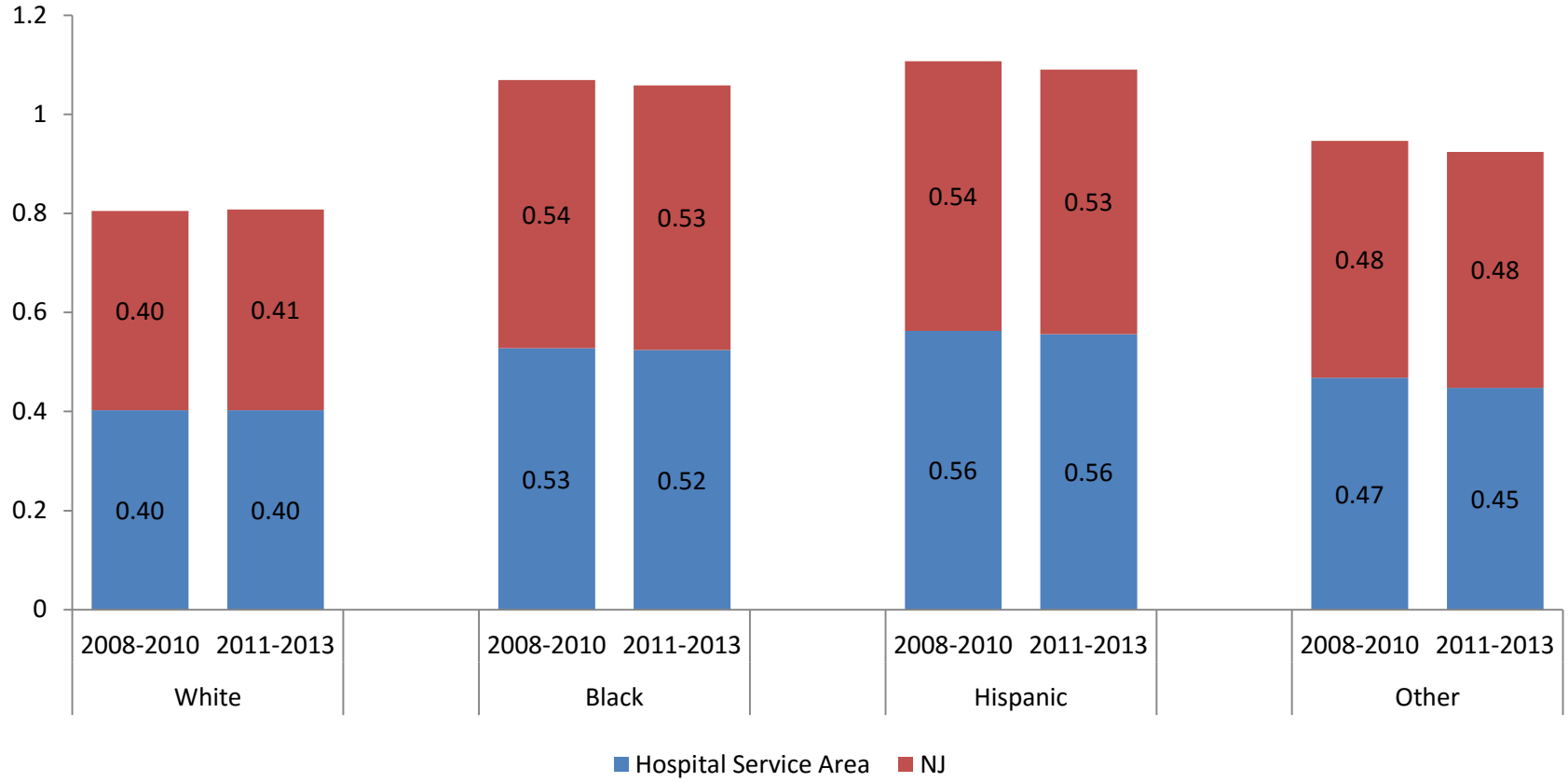
- Percentage of avoidable hospitalizations out of all hospitalizations was highest for black patients (14.93% for the hospital service area and 16.43% for NJ overall, both increases from the 1st report) (see Table 2.11a and Figure 2.8).
- This was followed by whites: 13.44% for the hospital service area and 13.80% for NJ overall, also both increases from the 1st report.
- For the hospital service area, the highest percentages of avoidable ED visits out of all ED visits were for Hispanic and black patients (55.65% and 52.42% respectively, both down slightly from the 1st report) (see Table 2.11b and Figure 2.9).
- New Brunswick had the highest percentage of avoidable ED visits out of all ED visits in the Hispanic population at 59.68%.
- The percentages of avoidable ED visits (out of all ED visits) for NJ overall were similar, although slightly lower than the combined service area for Hispanics (53.36% v 55.65%) and slightly higher for blacks (53.40% v 52.48%). All of these rates were slightly lower than the 1st report.
- These findings point to racial disparities in access to care within the combined service area as well as NJ overall: being a minority patient increased the likelihood of an ED visit being avoidable.

Figure 2.8: Percent of Avoidable Hospitalizations by Race-Ethnicity



2008-2010 Source: Numerator: Average annual visits over 2008-10; Denominator: 2010 population from Nielsen Claritas.
2011-2013 Source: Numerator: Average annual visits over 2011-13; Denominator: 2009-13 population from American Community Survey.

Figure 2.9: Percent of Avoidable ED Visits by Race-Ethnicity



2008-2010 Source: Numerator: Average annual visits over 2008-10; Denominator: 2010 population from Nielsen Claritas.
2011-2013 Source: Numerator: Average annual visits over 2011-13; Denominator: 2009-13 population from American Community Survey.

Table 2.12a examines percentages of avoidable hospitalizations out of all hospitalizations characterized by age and gender. Similarly Table 2.12b examines percentages of avoidable ED visits out of all ED visits characterized by age and gender.

- Avoidable hospitalizations comprised a higher percentage of all hospitalizations for male patients than for female patients in the combined hospital service area as well as NJ overall (see Table 2.12a).
- Examining hospitalizations categorized by age, we find that the percentage of avoidable hospitalizations was highest out of hospitalizations by the elderly population.
- 14.06% of hospitalizations by male patients, 11.19% of hospitalizations belonging to female patients, and 17.79% of hospitalizations belonging to patients in the age group 65 and above were avoidable hospitalizations (for the combined service area), and all increased slightly from the 1st report.
- Avoidable ED visits showed a different trend for both gender and age (See Table 2.12b). The percentage of avoidable ED visits out of all ED visits was higher for female patients (51.91%) relative to male patients (42.43%) for the combined service area. It was also the highest for the age groups of 0-17 (50.58%) and 18-39 (49.31%). All of these rates changes little from the 1st report.

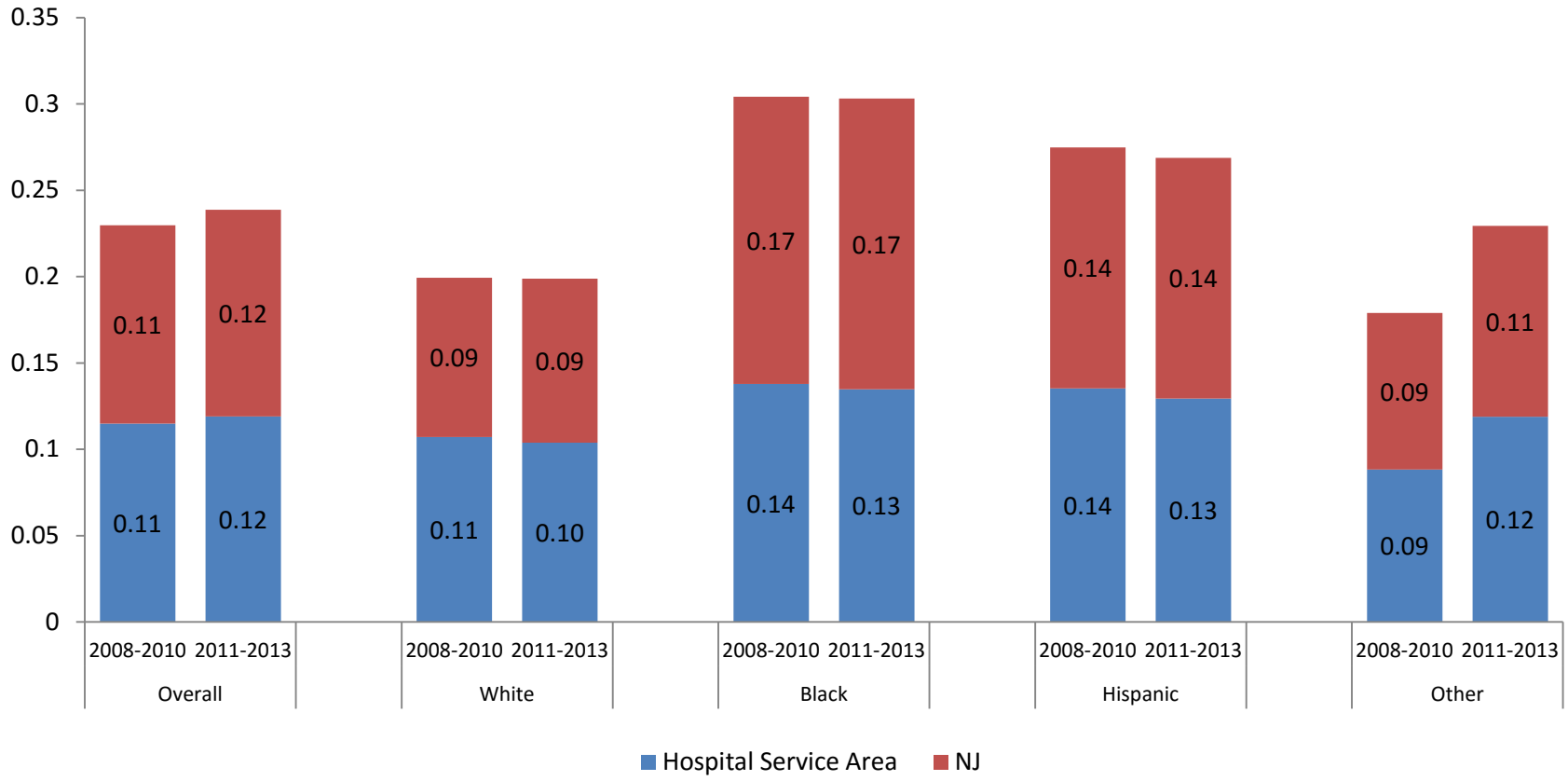
Avoidable Pediatric Hospitalizations

Tables 2.13 and Figure 2.10 report AHRQ Pediatric Quality Indicators (PDIs) that assess access to and quality of ambulatory care in a given area (Battelle 2012) by examining an overall composite rate for avoidable pediatric hospitalizations. Due to the comparatively fewer number of discharges, we are not able to calculate rates for individual cities and the reported rates must be interpreted with caution. Here, we examine overall rates for the combined service area and compare to overall NJ as benchmark.

- The overall composite rate of avoidable pediatric hospitalizations within the service area of the hospitals was 2.0 per 1000 population, similar to that of NJ overall which was 1.7 per 1000 population, and similar to the 1st report.
- There was little difference in avoidable hospitalizations as a percentage of all pediatric hospitalizations between the combined service area and NJ overall (11.91% and 11.97%, respectively).
- The majority of the avoidable pediatric hospitalizations were private insurance-paid (67.82% for the combined service area and 59.29% for NJ overall), both down roughly 10 percentage points from the 1st report. The percentage of Medicaid pediatric hospitalizations increased about 10 percentage points from the 1st report.
- The racial distribution of avoidable hospitalizations within the combined service area was different from NJ overall. Hispanics comprised a higher percentage of avoidable pediatric hospitalizations compared to blacks within the combined hospital service area (29.50% v

19.03%). However, Hispanic children comprise 27.31% and black children comprise 13.12% of the child population in the hospital service area, so the avoidable hospitalization rates for black children are proportionately higher. White children comprised 31.03% of avoidable hospitalizations, but 58.57% of the child population in the hospital service area. For NJ overall, Hispanics accounted for a slightly lower percentage of avoidable hospitalizations compared to blacks (23.74% v 26.28%). Whites comprised 38.39% of the avoidable hospitalizations. The patterns for the hospital service area were similar to the 1st report, although there was a decrease in avoidable hospitalizations for whites and an increase in hospitalizations for "other race".

Figure 2.10: Percent of Avoidable Hospitalizations among Pediatric Hospitalizations: Overall and by Race-Ethnicity



2008-2010 Source: Numerator: Average annual visits over 2008-10; Denominator: 2010 population from Nielsen Claritas.
2011-2013 Source: Numerator: Average annual visits over 2011-13; Denominator: 2009-13 population from American Community Survey.

We also examined percentage of avoidable hospitalizations stratified by payer type and race. This is information such as - what was the percentage of avoidable hospitalizations among all pediatric hospitalizations by black patients or hospitalizations where Medicaid was the primary payer (see Figure 2.10).

- Medicaid-paid pediatric hospitalizations had the highest percentage of avoidable hospitalizations: 13.60% for the combined hospital service area and 13.58% for NJ overall. This pattern was similar to the 1st report.
- Hospitalizations belonging to black children had the highest likelihood of being avoidable (13.48% for the hospital service area compared to 16.84% for NJ overall), followed by those belonging to Hispanic children (12.95% for the combined hospital service area and 13.93% for NJ overall).

Conclusions

In this chapter we examined rates of avoidable hospitalizations and ED visits calculated using methodologies provide by AHRQ and New York University Center for Health and Public Service Research and based on New Jersey Uniform Billing hospital discharge data. These are conditions that could have been avoided with 'high quality community-based primary care' (AHRQ 2012a). These thus inform us as to the availability of primary care and more generally the quality of community level health services within the combined service area of the hospitals. We further examine the distribution as well as stratify these rates of avoidable hospitalizations and ED visits by patient and health insurance payer characteristics. These sub-group analysis shed light on the composition of patients facing barriers to ambulatory care as well as those who are at the highest risk of facing access problems. Information on these patient and payer characteristics can then help in developing interventions and can also be used to assess how emerging policy initiatives at the state and federal levels will impact these problems.

Our results indicate that population-based rates of avoidable hospitalizations and ED visits are lower for the combined service area of the hospitals compared to NJ overall, suggesting higher access to health care resources that ensure adequate primary care. Compared to the 1st CHNA report, avoidable hospitalizations decreased and avoidable ED visits increased for both the hospital service area and NJ overall. Some of the more granular findings are informative to policy. Outside of Medicare patients, self-pay/uninsured patients had the highest rate of avoidable hospitalizations within the combined service area (11.28%, up slightly from the 1st report). For ED visits within the service area of the hospitals, Medicaid-paid ED visits had the highest percentage of avoidable visits (56.06%, up slightly from the 1st report) followed by ED visits with payer type self-pay /uninsured (50.11%, about the same as the 1st report). For NJ overall too, the

payer category with the highest percentage of avoidable ED visits was Medicaid (54.39%, down slightly from the 1st report) followed by self-pay/uninsured (50.13%).

These high rates for self-pay patients highlight the significant barriers to primary care that is faced by the uninsured population who subsequently visit the ED. There are several provisions within the Affordable Care Act that are expected to decrease the number of uninsured. These are the mandatory health insurance provision, the provision for Medicaid eligibility expansion to 133% of the Federal Poverty Line and the setting up of health insurance exchanges that are expected to ensure higher access to affordable health insurance. In the long run if these measures successfully provide health insurance to currently uninsured patients who face barriers to care (reflected in high rates of ACS conditions), they may have relatively lower rates of avoidable hospitalizations and ED visits due to improved access to ambulatory care within communities. However several caveats remain. First, significant proportions of the population in the combined hospital service area may not be US citizens and thus not eligible for some of the benefits of the Affordable Care Act. Alongside an increase in health insurance coverage, availability (on the supply side) of primary care is a necessary prerequisite along with community level interventions that address non-insurance related barriers to accessing care. Overall, a consistent multipronged initiative may be necessary to address barriers to primary care that are reflected in high rates of avoidable hospitalizations and ED visits.

References

AHRQ (Agency for Healthcare Research and Quality). 2012a. "Prevention Quality Indicators Overview." Quality Indicators - AHRQ. Accessed June 26. http://www.qualityindicators.ahrq.gov/modules/pqi_overview.aspx.

———. 2012b. "Prevention Quality Indicators Technical Specifications - Version 4.4, March 2012." Quality Indicators - AHRQ. Accessed June 26. http://www.qualityindicators.ahrq.gov/Modules/PQI_TechSpec.aspx.

Ballard DW, M Price, V Fung, R Brand, ME Reed, B Fireman, JP Newhouse, JV Selby, and J Hsu. 2010. "Validation of an Algorithm for Categorizing the Severity of Hospital Emergency Department Visits." *Medical Care* 48 (1): 58–63.

Basu J, B Friedman, and H Burstin. 2004. "Managed Care and Preventable Hospitalization among Medicaid Adults." *Health Services Research* 39 (3): 489–510.

Battelle. 2012. *Quality Indicator User Guide: Pediatric Quality Indicators (PDI) Composite Measures Version 4.4*. Rockville, MD: Agency for Healthcare Research and Quality. http://www.qualityindicators.ahrq.gov/Downloads/Modules/PDI/V44/Composite_User_Technical_Specification_PDI%20V4.4.pdf.

Billings J. 2003. "Using Administrative Data To Monitor Access, Identify Disparities, and Assess Performance of the Safety Net." Agency for Healthcare Research and Quality Archive. http://archive.ahrq.gov/data/safetynet/billings.htm.

Billings J, N Parikh, and T Mijanovich. 2000. *Emergency Department Use: The New York Story*. New York: Commonwealth Fund. http://www.commonwealthfund.org/~/media/Files/Publications/Issue%20Brief/2000/Nov/Emergency%20Room%20Use%20%20The%20New%20York%20Story/billings_nystory%20pdf.pdf.

Billings J, L Zeitel, J Lukomnik, TS Carey, AE Blank, and L Newman. 1993. "Impact of Socioeconomic Status on Hospital Use in New York City." *Health Affairs (Millwood)* 12 (1): 162–73.

Bindman AB, K Grumbach, D Osmond, M Komaromy, K Vranizan, N Lurie, J Billings, and A Stewart. 1995. “Preventable Hospitalizations and Access to Health Care.” *Journal of the American Medical Association* 274 (4): 305–11.

DeLia D. 2006. *Potentially Avoidable Use of Hospital Emergency Departments in New Jersey*. New Brunswick, NJ: Rutgers Center for State Health Policy. http://www.cshp.rutgers.edu/Downloads/6330.pdf.

Howard DL, FB Hakeem, C Njue, T Carey, and Y Jallah. 2007. “Racially Disproportionate Admission Rates for Ambulatory Care Sensitive Conditions in North Carolina.” *Public Health Reports* 122 (3): 362–72.

Table 2.1: Rates of Avoidable Hospitalizations and ED Visits (per 100 population)

Town	Hospital PQI (age ge 18)	Avoidable ED Visits (age <18)	Avoidable ED Visits (age ge 18)	Avoidable ED Visits (all ages)
Avenel	1.09	16.33	9.27	10.46
Carteret	1.61	19.05	16.37	17.06
Colonia	1.44	9.09	9.14	9.13
Cranbury	1.06	10.82	10.53	10.59
Dayton	0.74	3.88	6.75	5.91
Dunellen	1.11	9.69	8.53	8.81
East Brunswick	1.16	5.95	7.54	7.16
Edison	1.03	9.69	8.67	8.90
Fords	1.25	13.73	11.70	12.14
Helmetta	0.81	8.63	8.42	8.46
Highland Park	1.03	10.25	11.44	11.14
Iselin	1.37	9.75	9.03	9.17
Keasbey	2.14	35.93	28.42	30.45
Kendall Park	1.17	3.94	6.69	5.94
Metuchen	1.06	8.00	7.93	7.95
Middlesex	1.40	11.89	10.33	10.69
Milltown	1.30	8.74	7.77	7.94
Monmouth Junction	0.85	7.84	9.41	9.00
Monroe Township	2.32	7.39	9.01	8.69
New Brunswick	1.20	57.95	24.54	31.97
North Brunswick	1.24	16.45	12.57	13.44
Old Bridge	1.37	9.94	11.32	11.02
Parlin	1.64	12.81	11.42	11.70
Perth Amboy	1.69	41.29	26.81	30.61
Piscataway	0.96	10.59	7.94	8.47
Plainsboro	0.52	5.50	7.88	7.27
Port Reading	1.70	14.28	14.22	14.23
Sayreville	1.05	12.54	11.23	11.55
Sewaren	1.35	20.08	12.51	13.74
South Amboy	1.65	11.18	12.27	12.04
South Plainfield	1.33	10.83	9.09	9.46
South River	1.60	20.57	15.05	16.30
Spotswood	2.32	8.06	10.70	10.16
Woodbridge	1.44	12.87	12.86	12.86
Franklin Park	0.85	7.05	7.59	7.47
Somerset	1.52	20.66	13.63	15.11
All towns combined	**1.32**	**16.36**	**12.10**	**13.06**
All NJ	**1.65**	**15.84**	**15.19**	**15.34**

PQI: Composite measure of avoidable hospitalizations. Red=above average, Green=below average.

Numerator: Annual averages over 2011-2013; Denominator: 2009-2013 American Community Survey.

Table 2.2: Rates of Hospitalizations and ED Visits: Total and Avoidable

	Inpatient	ED	Inpatient	ED
Town	**Avoidable visits as % of all visits**		**All visits per 100 population**	
Avenel	13.07	47.78	8.34	21.88
Carteret	13.91	49.83	11.55	34.25
Colonia	13.71	41.70	10.48	21.89
Cranbury	11.18	44.67	9.52	23.71
Dayton	11.16	42.28	6.66	13.99
Dunellen	9.89	43.96	11.23	20.04
East Brunswick	12.03	39.70	9.62	18.03
Edison	11.24	44.46	9.20	20.01
Fords	11.81	46.36	10.56	26.18
Helmetta	10.22	41.58	7.92	20.35
Highland Park	10.28	45.82	10.03	24.31
Iselin	13.92	44.91	9.80	20.42
Keasbey	17.36	53.92	12.33	56.47
Kendall Park	12.76	40.09	9.17	14.83
Metuchen	11.66	40.17	9.10	19.79
Middlesex	12.36	44.58	11.31	23.98
Milltown	12.48	39.53	10.41	20.09
Monmouth Junction	10.12	44.38	8.37	20.28
Monroe Township	14.03	38.97	16.50	22.31
New Brunswick	12.44	56.47	9.64	56.62
North Brunswick	12.34	49.68	10.02	27.05
Old Bridge	11.71	42.26	11.73	26.07
Parlin	14.15	44.25	11.56	26.44
Perth Amboy	12.14	53.66	13.93	57.05
Piscataway	11.88	46.65	8.04	18.15
Plainsboro	7.87	41.34	6.65	17.59
Port Reading	13.23	45.73	12.87	31.12
Sayreville	10.39	46.33	10.13	24.92
Sewaren	13.02	45.66	10.39	30.09
South Amboy	12.75	42.87	12.97	28.08
South Plainfield	12.92	44.55	10.28	21.22
South River	13.22	48.12	12.08	33.87
Spotswood	16.96	40.00	13.67	25.39
Woodbridge	12.77	46.64	11.31	27.58
Franklin Park	9.63	43.62	8.85	17.12
Somerset	12.50	49.56	12.13	30.50
All towns combined	**12.34**	**47.58**	**10.66**	**27.44**
All NJ	**13.71**	**46.78**	**12.05**	**32.80**

Population numerator: Annual averages over 2011-2013; denominator: 2009-2013 American Community Survey. Discharge numerator and denominator: Annual averages over 2011-2013. Red=above average, Green=below average.

Table 2.3: Rates of Overall, Acute, and Chronic Composite Indicators of Avoidable Hospitalizations (per 100 population)

Town	Overall Composite	Acute Composite	Chronic Composite
Avenel	1.09	0.32	0.77
Carteret	1.61	0.46	1.14
Colonia	1.44	0.48	0.96
Cranbury	1.06	0.46	0.61
Dayton	0.74	0.26	0.49
Dunellen	1.11	0.49	0.62
East Brunswick	1.16	0.47	0.69
Edison	1.03	0.40	0.63
Fords	1.25	0.40	0.84
Helmetta	0.81	0.39	0.42
Highland Park	1.03	0.37	0.66
Iselin	1.37	0.53	0.83
Keasbey	2.14	0.51	1.63
Kendall Park	1.17	0.36	0.81
Metuchen	1.06	0.47	0.60
Middlesex	1.40	0.46	0.94
Milltown	1.30	0.54	0.76
Monmouth Junction	0.85	0.32	0.53
Monroe Township	2.32	0.90	1.42
New Brunswick	1.20	0.35	0.85
North Brunswick	1.24	0.41	0.82
Old Bridge	1.37	0.45	0.92
Parlin	1.64	0.49	1.15
Perth Amboy	1.69	0.48	1.21
Piscataway	0.96	0.30	0.65
Plainsboro	0.52	0.22	0.31
Port Reading	1.70	0.77	0.94
Sayreville	1.05	0.35	0.70
Sewaren	1.35	0.54	0.81
South Amboy	1.65	0.54	1.12
South Plainfield	1.33	0.50	0.83
South River	1.60	0.58	1.02
Spotswood	2.32	0.85	1.47
Woodbridge	1.44	0.51	0.93
Franklin Park	0.85	0.31	0.54
Somerset	1.52	0.56	0.96
All towns combined	**1.32**	**0.46**	**0.86**
All NJ	**1.65**	**0.56**	**1.09**

PQI: Composite measure of avoidable hospitalizations. Red=above average, Green=below average.
Numerator: Annual averages over 2011-2013; Denominator: 2009-2013 American Community Survey.

Table 2.4: Rates of Individual Ambulatory Care Sensitive Conditions (per 100 population)

Town	Diabetes Short-term	Perforated Appendix*	Diabetes Long-term	COPD- Older Adults
Avenel	--	--	0.10	0.25
Carteret	--	--	0.12	0.44
Colonia	--	--	0.09	0.30
Cranbury	--	--	--	0.19
Dayton	--	--	--	0.17
Dunellen	--	--	0.10	0.19
East Brunswick	--	0.03	0.09	0.19
Edison	0.03	0.02	0.08	0.18
Fords	--	--	--	0.29
Helmetta	--	--	--	--
Highland Park	--	--	0.10	0.17
Iselin	--	--	0.08	0.28
Keasbey	--	--	--	0.74
Kendall Park	--	--	--	0.24
Metuchen	--	--	--	0.18
Middlesex	--	--	0.10	0.30
Milltown	--	--	--	0.26
Monmouth Junction	--	--	--	0.17
Monroe Township	0.04	0.04	0.12	0.39
New Brunswick	0.08	0.02	0.10	0.23
North Brunswick	0.05	--	0.10	0.21
Old Bridge	0.04	--	0.10	0.33
Parlin	--	--	0.17	0.41
Perth Amboy	0.12	--	0.19	0.33
Piscataway	0.03	--	0.08	0.18
Plainsboro	--	--	--	0.07
Port Reading	--	--	--	--
Sayreville	--	--	0.09	0.18
Sewaren	--	--	--	--
South Amboy	0.12	--	0.13	0.37
South Plainfield	--	--	0.10	0.27
South River	--	--	0.12	0.33
Spotswood	--	--	0.15	0.57
Woodbridge	--	--	0.13	0.30
Franklin Park	--	--	--	0.17
Somerset	0.06	--	0.10	0.24
All towns combined	**0.05**	**0.02**	**0.10**	**0.26**
All NJ	**0.06**	**0.03**	**0.13**	**0.37**

PQI: Composite measure of avoidable hospitalizations. Red=above average, Green=below average.

Numerator: Annual averages over 2011-2013; Denominator: 2009-2013 American Community Survey.

Rates suppressed when numerator <30.

Table 2.4: Rates of Individual Ambulatory Care Sensitive Conditions (per 100 population)

(continued)

Town	Hypertension	Congestive Heart Failure	Dehydration	Bacterial Pneumonia	Urinary Tract Infection
Avenel	--	0.29	--	0.13	0.13
Carteret	--	0.40	0.08	0.22	0.16
Colonia	--	0.46	0.07	0.25	0.16
Cranbury	--	0.24	--	0.17	0.19
Dayton	--	0.17	--	--	--
Dunellen	--	0.22	0.10	0.24	0.15
East Brunswick	0.06	0.30	0.09	0.22	0.16
Edison	0.03	0.28	0.07	0.19	0.14
Fords	--	0.30	--	0.22	0.11
Helmetta	--	--	--	--	--
Highland Park	--	0.24	--	0.15	0.15
Iselin	--	0.38	0.07	0.27	0.19
Keasbey	--	--	--	--	--
Kendall Park	--	0.32	--	0.18	--
Metuchen	--	0.27	0.08	0.26	0.12
Middlesex	--	0.37	--	0.20	0.17
Milltown	--	0.28	--	0.27	0.15
Monmouth Junction	--	0.20	--	0.15	0.10
Monroe Township	0.08	0.73	0.19	0.41	0.30
New Brunswick	0.08	0.29	0.06	0.17	0.12
North Brunswick	0.09	0.31	0.09	0.21	0.12
Old Bridge	0.06	0.36	0.08	0.24	0.12
Parlin	--	0.42	0.10	0.23	0.16
Perth Amboy	0.06	0.38	0.08	0.23	0.16
Piscataway	0.05	0.28	0.06	0.14	0.10
Plainsboro	--	0.07	--	0.11	0.08
Port Reading	--	0.42	--	0.38	--
Sayreville	--	0.29	0.08	0.16	0.11
Sewaren	--	--	--	--	--
South Amboy	0.06	0.38	0.12	0.26	0.15
South Plainfield	--	0.37	0.08	0.27	0.15
South River	--	0.39	0.15	0.25	0.18
Spotswood	--	0.58	0.20	0.41	0.24
Woodbridge	--	0.35	0.08	0.27	0.16
Franklin Park	--	0.17	--	0.16	--
Somerset	0.11	0.39	0.12	0.25	0.19
All towns combined	**0.05**	**0.34**	**0.09**	**0.22**	**0.15**
All NJ	**0.06**	**0.40**	**0.12**	**0.25**	**0.19**

PQI: Composite measure of avoidable hospitalizations. Red=above average, Green=below average.
Numerator: Annual averages over 2011-2013; Denominator: 2009-2013 American Community Survey.
Rates suppressed when numerator <30.

Table 2.4: Rates of Individual Ambulatory Care Sensitive Conditions (per 100 population)

(continued)

Town	Angina without Procedure	Uncontrolled Diabetes	Adult Asthma in Younger Adults	Lower-extremity Amputation among Patients with Diabetes
Avenel	--	--	--	--
Carteret	--	--	--	--
Colonia	--	--	--	--
Cranbury	--	--	--	--
Dayton	--	--	--	--
Dunellen	--	--	--	--
East Brunswick	--	--	--	--
Edison	0.01	--	0.01	--
Fords	--	--	--	--
Helmetta	--	--	--	--
Highland Park	--	--	--	--
Iselin	--	--	--	--
Keasbey	--	--	--	--
Kendall Park	--	--	--	--
Metuchen	--	--	--	--
Middlesex	--	--	--	--
Milltown	--	--	--	--
Monmouth Junction	--	--	--	--
Monroe Township	--	--	--	--
New Brunswick	--	0.02	0.03	--
North Brunswick	--	--	--	--
Old Bridge	--	--	--	--
Parlin	--	--	--	--
Perth Amboy	0.03	0.07	--	--
Piscataway	--	--	--	--
Plainsboro	--	--	--	--
Port Reading	--	--	--	--
Sayreville	--	--	--	--
Sewaren	--	--	--	--
South Amboy	--	--	--	--
South Plainfield	--	--	--	--
South River	--	--	--	--
Spotswood	--	--	--	--
Woodbridge	--	--	--	--
Franklin Park	--	--	--	--
Somerset	--	--	--	--
All towns combined	**0.02**	**0.02**	**0.02**	**0.01**
All NJ	**0.02**	**0.02**	**0.03**	**0.02**

PQI: Composite measure of avoidable hospitalizations. Red=above average, Green=below average.
Numerator: Annual averages over 2011-2013; Denominator: 2009-2013 American Community Survey.
Rates suppressed when numerator <30.

Table 2.5: Rates of Avoidable ED Visits and Various Categories (per 100 population)

Town	Total	NE*	EPCT^	EDCNPA§
Avenel	10.46	4.39	4.77	1.29
Carteret	17.06	7.39	7.58	2.09
Colonia	9.13	3.77	4.28	1.07
Cranbury	10.59	4.86	4.81	0.93
Dayton	5.91	2.63	2.69	0.60
Dunellen	8.81	3.73	4.17	0.91
East Brunswick	7.16	3.04	3.35	0.76
Edison	8.90	3.80	4.06	1.05
Fords	12.14	5.15	5.59	1.40
Helmetta	8.46	3.86	3.83	0.78
Highland Park	11.14	4.96	4.99	1.19
Iselin	9.17	3.89	4.16	1.12
Keasbey	30.45	13.17	13.41	3.86
Kendall Park	5.94	2.58	2.76	0.60
Metuchen	7.95	3.42	3.63	0.90
Middlesex	10.69	4.70	4.93	1.06
Milltown	7.94	3.54	3.55	0.86
Monmouth Junction	9.00	4.04	4.03	0.93
Monroe Township	8.69	3.71	4.07	0.91
New Brunswick	31.97	14.15	14.49	3.34
North Brunswick	13.44	5.84	5.98	1.62
Old Bridge	11.02	4.67	5.08	1.27
Parlin	11.70	4.97	5.39	1.34
Perth Amboy	30.61	13.66	13.58	3.37
Piscataway	8.47	3.65	3.90	0.92
Plainsboro	7.27	3.24	3.27	0.76
Port Reading	14.23	5.90	6.54	1.79
Sayreville	11.55	5.02	5.26	1.27
Sewaren	13.74	5.67	6.49	1.58
South Amboy	12.04	5.11	5.47	1.47
South Plainfield	9.46	4.02	4.24	1.19
South River	16.30	7.04	7.54	1.72
Spotswood	10.16	4.38	4.69	1.09
Woodbridge	12.86	5.58	5.75	1.53
Franklin Park	7.47	3.31	3.43	0.74
Somerset	15.11	6.63	6.79	1.70
All towns combined	**13.06**	**5.68**	**5.92**	**1.45**
All NJ	**15.34**	**6.70**	**6.81**	**1.83**

*NE: Non-emergent; ^EPCT: Emergent/Primary Care Treatable;§EDCNPA: Emergent, ED Care Needed , Preventable/Avoidable.
Numerator: Annual averages over 2011-2013; Denominator: 2009-2013 American Community Survey.
Red=above average, Green=below average.

Table 2.6a: Payer Distribution of Avoidable Hospitalizations

Town	% Medicare	% Medicaid	% Private	% Self-Pay	% Other
Avenel	62.31	10.46	18.08	7.84	1.31
Carteret	66.71	6.68	16.23	9.79	0.60
Colonia	72.82	1.34	22.48	2.68	0.67
Cranbury	62.26	2.33	20.23	15.18	0.00
Dayton	44.14	2.07	43.45	9.66	0.69
Dunellen	59.00	3.05	32.13	5.26	0.55
East Brunswick	62.87	3.26	27.77	5.54	0.57
Edison	65.44	3.88	23.16	6.40	1.11
Fords	67.96	2.21	21.27	6.91	1.66
Helmetta	43.48	0.00	50.00	6.52	0.00
Highland Park	65.75	4.59	22.63	6.73	0.31
Iselin	69.34	3.28	18.85	7.38	1.15
Keasbey	48.76	23.14	14.88	10.74	2.48
Kendall Park	63.02	1.93	29.58	5.47	0.00
Metuchen	73.40	3.20	18.23	4.43	0.74
Middlesex	58.28	0.68	33.79	6.12	1.13
Milltown	59.62	4.91	29.43	5.28	0.75
Monmouth Junction	51.08	3.69	33.85	11.08	0.31
Monroe Township	79.98	1.68	15.56	2.52	0.27
New Brunswick	44.07	11.40	20.88	23.20	0.45
North Brunswick	47.55	8.13	30.87	13.11	0.33
Old Bridge	64.41	3.93	24.88	6.01	0.77
Parlin	61.21	4.98	25.15	7.47	1.19
Perth Amboy	59.71	11.91	13.96	13.41	1.00
Piscataway	58.10	2.60	31.35	6.88	1.07
Plainsboro	45.49	3.00	41.20	10.30	0.00
Port Reading	68.12	5.80	22.46	2.17	1.45
Sayreville	64.09	2.71	25.05	6.05	2.09
Sewaren	50.57	4.60	31.03	11.49	2.30
South Amboy	64.96	4.56	22.36	6.67	1.45
South Plainfield	67.70	1.76	25.68	4.32	0.54
South River	55.03	2.85	28.52	13.09	0.50
Spotswood	74.73	1.31	16.99	5.66	1.31
Woodbridge	63.96	5.26	20.27	9.31	1.20
Franklin Park	45.00	3.33	42.22	9.44	0.00
Somerset	59.66	3.06	26.97	9.99	0.33
All towns combined	**62.57**	**4.78**	**23.42**	**8.46**	**0.77**
All NJ	**62.91**	**6.03**	**21.27**	**9.01**	**0.79**

Numerator and denominator denote average annual discharges over 2011-2013.

Red=above average, Green=below average.

Table 2.6b: Payer Distribution of Avoidable ED Visits

Town	% Medicare	% Medicaid	% Private	% Self-Pay	% Other
Avenel	11.82	24.15	39.26	21.93	2.84
Carteret	10.17	31.32	32.28	24.27	1.96
Colonia	21.55	10.99	50.42	13.66	3.39
Cranbury	12.62	18.03	40.08	27.52	1.74
Dayton	10.76	10.76	56.71	20.32	1.46
Dunellen	9.70	20.83	41.82	25.16	2.48
East Brunswick	12.15	9.97	57.48	18.74	1.66
Edison	15.92	13.62	50.27	17.39	2.80
Fords	14.74	15.79	46.66	19.19	3.61
Helmetta	10.62	12.67	55.48	19.52	1.71
Highland Park	9.36	16.69	48.55	24.61	0.80
Iselin	18.48	11.84	48.21	18.62	2.85
Keasbey	10.75	38.01	27.33	22.03	1.87
Kendall Park	13.33	11.02	56.35	18.05	1.26
Metuchen	17.93	10.84	53.11	15.16	2.96
Middlesex	9.07	22.35	44.00	22.16	2.41
Milltown	13.03	7.59	58.65	19.12	1.60
Monmouth Junction	7.58	16.71	52.13	22.70	0.89
Monroe Township	29.36	11.45	42.23	15.55	1.40
New Brunswick	3.16	26.74	36.22	33.36	0.52
North Brunswick	6.45	16.56	49.35	26.56	1.08
Old Bridge	15.61	14.43	50.88	16.23	2.85
Parlin	10.97	20.96	46.11	19.48	2.48
Perth Amboy	8.42	45.28	18.59	26.03	1.67
Piscataway	9.61	14.58	52.53	20.80	2.47
Plainsboro	8.12	13.94	57.12	18.96	1.86
Port Reading	14.82	21.50	43.12	15.62	4.94
Sayreville	7.85	19.74	46.89	23.17	2.34
Sewaren	12.12	22.99	41.53	20.32	3.03
South Amboy	10.53	21.90	41.12	24.19	2.26
South Plainfield	17.72	11.95	50.76	15.98	3.59
South River	7.80	18.88	43.91	28.09	1.32
Spotswood	17.71	9.95	46.39	23.51	2.43
Woodbridge	16.20	21.54	40.34	18.87	3.04
Franklin Park	8.54	8.75	64.17	16.23	2.32
Somerset	8.61	14.98	50.96	24.33	1.12
All towns combined	**10.38**	**22.72**	**41.27**	**23.83**	**1.80**
All NJ	**11.50**	**23.10**	**38.77**	**24.66**	**1.96**

Numerator and denominator denote average annual discharges over 2011-2013.

Red=above average, Green=below average.

Table 2.7: Age Distribution of Avoidable Hospitalizations and ED Visits

	Avoidable Hospitalizations			Avoidable ED Visits			
Town	**% 18-39**	**% 40-64**	**% 65+**	**% 0 - 17**	**% 18-39**	**% 40-64**	**%65+**
Avenel	7.19	33.12	59.69	31.60	32.61	27.10	8.70
Carteret	5.61	36.40	58.00	33.88	35.73	23.12	7.28
Colonia	5.70	19.80	74.50	25.73	29.99	28.08	16.21
Cranbury	9.73	30.35	59.92	29.81	31.25	28.79	10.16
Dayton	8.97	37.24	53.79	23.90	35.06	32.14	8.90
Dunellen	8.86	32.13	59.00	34.18	32.28	24.58	8.97
East Brunswick	4.72	26.87	68.40	25.27	33.27	28.91	12.54
Edison	5.53	25.64	68.83	29.60	32.10	24.47	13.82
Fords	3.04	31.49	65.47	29.40	33.73	25.54	11.34
Helmetta	8.70	47.83	43.48	21.23	31.85	39.04	7.88
Highland Park	7.03	26.61	66.36	29.95	38.59	23.78	7.69
Iselin	5.25	26.89	67.87	24.29	31.07	27.07	17.57
Keasbey	11.57	45.45	42.98	38.09	35.55	21.58	4.78
Kendall Park	5.79	21.86	72.35	23.82	37.88	27.28	11.02
Metuchen	3.45	21.92	74.63	27.79	30.32	25.85	16.03
Middlesex	2.49	34.24	63.27	34.55	35.73	21.27	8.46
Milltown	4.91	27.17	67.92	27.03	32.26	27.56	13.14
Monmouth Junction	4.92	34.77	60.31	28.32	37.81	27.70	6.16
Monroe Township	2.67	14.38	82.95	21.38	24.13	26.44	28.04
New Brunswick	12.56	43.36	44.07	47.70	34.71	15.15	2.44
North Brunswick	8.96	36.68	54.36	34.28	36.51	23.49	5.72
Old Bridge	6.47	27.81	65.72	24.81	34.32	27.97	12.90
Parlin	8.90	32.50	58.60	26.56	36.32	27.54	9.59
Perth Amboy	12.01	37.09	50.90	41.91	33.34	19.16	5.59
Piscataway	6.80	29.13	64.07	31.45	36.71	22.93	8.91
Plainsboro	17.60	38.20	44.21	24.31	41.60	27.27	6.83
Port Reading	1.45	25.36	73.19	26.03	35.38	25.50	13.08
Sayreville	5.22	35.91	58.87	32.74	36.10	24.18	6.98
Sewaren	13.79	42.53	43.68	28.34	33.87	30.12	7.66
South Amboy	9.34	32.70	57.95	23.70	39.48	28.82	8.00
South Plainfield	4.73	23.24	72.03	29.22	30.85	24.82	15.11
South River	8.22	33.39	58.39	36.18	36.37	21.73	5.72
Spotswood	3.27	23.75	72.98	20.22	34.87	28.13	16.77
Woodbridge	7.96	38.89	53.15	30.27	33.52	26.65	9.56
Franklin Park	10.56	37.78	51.67	28.56	37.51	26.66	7.27
Somerset	7.31	30.90	61.79	35.73	35.60	20.49	8.18
All towns combined	**6.99**	**29.86**	**63.16**	**34.74**	**34.24**	**22.44**	**8.59**
All NJ	**7.77**	**31.46**	**60.77**	**28.73**	**36.75**	**25.29**	**9.22**

Numerator and denominator denote average annual discharges over 2011-2013.

Red=above average, Green=below average.

Table 2.8: Gender Distribution of Avoidable Hospitalizations and ED Visits

	Inpatient Visits		ED Visits	
Town	**% Male**	**% Female**	**% Male**	**% Female**
Avenel	49.02	50.98	42.41	57.59
Carteret	45.82	54.18	38.65	61.35
Colonia	44.63	55.37	45.04	54.96
Cranbury	38.52	61.48	41.71	58.29
Dayton	44.14	55.86	39.18	60.82
Dunellen	48.48	51.52	44.36	55.64
East Brunswick	43.57	56.43	41.48	58.52
Edison	43.52	56.48	41.58	58.42
Fords	48.07	51.93	40.32	59.68
Helmetta	50.00	50.00	43.15	56.85
Highland Park	42.51	57.49	42.37	57.63
Iselin	50.33	49.67	43.92	56.08
Keasbey	31.40	68.60	34.95	65.05
Kendall Park	44.37	55.63	43.76	56.24
Metuchen	45.57	54.43	44.70	55.30
Middlesex	46.03	53.97	41.07	58.93
Milltown	52.08	47.92	41.45	58.55
Monmouth Junction	40.00	60.00	37.77	62.23
Monroe Township	47.18	52.82	41.99	58.01
New Brunswick	47.68	52.32	42.60	57.40
North Brunswick	44.40	55.60	41.45	58.55
Old Bridge	44.45	55.55	42.46	57.54
Parlin	49.23	50.77	43.37	56.63
Perth Amboy	46.05	53.95	41.60	58.40
Piscataway	46.71	53.29	40.78	59.22
Plainsboro	44.21	55.79	44.13	55.87
Port Reading	45.65	54.35	42.72	57.28
Sayreville	49.06	50.94	41.17	58.83
Sewaren	56.32	43.68	43.85	56.15
South Amboy	46.72	53.28	40.50	59.50
South Plainfield	45.14	54.86	43.72	56.28
South River	47.99	52.01	42.75	57.25
Spotswood	42.48	57.52	41.93	58.07
Woodbridge	43.69	56.31	43.90	56.10
Franklin Park	35.00	65.00	33.83	66.17
Somerset	45.20	54.80	40.12	59.88
All towns combined	**45.69**	**54.31**	**41.74**	**58.26**
All NJ	**44.39**	**55.61**	**41.19**	**58.81**

Numerator and denominator denote average annual discharges over 2011-2013.

Red=above average, Green=below average.

Table 2.9a: Race-Ethnicity Distribution of Avoidable Hospitalizations

Town	% White	% Black	% Hispanic	% Other
Avenel	67.10	18.74	4.58	9.59
Carteret	56.92	15.27	16.47	11.34
Colonia	86.24	5.20	3.02	5.54
Cranbury	64.20	10.12	13.62	12.06
Dayton	61.38	8.28	3.45	26.90
Dunellen	79.22	6.09	9.14	5.54
East Brunswick	79.56	3.50	3.26	13.68
Edison	66.76	10.57	5.66	17.01
Fords	74.31	4.42	11.05	10.22
Helmetta	95.65	0.00	0.00	4.35
Highland Park	75.23	16.82	4.89	3.06
Iselin	69.84	6.89	2.62	20.66
Keasbey	26.45	23.97	46.28	3.31
Kendall Park	76.85	9.32	3.86	9.97
Metuchen	79.06	7.14	3.69	10.10
Middlesex	85.71	6.35	5.22	2.72
Milltown	93.58	0.00	2.26	4.15
Monmouth Junction	61.54	12.62	6.77	19.08
Monroe Township	88.41	4.77	2.14	4.69
New Brunswick	23.39	44.27	28.29	4.06
North Brunswick	50.54	27.05	9.05	13.36
Old Bridge	81.28	5.55	4.78	8.40
Parlin	75.92	6.41	6.17	11.51
Perth Amboy	22.42	13.21	60.66	3.70
Piscataway	50.15	30.43	6.04	13.38
Plainsboro	57.51	17.17	4.29	21.03
Port Reading	83.33	6.52	5.07	5.07
Sayreville	74.32	10.65	8.77	6.26
Sewaren	66.67	13.79	17.24	2.30
South Amboy	83.65	7.45	4.45	4.45
South Plainfield	74.32	11.08	3.24	11.35
South River	76.68	8.22	7.21	7.89
Spotswood	90.85	2.18	4.58	2.40
Woodbridge	71.77	8.41	11.41	8.41
Franklin Park	59.44	23.33	1.67	15.56
Somerset	48.64	37.34	6.82	7.21
All towns combined	**64.68**	**14.64**	**11.44**	**9.25**
All NJ	**63.75**	**20.54**	**10.31**	**5.40**

Numerator and denominator denote average annual discharges over 2011-2013.

Red=above average, Green=below average.

Table 2.9b: Race-Ethnicity Distribution of Avoidable ED Visits

Town	% White	% Black	% Hispanic	% Other
Avenel	40.96	22.56	17.95	18.54
Carteret	24.47	23.15	38.18	14.21
Colonia	63.32	14.34	11.67	10.67
Cranbury	40.75	15.38	31.67	12.20
Dayton	40.11	25.37	8.10	26.43
Dunellen	48.05	15.51	21.73	14.72
East Brunswick	58.34	9.76	11.17	20.73
Edison	40.45	19.69	16.01	23.85
Fords	44.60	13.40	27.76	14.24
Helmetta	80.14	9.25	4.45	6.16
Highland Park	36.88	30.19	19.55	13.38
Iselin	41.47	15.37	11.15	32.01
Keasbey	12.77	13.59	67.21	6.42
Kendall Park	55.93	19.10	5.46	19.52
Metuchen	62.49	11.66	11.37	14.48
Middlesex	52.17	16.54	19.14	12.15
Milltown	80.02	3.95	10.36	5.66
Monmouth Junction	39.76	26.29	13.83	20.12
Monroe Township	71.16	8.56	11.54	8.74
New Brunswick	6.21	20.33	68.53	4.93
North Brunswick	22.57	32.18	32.37	12.89
Old Bridge	69.01	10.14	8.83	12.02
Parlin	49.87	17.09	15.59	17.44
Perth Amboy	7.80	8.76	78.59	4.84
Piscataway	25.51	39.61	15.18	19.70
Plainsboro	36.44	21.92	11.75	29.89
Port Reading	53.81	13.75	22.30	10.15
Sayreville	43.51	23.47	17.83	15.19
Sewaren	44.21	18.18	29.06	8.56
South Amboy	66.70	10.00	13.83	9.47
South Plainfield	47.70	19.66	18.70	13.94
South River	41.75	15.37	32.88	10.01
Spotswood	81.74	3.76	6.82	7.68
Woodbridge	38.74	18.13	29.11	14.02
Franklin Park	28.13	44.05	6.95	20.86
Somerset	16.87	45.04	27.88	10.22
All towns combined	**30.61**	**19.88**	**37.50**	**12.02**
All NJ	**38.98**	**28.92**	**23.26**	**8.84**

Numerator and denominator denote average annual discharges over 2011-2013.

Red=above average, Green=below average.

Table 2.10a: Percent of Avoidable Hospitalizations by Type of Payer

Town	Medicare	Medicaid	Private	Self-Pay	Other
Avenel	21.88	9.41	6.72	9.84	6.38
Carteret	22.11	7.05	7.25	11.82	3.70
Colonia	19.34	4.35	8.21	8.12	4.55
Cranbury	15.84	5.41	5.93	14.08	--
Dayton	19.45	4.92	8.39	10.53	--
Dunellen	13.04	4.60	8.26	6.38	2.67
East Brunswick	16.80	12.16	7.75	9.63	3.95
Edison	16.34	8.27	6.36	11.07	5.67
Fords	18.01	4.08	6.43	11.26	7.06
Helmetta	14.29	--	9.35	--	--
Highland Park	14.80	8.38	5.97	8.37	--
Iselin	20.56	8.89	6.96	12.86	7.29
Keasbey	25.88	18.79	9.33	12.62	--
Kendall Park	17.63	12.24	8.38	12.06	--
Metuchen	17.86	10.57	5.23	8.87	4.29
Middlesex	17.33	1.86	9.32	10.51	7.25
Milltown	17.75	21.67	7.79	10.07	--
Monmouth Junction	16.50	7.41	6.38	12.81	--
Monroe Township	16.33	9.36	9.00	11.09	2.79
New Brunswick	20.99	7.23	10.36	10.37	4.17
North Brunswick	18.04	13.12	8.15	14.11	2.52
Old Bridge	15.33	9.43	7.94	10.67	3.47
Parlin	21.39	9.17	8.74	13.32	5.26
Perth Amboy	16.99	7.08	8.46	11.32	4.84
Piscataway	19.03	5.61	7.71	10.74	5.47
Plainsboro	13.09	4.93	5.61	9.45	--
Port Reading	19.34	11.43	7.58	5.56	--
Sayreville	17.52	3.96	6.07	6.56	8.85
Sewaren	16.12	--	10.31	17.24	--
South Amboy	17.83	7.28	8.54	9.19	6.37
South Plainfield	18.55	5.68	8.22	9.47	2.70
South River	18.40	5.74	9.74	12.94	3.80
Spotswood	24.14	9.84	8.05	13.33	9.84
Woodbridge	17.93	9.02	6.91	16.62	6.50
Franklin Park	15.31	9.23	6.64	14.53	--
Somerset	16.74	7.63	8.30	14.60	3.24
All towns combined	**17.58**	**7.85**	**7.75**	**11.28**	**4.73**
All NJ	**18.83**	**8.86**	**8.91**	**12.18**	**5.34**

Numerator and denominator denote average annual discharges over 2011-2013.
Denominator comprises discharges characterized by payer; rates suppressed when denominator <50.
Red=above average, Green=below average.

Table 2.10b: Percent of Avoidable ED Visits by Type of Payer

Town	Medicare	Medicaid	Private	Self-Pay	Other
Avenel	45.20	54.83	48.06	52.44	23.17
Carteret	46.74	55.68	50.97	49.55	24.28
Colonia	42.05	48.90	42.80	44.66	21.79
Cranbury	43.32	53.24	41.89	52.05	17.94
Dayton	46.11	47.27	43.24	44.40	14.97
Dunellen	35.19	54.45	44.28	48.49	23.04
East Brunswick	38.54	45.18	39.77	44.67	20.16
Edison	41.80	52.79	45.90	46.88	23.38
Fords	45.21	54.74	46.79	49.74	26.07
Helmetta	49.65	43.98	42.16	43.63	16.94
Highland Park	38.53	56.01	46.09	49.19	18.14
Iselin	44.19	54.05	45.47	49.06	23.44
Keasbey	52.55	59.17	53.76	53.97	25.81
Kendall Park	39.51	47.05	41.29	43.97	13.48
Metuchen	38.41	50.32	40.96	43.59	21.65
Middlesex	39.09	55.29	44.69	47.60	23.02
Milltown	41.59	48.77	39.63	40.59	18.72
Monmouth Junction	41.90	50.87	44.19	49.39	14.85
Monroe Township	36.51	49.81	39.54	45.65	18.16
New Brunswick	46.91	58.52	61.42	54.20	23.40
North Brunswick	43.37	53.86	50.88	52.39	21.40
Old Bridge	41.58	49.17	42.69	45.61	23.10
Parlin	42.72	52.28	43.78	47.42	22.70
Perth Amboy	48.56	60.58	53.98	50.23	29.78
Piscataway	44.16	53.57	47.46	49.89	24.79
Plainsboro	40.37	48.24	41.59	44.01	19.66
Port Reading	44.21	57.47	45.51	46.27	30.46
Sayreville	44.41	53.08	46.28	49.52	22.67
Sewaren	40.33	57.70	45.38	47.70	24.91
South Amboy	40.45	49.54	42.60	45.72	21.43
South Plainfield	42.87	53.88	45.86	48.27	24.33
South River	43.02	54.35	49.53	48.96	20.96
Spotswood	40.03	44.40	39.90	44.41	21.19
Woodbridge	41.74	55.27	47.52	49.92	26.30
Franklin Park	39.81	44.28	46.24	45.50	18.34
Somerset	40.38	54.90	51.93	52.31	20.63
All towns combined	**42.25**	**56.06**	**47.59**	**50.11**	**23.10**
All NJ	**42.52**	**54.39**	**45.74**	**50.13**	**24.62**

Numerator and denominator denote average annual discharges over 2011-2013.
Denominator comprises discharges characterized by payer; rates suppressed when denominator <50.
Red=above average, Green=below average.

Table 2.11a: Percent of Avoidable Hospitalizations by Patient Race-Ethnicity

Town	White	Black	Hispanic	Other
Avenel	15.67	19.24	6.48	5.66
Carteret	16.57	15.67	11.34	8.53
Colonia	15.14	11.74	7.11	7.60
Cranbury	10.85	12.75	12.64	10.44
Dayton	12.14	9.16	--	10.00
Dunellen	10.34	7.94	10.89	6.56
East Brunswick	12.99	10.41	9.43	9.10
Edison	13.19	12.26	10.53	6.99
Fords	12.75	9.64	11.83	8.17
Helmetta	10.92	--	--	--
Highland Park	10.86	14.51	8.00	2.97
Iselin	17.43	12.32	8.51	8.95
Keasbey	18.60	26.61	15.73	6.67
Kendall Park	14.41	13.81	12.63	6.54
Metuchen	12.19	13.30	8.43	9.09
Middlesex	13.28	13.79	8.91	4.60
Milltown	12.93	--	8.00	10.78
Monmouth Junction	11.45	8.91	12.36	7.52
Monroe Township	14.18	18.04	10.63	10.99
New Brunswick	14.49	19.24	7.92	7.37
North Brunswick	12.92	16.00	9.19	8.80
Old Bridge	12.11	13.31	9.97	9.03
Parlin	15.76	12.80	11.53	9.46
Perth Amboy	11.28	16.24	12.56	6.08
Piscataway	13.72	14.11	9.96	6.68
Plainsboro	9.75	11.73	6.58	4.49
Port Reading	13.94	11.69	9.33	10.61
Sayreville	11.59	9.34	10.94	4.92
Sewaren	11.51	22.64	20.55	--
South Amboy	13.64	17.91	8.57	5.75
South Plainfield	13.91	14.26	6.35	10.26
South River	14.19	17.38	7.25	11.41
Spotswood	17.59	18.87	19.09	6.32
Woodbridge	14.42	12.93	13.31	6.24
Franklin Park	12.41	9.74	3.90	5.60
Somerset	12.76	15.25	9.06	7.31
All towns combined	**13.44**	**14.93**	**10.49**	**7.60**
All NJ	**13.80**	**16.43**	**12.00**	**9.49**

Numerator and denominator denote average annual discharges over 2011-2013.
Denominator comprises discharges characterized by payer; rates suppressed when denominator <50.
Red=above average, Green=below average.

Table 2.11b: Percent of Avoidable ED Visits by Patient Race-Ethnicity

Town	White	Black	Hispanic	Other
Avenel	44.32	51.85	52.30	47.73
Carteret	43.82	52.23	53.44	49.08
Colonia	39.41	52.59	44.54	43.62
Cranbury	38.55	52.99	54.22	42.99
Dayton	40.46	49.88	51.55	38.43
Dunellen	39.34	51.46	51.89	48.03
East Brunswick	37.17	49.72	48.56	40.69
Edison	40.76	52.26	52.36	42.34
Fords	41.75	54.14	52.69	46.75
Helmetta	41.13	55.05	36.21	40.19
Highland Park	38.94	54.21	56.83	45.67
Iselin	41.65	53.63	48.25	44.84
Keasbey	45.28	54.92	56.07	50.79
Kendall Park	38.49	48.93	44.38	38.52
Metuchen	37.69	49.71	48.71	40.37
Middlesex	40.96	52.95	52.70	45.73
Milltown	38.33	47.92	49.37	41.34
Monmouth Junction	40.47	51.82	52.18	40.68
Monroe Township	36.88	46.50	52.87	40.66
New Brunswick	42.37	54.59	59.68	51.15
North Brunswick	41.87	53.98	55.91	45.36
Old Bridge	40.57	51.49	46.71	43.87
Parlin	40.81	51.58	48.70	46.04
Perth Amboy	43.87	51.82	55.35	51.02
Piscataway	41.88	49.87	52.41	44.75
Plainsboro	37.93	49.17	50.08	39.06
Port Reading	42.04	57.09	49.93	47.35
Sayreville	41.10	54.55	54.16	47.07
Sewaren	40.28	55.52	51.31	50.57
South Amboy	40.60	51.80	48.06	45.25
South Plainfield	40.01	51.10	52.23	46.98
South River	42.98	54.43	54.29	48.37
Spotswood	39.33	46.98	44.08	40.62
Woodbridge	40.92	52.77	54.12	47.09
Franklin Park	38.97	48.94	46.94	41.54
Somerset	39.39	52.37	57.09	46.37
All towns combined	**40.27**	**52.42**	**55.65**	**44.80**
All NJ	**40.54**	**53.40**	**53.36**	**47.60**

Numerator and denominator denote average annual discharges over 2011-2013.
Denominator comprises discharges characterized by payer; rates suppressed when denominator <50.
Red=above average, Green=below average.

Table 2.12a: Percent of Avoidable Hospitalizations by Patient Gender and Age

Town	Male	Female	Age 18 to 39	Age 40-64	Age 65+
Avenel	15.54	11.33	3.30	12.33	21.41
Carteret	16.13	12.45	2.89	14.34	21.36
Colonia	14.77	12.97	3.94	8.85	20.66
Cranbury	11.07	11.25	4.54	10.85	14.97
Dayton	12.50	10.29	3.83	9.61	19.60
Dunellen	11.17	8.93	4.09	8.69	13.89
East Brunswick	12.81	11.49	3.18	9.95	16.59
Edison	12.91	10.23	2.39	10.16	16.96
Fords	13.99	10.32	1.44	11.12	18.54
Helmetta	11.68	9.09	4.17	10.00	14.93
Highland Park	11.27	9.65	2.81	9.21	15.29
Iselin	17.26	11.64	2.95	14.02	19.46
Keasbey	16.81	17.62	5.53	18.97	33.77
Kendall Park	13.19	12.43	4.04	8.49	18.88
Metuchen	12.59	10.98	1.83	8.97	17.57
Middlesex	13.62	11.46	1.43	12.16	17.91
Milltown	14.81	10.66	3.05	10.54	17.75
Monmouth Junction	10.60	9.83	1.82	9.07	18.08
Monroe Township	14.96	13.29	4.35	10.13	16.28
New Brunswick	15.81	10.42	3.74	16.14	22.14
North Brunswick	13.85	11.35	3.50	13.52	19.23
Old Bridge	12.70	11.03	3.80	10.44	15.76
Parlin	16.40	12.49	5.12	13.02	20.68
Perth Amboy	13.99	10.91	4.79	13.23	17.37
Piscataway	14.35	10.32	2.89	10.63	19.25
Plainsboro	10.27	6.65	3.29	9.15	13.94
Port Reading	14.06	12.61	1.08	10.39	19.42
Sayreville	12.64	8.87	1.92	10.73	16.50
Sewaren	16.17	10.41	7.02	13.45	17.12
South Amboy	13.88	11.90	5.35	11.63	17.64
South Plainfield	14.60	11.80	3.01	9.68	19.13
South River	15.37	11.72	4.45	12.41	19.31
Spotswood	16.99	16.93	3.84	12.39	23.33
Woodbridge	14.65	11.61	3.81	14.19	17.70
Franklin Park	11.35	8.90	2.85	11.04	15.84
Somerset	14.71	11.13	3.73	13.24	16.68
All towns combined	**14.06**	**11.19**	**3.49**	**11.71**	**17.79**
All NJ	**14.90**	**12.88**	**4.61**	**13.14**	**18.89**

Numerator and denominator denote average annual discharges over 2011-2013.
Denominator comprises discharges characterized by payer; rates suppressed when denominator <50.
Red=above average, Green=below average.

Table 2.12b: Percent of Avoidable ED Visits by Patient Gender and Age

Town	Male	Female	Age 0 to 17	Age 18 to 39	Age 40-64	Age 65+
Avenel	43.37	51.43	50.55	48.11	46.28	44.48
Carteret	44.22	54.07	51.94	50.82	48.06	44.71
Colonia	38.42	44.51	39.35	43.62	42.43	40.62
Cranbury	39.75	48.81	41.72	47.23	46.61	39.66
Dayton	36.28	47.51	37.68	45.29	42.61	40.88
Dunellen	39.93	47.43	46.34	46.46	42.17	36.06
East Brunswick	35.19	43.73	35.19	42.87	40.32	38.76
Edison	39.45	48.72	45.40	46.67	43.33	40.73
Fords	41.92	49.89	48.88	47.60	44.23	43.67
Helmetta	37.34	45.30	36.46	42.74	43.60	42.38
Highland Park	40.62	50.21	47.13	47.94	45.22	38.56
Iselin	41.32	48.10	45.27	45.67	44.54	43.80
Keasbey	48.37	57.64	56.87	55.05	49.12	52.86
Kendall Park	35.07	44.87	36.90	42.45	40.72	37.58
Metuchen	36.34	43.96	37.78	42.65	40.09	39.64
Middlesex	39.38	48.80	46.14	46.32	43.76	38.12
Milltown	33.15	45.01	36.75	40.61	40.46	39.18
Monmouth Junction	37.97	49.01	39.79	47.25	46.07	40.24
Monroe Township	34.80	42.50	36.51	44.27	40.82	35.66
New Brunswick	50.71	61.51	62.40	54.92	50.87	46.34
North Brunswick	44.66	53.82	51.96	51.00	47.65	43.18
Old Bridge	37.78	46.07	38.46	45.07	42.88	40.12
Parlin	38.85	49.14	42.57	46.39	44.15	41.45
Perth Amboy	47.84	58.60	59.40	52.96	49.27	47.04
Piscataway	41.10	51.15	46.85	48.62	45.39	43.15
Plainsboro	37.52	44.59	35.13	44.39	42.82	38.39
Port Reading	40.85	49.95	44.28	49.19	44.87	42.60
Sayreville	41.37	50.30	46.51	48.43	45.13	41.57
Sewaren	41.63	49.20	47.07	47.72	45.94	35.14
South Amboy	37.56	47.31	41.40	45.78	42.05	38.10
South Plainfield	39.97	48.54	46.18	45.96	42.63	43.17
South River	41.92	53.57	52.14	49.52	44.94	40.07
Spotswood	35.39	43.98	34.65	44.09	39.88	38.81
Woodbridge	42.73	50.01	49.15	48.42	44.89	40.72
Franklin Park	36.69	48.35	40.95	46.78	43.36	38.86
Somerset	44.31	53.59	52.50	52.22	47.12	40.05
All towns combined	**42.43**	**51.91**	**50.58**	**49.31**	**45.36**	**40.88**
All NJ	**41.62**	**51.06**	**46.64**	**49.76**	**45.70**	**40.98**

Numerator and denominator denote average annual discharges over 2011-2013.
Denominator comprises discharges characterized by payer; rates suppressed when denominator <50.
Red=above average, Green=below average.

Table 2.13: Total and Avoidable Pediatric Hospitalizations

	All Towns	All NJ
Rates out of 100 population		
Composite Inpatient (IP) PQI (age>=6 and age<18)	0.20	0.17
all IP discharges (age>=6 and age<18)	1.68	1.44
Avoidable hospitalizations as % of all discharge (age>=6 and age<18)	11.91	11.97
Payer distribution of avoidable Pediatric discharges (% terms)		
Medicare	0.00	0.10
Medicaid	26.82	34.94
Private	67.82	59.29
Self-Pay	4.09	4.11
Other	1.28	1.56
Race-Ethnicity distribution of avoidable pediatric hospitalizations		
White	31.03	38.39
Black	19.03	26.28
Hispanic	29.50	23.74
Other	20.43	11.59
Gender distribution of avoidable pediatric hospitalizations		
Male	50.45	49.45
Female	49.55	50.55
Avoidable pediatric discharges by payer		
Medicare	--	5.98
Medicaid	13.60	13.58
Private	11.59	11.39
Self-Pay	12.21	12.49
Other	6.37	6.79
Avoidable pediatric discharges by race		
White	10.38	9.50
Black	13.48	16.84
Hispanic	12.95	13.93
Other	11.90	11.05
Avoidable pediatric discharges by gender		
Male	11.07	11.23
Female	12.91	12.79

Figures suppressed when denominator <50.

Appendix 2.A: 2009-2013 Population from American Community Survey

Town	Zip Code	Population with Age <18	Population with Age >=18	Total Population
Avenel	07001	2,848	14,047	16,895
Carteret	07008	6,093	17,394	23,487
Colonia	07067	3,972	13,820	17,792
Cranbury	08512	2,386	8,052	10,438
Dayton	08810	2,666	6,497	9,163
Dunellen	08812	3,495	10,835	14,330
East Brunswick	08816	11,186	35,364	46,550
Edison	08817,08820,08837	22,542	78,012	100,554
Fords	08863	2,664	9,678	12,342
Helmetta	08828	466	1,894	2,360
Highland Park	08904	3,565	10,571	14,136
Iselin	08830	3,665	14,894	18,559
Keasbey	08832	696	1,884	2,580
Kendall Park	08824	3,316	8,859	12,175
Metuchen	08840	3,787	12,748	16,535
Middlesex	08846	3,184	10,519	13,703
Milltown	08850	1,479	6,795	8,274
Monmouth Junction	08852	4,451	12,782	17,233
Monroe Township	08831	9,070	37,748	46,818
New Brunswick	08901	12,337	43,139	55,476
North Brunswick	08902	9,283	32,491	41,774
Old Bridge	08857	8,770	31,501	40,271
Parlin	08859	4,417	17,177	21,594
Perth Amboy	08861	14,038	39,377	53,415
Piscataway	08854	11,231	45,643	56,874
Plainsboro	08536	5,121	14,823	19,944
Port Reading	07064	768	2,701	3,469
Sayreville	08872	4,874	15,167	20,041
Sewaren	07077	418	2,143	2,561
South Amboy	08879	4,862	18,112	22,974
South Plainfield	07080	4,965	18,578	23,543
South River	08882	3,640	12,439	16,079
Spotswood	08884	1,710	6,599	8,309
Woodbridge	07095	5,356	15,366	20,722
Franklin Park	08823	2,051	7,045	9,096
Somerset	08873	10,774	40,274	51,048
All town combined		**196,146**	**674,968**	**871,114**
All NJ		**2,047,235**	**6,785,158**	**8,832,393**

Appendix 2.B: AHRQ PQI Conditions

INDICATOR	LABEL
PQI 01	Diabetes Short-Term Complications Admission Rate
PQI 02	Perforated Appendix Admission Rate
PQI 03	Diabetes Long-Term Complications Admission Rate
PQI 05	Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate
PQI 07	Hypertension Admission Rate
PQI 08	Congestive Heart Failure (CHF) Admission Rate
PQI 10	Dehydration Admission Rate
PQI 11	Bacterial Pneumonia Admission Rate
PQI 12	Urinary Tract Infection Admission Rate
PQI 13	Angina Without Procedure Admission Rate
PQI 14	Uncontrolled Diabetes Admission Rate
PQI 15	Asthma in Younger Adults Admission Rate
PQI 16	Rate of Lower-Extremity Amputation Among Patients With Diabetes
PQI 90	Overall PQI Composite (PQIs 1, 3, 5, 7, 8, 10, 11, 12, 13, 14, 15, and 16)
PQI 91	Acute PQI Composite (PQIs 10, 11, and 12)
PQI 92	Chronic PQI Composite (PQIs 1, 3, 5, 7, 8, 13, 14, 15, and 16)

Appendix 2.C: AHRQ PQI 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	

*Examples of diabetes short term complications include ketoacidosis, hyperosmolarity.

**Examples of diabetes long term complications include renal, eye, neurological, circulatory, or complications not otherwise specified.

***A discharge is categorized as uncontrolled diabetes when it has a principal diagnosis code for uncontrolled diabetes, without mention of a short-term or long-term complication.

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

Appendix 2.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.

Chapter 3: Community Input: 2015–2016 Key Informant Interviews

Introduction

The key informant interviews described in this report were conducted and analyzed by a researcher from Rutgers Center for State Health Policy (CSHP). The interviewer asked about the health status of the communities served by interviewees, barriers to health care, actions interviewees thought should be taken, or programs interviewees thought could be developed to improve care. Interviewees were also asked about existing strengths and resources in their communities.

The Patient Protection and Affordable Care Act requires that the community health needs assessment "takes into account input from persons who represent the broad interests of the community served by the hospital facility, including those with special knowledge of or expertise in public health" (U.S. Congress 2010). Fifteen telephone interviews were conducted with a variety of stakeholders in the hospitals' service area. Interviewees included health care providers as well as representatives of community-based organizations that serve populations with a variety of health care needs.

Themes that emerged from the interviews included the diversity of the assessment area, concerns about chronic conditions, barriers to care that remain, particularly for vulnerable clients, and the continuing need for resident education and assistance with navigating the health system.

Methods

Interviewee Recruitment and Characteristics

The Institutional Review Board at Rutgers University approved this study. From mid-December 2015 to mid-February August 2016, a researcher from Rutgers Center for State Health Policy conducted 15 telephone interviews with a variety of stakeholders in the hospitals' service area in Middlesex County and Franklin Township in Somerset County. Potential interviewee organizations were identified by hospital staff, who provided contact information to Rutgers

CSHP. Rutgers CSHP contacted potential interviewees to invite them to participate. The identity of interviewees and their organizations is kept confidential by Rutgers CSHP.

Interviewees had contact with a variety of area residents including children, parents, younger and older adults, people with and without permanent housing or employment, people with disabilities, and people from a variety of racial and ethnic backgrounds, some of whom had a primary language other than English or Spanish. Many interviewee organizations draw clientele from a large geographic area, and about half are located outside New Brunswick. Interviewees included a school nurse, a senior center director, personnel from organizations devoted to prevention or treatment of domestic violence and addiction, county college and health department personnel, safety-net health care providers (health center, emergency services), eight employees of safety net organizations serving vulnerable clients, and five staff members from community based organizations (CBO). Interviewees may be in more than one category in the preceding description. Many organizations had been interviewed in the previous Community Health Needs Assessment as well (Chakravarty et al. 2012).

Interviews ranged in length from 20 to 90 minutes and were audio-recorded. The researcher based the interviews on a broad set of six questions that asked interviewees to identify the demographics of their community and then discuss health related issues for their clients (see Appendix A). The researcher followed up interviewee answers with additional questions and asked later interviewees to react to experiences related by earlier interviewees (identities of interviewees and their organizations were kept confidential).

Data Analysis

We use a grounded theory approach to conduct the interviews and analyze the data. Grounded theory is an inductive process of identifying themes as they emerge from data (Strauss and Corbin 1990). We also consider how findings from this set of interviews relates to findings from the larger set of 26 interviews and 8 focus groups with 94 participants that were conducted as part of the 2012 Community Health Needs Assessment (Chakravarty et al. 2012) and the recent community health needs assessment done in Somerset County (Health Resources in Action 2015).

Findings

Findings are grouped into four themes. The first theme discusses the diversity found in the hospitals' service area and how this makes attention to cultural competence and person-centered care essential for effective service delivery (among both medical and non-medical providers). The second theme discusses the kinds of health conditions that were of most concern

to interviewees—chronic, often co-occurring, conditions. The third theme discusses the gaps and barriers to resident health that remain or have expanded since the 2012 assessment, despite the existence of widely-lauded health resources, stakeholder collaboration, and expansions in insurance coverage. The final theme discusses resident needs for information and education about health issues, the health care system, and nutrition, as well as the help needed in navigating the health care system.

Theme 1: Diversity in Hospitals' Service Area Makes Attention to Cultural Competence and Person-Centered Care Essential for Effective Service Delivery

Diversity: Language, Culture, Life Experience, Literacy, Disability: Many interviewees raised the issue of diversity among the clients they serve. Interviewees saw diversity with respect to languages spoken by clients, cultural practices of clients, life experiences of clients, literacy levels of clients, and various disabilities that may affect the ability of clients to physically access care and/or to communicate with providers.

> *"The key is not making it so complicated, but reaching them … on their level … I see applications that … I'll be like, okay, I need to read it 4, 5 times to be able to understand the question—and that's me, I've been doing applications all my life, so imagine someone that barely knows how to write their name."*

This diversity requires providers to take the time to thoughtfully design materials like the application in the quote above so that they are comprehensible to clients. It also requires them to get to know clients well enough to figure out how to understand their strengths and their needs in order to work effectively with them. For example, many service providers in the past few years have seen an increase in immigrants from Central America who are fleeing violence. In some cases, immigrants may not speak Spanish or may not have high literacy levels in Spanish, so forms in Spanish are not user-friendly for them and bilingual staff members have difficulty communicating with them. Interviewees outside New Brunswick noted that even Spanish/English translation can be an issue, in addition to other languages. Safety-net providers are seeing an increase in Asian clients. In addition to language or literacy barriers, some clients have experienced traumas or have beliefs or practices that impede communication with service providers (e.g., unwillingness to ask questions of service providers or reveal information about family members, or norms with respect to gender segregation leading to discomfort with service providers of a different gender).

> *"You have to tell the [physician] resident, they need to look at the patient … 'She didn't want to have a pap smear, she just started crying' … 'Do you know why she did that?' … A woman … she was a victim of rape, she didn't do [a pap smear] for*

years … there was a conversation with the nurses, and comfort … we will try today and if you couldn't have it done today don't worry, we will try next week, and if next week you cannot do it, fine—we are going to be with you … eventually she got the first pap smear done in [many] years … she would not allow anybody to touch her, she was still having some post-traumatic stress disorder from that rape … and the doctors … need to be sensitive to that… how she feels about you examining her … especially this population"

Some cultural practices may be important for residents' psychological well-being and helpful to their health, but other practices may pose a danger (choking hazards with jewelry for children, herbs). Interviewees described taking the time to learn about residents' lives to learn about practices that could be helpful (e.g., local healers providing infant massage that seems effective in relieving constipation) and to suggest modifications of practices that may be harmful (e.g., modifying jewelry to eliminate choking hazard risk, intervening directly with older family members who are providing care for children when instructions relayed to them through parents are not followed).

As safety net resources are stretched thin, less time or resources may be available to take the extra time needed to provide client-centered care. Several interviewees expressed concern about cuts in social work services at the Chandler Health Center, afraid that this would harm the center's ability to communicate with its diverse and challenged population and provide continuity of care, as well as providing services like outreach and education that so many interviewees felt was necessary to help residents learn about their health and how to navigate the health care system.

Diversity also creates challenges for those who do outreach and education, requiring them to tailor their message and materials to different audiences and sometimes be more vague than they would like with potentially controversial materials such as sexuality to avoid alienating audience members.

Theme 2: Chronic Health Conditions of Most Concern to Interviewees

Our findings in this area were similar to the last assessment (Chakravarty 2012) and a recent assessment in Somerset County (Health Resources in Action 2015). Interviewees mentioned a variety of chronic health concerns, including diabetes, heart disease, obesity, behavioral health conditions (mental illness, alcohol or substance abuse, smoking), dental problems, asthma, chronic kidney disease, vision problems in adults and children, and workplace injuries resulting in disability. One interviewee expressed concern that developmental disabilities may not be diagnosed early enough in some communities. Another noted that trauma earlier in life can

manifest later as chronic disease. These conditions are often linked with one another and with the system gaps and resident needs mentioned in the later themes.

For instance, poverty, personal trauma history, poor housing quality, lack of available healthy food options, and low health literacy may contribute to poor eating habits. Time spent working multiple jobs, reported by many interviewees as common among low-income area residents, reduces time available for exercise, shopping, and food preparation. The kinds of jobs low-income residents take may put them at increased risk of injury or expose them to peer influences of alcohol or drugs as a coping strategy.

For children, one interviewee noted that access to recess in schools is reduced by increased curriculum pressure, and that it is expensive to sign children up for sports. On the positive side, another noted that a program to provide free soccer and help with homework after school was encouraging physical activity for children and sometimes family members and neighborhood members as well by making parks seem more inviting.

For those who can afford it, one person noted the addition of the RWJ Fitness and Wellness Center in downtown New Brunswick, with reduced rates for New Brunswick residents, as a welcome addition to recreational opportunities.

Once residents have a chronic health condition, it becomes more difficult for them to maintain their health or to improve their situation by securing higher-paying employment. It also requires consideration by social service providers—for example, with respect to offering food or meals. Sometimes such consideration isn't possible, with deleterious effects on resident health.

> *"Improper diet … eating at congregate meal sites … where there is a high sodium content … one meal a day on the county meal program … [not] sufficient … to sustain good health …. at congregate sites there generally is not a nutritionist … it's not meant for people who need to watch a diet for medical reasons … food, not nutrition … thank goodness we have them, or there would be people getting no meals."*

Many of the foods people with diabetes should try to avoid are the kinds that are cheapest and easiest to find for social service providers looking to offer meals for large numbers of people. Providers can also run into roadblocks where clients are unable to eat the healthy foods they are offering. For instance, dental problems can make it difficult to eat fresh fruits and vegetables. Medication prescribed for blood clots requires limiting leafy green vegetables.

The more serious the chronic health problem, the worse the effects on residents and others around them. One social services provider mentioned getting about two referrals per month in the past several months for people who had gone through amputation due to diabetes (in a program that gets around 50-100 referrals per year). Another New Brunswick social services provider mentioned seeing both amputations and vision complications as a result of poorly managed diabetes.

Theme 3: Despite Insurance Coverage Expansions, Tremendous Health Care Resources in the Hospital Catchment Area, and Robust Relationships among Stakeholders and Service Providers, Gaps Remain for Vulnerable Clients

Appreciation Expressed for Health Insurance Coverage Expansion, Richness of Local Health Care Resources, and Strong Relationships among Stakeholders and Service Providers: Interviewees were appreciative of the expansion of health insurance under the Affordable Care Act and Medicaid expansion, the health care resources available at the two New Brunswick hospitals, and the robust relationships among stakeholders and service providers in the area. However, they were also attentive to system gaps or barriers that have remained or expanded since the 2012 assessment.

One interviewee spoke warmly of the positive working relationships in New Brunswick and Middlesex County: *"I think that we have a very close community, which I hope and I pray that we continue to work together so closely … within the city and the county, we all know each other, all the agencies that are around, help each other out … it's such a positive thing."*

Another interviewee spoke positively of the resources in the area, but struggled to reconcile this with the difficulty safety net providers have in finding resources for their clients: *"We have many medical institutions in New Brunswick, including the hospitals and the medical school, so why is it that we have to struggle so much, you know … to me it's just mind-boggling … money … the high cost of medical care has a lot to do with it … but I think that building upon what we have … it doesn't have to be in large scale."*

Gaps in Insurance Coverage: While interviewees believed that residents were better off as a result of the Medicaid and marketplace expansion under the Affordable Care Act, several types of gaps remain. Most importantly, significant numbers of people are left out of the expansion due to their undocumented status, and thus have no coverage or charity care only, which takes effect in an episodic way when they have a crisis. One interviewee noted that people with a complicated financial picture (self-employment) have trouble gathering the documentation necessary to enroll in insurance or other programs. People who are insured through Medicaid face a shortage of providers willing to accept Medicaid patients, leading to long wait times for

appointments. This is also the case for some private insurance plans that have narrow networks of providers. Those who are insured with private insurance through the marketplace or an employer face high premiums, deductibles, and co-payments that make them hesitant to use their insurance because they fear receiving large bills afterward. All of these gaps, along with other issues such as lack of knowledge or a variety of life stressors, lead residents to forgo or delay preventive care and disrupts or prevents the kind of care continuity that is important for the successful management of chronic health conditions.

A staff member at an organization providing assistance to low-income, often undocumented residents details the issue affecting the organization's clients: *"It is harder for them to access the health care because … the lack of insurance, the lack of income to be able to get insurance, or just not being eligible to get insurance …. Let's say they need to go to a doctor. A primary care doctor will charge anywhere from $100 to $175 per visit … cash … if they need a shot, or antibiotics, or God forbid they need stitches … looking at $300 to $400. And if they were trying to go to the Emergency Room … if you are eligible for Charity Care, the application has to be there, but in a lot of our hospitals they are charging the clients a deposit when they don't have insurance. So they don't want to go to the ER anymore … if they could hold onto the pain and it's not an 'emergency emergency,' they just don't go. So the issue they have is definitely going to be more aggravated because they're not taking care of it … I've seen the increase with clients with diabetes, because they just can't afford the insulin, or they can't afford the pills, or even the glucose meter"*

Gaps in Primary Care Services: The gaps in insurance mentioned above create difficulties in access to primary care services throughout the catchment area. St. John's Clinic, located in downtown New Brunswick and serving 815 individuals in 2012 (Catholic Charities, Diocese of Metuchen 2012), has closed. The Promise Clinic, begun in 2005, continues to operate one night per week at Elijah's Promise in downtown New Brunswick, with 334 patient visits in 2012 (Robert Wood Johnson Medical School 2013). Eric B. Chandler Health Center in downtown New Brunswick and the New Brunswick High School and Saint Peter's Family Health Center on How Lane near the North Brunswick/New Brunswick border are the other safety net clinics. Saint Peter's Community Mobile Health Services also provides screenings, education, and referrals for underserved individuals. Robert Wood Johnson Community Health Promotions Program offers outreach, education, and screening programs.

Interviewees indicated the absolute necessity of safety net services and were pleased with the quality of care offered by the Promise Clinic, the Chandler Center, and the Family Health Center. Shortfalls mentioned were wait times to get an appointment, particularly at Chandler, cutbacks in social work services at Chandler, and physical crowding in the Chandler clinic. Transportation was the most common shortfall mentioned with the Family Health Center–public transportation

is available from downtown New Brunswick to the Center, but it is time-consuming. Also mentioned were limited women's health services at the Family Health Center due to Saint Peters' guidelines and state cuts in women's health services that have reduced care options throughout the state.

Interviewees felt that these shortfalls interfered with the proper diagnosis and management of chronic conditions discussed in Theme 2. Suggestions for improvement included increased funding for safety net providers and more locations in the area, as well as evening and weekend hours.

Barriers in Access to Specialists/Specialty Services: While noting the richness of specialists in the New Brunswick area, interviewees noted that many do not accept Medicaid, creating a barrier to care for Medicaid patients. Transportation is often an issue for people wanting to access specialists, particularly if they are located outside the New Brunswick area. Wait times to get an appointment and to be seen once in the office were mentioned as issues that were particularly serious for patients with multiple chronic health problems that require many appointments and careful management. The scheduling of unrealistically short appointment times creates backlogs of patients. A couple of interviewees noted problems with access to dialysis services, particularly for low-income residents on Medicaid or without insurance.

Access to Behavioral Health Services: Interviewees noted a lack of service capacity in behavioral health, regardless of insurance status. For example, there are no detox beds in Middlesex County, and there is a shortage of other options as well. One provider recently faced transporting a client about three hours one way to a facility in a neighboring state that had a bed available—at times, something goes awry with the process and the bed is not available, leaving an entire day's time spent with no service to the client. Interviewees also noted insurance coverage gaps for behavioral health. The recent assessment in Somerset County found that behavioral health issues were the most frequently raised by stakeholders—both with respect to identifying issues due to resistance by both individuals and institutions to recognize things like mental illness and substance abuse, and also a lack of treatment and insurance coverage options (Health Resources in Action 2015).

Limited reimbursement may hinder provider efforts to offer integrated care. As noted elsewhere, social work staffing at Chandler has been reduced, to the dismay of many interviewees.

Access to Dental Services for Medicaid and Under/Uninsured Patients: Interviewees noted a lack of dental providers accepting Medicaid, particularly for patients needing complicated procedures. Medicaid or uninsured patients in need of advanced dental care often faced an

expensive trip to UMDNJ in Newark and long waiting times, both to secure an appointment and to be seen once present at the site. Oral health, particularly for Medicaid and uninsured patients, was also raised as a concern in the recent Somerset County assessment (Health Resources in Action 2015).

Transportation: Patients and their caregivers can spend large amounts of time in transit and waiting for appointments. For providers of transportation services, it is difficult to schedule services—appointment times that may seem to fall within the fixed hours of transportation services can stretch beyond their expected window due to waits in the office, leaving patients the choice of canceling long-awaited appointments or being stranded without return transportation.

New Brunswick has many unregulated taxi services that provide fairly inexpensive transportation to those who know of the services and have some money on hand. This option is less accessible for people who are not part of the social network who are aware of the service, who need frequent transportation to medical appointments, or who are outside the New Brunswick area. These unregulated services are also vulnerable to law enforcement interruption.

Access to Medication: Medication costs leave some residents without access. One interviewee described an unanticipated consequence where an organization that used to take direct referrals for patients needing medication now goes through medical providers, but the wait time for patients to get an appointment with a provider has increased the wait time to get access to medication as well.

> *"5 years ago they had this program where the doctor would sign and they would get the medication [insulin] at home, for free, but that's not the case anymore … lack of funding … now they are doing it directly through the clinics but not everyone gets access to it … because the appointments are so far behind … by the time somebody gets an appointment to get their glucose checked it could be 3 to 4 weeks, sometimes 6 weeks, while you're just suffering with your symptoms and your glucose just going up …. There is a form that has to be filled out by the doctor … 7 to 10 business days for any form … so imagine [that time] without insulin plus 10, 15 days before the company might send it to you or maybe 30 days until they approve it … extremely long time."*

Interviewees felt that providers needed to be aware of this issue and the effects it has on patient adherence. The last needs assessment (Chakravarty et al. 2012: 162, 164-5) noted that some

residents sold their prescriptions to others out of financial need, and others conserved medications by taking them less frequently than prescribed.

Housing Quality and Affordability: Several interviewees mentioned the general lack of affordability of housing in Central Jersey and noted that New Brunswick housing has the dynamic of a transient student market that is perceived not to care about housing quality competing with an undocumented immigrant population that struggles to afford housing and may be afraid to complain about quality issues. Interviewees described housing conditions where needed repairs exacerbated residents' health conditions such as asthma. They also described crowded living conditions where residents may not have access to a kitchen or enough room to rest adequately—for example, one interviewee described learning of a situation where a child was repeatedly coming to school sick. An investigation found that the area where the child slept at night was occupied by someone else during the day, leaving the child no place to rest.

Fear among Undocumented Residents: Interviewees reported that increased anxiety about the recent raids in New Jersey by Immigration and Customs Enforcement (Pinto 2016), including the detention of a New Brunswick resident, has led some undocumented individuals to fear accessing community services, including social and health services. For others, the anxiety has exacerbated health problems, leading to utilization of emergency services.

Accessibility for People with Disabilities: Interviewees noted scheduling/transportation and accessibility issues for patients using Medicaid as well as other types of insurance. People with disabilities may be more likely to have the assistance of other individuals with their medical appointments, which compounds the effects of travel and wait times. Many doctors have offices that are not easily accessible to those using mobility aides such as wheelchairs or walkers. Even offices that are accessible at the front door and inside the office may have obstacles in the areas around the office such as backups of vehicles in loading areas and snow or other environmental obstacles facing patients on their journey to the office. This is generally worse for patients who are on Medicaid or who are uninsured. However, a tightening of Medicare rules for transportation of non-emergency patients such as those requiring dialysis, cancer, or wound care (Gillespie 2016, Darragh 2015) affects those who are not on Medicaid (who are eligible for transportation through Logisticare if need be) and who cannot pay for transportation. Since this change in rules, one interviewee has observed dialysis patients spending an exhausting day in transportation and appointments when riding Middlesex County Area Transit, which provides a curb-to-curb (i.e., no assistance into or out of buildings) shared ride service to senior and disabled residents, with a priority on non-emergency medical transportation (see Middlesex County Area Transit 2014).

People with mental illness or intellectual disabilities also face barriers in accessing health services. Crowded waiting or exam rooms can be uncomfortable for such patients, and caregivers can have difficulty guiding people through parking lots, intersections, and the like to access health services.

Theme 4: Residents Need Information and Education about Health, the Health Care System, and Nutrition, and Help Navigating the Health Care System

Many interviewees felt that residents needed more information and education about nutrition and self-care as well as information about the health care system and how to access it.

New Brunswick Tomorrow is creating an online resource and directory designed to address some of the information and education needs of city residents. Titled "Live Well/Vivir Bien New Brunswick," the web site and mobile app will help residents or other interested parties locate information and local resources regarding food, exercise, health, education and advocacy, and safety in New Brunswick (New Brunswick Tomorrow 2015, 2016). The online nature of this resource allows for continual updating and avoids the expense and environmental cost of printed resource guides. However, access to technology will be required for residents to utilize the resource.

Interviewees who have had involvement in resident education stressed that it is important to meet residents where they are in their current state of knowledge, and to make learning as multi-faceted as possible to accommodate different learning styles, including pictures and going beyond abstract concepts such as reducing sugar intake to include practical tips for how to achieve nutritional or health goals.

> *"We have a community with a high, high level of illiteracy ... that's a huge challenge. It's not only the issue of language … capacity of the patients to be able to understand the illness … what body part you're talking about … I use the [patient's] language and I use a lot of graphics … my office is full of charts about the human body. I have an anatomy atlas: 'you know where the kidney is? No? I will show it to you.' Visualization can help the patient. It's very hard for patients to understand instructions, very hard for patients to understand the illness … don't have access to education."*

One interviewee suggested a train-the-trainer approach to allow small groups to access information from a trusted friend or neighbor. Health departments in Middlesex and Somerset County offer educational resources for residents. One interviewee noted that the Somerset County Department of Health, which serves Franklin Township, can be an overlooked resource.

In addition, Rutgers Cooperative Extension has staff and materials online that could be a starting point for something like this (Rutgers New Jersey Agricultural Experiment Station 2016). This kind of approach was mentioned in the last needs assessment as effective when implemented by the RWJMS Health Ambassador program in the South Asian community (Chakravarty et al. 2012: 167). One interviewee mentioned the RWJ Safety Ambassador program as successful in engaging both older and younger students in area schools around injury prevention and other safety strategies (Robert Wood Johnson University Hospital 2011). Saint Peter's Community Mobile Health Services reaches many people throughout the service area.

Many also felt that some residents need help navigating the health care system. One interviewee mentioned the State Health Insurance Assistance Program (SHIP), which provides free help to New Jersey Medicare beneficiaries who have problems with or questions about their health insurance (see State of New Jersey 2015). This interviewee had experience with this program and felt that it could be a model for populations beyond Medicare. The Affordable Care Act provides for Navigators who help people to enroll in health insurance (see U.S. Centers for Medicare & Medicaid Services 2015), but this assistance is focused on selecting a plan and enrolling, not on issues that arise once enrollment is in place such as finding a participating provider, knowing what the residents' cost-sharing responsibility is, or dealing with complaints or appeals. Several interviewees noted that residents, particularly those without insurance but at times even those with insurance, sometimes avoid seeking care because they are afraid of getting a large bill, which can mean that health problems are not treated until they have become severe.

The last needs assessment spoke directly to residents and found some disrespectful treatment by health providers that made them reluctant to seek future care, and noted that negative hospital experiences colored residents' perceptions for a long period (Chakravarty 2012: 168-169). We heard reports similar to this as well—in addition to increasing residents' health literacy, sensitivity to past negative experiences and care not to repeat them is important as well.

Conclusions

Findings were similar to those in the last assessment (Chakravarty et al. 2012) and to a recent assessment done in Somerset County (Health Resources in Action 2015). Interviewees noted the diversity of the assessment area, concerns about chronic conditions, barriers to care that remain, particularly for vulnerable clients, and the continuing need for resident education and assistance with navigating the health system.

Notable changes to the area in the last few years included 1) further implementation of the Affordable Care Act, which expanded insurance coverage, but left gaps for some populations; 2)

the closure of St. John's clinic in New Brunswick, a safety-net clinic that had served close to 1,000 patients, due to financial constraints; 3) increased immigration from people fleeing violence in Central America; 4) increasing numbers of Asian clients; and 5) activity by US Immigration and Customs Enforcement, which has raised anxiety levels among undocumented and documented immigrants, with effects on their willingness and need to access services.

Interviewees also noted positives about the area with respect to the wealth of resources in New Brunswick with the two major hospitals and other facilities in addition, and the robust relationships among stakeholders.

References

Catholic Charities, Diocese of Metuchen. 2012. *Annual Report.* Perth Amboy, NJ. http://www.ccdom.org/sites/default/files/CC_Annual_Report 2012-Web.pdf.

Chakravarty S, S Brownlee, J Tong, MB Pellerano, J Howard, EK Shaw, S Chase, and BF Crabtree. 2012. *A Community Health Needs Assessment for Saint Peter's University Hospital & Robert Wood Johnson University Hospital: Findings from the Behavioral Risk Factor & Surveillance System (BRFSS), Hospital Discharge Data, A Community Survey, Key Informant Interviews, and Community Member Focus Groups.* New Brunswick, NJ: Rutgers Center for State Health Policy and Robert Wood Johnson Medical School, University of Medicine & Dentistry of New Jersey, Department of Family Medicine and Community Health, Research Division. http://www.cshp.rutgers.edu/Downloads/9620.pdf.

Darragh T. 2015, March 1. "Medicare rules frustrate patients and leave ambulance companies hanging by a thread." NJ Advance Media. http://www.nj.com/news/index.ssf/2015/03/medicare_rules_frustrate_patients_and_leave_ambula.html.

Gillespie L. 2016, February 8. "Some Dialysis Patients Give Medicare Failing Grade On Ambulance Trial." Kaiser Family Foundation: Kaiser Health News. http://khn.org/news/some-dialysis-patients-give-medicare-failing-grade-on-ambulance-trial/.

Health Resources in Action. 2015. *Somerset County 2015 Community Health Needs Assessment: Draft Report.* https://www.co.somerset.nj.us/health/Docs/Somerset CHA_DRAFT REPORT_8 25 15.pdf.

Middlesex County Area Transit. 2014. MCAT (Middlesex County Area Transit) Ride Guide. New Brunswick, NJ. http://www.co.middlesex.nj.us/Government/Departments/CS/Documents/Aging/ATTACHMENT J RIDE GUIDE.pdf.

New Brunswick Tomorrow. 2015. Live Well-Vivir Bien New Brunswick. New Brunswick, NJ. http://nbtomorrow.org/what-we-do/health-programs/live-well-vivir-bien-new-brunswick/?lang=en.

New Brunswick Tomorrow. 2016. Live Well-Vivir Bien New Brunswick. New Brunswick, NJ. http://www.livewellnb.org/.

Pinto FG. 2016, January 31. "Protesters denounce immigration raids in New Brunswick." NJ Advance Media. http://www.nj.com/middlesex/index.ssf/2016/01/protesters_denounce_immigration_raids_in_new_bruns.html.

Robert Wood Johnson Medical School. 2013. *Promise Clinic Annual Report, 2013-2014*. Rutgers, The State University of New Jersey. http://rwjms3.rwjms.rutgers.edu/promise_clinic/documents/PromiseClinicAnnualReport2013-2014.pdf.

Robert Wood Johnson University Hospital. 2011. "Safety Ambassador Program 2013-2014." http://rwjtrauma.org/news/safety-ambassador-program-2013-2104.

Rutgers New Jersey Agricultural Experiment Station. 2016. "Food, Nutrition and Health." New Brunswick, NJ. http://njaes.rutgers.edu/health/ (see also links to County Cooperative Extension Personnel).

Strauss A, and J Corbin. 1990. *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. Newbury Park, CA: Sage.

State of New Jersey, Department of Human Services, Division of Aging Services. 2013. "State Health Insurance Assistance Program (SHIP)." http://www.state.nj.us/humanservices/doas/services/ship/.

U.S. Centers for Medicare & Medicaid Services. 2015. "Find Local Help." https://localhelp.healthcare.gov/#intro.

U.S. Congress. 2010. "The Patient Protection and Affordable Care Act, Public Law 111–148." U.S. Government Printing Office. http://www.gpo.gov/fdsys/pkg/PLAW-111publ148/pdf/PLAW-111publ148.pdf.

World Health Organization. 2012. "Social Determinants of Health." World Health Organization. Accessed October 20. http://www.who.int/social_determinants/en/.

Appendix 3.A: Questions Used for Key Informant Interviews

1. How would you describe the demographics of the community you serve?

2. How would you describe the overall status of health and health care in your community?

3. What do you think are the major barriers to health care that residents in your community face?

4. What do you see as the major health problems in your community today?

5. What do you see as the major strengths/resources in your community relative to health and health care? What health resources are not being used well? What health resources could be used differently to improve peoples' health in your community?

6. What kinds of things do you think could be done or programs developed to improve health and health care in your community?

For all questions, ask if there have been changes in the last few years and probe for differences among different demographic groups, if applicable.

Chapter 4: Discussion

Conclusions

A multi-pronged analytic approach, including both quantitative and qualitative components, was employed in this project to inform the community health needs assessment and implementation strategy required from all non-profit hospitals under the 2010 Affordable Care Act. Quantitative methods included analysis of both BRFSS data and hospital discharge records for the hospitals' primary service area compared to statewide findings. Qualitative methods included key informant interviews with local stakeholders, providers, and representatives from safety net and other community-based organizations. Taken together, this rich array of data provides a wealth of information on the health needs of the community and should help inform the hospitals' implementation strategy to address those needs.

Common themes were evident across the different study components:

- The uninsured face substantial challenges with regards to access to care; this was seen in all components of the study.
- Other demographic groups facing similar access challenges were low income respondents, Hispanics, and non-Hispanic blacks; also, the qualitative component specifically highlighted the particular challenges of the undocumented population.
- New areas of concern emerge among the Asian population in the community. Safety net providers have noted an increase in Asian patients, and barriers remain related to navigating the health system (transportation, language barriers, parking, etc.).
- Non-English speakers, the undocumented, the uninsured, and a growing Central American population face similar challenges navigating the health system.
- Poor dental care remains a problem among Asians, although there was some improvement in reported diabetes for Asians since the 1st report.
- Diabetes is a particular concern among black non-Hispanics.
- Other major health concerns included asthma, obesity, mental health, dental health, and access to dental care.
- Emergency department use is high among vulnerable groups (Medicaid and uninsured patients, Hispanics, and black non-Hispanics).

Other key findings were specific to each component. Those include:

- BRFSS data
    - The combined county sample fared better than the New Jersey sample on all but one measure (never had an HIV test). This was an improvement from the 1st report.
    - In general, older adults fared worse on most of the health status and chronic condition measures (self-assessed overall health status, 4+ bad physical health days, diabetes, heart attack, stroke, activity limitation, health problem requiring special equipment), but fared better on asthma and poor mental health.
    - Younger adults reported more problems with the healthcare access measures (not having a regular doctor, cost barriers to care, or not having recent medical/dental check-ups).
    - Younger adults also fared worse on risky behaviors such as binge drinking, smoking, and seatbelt use, but better on overweight/obesity, exercise, and falls.
    - Older adults were more likely to engage in some preventive behaviors (flu shot, blood stool test, sigmoidoscopy/colonoscopy, PSA test), although they were less likely to have had a recent mammogram, pap test, or HIV test.
    - Females fared worse on most of the health status measures (self-assessed overall health status, 4+ bad mental health days, asthma, stroke, activity limitation, health problem requiring special equipment), but fared better on 4+ bad physical health days, diabetes, and heart attack.
    - Males were less likely to have a regular doctor and medical or dental check-ups, while females reported more problems with cost barriers to care.
    - Males fared worse on the risky behaviors such as binge drinking, smoking, obesity, and seatbelt use, but females fared worse on exercise and falls.
    - The results were mixed for race-ethnicity on the health status and chronic condition measures.
        - Black non-Hispanics fared worse on 4+ bad physical health and 4+ bad mental health days, diabetes, activity limitation, and health problem requiring special equipment.
        - Hispanics fared worse on overall self-assessed health and asthma.
        - White non-Hispanics fared worse on 4+ bad physical health days, heart attack, and stroke.
        - Asian non-Hispanics fared better on all the health status and chronic condition measures.
    - Black non-Hispanics and Hispanics reported more problems with most of the healthcare access measures, and Asian non-Hispanics also fared worse on the dental access measure.
    - The results were mixed for race-ethnicity on the risky behaviors.

- Low income respondents and the uninsured fared worse on nearly all measures.
- The patterns for the sub-groups were basically the same as in the 1st report, with a few scattered exceptions.

- Hospital discharge records
  - Population-based rates of avoidable hospitalizations and ED visits remained lower for the service area of the hospitals compared to NJ overall, suggesting a continuing relatively higher adequacy of primary care.
  - Rates of ambulatory care sensitive conditions were highest for the conditions chronic obstructive pulmonary disease (COPD)/asthma in older adults and congestive heart failure.
  - Percentage of avoidable hospitalizations within the hospital service area was highest within Medicare-paid hospitalizations (17.58%) followed by those with payer type uninsured/self-pay (11.28%). Both rates increased slightly from the 1st report.
  - Unlike inpatient hospitalizations, Medicaid-paid ED visits had the highest percentage of avoidable visits (56.06%, a slight decrease from the 1st report) followed by ED visits with payer type self-pay /uninsured (50.11%, a slight increase from the 1st report).
  - Blacks were more likely to have avoidable hospitalizations (and up slightly from the 1st report), while Hispanics were more likely to have avoidable ED visits (but down slightly from the 1st report.
  - For children, blacks and Hispanics had higher rates of avoidable hospitalizations (out of all hospitalizations) than white patients.
- Key informant interviews
  - Findings were grouped into four themes.
  - The first theme discusses the diversity found in the hospitals' service area, making attention to cultural competence and person-centered care essential for effective service delivery.
    - Diversity exists among patients in languages, cultural practices, life experiences, literacy levels, and various disabilities that may affect their ability to physically access care and/or to communicate with providers.
    - There has been an increase in immigrants from Central America who are fleeing violence, and safety-net providers noted an increase in Asian clients.
  - The second theme discusses the kinds of health conditions that were of most concern to interviewees—chronic, often co-occurring, conditions.
    - Findings in this area were similar to the 1st report.

        - A variety of chronic health concerns were mentioned in response to a general question about major health problems in the community; these included diabetes, heart disease, obesity, behavioral health conditions, dental problems, asthma, chronic kidney disease, vision problems, and workplace injuries.
    - The third theme discusses the gaps and barriers to resident health that remain or have expanded since the 2012 assessment.
        - Positives include the expansion of health insurance under the Affordable Care Act and Medicaid expansion, the health care resources available at the two New Brunswick hospitals, and the robust relationships among stakeholders and service providers in the area.
        - However, system gaps or barriers remain or expanded since the 2012 assessment, leading residents to forgo/delay preventive care, thus disrupting care continuity important for the successful management of chronic health conditions.
    - The final theme discusses resident needs for information/education about health issues, the health care system, and nutrition, as well as help navigating the health care system.

On a positive note and similar to the 1st CHNA report, most health and access-based indicators in the hospitals' primary service area are still consistently better than benchmark rates for the state of New Jersey overall (found in the BRFSS data and hospital discharge records). However, disparities for the uninsured and low income respondents continue and are quite large and this is seen in all three components of the study. Some racial-ethnic disparities also remain, although not consistently across all measures. Finally, changing demographics have brought new health challenges, particularly with language barriers and other health care system navigation issues among growing Asian and Central American sub-groups and the undocumented. Although health reform has increased insurance coverage for many, access issues continue for the under-insured.

Interpretation, Generalizability of Findings, and Study Strengths

There are several points that should be noted when interpreting the findings from the various analytic activities described here or generalizing them to the community as a whole. The BRFSS data has potential limits inherent to any survey data. These limits primarily deal with the problem of not being able to reach some sub-groups of the population such as those without telephones or those suspicious of research. While survey questions were constructed as unambiguously as

possible, it is possible that some participants did not understand all questions. Also, the sample sizes for some sub-groups were too small and so results for these sub-groups were not reported as they would not be statistically reliable. Finally, changes in BRFSS methodology since the 1st CHNA report made it impossible to compare absolute changes in results for each measure; however, patterns of change over time are noted.

The findings from the hospital discharge records are based on avoidable hospitalizations and ED visits. These measures identify unmet community health care needs since these visits could be avoided by high quality community based primary care (AHRQ 2012a). However, there are other factors related to poor environment or patient non-adherence to treatment that could also result in these hospitalizations. Notwithstanding, these measures provide a good starting point for assessing quality of health services in the community (AHRQ, 2012a). Changes in the methodology for calculation of population denominators restrict the reporting of changes over time to only the combined hospital service area and New Jersey overall, as the impact of the change could lead to unreliable results on the much smaller populations of individual towns.

The qualitative data collection strategy posed certain strengths and limitations. The key informant interviews provided rich information from a broad array of community stakeholders regarding their experiences, opinions, and perspectives on the health and healthcare in their communities. As is common with qualitative studies, key stakeholders were purposefully selected for the interviews. This helped to ensure a broad representation of healthcare services and perspectives, although there are likely certain areas of healthcare that are not represented in this report. Moreover, the purposive nature of this sampling strategy inhibits the ability to generalize to the larger population of healthcare stakeholders in these communities. Additionally, the interpretive nature of the qualitative analysis can raise questions of validity. Systematic steps were taken to minimize researcher biases throughout the data collection and analysis process and rigorous qualitative techniques were used to verify our interpretations and conclusions.

There are multiple strengths to this study which help mitigate many of these limitations. By using three different data sources, both quantitative and qualitative, it is possible to see if common themes emerge across the different methods. The fact that many common themes did emerge strengthens the reliability and generalizability of the findings. Another strength of this project is that input was collected from both the public (BRFSS, hospital discharge data) and also from providers and other experts in the field (key informant interviews). Thus we were able to identify need from both perspectives and again examine where findings converge. Data sources included both self-report (BRFSS and qualitative component) and administrative data (hospital discharge records); again, converging themes across both types of data strengthen these findings. The

hospital discharge records had detailed information on patient and payer characteristics that shed light on the composition of patients facing barriers to ambulatory care as well as those who are at the highest risk of facing access problems. Such information captured in administrative records can then help in developing interventions to ensure primary care adequacy within the community.

Similarly, the BRFSS data has detailed information on patient demographics and health insurance that allow stratification of findings by these characteristics. The qualitative component allowed tailored investigation by customizing the questions based on study objectives. Additionally, a highly diverse hospital service area resulted in a good racial-ethnic representation in all components of the study. Finally, the qualitative findings in this report represent a summary of personal experiences, opinions, and perspectives. These can be important for understanding peoples' healthcare behaviors and decisions as well as gaining insights into the context of health and healthcare in Middlesex and Somerset counties.

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