



**COMMUNITY HEALTH
NEEDS ASSESSMENT
November 2017**



Hackensack
Meridian *Health*
Raritan Bay Medical Center

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EXECUTIVE SUMMARY

BACKGROUND

The Community Health Needs Assessment (CHNA) for the communities served by Raritan Bay Medical Center (RBMC) is designed to ensure that the Medical Center continues to effectively and efficiently serve the health needs of the area. RBMC, a member of Hackensack-Meridian Health (HMH), operates two acute care locations, Perth Amboy and Old Bridge, NJ. Each division has its own Primary Service Area (PSA) as well as overlapping portions served by both hospitals. The CHNA is developed in accordance with all federal rules and statutes, specifically, PL 111-148 (the Affordable Care Act) which added Section 501^(r) to the Internal Revenue Code.

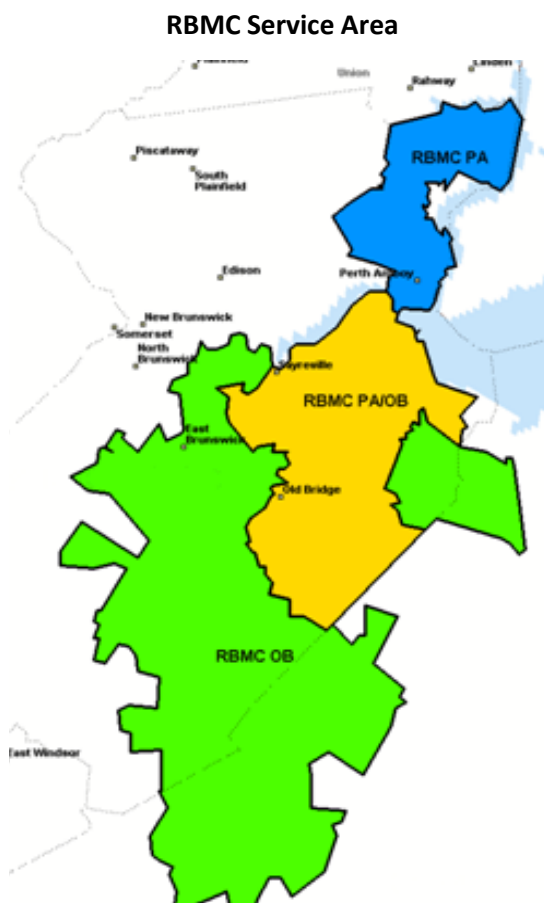
A Community Benefit Task Force was convened to oversee development of the CHNA. The Committee is comprised of key county stakeholders (government, civic, community-based organizations, faith-based organizations and health care providers) focused on improving the health of community residents. The findings and recommendations of the Task Force informed the CHNA process and ultimately the selection of community health need priority areas based on capacity, resources, competencies, and needs specific to the population served.

The CHNA uses detailed secondary public health data at the County and community levels to identify health assets, gaps, disparities and trends. The data includes hospital- and community-specific billing data and local public health data.

The communities considered throughout this CHNA are pictured here, and are all within Middlesex County. According to population estimates, Middlesex County is the second most populous county in New Jersey. Between 2010 and 2017, Middlesex County's population increases by 4.8%. Much of the growth occurs in Monroe, which experiences a 14.8% population increase, Perth Amboy 5.2%; and Old Bridge 4.8%; all municipalities within RBMC's Combined Service Areas. Middlesex County's municipalities are diverse, encompassing small towns, urban centers and rural communities.

The RBMC Service Area contains pockets of mid-sized urban centers including poor and minority populations. The following exemplifies a few social and economic differences identified:

- According to 2017 population estimates, Monroe (33.7%) has more than two times the number of residents aged 65+ as compared to Middlesex County (14.2%).
- According to 2017 population estimates, 42.2% of Middlesex County, 67.5% of Monroe and 10.7% of Perth Amboy residents are White as compared to 54.9% statewide.



- In 2017, 20.4% of New Jersey residents are Hispanic, approximately one-quarter of the percentage of Perth Amboy (79.6%) residents.
- The Hispanic population in Middlesex County increases 18.6% from 2010 through 2017.
- In 2017, 24.6% of Middlesex County residents are Asian, nearly 2 ½ times New Jersey (9.6%).
- The Asian population in Middlesex County increases 20.6% between 2010 and 2017.
- Middlesex County 2017 median household income (\$86,445) exceeds the New Jersey median household income (\$75,854) by \$10,591 or 14%.
 - Perth Amboy's 2017 median household income is \$38,740 (44.9%) less than Middlesex County and \$28,149 (37.1%) less than New Jersey.
- According to the US Census, in 2015, Middlesex County (9.0%) has fewer individuals living below the Federal Poverty Level than New Jersey (10.8%).
 - Perth Amboy and Carteret have among the highest poverty rates and exceed those of the State.
 - The 2015 ACS Survey reports 19.8% of Perth Amboy families and 11.1% of Carteret families are living below the FPL compared to 6.5% in Middlesex County and 8.2% statewide.
- Between 2010 and 2014, New Jersey, Middlesex County, Old Bridge and Woodbridge experience at least a 25% reduction in unemployment while Perth Amboy demonstrates a 16% decline in the same time frame.
 - In 2014, the Perth Amboy unemployment rate (13.2%) is double that of Middlesex County (6.6%).
- New Jersey, Middlesex County, RBMC-PA and RBMC-OB Service Area residents have a higher percentage of individuals who did not complete a high school education than the Healthy People 2020 target of 2.1%.
 - The percent of Middlesex County residents (11.2%) without a high school diploma in 2017 is five times greater than the Healthy People 2020 target (2.1%).
 - In 2017, Perth Amboy (27.3%) has two and a half times the percent of residents with less than a high school education than Middlesex County (11.2%).
 - Perth Amboy (10.4%) has less than half the amount of resident college graduates compared to statewide (22.8%).
- In 2015, according to the U.S. Census, 26.8% more Middlesex County residents over age 5 (16.8%) report speaking English as "less than very well" than across New Jersey (12.3%).

In addition to social and demographic differences, disparities in Middlesex County and RBMC's Primary Service Area (PSA) residents' incidence and prevalence of illness identified by this CHNA include:

- Between 2010 and 2014, six of the top 10 leading causes of death for Middlesex County improve including: heart disease (-11.0%), cancer (-7.3%), stroke (-9.9%), CLRD (-21.7%), diabetes (-19.6%) and Alzheimer's (-1.6%).
 - The AAMR for CLRD and diabetes demonstrate greatest improvement.
- Between 2010 and 2014, the Middlesex County age-adjusted mortality rates (AAMR) increases for unintentional injuries (5.3%), kidney disease (15.2%), and drug induced deaths (75.9%).
 - In 2014, drug induced deaths enter the Top 10 leading causes of death for the first time.
- Across all races/ethnicities, the Middlesex County death rate for heart disease improves from 2010 through 2014.

- In 2014, the Middlesex County heart disease mortality rate for Whites (176.2/100,000) is similar to New Jersey (173.4/100,000).
- Within the County, Whites have the highest heart disease mortality rate as compared to statewide statistics in which Blacks (191.2/100,000) have the highest rate.
- The statewide rate for Blacks exceeds that of Middlesex County Whites by 19.9%.
- Middlesex County's overall invasive cancer incidence is nearly three times greater than Healthy People 2020 target of 161.4/100,000.
- Between 2010 and 2013, incidence trends by site for Middlesex County are:
 - Melanoma – 21.0% increase
 - Colon/Rectum - .7% increase
 - Lung – 1.0% increase
 - Breast – 10.9% increase
- By race/ethnicity, 2012-2014, Black non-Hispanics have the highest death rate due to stroke in New Jersey (45.6/100,000), Middlesex County (37.7/100,000) and surrounding counties.
 - The 2014 Middlesex County death rate for strokes for Blacks (37.7/100,000) is 37.5% greater than the rate for Whites (29.6/100,000).
- Diabetes is increasing among Middlesex County residents.
 - Between 2012 (8.4%) and 2015 (9.9%), an additional 1.5 percentage point increase of County residents report having the disease.
- The Middlesex County 2010-2014 Black infant mortality rate of 7.4/100,000 is 60.9% greater than the State rate of 4.6/100,000.
 - The Middlesex County 2015 percent of Black low birth weight babies is 25% higher than Whites.
 - The Middlesex County 2015 percent of Black (2.4%) very low birth weight babies is double Whites (1.2%).
- Middlesex County women enrolled in first trimester prenatal care declines 9.0% between 2011 (86.2%) and 2015 (78.4%).
- The percent of Middlesex County women without prenatal care trends upward from .7% in 2011 to 1.3% in 2015.
- 2015 Birth rate to teens age 15-19 in Perth Amboy (36.4/1,000) is four times the Middlesex County rate (9.4/1,000).

Healthy Community Health Indicators identify that:

- In 2015, nearly four percent of New Jersey and Middlesex County low income residents do not live close to a grocery store.
 - In 2015, Middlesex County (3.7%) exceeds the CHR national benchmark (1%) for low income residents residing far from a grocery store; Middlesex County performs lower than the CHR benchmark by more than 25%.
- In 2015, 54% of Middlesex County restaurants are fast food compared to 50% of statewide, ranking the county in the middle quartile among all New Jersey counties.
 - In 2015, Middlesex County (54%) has 50% more fast food establishments than the CHR national benchmark (27%).
- Between 2012 and 2015, BRFSS data reports a small increase in the percent of Middlesex County residents who indicate their health as “poor or fair,” from 13.0% to 13.5%.
 - Compared to the County Health Ranking benchmark, more (greater than 25% more) Middlesex County residents report “fair or poor” health than the 10.0% benchmark.

- NJBRFSS reports that the number of Middlesex County adults with 14 or more physically unhealthy days (in the last 30 days) increases over 4 percentage points between 2012 (7.2%) and 2015 (11.4%) as the State remains relatively constant at 9.7%.
- County-wide adults who report 14 or more of the past 30 days with “not good” mental health status increases 2.7 percentage points from 8.1% in 2012 to 10.8% in 2015.
- The violent crime rate in Middlesex County decreases 21.6% from 2006-2008 (203/100,000) to 2012-2014 (159/100,000).
 - Compared to all 21 counties statewide, Middlesex County’s violent crime rate ranks in the best performing quartile.
- The Middlesex County burglary rate decreases 24.5% from 339.7/100,000 in 2013 to 256.2/100,000 in 2015.

TOP HEALTH ISSUES

Top health issues emerged as those most likely to benefit residents of the areas served by the Medical Center and to be within its purview, competency and resources of RBMC to impact in a meaningful manner. Although these issues are highest priorities, other issues are intertwined and therefore gain peripheral attention.

- 1) Diabetes
- 2) Heart Disease / Cardiovascular Disease
- 3) Physical Activity / Obesity
- 4) Mental Health / Substance Abuse
- 5) Access

Note: HMH-RBMC recognizes that Access is integral in addressing the community health needs encompassed by the first four priority areas and is therefore addressed in the activities portion of the Community Health Implementation Plan (CHIP).

Each of the top health issues impacting RBMC’s community is detailed below. Included information represents national perspectives and background on the issue, populations impacted within a community, methods that may be used to address an issue, and/or emerging national trends. County and Service area specific data are included to provide a reference point as to how RBMC’s communities are more/less uniquely impacted by an issue. Summarized background information is from multiple sources, including the Centers for Disease Control and Prevention (CDC), the US Department of Health and Human Services (HHS) Office of Disease Prevention and Health Promotion (ODPHP) Healthy People 2020, National Institutes of Health, and additional source material, as referenced.

After presenting an analysis of service gaps and assets across health indicators and survey results, the following priority issues were identified:

1. Diabetes

Diabetes is a group of metabolic diseases where the body’s pancreas does not produce enough insulin or does not properly respond to insulin produced, resulting in high blood sugar levels over a prolonged

period. There are several different types of diabetes, but the most common forms are type 1 and type 2 diabetes. Both impact glucose levels, and if left untreated, can cause many complications.¹

- Type 1 diabetes (T1D) can occur at any age, but is most commonly diagnosed from infancy to late 30s. If a person is diagnosed with T1D, their pancreas produces little to no insulin, and the body's immune system destroys the insulin-producing cells in the pancreas. Those diagnosed with T1D must inject insulin several times every day or continually infuse insulin through a pump, as well as manage their diet and exercise habits.
- Type 2 diabetes (T2D) typically develops after age 40, but has recently begun to appear with more frequency in children. If a person is diagnosed with T2D, their pancreas still produces insulin, but the body does not produce enough or is not able to use it effectively. Those diagnosed with T2D manage their disease through a combination of treatments, including diet control, exercise, self-monitoring of blood glucose, and in some cases, oral drugs or insulin.

Normally, blood glucose levels are tightly controlled by insulin, a hormone produced by the pancreas. Insulin lowers the blood glucose level. When blood glucose elevates (e.g. after eating) insulin is released from the pancreas to normalize the glucose level. In diabetic patients, the absence or insufficient production of insulin causes hyperglycemia. Diabetes is a chronic life-long condition which can be controlled.

More than 30 million people are living with Diabetes in the U.S. Approximately 7.2 million of U.S. residents living with Diabetes are undiagnosed. Diabetes is the seventh leading cause of death in the US and is the No. 1 cause of kidney failure, lower-limb amputations, and adult-onset blindness. In the last 20 years, the number of adults diagnosed with diabetes has more than tripled as the American population has aged and become more overweight or obese.²

- Total medical costs and lost work/wages for people diagnosed with diabetes are \$245 billion and medical costs for people with diabetes is more than double the cost of people without diabetes.
- The risk of death for adults with diabetes is 50% higher than adults without diabetes and people who have diabetes have higher risk of serious health complications, including blindness, kidney failure, heart disease, stroke and loss of toes, feet and/or legs. Diabetics may suffer from nerve damage because of damage to small vessels. Diabetes is also a factor in accelerating the hardening and narrowing of blood arteries (atherosclerosis).
- Prevention or delaying the onset of T2D includes losing weight (if necessary), eating a healthy and nutritious diet, and becoming more active.
- Managing diabetes requires the involvement of health professionals, a healthy diet and increases activity.
- Better treatment has enabled people with diabetes to live longer than before and with a better quality of life.

Prediabetes is a serious health condition where blood sugar levels are higher than normal, but not high enough yet to be diagnosed as type 2 diabetes. Approximately 84 million American adults—more than 1 out of 3—have prediabetes. Of those with prediabetes, 90% don't know they have it. Prediabetes puts you at an increased risk of developing type 2 diabetes, heart disease, and stroke.

¹ Juvenile Diabetes Research Foundation (JDRF); www.jdrf.org

² Centers for Disease Control and Prevention; <https://www.cdc.gov/diabetes/pdfs/data/statistics/national-diabetes-statistics-report.pdf>

There are numerous alarming statistics regarding diabetes and Latino populations in the U.S.³, which may require a targeted approach by providers to diagnose, educate and treat Latino populations in the communities served by RBMC.

- There is a higher prevalence of diabetes among the United States' Latino population, approximately 17% have diabetes versus 8% among Whites.
- Approximately 1 in 6 adult Latinos have diabetes and only 59% are aware of their condition.
- Uncontrolled diabetes shortens Latinos' life-span by 10 to 15 years.
- A Latino child born today has a 50% chance of developing diabetes in his or her lifetime.
- Approximately one quarter of Mexican Americans and Puerto Ricans over the age of 45 have diabetes.

With respect to diabetes among Middlesex County residents:

- Diabetes is the 8th leading cause of death in 2009; in 2014 diabetes is the 6th leading cause of death.
- Despite variability from 2006 to 2015, Middlesex County individuals with diabetes trends upward from 7.9% in 2006 to 9.9% in 2015, increasing 26.9% between 2011 and 2015.
- Since 2007, in comparison to the State and National statistics, prevalence of diabetes is variable. In 2015, Middlesex is the poorest performing county compared to the nation, New Jersey and surrounding counties.
- Diabetes prevalence in Middlesex County ranks in the worst performing quartile Statewide.
- Among hospitalized patients, residents of RBMC-PA's Service Area have the highest incidence of diabetes, 60.04/1,000 population in 2015 compared to 50.31/1,000 among RBMC-OB residents.
- Perth Amboy City has a rate/1,000 population in 2015 of 90.24, nearly double the Middlesex County figure of 48.49/1,000. Old Bridge Township has a rate/1,000 population in 2015 of 53.85.⁴

In RBMC's 2014 Community Health Needs Assessment, obesity and healthy nutrition are the top ranked health problem by respondents to the Community Health Survey. Effectively addressing obesity and healthy nutrition in the community will have a direct effect on the impact of diabetes on area residents. In 2017, Physical Activity / Obesity ranks 4th in terms of prioritized health issues affecting the community. As RBMC moves forward with implementation planning to address diabetes within the communities it serves, the continued coordinated approach to addressing healthy nutrition, obesity and physical activity will create a positive impact on efforts to identify, treat and educate patients with diabetes.

2. Heart Disease / Cardiovascular Disease

Heart disease is the leading cause of death in the United States. Stroke is the fifth leading cause of death in the United States. Together, heart disease and stroke, along with other cardiovascular disease, are among the most widespread and costly health problems facing the Nation today, accounting for

³ Joslin Diabetes Center: Latino Diabetes Initiative

⁴ Source: NJ UB-04 Acute Care IP, Same Day Stay, ER Discharges (2012 – 2015), Population: 2010, 2016 Nielsen-Claritas/HCDA, 2011 Straight Line Value Based on 2000 and 2010 Census; Definition: Inpatient, Same Day Stay and ED Discharges – ICD-9 DX Codes in The Range 249.00-250.03 (Appearing Anywhere in First 13 DX Codes on Patient Record)

approximately \$320 billion in health care expenditures and related expenses annually. Fortunately, they are also among the most preventable.⁵⁶

The leading modifiable (controllable) risk factors for heart disease and stroke are:

- High blood pressure
- High cholesterol
- Cigarette smoking
- Diabetes
- Unhealthy diet and physical inactivity
- Overweight and obesity

Over time, these risk factors cause changes in the heart and blood vessels that can lead to heart attacks, heart failure, and strokes. It is critical to address risk factors early in life to prevent these devastating events and other potential complications of chronic cardiovascular disease.

Controlling risk factors for heart disease and stroke remains a challenge. High blood pressure, cigarette smoking, and high blood cholesterol are still major contributors to the national epidemic of cardiovascular disease. High blood pressure affects approximately 1 in 3 adults in the United States, and only about half of them have it under control. High sodium intake can increase blood pressure and the risk for heart disease and stroke, yet about 90% of American adults exceed their daily recommendation for sodium intake.

The risk of Americans developing and dying from cardiovascular disease would be substantially reduced if major improvements are made across the U.S. population in diet and physical activity, control of high blood pressure and cholesterol, smoking cessation, and appropriate aspirin use.

Currently more than 1 in 3 adults (85.6 million) live with 1 or more types of cardiovascular disease. In addition to being the first and fifth leading causes of death, heart disease and stroke result in serious illness and disability, decreased quality of life, and hundreds of billions of dollars in economic loss every year.

The burden of cardiovascular disease is disproportionately distributed across the population. There are significant disparities in the following based on gender, age, race/ethnicity, geographic area, and socioeconomic status:

- Prevalence of risk factors
- Access to treatment
- Appropriate and timely treatment
- Treatment outcomes
- Mortality

Disease does not occur in isolation, and cardiovascular disease is no exception. cardiovascular health is significantly influenced by the physical, social, and political environment, including:

- Maternal and child health
- Access to educational opportunities
- Availability of healthy foods, physical education, and extracurricular activities in schools
- Opportunities for physical activity, including access to safe and walkable communities
- Access to healthy foods

⁵ Centers for Disease Control and Prevention; https://www.cdc.gov/dhbsp/data_statistics/fact_sheets/fs_heart_disease.htm

⁶ Healthy People 2020; <https://www.healthypeople.gov/2020/topics-objectives/topic/Access-to-Health-Services>

- Quality of working conditions and worksite health
- Availability of community support and resources
- Access to affordable, quality health care

With respect to heart and cardiovascular disease(s) among Middlesex County residents:

- Despite an 11% decline between 2010 (174.4/100,000) and 2014 (155.2/100,000) and a top 25% statewide ranking, deaths due to heart disease perform lower than the Healthy People 2020 target (108.8/100,000) by 42.6%.
- The 2014 Middlesex County mortality rate due to heart disease (155.2/100,000) is 6.2% lower than Statewide (165.4/100,000) and is similar to neighboring Union and Monmouth Counties.
- Across all race/ethnicities, the Middlesex County death rate for heart disease improves from 2010 through 2014.
 - In 2014, the Middlesex County heart disease mortality rate for Whites (176.2/100,000) is similar to New Jersey (173.4/100,000). Within the County, Whites have the highest heart disease mortality rate as compared to statewide statistics in which Blacks (191.2/100,000) have the highest rate. The statewide rate for Blacks exceeds that of Middlesex County Whites by 19.9%.
- The Middlesex County stroke AAMR decreases 9.9% from 2010 (29.4/100,000) to 2014 (26.5/100,000). In 2014, the County AAMR is 21.6% lower than the Healthy People 2020 target (33.8/100,000).
- The 2014 Middlesex County stroke AAMR (26.5/100,000) is 15.1% lower than the State (31.2/100,000) and is in the top performing quartile statewide, better than neighboring Union and Monmouth Counties.
- By race/ethnicity, 2012-2014, Black non-Hispanics have the highest death rate due to stroke in New Jersey (45.6/100,000), Middlesex County (37.7/100,000) and surrounding counties.
 - The 2014 Middlesex County death rate for strokes for Blacks (37.7/100,000) is 37.5% greater than the rate for Whites (29.6/100,000).
- According to BRFSS, the percent of Middlesex County residents told they have angina or coronary heart disease remains relatively stable from 3.5% in 2012 to 3.6% in 2015. In 2015, BRFSS indicates 3.9% of New Jersey respondents have angina or coronary heart disease, 9.1% greater than Middlesex County. As compared to New Jersey, Middlesex County residents with angina or coronary heart disease perform in the middle quartile.
- According to BRFSS, the percent of Middlesex County residents told they have had a heart attack increases 1.4 percentage points from 3.4% in 2012 to 4.8% in 2015. In 2015, BRFSS indicates 3.4% of New Jersey respondents are told they have had a heart attack, 41.1% greater than Statewide. Middlesex County ranks in the lowest performing quartile compared to all 21 New Jersey counties for residents told they have had a heart attack.
- BRFSS reports a constant 1.7% of Middlesex County residents reporting a stroke between 2012 and 2015.
- In 2015, Middlesex County (1.7%) reports fewer strokes than the State (2.0%) and the Country (2.9%).
- Middlesex County ranks among the middle quartile compared to all 21 New Jersey counties for percentage of population that have had a stroke.
- In 2015, 29.2% of Middlesex County adults are aware that they suffer from hypertension, one percentage point higher than New Jersey adults (28.2%).

- Between 2009 and 2015, Middlesex County adults who are told they have high blood pressure increases from 27.5% to 29.2%
- In 2015, Middlesex County (29.2%) exceeds the Healthy People 2020 target (26.9%) for adults with high blood pressure.
- In 2015, 31.3% of Middlesex County adults who have their cholesterol checked are aware that the results are high, slightly lower than New Jersey adults (31.6%).
- The percent of Middlesex County adults reporting high cholesterol to BRFSS trends downward from 2009 through 2015, decreasing 10.4% between 2011 and 2015.

With respect to heart and cardiovascular disease(s) among Service Area residents⁷:

- The rate of Middlesex County residents hospitalized with a heart attack (2012-2015) are lower than those in the hospital Service Areas (Combined, RBMC-PA, RBMC-OB) and the ZIP Codes of Perth Amboy and Old Bridge.
- In 2015, Perth Amboy residents exhibit the highest rate for patients hospitalized with heart attacks at 1.79/1,000 and Old Bridge residents report the lowest rate of 1.26/1,000.
- Between 2012 and 2015, the rate of patients hospitalized with heart failure in Middlesex County is lower than the hospital Service Areas, Perth Amboy and Old Bridge ZIP Codes.
- In 2015, Old Bridge residents exhibit the highest rate for patient's hospitalized with heart failure/CHF at 4.16/1,000 and Middlesex County residents report the lowest rate of 2.92/1,000.
- From 2012 through 2015, more Perth Amboy patients are hospitalized with stroke/TIA compared to the RBMC Service Areas, Old Bridge and Middlesex County.
- In 2015, Perth Amboy (3.18/1,000) has the highest rates for patients hospitalized with stroke/TIA in the region and Old Bridge (2.42/1,000) has the lowest.
- Perth Amboy has the highest rate of patients hospitalized with hypertension for each year 2012 through 2015.
- In 2015, Perth Amboy (172.21/1,000) has the highest rates for patients hospitalized with hypertension in the region and Middlesex County (105.52/1,000) has the lowest.
- The rate for patients hospitalized with high cholesterol discharges/1,000 population is highest in Perth Amboy for each year 2012 through 2015.
- In 2015, the rate of patients in the hospital with high cholesterol (discharges/1,000 population) is highest in Perth Amboy (37.55/1,000) and lowest in Middlesex County (19.33/1,000).

3. Physical Activity / Obesity

Obesity, defined as a body mass index (BMI) ≥ 30 , is common, serious, and costly. In 2009, about 2.4 million more adults are obese than in 2007. This epidemic has affected every part of the United States. In every state, more than 15% of adults are obese, and in nine states, over 30% of adults are obese. The medical care costs of obesity in the United States are staggering. Recent estimates of the annual medical costs are as high as \$147 billion. More efforts are needed, and new federal initiatives are helping to change our communities into places that strongly support healthy eating and active living.⁸

- Non-Hispanic black women and Hispanics have the highest rates of obesity (41.9% and 30.7%).

⁷ Source: NJ UB-04 Acute Care IP, Same Day Stay, ER Discharges (2012 – 2015), Population: 2010, 2016 Nielsen-Claritas/HCDA, 2011 Straight Line Value Based on 2000 and 2010 Census; Definition: Inpatient, Same Day Stay and ED Discharges for Select Diseases

⁸ Centers for Disease Control and Prevention; <https://www.cdc.gov/vitalsigns/pdf/2010-08-vitalsigns.pdf>

- Obesity is a contributing cause of many other health problems, including heart disease, stroke, Diabetes, and some types of Cancer. These are some of the leading causes of death in the U.S.
- Obesity can cause sleep apnea and breathing problems and make activity more difficult.
- Obesity can also cause problems during pregnancy or make it more difficult for a woman to become pregnant.
- Obese persons require costlier medical care. This places a huge financial burden on our medical care system.

The Nutrition and Weight Status objectives for Healthy People 2020 reflect strong science supporting the health benefits of eating a healthful diet and maintaining a healthy body weight. The objectives also emphasize that efforts to change diet and weight should address individual behaviors, as well as the policies and environments that support these behaviors in settings such as schools, worksites, health care organizations, and communities. The goal of promoting healthful diets and healthy weight encompasses increasing household food security and eliminating hunger. Americans with a healthful diet⁹:

- Consume a variety of nutrient-dense foods within and across the food groups, especially whole grains, fruits, vegetables, low-fat or fat-free milk or milk products, and lean meats and other protein sources.
- Limit the intake of saturated and trans fats, cholesterol, added sugars, sodium (salt), and alcohol.
- Limit caloric intake to meet caloric needs

In conjunction with addressing diet to reduce obesity in a population, Healthy People 2020 has released Physical Activity Guidelines for Americans (PAG), the first-ever publication of national guidelines for physical activity. The Physical Activity objectives for Healthy People 2020 reflect the strong state of the science supporting the health benefits of regular physical activity among youth and adults, as identified in the PAG. Regular physical activity includes participation in moderate- and vigorous-intensity physical activities and muscle-strengthening activities.

More than 80% of adults do not meet the guidelines for both aerobic and muscle-strengthening activities. Similarly, more than 80% of adolescents do not do enough aerobic physical activity to meet the guidelines for youth. Working together to meet Healthy People 2020 targets via a multidisciplinary approach is critical to increasing the levels of physical activity and improving health in the United States¹⁰.

The Physical Activity objectives for Healthy People 2020 highlight how physical activity levels are positively affected by:

- Structural environments, such as the availability of sidewalks, bike lanes, trails, and parks
- Legislative policies that improve access to facilities that support physical activity
- Physical activity in childcare settings
- Behavioral interventions to reduce television viewing and computer usage
- Recess and physical education in the Nation's public and private elementary schools

Regular physical activity can improve the health and quality of life of Americans of all ages, regardless of the presence of a chronic disease or disability. Among adults and older adults, physical activity can lower the risk of:

⁹ Healthy People 2020; <https://www.healthypeople.gov/2020/topics-objectives/topic/nutrition-and-weight-status>

¹⁰ Healthy People 2020; <https://www.healthypeople.gov/2020/topics-objectives/topic/physical-activity>

- Early death
- Coronary heart disease
- Stroke
- High blood pressure
- Type 2 Diabetes
- Breast and colon Cancer
- Falls
- Depression

Among children and adolescents, physical activity can:

- Improve bone health
- Improve cardiorespiratory and muscular fitness
- Decrease levels of body fat
- Reduce symptoms of depression
- Improve cognitive skills
- Improve ability to concentrate and pay attention

Personal, social, economic, and environmental factors all play a role in physical activity levels among youth, adults, and older adults. Understanding the barriers to and facilitators of physical activity is important to ensure the effectiveness of interventions and other actions to increase levels of physical activity.

Factors positively associated with adult physical activity include:

- Postsecondary education
- Higher income
- Enjoyment of exercise
- Expectation of benefits
- Belief in ability to exercise (self-efficacy)
- History of activity in adulthood
- Social support from peers, family, or spouse
- Access to and satisfaction with facilities
- Enjoyable scenery
- Safe neighborhoods

Factors negatively associated with adult physical activity include:

- Advancing age
- Low income
- Lack of time
- Low motivation
- Rural residency
- Perception of great effort needed for exercise
- Overweight or obesity
- Perception of poor health
- Being disabled

Environmental influences positively associated with physical activity among children and adolescents include:

- Presence of sidewalks
- Having a destination/walking to a specific place
- Access to public transportation
- Low traffic density
- Access to neighborhood or school play area and/or recreational equipment

People with disabilities may be less likely to participate in physical activity due to physical, emotional, and psychological barriers. Barriers may include the inaccessibility of facilities and the lack of staff trained in working with people with disabilities.

Healthy People 2020 reflects a multidisciplinary approach to promoting physical activity. This approach brings about traditional partnerships, such as that of education and health care, with nontraditional partnerships representing transportation, urban planning, recreation, environmental health, and other fields.

With respect to physical activity / obesity issues among Middlesex County and Service Area residents:

- County-wide individuals with a BMI \geq 30 trends upward from 2006 through 2013, increasing 8.7% from 2010 to 2013.
- From 2007 through 2013, the percent of Middlesex County residents who are obese is lower than Statewide.
- The 2013 percent of Middlesex County residents with a BMI \geq 30 is below the Healthy People 2020 target of 30.6% and the County Health Rankings benchmark of 25%.
- County-wide residents age 20+ reporting no leisure-time physical activity trends downward from 2010 through 2013, decreasing 10%.
- From 2008 through 2013, the percent of Middlesex County residents with no leisure time physical activity is marginally higher than Statewide.
- The 2013 percent of Middlesex County residents age 20+ reporting no leisure-time physical activity is above the County Health Rankings benchmark of 21%.
- The percent of all restaurants that are fast food establishments in Middlesex County in 2010 is 55%, 5 percentage points higher than the State and in the least favorable quartile based on County Health Rankings.
- In the Combined Service Area, the rate of obesity among hospitalized patients increases from 12.13 in 2012 to 13.56 in 2015. Rates are higher in Old Bridge (15.66) and Perth Amboy (16.27) than County-wide (11.22)¹¹.

4. Mental Health / Substance Abuse

Mental health and substance abuse, most often addressed jointly as “behavioral health”, represent a broad array of disorders, many of which are co-occurring, and an equally wide-ranging number of treatment pathways. For purposes of explanation here, the two areas are separated to ensure that the CHNA identifies distinct elements of each. Ultimately, addressing both areas will include significant overlap.

Mental Health

As described by Healthy People 2020, mental health is a state of successful performance of mental function, resulting in productive activities, fulfilling relationships with other people, and the ability to adapt to change and to cope with challenges. Mental health is essential to personal well-being, family and interpersonal relationships, and the ability to contribute to community or society. Mental disorders are health conditions that are characterized by alterations in thinking, mood, and/or behavior that are associated with distress and/or impaired functioning. Mental disorders contribute to a host of problems

¹¹ Source: NJ UB-04 Acute Care IP, Same Day Stay, ER Discharges (2012 – 2015), Population: 2010, 2016 Nielsen-Claritas/HCDA, 2011 Straight Line Value Based on 2000 and 2010 Census; Definition: Inpatient, Same Day Stay and ED Discharges – ICD-9 DX Codes 278.00 or 278.01 (Appearing Anywhere in First 13 DX Codes on Patient Record)

that may include disability, pain, or death. Mental illness is the term that refers collectively to all diagnosable mental disorders.¹²

Mental disorders are among the most common causes of disability. The resulting disease burden of mental illness is among the highest of all diseases. In any given year, an estimated 18.1% (43.6 million) of U.S. adults ages 18 years or older suffer from any mental illness and 4.2% (9.8 million) suffer from a seriously debilitating mental illness. Neuropsychiatric disorders are the leading cause of disability in the United States, accounting for 18.7% of all years of life lost to disability and premature mortality. Moreover, suicide is the 10th leading cause of death in the United States, accounting for the deaths of approximately 43,000 Americans in 2014.

Mental health and physical health are closely connected. Mental health plays a major role in people's ability to maintain good physical health. Mental illnesses, such as depression and anxiety, affect people's ability to participate in health-promoting behaviors. In turn, problems with physical health, such as chronic diseases, can have a serious impact on mental health and decrease a person's ability to participate in treatment and recovery. The existing model for understanding mental health and mental disorders emphasizes the interaction of social, environmental, and genetic factors throughout the lifespan. In behavioral health, researchers identify:

- Risk factors, which predispose individuals to mental illness
- Protective factors, which protect them from developing mental disorders

Researchers now know that the prevention of mental, emotional, and behavioral (MEB) disorders is inherently interdisciplinary and draws on a variety of different strategies. Over the past 20 years, research on the prevention of mental disorders has progressed. The understanding of how the brain functions under normal conditions and in response to stressors, combined with knowledge of how the brain develops over time, has been essential to that progress. The major areas of progress include evidence that:¹³

- MEB disorders are common and begin early in life
- The greatest opportunity for prevention is among young people
- There are multiyear effects of multiple preventive interventions on reducing substance abuse, conduct disorder, antisocial behavior, aggression, and child maltreatment
- The incidence of depression among pregnant women and adolescents can be reduced
- School-based violence prevention can reduce the base rate of aggressive problems in an average school by 25 to 33 percent
- Improving family functioning and positive parenting can have positive outcomes on mental health and can reduce poverty-related risk
- Implementation is complex, and it is important that interventions be relevant to the target audiences

Emerging Issues in Mental Health

New mental health issues have emerged among some special populations, such as:

¹² *Healthy People 2020*; <https://www.healthypeople.gov/2020/topics-objectives/topic/mental-health-and-mental-disorders>

¹³ A comprehensive listing can be found at <https://www.healthypeople.gov/2020/topics-objectives/topic/mental-health-and-mental-disorders>

- Veterans who experience physical and mental trauma
- People in communities with large-scale psychological trauma caused by natural disasters
- Older adults, as the understanding and treatment of dementia and mood disorders continues to improve

As the Federal Government continues to implement health reform legislation, it will give attention to providing services for individuals with mental illness and substance use disorders, including new opportunities for access to and coverage for treatment and prevention services.

Substance Abuse

Substance abuse refers to a set of related conditions associated with the consumption of mind- and behavior-altering substances that have negative behavioral and health outcomes. Social attitudes and political and legal responses to the consumption of alcohol and illicit drugs make substance abuse one of the most complex public health issues.

In 2005, an estimated 22 million Americans struggled with a drug or alcohol problem. Almost 95 percent of people with substance use problems are considered unaware of their problem. Of those who recognize their problem, 273,000 have made an unsuccessful effort to obtain treatment. These estimates highlight the importance of increasing prevention efforts and improving access to treatment for substance abuse and co-occurring disorders. Substance abuse has a major impact on individuals, families, and communities. The effects of substance abuse are cumulative, significantly contributing to costly social, physical, mental, and public health problems. These problems include:

- Teenage pregnancy
- Human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS)
- Other sexually transmitted diseases (STDs)
- Domestic violence
- Child abuse
- Motor vehicle crashes
- Physical fights
- Crime
- Homicide
- Suicide

Improvements in brain-imaging technologies and the development of medications that assist in treatment have gradually shifted the research community's perspective on substance abuse. Improved evaluation of community-level prevention has enhanced researchers' understanding of environmental and social factors that contribute to the initiation and abuse of alcohol and illicit drugs, leading to a more sophisticated understanding of how to implement evidence-based strategies in specific social and cultural settings. A stronger emphasis on evaluation has expanded evidence-based practices for drug and alcohol treatment. Improvements have focused on the development of better clinical interventions through research and increasing the skills and qualifications of treatment providers.

Emerging Issues in Substance Abuse

In recent years, the impact of substance and alcohol abuse has been notable across several areas, including the following¹⁴:

¹⁴ A comprehensive listing can be found at <https://www.healthypeople.gov/2020/topics-objectives/topic/mental-health-and-mental-disorders>

- Adolescent abuse of prescription drugs has continued to rise over the past 5 years.
- The 2007 MTF survey found high rates of nonmedical use of the prescription pain relievers Vicodin and OxyContin.
- It is believed that 2 factors have led to the increase in abuse. First, the availability of prescription drugs is increasing from many sources, including the family medicine cabinet, the Internet, and doctors. Second, many adolescents believe that prescription drugs are safer to take than street drugs.

With respect to mental health and substance abuse issues among Middlesex County residents:

- County-wide adults who report 14 or more of the past 30 days with “not good” mental health status increase 2.7 percentage points from 8.1% in 2012 to 10.8% in 2015. The 2015 Middlesex County report of 14+/30 days with “not good” mental health is similar to New Jersey at 10.9%.
- County-wide suicide rate trends upward from 2005 through 2014 peaking at 7.3/100,000 in 2009. Despite declining 14.5% between 2010 and 2014, the 2014 rate of 5.9/100,000 remains higher than 2004 rate of 5.0/100,000.
- Since 2010, the suicide rate in Middlesex County is lower than Statewide.
- The suicide rate of 5.9/100,000 is lower than the Healthy People 2020 target of 10.2/100,000.
- County-wide adults who partook in alcohol binge drinking decrease 14.7% between 2011 and 2015. Since 2015, the percent of Middlesex County residents reporting binge drinking is consistently lower than Statewide and surrounding counties.
- County-wide adults who partook in alcohol heavy drinking increase slightly, 3.3%, between 2011 and 2015. Since 2015, the percent of Middlesex County residents reporting heavy drinking is consistently lower than Statewide and surrounding counties.
- County-wide individuals with alcohol or drug induced inpatient hospitalization trends upward from 2009 through 2015, increasing 29.8% from 2011 to 2015.
- Since 2011, the percent of Middlesex County residents with alcohol or drug induced inpatient hospitalization is consistently lower than the State.
- County-wide individuals with alcohol or drug induced emergency department visits trends upward from 2009 through 2015, increasing 19.8% from 2011 to 2015.
- Since 2011, the percent of Middlesex County residents with alcohol or drug induced emergency department visits is consistently lower than the State and surrounding counties.

With respect to mental Health and substance Abuse issues among Service Area residents¹⁵:

- Perth Amboy has the highest incidence rate for mental health and substance abuse in the Service Area.
- Perth Amboy’s mental health and substance abuse incidence rates are more than double that of Middlesex County.
- Inpatient mental health rates for RBMC-PA and RBMC-OB Service Areas are higher than Middlesex County but lower than the State. Perth Amboy’s rate is higher than all comparative figures. Old Bridge is lower than the Service Areas and the State and is similar to the County figure.
- ED mental health rates in the RBMC-PA Service Area are higher than the County but lower than Statewide. Perth Amboy’s rate is more than double the County and exceeds the Statewide rate

¹⁵ Source: NJ UB-04 Acute Care IP, Same Day Stay, ER Discharges (2012 – 2015), Population: 2010, 2016 Nielsen-Claritas/HCDA, 2011 & 2015 Straight Line Value Based on 2010 and 2017, Definition: Inpatient, Same Day Stay and ED Discharges – MDCs 19 and 20

by more than 6 points. RBMC-OB Service Area and Old Bridge rates are below County and State figures.

- Inpatient substance abuse use rates in RBMC-PA and RBMC-OB Service Areas, as well as Old Bridge rates are all below the State rate. Perth Amboy's rate is .5 point higher than the State and 1.2 point higher than the County.
- ED Substance abuse rate in RBMC-PA Service Area exceeds the County and State. Perth Amboy is more than double the County rate and nearly double the State figure. RBMC-OB Service Area rates and Old Bridge are lower than County and Statewide figures.

5. Access to Health Services

Improved access to comprehensive, quality health care services is inextricably linked to successful impacts on numerous health factors and outcomes, including RBMC's four other priority areas. Access to health services is a Healthy People 2020 goal. The wide-ranging impacts on health related to access issues that populations may face are outlined below.

Access to comprehensive, quality health care services is important for promoting and maintaining health, preventing and managing disease, reducing unnecessary disability and premature death, and achieving health equity for all Americans. When considering access to health care, it is important to also include oral health care and obtaining necessary prescription drugs.

Access to health services means "the timely use of personal health services to achieve the best health outcomes." It requires 3 distinct steps:

- Entering the health care system (usually through insurance coverage)
- Accessing a location where needed health care services are provided (geographic availability)
- Finding a health care provider whom the patient trusts and can communicate with (personal relationship)

Barriers to health services include:

- High cost of care
- Inadequate or no insurance coverage
- Lack of availability of services
- Lack of culturally competent care

These barriers to accessing health services lead to:

- Unmet health needs
- Delays in receiving appropriate care
- Inability to get preventive services
- Financial burdens
- Preventable hospitalizations

Access to health care impacts one's overall physical, social, and mental health status and quality of life and often varies based on race, ethnicity, socioeconomic status, age, sex, disability status, sexual orientation, gender identity, and residential location.

Health insurance coverage helps patients enter the health care system. Lack of adequate coverage makes it difficult for people to get the health care they need and, when they do get care, burdens them with large medical bills. Uninsured people are:

- More likely to have poor health status
- Less likely to receive medical care
- More likely to be diagnosed later
- More likely to die prematurely

Improving access to health care services depends in part on ensuring that people have a usual and ongoing source of care (that is, a provider or facility where one regularly receives care). People with a usual source of care have better health outcomes, fewer disparities, and lower costs.

Having a primary care provider (PCP) who serves as the usual source of care is especially important. PCPs can develop meaningful and sustained relationships with patients and provide integrated services while practicing in the context of family and community. Having a usual PCP is associated with:

- Greater patient trust in the provider
- Better patient-provider communication
- Increased likelihood that patients will receive appropriate care
- Lower mortality from all causes

Improving health care services includes increasing access to and use of evidence-based preventive services. Clinical preventive services are services that:

- Prevent illness by promoting healthy behaviors in people without risk factors (e.g., diet and exercise counseling)
- Prevent illness by providing protection to those at risk (e.g., childhood vaccinations)
- Identify and treat people with no symptoms, but who have risk factors, before the clinical illness develops (e.g., screening for hypertension or colorectal cancer)

In addition to primary care and preventive services, emergency medical services (EMS) are a crucial link in the chain of care. EMS include basic and advanced life support. Notable progress has been made in recent years to ensure that everyone has access to rapidly responding EMS; it is an important effort in improving the health of the population.

Timeliness is the health care system's ability to provide health care quickly after a need is recognized. Measures of timeliness include:

- Availability of appointments and care for illness or injury when it is needed
- Time spent waiting in doctors' offices and emergency departments (EDs)

The delay in time between identifying a need for a specific test or treatment and receiving those services can negatively impact health and costs of care. For example, delays in getting care can lead to:

- Increased emotional distress

- Increased complications
- Higher treatment costs
- Increased hospitalizations

Actual and perceived difficulties or delays in getting care when patients are ill or injured likely reflect significant barriers to care. Prolonged ED wait time:

- Decreases patient satisfaction
- Increases the number of patients who leave before being seen
- Is associated with clinically significant delays in care

Causes for increased ED wait times include an increase in the number of patients going to EDs, with much of the increase due to visits by less acutely ill patients. At the same time, the total number of EDs in the United States has decreased.

With respect to Access to Care issues among Middlesex County and Service Area residents:

- Despite almost doubling from 2008 through 2014 within Middlesex County, the ratio of population to physicians decreased slightly at 1.8% from 2011 to 2014.
- From 2008 through 2014, the ratio of population to primary care physicians in Middlesex County was lower than Statewide.
- The 2014 Middlesex County population to primary care physician ratio is above the County Health Rankings benchmark of 1,051:1.
- Since 2010, the nonelderly population without health insurance in Middlesex County has trended downward, decreasing 20% from 2011 to 2014.
- From 2008 through 2012, Middlesex County and the State both reported 15% uninsured. However, in 2013 and 2014, Middlesex County had slightly fewer uninsured than Statewide.
- The percent of the nonelderly population without health insurance far exceed the Healthy People 2020 target of 0 and falls within range of the County Health Rankings benchmark of 15%.
- In 2015, ENT is the leading ACSC for children resulting in an ED visit, followed by asthma, GI obstruction, kidney/urinary infection and cellulitis. Middlesex County had higher rates of ENT and asthma than Statewide.

1. INTRODUCTION

BACKGROUND

Raritan Bay Medical Center (RBMC), a non-profit health care organization, is committed to providing professional, compassionate and quality health care to all patients while meeting the changing health care needs of its communities. At RBMC, Central Jersey residents receive a full continuum of medical-surgical, maternity, pediatric, diagnostic imaging, laboratory and general and critical care, as well as adult behavioral health, emergency and interventional cardiac and outpatient surgery services. With hospitals located in Old Bridge and Perth Amboy, RBMC is one of four Middlesex County acute care facilities. Combined, RBMC hospitals have 501 licensed beds with 388 at the Perth Amboy location and an additional 113 at the Old Bridge facility. RBMC employs a medical staff of over 600 quality professionals encompassing all specialties in addition to a nursing and service staff of approximately 1,700 employees.

On January 1, 2016, Raritan Bay Medical Center merged with Hackensack Meridian *Health* network. Hackensack Meridian *Health* is committed to improving the health and well-being of New Jersey residents by providing quality, patient-centered health care services delivered in hospital, community and in-home settings. Hackensack Meridian *Health* is dedicated to advancing medicine through clinical education and research. The network fosters a culture of excellence within a collaborative environment. Hackensack Meridian *Health* actively seeks innovative solutions, technologies and partnerships to support sustainable financial growth and ensure communities served have access to a comprehensive continuum of integrated services that meet present and future health care needs. The network includes hospitals in seven counties from the New York border to the Jersey shore: Bayshore Medical Center, Hackensack University Medical Center, Mountainside Medical Center, Palisades Medical Center, Pascack Valley Medical Center, Jersey Shore University Medical Center, John Theurer Cancer Center, Joseph M. Sanzari Children's Hospital, K. Hovnanian Children's Hospital, Ocean Medical Center, Raritan Bay Medical Center, Riverview Medical Center, and Southern Ocean Medical Center. The network also includes services for emergency care, convenient care, long term care, rehabilitation, fitness and wellness centers, occupational health, behavioral health, surgery, primary care, specialty care, imaging and urgent care. Hackensack Meridian *Health* is the recipient of numerous state and national recognitions for patient care and nursing excellence.

CHNA PURPOSE AND SCOPE

The Public Health Accreditation Board defines a Community Health Needs Assessment as a "systematic examination of the health status indicators for a given population used to identify key problems and assets in a community." The ultimate goal of the CHNA process is to develop strategies through an Implementation Plan to address the community's health needs and identified issues. Essential components to successful assessment and implementation are community engagement and collaborative participation.

In June 2011, the National Prevention Council, created through the Affordable Care Act (ACA) in 2010, was tasked with the development of a National Prevention Strategy to realize the law's efforts to reduce costs, improve quality of care, and provide coverage options for the uninsured. The Council's overarching goal to increase the number of healthy Americans at every stage of life is achieved through four Strategic Directives and seven targeted Priorities. The Strategic Directives recommended for developing a prevention-oriented society include:

- **Healthy and Safe Community Environments:** Create, sustain, and recognize communities that promote health and wellness through prevention.
- **Clinical and Community Prevention Services:** Ensure that prevention-focused healthcare and community prevention efforts are available, integrated, and mutually reinforcing.
- **Empowered People:** Support people in making healthy choices.
- **Elimination of Health Disparities:** Eliminate disparities, improving the quality of life for all Americans.

With this framework, the seven targeted Priorities provide directives most likely to reduce the burden of many leading causes of preventable death and major illnesses are:

- Tobacco Free Living
- Preventing Drug Abuse and Excessive Alcohol Use
- Healthy Eating
- Active Living
- Injury and Violence Free Living
- Reproductive and Sexual Health
- Mental and Emotional Well-Being

This RBMC Community Health Needs Assessment is undertaken in this context, and developed for the purpose of enhancing the health and quality of life throughout its community. Key health outcomes, factors, and social determinants of health are presented and as available are compared to County, State and national benchmarks.

SUMMARY OF 2014 CHNA

After reviewing secondary source data, primary research and engaging in priority and plan development, the Community Advisory Task Force determined the Top 5 issues to be addressed in the 2014 Community Health Implementation Plan were:

1. Healthy Nutrition/Obesity
2. Mental Health and Alcohol/Substance Abuse
3. Heart Disease & Stroke
4. Diabetes
5. Cancer

Members agreed that although these issues were highest priorities and primary foci, many lower ranked issues were intertwined and therefore would gain peripheral attention. Some issues, including poverty or education, classified as social determinants of health and health status, were acknowledged but the members recognized they may be unable to impact these areas.

Since 2014, RBMC has provided numerous community health programs and services, including prevention, education, and wellness screenings. Many of these programs are ongoing and RBMC staff works in partnership with local community organizations and agencies to enhance efforts in addressing community health needs. Key activities include: partnering with the Middlesex County Prosecutor's Office to combat the opioid overdose epidemic; launching the Learning Garden to promote positive health behaviors and increase nutrition education; implementing the Heart Failure Transitions in Care Program to reduce readmission rates for all chronic cardiac conditions and increasing funding and; partnering with the Joslin Diabetes Center to deliver diabetes education and enhance patient self-management. (See Appendix A)

2. METHODOLOGY

MEETINGS WITH COMMUNITY SERVICE PROVIDERS, AGENCY AND HEALTH DEPARTMENTS

RBMC convened a group of community stakeholders, civic leaders, provider agencies, the County Health Department, and community-based organizations to serve in an ongoing community advisory capacity at the beginning of the CHNA process. Data obtained from the qualitative analyses provide insight into health issues facing the communities served by the Medical Center.

The Task Force met five times during the planning process. Meetings included:

- Where Are We Now? A Review 2014 CHNA Priorities & Accomplishments
- County-Wide Health Indicators Presentation
- Service-Area Health Indicators Presentation
- Priority Setting and Strategy Development
- Implementation Plan Development

SECONDARY DATA SOURCES

Over 30 secondary data sources are included in this Community Health Needs Assessment (CHNA); most data are presented at county level. Sources include the United States Census Bureau, Centers for Disease Control and Prevention (CDC), New Jersey Department of Health (NJDOH), Behavioral Risk Factor Surveillance System (BRFSS), U. S. Department of Health and Human Services and the County Health Rankings. For a comprehensive listing of sources, see Appendix B.

The Office of Disease Prevention and Health Promotion at the Department of Health and Human Services, Healthy People 2020 (HP2020), provides a framework for promoting a healthy society through the identification of national health improvement priorities and objectives. Appreciating the role of social and physical environments in addition to their impact on health outcomes and conditions is vital to achieving Healthy People 2020 objectives.¹⁶

County Health Rankings¹⁷ (CHR), a collaborative effort of the Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute, seeks to build awareness of factors influencing health by providing local data to aid community stakeholders in identifying areas of improvement. CHR compiles data from multiple sources and can be used for health improvement efforts at the local or regional level. Counties nationwide are ranked by state according to how healthy they currently are, which CHR refers to as health outcomes, and how healthy a county will be, referred to as health factors. Rankings include a range of measures such as high school graduation rates, air pollution levels, income, rates of obesity and smoking.

Behavioral Risk Factor Surveillance System (BRFSS), the nation's premier system of health-related telephone surveys, collects data about U.S. residents regarding health-related risk behaviors, chronic health conditions and use of preventive services. In 1984 the survey began collecting data in 15 states and is currently conducted in all states including Washington D.C. and three United States territories. The most recent data available are for the year 2015.

¹⁶ <https://www.healthypeople.gov/2020/About-Healthy-People>

¹⁷ <http://www.countyhealthrankings.org/about-project>

COLOR INDICATOR LIGHTS / TABLES

Throughout the Health Profile Section of this document, the reader will encounter summary tables including red, yellow and green colored indicators. These tables illustrate a comparison of county-level data to Healthy People 2020 targets, Community Health Rankings benchmarks and New Jersey State data. Data by race/ethnicity is compared to data for all races within the county, unless otherwise noted.

For over three decades, Healthy People established benchmarks and monitored progress to measure impact of prevention activities. If Middlesex County, a defined Service Area or specific ZIP Code performs **better than the Healthy People 2020 target**, the color indicator located in the summary table will be green. If the County, defined Service Area or a specific ZIP Code performs **lower than the Healthy People 2020 target by more than 25%**, the indicator will be red. Yellow indicates that the County, defined Service Area or specific ZIP Code is **lower than the Healthy People 2020 target but within an established 25% margin**.

County Health Rankings (CHR), ranks the health of nearly all counties in the United States. The same methodology utilized for Healthy People 2020 targets is applied to CHR data. If Middlesex County, a defined Service Area or specific ZIP Code performs better than the CHR benchmark, the color indicator located in the summary table will be green. If the County, defined Service Area or specific ZIP Code performs lower than the CHR benchmark by more than 25%, the indicator will be red. Yellow indicates that the County, defined Service Area or specific ZIP Code is lower than the CHR benchmark, but within an established 25% margin.

County-specific rates are compared to New Jersey rates and ranked by quartile. A green indicator represents a county which ranks in the **top 25% of the State**, a yellow indicator signifies those counties ranked in the **second or third quartiles**. A red indicator identifies that the in the **lowest performing quartile** as compared to all 21 New Jersey counties.

USE RATES

ZIP Code level data are provided, wherever possible, to enhance the understanding of specific needs of Service Area residents. To obtain comparable data on disease burden in the region, disease rates among patients using hospital services are developed and analyzed for Middlesex County, Service Areas, Perth Amboy and Old Bridge. Calculated rates of disease among hospitalized patients include inpatient, emergency department and same day data. The 2014 CHNA reports data from 2009 through 2012. The 2017 edition of this report contains data from 2012 through 2015. Variability exists in comparing the 2012 data sets across documents as population projections utilized in this version have been updated. The variability is nominal and does not impact efficacy of the data.

PRIORITY SETTING

An on-line survey, administered via Survey Monkey, was distributed to 116 community leaders between August 25, 2017 and September 5, 2017. The survey asked participants to assess areas of opportunity across seven criteria. (See Appendix C)

Areas of Opportunity:

- Heart Disease/Congestive Heart Failure/High Blood Pressure/High Cholesterol/Stroke
- Cancer
- Asthma/Chronic Obstructive Pulmonary Disease (COPD)
- Diabetes
- Renal Disease
- Mental Health
- Substance/Alcohol Abuse
- Physical Activity/Obesity
- Access to Healthy Food/Nutrition High
- Crime Rate/Safety
- Poverty
- High School Completion Rates/Quality Schooling
- Limited English Proficiency
- C-Section Rates
- Teen Births
- Low Birth Weight Infants
- Access to Health Services
- Emergency Department Use as Primary Medical Care

The seven criteria included:

- Number of people impacted
- Risk of morbidity and mortality associated with the problem
- Impact of the problem on vulnerable populations
- Availability of resources to address the problem
- Relationship of issue to other community issues
- Meaningful progress can be made within a 3-year period
- Is within the organizations capability / competency to impact the issue.

Thirty-one respondents (27%) yielded 23 complete ballots (74%). Two incomplete ballots are included in the prioritization model sample as more than seven priority issues are completed. Overall rankings are based upon weighted responses to all prioritization criteria for each priority issue. Separate weighted averages for each impact are calculated. The most impactful factor for each issue had the highest weighted average of the seven impacts for that issue and the least impactful factor had the lowest weighted average for that issue.

After presenting an analysis of service gaps and assets across health indicators and survey results, the following priority issues were identified:

1. Diabetes
2. Heart Disease & Cardiovascular Disease
3. Physical Activity / Obesity
4. Mental Health
5. Access

Note: HMH-RBMC recognizes that Access is integral in addressing the community health needs encompassed by the four priority areas. Therefore, Access is addressed in the activities portion of the Community Health Implementation Plan (CHIP).

IMPLEMENTATION PLAN

The CHIP addresses the manner in which RBMC will approach each priority need and the expected outcome and timeframe for the evaluation of its efforts.

RESOURCE INVENTORY

A brief analysis of resource gaps and assets is provided. A detailed listing of health and social services providers operating in the Service Areas is in Appendix D.

IRS FORM 990, SCHEDULE H COMPLIANCE

Please see Appendix E.

3. MIDDLESEX COUNTY/SERVICE AREA OVERVIEW

Located in central New Jersey, Middlesex County is home to over 830,000 people. The County is predominantly composed of suburban municipalities and mid-sized urban centers including New Brunswick and Perth Amboy. The second most populous county in the State, Middlesex experiences a 4.76% growth in population between 2010 and 2017. Between 2017 and 2022, Middlesex County is projected to grow 3.0%. Approximately 40% of County residents are White, less than the 55% statewide. Middlesex County has a concentrated Asian population (24.6%), two and a half times greater than New Jersey (9.6%). Between 2010 and 2017, the Asian population increases 20.6% in the county, identical to Statewide. Between 2017 and 2022, the Asian population is projected to grow approximately 13% in Middlesex County and Statewide. Women of child-bearing age (15-44) comprise 24.9% of the county population compared to 19.0% Statewide; this cohort is projected to decrease 0.9% by 2022, similar to the projected 0.8% decrease in New Jersey.

RBMC is comprised of two acute care hospital divisions, each located on a unique campus within Middlesex County. Service Areas for each division are determined based upon patient origin; Service Area ZIP Codes represent 75% of each division's patient discharges.

RBMC PERTH AMBOY

The Primary Service Area for the Perth Amboy division includes the following ZIP Codes:

08861 – Perth Amboy	08857 – Old Bridge
07008 – Carteret	08863 – Fords
08879 – South Amboy	08872 – Sayreville
07095 – Woodbridge	08882 – South River
08859 – Parlin	07064 – Port Reading

The Perth Amboy campus is located within a medium-sized urban center and working-class community. In 2017, Perth Amboy residents are predominantly Hispanic (79.7%), approximately four times the County and State at 21.2% and 20.4%, respectively. Between 2017 and 2022, in contrast to New Jersey's projected decline in the 0-17 year old age cohort, Middlesex County estimates indicate a slight increase

Figure 3.1
RBMC Service Area Map



(0.6%) with Perth Amboy's increase (2.5%) approximately four times that of the County indicating a more robust young population.

More than one-quarter (27.3%) of Perth Amboy residents do not have a high school diploma or GED, approximately two and a half times greater than the County (10.0%) and State (11.3%). The 2015 rate of family poverty within the municipality (19.8%) is more than triple Middlesex County's rate (6.5%) and double the State rate (8.2%).

According to the New Jersey State Police Uniform Crime Rate Ranking, in 2015, Perth Amboy has a crime rate (20.4/1,000) exceeding Middlesex County (15.1/1,000) and New Jersey (18.9/1,000). This represents an improvement from 2012, when the Perth Amboy crime rate was 28.1/1,000.

RBMC OLD BRIDGE

The Primary Service Area for the Old Bridge division includes the following ZIP Codes:

08857 – Old Bridge	08831 – Monroe Township
08828 – Helmetta	08816 – East Brunswick
08884 - Spotswood	07726 – Englishtown
07747 – Matawan	08872 – Sayreville
08879 – South Amboy	08882 – South River
08859 – Parlin	

Old Bridge Township, a bedroom suburb of New York City is home to Raritan Bay Medical Center - Old Bridge. Of its 41,000 residents, nearly two-thirds (63.4%) are White, higher than Statewide (54.9%). Approximately fifteen percent (14.8%) of residents are Asian, one-third more than in New Jersey (9.6%). Thirteen percent (13.2%) of the population is Hispanic, far less than the county (21.1%) and state (20.4%).

Monroe, typically renowned for its age restrictive adult communities, experience a 14.8% population increase between 2010 and 2017 and is projected to increase an additional 6.3% between 2017 and 2022. Monroe's senior population contributes to its growth, but this suburban community is simultaneously experiencing a surge in non-senior residential development as evidenced by the opening of a new High School in 2011. With a relatively low crime rate of 4.0/1,000 residents, Monroe is an attractive place for seniors and young families alike.

Municipalities common to both facilities' Service Areas include:

08857 – Old Bridge
08859 – Parlin
08872 – Sayreville
08879 – South Amboy
08882 – South River

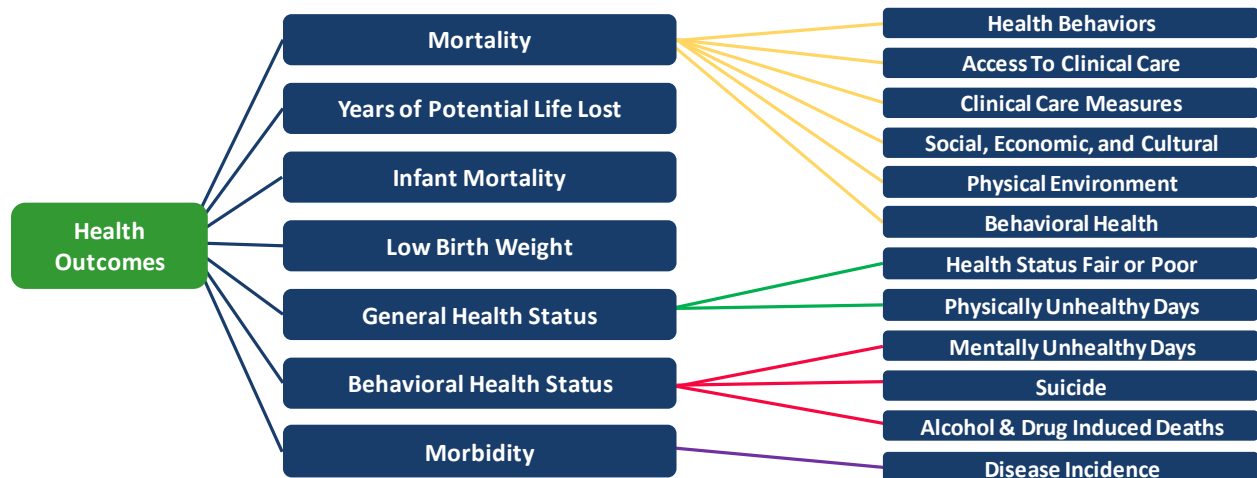
4. MIDDLESEX COUNTY/SERVICE AREA HEALTH PROFILE

The Middlesex County/Raritan Bay Medical Center Service Area(s) Health Profile provides comparative analysis of health outcomes and health factors across the region, neighboring counties, New Jersey, Healthy People 2020 targets and County Health Rankings benchmarks. Health outcomes depict the health of a region. Health factors represent health influences within a geographic area; an evaluation of health behaviors, access to care, social, economic and cultural specific issues and behavioral health are provided. Included also are social determinants of health, factors that influence health outcomes, disparities in health, and equity in health care.



A. HEALTH OUTCOMES

Disease-specific mortality, health status and morbidity are among the outcomes presented.



1. Mortality - Leading Cause of Death

According to the CDC, mortality statistics are one of few data sets comparable for small geographic areas, available for long time periods and appropriate as a primary source for public health planning.

- Between 2010 and 2014, Middlesex County age-adjusted mortality rates (AAMR) increase for unintentional injuries (5.3%), kidney disease (15.2%), and drug induced deaths (75.9%).
 - In 2014, drug induced deaths enter the Top 10 leading causes of death for the first time.
- Between 2010 and 2014, six of the top 10 leading causes of death for Middlesex County improve including: heart disease (-11.0%), cancer (-7.3%), stroke (-9.9%), CLRD (-21.7%), diabetes (-19.6%) and Alzheimer's (-1.6%).
 - The AAMR for CLRD and diabetes demonstrate greatest improvement.
- Despite decreases in incidence from 2010 to 2014, heart disease (155.2/100,000) and cancer (148.3/100,000) remain far more prevalent causes of death than the third leading cause, stroke (26.5/100,000).

Figure 4.1
Total 10 Causes of Death in Middlesex County
Age-Adjusted Rate/100,000 Population¹⁸

CAUSE	2010	2014	% Change '10-'14
Diseases of heart	174.4	155.2	-11.0%
Malignant neoplasms (Cancer)	160.0	148.3	-7.3%
Cerebrovascular diseases (stroke)	29.4	26.5	-9.9%
Unintentional injuries	24.7	26.0	5.3%
Chronic lower respiratory disease (CLRD)	29.9	23.4	-21.7%
Diabetes mellitus	22.4	18.9	-19.6%
Septicemia	17.3	17.3	0.0%
Nephritis, nephrotic syndrome and nephrosis	12.5	14.4	15.2%
Drug induced deaths	7.9	13.9	75.9%
Alzheimer's disease	12.7	12.5	-1.6%

Heart Disease (1)

Heart disease includes several conditions, most commonly, coronary artery disease, angina, heart failure and arrhythmias. Nationally, statewide and in Middlesex County, heart disease remains the leading cause of death. Responsible for 1 in every 4 deaths, approximately 610,000 people die of heart disease in the United States each year.

- Despite an 11% decline between 2010 (174.4/100,000) and 2014 (155.2/100,000) and a top 25% statewide ranking, deaths due to heart disease perform lower than the Healthy People 2020 target (108.8/100,000) by 42.6%.
- The 2014 Middlesex County mortality rate due to heart disease (155.2/100,000) is 6.2% lower than Statewide (165.4/100,000) and is similar to neighboring Union and Monmouth Counties.
- Across all race/ethnicities, the Middlesex County death rate for heart disease improves from 2010 through 2014.

¹⁸ Source: NJDOH, Center for Health Statistics, NJ State Health Assessment Data – 2014 most recent available data.

- In 2014, the Middlesex County heart disease mortality rate for Whites (176.2/100,000) is similar to New Jersey (173.4/100,000). Within the County, Whites have the highest heart disease mortality rate as compared to statewide statistics in which Blacks (191.2/100,000) have the highest rate. The statewide rate for Blacks exceeds that of Middlesex County Whites by 19.9%.

Figure 4.2
Deaths Due to Diseases of the Heart: Age-Adjusted Rate/100,000 Population

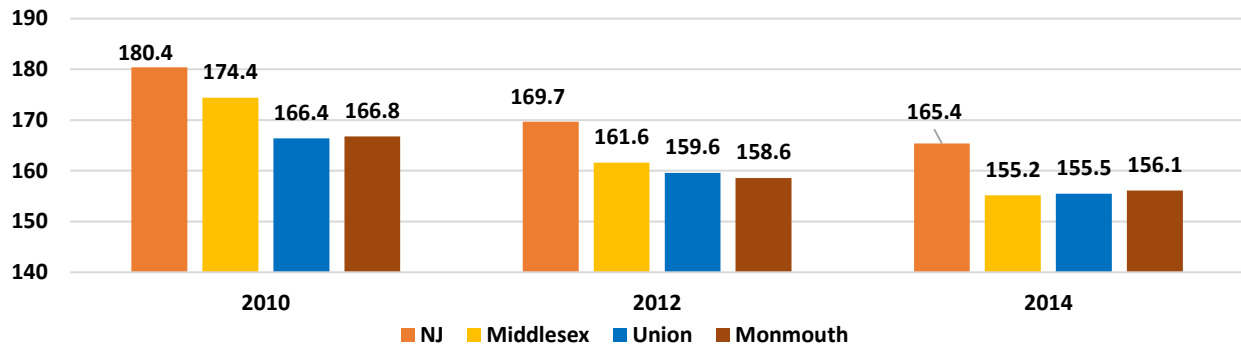
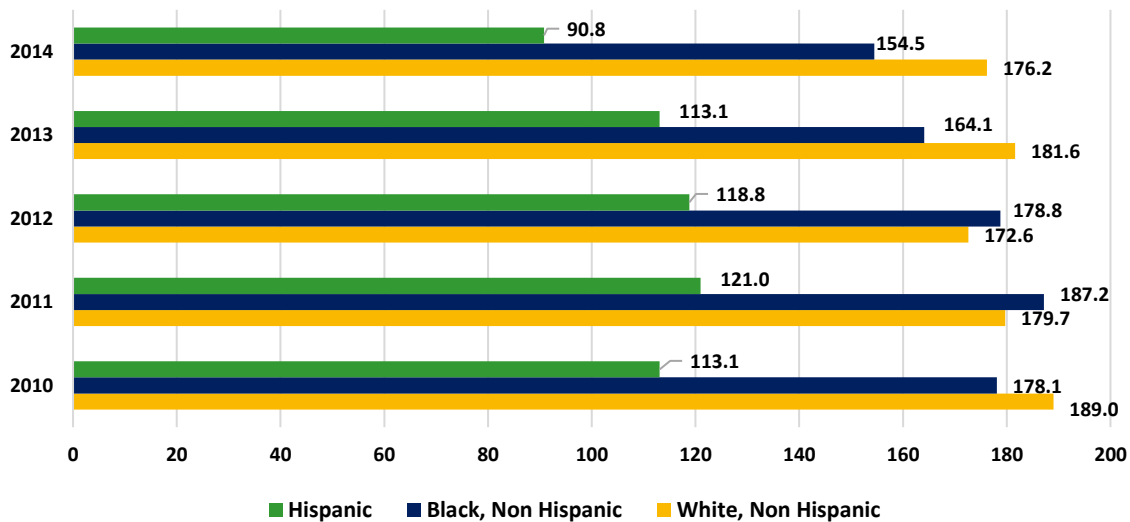
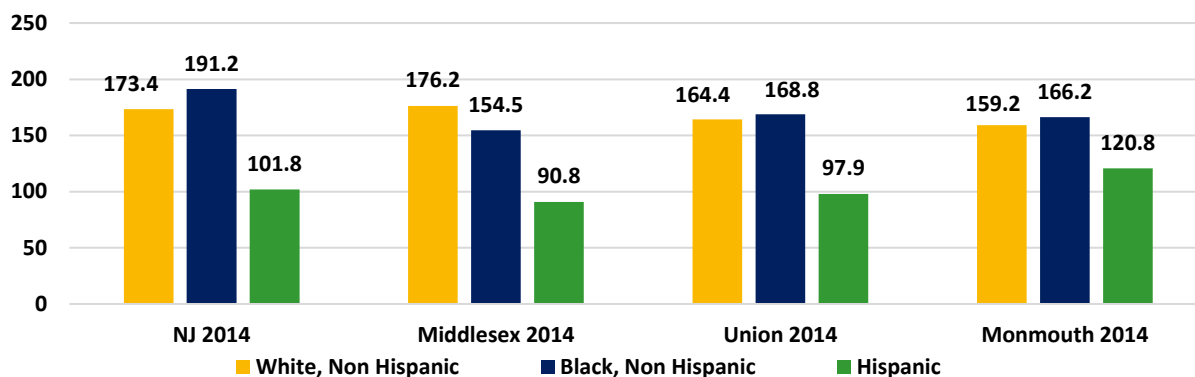


Figure 4.3
Deaths Due to Diseases of the Heart by Race/Ethnicity
Middlesex County Age-Adjusted Rate/100,000 population¹⁹



¹⁹ *ibid*

Figure 4.4
Deaths Due to Diseases of the Heart by Race/Ethnicity
2014 Age-Adjusted Rate/100,000 population



Cancer (2)

Although there are many types of cancer, all originate from abnormal cells with untreated disease.²⁰ Approximately half of American men and one-third of women will develop some form of cancer throughout their lifetimes. Cancer risk may be reduced by basic lifestyle modifications including limiting or avoiding tobacco, sun protection, being physically active and eating healthy foods. Early detection greatly improves positive outcomes. Cancer is the second leading cause of death in the United States, New Jersey and Middlesex County.²¹

- Middlesex County deaths due to cancer declines 7.3% from 2010 (160.0/100,000) to 2014 (148.3/100,000). The 2014 County mortality rate is 4.5% lower than New Jersey (155.3/100,000) and ranks in the middle performing quartile statewide. The 2014 Middlesex County AAMR is lower than surrounding Union and Monmouth Counties.
- The 2014 Middlesex County cancer AAMR (148.3/100,000) performs 7.7% better than the Healthy People 2020 target of 160.6/100,000. This demonstrates an improvement from the 2014 CHNA which reports the 2009 AAMR (170.7/100,000) exceeds this target by 6.3%.
- Despite an overall decline, the Middlesex County death rate for malignant neoplasms among Blacks and Hispanics increases from 2010 through 2014.
 - By race/ethnicity, in 2014, Black non-Hispanics have the highest death rate due to cancer in New Jersey (184.3/100,000), Middlesex County (180.5/10,000) and surrounding counties.

²⁰ <http://www.cancer.org/cancer/cancerbasics/what-is-cancer>

²¹ <http://www.cancer.org/cancer/cancerbasics/questions-people-ask-about-cancer>

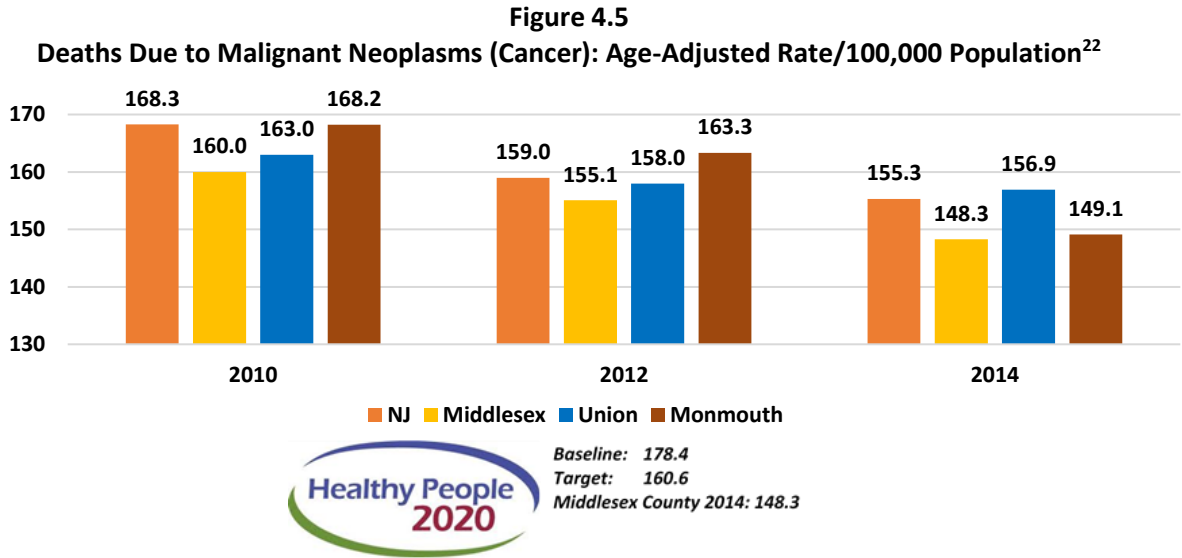
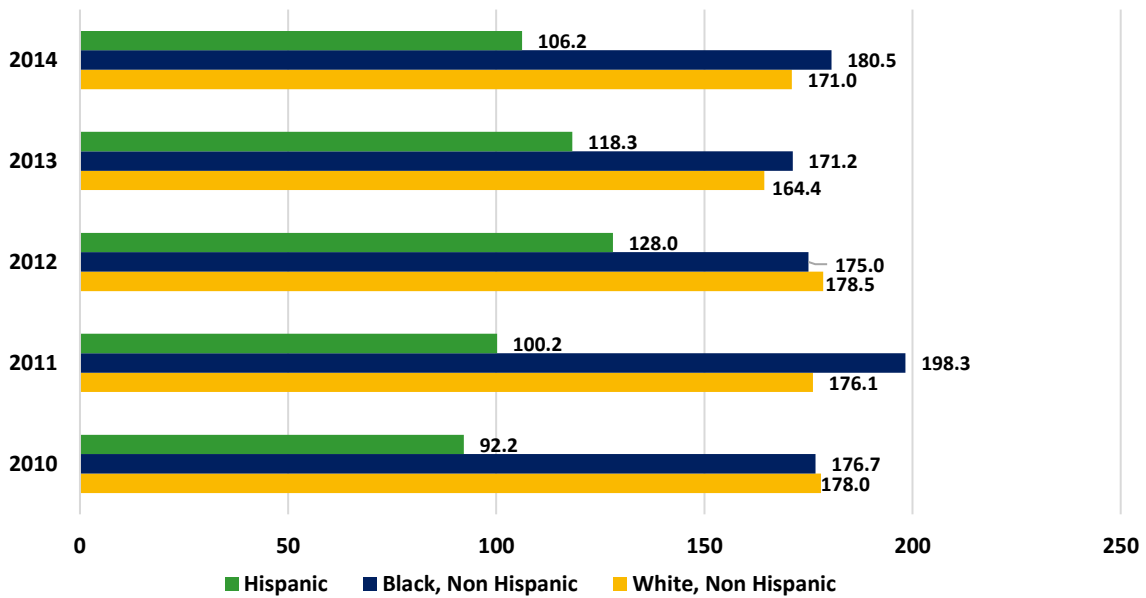


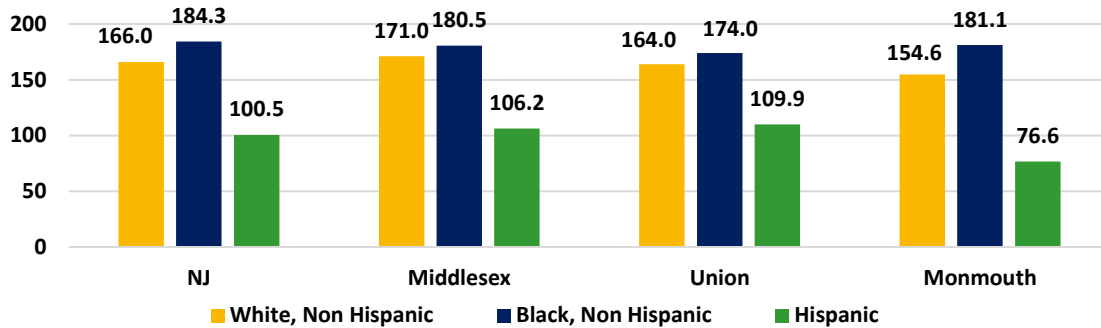
Table 4.6
Deaths Due to Malignant Neoplasms (Cancer) By Race/Ethnicity
Age-Adjusted Rate / 100,000 Population: Middlesex County²³



²² Source: NJDOH, Center for Health Statistics, NJ State Health Assessment Data – 2014 is most recent year available.

²³ *ibid*

Figure 4.7
Deaths Due to Malignant Neoplasms (Cancer) by Race/Ethnicity
Age-Adjusted Rate/100,000 Population: 2014²⁴

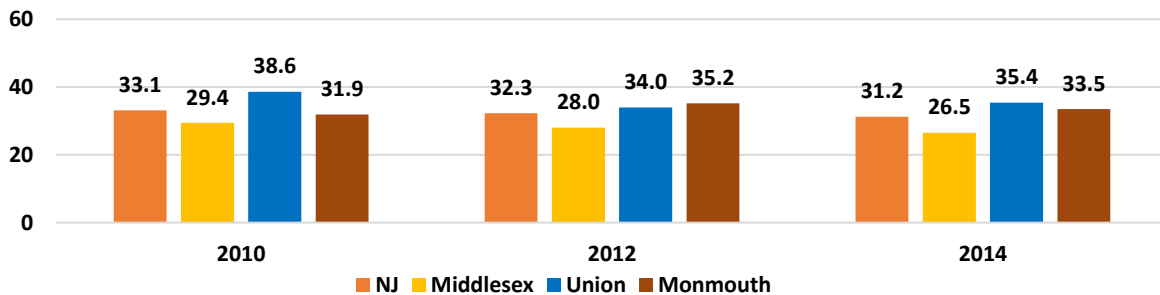


Stroke (Cerebrovascular Diseases) (3)

A stroke occurs when a clot blocks blood supply to the brain or if a blood vessel within the brain bursts.

- The Middlesex County stroke AAMR decreases 9.9% from 2010 (29.4/100,000) to 2014 (26.5/100,000). In 2014, the County AAMR is 21.6% lower than the Healthy People 2020 target (33.8/100,000).
- The 2014 Middlesex County stroke AAMR (26.5/100,000) is 15.1% lower than the State (31.2/100,000) and ranks in the top quartile statewide, outperforming neighboring Union and Monmouth Counties.
- By race/ethnicity, 2012-2014, Black non-Hispanics have the highest death rate due to stroke in New Jersey (45.6/100,000), Middlesex County (37.7/100,000) and surrounding counties.
 - The 2014 Middlesex County death rate for strokes for Blacks (37.7/100,000) is 37.5% greater than the rate for Whites (29.6/100,000).

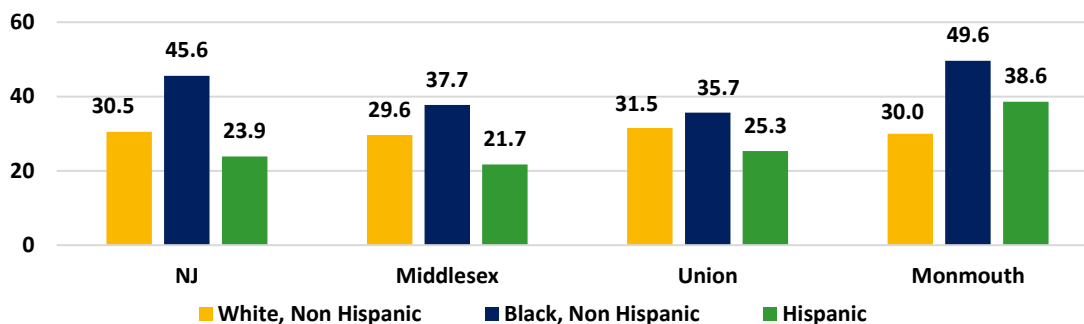
Figure 4.8
Deaths Due to Stroke: Age-Adjusted Rate/100,000 Population



Baseline: 42.2
Target: 33.8
Middlesex County 2014: 26.5

²⁴ *ibid*

Figure 4.9
Deaths Due to Stroke by Race/Ethnicity
Age-Adjusted Rate/100,000 Population 2012-2014²⁵



Unintentional Injuries (4)

The majority of unintentional injuries are preventable and predictable. Deaths due to unintentional injury often occur as a result of motor vehicle accidents, falls, firearms, drownings, suffocations, bites, stings, sports/recreational activities, natural disasters, fires, burns and poisonings. Public Health prevention strategies including minimum age drinking requirements, seatbelt and helmet laws, smoke alarms, exercise programs and other safety awareness campaigns reduce unintentional injury and death.²⁶

- The unintentional injury death rate increases between 2010 and 2014 in Middlesex, Union, and Monmouth Counties as well as throughout the State. Despite being ranked in the middle performing quartile among New Jersey counties, the Middlesex County AAMR due to intentional injuries increases 5.3% from 24.7/100,000 to 26.0/100,000 as compared to a 16% increase Statewide.
- The 2014 Middlesex unintentional injury AAMR performs 27.8% better than the Healthy People 2020 target of 36.0/100,000.
- By race/ethnicity, 2012-2014, White non-Hispanics have the highest death rate due to unintentional injury in New Jersey (38.8/100,000), Middlesex County (37.6/100,000) and neighboring Union and Monmouth counties.
 - The 2012-2014 Middlesex County death rate for unintentional injury for Whites (37.6/100,000) is 53.7% greater than for Blacks (17.4/100,000).
 - Although Middlesex County and New Jersey death rates for unintentional injury among Whites are similar at 37.6/100,000 and 38.8/100,000 respectively, there is greater variation among Blacks. The Middlesex County unintentional injury death rate for Blacks (17.4/100,000) is 44.4% lower than New Jersey (31.3/100,000).

²⁵ Source: NJDOH, Center for Health Statistics, NJ State Health Assessment Data – 2012-2014 is most recent year available. Data years are combined to meet standards of reliability or precision

²⁶ <http://www.cdph.ca.gov/programs/ohir/Pages/Uninjury2010Background.aspx>

Figure 4.10
Deaths Due to Unintentional Injury: Age-Adjusted Rate/100,000 Population

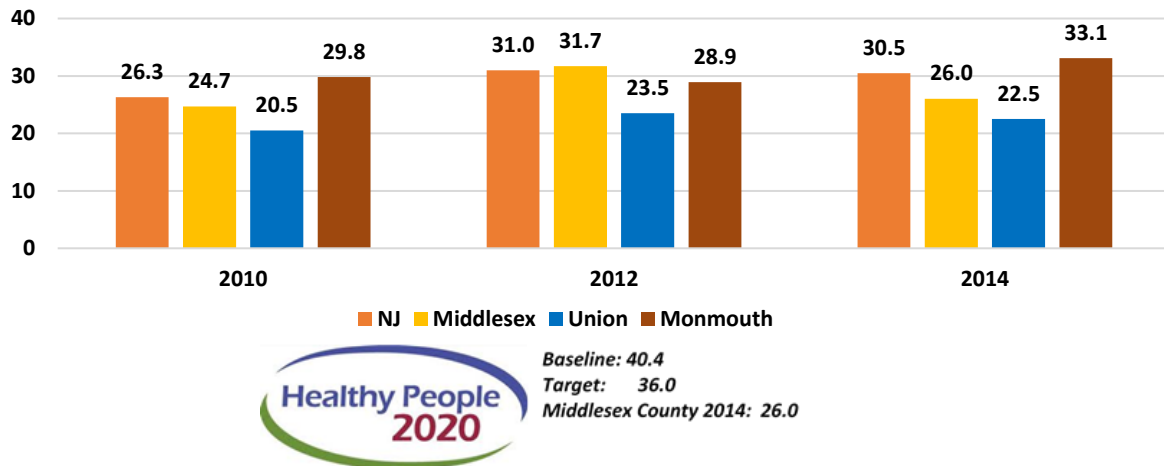
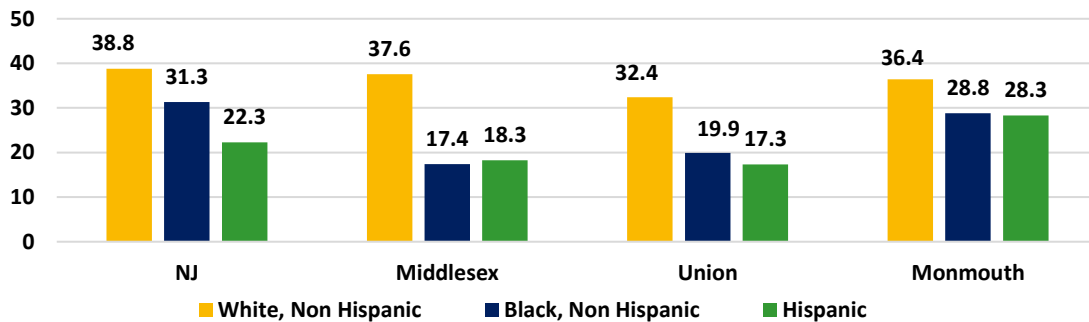


Figure 4.11
Deaths Due to Unintentional Injury by Race Ethnicity: Age-Adjusted Rate/100,000 Population 2012-2014²⁷



Chronic Lower Respiratory Diseases (CLRD) (5)

CLRD includes Chronic Obstructive Pulmonary Disease (COPD), asthma, chronic bronchitis, emphysema, and other lower respiratory illnesses. According to the National Center for Health Statistics, 2016, CLRD is the third leading cause of death nationwide, resulting in over 155,000 deaths.

- Although similar in 2010, CLRD death rates in Middlesex County decreases 21.7% from 2010 (29.9/100,000) to 2014 (23.4/100,000), almost double the 11.5% statewide reduction from 30.4/100,000 to 26.9/100,000. The 2014 Middlesex County CLRD AAMR performs in the top quartile statewide.
- By race/ethnicity, 2012-2014, White non-Hispanics have the highest death rate due to CLRD in New Jersey (33.2/100,000), Middlesex County (29.9/100,000) and neighboring Union and Monmouth counties.

²⁷ *ibid*

Figure 4.12
Deaths Due to Chronic Lower Respiratory Disease (CLRD): Age-Adjusted Rate / 100,000 Population²⁸

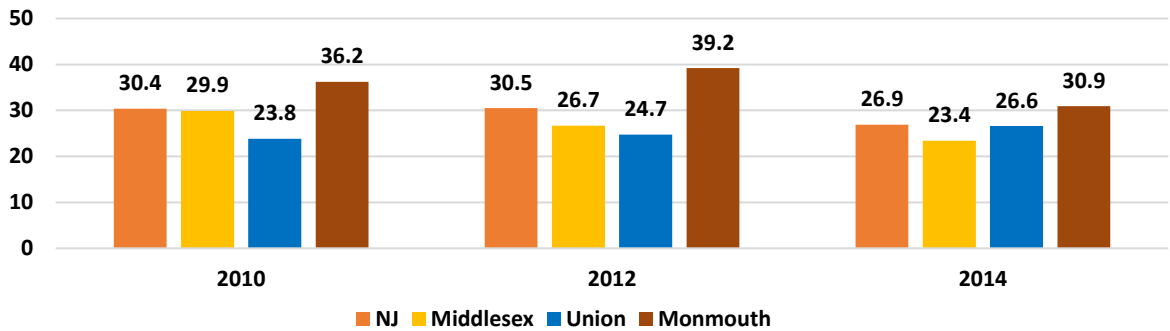
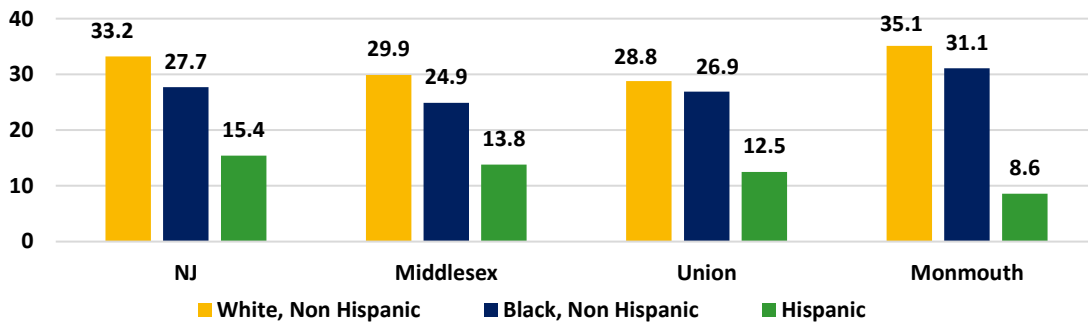


Figure 4.13
Deaths Due to Chronic Lower Respiratory Disease (CLRD) by Race Ethnicity
Age-Adjusted Rate / 100,000 Population: 2012-2014²⁹



Mortality Indicators	Healthy People 2020 Target	County Health Rankings Benchmark	New Jersey
Deaths due to Heart Diseases Age-Adjusted Rate per 100,000 Population		N.A.	
Deaths due to Cancer (Malignant Neoplasms) Age-Adjusted Rate per 100,000 Population		N.A.	
Stroke Deaths Age-Adjusted Rate per 100,000 Population		N.A.	
Unintentional Injury Deaths Age-Adjusted Rate per 100,000 Population		N.A.	
CLRD Deaths Age-Adjusted Rate per 100,000 Population	N.A.	N.A.	

²⁸ Source: NJDOH, Center for Health Statistics, NJ State Health Assessment Data – 2014 is most recent year available.

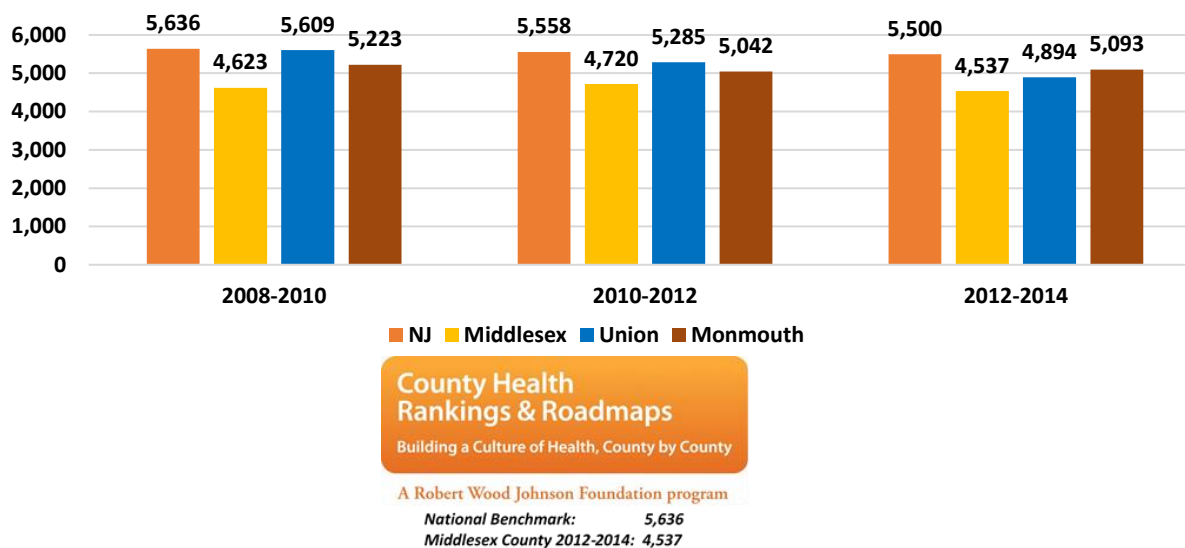
²⁹ Source: NJDOH, Center for Health Statistics, NJ State Health Assessment Data – 2012-2014 is most recent year available. Data years are combined to meet standards of reliability or precision.

2. Premature Deaths

An alternate method to reviewing crude or age-adjusted death rates as a measure of premature mortality is assessing Years of Potential Life Lost (YPLL). YPLL calculate the number of years of potential life lost for each death occurring before a predetermined end point, in this case, age 75 per 100,000 population. Premature deaths are reviewed to highlight potentially preventable adverse outcomes.

- Throughout New Jersey, Middlesex and neighboring Union and Monmouth Counties, YPLL decrease from 2008-2010 through 2012-2014. In 2012-2014, the Middlesex County YPLL (4,537/100,000) is 17.5% lower than Statewide (5,500/100,000) and ranks in the top performing statewide quartile.
- The 2012-2014 Middlesex County YPLL (4,537/100,000) outperforms the County Health Ranking benchmark (5,636/100,000) by 19.5%.

Figure 4.15
Premature Death: Years of Potential Life Lost Before Age 75: Age-Adjusted Rate/100,000 Population³⁰



Premature Deaths	Healthy People 2020 Target	County Health Rankings Benchmark	New Jersey
Premature Deaths, Years of Potential Life Lost Rate per 100,000 Population	N.A.		

3. Behavioral Health-Related Deaths

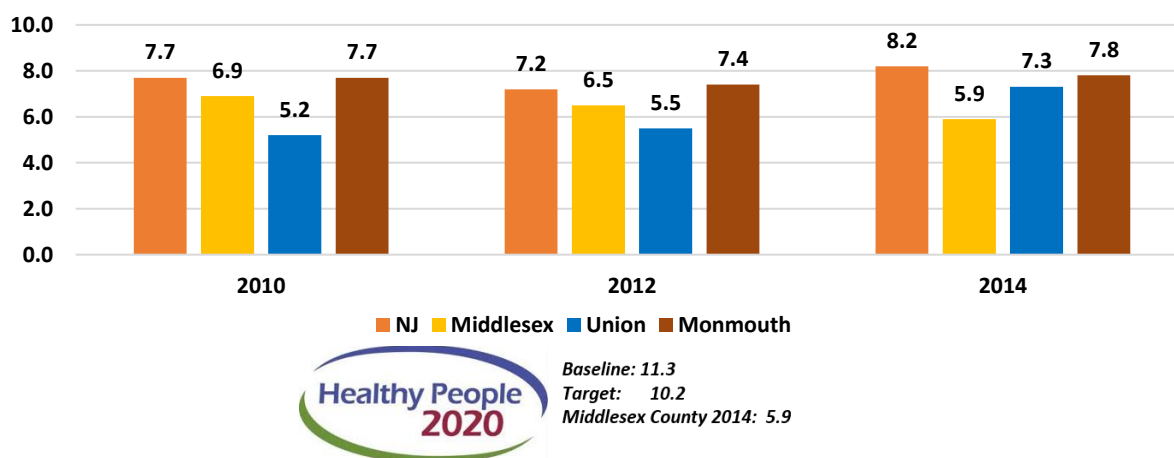
Mental health is a state of well-being in which an individual realizes his or her own abilities, copes with normal life stresses, works productively, and is able to contribute to his or her community. Mental illness is diagnosable mental disorders or health conditions characterized by alterations in thinking, mood, or behavior (or some combination thereof) associated with distress and/or impaired functioning.

³⁰ Source: County Health Rankings; National Vital Statistics System Note: Every death occurring before the age of 75 contributes to the total number of years of potential life lost

Depression, the most common type of mental illness, is associated with higher rates of chronic disease, increased health care utilization, and impaired functioning. However, rates of mental illness treatment remain low, and often the treatment received is inadequate.

- Statewide deaths due to suicide increase 6.5% from 2010 (7.7/100,000) to 2014 (8.2/100,000). Deaths due to suicide also increase in Union and Monmouth Counties. Conversely, the Middlesex County suicide rate decreases 14.5% from 6.9/100,000 to 5.9/100,000 in the same timeframe.
- Middlesex County’s 2014 suicide rate, 28% fewer deaths due to suicide than the State, ranks in the top performing quartile statewide.
- The 2014 Middlesex County suicide rate (5.9/100,000) is 42.2% lower than the Healthy People 2020 target (10.2/100,000).

Figure 4.15
Deaths Due to Suicide: Age-Adjusted Rate/100,000 Population³¹



Suicide Deaths	Healthy People 2020 Target	County Health Rankings Benchmark	New Jersey
Deaths From Intentional Self Harm Rate per 100,000 Population		N.A.	

4. Infant Mortality

Infant mortality, the death of a baby prior to his or her first birthday, is traditionally used as an indicator of the health and well-being of a nation. Infant mortality is calculated as the number of infant deaths under age 1 per 1,000 live births. Great disparities exist in infant mortality by age, race, and ethnicity. Most frequent causes are serious birth defect, preterm birth / low birth weight, Sudden Infant Death Syndrome (SIDS), maternal complications of pregnancy, and injury.³²

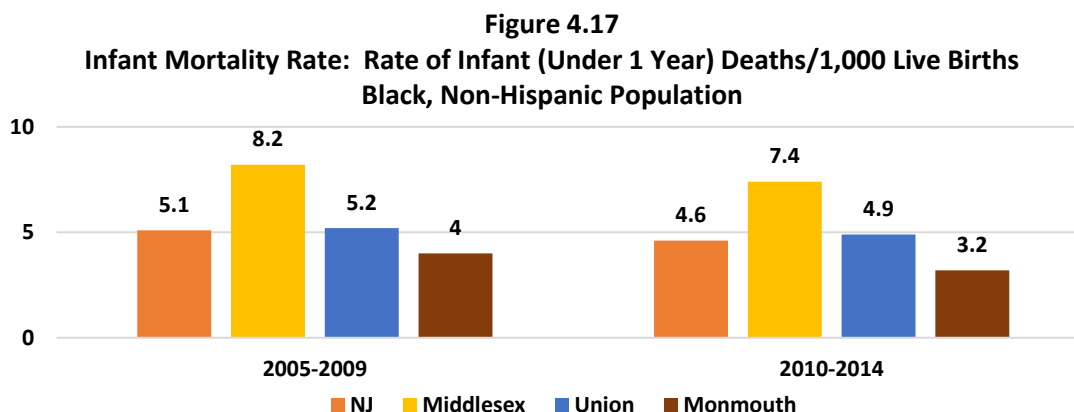
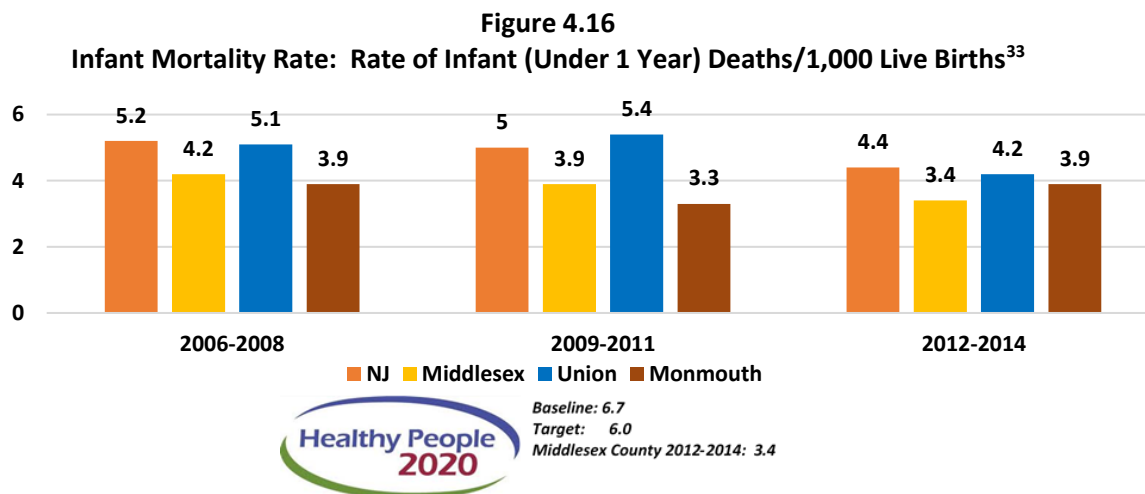
- The overall infant mortality rate declines 15.4% Statewide from 2006-2008 (5.2/100,000) to 2012-2014 (4.4/100,000) and 19.1% in Middlesex County from 4.2/100,000 to 3.4/100,000 in the same

³¹ Source: NJDOH, Center for Health Statistics; NJ State Health Assessment Data

³² <http://www.cdc.gov/reproductivehealth/maternalinfanthealth/infantmortality.htm>

timeframe. Neighboring Union County also experiences a decline while Monmouth County remains constant at 3.9/100,000.

- Middlesex County ranks in the middle performing quartile among New Jersey counties for overall infant mortality in 2012-2014 and outperforms the Healthy People 2020 target of 6.0/1,000 by 43.3%.
- The Middlesex County 2010-2014 Black infant mortality rate of 7.4/100,000 is 60.9% greater than the State rate of 4.6/100,000. The Middlesex County rate is significantly higher than comparative Union and Monmouth Counties. Compared to all 21 New Jersey counties, Middlesex performs in the middle quartile.



Infant Mortality Indicators	Healthy People 2020 Target	County Health Rankings Benchmark	New Jersey
Infant Mortality Rate Rate of Infant (<1-year-old) Deaths per 1,000 Live Births		N.A.	
Infant Mortality Rate in Black Non-Hispanics Rate of Infant (<1-year-old) Deaths per 1,000 Live Births	N.A.	N.A.	

³³ Source: NJDOH, Center for Health Statistics, NJ State Health Assessment Data – 2014 is most recent year available

5. Low and Very Low Birth Weight Infants

Birth weight is the most important factor affecting neonatal mortality and a significant determinant of post neonatal mortality. Low birth weight infants (less than 2,500 grams) are at an increased risk for health problems ranging from neurodevelopmental disabilities to respiratory disorders.³⁴ Racial disparities in low birth weight babies persist; nationally, non-Hispanic Black infants continue to die at nearly twice the rate of non-Hispanic Whites.

Low Birth Weight

- In 2015, 7.5% of Middlesex County babies are low birth weight as compared to 8.1% statewide; the County ranks within the middle quartile among all 21 New Jersey counties.
- The 2015 percent of Middlesex County low birth weight babies is better than the Healthy People 2020 target of 7.8%; this exhibits an improvement from the previous CHNA as the 2010 County percentage of 8.4% exceeded the low birth weight target.
- The percentage of Middlesex County low birthweight babies decreases for all race/ethnicities between 2011 and 2015.
 - In 2015, Hispanics have the smallest percentage (6.7%) of low birth weight babies as compared to Whites (7.9%) and Blacks (9.9%) in Middlesex County.
 - The Middlesex County 2015 percent of Black low birth weight babies is 25% higher than Whites.
 - In 2015, Middlesex County ranks within the middle quartile compared to all New Jersey counties for Black low birth weight babies.

Very low birth weight babies (less than 1,500 grams) are at greater risk of adverse outcomes than low birth weight babies.

Very Low Birth Weight

- In 2015, 1.3% of Middlesex County babies are very low birth weight as compared to 1.4% statewide; the County ranks within the middle quartile compared to all New Jersey counties.
- The 2015 percent of very low birth weight babies in Middlesex County is better than the Healthy People 2020 target of 1.4%.
- By race, between 2011 and 2015, the percentage of very low birthweight babies remain stable for Whites at 1.2%, decrease from 3.2% to 2.4% for Blacks and increase slightly from 1.2% to 1.3% for Hispanics.
 - In 2015, Middlesex County Whites has the smallest percentage (1.2%) of very low birth weight babies as compared to Blacks (2.4%) and Hispanics (1.3%).
 - The Middlesex County 2015 percent of Black (2.4%) very low birth weight babies is double Whites (1.2%).
 - In 2015, Middlesex County ranks within the middle quartile compared to all New Jersey counties for Black very low birth weight babies.

³⁴ http://www.cdc.gov/PEDNSS/how_to/interpret_data/case_studies/low_birthweight/what.htm

Figure 4.18
Birth Weight: Percent of Live Births with Low and Very Low Birth Weight (2015)³⁵

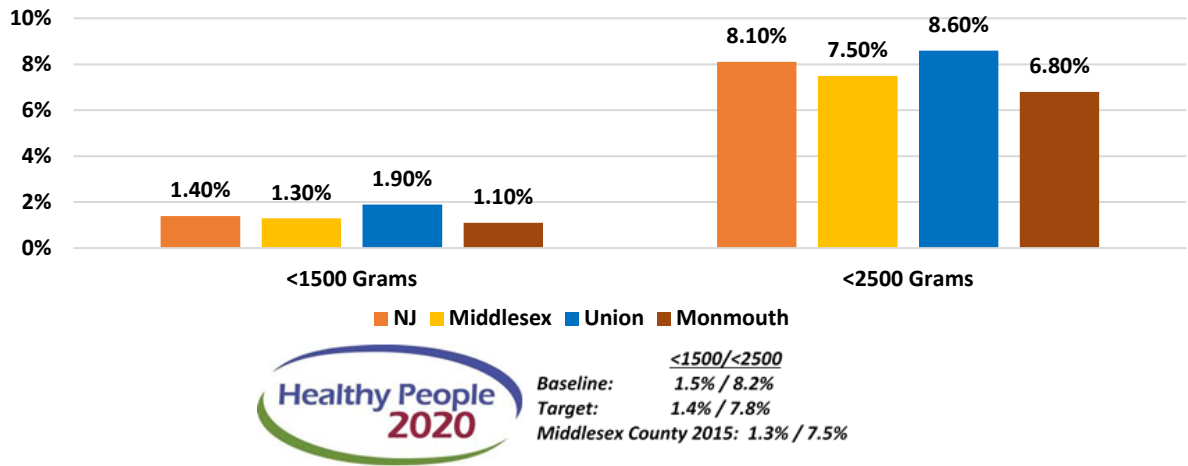
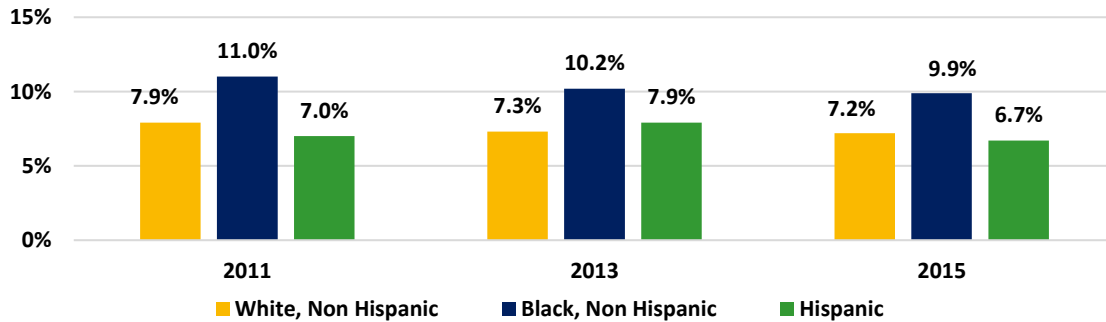


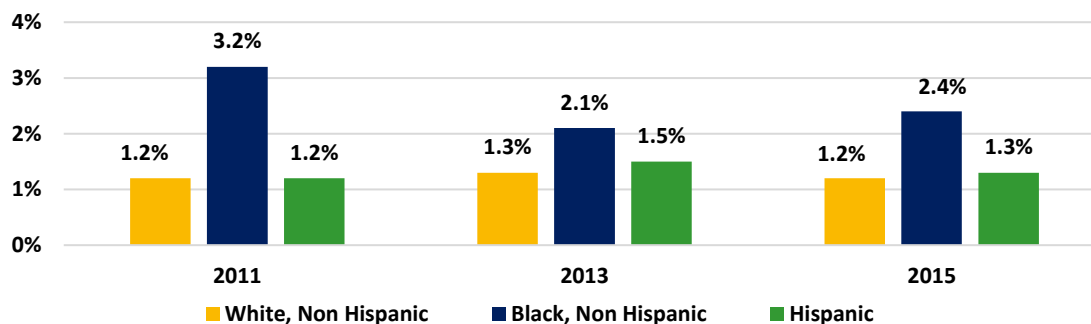
Figure 4.19
Low Birth Weight: By Mother's Race/Ethnicity; Percent of Live Births with Low Birth Weight Middlesex County³⁶



³⁵ Source: NJDOH, Bureau of Vital Statistics and Registration, NJ Birth Certificate Database; Note: Percentages are based on the total number of live births for the County and State

³⁶ *ibid*

Figure 4.20
Very Low Birth Weight: By Mother’s Race/Ethnicity: Percent of Live Births with Very Low Birth Weight Middlesex County³⁷



Birthweight Indicators	Healthy People 2020 Target	County Health Rankings Benchmark	New Jersey
Low (<2500 grams) Birth Weight Percentage of Live Births		N.A.	
Low (<2500 grams) Birth Weight in Black Non-Hispanics Percentage of Live Births	N.A.	N.A.	
Very Low (<2500 grams) Birth Weight Percentage of Live Births		N.A.	
Very Low (<2500 grams) Birth Weight in Black Non-Hispanics Percentage of Live Births	N.A.	N.A.	

6. Health Status and Behavioral Health Status

Health status and behavioral health status are broad multidimensional concepts including self-report measures of physical and mental health.

Behavioral Risk Factor Surveillance System (BRFSS), the nation's premier system of health-related telephone surveys, collects data about U.S. residents regarding health-related risk behaviors, chronic health conditions and use of preventive services. In 1984 the survey began collecting data in 15 states and is currently conducted in all states including Washington D.C. and three United States territories. The most recent data available are for the year 2015.

General Health Status

- Between 2012 and 2015, BRFSS data reports a small increase in the percent of Middlesex County residents who indicate their health as “poor or fair,” from 13.0% to 13.5%.
- In 2015, 15.0% of New Jersey residents report that their health is “fair or poor,” higher than Middlesex County at 13.5%; Middlesex County has fewer persons with “fair or poor” health than Union County (16.2%) and slightly more than Monmouth County (13.2%).

³⁷ *ibid*

- As compared to all New Jersey counties, Middlesex residents with “poor or fair” health ranks in the middle quartile.
- Compared to the County Health Ranking, more (greater than 25% more) Middlesex County residents report “fair or poor” health than the 10.0% benchmark.
- NJBRFSS reports that the number of Middlesex County adults with 14 or more physically unhealthy days (in the last 30 days) increases over 4 percentage points between 2012 (7.2%) and 2015 (11.4%) as the State remains relatively constant at 9.7%.
- As compared to New Jersey, Middlesex County residents with 14+/30 days in poor physical health ranks in the middle quartile.

Figure 4.21
Percent of Respondents Reporting Their Health as “Fair or Poor”³⁸

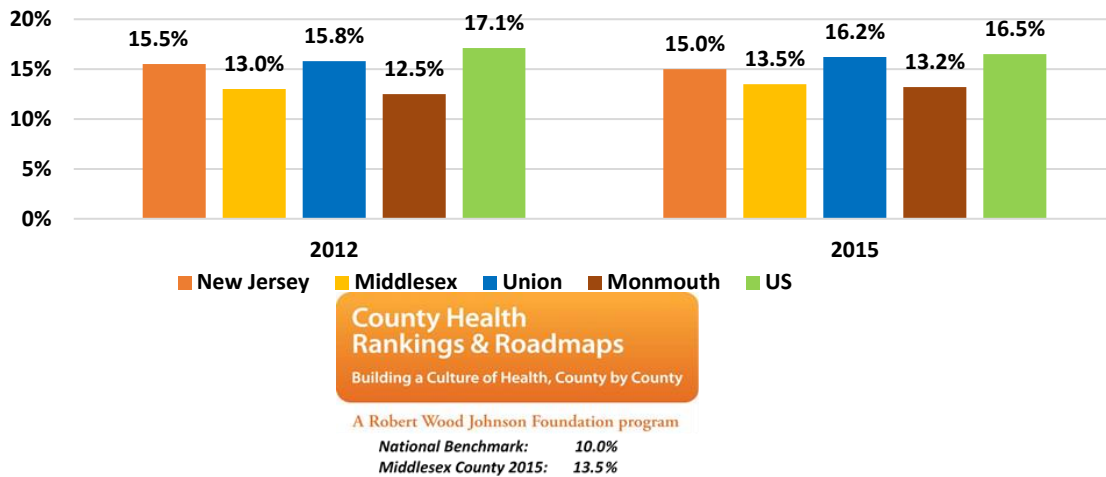
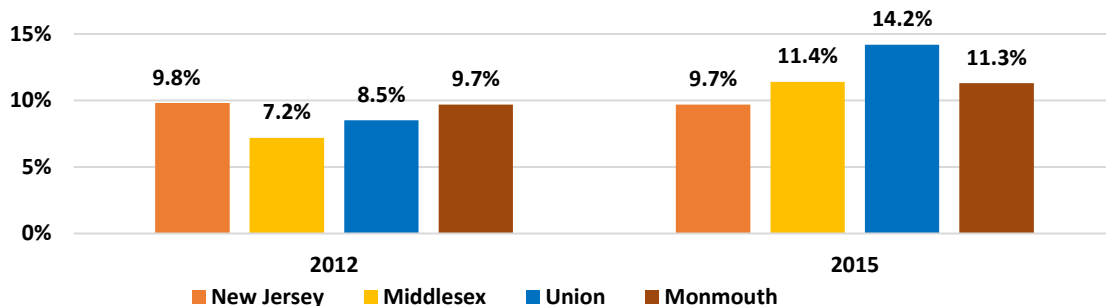


Figure 4.22
Percent Reporting 14 or More of the Past 30 Days Physical Health Not Good: Age-Adjusted³⁹

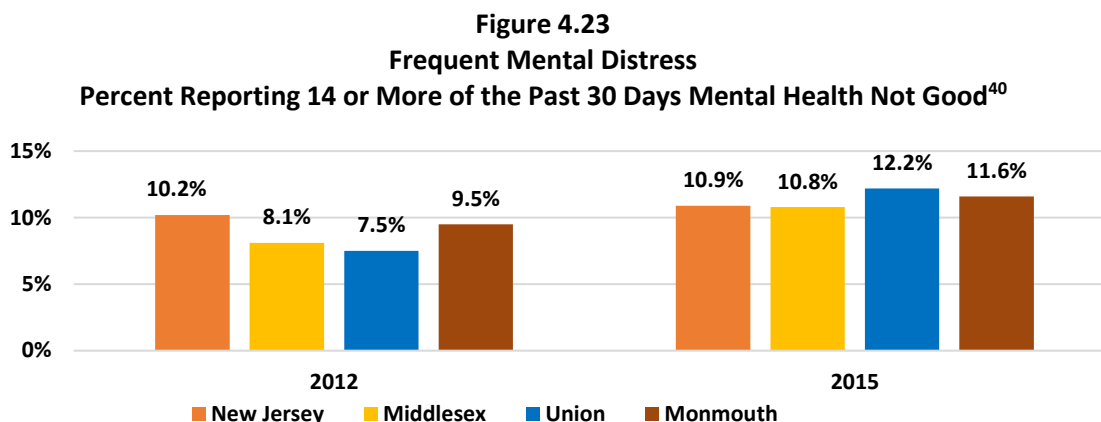


³⁸ Source: CDC, Behavioral Health Risk Factor Surveillance System (BRFSS)

³⁹ *ibid* Note: The physical health measure is based on response to the question: “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?”

Behavioral Health Status

- County-wide adults who report 14 or more of the past 30 days with “not good” mental health status increases 2.7 percentage points from 8.1% in 2012 to 10.8% in 2015. The 2015 Middlesex County report of 14+/30 days with “not good” mental health is similar to New Jersey at 10.9%.
- As compared to all New Jersey counties, Middlesex County residents with 14+/30 days in poor physical health ranks in the middle quartile.



Health Status Indicators	Healthy People 2020 Target	County Health Rankings Benchmark	New Jersey
Fair or Poor Health % Reporting Fair or Poor Health	N.A.		
Poor Physical Health % Reporting 14+ Days with Poor Physical Health	N.A.	N.A.	
Poor Mental Health % Reporting 14+ Days with Poor Mental Health	N.A.	N.A.	

7. Morbidity

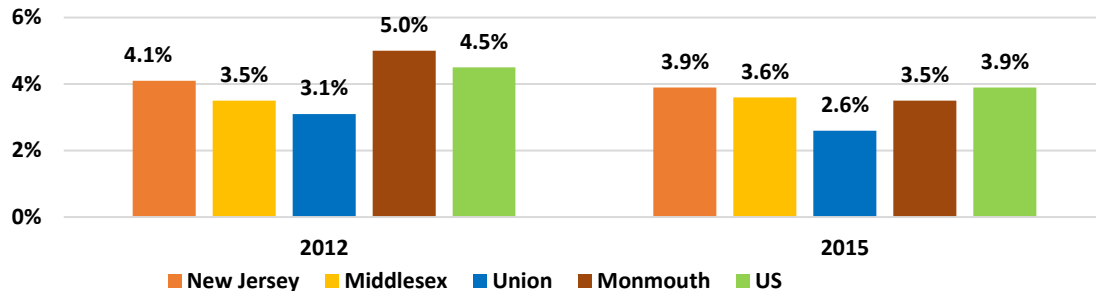
Morbidity, the rate of disease incidence, measures quality of life and how healthy people feel.

Heart Disease

- According to BRFSS, the percent of Middlesex County residents told they have angina or coronary heart disease remains relatively stable at 3.5% in 2012 and 3.6% in 2015. In 2015, BRFSS indicates 3.9% of New Jersey respondents have angina or coronary heart disease, 9.1% greater than Middlesex County.
- As compared to New Jersey, Middlesex County residents with angina or coronary heart disease ranks in the middle quartile.

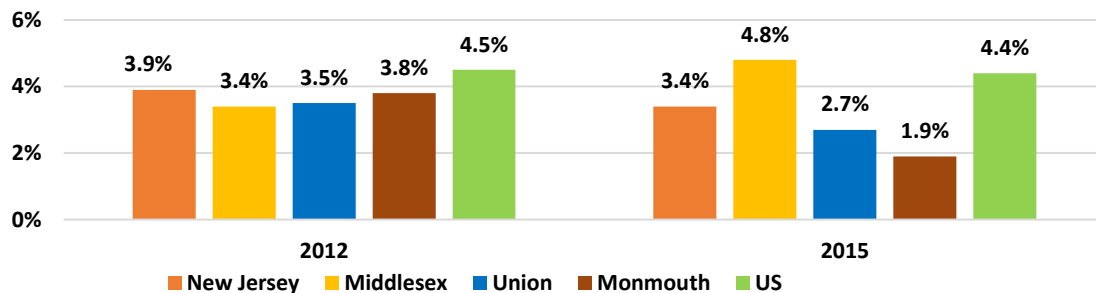
⁴⁰ Source: CDC, Behavioral Health Risk Factor Surveillance System (BRFSS) Note: The frequent mental distress health measure is based on response to the question: “Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?”

Figure 4.24
Cardiovascular Disease (Percent “Yes”)
Were You Ever Told You Has Angina or Coronary Heart Disease? ⁴¹



- According to BRFSS, the percent of Middlesex County residents told they have had a heart attack increases 1.4 percentage points from 3.4% in 2012 to 4.8% in 2015. In 2015, BRFSS indicates 3.4% of New Jersey respondents are told they had a heart attack, 41.1% greater than Statewide.
- Middlesex County ranks in the lowest performing quartile compared to all 21 New Jersey counties for residents who had a heart attack.

Figure 4.25
Cardiovascular Disease (Percent “Yes”)
Were You Ever Told You Had a Heart Attack? (Myocardial Infarction)⁴²

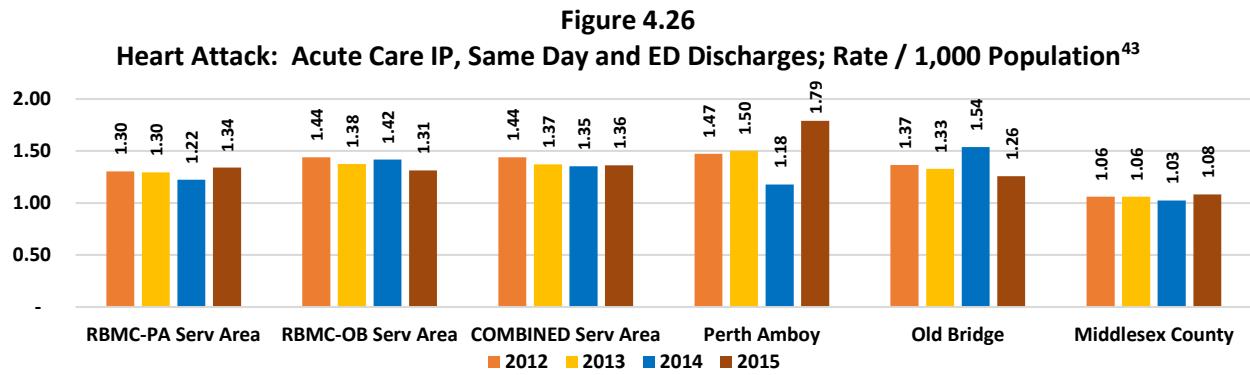


Heart Disease Hospital Use Rates for County, PSA, Perth Amboy and Old Bridge

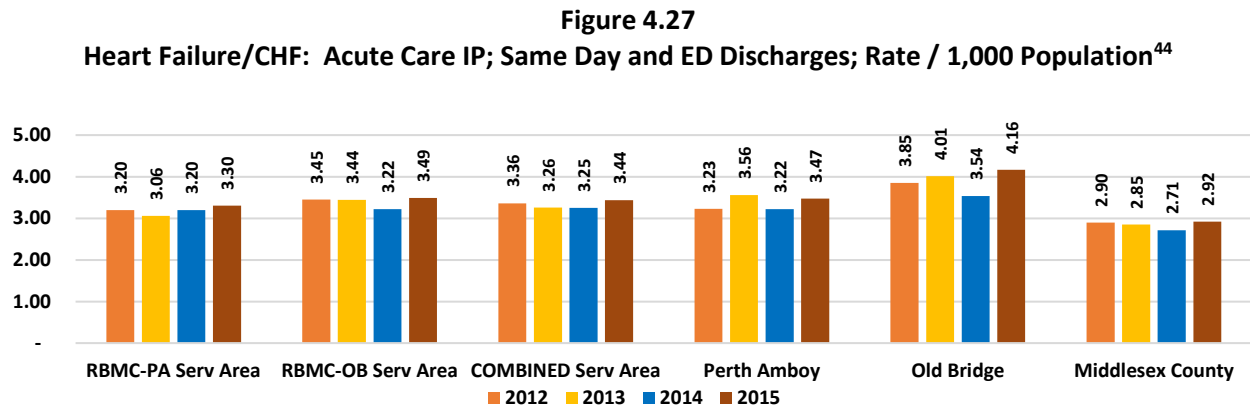
- The rate of Middlesex County residents hospitalized with a heart attack (2012-2015) are lower than those in the hospital Service Areas (Combined, RBMC-PA, RBMC-OB) and the ZIP Codes of Perth Amboy and Old Bridge.
- In 2015, Perth Amboy residents exhibit the highest rate for patients hospitalized with heart attacks at 1.79/1,000 and Old Bridge residents report the lowest rate of 1.26/1,000.

⁴¹ Source: CDC, Behavioral Health Risk Factor Surveillance System (BRFSS) Note: The frequent mental distress health measure is based on response to the question: “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?”

⁴² *ibid*



- Between 2012 and 2015, the rate of patients hospitalized with heart failure in Middlesex County is lower than the hospital Service Areas, Perth Amboy and Old Bridge ZIP Codes.
- In 2015, Old Bridge residents exhibit the highest rate of patients hospitalized with heart failure/CHF at 4.16/1,000 and Middlesex County residents report the lowest rate of 2.92/1,000.



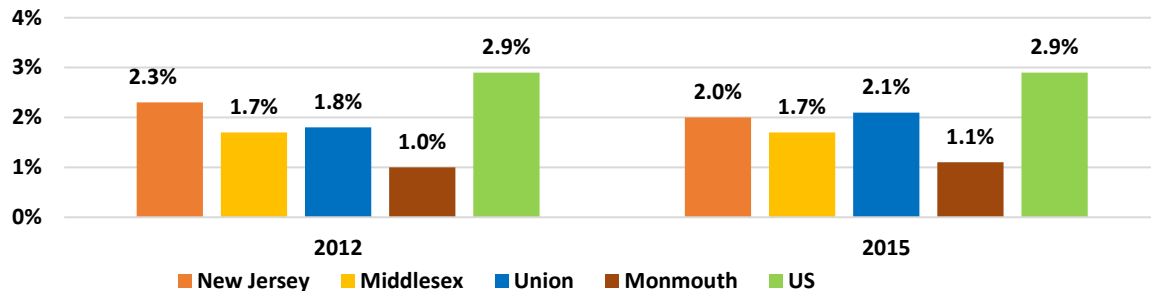
Stroke

- In both 2012 and 2015 BRFSS reports 1.7% of Middlesex County residents indicate they had a stroke.
- In 2015, Middlesex County (1.7%) reports fewer strokes than the state (2.0%) and the Country (2.9%).
- Middlesex County ranks among the middle quartile of New Jersey counties for percentage of the population that has had a stroke.

⁴³ Source: NJ UB-04 Acute Care IP, Same Day Stay, ER Discharges (2012 – 2015), Population: 2010, 2016 Nielsen-Claritas/HCDA, 2011 straight Line Value Based on 2000 and 2010 Census; Definition: Inpatient, Same Day Stay and ED Discharges for MS-DRGs 280-285

⁴⁴ Source: NJ UB-04 Acute Care IP, Same Day Stay, ER Discharges (2012 – 2015), Population: 2010, 2016 Nielsen-Claritas/HCDA, 2011 straight Line Value Based on 2000 and 2010 Census; Definition: Inpatient, Same Day Stay and ED Discharges for MS-DRGs 291-293

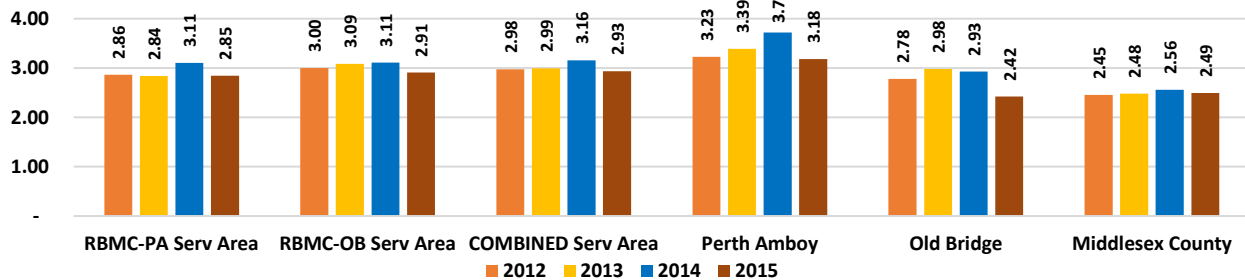
Figure 4.28
Cardiovascular Disease (Percent “Yes”): Have You Ever Been Told You Had a Stroke?⁴⁵



Stroke Hospital Use Rates for County, PSA, Perth Amboy and Old Bridge

- From 2012 through 2015, Perth Amboy has the highest rates of patients hospitalized with stroke/TIA compared to the RBMC Service Areas, Old Bridge and Middlesex County.
- In 2015, Perth Amboy (3.18/1,000) has the highest rate for patients hospitalized for stroke/TIA in the region and Old Bridge (2.42/1,000) has the lowest.

Figure 4.29
Stroke/TIA: Acute Care IP; Same Day and ED Discharges; Rate / 1,000 Population⁴⁶



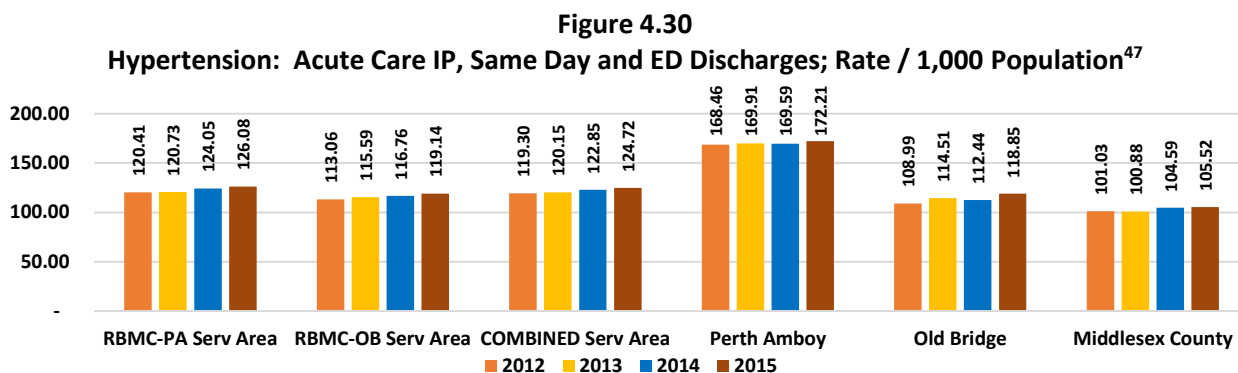
According to the American Heart Association, risk factors associated with developing cardiovascular disease include: high blood pressure, high cholesterol, cigarette smoking, physical inactivity, poor diet, overweight and obesity and Diabetes.

Hypertension Hospital Use Rates for County, PSA, Perth Amboy and Old Bridge

- Perth Amboy has the highest rate of patients hospitalized with hypertension for each year 2012 through 2015.
- In 2015, Perth Amboy (172.21/1,000) has the highest rate of patients hospitalized with hypertension in the region and Middlesex County (105.52/1,000) has the lowest.

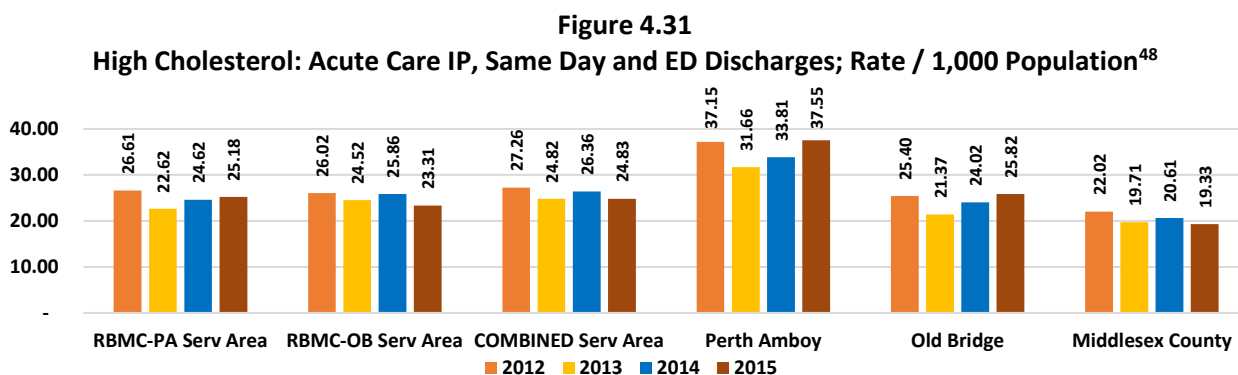
⁴⁵ Source: CDC, Behavioral Health Risk Factor Surveillance System (BRFSS)

⁴⁶ Source: NJ UB-04 Acute Care IP, Same Day Stay, ER Discharges (2012 – 2015), Population: 2010, 2016 Nielsen-Claritas/HCDA, 2011 Straight Line Value Based on 2000 and 2010 Census; Definition: Inpatient, Same Day Stay and ED Discharges for MS-DRGs 061-069



High Cholesterol Hospital Use Rates for County, PSA, Perth Amboy and Old Bridge

- The rate of patients hospitalized with high cholesterol is highest in Perth Amboy for each year 2012 through 2015.
- In 2015, the rate of patients in the hospital with high cholesterol is highest in Perth Amboy (37.55/1,000) and lowest in Middlesex County (19.33/1,000).

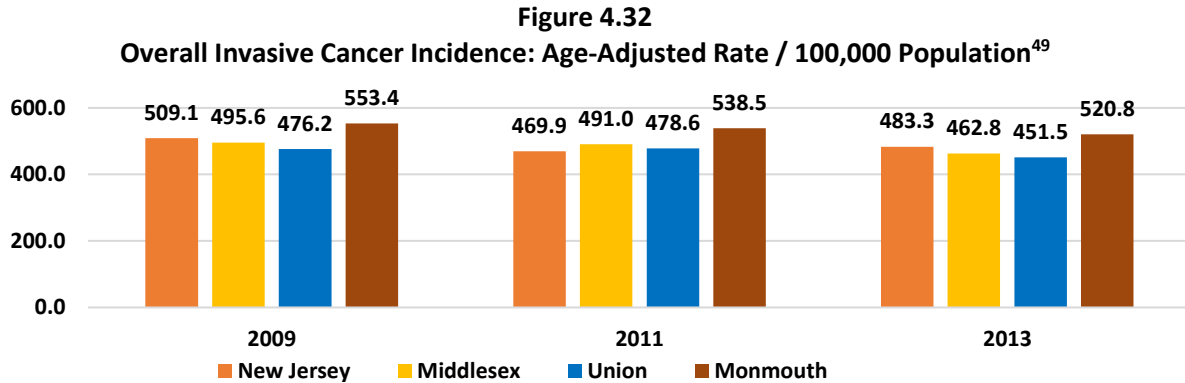


Cancer

- Incidence of overall invasive cancer in Middlesex County decreases 6.6% from 495.6/100,000 in 2009 to 462.8/100,000 in 2013.
- Middlesex County’s overall invasive cancer incidence is nearly three times greater than Healthy People 2020 target of 161.4/100,000.
- In 2013, the overall incidence of cancer in Middlesex County (465.5/100,000) is 3.7% lower than the State (483.3/100,000). Middlesex County ranks in the middle quartile as compared to all 21 counties statewide.

⁴⁷ Source: NJ UB-04 Acute Care IP, Same Day Stay, ER Discharges (2012 – 2015), Population: 2010, 2016 Nielsen-Claritas/HCDA, 2011 Straight Line Value Based on 2000 and 2010 Census; Definition: Inpatient, Same Day Stay and ED Discharges – ICD-9 DX Codes in Range 401-405.99 (Appearing Anywhere in First 13 DX Codes On Patient Record)

⁴⁸ Source: NJ UB-04 Acute Care IP, Same Day Stay, ER Discharges (2012 – 2015), Population: 2010, 2016 Nielsen-Claritas/HCDA, 2011 Straight Line Value Based on 2000 and 2010 Census; Definition: Inpatient, Same Day Stay and ED Discharges – ICD-9 DX Codes 272.0 or 272.2 (Appearing Anywhere in First 13 DX Codes on Patient Record)



Baseline: 179.3
Target: 161.4
Middlesex County 2013:
462.8

Incidence by Site

- In Middlesex County, breast (135.6/100,000) and prostate (120.3/100,000) cancers have the highest incidence rates among the top five cancers, followed by lung (49.4/100,000), colon/rectum (41.9/100,000) and melanoma (19.6/100,000) in 2013.
- In 2013, prostate cancer, lung cancer and melanoma rates in Middlesex County are lower than New Jersey.
- Between 2010 and 2013, incidence trends for Middlesex County by site are:
 - Melanoma – 21.0% increase
 - Colon/Rectum - .7% increase
 - Lung – 1.0% increase
 - Breast – 10.9% increase
 - Prostate – 16.3% decrease
- Prostate, breast, colorectal and skin cancer incidence for Middlesex County perform in the middle quartile in comparison to all 21 New Jersey counties. However, lung cancer incidence in Middlesex County performs in the top 25% statewide.

⁴⁹ Source: NJDOH, New Jersey Cancer Registry Note: The Rate / 100,000 for Prostate Cancer is based on Males and the Rate / 100,000 for Breast Cancer is based on Females

Figure 4.33
Invasive Cancer Incidence by Site 2013: Age-Adjusted Rate / 100,000 Population ⁵⁰

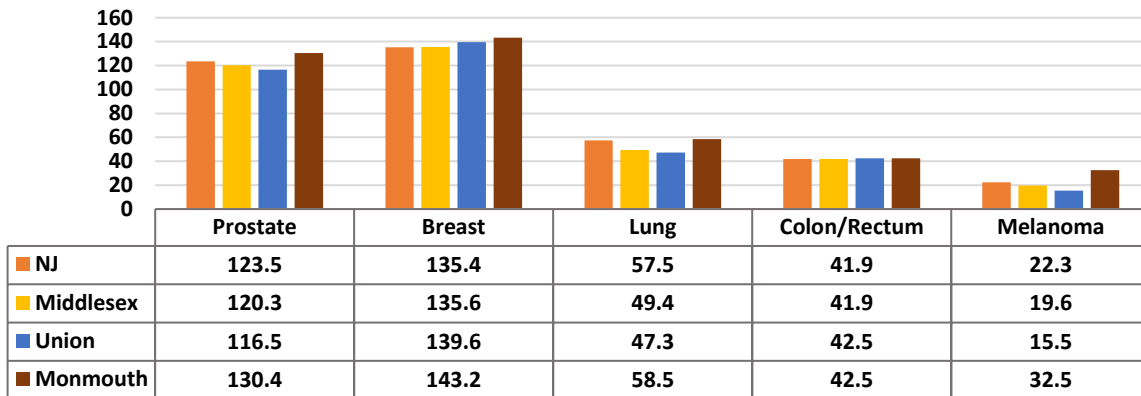
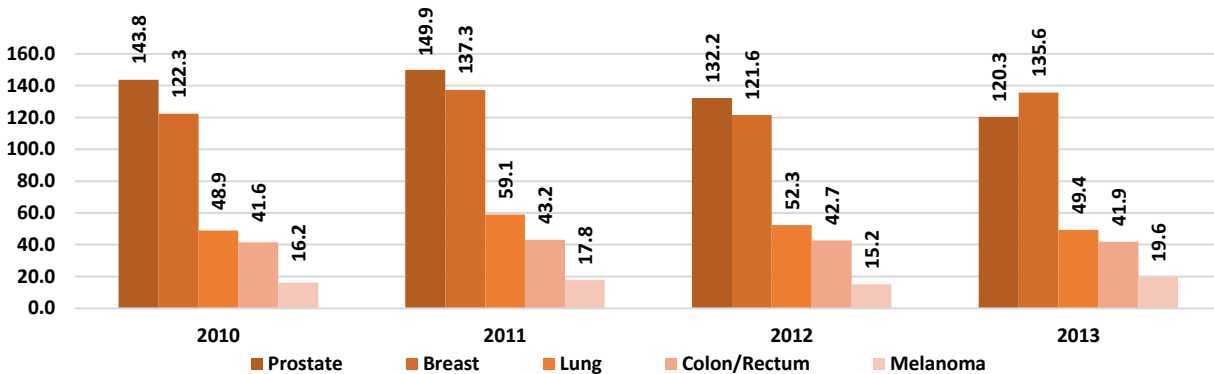


Figure 4.34
Invasive Cancer Incidence by Site 2010-2013: Age-Adjusted Rate / 100,000 Population
Middlesex County Trend

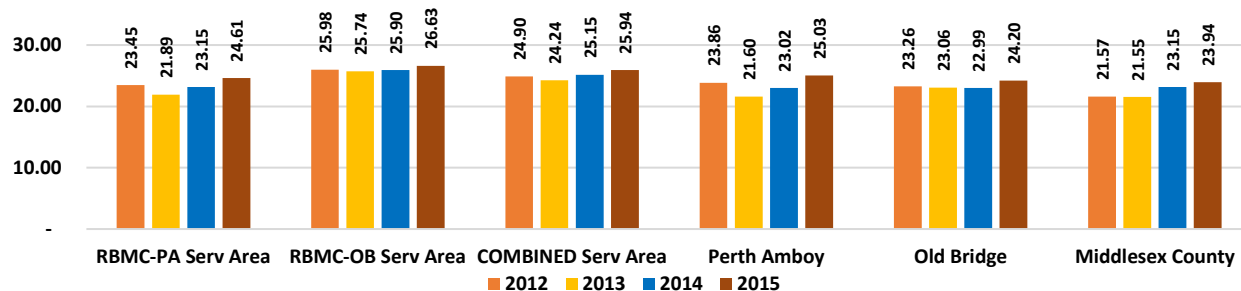


Cancer Hospital Use Rates for County, PSA, Perth Amboy and Old Bridge

- Rates of patients hospitalized with cancer per 1,000 population are highest in the RBMC-OB Service Area from 2012 through 2015.
- In 2015, the rate for cancer patient discharges/1,000 population is highest in RBMC-OB Service Area (26.63/1,000) and lowest in Middlesex County (23.94/1,000).

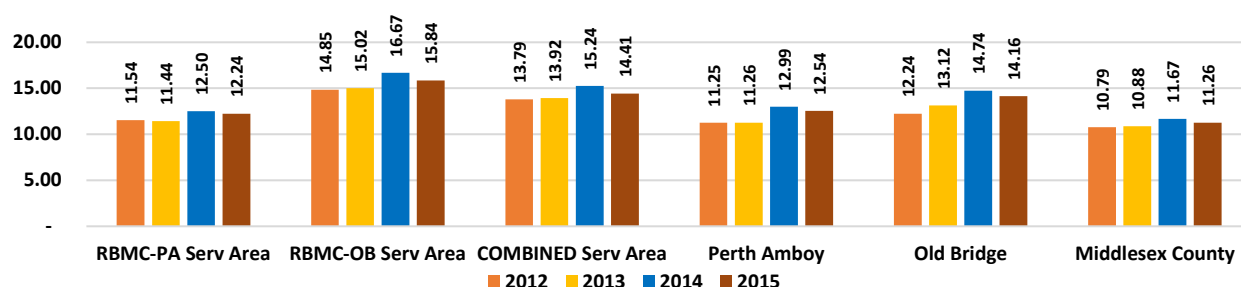
⁵⁰ Source: NJDOH, New Jersey Cancer Registry Note: The Rate / 100,000 for Prostate Cancer is based on Males and the Rate / 100,000 for Breast Cancer is based on Females

Figure 4.35
Cancer: Acute Care IP, Same Day and ED Discharges; Rate / 1,000 Population⁵¹



- Rates of residents hospitalized with a history of cancer are greatest in the RBMC-OB Service Area from 2012 through 2015.
- In 2015, the rate of patients hospitalized with a history of cancer discharges/1,000 population is highest in RBMC-OB Service Areas (15.84/1,000) and lowest in Middlesex County (11.26/1,000).

Figure 4.36
History of Cancer: Acute Care Inpatient, Same Day and ED Discharges; Rate / 1,000 Population⁵²



Asthma

Asthma, a chronic lung disease often with childhood onset, inflames and narrows airways and causes recurring periods of wheezing, chest tightness, shortness of breath and coughing.⁵³ The exact cause of asthma is unknown; however, researchers believe genetic and environmental factors are involved. Factors may include: atopy, parents with asthma, certain respiratory infections during childhood and contact with some airborne allergens or exposure to some viral infections in infancy or in early childhood when the immune system is developing.⁵⁴

- According to the 2015 BRFSS survey, 8.1% of Middlesex County adults report ever being told they have asthma.

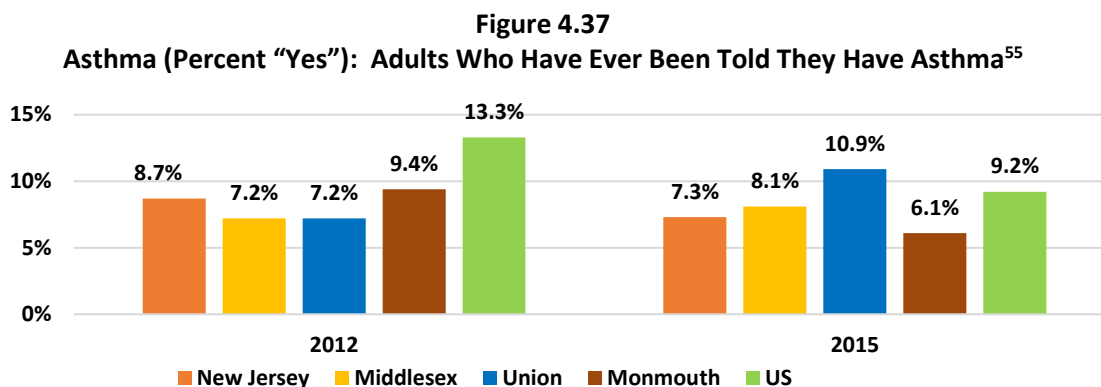
⁵¹ Source: NJ UB-04 Acute Care IP, Same Day Stay, ER Discharges (2012 – 2015), Population: 2010, 2016 Nielsen-Claritas/HCDA, 2011 Straight Line Value Based on 2000 and 2010 Census Definition: Inpatient, Same Day Stay and ED Discharges – New Solution's Inc. Oncology Product Line (includes History of Cancer)

⁵² Source: NJ UB-04 Acute Care IP, Same Day Stay, ER Discharges (2012 – 2015), Population: 2010, 2016 Nielsen-Claritas/HCDA, 2011 Straight Line Value Based on 2000 and 2010 Census Definition: Inpatient, Same Day Stay and ED Discharges – New Solution's Inc. Oncology Product Line (History of Cancer Only)

⁵³ <http://www.nhlbi.nih.gov/health/health-topics/topics/asthma>

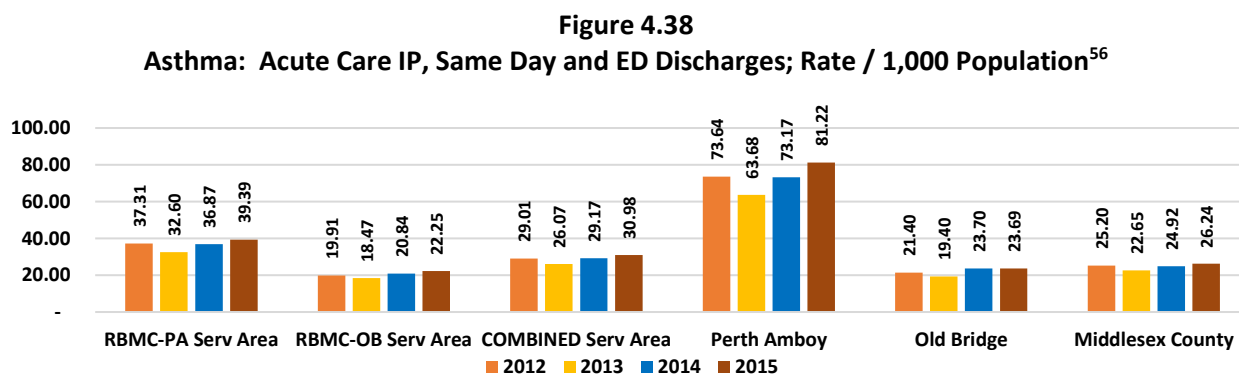
⁵⁴ *ibid*

- The percent of Middlesex County residents with asthma (8.1%) exceeds the state (7.3%) but is below the U.S. (9.2%). Compared to all 21 New Jersey counties, Middlesex County performs in the middle quartile.



Asthma Hospital Use Rates for County, PSA, Perth Amboy and Old Bridge

- Rates of hospitalization of residents with asthma are highest in Perth Amboy from 2012 through 2015.
- In 2015, the rate of Perth Amboy (81.22/1,000) patients hospitalized with asthma exceeds the Middlesex County (26.24/1,000) rate by a factor of 3. Rates are lowest in the RBMC-OB Service Area at 22.25/1,000.



COPD (excluding Asthma)

Chronic Obstructive Pulmonary Disease (COPD) is a group of diseases that cause airflow blockage and breathing-related problems including emphysema, chronic bronchitis. In the United States, tobacco smoke is a key factor in the development and progression of COPD, although exposure to air pollutants in the home and workplace, genetic factors, and respiratory infections also play roles.

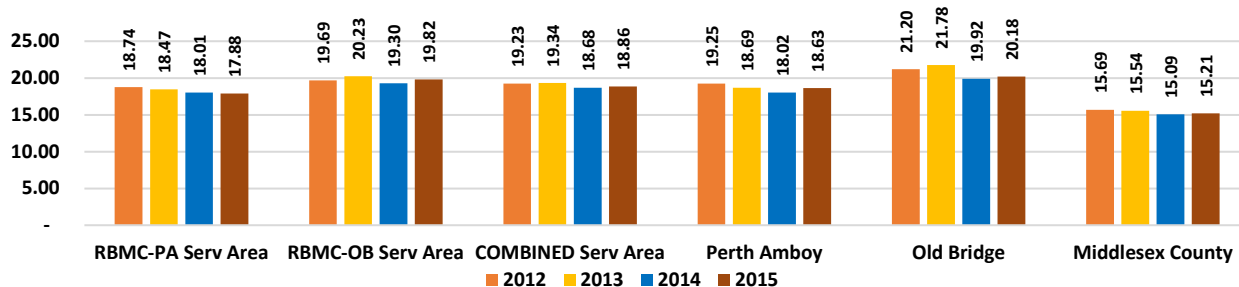
- Rates of residents hospitalized with COPD are greatest in Old Bridge from 2012 through 2015.

⁵⁵ Source: CDC, Behavioral Health Risk Factor Surveillance System (BRFSS)

⁵⁶ Source: NJ UB-04 Acute Care IP, Same Day Stay, ER Discharges (2012 – 2015), Population: 2010, 2016 Nielsen-Claritas/HCDA, 2011 Straight Line Value Based on 2000 and 2010 Census; Definition: Inpatient, Same Day Stay and ED Discharges – ICD-9 DX Codes in the Range 493-493.9 (Appearing Anywhere In First 13 DX Codes On Patient Record)

- In 2015, the rate of hospitalization for patients with COPD discharges/1,000 population is highest in Old Bridge (20.18/1,000) and lowest in Middlesex County (15.21/1,000).

Figure 4.39
COPD (excluding Asthma): Acute Care IP, Same Day and ED Discharges; Rate / 1,000 Population⁵⁷



Diabetes

Diabetes is indicated by high levels of blood glucose as a result of problems in insulin production, effectiveness, or a combination of both. The three most common types of diabetes are Type 1, Type 2 and Gestational. Individuals with diabetes may develop serious health complications including heart disease, stroke, kidney failure, blindness, amputation and premature death.

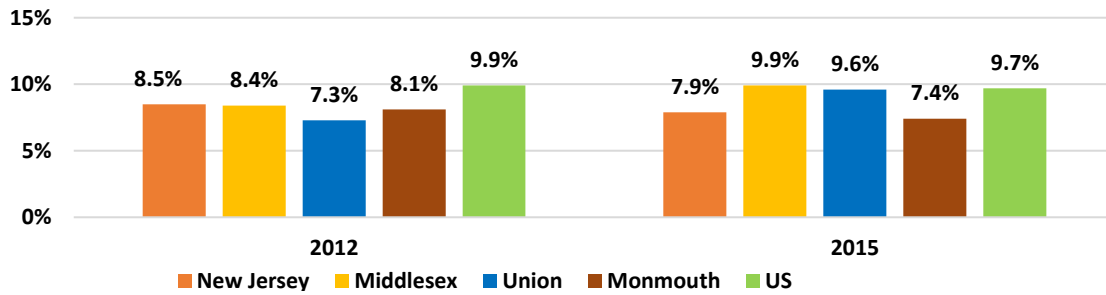
Type 1 develops when insulin producing cells located in the pancreas are destroyed. There is no known way to prevent Type 1 diabetes. In order to survive, Type 1 diabetics must have insulin delivered by injection or pump. Type 2 primarily onsets with insulin resistance, a disorder in which cells within the muscles, liver, and fat tissue are unable to properly use insulin. Higher risk for developing Type 2 diabetes is associated with older age, obesity, family history of diabetes, history of gestational diabetes, impaired glucose metabolism, physical inactivity, and race/ethnicity. African Americans, Hispanics/Latinos, American Indians, some Asians, and Native Hawaiians or other Pacific Islanders are at particularly high risk for Type 2. Gestational diabetes is a form of glucose intolerance diagnosed during the second or third trimester of pregnancy. The risk factors for gestational Diabetes are similar to those for type 2 diabetes.⁵⁸

- Diabetes is increasing among Middlesex County residents. Between 2012 (8.4%) and 2015 (9.9%), an additional 1.5 percentage point increase of County residents report having the disease.
- New Jersey residents with diabetes declines 0.6 percentage points from 8.5% in 2012 to 7.9% in 2015 and is lower than Middlesex County. In 2015, Middlesex County has the highest percentage with diabetes among comparison counties and the nation. Middlesex is in the poorest performing quartile for diabetes as compared to all 21 counties statewide.

⁵⁷ Source: UB-04 Acute Care Discharges (2009 – 2012), Population: 2000, 2010 Census, 2011 & 2012 Census ACS Estimates, 2009 Straight Line Value Based on 2000 and 2010 Census; Definition: Inpatient, Same Day Stay and ED Discharges – ICD-9 DX Codes In the Ranges 490-492 & 494-496 (Appearing Anywhere In First 13 DX Codes On Patient Record)

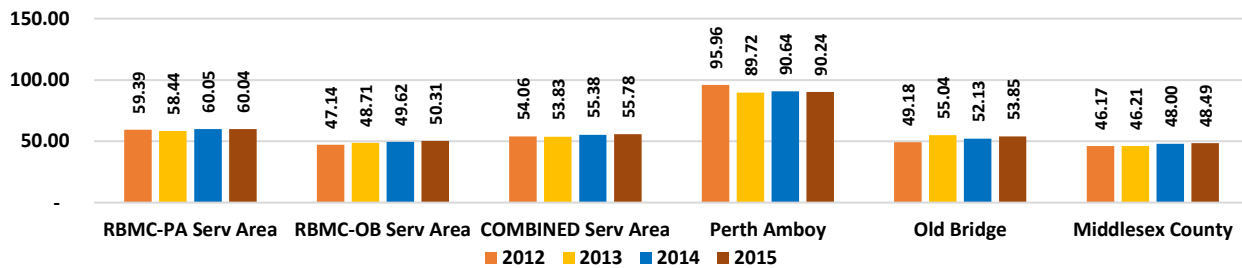
⁵⁸ <http://www.cdc.gov/diabetes/pdfs/data/2014-report-generalinformation.pdf>

Figure 4.40
Diabetes (Percent “Yes”): Have You Ever Been Told by A Doctor That You Have Diabetes?⁵⁹



- Rates of hospitalization for residents with diabetes are greatest in Perth Amboy from 2012 through 2015.
- In 2015, the rate of hospitalization for patients with diabetes discharges/1,000 population is highest in Perth Amboy (90.24/1,000) and lowest in Middlesex County (48.49/1,000).

Figure 4.41
Diabetes: Acute Care IP, Same Day and ED Discharges; Rate / 1,000 Population⁶⁰



Diabetes is a contributing factor to renal failure. More than 35% of U.S. adults with diabetes have chronic kidney disease. High blood sugar and high blood pressure increase the risk that chronic kidney disease will eventually lead to kidney failure.⁶¹

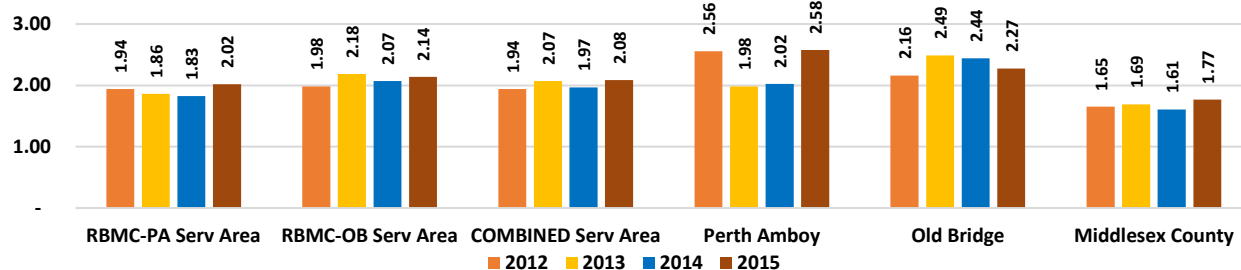
- Rates of hospitalization for residents with renal failure are highest in Perth Amboy from 2012 through 2015.
- In 2015, the rate of hospitalization for patients with renal failure discharges/1,000 population is highest in Perth Amboy (2.58/1,000) and lowest in Middlesex County (1.77/1,000).

⁵⁹ Source: CDC, Behavioral Health Risk Factor Surveillance System (BRFSS)

⁶⁰ Source: NJ UB-04 Acute Care IP, Same Day Stay, ER Discharges (2012 – 2015), Population: 2010, 2016 Nielsen-Claritas/HCDA, 2011 Straight Line Value Based on 2000 and 2010 Census; Definition: Inpatient, Same Day Stay and ED Discharges – ICD-9 DX Codes In The Range 249.00-250.03 (Appearing Anywhere In First 13 DX Codes On Patient Record)

⁶¹ <http://www.cdc.gov/Features/WorldKidneyDay>

Figure 4.42
Renal Failure: Acute Care IP, Same Day and ED Discharges; Rate / 1,000 Population⁶²

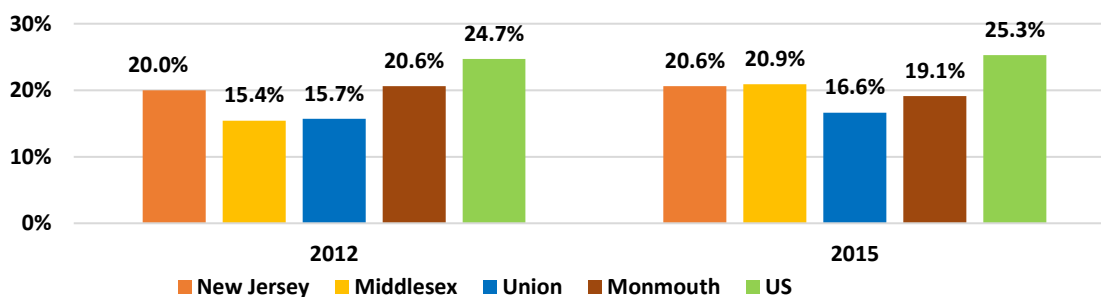


Arthritis

Arthritis affects more than 1 in 5 adults and is the nation’s most common cause of disability. Arthritis describes more than 100 rheumatic diseases and conditions that affect joints, the tissues which surround the joint and other connective tissue. The pattern, severity and location of symptoms vary depending on the specific form of the disease. Typically, rheumatic conditions are characterized by pain and stiffness in and around one or more joints. The symptoms can develop gradually or suddenly.⁶³

- Between 2012 and 2015, the percentage of Middlesex County residents reporting arthritis increases from 15.4% to 20.9%.
- The percentage of Middlesex County residents reporting arthritis surpasses the State (20.6%) and comparison counties between 2012 and 2015. As compared to 21 counties statewide, Middlesex ranks in the middle quartile.

Figure 4.43
Arthritis (Percent “Yes”): Adults Who Have Ever Been Told They Have Arthritis⁶⁴



⁶² Source: NJ UB-04 Acute Care IP, Same Day Stay, ER Discharges (2012 – 2015), Population: 2010, 2016 Nielsen-Claritas/HCDA, 2011 Straight Line Value Based on 2000 and 2010 Census; Definition: Inpatient, Same Day Stay and ED Discharges For MS-DRGs In the Range 682-685

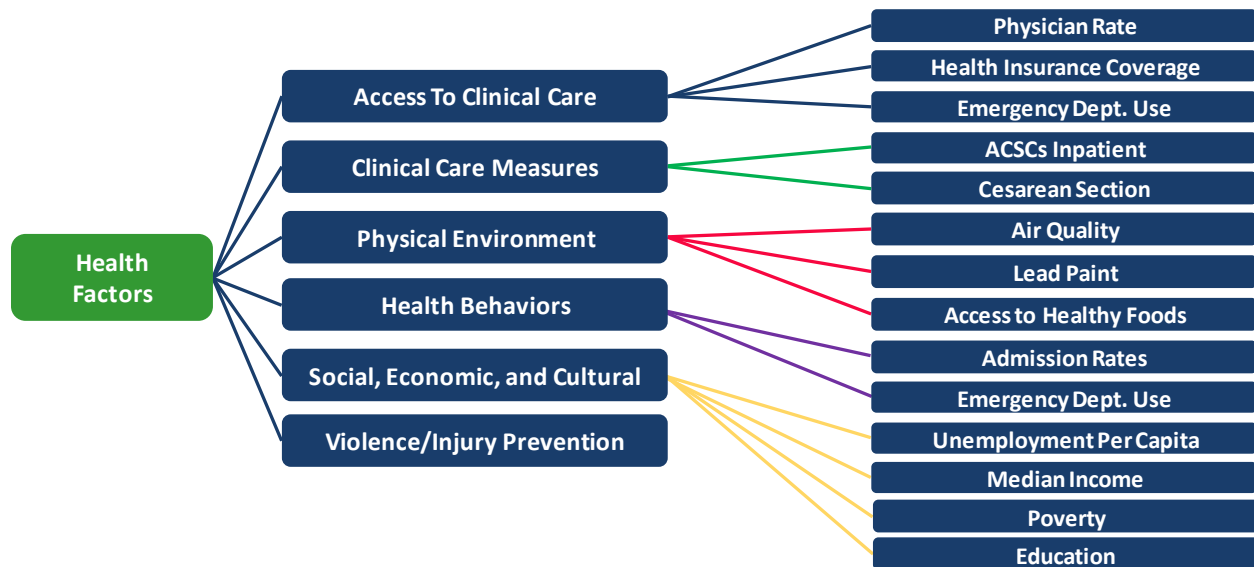
⁶³ <http://www.cdc.gov/arthritis/basics.htm>

⁶⁴ Source: CDC, Behavioral Health Risk Factor Surveillance System (BRFSS)

Morbidity/Cancer Indicators	Healthy People 2020 Target	County Health Rankings Benchmark	New Jersey
Angina/Coronary Heart Disease <i>% Reporting Yes</i>	N.A.	N.A.	
Myocardial Infarction <i>% Reporting Yes</i>	N.A.	N.A.	
Cerebrovascular Disease <i>% Reporting Yes</i>	N.A.	N.A.	
Overall Cancer Incidence <i>Age-Adjusted Rate per 100,000 Population</i>		N.A.	
Prostate Cancer Incidence <i>Age-Adjusted Rate per 100,000 Population</i>	N.A.	N.A.	
Breast Cancer Incidence <i>Age-Adjusted Rate per 100,000 Population</i>	N.A.	N.A.	
Lung Cancer Incidence <i>Age-Adjusted Rate per 100,000 Population</i>	N.A.	N.A.	
Colorectal Cancer Incidence <i>Age-Adjusted Rate per 100,000 Population</i>	N.A.	N.A.	
Skin Cancer Incidence <i>Age-Adjusted Rate per 100,000 Population</i>	N.A.	N.A.	
Asthma <i>% Reporting Yes</i>	N.A.	N.A.	
Diabetes <i>% Reporting Yes</i>	N.A.	N.A.	
Arthritis <i>% Reporting Yes</i>	N.A.	N.A.	

B. HEALTH FACTORS

Health factors represent the influences that impact one's health. These include demographic, social, environmental, economic, and individual behaviors as well as clinical care and access to services. Social determinants are described in Section C following Health Factors. A focus on social determinants of health is an important primary approach to achieving health equity.



1. Demographics

Age

Health disparities exist in all age groups. The Centers for Disease Control and Prevention reports that although life expectancy and overall health has improved for most Americans, older adults are not benefitting equally due to economic status, race and gender. While the overall concentration of older adults in Middlesex County is slightly smaller than New Jersey, there are a number of municipalities within the county that have larger concentrations than statewide. By 2022, the population over 65 in Middlesex County is projected to increase 18.4% and the Statewide increase is projected to increase 16.0% from 2017.

- According to 2017 population estimates, Monroe (33.7%) has more than two times the number of residents aged 65+ as compared to Middlesex County (14.2%).
- Between 2017 and 2022, New Jersey is projected to have a 1.6% decline among 0-17 year olds, Perth Amboy, however, anticipates a 2.5% increase in this age cohort.
- Perth Amboy's overall projected population growth (3.5%) between 2017 and 2022 is nearly double that of the State (1.8%).
- Women of child-bearing age (15-44) comprise 20.2% of Middlesex County's 2017 population and are projected to decrease by 0.9% in 2022. Similarly, women age 15-44 comprise 21.7% of the Perth Amboy population and are projected to decrease 1.0%, in line with the State.

Figure 4.44
Area Population by Age Cohort⁶⁵

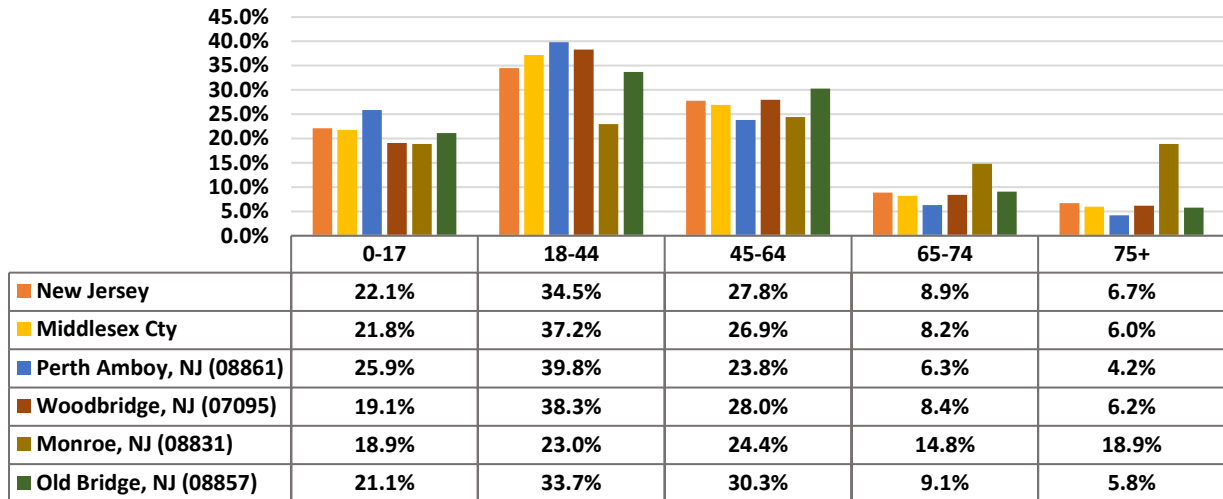


Figure 4.45⁶⁶

POPULATION DISTRIBUTION & PROJECTED PERCENT CHANGE '17-'22						
AGE COHORT	GEOGRAPHIC AREA					
	New Jersey	Middlesex County	RBMC PA	RBMC OB	Perth Amboy	Old Bridge
0-17	1,985,480	181,077	58,270	64,726	14,409	8,725
% of Total	22.1%	21.8%	22.5%	22.4%	25.9%	22.7%
% Change '17-'22	-1.6%	0.6%	2.1%	-1.7%	2.5%	0.2%
18-44	3,101,437	308,515	95,821	97,465	22,133	13,953
% of Total	34.5%	37.2%	37.1%	32.6%	39.8%	35.5%
% Change '17-'22	0.6%	-1.2%	-2.0%	0.5%	-1.6%	-1.2%
45-64	2,505,506	223,184	71,265	91,709	13,249	12,530
% of Total	27.8%	26.9%	27.6%	29.2%	23.8%	29.9%
% Change '17-'22	-0.9%	2.5%	2.8%	-0.7%	7.0%	0.5%
65+	1,406,774	117,559	33,109	57,152	5,832	6,184
% of Total	15.6%	14.2%	12.8%	15.8%	10.5%	11.9%
% Change '17-'22	16.0%	18.4%	19.0%	18.0%	17.1%	20.7%
All Ages	8,999,197	830,335	258,465	311,052	55,623	41,392
% of Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
% Change '17-'22	1.8%	3.0%	2.9%	2.9%	3.5%	2.9%
Women Age 15-44	1,708,422	167,446	27,705	30,392	12,073	7,652
% of Total	19.0%	20.2%	10.5%	9.8%	21.7%	18.5%
% Change '17-'22	-0.8%	-0.9%	-1.3%	0.8%	-1.0%	-0.7%

⁶⁵ Source: Nielson Claritas 2017 Population Estimate

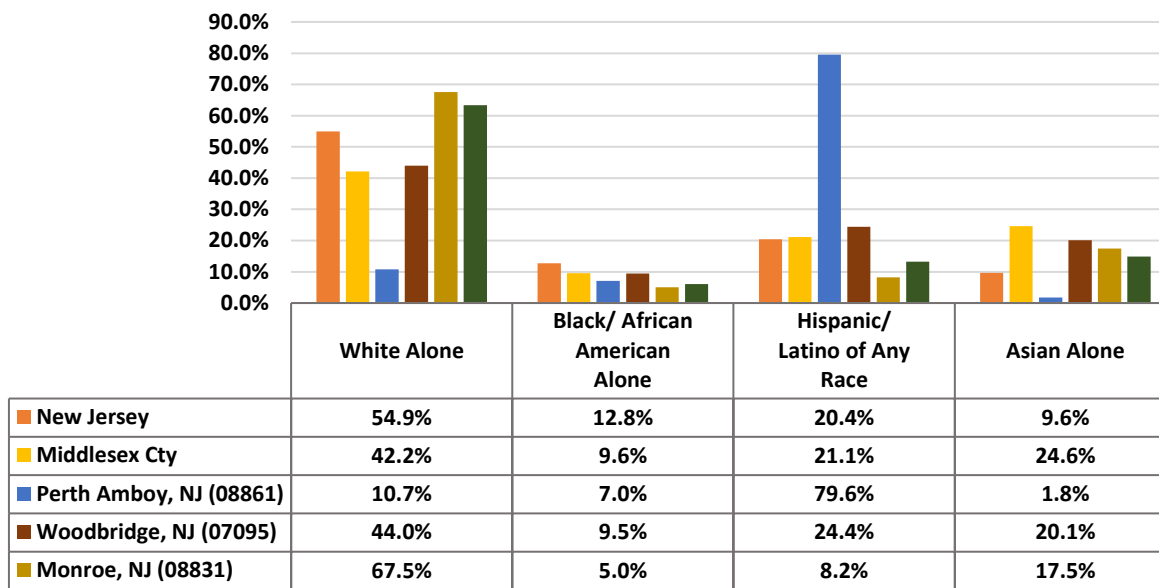
⁶⁶ Source: Nielson Claritas 2017 Population Estimates

Race and Ethnicity

Despite notable progress in the overall health of the Nation, there remain morbidity and mortality disparities by race and ethnicity. The proportion of cohorts which experience poorer health status are anticipated to grow; therefore, the future health of America can be influenced by improving the health of these minorities. In Middlesex County, the percentage of non-white population increases across all racial and ethnic groups while the percentage of white residents has declines, heightening the vital need for addressing disparities in health and care among these groups.⁶⁷

- According to 2017 population estimates, 42.2% of Middlesex County, 67.5% of Monroe and 10.7% of Perth Amboy residents are White as compared to 54.9% statewide.
- In 2017, 20.4% of New Jersey residents are Hispanic, approximately one-quarter of the percentage of Perth Amboy (79.6%) residents.
- The Hispanic population in Middlesex County increases 18.6% from 2010 through 2017.
- In 2017, 24.6% of Middlesex County residents are Asian, nearly 2 ½ times New Jersey (9.6%).
- The Asian population in Middlesex County increases 20.6% between 2010 and 2017.

Figure 4.46
Race/Ethnicity (2017)⁶⁸



⁶⁷ <http://www.cdc.gov/omhd/AMH/AMH.htm>

⁶⁸ Source: Nielson Claritas 2017 Population Estimates

Figure 4.47⁶⁹

Middlesex County Trend – Race/Ethnicity			
RACE/ETHNICITY	2010	2017	% Change
White (alone)	386,829	350,119	-9.5%
Black / African American (alone)	70,849	79,701	12.5%
Asian (alone)	169,177	204,067	20.6%
Native American/Pacific Islander/Other Race (alone)	3,864	4,208	8.9%
Two or More Races (alone)	13,696	16,633	21.4%
Hispanic / Latino (of Any Race)	148,010	175,607	18.6%
Total	792,581	830,335	4.8%

2. Clinical Care Measures

Inpatient and ED Utilization

Factors impacting utilization could be policy change, advances in technology, practice patterns and demographics. Health care payment reforms implemented as part of the Affordable Care Act (ACA) designed to improve care transitions, coordination of care, enhance ambulatory care and improve access to primary care resulted in a decline of inpatient and ED utilization.

Inpatient

- Middlesex County’s 2015 inpatient utilization rate (143.45/1,000) is 5.6% lower than the State (151.93/1,000).
- Raritan Bay Medical Center’s 2015 Combined Service Area inpatient rate (159.92/1,000) is 11.5% higher than Middlesex County (143.45/1,000) and 5.3% higher than the State (151.93/1,000) rate.
- Monroe Township’s (208.08/1,000) older population drives a high inpatient use rate, 45% higher than Middlesex County (143.45/1,000) in 2015.

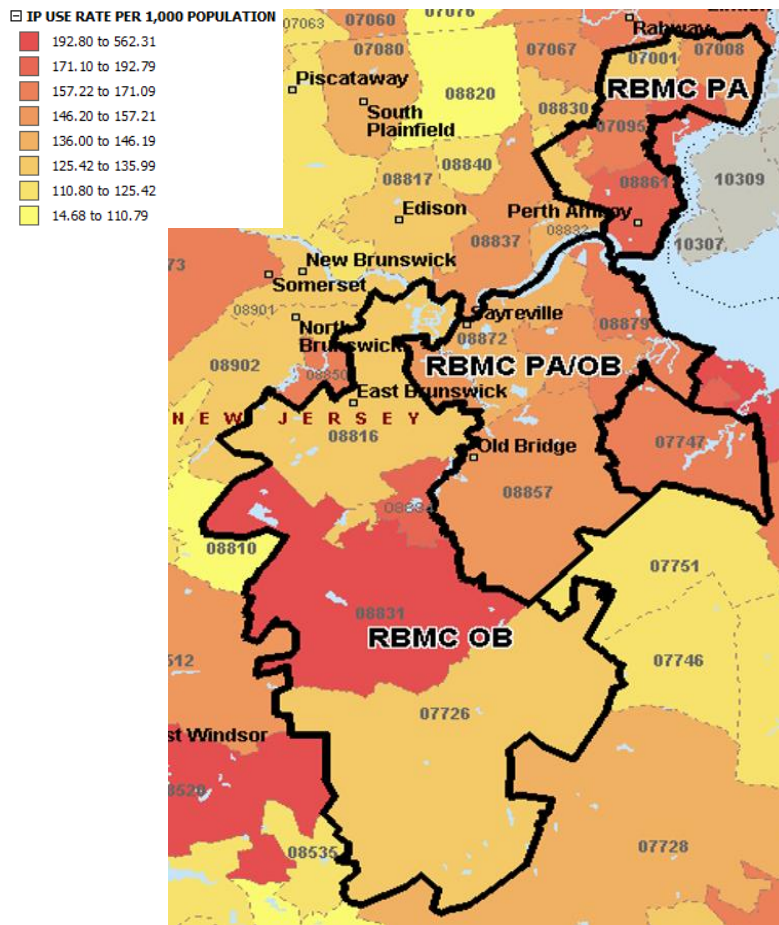
Figure 4.48⁷⁰

INPATIENT USE RATES (2015)			
GEOGRAPHIC AREA	RATE	GEOGRAPHIC AREA	RATE
New Jersey	151.93	08831: Monroe	208.08
Middlesex County	143.45	08861: Perth Amboy	184.08
RBMC-PA	159.17	08884: Spotswood	180.85
RBMC-OB	158.11	07064: Port Reading	171.14
RBMC-PA/OB Combined	159.92	07747: Matawan	168.43

⁶⁹ *ibid*

⁷⁰ *ibid*

Figure 4.49
Inpatient Use Rates per 1,000 Population: 2015



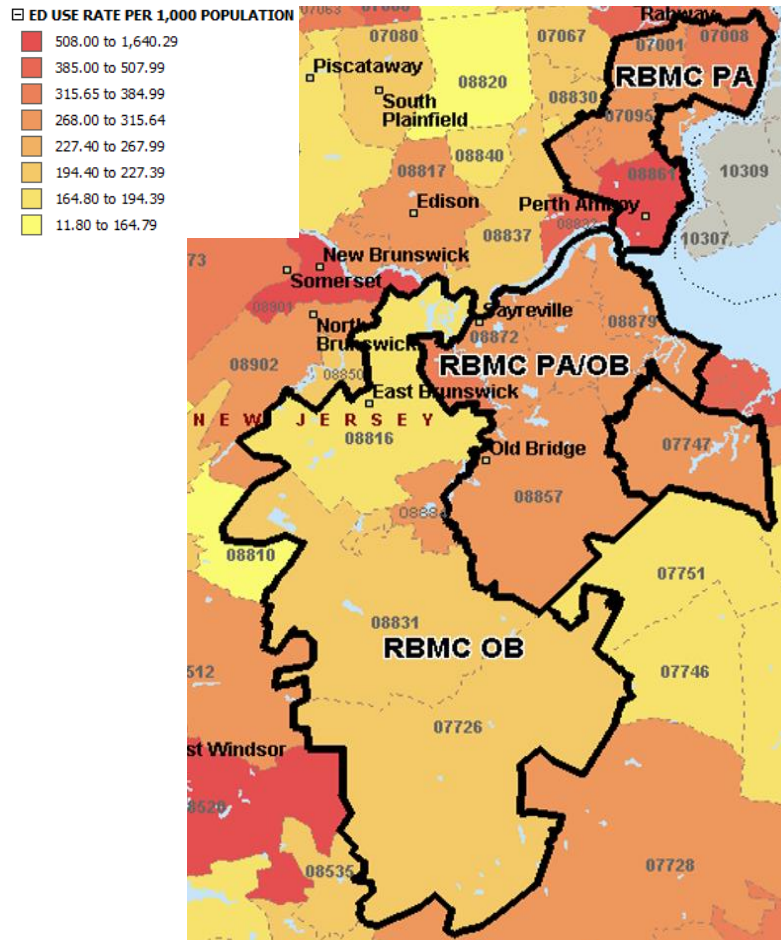
Emergency Department

- Middlesex County's 2015 ED use rate (275.57/1,000) is 20.8% less than State rate (348.03/1,000).
- Raritan Bay Medical Center's 2015 Combined Service Area (291.96/1,000) ED use rate exceeds Middlesex County (275.57/1,000) by 5.9%.
- In 2015, Perth Amboy's ED use rate (597.5/1,000) is more than double the Middlesex County rate (275.57/1,000).
- In 2015, the ED use rates of Perth Amboy, Carteret, South River, Woodbridge, and South Amboy are greater than Middlesex County.

Figure 4.50⁷¹

ED USE RATES (2015)			
GEOGRAPHIC AREA	RATE	GEOGRAPHIC AREA	RATE
New Jersey	348.03	08861: Perth Amboy	597.51
Middlesex County	275.57	07008: Carteret	370.45
RBMC-PA	348.04	08882: South River	323.57
RBMC-OB	234.50	07095: Woodbridge	293.21
RBMC-PA/OB Combined	291.96	08879: South Amboy	279.36

Figure 4.51
ED Use Rates per 1,000 Population: 2015

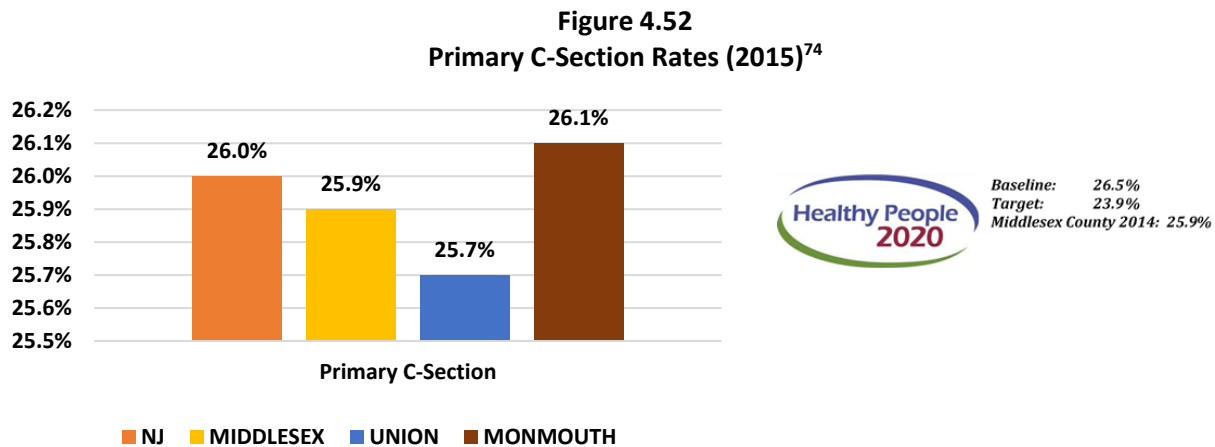


⁷¹ Source: UB-04 2015 ED Discharges; Population: 2010, 2016 Nielsen-Claritas/HCDA, 2011 Straight Line Value Based on 2000 and 2010 Census; Emergency Room Use Among Adults Aged 18–64: Early Release of Estimates from the National Health Interview Survey, January–June 2011; http://www.cdc.gov/nchs/data/nhis/earlyrelease/emergency_room_use_january-june_2011.pdf

Cesarean Section

A Cesarean Section (C-section) is a major surgical procedure performed because of health problems in the mother, position of the baby, and/or distress in the infant.⁷² The U.S. cesarean delivery rate reached a high of 32.9% of all births in 2009, rising 60% from 1996 (20.7%). Recently, the American College of Obstetricians and Gynecologists developed clinical guidelines for reducing the occurrence of non-medically indicated cesarean delivery and labor induction prior to 39 weeks. Efforts to reduce such births include initiatives to improve perinatal care quality, changes in hospital policy to disallow elective delivery prior to 39 weeks and education of the public.⁷³

- Middlesex County's 2015 primary C-section rate (25.9%) is similar to the State rate (26.0%). As compared to the State, Middlesex County ranks in the lowest performing quartile of all 21 New Jersey counties.
- The 2015 Middlesex County primary C-section rate (25.9%) is 8.4% lower than the Healthy People 2020 target of 23.9%.



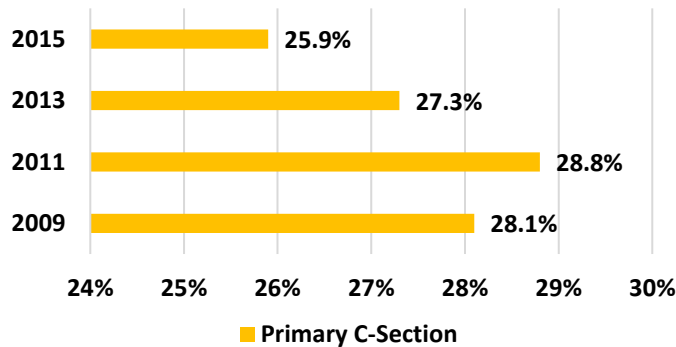
- County-wide, women with a primary C-section trend downward from 2009 through 2015, decreasing 10.1% from 2011 to 2015.

⁷² <http://www.nlm.nih.gov/medlineplus/cesareansection.html>

⁷³ http://www.cdc.gov/nchs/data/nvsr/nvsr63/nvsr63_01.pdf

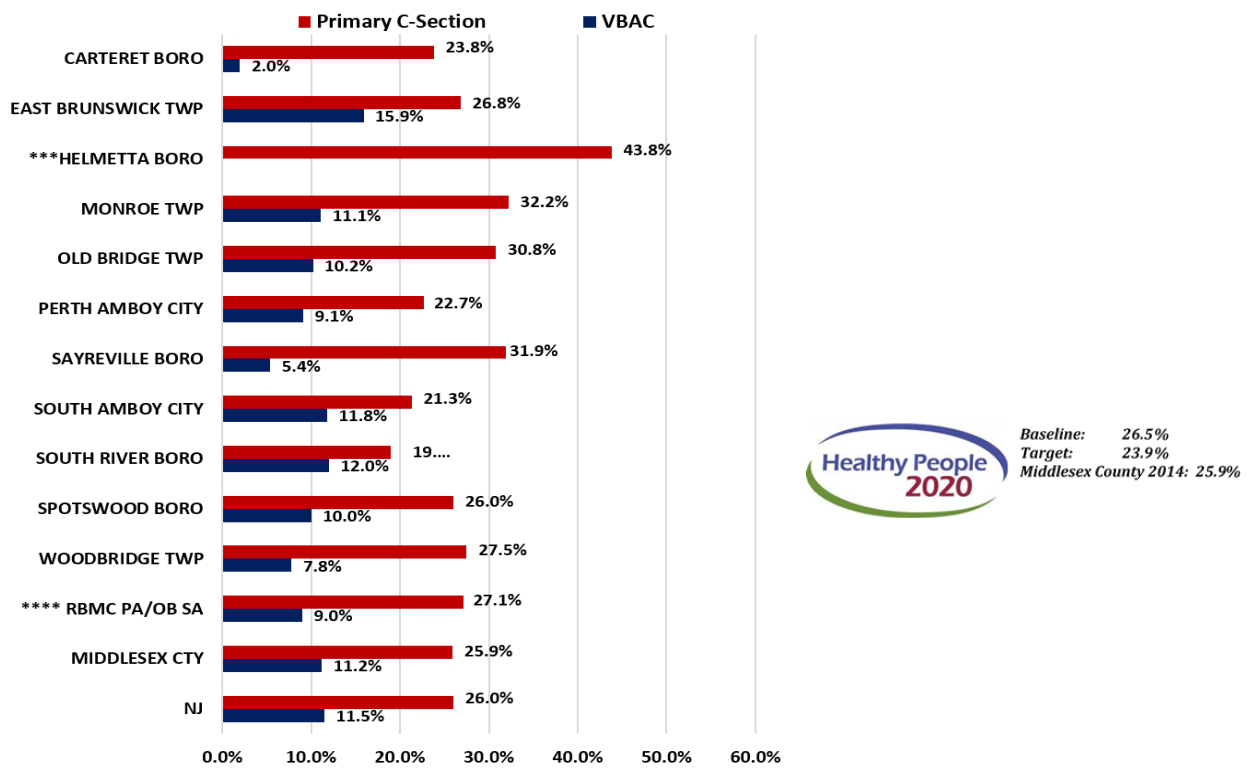
⁷⁴ Source: NJDOH Bureau of Vital Statistics and Registration, NJ Birth Certificate Database <http://www4.state.nj.us/dhss-shad/query/result/birth/BirthBirthCnty/Count.html>; Primary C-Section: Single >=37 Week Low Risk Births Delivered By C-Section/Single Live Births to Low Risk Females

Figure 4.53
Primary C-Section Rates: Middlesex County Trend (2009-2015)⁷⁵



- In 2015, the primary C-section rate in Helmetta (43.8%) exceeds Middlesex County (25.9%), New Jersey (26.0%) and Healthy People 2020 target (23.9%) rates.

Figure 4.54
C-Section Rates (2015)⁷⁶

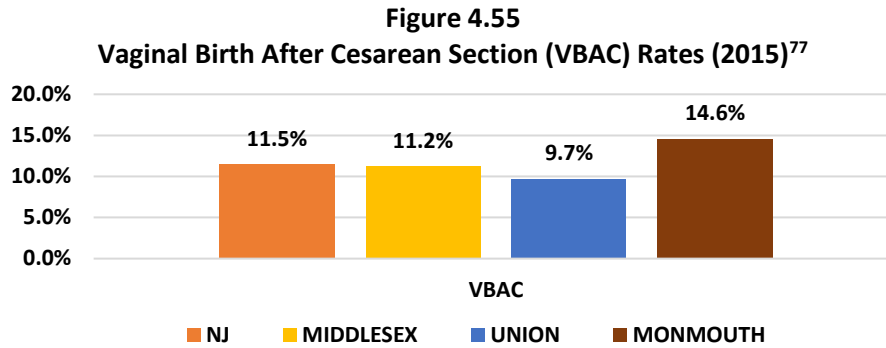


⁷⁵ Source: NJDOH Bureau of Vital Statistics and Registration, NJ Birth Certificate Database <http://www4.state.nj.us/dhss-shad/query/result/birth/BirthBirthCnty/Count.html>; Primary C-Section: Single >=37 Week Low Risk Births Delivered By C-Section/Single Live Births To Low Risk Females

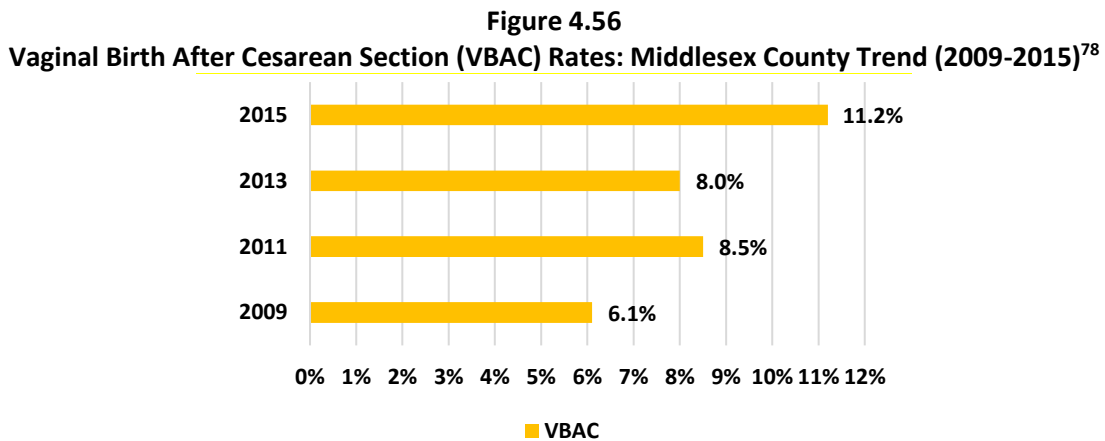
⁷⁶ Source: NJDOH Bureau of Vital Statistics and Registration, NJ Birth Certificate Database <http://www4.state.nj.us/dhss-shad/query/result/birth/BirthBirthCnty/Count.html> *Primary C-Section: Single >=37 Week Low Risk Births Delivered By C-Section/Single Live Births To Low Risk Females; **The VBAC rate is the count of infants delivered vaginally divided by the count of all live births to mothers who previously had a c-section; *** Helmetta Boro VBAC Rate Not Available; **** Based on Available Municipal Level Data for Towns Within RBMC-PA/OB Combined Service Area

Vaginal Birth After C-Section (VBAC)

- Middlesex County’s 2015 VBAC rate (11.2%) is similar to the State rate (11.5%). Middlesex County ranks in the middle performing quartile of all 21 New Jersey counties.



- County-wide women with a VBAC trend upward from 2009 through 2015, increasing 31.8% from 2011 to 2015.



Cesarean Section	Healthy People 2020 Target	County Health Rankings Benchmark	New Jersey
Primary C-Section Rate % of All Live Births		N.A.	
Vaginal Births After C-Section Rate % of All Live Births	N.A.	N.A.	

⁷⁷ Source: NJDOH Bureau of Vital Statistics and Registration, NJ Birth Certificate Database <http://www4.state.nj.us/dhss-shad/query/result/birth/BirthBirthCnty/Count.html>; Primary C-Section: Single >=37 Week Low Risk Births Delivered By C-Section/Single Live Births to Low Risk Females

⁷⁸ Source: NJDOH Bureau of Vital Statistics and Registration, NJ Birth Certificate Database <http://www4.state.nj.us/dhss-shad/query/result/birth/BirthBirthCnty/Count.html>; Primary C-Section: Single >=37 Week Low Risk Births Delivered By C-Section/Single Live Births to Low Risk Females

3. Health Behaviors

Maternal / Fetal Health

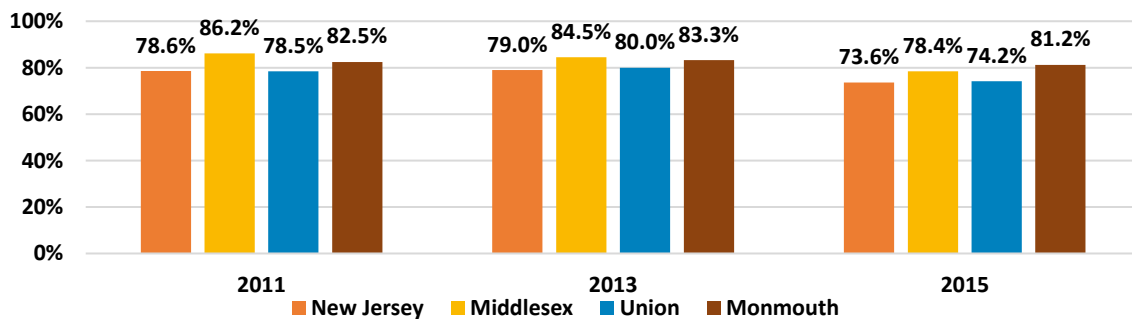
Prenatal Care

The medical care a woman receives during pregnancy monitors her health and the developing fetus. Low-risk pregnancies should visit a prenatal provider every four or six weeks through 28 weeks then every two or three weeks from weeks 28-36 and finally every week in the ninth month until delivery. A high-risk pregnancy requires additional visits.⁷⁹ Pregnant women who do not receive adequate prenatal care risk undetected complications and an increased possibility of adverse outcomes.

Early and regular prenatal care is a strategy to improve health outcomes for mothers and infants. Two significant benefits are improved birth weight and decreased preterm delivery. Infants born to mothers who receive no prenatal care have an infant mortality rate five times higher than mothers who receive appropriate prenatal care since the first trimester of pregnancy. Enrollment in care during the first trimester of pregnancy reflects timely initiation of prenatal care.⁸⁰

- In 2015, 6.5% more Middlesex County (78.4%) women entered prenatal care in the first trimester than in New Jersey (73.6%). As compared to New Jersey, Middlesex County ranks in the middle quartile.
- Middlesex County women enrolled in first trimester prenatal care declines 9.0% between 2011 (86.2%) and 2015 (78.4%).
- In 2015, Middlesex County performs better than the Healthy People 2020 target of 77.9% women enrolled in first trimester care.

Figure 4.57
Percentage of Live Births with First Trimester Prenatal Care⁸¹



Baseline: 70.8%
Target: 77.9%
Middlesex County 2015: 78.4%

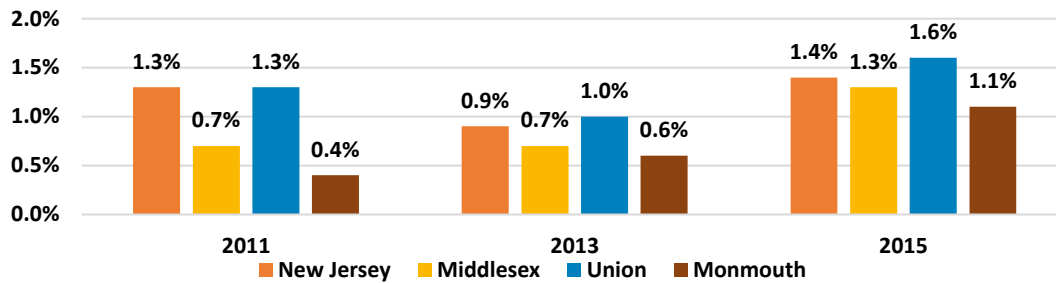
⁷⁹ <http://www.plannedparenthood.org/health-info/pregnancy/prenatal-care>

⁸⁰ <http://www.hrsa.gov/quality/toolbox/measures/prenatalfirsttrimester/index.html>

⁸¹ Source: NJDOH, Bureau of Vital Statistics and Registration, NJ Birth Certificate Database Note: Percentages are based on Total Number of Live Births for County and State

- The percent of Middlesex County women without prenatal care trend upward from .7% in 2011 to 1.3% in 2015. The 2015 Middlesex County rate is similar to the State rate of 1.4% and performs in the middle quartile. Declines such as these are concerning and should be monitored.

Figure 4.58
Percentage of Live Births with No Prenatal Care⁸²



High Risk Sexual Behaviors

Teen Pregnancy

In 2013, there were 26.6 births/1,000 American adolescent females ages 15-19; approximately 275,000 babies were born to teens with nearly eighty-nine percent of these births occurring outside of marriage. The teen birth rate has trended downward over the past 20 years. In 1991, the U.S. teen birth rate was 61.8 births/1,000 adolescent females. However, the U.S. teen birth rate remains higher than that of many other developed countries, including Canada and the United Kingdom.⁸³ Pregnant teens are less likely than older women to receive recommended prenatal care and are more likely to have pre-term or low birth weight babies. Teen mothers are often at increased risk for STIs and repeat pregnancies, are less likely than their peers to complete high school and more likely to live below the poverty level and rely on public assistance. Risky sexual behaviors can have high economic costs for communities and individuals.⁸⁴

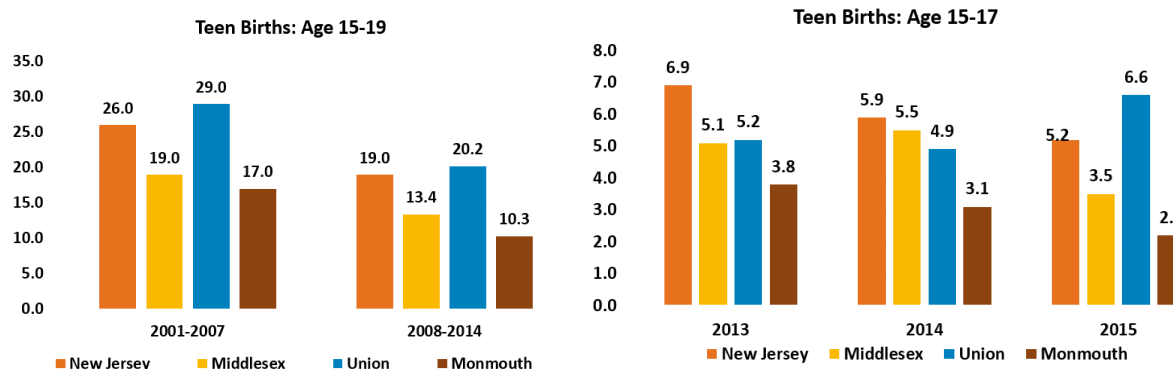
- The 2008-2014 Middlesex County (13.4/1,000) birth rate among teens aged 15-19 is 29.5% better than the State rate (19.0/1,000) and in the top performing quartile statewide.
- The 2008-2014 Middlesex County (13.4/1,000) birth rate among teens aged 15-19 is 32.0% better than the CHR benchmark (20.0/1,000) and 63.0% better the Health People 2020 target (36.2/1,000).
- The birth rate among Middlesex County teens aged 15-17 improves 31.4% from 5.1/1,000 in 2013 to 3.5/1,000 in 2015 and is in the top performing quartile statewide.
- For both age cohorts, 15-17 and 15-19, the percent of Middlesex County teen births is consistently lower than statewide rates.

⁸² Source: NJDOH, Bureau of Vital Statistics and Registration, NJ Birth Certificate Database Note: Percentages are based on Total Number of Live Births for County and State

⁸³ <http://www.hhs.gov/ash/oah/adolescent-health-topics/reproductive-health/teen-pregnancy/trends.html>

⁸⁴ <http://www.countyhealthrankings.org/our-approach/health-factors/sexual-activity>

Figure 4.59
Teen Births: Rate/1,000 Female Population: Age 15-19, Age 15-17⁸⁵



A Robert Wood Johnson Foundation program

National Benchmark: 20.0
Middlesex County 2008-2014: 13.4



Baseline: 40.2
Target: 36.2
Middlesex 2008-2014: 13.4

In a 2010 National Center Health Statistics data brief, *State Disparities in Teenage Birth Rates in the United States*, based upon 2008 data, New Jersey is one of 10 states with the lowest teen birth rates (24.5/1,000) compared to National figures (41.5/1,000). However, the New Jersey rate shows tremendous variability when examined by race and ethnicity. Among White, non-Hispanics the rate is 8.5/1,000 compared to Black, non-Hispanics 50.2/1,000 and Hispanics (any race) 65.7/1,000.⁸⁶

- The Perth Amboy 2015 birth rate to teens age 15-19 (36.4/1,000) is four times the Middlesex County rate (9.4/1,000).

Figure 4.60

GEOGRAPHIC AREA	RATE	TOP 5 BY ZIP CODE	RATE
New Jersey	11.42	08861: Perth Amboy	36.38
Middlesex County	9.40	07064: Port Reading	24.35
RBMC-PA	12.95	07008: Carteret	15.46
RBMC-OB	2.58	08872: Sayreville	7.65
RBMC-PA/OB Combined	8.02	08882: South River	5.93

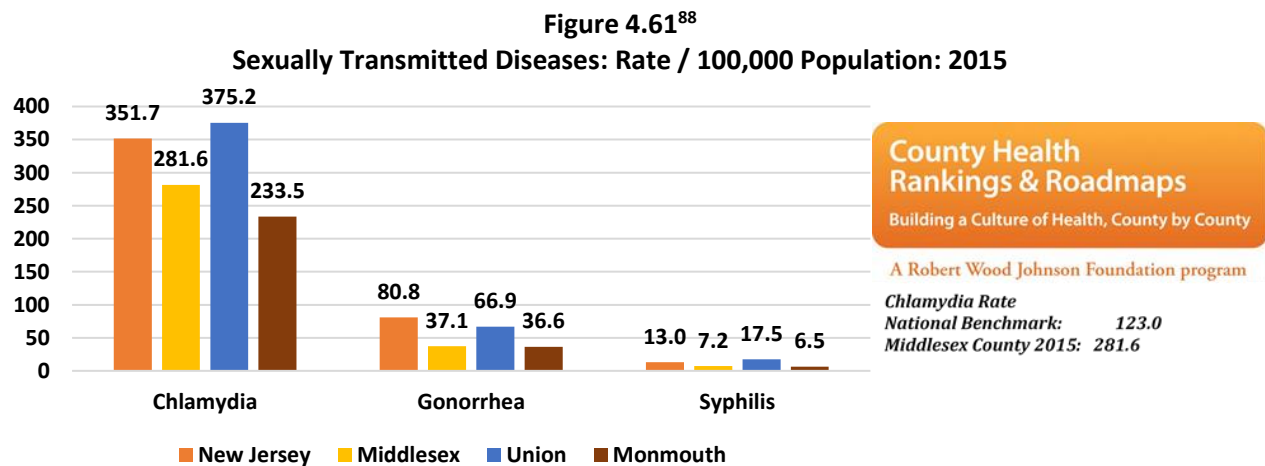
⁸⁵ Source: Age 15-19 - County Health Rankings, National Center for Health Statistics; Age 15-17- NJDOH Center for Health Statistics, State Health Assessment Data

⁸⁶ <http://www.cdc.gov/nchs/data/databriefs/db46.pdf>

Sexually Transmitted Infection

Sexually transmitted infections (STI) are caused by bacteria, parasites and viruses contracted through relations with an infected individual. There are more than 20 types of STIs, including Chlamydia, Gonorrhea, Genital herpes, HIV/AIDS , HPV, Syphilis and Trichomoniasis. Most STIs affect both men and women, but in many cases health problems may be more severe for women. If pregnant, a STI can cause serious health complications for the baby.⁸⁷

- Chlamydia is the most prevalent STI. In 2015, Middlesex County (281.6/1,000) has 19.9% fewer cases of chlamydia than New Jersey (351.7/1,000) and performs in the top quartile statewide. Middlesex County has fewer cases than Union County and more than Monmouth County.
- The rate of chlamydia in Middlesex County (281.6/1,000) is more than double the CHR national benchmark (123/100,000).
- In 2015, Middlesex County (37.1/100,000) has 54.1% fewer cases of gonorrhea than New Jersey (80.8/100,000).
- In 2015, Middlesex County (7.2/100,000) has 44.6% fewer cases of syphilis than New Jersey (13.0/100,000).



HIV/AIDS

Human immunodeficiency virus (HIV) is spread mainly by having sex with someone infected with HIV or sharing needles with someone positive. Approximately 50,000 new HIV infections occur in the United States each year.

- County-wide there is little change in HIV/AIDS prevalence between 2012 (251.1/100,000) and 2016 (250.4/100,000).
- In 2016, HIV/AIDS is 39.6% less prevalent in Middlesex County (250.4/100,000) than in New Jersey (414.9/100,000). Middlesex County is in the top performing quartile statewide.
- Middlesex County has fewer HIV/AIDS cases than neighboring Union and Monmouth Counties.

⁸⁷ <http://www.nlm.nih.gov/medlineplus/sexuallytransmitteddiseases.html>

⁸⁸ Source: NJDOH, Division of HIV, STD and TB Services, Sexually Transmitted Diseases Program; Rates Based on NJDOH Actuals in 2015 and US Census Bureau ACS 5yr Estimate

- In 2016, African Americans compose the highest proportion of persons living with HIV/AIDS in all geographies studied. In Middlesex County, 36% of cases are African American, 33% White and 28% Hispanic.

Figure 4.62
HIV / AIDS Prevalence: Rate / 100,000 Population⁸⁹

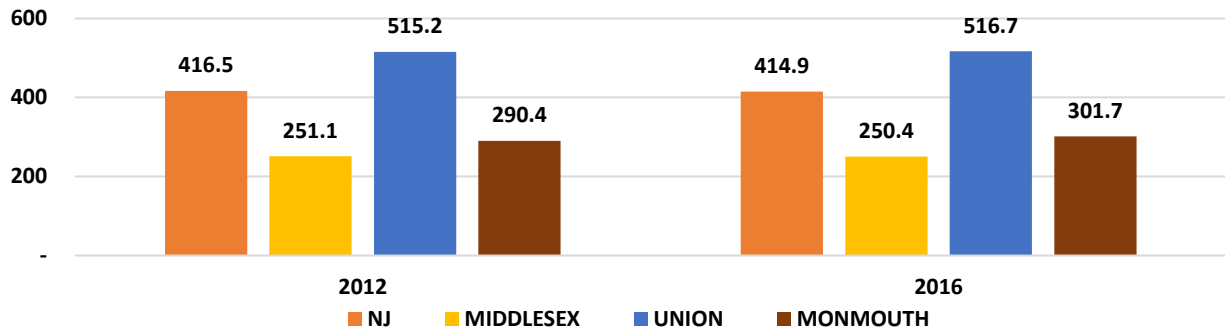
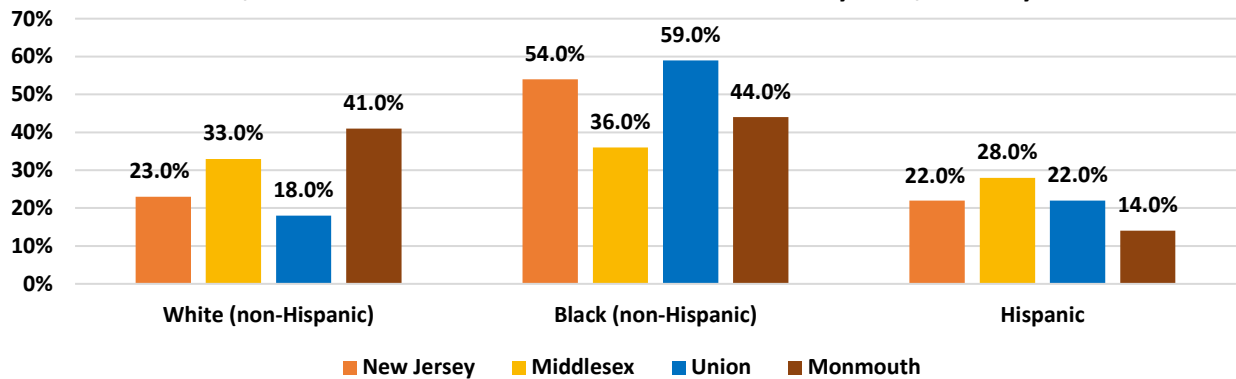


Figure 4.63
HIV / AIDS Prevalence 2016: Percent of Prevalence by Race/Ethnicity⁹⁰



Individual Behavior

A CDC report indicates that people can live longer if they practice one or more healthy lifestyle behaviors including: eating a healthy diet, not smoking, regular exercise and limiting alcohol consumption. People who engage in all of these behaviors are 66 percent less likely to die early from cancer, 65 percent less likely to die early from cardiovascular disease and 57 percent less likely to die early from other causes compared to those who do not engage in any of these behaviors.⁹¹

⁸⁹ Source: NJDOH, Division of HIV, STD and TB Services, HIV/AIDS Reporting System; <http://www.state.nj.us/health/aids/rep/aidsdata.shtml>
Note: Prevalence Indicates Number of People Living With HIV/AIDS at the Time; Percentages by Race/Ethnicity Exclude "Other" and Do Not Total 100%

⁹⁰ *ibid* Note: Prevalence Indicates Number of People Living With HIV/AIDS At The Time; Percentages By Race/Ethnicity Exclude "Other" and Do Not Total 100%

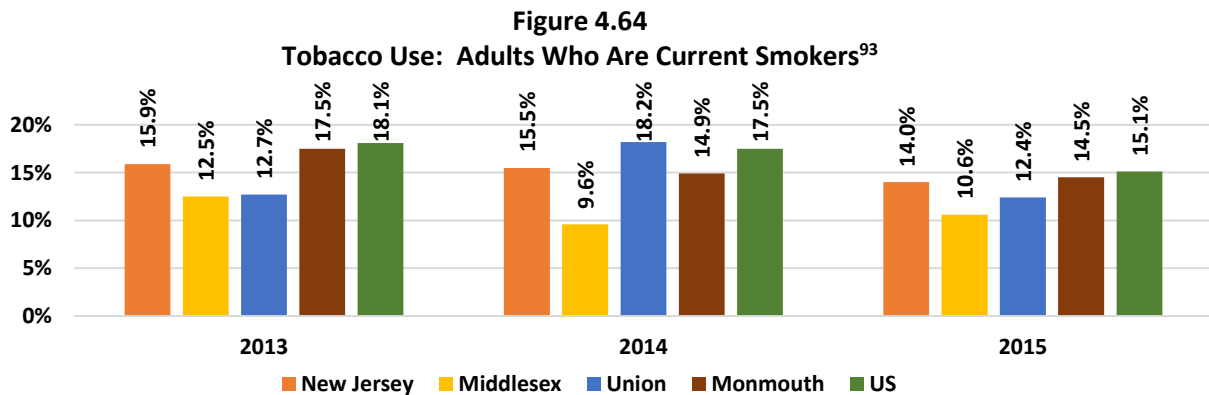
⁹¹ <http://www.cdc.gov/features/livelonger/>

Tobacco Use

Tobacco use is the leading cause of preventable death in the United States. Smoking causes cancer, heart disease, stroke, diabetes, and lung diseases such as emphysema, bronchitis, and chronic airway obstruction. Exposure to secondhand smoke can lead to lung cancer and heart disease. Each year, smoking kills approximately 480,000 Americans, including 42,000 from secondhand smoke. On average, smokers die 10 years earlier than nonsmokers.

About 18% of US adults smoke. Each day, nearly 3,200 youth smoke their first cigarette, and 2,100 people transition from occasional to daily smokers. Smokeless tobacco also leads to various cancers, gum and teeth problems, and nicotine addiction. Almost 6% of young adults use smokeless tobacco and half of new users are younger than 18.⁹²

- Middlesex County smokers decrease from 12.5% in 2013 to 10.6% in 2015, similar to the statewide decrease in this time frame from 15.9% to 14.0%.
- In 2015, there are 24.3% fewer smokers in Middlesex County (10.6%) than New Jersey (14.0%). Middlesex County has fewer adult smokers than neighboring Union (12.4%) and Monmouth (14.5%) Counties. Middlesex County performs in the top quartile statewide.
- In 2015, Middlesex County performs better than the Healthy People 2020 target of 12% of adults that smoke.
- In 2015, Middlesex County has 1.4 percentage points fewer smokers than the CHR national benchmark of 14%.



Baseline: 20.6%
Target: 12.0%
Middlesex County 2015: 10.6%

County Health Rankings & Roadmaps

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National Benchmark: 14.0%
Middlesex County 2015: 10.6%

⁹² <http://www.countyhealthrankings.org/our-approach/health-factors/tobacco-use>

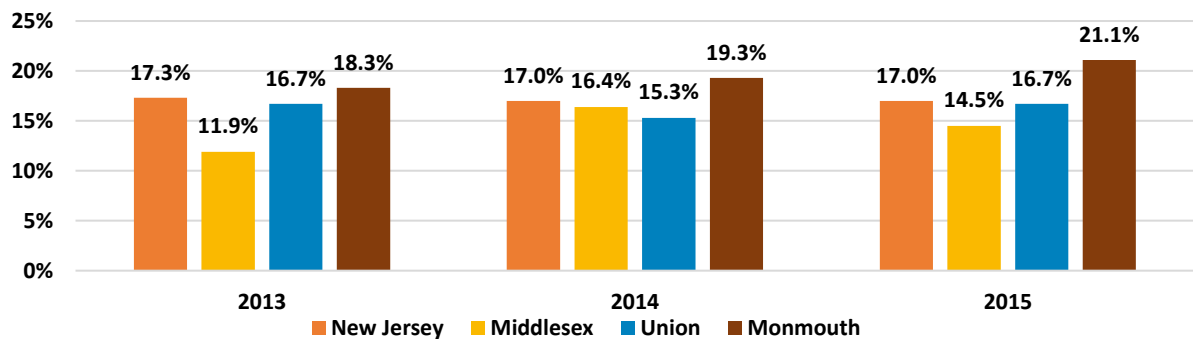
⁹³ Source: CDC, Behavioral Health Risk Factor Surveillance System (BRFSS)

Alcohol Use

Although moderate alcohol use is associated with reduced risk of heart disease and diabetes, excessive consumption is the third leading cause of preventable death nationally. Excessive consumption considers both the amount and the frequency of drinking. Short-term, excessive drinking is linked to alcohol poisoning, intimate partner violence, risky sexual behaviors, failure to fulfill responsibilities and motor vehicle crashes. Over time, excessive alcohol consumption is a risk factor for hypertension, acute myocardial infarction, fetal alcohol syndrome, liver disease and certain cancers.⁹⁴

- Binge drinkers, those men that consume more than 5 drinks and women that consume more than 4 drinks in one occasion, increase 21.8% from 2013 (11.9%) to 2015 (14.5%).
- In 2015, 14.5% of Middlesex County residents are binge drinkers compared to 17% statewide. Middlesex County has fewer binge drinkers than surrounding Union and Monmouth Counties. Statewide, Middlesex performs in the middle quartile.
- The 2015 percent of Middlesex County (14.5%) residents who drank excessively is 45% higher than the CHR national benchmark (10%). Middlesex County performs lower than the CHR benchmark by more than 25%.
- Heavy drinking is defined as a male who consumes at least 60 drinks a month or a female who consumes 30 in that time frame. Middlesex County heavy drinkers decrease marginally from 2013 (3.2%) to 2015 (3.1%).
- In 2015, 3.1% of Middlesex County residents are heavy drinkers compared to 4.9% statewide, 3.6% in Union County and 7.0% in Monmouth County.

Figure 4.65
Excessive Drinking: Binge Drinkers⁹⁵



County Health Rankings & Roadmaps

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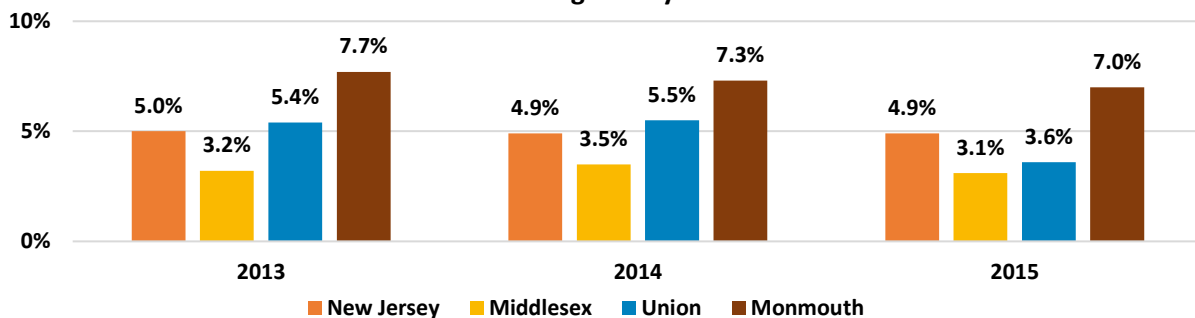
National Benchmark: 10.0%

Middlesex County 2015: 14.5%

⁹⁴ <http://www.countyhealthrankings.org/our-approach/health-factors/alcohol-drug-use>

⁹⁵ Source: CDC Behavioral Risk Factor Surveillance System; Note: "Binge Drinking" is defined when someone has at least 5 (for males)/4 (for females) or more drinks on an occasion a month. "Heavy Drinking" is defined when someone has at least 60 (for males)/30 (for females) or more drinks a month.

Figure 4.66
Excessive Drinking: Heavy Drinkers⁹⁶

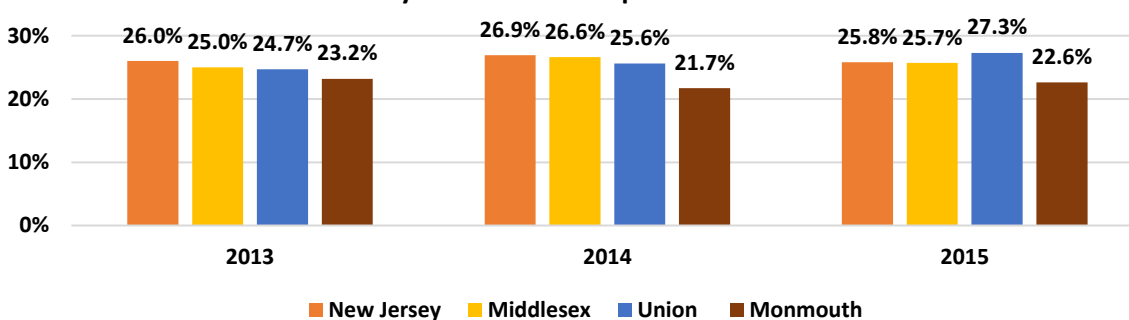



Diet

Healthy food is a key component to good health; insufficient nutrition hinders growth and development. As of 2013, 29 million Americans are unable to access affordable, healthy food. Those with lower education levels, already at-risk for poor health outcomes, frequently live in food deserts.

- The percent of Middlesex County residents with a Body Mass Index (BMI) ≥ 30 trends upward from 21.4% in 2011 to 25.0% in 2013.
- In 2015, similar percentages of Middlesex County (25.7%) and New Jersey residents (25.8%) have a BMI ≥ 30 , fewer than Union County (27.3%) and more than Monmouth County (22.6%). Compared with all counties statewide, Middlesex performs in the middle quartile for obesity.
- In 2015, 16% less Middlesex County residents (25.7%) are obese than the Healthy People 2020 target (30.6%)
- In 2015, 2.8% more Middlesex County residents (25.7%) have a BMI ≥ 30 than the CHR national benchmark (25%). Middlesex County is lower than the CHR benchmark, but within an established 25% margin.

Figure 4.67
Obesity: Percent with Reported BMI ≥ 30 ⁹⁷





Baseline: 30.4%
Target: 30.6%
Middlesex County 2015: 25.7%

County Health Rankings & Roadmaps

Building a Culture of Health, County by County

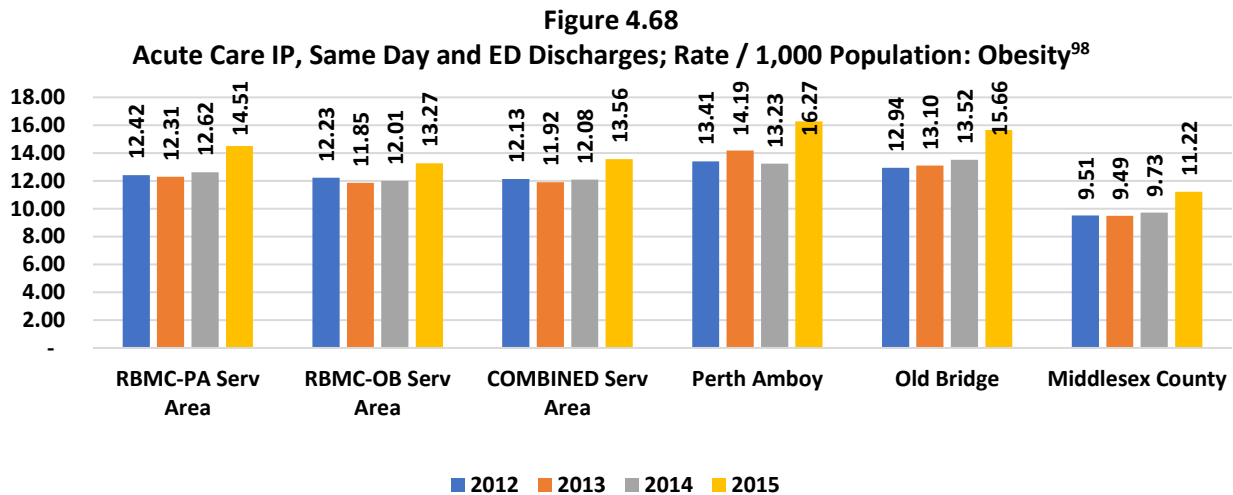
A Robert Wood Johnson Foundation program

National Benchmark: 25.0%
Middlesex County 2015: 25.7%

⁹⁶ Source: CDC Behavioral Risk Factor Surveillance System; Note: "Binge Drinking" is defined when someone has at least 5 (for males)/4 (for females) or more drinks on an occasion a month. "Heavy Drinking" is defined when someone has at least 60 (for males)/30 (for females) or more drinks a month.

⁹⁷ Source: CDC Behavioral Risk Factor Surveillance System

- In 2015, a higher rate of patients hospitalized for obesity is observed among Perth Amboy residents (16.3/1,000) as compared to Middlesex County (11.2/1,000).
- Between 2012 and 2015 patients hospitalized for obesity is higher in the RBMC-PA Service Area, RBMC-OB Service Area, Combined Service Area, Perth Amboy and Old Bridge than in Middlesex County overall.



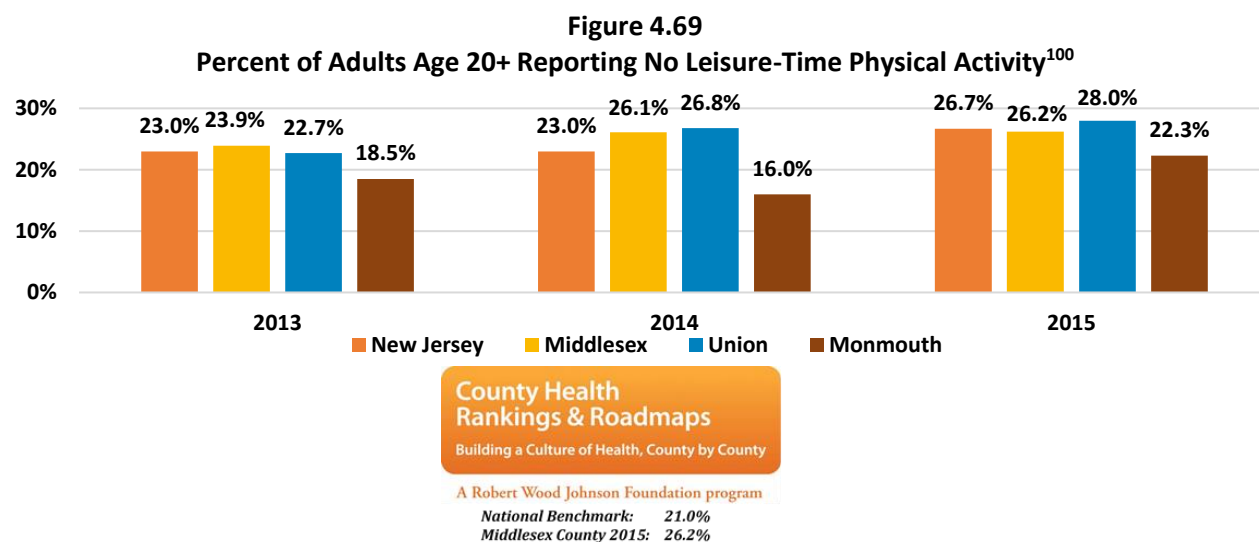
Exercise

Inadequate physical activity contributes to increased risk of coronary heart disease, diabetes and some cancers. Nationally, half of adults and nearly three-quarters of high school students do not meet the CDC's recommended physical activity levels.⁹⁹

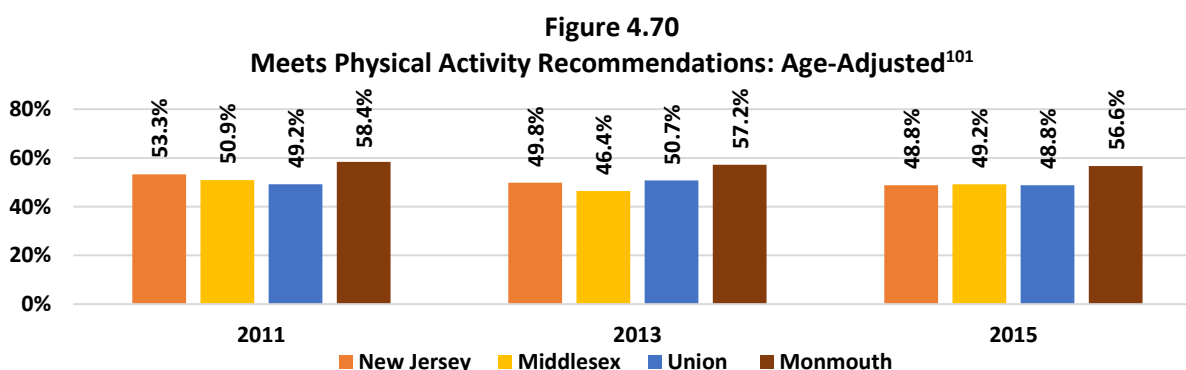
- Within Middlesex County, the percent of individuals reporting no leisure time physical activity trend upward from 23.9% in 2011 to 26.2% in 2013.
- In 2015, a similar percentage of Middlesex County adults (26.2%) and adults throughout the State (26.7%) report no leisure-time physical activity. Middlesex County residents report fewer leisure time physical activity than neighboring Union County (28.0%) and more than Monmouth County (22.3%). Compared to all counties statewide, Middlesex performs in the middle quartile.
- In 2015, 24.7% more Middlesex County adults over age 20 indicate no leisure-time physical activity (26.2%) than the CHR national benchmark (21%).

⁹⁸ Source: NJ UB-04 Acute Care IP, Same Day Stay, ER Discharges (2012 – 2015), Population: 2010, 2016 Nielsen-Claritas/HCDA, 2011 Straight Line Value Based on 2000 and 2010 Census; Definition: Inpatient, Same Day Stay and ED Discharges – ICD-9 DX Codes 278.00 or 278.01 (Appearing Anywhere In First 13 DX Codes On Patient Record)

⁹⁹ <http://www.countyhealthrankings.org/our-approach/health-factors/diet-and-exercise>



- In 2015, similar percentages of Middlesex County residents (49.2%), New Jersey residents (48.8%) and Union County residents participate in enough aerobic and muscle strengthening exercises to meet guidelines.
- Compared to all counties statewide, Middlesex performs in the middle quartile for enough participation in aerobic and muscle strengthening exercises to meet guidelines.



Health Behavior Indicators	Healthy People 2020 Target	County Health Rankings Benchmark	New Jersey
First Trimester Prenatal Care Percentage of Live Births		N.A.	
No Prenatal Care Percentage of Live Births	N.A.	N.A.	

¹⁰⁰ Source: County Health Rankings – National Center for Chronic Disease Prevention and Health Promotion CDC Behavioral Risk Factor Surveillance System

¹⁰¹ Source: New Jersey Behavioral Risk Factor Survey, Center for Health Statistics, New Jersey Department of Health; Note: Adults are classified as meeting the objective if they participate in at least 150 minutes of light or moderate leisure-time activity per week, 75 minutes of vigorous activity, or 150 minutes per week of an equivalent combination of activity.

Health Behavior Indicators	Healthy People 2020 Target	County Health Rankings Benchmark	New Jersey
Teen Births Ages 15-17 <i>Rate per 100,000 Female Population</i>	N.A.	N.A.	
Teen Births Ages 15-19 <i>Rate per 100,000 Female Population</i>			
STD's: Chlamydia <i>Rate per 100,000 Population</i>	N.A.		
HIV/AIDS Prevalence <i>Rate per 100,000 Population</i>	N.A.	N.A.	
Smoking <i>% of Adults Who Currently Smoke</i>			
Excessive Drinking <i>% Binge Drinkers</i>	N.A.		
Obesity <i>% With Reported BMI>30</i>			
No Leisure Time or Physical Activity <i>% of Adults Age 20+</i>	N.A.	N.A.	
Physical Activity Recommendations <i>% Who Meet Recommendation</i>	N.A.	N.A.	

Health Screenings

Screening tests can detect disease and conditions in early stages, when they may be easier to treat.

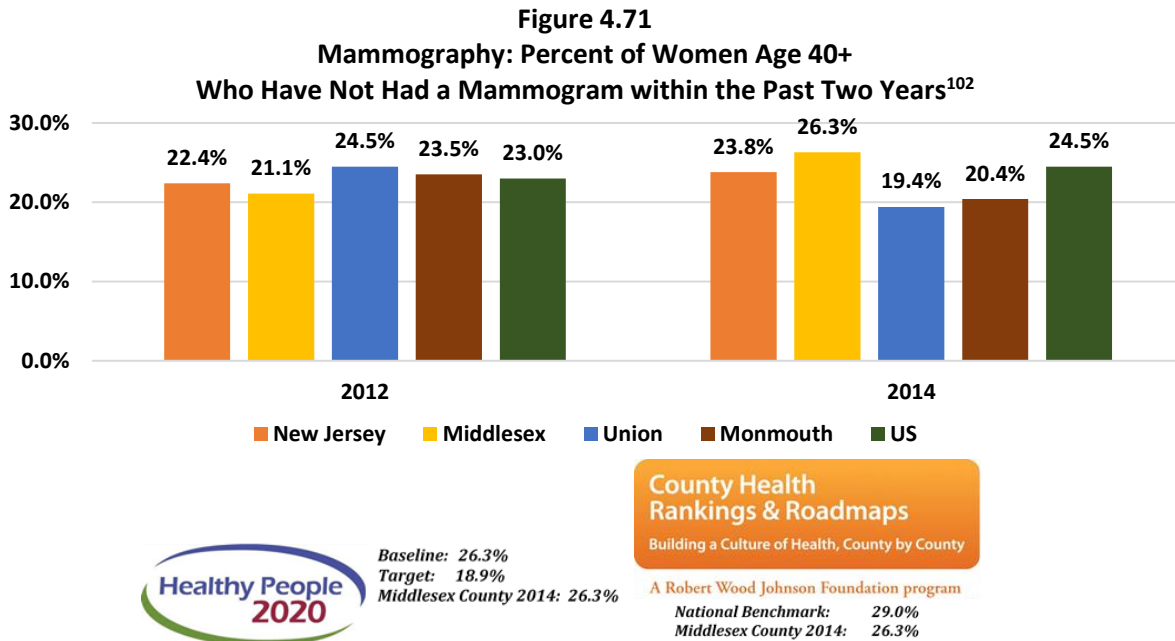
Cancer Screening

Breast Cancer (mammography)

According to the American Cancer Association, women ages 40 to 44 should have the choice to start annual breast cancer screening with mammograms (x-rays of the breast) if they wish to do so. Women age 45 to 54 should get mammograms every year. Women 55 and older should switch to mammograms every 2 years, or can continue yearly screening. Screening should continue as long as a woman is in good health and is expected to live 10 more years or longer. Women should also know how their breasts normally look and feel and report any breast changes to a health care provider right away. Some women – because of their family history, a genetic tendency, or certain other factors – should be screened with MRIs along with mammograms. The number of women who fall into this category is very small.

- In 2014, 10.5% more Middlesex County women over age 40 (26.3%) did not have a mammography within the past two years than statewide (23.8%). Compared to all counties statewide, Middlesex performs in the middle quartile.
- In 2012, 24.6% fewer Middlesex County women did not have a mammography in the last two years than in 2014 (26.3%).
- In 2014, 9.3% fewer Middlesex County women (26.3%) did not have a mammogram in the last two years than the CHR national benchmark for noncompliance (29%). Middlesex County performs lower than the CHR benchmark by more than 25%.

- In 2014, 39.2% more Middlesex County women (26.3%) did not have a mammogram in the last two years than the Healthy People 2020 target for noncompliance (18.9%). Middlesex County performs better than the Healthy People 2020 target.

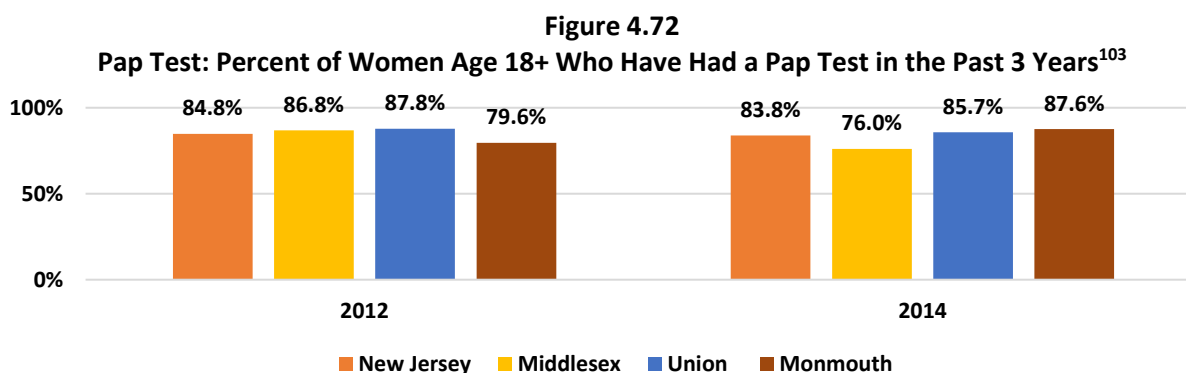


Cervical Cancer (pap smear)

According to the American Cancer Association, cervical cancer testing should start at age 21. Women between the ages of 21 and 29 should have a Pap test done every 3 years. Women between the ages of 30 and 65 should have a Pap test plus an HPV test (called “co-testing”) done every 5 years. Women over age 65 who have regular cervical cancer testing in the past 10 years with normal results should not be tested for cervical cancer. Women with a history of a serious cervical pre-cancer should continue to be tested for at least 20 years after that diagnosis, even if testing goes past age 65. Some women – because of their health history (HIV infection, organ transplant, DES exposure, etc.) – may need a different screening schedule for cervical cancer.

- In 2014, 76% of Middlesex County women over age 18 have a pap smear within the past three years as compared to 83.6% of New Jersey women 18+. Fewer Middlesex County women over age 18 have a pap test within 3 years than in comparative Union (85.7%) and Monmouth (87.6%) Counties. Compared to the state overall, Middlesex County performs in the top quartile.
- Between 2012 and 2014, Middlesex County women who have a pap test within the past three years declines over 10 percentage points from 86.8% to 76%.

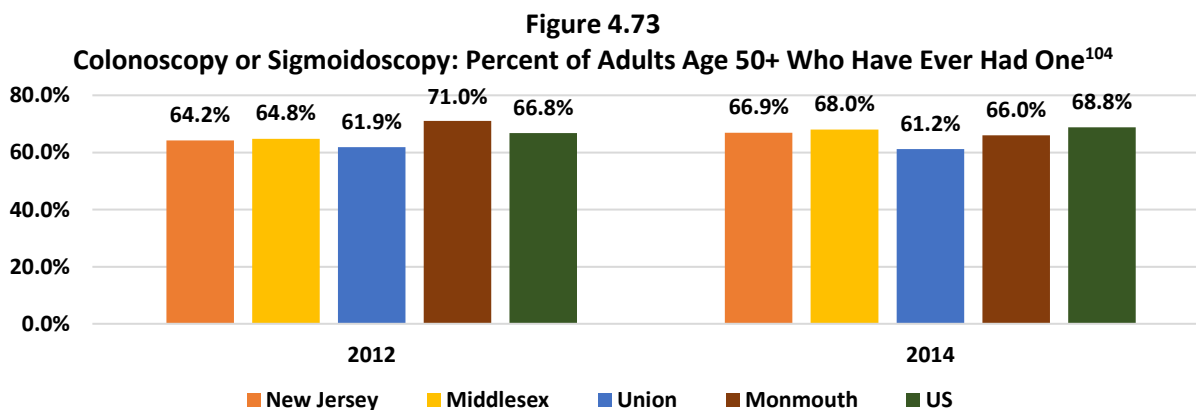
¹⁰² Source: CDC, Behavioral Health Risk Factor Surveillance System (BRFSS)



Colon-rectal Cancer (sigmoidoscopy or colonoscopy)

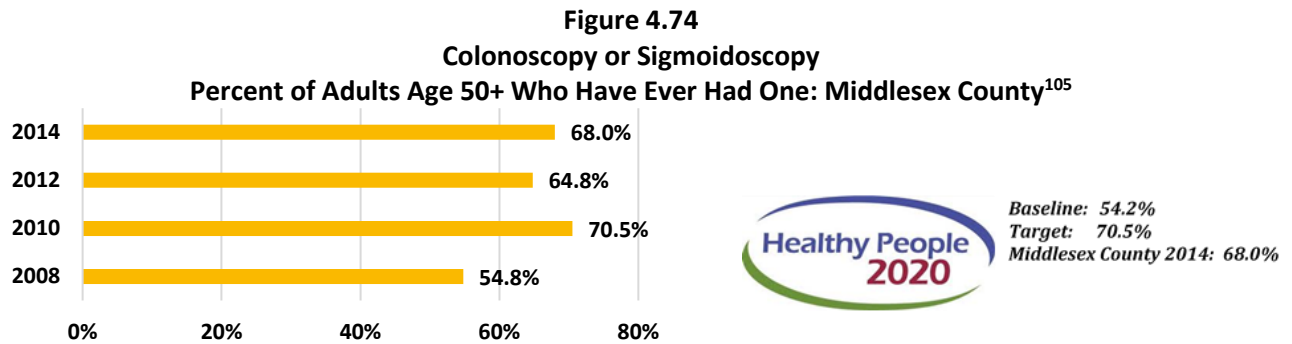
According to the American Cancer Association, Starting at age 50, both men and women should follow one of these testing plans: colonoscopy every 10 years, CT colonography (virtual colonoscopy) every 5 years, flexible sigmoidoscopy every 5 years, or double-contrast barium enema every 5 years.

- In 2014, slightly more Middlesex County adults over age 50 (68.0%) participated in colon-rectal screening than adults statewide (66.9%). Compared to all New Jersey counties, Middlesex performs in the top quartile.
- In 2014, 4.9% more Middlesex County adults (68.0%) over age 50 have a colonoscopy/sigmoidoscopy than in 2012 (64.8%). Middlesex County is below the Healthy People 2020 target of 70.5% of adults (50+) ever having colon-rectal screening in 2014, but within an established 25% margin.



¹⁰³ibid)

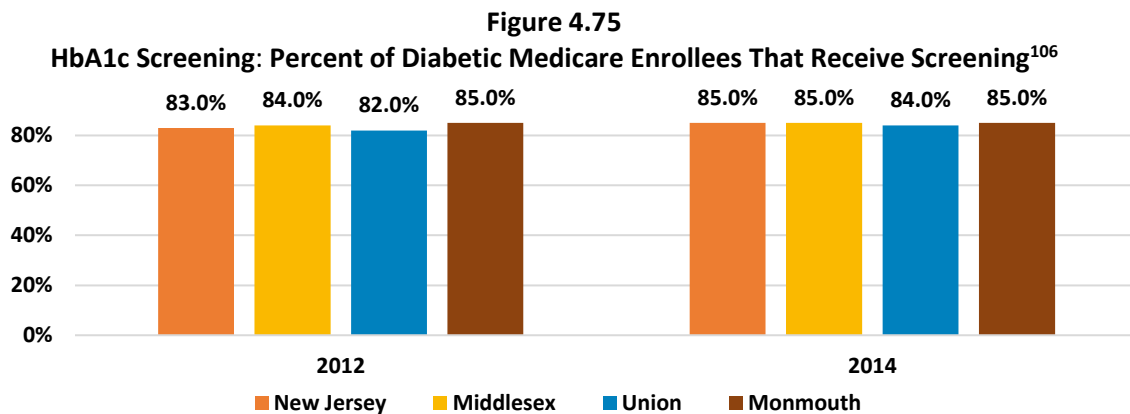
¹⁰⁴ ibid



Diabetes

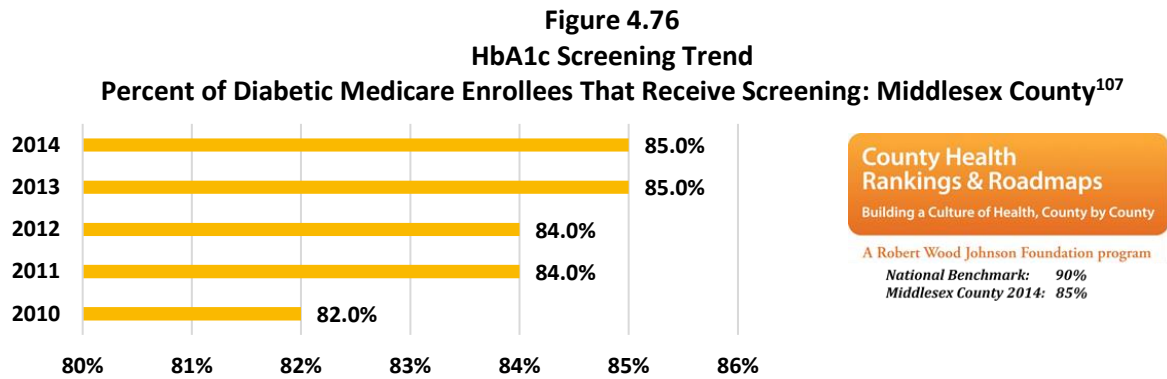
There are several ways to diagnose diabetes including A1C, Fasting Plasma Glucose (FPG), Oral Glucose Tolerance Test (OGTT) and Random (Casual) Plasma Glucose Test. Diabetes screenings are an effective means of managing illness.

- In 2014, 85% of Middlesex County diabetic Medicare enrollees receive HbA1c screening, the same as statewide and Monmouth County. As compared to all New Jersey counties, Middlesex performs in the middle quartile.
- The percent of Middlesex County diabetic Medicare enrollees receiving HbA1c screening trends upward from 2010 (82%) to 2014 (85%).
- In 2014, fewer Middlesex County diabetic Medicare enrollees (85%) are screened than the CHR national benchmark (90%). Middlesex County is lower than the CHR benchmark, but within an established 25% margin.



¹⁰⁵ *ibid*

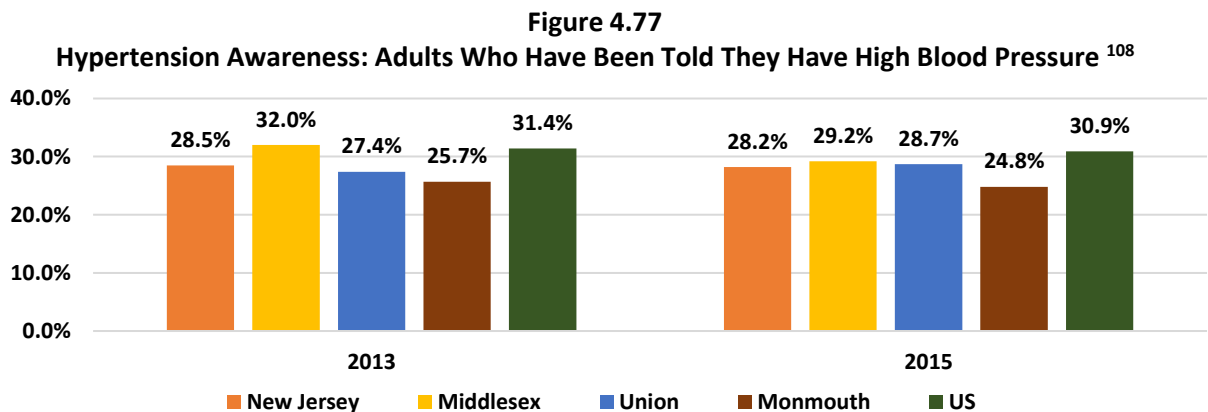
¹⁰⁶ Source: County Health Rankings – Dartmouth Atlas of Health Care



Cardiovascular Screening

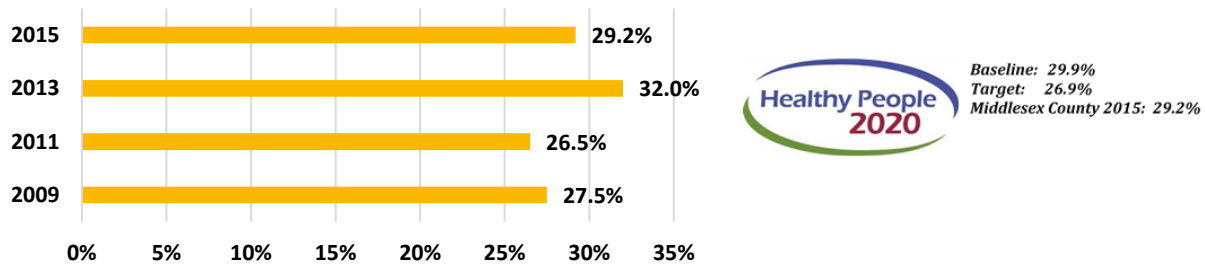
Hypertension

- In 2015, 29.2% of Middlesex County adults are aware that they suffer from hypertension, slightly higher than New Jersey adults (28.2%). As compared to all New Jersey counties, Middlesex performs in the lowest quartile.
- Between 2009 and 2015, Middlesex County adults who are told they have high blood pressure increases from 27.5% to 29.2%
- In 2015, Middlesex County (29.2%) exceeds the Healthy People 2020 target (26.9%) for adults with high blood pressure. Middlesex County is lower than the Healthy People 2020 benchmark, but within an established 25% margin.



¹⁰⁷ *ibid*

¹⁰⁸ Source: CDC, Behavioral Health Risk Factor Surveillance System (BRFSS)



Cholesterol

- In 2015, 31.3% of Middlesex County adults who has their cholesterol checked are aware that the results are high, similar to New Jersey adults (31.6%). As compared to all counties statewide, Middlesex County performs in the middle quartile.
- The percent of Middlesex County adults reporting high cholesterol to BRFSS trends downward from 2011 (34.7%) through 2015 (31.3%), decreasing 10.4%
- The 2015 Middlesex County percent of adults who has their cholesterol checked and are told it is high (29.2%) is more than double the Healthy People 2020 target of 13.5%. Middlesex County performs lower than the Healthy People 2020 target by more than 25%.

Figure 4.78

Cholesterol Awareness: Adults Who Have Had Their Cholesterol Checked and Told It Was High¹⁰⁹

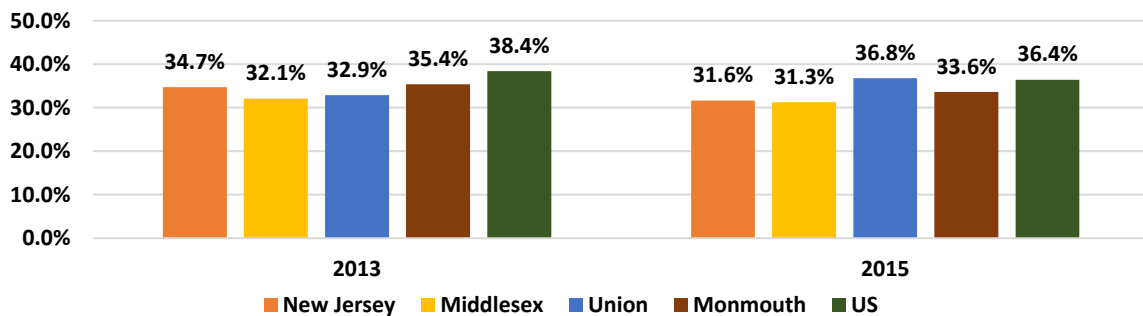
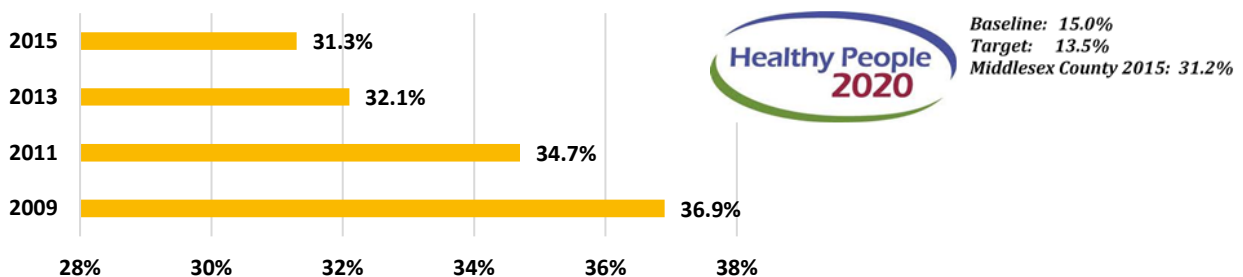


Figure 4.79

Cholesterol Awareness: Adults Who Have Had Their Cholesterol Checked and Told It Was High¹¹⁰
Middlesex County Trend



¹⁰⁹ *ibid*

¹¹⁰ *ibid*

Immunizations

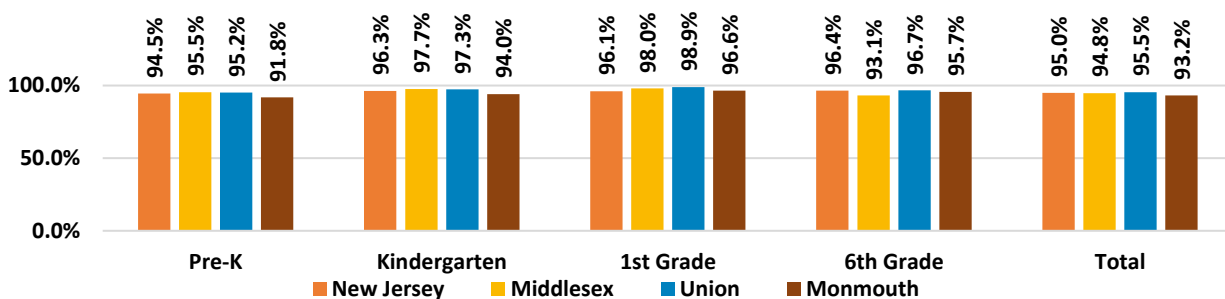
It is better to prevent disease than to treat it after it occurs; vaccines prevent disease and save millions of lives. Vaccines introduce the antigens that cause diseases. Immunity, the body's means to preventing disease, recognizes germs and produces antibodies to fight them. Even after many years, the immune system continues to produce antibodies to thwart disease from recurring. Through vaccination we can develop immunity without suffering from disease.¹¹¹

Childhood Immunizations: DPT, polio, MMR & Hib (aged 19-35 months)

Young children are readily susceptible to disease and the consequences can be serious or life-threatening. Childhood immunizations minimize impact of vaccine preventable diseases. Combined 4 vaccine series (4:3:1:3) refers to 4 or more doses of DTP/DT, 3 or more doses of poliovirus vaccine, 1 or more doses of MCV and 3 or more doses of Hib.¹¹² Conflicting information in the news and on the internet about children's immunizations may cause vaccine hesitancy among select parents.

- The percent of Middlesex County children meeting all vaccine requirements in 2016 is the same as the State at 95%.

Figure 4.80
Childhood Immunization: Percent of Children Meeting All Immunization Requirements, 2016¹¹³



Adult Flu

Immunizations are not just for children. As we age, the immune system weakens putting us at higher risk for certain diseases. Greater than 60 percent of seasonal flu-related hospitalizations occur in people 65 and older. The single best way to protect against the flu is an annual vaccination.¹¹⁴

- The percent of Middlesex County adults that did not receive the flu shot in the past year varies between thirty and forty percent from 2010 through 2015.
- Since 2013, the percent of Middlesex County adults that did not receive the flu shot in the past year is lower than Statewide. As compared to all counties statewide, Middlesex County performs in the middle quartile.

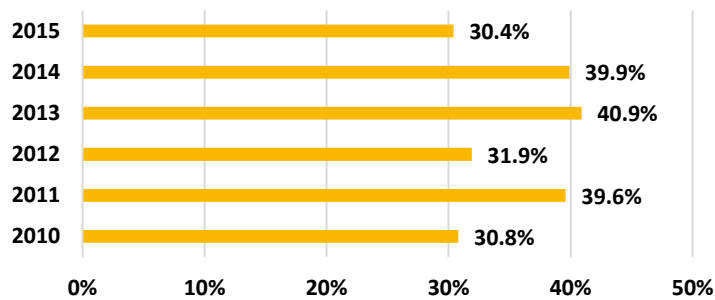
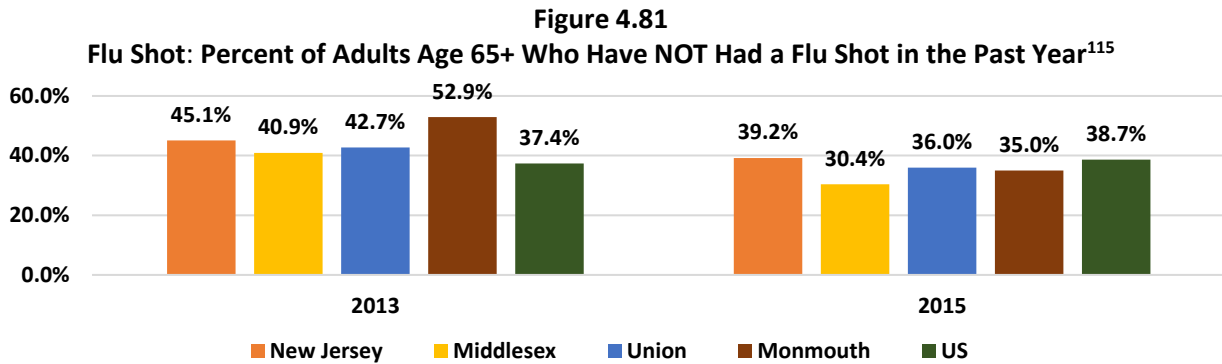
¹¹¹ <http://www.cdc.gov/vaccines/vac-gen/howvdpd.htm#why>

¹¹² <http://www.cdc.gov/vaccines/imz-managers/coverage/nis/child/tech-notes.html>

¹¹³ Source: NJDOH Annual Immunization Status Report http://www.nj.gov/health/cd/documents/status_report/2016/all_schools_vac.pdf; Data are the most current County-Level figures available.

¹¹⁴ <http://www.cdc.gov/vaccines/adults/rec-vac/index.html>

- The percent of 2015 Middlesex County adults that did not receive the flu shot in the past year is lower than the Healthy People 2020 target of 10.0%. Middlesex County performs lower than the Healthy People 2020 target by more than 25%.



Baseline: 33.0 %
Target: 10.0%
Middlesex County 2015: 30.4%

Adult Pneumonia

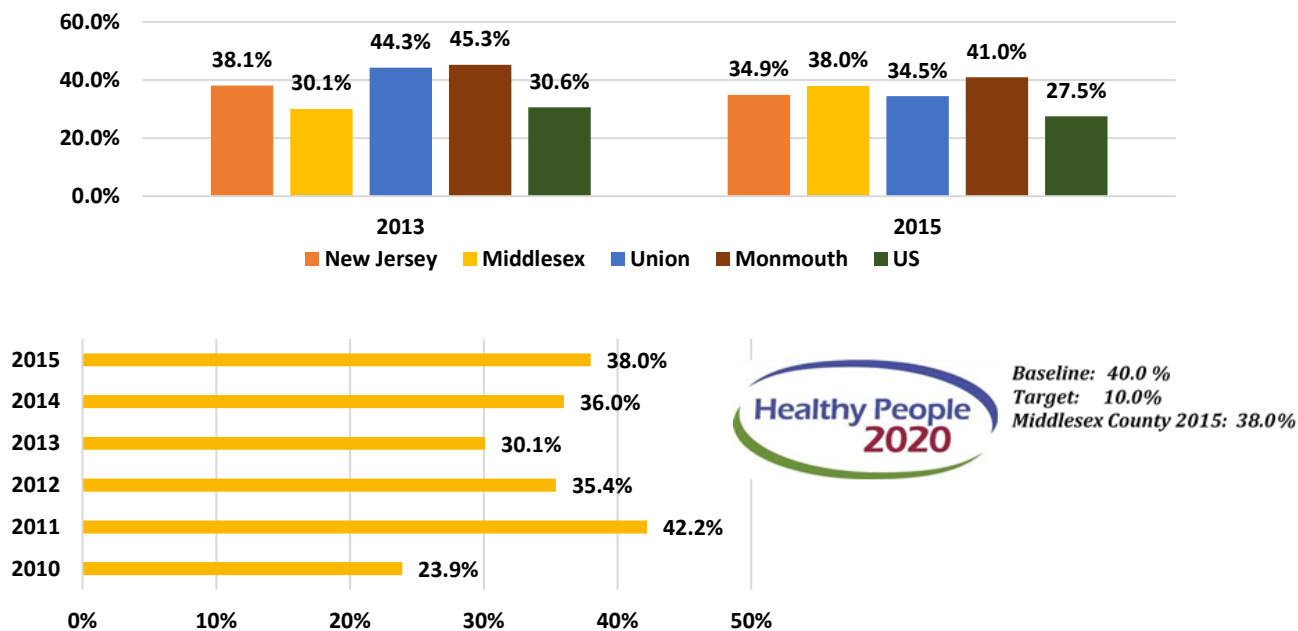
The pneumococcal vaccine protects us against some of the 90 types of pneumococcal bacteria. Pneumococcal polysaccharide vaccine is recommended for all adults 65 years or older.¹¹⁶

- The percent of Middlesex County adults age 65+ that have never had a pneumonia vaccine increases from 2010 through 2015.
- In 2015, the percent of Middlesex County (38.0%) adults that have never had a pneumonia vaccine is higher than Statewide (34.9%) and more than 3 ½ times the Healthy People 2020 target (10.0%). As compared to all counties statewide, Middlesex County performs in the middle quartile. Middlesex County performs lower than the Healthy People 2020 target by more than 25%.

¹¹⁵ Source: CDC, Behavioral Health Risk Factor Surveillance System (BRFSS)

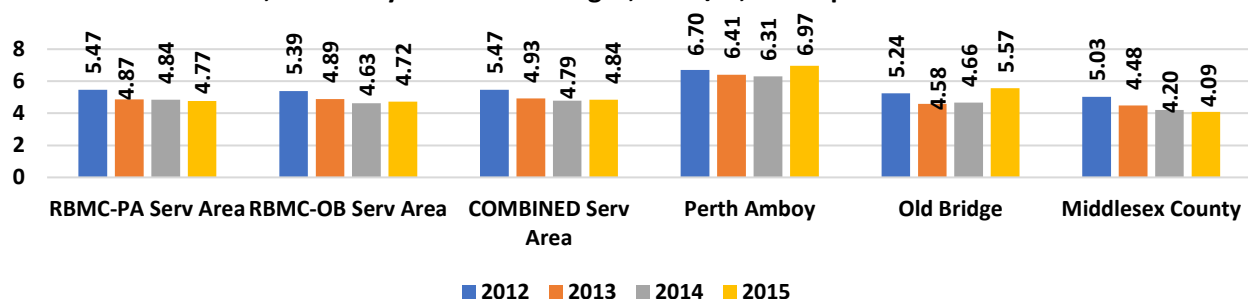
¹¹⁶ <http://www.cdc.gov/pneumococcal/about/prevention.html>

Figure 4.82
Pneumonia Vaccination: Percent of Adults Age 65+ Who Have NEVER Had a Pneumonia Vaccination ¹¹⁷



- In 2015, the City of Perth Amboy has the highest rate of hospitalization for patients with pneumonia (based on principle diagnosis) at 6.97/1,000 and Middlesex County at 4.09/1,000 is the lowest as compared among all geographies.

Table 4.83
Acute Care IP, Same Day and ED Discharges; Rate / 1,000 Population: Pneumonia ¹¹⁸



¹¹⁷ Source: CDC, Behavioral Health Risk Factor Surveillance System (BRFSS)

¹¹⁸ Source: NJ UB-04 Acute Care IP, Same Day Stay, ER Discharges (2012 – 2015), Population: 2010, 2016 Nielsen-Claritas/HCDA, 2011 Straight Line Value Based on 2000 and 2010 Census; Definition: Inpatient, Same Day Stay and ED Discharges – For MS-DRGs 177, 178, 179, 193, 194, 195

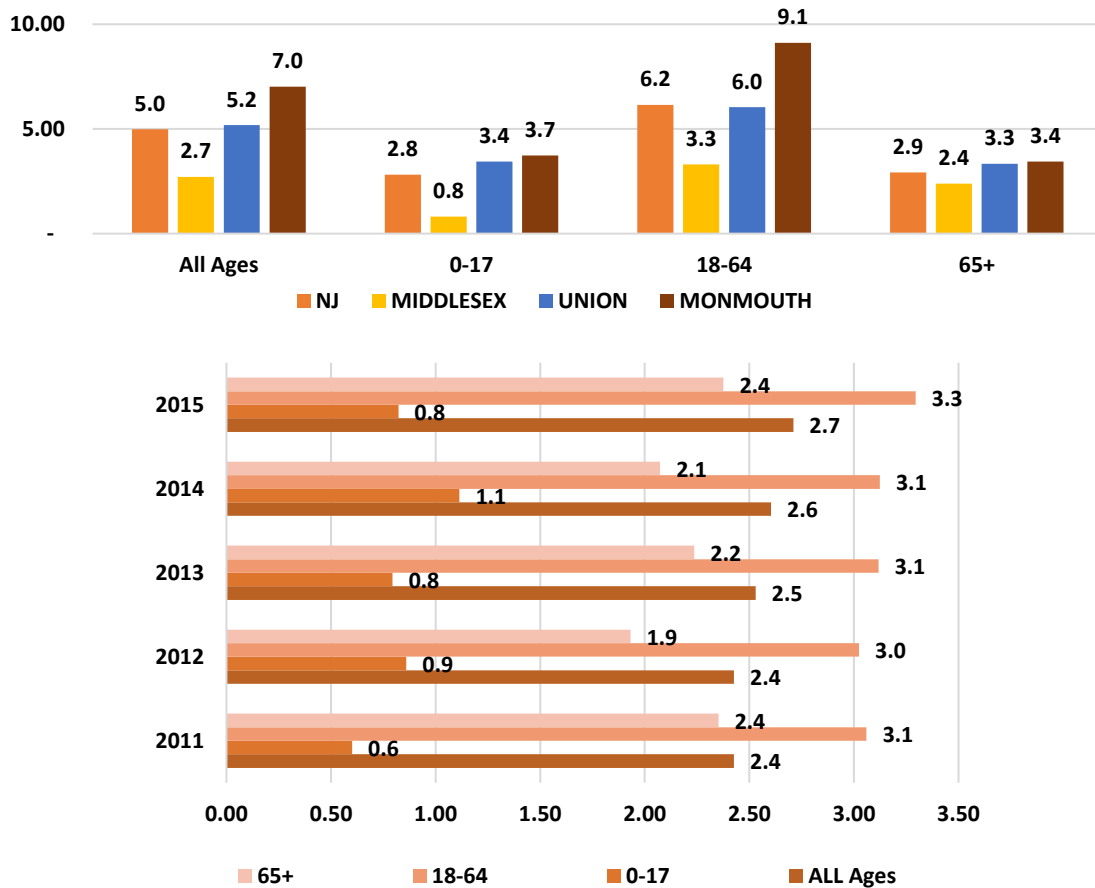
Screening/Immunization Indicators	Healthy People 2020 Target	County Health Rankings Benchmark	New Jersey
Percent of Women Age 40+ Who Have Not Had a Mammogram in the Past 2 Years			
Percent of Women Age 18+ Who Have Had a Pap test in the Past 3 Years	N.A.	N.A.	
Percent of Adults Age 50+ Who Have Had a Sigmoidoscopy or Colonoscopy		N.A.	
Percent of Diabetic Medicare Enrollees That Receive HbA1c Screening	N.A.		
Percent of Adults Who Have Had Hypertension		N.A.	
Percent of Adults Age Who Have High Cholesterol		N.A.	
Percent of Adults Age 65+ Who Have Not Had a Flu Shot in Past Year		N.A.	
Percent of Adults Age 65+ Who Have Not Had a Pneumonia Shot in Past Year		N.A.	

4. Behavioral Health Utilization

Mental Health

- In 2015, Middlesex County (2.7/1,000) has 46% fewer patient hospitalized for mental health conditions than the State (5.0/1,000).
- Within Middlesex County, by age cohort in 2015, adults 18-64 (3.3/1,000) have the highest rate of mental/behavioral health inpatient hospital admissions compared to older adults 65+ (2.4/1,000) and children (.8/1,000).
- Middlesex County has 17.4% more patient hospitalizations for mental/behavioral health conditions in 2015 (2.7/1,000) than in 2012 (2.3/1,000).

Figure 4.84
Hospital Inpatient Discharges for Mental/Behavioral Health Conditions (2015)
By Age; Rate / 1,000 Population¹¹⁹



- In 2015, Middlesex County (8.3/1,000) has 24.5% fewer ED visits for mental health conditions than the State (11.0/1,000).
- In 2015, Middlesex County adults 18-64 (9.4/1,000) have the highest rate of ED visits compared to children (5.9/1,000) and older adults 65+ (5.5/1,000).
- Middlesex County has 12.2% more ED visits for mental/behavioral health conditions in 2015 (8.3/1,000) than in 2012 (7.4/1,000).

¹¹⁹ New Jersey Discharge Data Collection System, Office of Health Care Quality Assessment, New Jersey Department of Health
Population Estimates: New Jersey Department of Labor and Workforce Development, State Data Center Mental Health Defined as MDC 19

Figure 4.85
ED Visits for Mental/Behavioral Health Conditions (2015): By Age; Rate / 1,000 Population¹²⁰

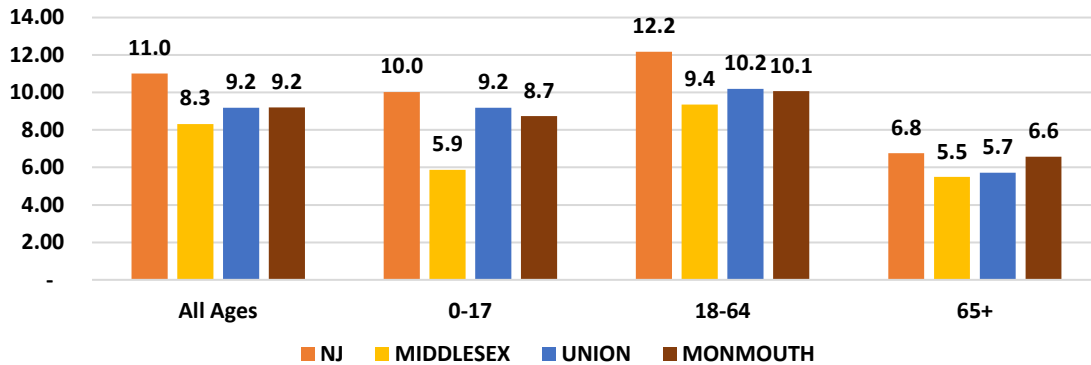
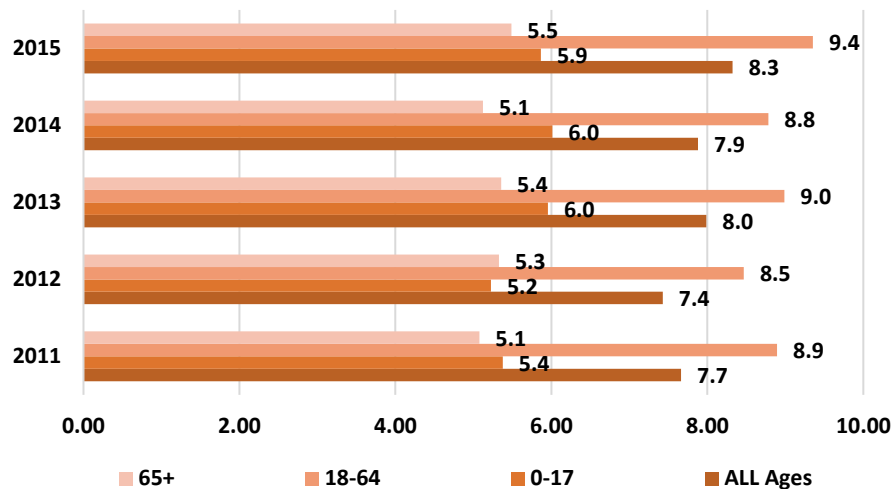
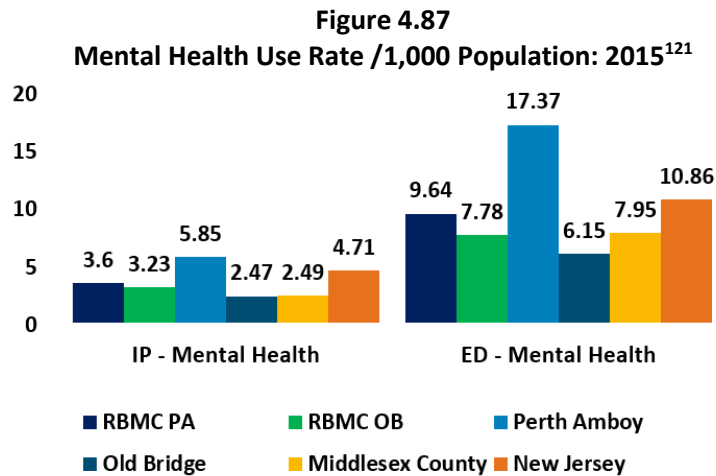


Figure 4.86
ED Visits for Mental/Behavioral Health Conditions (2015): By Age; Rate / 1,000 Population
Middlesex County Trend



- In 2015, inpatient hospitalizations for mental/behavioral health in Perth Amboy (5.9/1,000) exceeds New Jersey rate (4.7/1,000) and Middlesex County rates (2.5/1,000).
- In 2015, the emergency department rate for mental/behavioral health in Perth Amboy (17.4/1,000) is 117.5% greater than Middlesex County (8.0/1,000) and 81.3% greater than New Jersey (10.9/1,000).
- In 2015, the emergency department rate for mental health in Old Bridge (6.2/1,000) is 35.4% less than the New Jersey rate (10.9/1,000) and 22.5% less than the Middlesex County rate (8.0/1,000).

¹²⁰ New Jersey Discharge Data Collection System, Office of Health Care Quality Assessment, New Jersey Department of Health
Population Estimates: New Jersey Department of Labor and Workforce Development, State Data Center Mental Health Defined As MDC 19



Substance Abuse

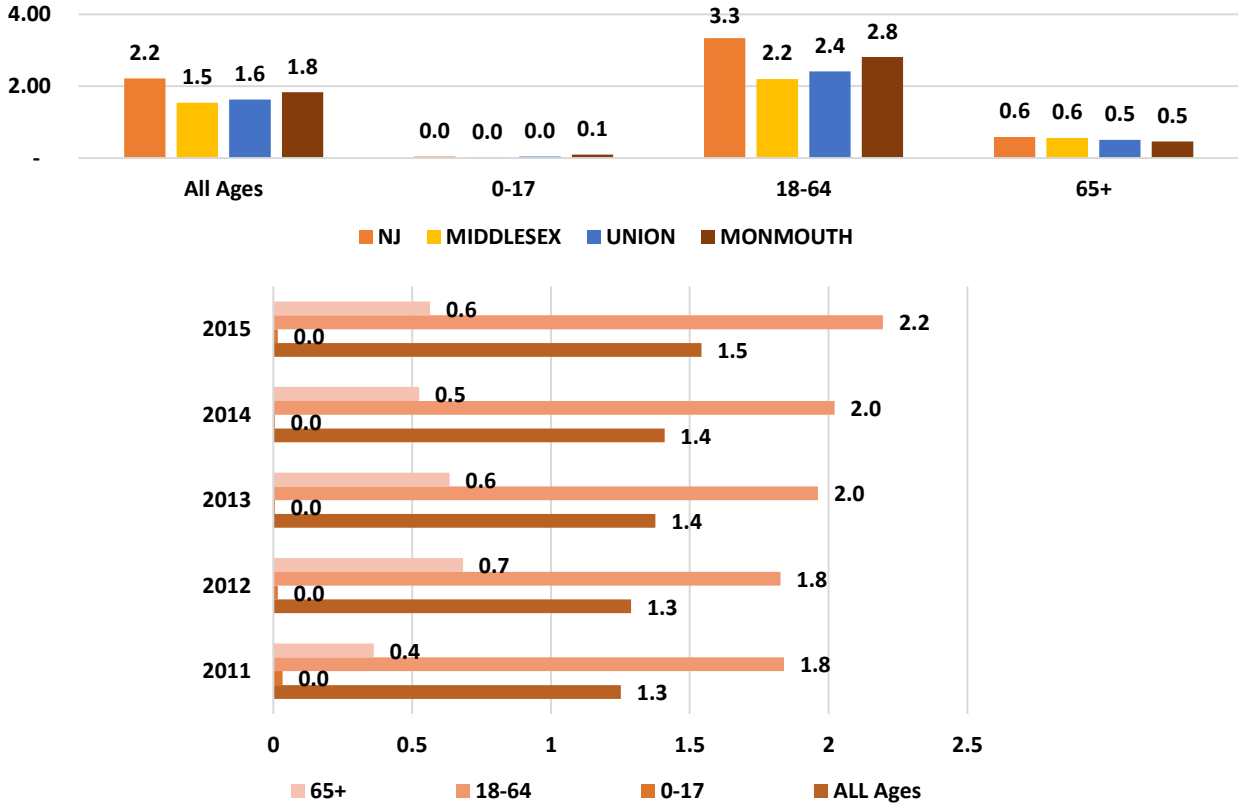
Substance abuse has a major impact on individuals, families and communities. In 2005, an estimated 22 million Americans struggled with a drug or alcohol problem. Almost 95 percent of people with substance use problems are considered unaware of their problem. These estimates highlight the importance of increasing prevention efforts and improving access to treatment for substance abuse and co-occurring disorders.¹²²

- Across all age cohorts county-wide, there is an increase in inpatient admissions for substance abuse from 2011 through 2015.
- Compared to Statewide, in 2015, Middlesex County has fewer residents with an inpatient admission for substance abuse for persons 18-64 and similar rates for those over age 65.

¹²¹ Source: UB-04 2015 Discharges; US Census ACS 2012 5yr Estimate, Mental Health Defined As MDC 19

¹²² <http://www.healthypeople.gov/2020/topics-objectives/topic/substance-abuse>

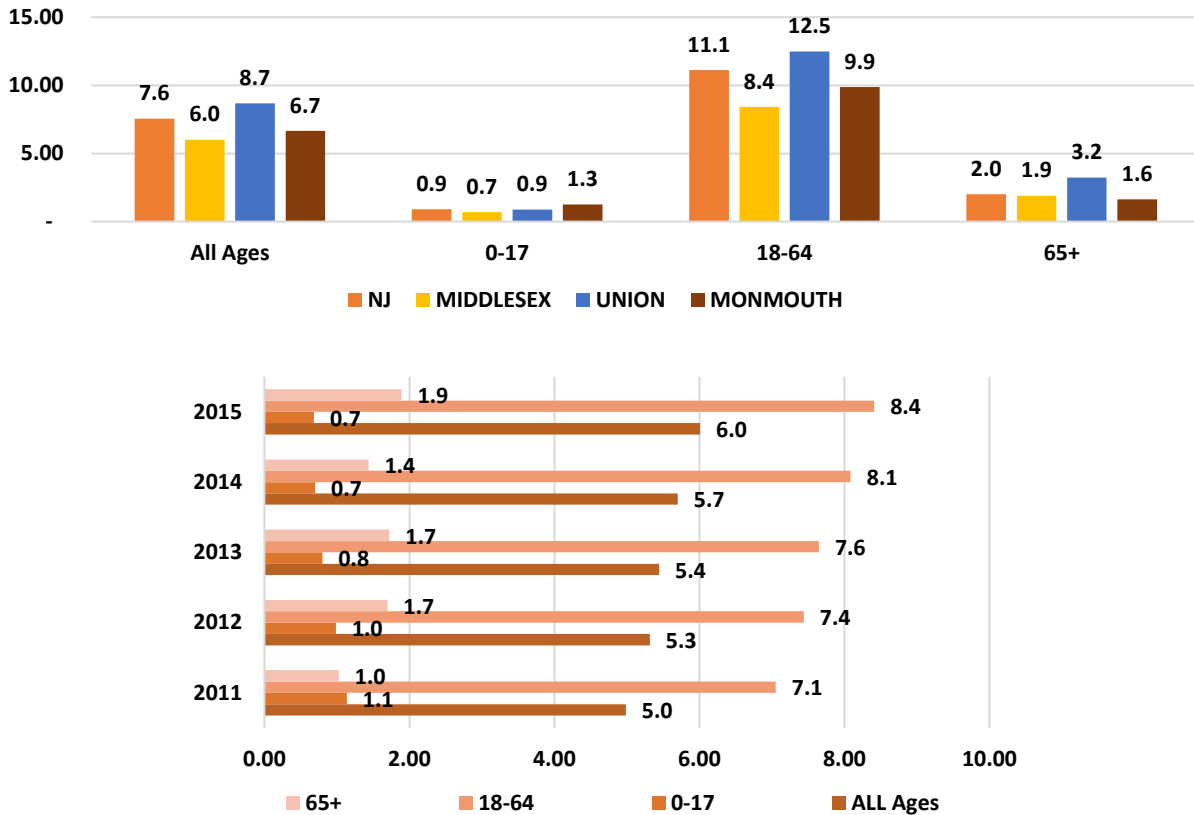
Figure 4.88
Inpatient Substance Abuse Treatment Discharges: Rate / 1,000 Population¹²³



¹²³ New Jersey Discharge Data Collection System, Office of Health Care Quality Assessment, New Jersey Department of Health
Population Estimates: New Jersey Department of Labor and Workforce Development, State Data Center, Substance Abuse Defined As MDC 20

- In 2015, Middlesex County (6.0/1,000) has 21.1% fewer residents ED visits for substance abuse than the State (7.6/1,000).
- Between 2011 and 2015, ED visits for substance abuse in Middlesex County increases 20% from 5.0/1,000 to 6.0/1,000.
- In 2015, Middlesex County residents aged 18-64 have the highest rate of ED visits for substance abuse.

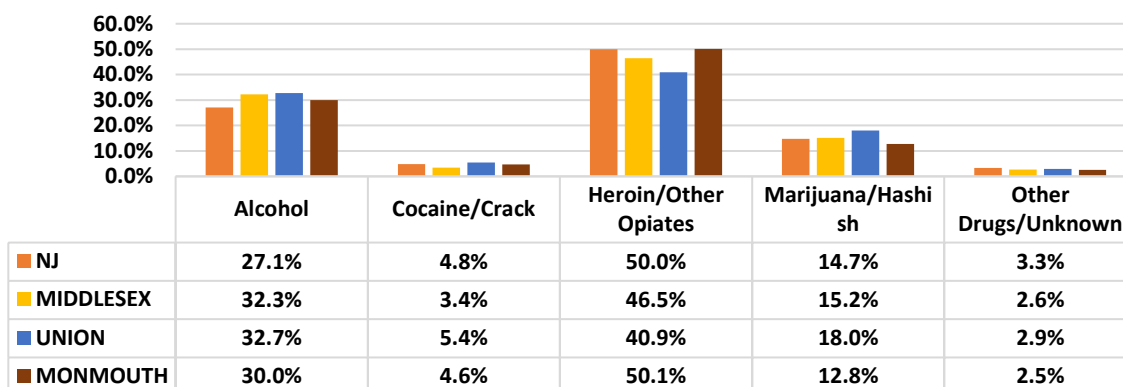
Figure 4.89
ED Visits for Substance Abuse (2015): By Age; Rate / 1,000 Population¹²⁴



- In 2016, in New Jersey, Middlesex County and neighboring counties, heroin and other opioids are the leading reason for admission to a drug treatment center followed by alcohol and marijuana.
- Similar to New Jersey (50%) in 2016, 46.5% of Middlesex County drug treatment admissions are due to heroin or other opioids.

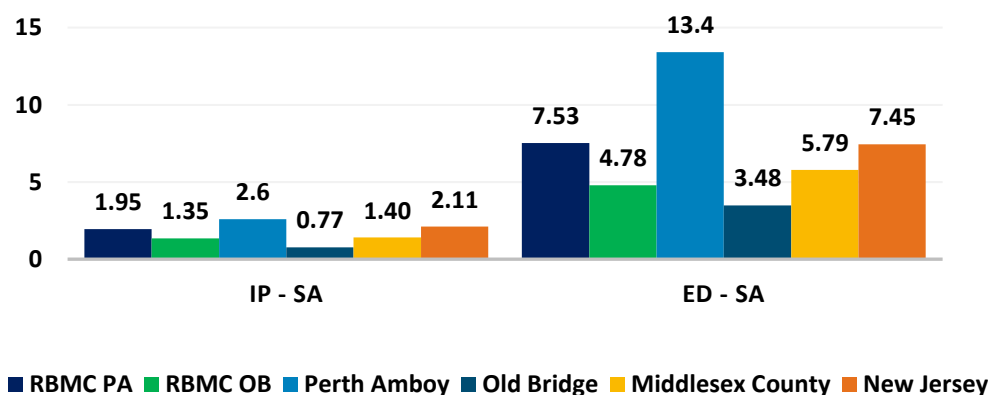
¹²⁴ New Jersey Discharge Data Collection System, Office of Health Care Quality Assessment, New Jersey Department of Health
Population Estimates: New Jersey Department of Labor and Workforce Development, State Data Center, Substance Abuse Defined as MDC 20

Figure 4.90
Primary Drug Treatment Admissions (2016)¹²⁵



- Inpatient hospitalization for substance abuse in the RBMC-PA (1.9/1,000) and RBMC-OB Service Areas (1.35/1,000), Old Bridge (.77/1,000) and Middlesex County (1.4/1,000) are below the State rate (2.11/1,000).
- Perth Amboy's (2.6/1000) inpatient hospitalization for substance abuse is .5 point higher than the State (2.44/1,000) and 1.2 point higher than Middlesex County (1.4/1,000).
- In 2015, emergency department visits for substance abuse in Perth Amboy (13.4/1,000) are 131% greater than the Middlesex County rate (5.8/1,000) and 78.7% greater than the New Jersey rate (7.5/1,000).
- In 2015, emergency department utilization rates for substance abuse in Old Bridge (3.5/1,000) are 53% less than the New Jersey rate (7.5/1,000) and 40% less than Middlesex County rates (5.8/1,000).

Figure 4.91
Substance Abuse Use Rate 1,000 Population: 2015¹²⁶



¹²⁵ Source: NJDOH, Division of Addiction Services, NJ Drug and Alcohol Abuse Treatment; <http://www.nj.gov/humanservices/dmhas/publications/statistical/Substance%20Abuse%20Overview/2016/statewide.pdf> Note: Percentages Are Based On The Total Number of Treatment Admissions For All Primary Drugs.

¹²⁶ Source: UB-04 2015 Discharges; US Census ACS 2015 5yr Estimate Substance Abuse Defined as MDC 20

C. SOCIAL DETERMINANTS OF HEALTH

Social determinants of health include socioeconomic and environmental factors which influence health outcomes, disparities in health, equity in health care, and are important tools to assess health at the local level. Healthy People 2020 provides a framework for assessing social determinants of health across five topic areas: economic stability, education, social and community context, health and health care, and neighborhood and built environment. Residents of Middlesex County and the RBMC Service Area face many socioeconomic challenges that may have consequences for health and health care in the region.¹²⁷

1. Economic Stability

Poverty

Many believe that the Federal Poverty Level (FPL) understates true poverty and is prejudicial to New Jersey as it fails to adjust for differences in the cost of living across states.

Middlesex is ranked 11/21 New Jersey counties with 9.0% of residents sustaining an income below poverty.

County level analysis masks concentrated poverty. In 2015, among municipalities with populations above 20,000 and poverty rates above 15%, Perth Amboy has the 13th highest poverty level (19.8%) among individuals and 12th highest among families (19.8%).¹²⁸

- According to the Census, in 2015, Middlesex County (9.0%) has fewer individuals living below the Federal Poverty Level than New Jersey (10.8%).
- Perth Amboy and Carteret have among the highest poverty rates and exceed those of the State. The 2015 ACS Survey reports 19.8% of Perth Amboy families and 11.1% of Carteret families are living below the FPL compared to 6.5% in Middlesex County and 8.2% statewide.
- The RBMC-OB Service Area poverty rate among individuals is better than Middlesex County, Perth Amboy and New Jersey, while the RBMC-PA Service Area poverty rate among individuals exceeds Middlesex County and is lower than the percentage for New Jersey.
- Regarding poverty, the percent of individuals living below the FPL, Middlesex County ranks among the middle quartile relative to all 21 New Jersey counties.

¹²⁷ <https://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-of-health>

¹²⁸ Source: US Census ACS Survey 2015 5 Year Estimates

Figure 4.92¹²⁹

INDIVIDUALS BELOW POVERTY (2015*)			FAMILIES BELOW POVERTY (2015*)		
GEOGRAPHIC AREA	#	%	GEOGRAPHIC AREA	#	%
New Jersey	944,847	10.8%	New Jersey	180,423	8.2%
Middlesex County	70,682	9.0%	Middlesex County	13,127	6.5%
RBMC-PA	26,447	10.6%	RBMC-PA	5,473	8.7%
RBMC-OB	16,771	5.6%	RBMC-OB	3,427	4.3%
08861 Perth Amboy	11,878	22.0%	08861 Perth Amboy	2,505	19.8%
07008 Carteret	3,606	15.0%	07008 Carteret	666	11.1%
08882 South River	1,848	11.4%	08882 South River	312	8.3%
08863 Fords	1,021	8.2%	08863 Fords	275	8.1%
07001 Avenel	1,016	7.3%	08859 Parlin	379	6.8%

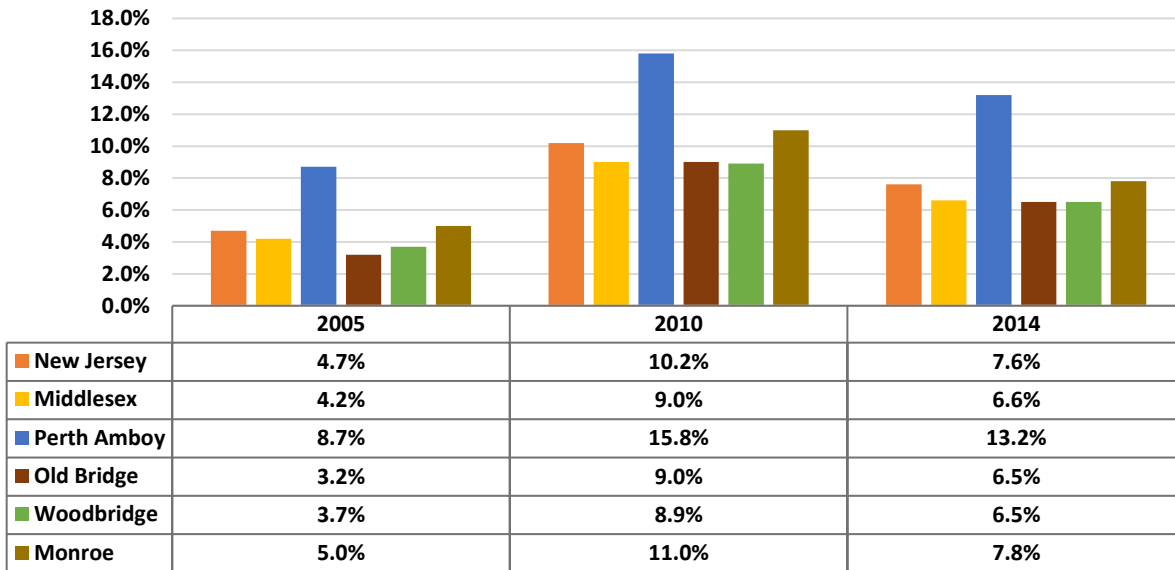
Unemployment

Those who are unemployed face greater challenges to health and well-being, including lost income and health insurance. Unemployed individuals are 54% more likely to be in poor or fair health as compared to employed individuals. According to CHR, racial and ethnic minorities and those with less education, often already at-risk for poor health outcomes, are most likely to be unemployed. Labor statistics indicate unemployment rates peaked at the height of the recession in 2010 and began to show some improvement by 2014.

- In 2014, the Perth Amboy unemployment rate (13.2%) is double that of Middlesex County (6.6%).
- Between 2010 and 2014, New Jersey, Middlesex County, Old Bridge and Woodbridge experience at least a 25% reduction in unemployment while Perth Amboy demonstrates a 16% decline in the same time frame.
- In regard to unemployment, Middlesex County ranks among the middle quartile relative to all New Jersey counties.

¹²⁹ Source: US Census ACS Survey 2015 5 Year Estimates

Figure 4.93
Percent of Labor Force Unemployed¹³⁰



Income

Income allows families and individuals to purchase health insurance and medical care, but also provides options for healthy lifestyle choices. While the starkest difference in health is between those with the highest and lowest incomes, this relationship persists throughout all income brackets.¹³¹

- The Middlesex County 2017 median household income (\$86,445) exceeds the New Jersey median household income (\$75,854) by \$10,591 or 14%.
- Perth Amboy’s 2017 median household income is \$38,740 (44.9%) less than Middlesex County and \$28,149 (37.1%) less than New Jersey..
- Relative to all 21 counties Statewide, Middlesex County ranks among the middle quartile for median household income.

¹³⁰ Source: US Bureau of Labor Statistics; <http://www.bls.gov/ro2/countyunemp.htm> Note: Data Represent Unadjusted Annual Averages By Year and Are Not Seasonally Adjusted; Local Area Figures Are Not Available at ZIP Code Level

¹³¹ www.countyhealthrankings.org/our-approach/health-factors

Figure 4.94
Median Household Income (2017)¹³²

HOUSEHOLD INCOME (2017*)	
GEOGRAPHIC AREA	MEDIAN
New Jersey	\$75,854
Middlesex County	\$86,445
RBMC-PA	\$58,270
RBMC-OB	\$64,726
08861 Perth Amboy	\$ 47,705
08882 South River	\$ 66,283
07008 Carteret	\$ 69,891
07001 Avenel	\$ 74,525
08879 South Amboy	\$ 78,366

Temporary Assistance Needy Families (TANF)

In order to qualify for TANF in New Jersey, applicants must comply with all requirements of WorkFirst New Jersey. This includes signing over rights of child support payments, helping to establish paternity of children, cooperating with work requirements and applying for all assistance programs for which a household may be eligible. Additionally, eligible applicants must meet income and resource guidelines.¹³³

- As of December 2016, .91% of Middlesex County children are receiving Work First NJ/TANF benefits, 55% fewer than statewide (2.02%); Middlesex County ranks 8/21 statewide.
- As of December 2016, .09% of Middlesex County adults are receiving Work First NJ/TANF benefits, 66.7% fewer than statewide (.27%); Middlesex County ranks 11/21 statewide.
- Between 2015 and 2017, the percentage of adults and children receiving WFNJ/TANF benefits declines by approximately 50%.
- Relative to all 21 counties Statewide, Middlesex County ranks among the middle quartile for TANF recipients.

¹³² Source: Nielson Claritas 2017 Estimates

¹³³ <http://www.tanfprogram.com/new-jersey-tanf-eligibility>

Figure 4.95

WFNJ/TANF # OF PARTICIPATING FAMILIES, CHILDREN, ADULTS RANK AMONG NJ COUNTIES (As of Dec 2016)						
GEOGRAPHIC AREA	FAMILIES		CHILDREN		ADULTS	
	#	RANK	#	RANK	#	RANK
New Jersey	19,217	-	32,921	-	14,735	-
Middlesex County	777	8/21	1,387	8/21	440	11/21
Union County	1,015	7/21	1,633	7/21	815	6/21
Monmouth County	326	14/21	582	14/21	192	13/21

Figure 4.96

Percent of Population Receiving WFNJ/TANF (as of 12/2016): WFNJ/TANF Persons, Adults, & Children¹³⁴

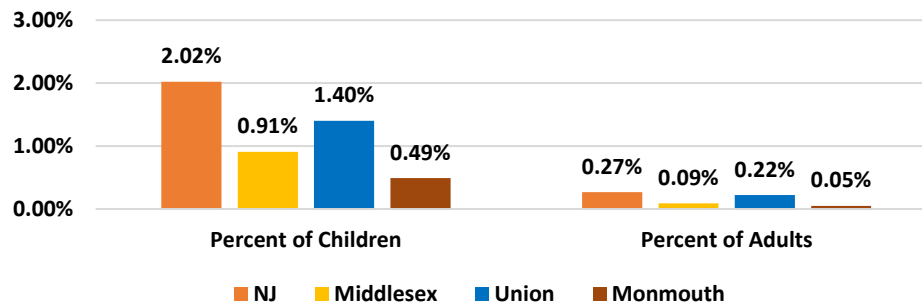
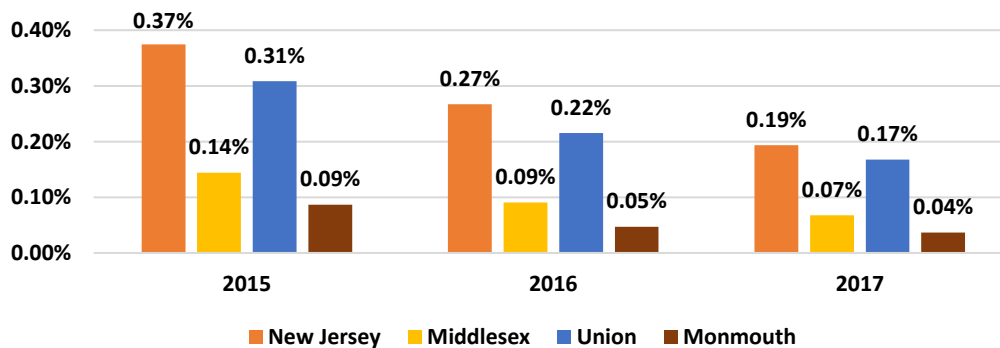


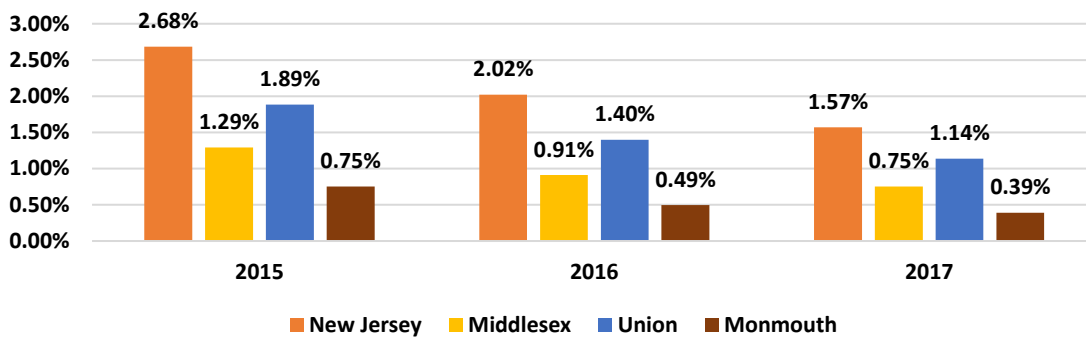
Figure 4.97

Percent of Adults Receiving WFNJ/TANF (as of 12/2016)



¹³⁴ Source: NJ Department of Human Services, Division of Family Development – Current Program Statistics; Population: Claritas 2010-2017 Straight Line Projection <http://www.state.nj.us/humanservices/dfd/news/cps.html> Counties rank in descending order with top county having most recipients

Figure 4.98
Percent of Adults Receiving WFNJ/TANF (as of 12/2016)

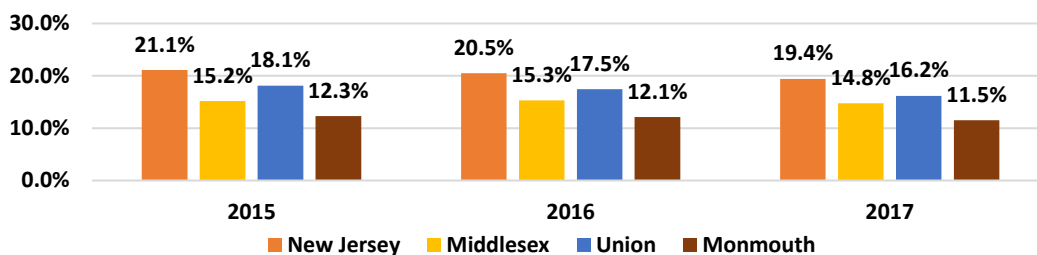


Supplemental Nutrition Assistance Program (SNAP)

SNAP offers nutrition assistance to millions of eligible, low-income individuals and families. The Food and Nutrition Service works with State agencies, nutrition educators and neighborhood and faith-based organizations to ensure that those eligible for nutrition assistance make informed decisions and access benefits.¹³⁵

- In 2017, 23.7% fewer Middlesex County children (14.8%) use SNAP benefits than children Statewide (19.4%).
- In 2017, 25% fewer Middlesex County adults (4.5%) use SNAP benefits than throughout the State (6.0%).
- Between 2015 and 2017, Middlesex County experience a 2.6% decline in the percentage of adults and a 4.3% decline in the percentage of children receiving SNAP benefits.
- The percentage of Middlesex County children and adults receiving SNAP benefits ranks in the middle quartile among all counties.

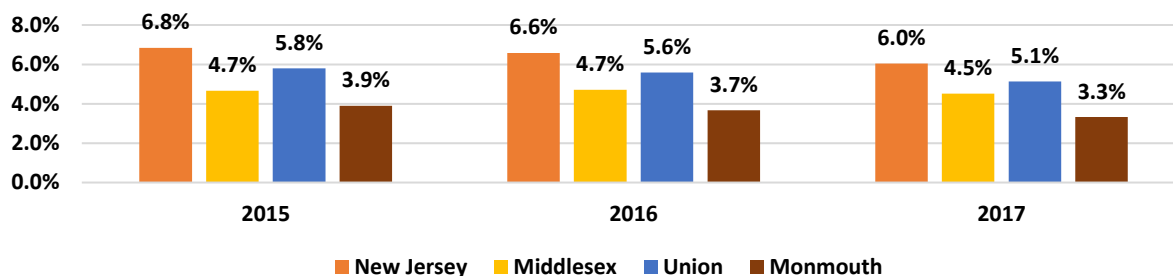
Figure 4.99
Percent of Children Receiving SNAP¹³⁶



¹³⁵ <http://www.fns.usda.gov/snap/supplemental-nutrition-assistance-program-snap>

¹³⁶ Source: State of New Jersey, Department of Human Services, Division of Family Development ; Note: Percentages Are For February of Each Year and Based on NJDHS Actuals By Year and Claritas Population Data (2010-2017)

Figure 4.100
Percent of Adults Receiving SNAP¹³⁷



Economic Stability Indicators	Healthy People 2020 Target	County Health Rankings Benchmark	New Jersey
Poverty % of Individuals Living Below FPL	N.A.	N.A.	
Unemployment % Reporting	N.A.	N.A.	
TANF Recipients % of Population	N.A.	N.A.	
SNAP Benefits % of Children	N.A.	N.A.	
SNAP Benefits % of Adults	N.A.	N.A.	

2. Education

Educational Attainment

Higher levels of education are linked to better health, healthier lifestyle decisions and fewer chronic conditions.¹³⁸ Lower levels of educational attainment often signals issues of health literacy and inability to follow medical advice.

- New Jersey, Middlesex County, RBMC-PA and RBMC-OB Service Area residents have a higher percentage of individuals who did not complete a high school education than the Healthy People 2020 target of 2.1%.
- Similar to 2017 statewide, 11.2% of the Middlesex County population did not earn a high school diploma. This remains relatively unchanged since 2012.
 - In 2017, approximately 8% of the RBMC-PA population report completing less than a grade 9 education, more than double the RBMC-OB Service Area of 3.2%. Strikingly, the City of Perth Amboy reports 17.5% of its residents attain less than a grade 9 education.

¹³⁷ Source: State of New Jersey, Department of Human Services, Division of Family Development ; Note: Percentages Are For February of Each Year and Based on NJDHS Actuals By Year and Claritas Population Data (2010-2017)

¹³⁸ www.countyhealthrankings.org/our-approach/health-factors

- The percent of Middlesex County residents (11.2%) without a high school diploma in 2017 is five times greater than the Healthy People 2020 target (2.1%).
 - In 2017, Perth Amboy (27.3%) has two and a half times the percent of residents with less than a high school education than Middlesex County (11.2%).
- In 2017, one-quarter of the RBMC-OB Service Area earns a Bachelor’s degree, almost equivalent to the County and exceeding the State.
 - Perth Amboy (10.4%) has less than half the amount of resident college graduates compared to statewide (22.8%).

Figure 4.101
No High School Diploma Trend¹³⁹

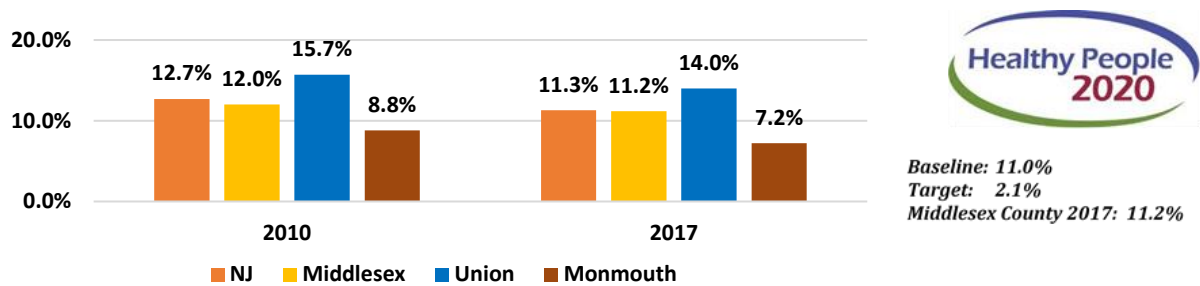


Figure 4.102¹⁴⁰

	EDUCATION LEVEL (2017)					
	RBMC PA	RBMC OB	Perth Amboy	Old Bridge	Middlesex County	New Jersey
Less Than Grade 9	7.6%	3.2%	17.5%	2.4%	6.0%	5.3%
Some High School w/o Diploma	6.4%	4.5%	9.8%	3.5%	5.2%	6.0%
High School Grad	33.1%	27.4%	31.4%	23.1%	26.6%	28.6%
Some College/ Associates Degree	25.0%	25.5%	17.6%	23.4%	21.7%	23.3%
Bachelor’s Degree	18.7%	24.5%	10.4%	18.9%	24.4%	22.8%
Masters/Professional or Above	9.1%	14.9%	13.4%	28.6%	16.1%	14.0%

Limited English Proficiency

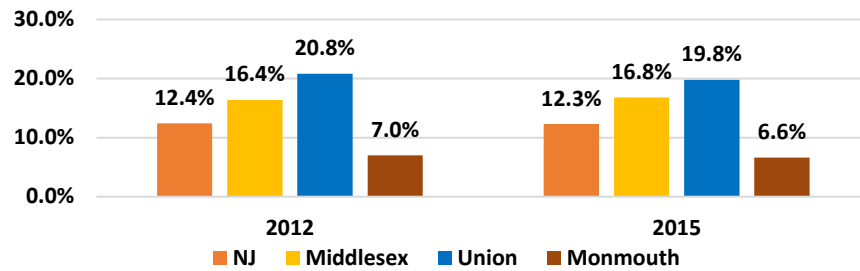
The lack of English proficiency can negatively impact one’s ability to understand and follow medical directions. Middlesex County experience increases in the percentage of the population over age 5 with limited English proficiency with growing numbers of minority populations.

- In 2015, according to the U.S. Census, 26.8% more Middlesex County residents over age 5 (16.8%) report speaking English as “less than very well” than across New Jersey (12.3%).
- Middlesex County experiences a 0.4 percentage point increase in the population that reports limited English proficiency between 2012 (16.4%) and 2015 (16.8%).
- Middlesex County ranks in the lowest quartile, indicating a high LEP population relative to all NJ counties.

¹³⁹ Source: Nielson Claritas 2010, 2017 Estimates, Population Age 25+

¹⁴⁰ *ibid*

Figure 4.103
Limited English Proficiency¹⁴¹



Education Indicators	Healthy People 2020 Target	County Health Rankings Benchmark	New Jersey
No High School Diploma <i>% of Population</i>		N.A.	
Limited English Proficiency <i>% Age 5+ Speaks English "Less than very well"</i>	N.A.	N.A.	

3. Social and Community Context

Social Associations

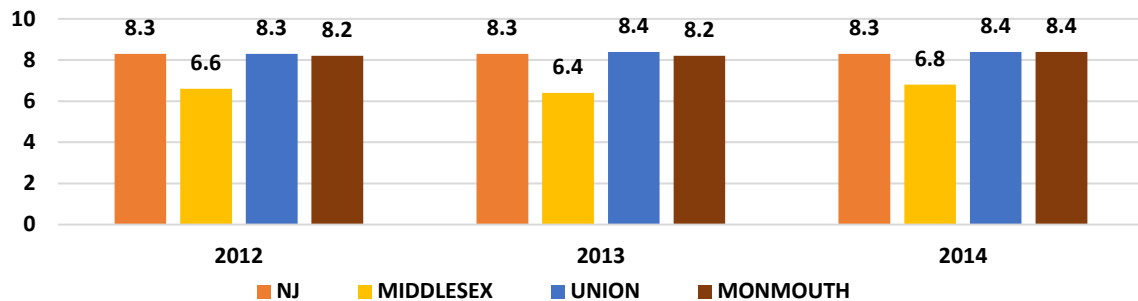
Social isolation can negatively impact health outcomes. Having a strong social network is associated with healthy lifestyle choices, positive health status, and reduced morbidity and mortality. Participation in community organizations can enhance social trust and a sense of belonging.¹⁴²

- Between 2012 and 2014, Middlesex County has lower membership association rates than New Jersey, Union County, and Monmouth County.
- The membership association rate for Middlesex County falls within the lowest performing quartile compared to all 21 counties statewide.

¹⁴¹ Source: United States Census 2012, 2015 American Community Survey 5 Year Estimates; Persons Age 5+ reporting speaking English "less than well".

¹⁴² <http://www.countyhealthrankings.org/app/new-jersey/2015/measure/factors/140/description>

Figure 4.104
Number of Membership Associations per 10,000 Population¹⁴³

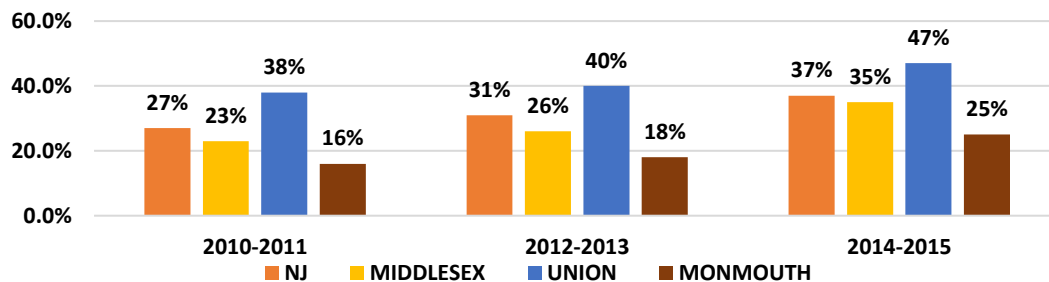


Children Eligible for Free Lunch

Public schools nationwide and across New Jersey have free lunch programs for children living at or near poverty. New Jersey requires public schools serve school lunches meeting at least one-third of recommended dietary allowances. According to the National School Lunch Program, the objective is “to provide a nutritious, well-balanced lunch for children in order to promote sound eating habits, to foster good health and academic achievement and to reinforce the nutrition education taught in the classroom.”¹⁴⁴

- The percentage of children eligible for free lunch increases throughout New Jersey, Middlesex, Union and Monmouth counties between 2010-2011 and 2014-2015.
- Middlesex County reports a 12 percentage point increase in students eligible for free lunch from 23% during the 2010-2011 school years to 35% in 2014-2015 school years.
- Middlesex County is within the middle quartile compared to of all New Jersey counties for free school lunch eligibility.

Figure 4.105
Percentage of Children in Public School Eligible for Free Lunch¹⁴⁵



¹⁴³ County Business Patterns

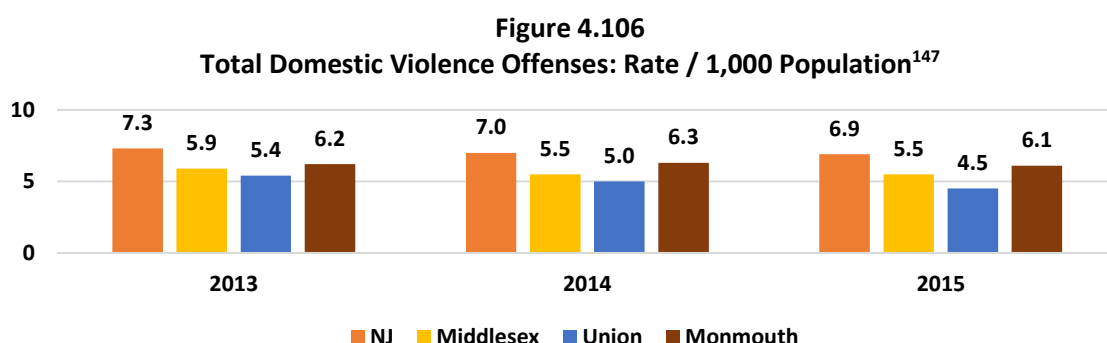
¹⁴⁴ http://www.nj.gov/agriculture/divisions/fn/childadult/school_lunch.html

¹⁴⁵ National Center for Education Statistics

Domestic Violence Offenses

Domestic violence can negatively impact a victim’s health beyond the domestic violence incident. Victims of domestic violence exhibit physical and emotional problems including, but not limited to, chronic pain, depression, anxiety, eating disorders, and post-traumatic stress disorder.¹⁴⁶

- Compared to New Jersey (6.9/1,000), Middlesex County (5.5/1,000) has a lower rate of arrests due to domestic violence in 2015.
- Between 2013 and 2015, the rate of domestic violence arrests in Middlesex County decrease 6.8%.
- Middlesex County is within the middle quartile compared to all New Jersey counties for arrests due to domestic violence.



Social/Community Context Indicators	Healthy People 2020 Target	County Health Rankings Benchmark	New Jersey
Membership Associations <i>Rate per 10,000 Population</i>	N.A.	N.A.	
Children Eligible for Free Lunch <i>% of Public School Children Eligible</i>	N.A.	N.A.	
Domestic Violence Offenses <i>Rate per 100,000 Population</i>	N.A.	N.A.	

4. Health and Health Care

Access to affordable quality health care is important to physical, social, and mental health. Health insurance helps individuals and families access needed primary care, specialists, and emergency care, but does not ensure access. It is also necessary for providers to offer affordable care, be available to treat patients and be near patients.¹⁴⁸

¹⁴⁶ http://www.stopvaw.org/health_effects_of_domestic_violence

¹⁴⁷ Source: NJ Department of Law and Public Safety, Division of State Police – Uniform Crime Reporting Unit <http://www.njsp.org/info/stats.html>

¹⁴⁸ <http://www.countyhealthrankings.org/our-approach/health-factors/access-care>

Health Insurance

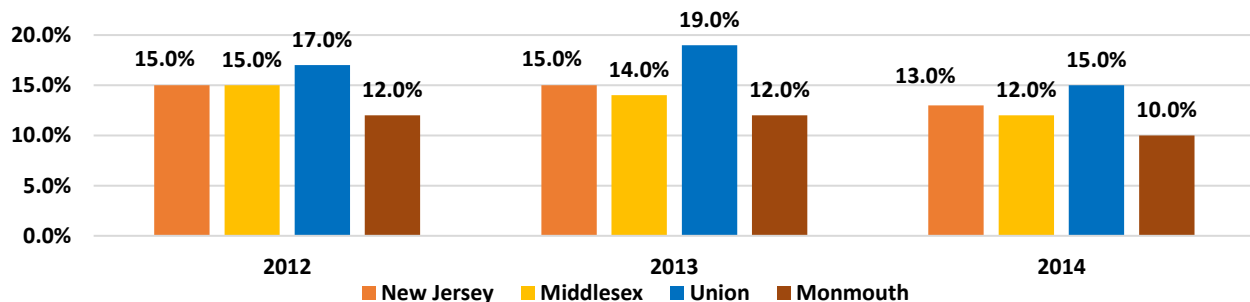
Since the Affordable Care Act's (ACA) coverage provisions began taking effect in 2010, the nation's uninsured rate dropped by 7.2 percentage points, from 16 percent. That translates into 20.4 million fewer people who lacked health insurance in 2016 than in 2010. However, the future of the ACA is uncertain and will impact the numbers of uninsured. The uninsured are less likely to have primary care providers than the insured; they also receive less preventive care, dental care, chronic disease management, and behavioral health counseling. Those without insurance are often diagnosed at later, less treatable disease stages than those with insurance and, overall, have worse health outcomes, lower quality of life, and higher mortality rates.

Neighborhoods with low health insurance rates often have fewer providers, hospital beds and emergency resources than areas with higher rates. Even the insured have more difficulty getting care in these areas.

Cost can be a barrier to care even for those who have insurance. While improvements in the percentage of persons with insurance occur, residents of Perth Amboy continue to have some of the highest rates of uninsured in the county. Lack of insurance creates barriers to timely access to care for patients and financial burdens to the providers who care for them.

- In 2012, 15% of Middlesex County and New Jersey residents report having health coverage.
- Coverage for Middlesex County residents improves 20% from 15% without insurance in 2012 to 12% in 2014.
- In 2014, Middlesex County (12.0%) exceeds the ambitious Healthy People 2020 target of no person without health coverage. As compared to the CHR benchmark, Middlesex County is lower but within an established 25% margin.

Figure 4.107
Percent of Population Under 65 Without Health Insurance¹⁴⁹



Baseline: 16.8%
Target: 0.0%
Middlesex County 2014: 12.0%

County Health Rankings & Roadmaps

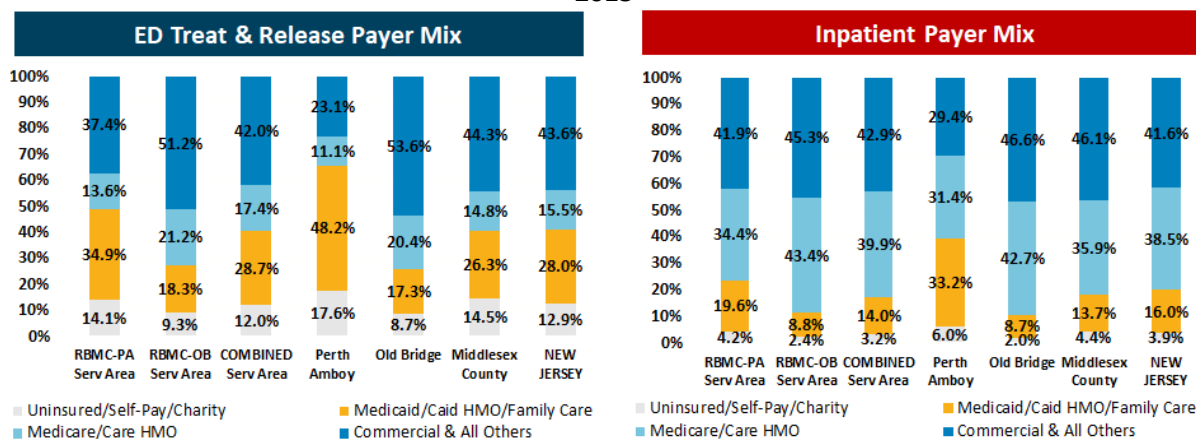
Building a Culture of Health, County by County

A Robert Wood Johnson Foundation program

National Benchmark: 11.0%
Middlesex County 2014: 12.0%

¹⁴⁹ Source: Healthy People 2020 - CDC Behavioral Risk Factor Surveillance System County Health Rankings - US Census Bureau's Small Area Health Insurance Estimates (SAHIE)

Figure 4.108
Payer Mix Comparison¹⁵⁰
2015



Access to Care

Access to affordable quality health care is significant to ensuring physical, social, and mental health. Health insurance assists individuals and families to obtain primary care, specialists, and emergency care, but does not ensure access. Insurance is also necessary for providers to offer affordable care, be available to treat patients and be near patients.¹⁵¹

Services

Improving healthcare access depends, in part, on ensuring a standard and consistent source of preventive care. One method to accomplish this is patient-centered medical homes. Medical homes may transform the delivery of healthcare by improving quality, safety, efficiency and effectiveness and ultimately result in improved outcomes, fewer disparities and lower costs.¹⁵² Conveniently locating medical homes within a community supports access. Medical homes are associated with greater patient trust, effective communication, increased likelihood to receive appropriate care and decreased duplication and disconnection of services.¹⁵³

Community Need Index¹⁵⁴

The Community Need Index (CNI), jointly developed by Dignity Health and Truven Health in 2004, is strongly linked to variations in community healthcare needs and is a strong indicator of a community's demand for services.

¹⁵⁰ Source: UB-04 2015 Discharges

¹⁵¹ <http://www.countyhealthrankings.org/our-approach/health-factors/access-care>

¹⁵² <http://pcmh.ahrq.gov/>

¹⁵³ *ibid*

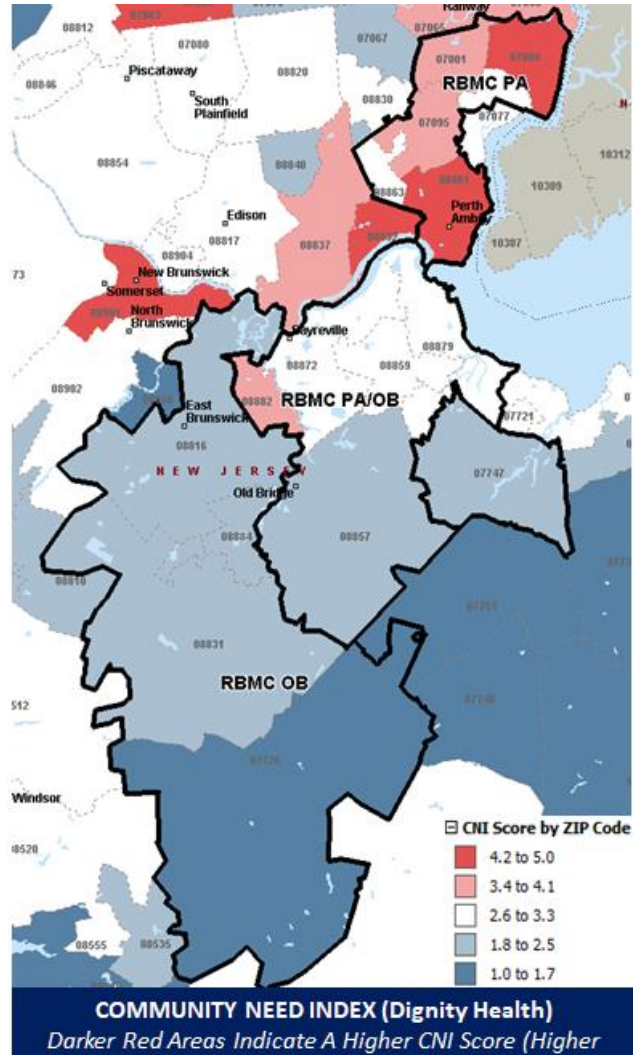
¹⁵⁴ Truven Health Analytics, 2017; Insurance Coverage Estimates, 2017; The Nielson Company, 2017; and Community Need Index, 2017. <http://cni.chw-interactive.org/>

Based on a wide array of demographic and economic statistics, the CNI provides a score for every populated ZIP Code in the United States. A score of 1.0 indicates a ZIP Code with the least need and a score of 5.0 represents a ZIP Code with the most need. The CNI should be used as part of a larger community health needs assessment, and can help pinpoint specific areas with greater need than others.

Figure 4.109

The CNI score is an average of five barrier scores that measure socio-economic indicators of each community using 2015 source data. The five barriers are:

1. Income Barrier
 - Percentage of households below poverty line, with head of household age 65 or older
 - Percentage of families with children under 18 below poverty line
 - Percentage of single female-headed families with children under 18 below poverty line
2. Cultural Barrier
 - Percentage of population that is minority (including Hispanic ethnicity)
 - Percentage of population over age 5 that speaks English poorly or not at all
3. Education Barrier
 - Percentage of population over 25 without a high school diploma
4. Insurance Barrier
 - Percentage of population in the labor force, aged 16 or more, without employment
 - Percentage of population without health insurance
5. Housing Barrier
 - Percentage of households renting their home



A comparison of CNI scores and hospital utilization reveals a strong correlation between need and use. Communities with low CNI scores can be expected to have high hospital utilization. There is a causal relationship between CNI scores and preventable hospitalizations and ED visits for manageable conditions. Communities with high CNI scores may have more hospitalization and ED visits that could have been avoided with improved healthy community structures and appropriate outpatient and primary care.

Figure 4.110

	Service Area	ZIP Code	ZIP Code Description	CNI Score
Highest CNI Score (Highest Need)	RBMC PA	08861	Perth Amboy	4.6
	RBMC PA	07008	Carteret	4.2
	RBMC PA/OB	08882	South River	3.6
	RBMC PA	07001	Avenel	3.4
	RBMC PA	07095	Woodbridge	3.4
Lowest CNI Score (Lowest Need)	RBMC OB	08884	Spotswood	2.2
	RBMC OB	08816	East Brunswick	2.0
	RBMC OB	08831	Monroe Township	2.0
	RBMC OB	08828	Helmetta	1.8
	RBMC OB	07726	Englishtown	1.4

Perth Amboy’s CNI score (4.6) indicates highest need in the Combined Service Area, followed by Carteret (4.2), South River (3.6), Avenel (3.4) and Woodbridge (3.4). Conversely, Englishtown’s score (1.4) represents the lowest CNI score in the Combined Service Area, followed by Helmetta (1.8), Monroe Township (2.0), East Brunswick (2.0) and Spotswood (2.2).

Timeliness of Service

A key indicator of the timeliness of service is emergency department (ED) utilization for conditions that could have been treated in a primary care setting.

Reasons for accessing the ED instead of a more appropriate, lower acuity level of care include:

- No regular source of primary care
- Lack of health insurance
- Cost
- Transportation
- Office hours
- Citizenship status

ED Utilization for Ambulatory Care Sensitive Conditions

Ambulatory Care Sensitive Conditions (ACSC) are potentially preventable medical conditions that are treated in the ED although more appropriate care should have been provided in a non-emergent outpatient primary care setting. ED utilization rates may be reduced by addressing primary care access issues.

- Middlesex ranks 16/21 counties with 44.81/1,000 ACSC ED visits in 2015, a 14.9% decrease in the ACSC ED rate from 2012.

- In 2015, Middlesex County (44.81/1,000) has 22% fewer ACSC ED visits than statewide (57.48/1,000).

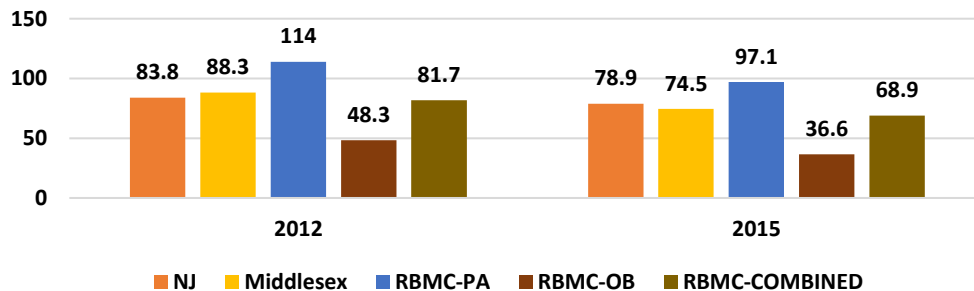
Figure 4.111
Total ACSC ED Visits Rate/1,000 Population¹⁵⁵

ACSC - ED Rate/1000				ACSC - ED Rate/1000			
COUNTY	NJ 2012	NJ 2015	Change '12-'15	COUNTY	NJ 2012	NJ 2015	Change '12-'15
CAMDEN	97.65	94.44	(3.21)	BURLINGTON	60.87	55.77	(5.10)
CUMBERLAND	91.94	88.04	(3.90)	GLOUCESTER	58.47	54.17	(4.30)
ATLANTIC	92.38	82.52	(9.86)	MONMOUTH	59.08	51.52	(7.56)
ESSEX	86.84	81.50	(5.34)	WARREN	51.47	46.75	(4.72)
SALEM	82.33	80.12	(2.21)	MIDDLESEX	52.65	44.81	(7.84)
MERCER	75.54	77.15	1.61	SUSSEX	34.23	35.69	1.46
PASSAIC	71.4	74.96	3.56	BERGEN	33.23	30.99	(2.24)
CAPE MAY	75.25	69.07	(6.18)	MORRIS	33.05	29.71	(3.34)
UNION	68.8	61.62	(7.18)	SOMERSET	33.18	29.21	(3.97)
OCEAN	70.13	57.43	(12.70)	HUNTERDON	25.2	25.64	0.44
HUDSON	61.66	57.02	(4.64)	STATEWIDE	62.36	57.47	(4.89)

Children

- In 2015, Middlesex County (74.5/1,000) has 5.6% less ACSC ED visits for children age 0-17 than statewide (78.9/1,000).
- ED ACSC visits among children in Middlesex County decrease 15.6% from 2012 (88.3/1,000) to 2015 (74.5/1,000).
- RBMC-PA, RBMC-OB, and RBMC Combined Service Areas all experience declines in ACSC ED visits for children by 14.8%, 24.2%, and 15.7%, respectively.

Figure 4.112
Total ACSC ED Visits for Children (Age 0-17): Rate/1,000 Population¹⁵⁶



¹⁵⁵ Source: NJDHSS 2012 UB-04 Data – NJ Residents; Population: United States Census 2012 American Community Survey 5yr Estimate

¹⁵⁶ Source: NJDHSS 2012 - 2015 UB-04 Data – NJ Residents; Population: 2010, 2016 Nielsen-Claritas/HCDA, 2011 Straight Line Value Based on 2000 and 2010 Census

- The 2015 pediatric ED ACSC rate in Perth Amboy (207.43/1,000) is the highest in the Combined Service Area and is more than 2½ times Middlesex County (74.54/1,000) and New Jersey (78.85/1,000) rates.
- The ED utilization rate for children in the RBMC-OB Service Area is significantly lower than all comparative geographies.

Figure 4.113

ED ACSCs - (2015)- PEDIATRIC (Age 0-17)			
GEOGRAPHIC AREA	RATE	HIGHEST SERVICE AREA RATES	
New Jersey	78.85	08861: Perth Amboy	207.43
Middlesex County	74.54	07008: Carteret	109.81
RBMC PA	97.10	08882: South River	87.95
RBMC OB	36.59	07095: Woodbridge	65.48
RBMC PA/OB Combined	68.91	07001: Avenel	56.34

- In 2015, RBMC Perth Amboy treat 48.5% of all ED ACSCs in the 0-17 age cohort from the Service Area as compared to RBMC Old Bridge which treat 15.0% of its Service Area.

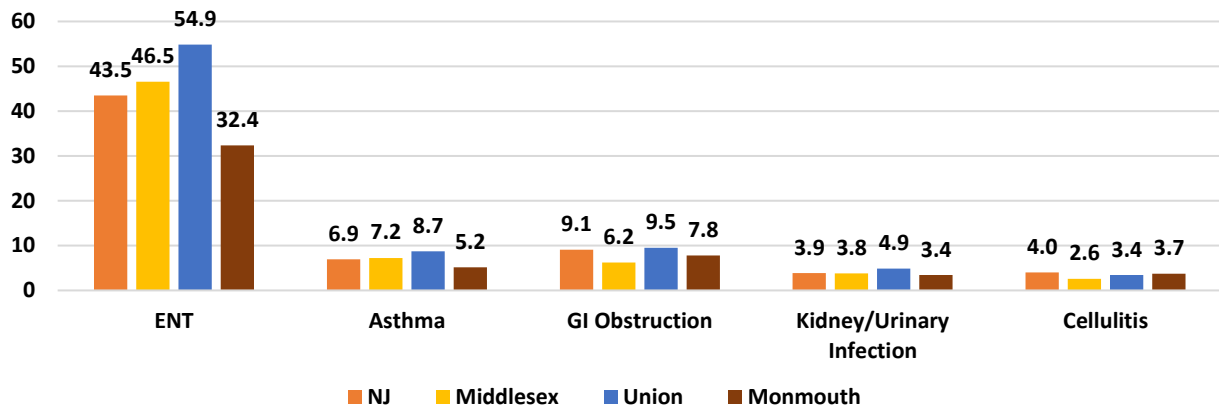
Figure 4.114

EMERGENCY DEPARTMENT (2015)			
SERVICE AREA	ACSC Description (Top 5 Combined Service Area)	TOTAL IN AREA	% TREATED @ RBMC-PA
	ENT	3,598	54.7%
RBMC PA	GI Obstruction	500	36.6%
	Asthma	435	37.0%
SERVICE AREA	Kidney/Urinary Inf.	288	46.5%
	Cellulitis	183	37.7%
	All Others	607	33.6%
	TOTAL RBMC-PA AREA	5,611	48.5%

EMERGENCY DEPARTMENT (2015)			
SERVICE AREA	ACSC Description (Top 5 Combined Service Area)	TOTAL IN AREA	% TREATED @ RBMC-OB
	ENT	1,167	17.8%
RBMC OB	Asthma	283	11.9%
	GI Obstruction	226	13.4%
SERVICE AREA	Cellulitis	134	12.8%
	Kidney/Urinary Inf.	125	14.9%
	All Others	451	11.1%
	TOTAL RBMC-OB AREA	2,386	15.0%

- ENT is the most common ACSC resulting in an ED visit for children, followed by gastrointestinal obstruction, asthma, kidney/urinary infection and cellulitis.
- In 2015, 6.5% more Middlesex County children (46.5/1,000) visited the ED for an ENT related ACSC than statewide (43.5/1,000).

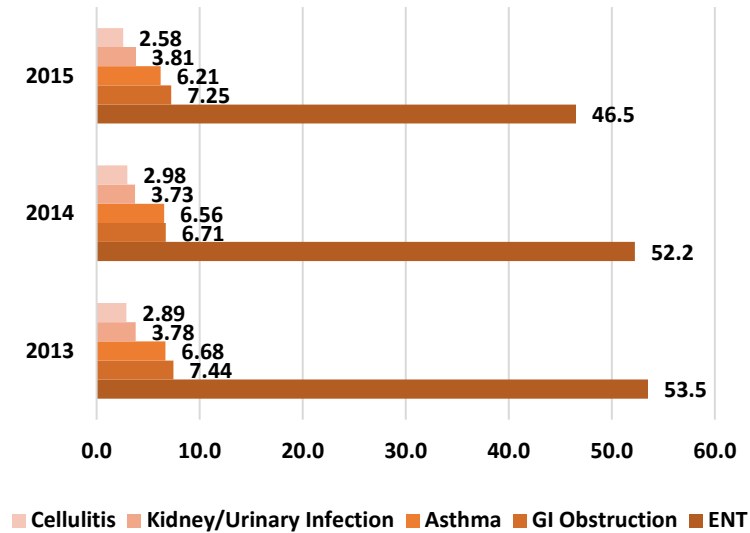
Figure 4.115
Total ACSC ED Visits for Children (Age 0-17): Rate/1,000 Population
Top 5 Conditions (2015)¹⁵⁷



- Middlesex County pediatric ACSC ED visits for kidney/urinary infection increases slightly between 2013 (3.78/1,000) and 2015 (3.81/1,000).
- Middlesex County pediatric ACSC ED visits for ENT, asthma, gastrointestinal obstruction, and cellulitis decrease between 2013 and 2015.

¹⁵⁷ *ibid*

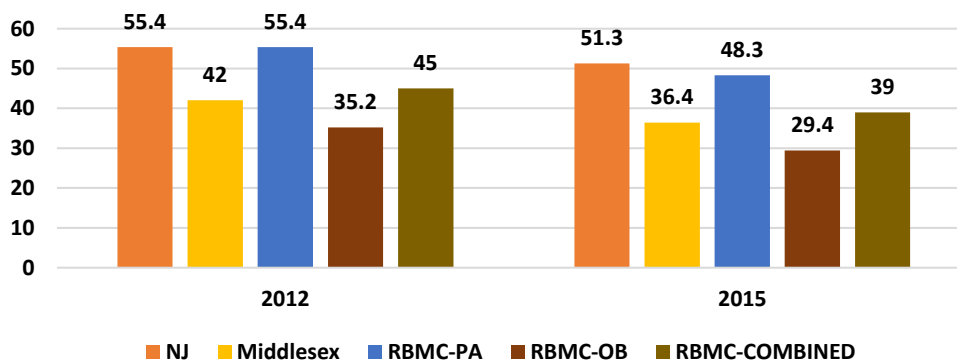
Figure 4.116
Total ACSC ED Visits for Children (Age 0-17): Rate/1,000 Population
Top 5 Conditions: Middlesex County Trend 2013-2015¹⁵⁸



Adults

- The 2015 Middlesex County adult ED ACSC rate (36.4/1,000) is 29% lower than the State rate (51.3/1,000).
- Middlesex County experiences a 13.3% decrease in the adult ED ACSC rate between 2012 and 2015 (42.0/1,000 to 36.4/1,000).

Figure 4.117
Total ACSC ED Visits for Adults (Age 18+): Rate/1,000 Population¹⁵⁹



- The 2015 adult ED ACSC rate in Perth Amboy (92.18/1,000) is the highest in the Combined Service Area at more than double the Middlesex County rate (36.40/1,000).
- The 2015 Carteret (52.94/1,000) adult ED ACSC rate is similar to the State (51.29/1,000).

¹⁵⁸ *ibid*

¹⁵⁹ *ibid*

Figure 4.118
ED ACSC – ADULTS 18+ (2015)

GEOGRAPHIC AREA	RATE	TOP 5 BY ZIP CODE	
New Jersey	51.29	08861: Perth Amboy	92.18
Middlesex County	36.40	07008: Carteret	52.94
RBMC-PA	48.31	08879: South Amboy	43.28
RBMC-OB	29.42	07095: Woodbridge	40.10
RBMC-PA/OB Combined	38.95	08882: South River	38.43

- In 2015, RBMC Perth Amboy treat 42.0% of all ED ACSCs for adults 18+ from the Service Area as compared to RBMC Old Bridge which treat 24.5% of its Service Area.

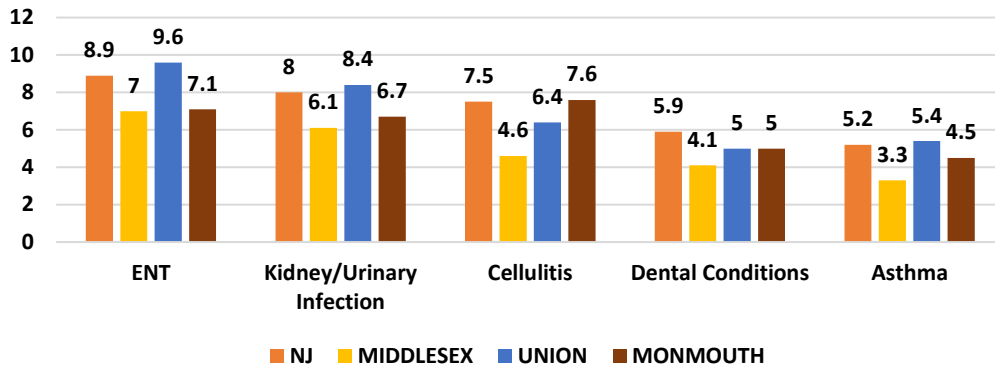
Figure 4.119

EMERGENCY DEPARTMENT (2015) – AGE 18+			
SERVICE AREA	ACSC Description (Top 5 Combined Service Area)	TOTAL IN AREA	% TREATED @ RBMC-PA
	ENT	1,837	49.3%
RBMC PA	Kidney/Urinary Inf.	1,505	39.3%
	Cellulitis	1,190	33.6%
SERVICE AREA	Dental Conditions	976	39.9%
	Asthma	970	54.4%
	All Others	2,984	39.0%
TOTAL RBMC-PA AREA		9,462	42.0%

EMERGENCY DEPARTMENT (2015) – AGE 18+			
SERVICE AREA	ACSC Description (Top 5 Combined Service Area)	TOTAL IN AREA	% TREATED @ RBMC-OB
	Kidney/Urinary Inf.	1,113	22.1%
RBMC OB	Cellulitis	1,021	23.3%
	ENT	1,014	28.8%
SERVICE AREA	Dental Conditions	641	31.2%
	Asthma	600	26.2%
	All Others	2,706	22.4%
TOTAL RBMC-OB AREA		7,095	24.5%

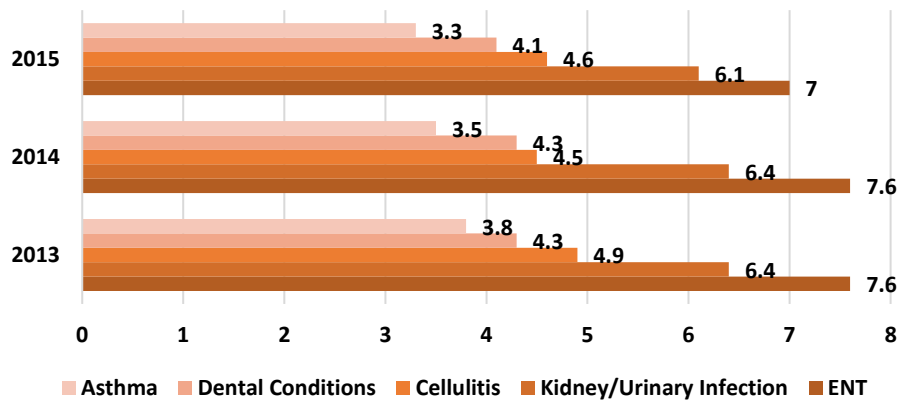
- In 2015, ENT is the leading cause of adult ED ACSC followed by kidney/urinary infection, cellulitis, dental conditions, and asthma across all comparative geographies.
- In 2015, 21.3% fewer Middlesex County adults (7.0/1,000) visited the ED for ENT ACSC than the State (8.9/1,000).

Figure 4.120
Total ACSC ED Visits for Adults (Age 18+): Rate/1,000 Population: Top 5 Conditions (2015)¹⁶⁰



- Emergency department visits within Middlesex County decrease slightly for the top 5 adult ACSC between 2013 and 2015.

Figure 4.121
Total ACSC ED Visits for Adults (Age 18+): Rate/1,000 Population: Top 5 Conditions Trend¹⁶¹



Inpatient Utilization for Ambulatory Care Sensitive Conditions

Individuals may be admitted to the hospital due to an ACSC; higher rates of ACSC conditions among inpatients indicate primary care access issues, poor preventive care and barriers related to socioeconomic status.

- Middlesex ranks 15/21 counties with 16.17/1,000 ACSC Inpatient admissions in 2015, an 11.2% decrease from 2012.
- In 2015, Middlesex County (16.17/1,000) has 8.8% fewer ACSC Inpatient admissions than the State (17.59/1,000).

¹⁶⁰ *ibid*

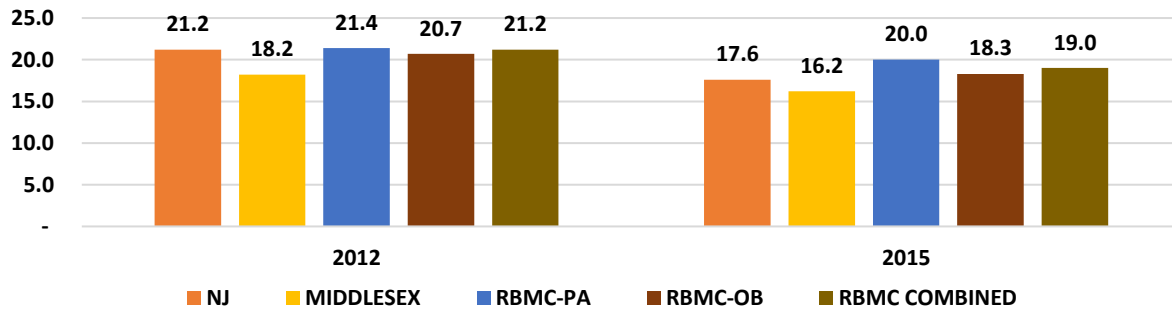
¹⁶¹ *ibid*

Figure 4.122
Total ACSC Inpatient Admissions – Rate/1,000 Population¹⁶²

ACSC - IP Rate/1000				ACSC – IP Rate/1000			
COUNTY	NJ 2012	NJ 2015	Change '12-'15	COUNTY	NJ 2012	NJ 2015	Change '12-'15
SALEM	24.56	25.46	0.90	MONMOUTH	20.28	17.43	(2.85)
CUMBERLAND	25.45	24.52	(0.93)	WARREN	22.33	16.73	(5.60)
CAMDEN	25.72	22.36	(3.36)	GLOUCESTER	22.08	16.45	(5.63)
OCEAN	28.27	21.59	(6.68)	MIDDLESEX	18.21	16.17	(2.04)
ATLANTIC	24.94	21.03	(3.91)	UNION	17.64	15.04	(2.60)
CAPE MAY	27.88	20.28	(7.60)	SUSSEX	18.23	14.83	(3.40)
ESSEX	23.99	19.78	(4.21)	MORRIS	15.19	14.00	(1.19)
BURLINGTON	21.1	19.01	(2.09)	BERGEN	16.17	13.75	(2.42)
MERCER	21.35	18.41	(2.94)	HUNTERDON	14.02	13.49	(0.53)
HUDSON	25.09	18.17	(6.92)	SOMERSET	14.51	12.62	(1.89)
PASSAIC	22.33	18.02	(4.31)	STATEWIDE	21.08	17.59	(3.49)

- In 2012 and 2015, RBMC-PA Service Area inpatient use rates are higher than New Jersey, Middlesex County and other comparative Service Areas.

Figure 4.123
Total ACSC Inpatient Admissions: Rate / 1,000 Population¹⁶³



¹⁶² *ibid*

¹⁶³ *ibid*

- In 2015, RBMC-Perth Amboy treats 30.1% of all inpatient ACSCs from the Service Area as compared to RBMC-Old Bridge which treats 21.3% of its Service Area.

Figure 4.124

INPATIENT (2015) – ALL AGES			
SERVICE AREA	ACSC Description (Top 5 Combined Service Area)	TOTAL IN AREA	% TREATED @ RBMC-PA
RBMC PA SERVICE AREA	Congestive Heart Failure	844	28.9%
	Bacterial Pneumonia	652	33.9%
	Cellulitis	505	30.2%
	COPD	483	34.5%
	Kidney/Urinary Inf.	440	25.9%
	All Others	2,166	29.8%
TOTAL RBMC-PA AREA		5,090	30.1%

INPATIENT (2015) – ALL AGES			
SERVICE AREA	ACSC Description (Top 5 Combined Service Area)	TOTAL IN AREA	% TREATED @ RBMC-OB
RBMC OB SERVICE AREA	Congestive Heart Failure	1,085	21.4%
	Bacterial Pneumonia	842	21.4%
	COPD	595	32.3%
	Kidney/Urinary Inf.	540	27.6%
	Cellulitis	525	21.1%
	All Others	2,045	16.4%
TOTAL RBMC-OB AREA		5,632	21.3%

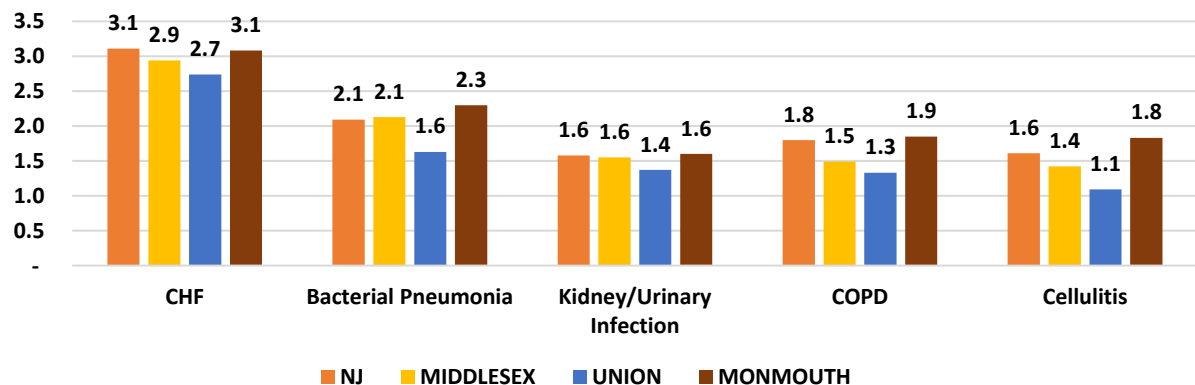
- In 2015, Perth Amboy (25.98/1,000) has the highest inpatient admissions due to ACSC followed by Monroe (24.80/1,000) and South Amboy (21.79).
- The 2015 Inpatient ACSC for Perth Amboy (25.98/1,000) is 47.7% higher than the State rate (17.59/1,000).
- The 2015 inpatient ACSC rate for Middlesex County (16.17/1,000) is 8.1% lower than New Jersey (17.59/1,000).

Figure 4.125

IP ACSCs (2015) ALL AGES			
GEOGRAPHIC AREA	RATE	GEOGRAPHIC AREA	RATE
New Jersey	17.59	08861: Perth Amboy	25.98
Middlesex County	16.17	08831: Monroe	24.80
RBMC-PA	20.00	08879: South Amboy	21.79
RBMC-OB	18.33	08857: Old Bridge	20.64
RBMC-PA/OB Combined	19.01	08882: South River	20.64

- In 2015, congestive heart failure is the leading cause of inpatient ACSC admissions in New Jersey and Middlesex County followed by bacterial pneumonia, COPD, kidney/urinary infection and cellulitis.
- The 2015 Middlesex County inpatient ACSC rates for the top 5 conditions are equal to or lower than State rates.

Figure 4.126
ACSC Inpatient Admissions by Top 5 Conditions, 2015: Rate / 1,000 Population¹⁶⁴



Self-Pay/Charity Care/Underinsured ED and Inpatient Discharges

- Overall, RBMC's Combined Service Area has a comparable percentage of self-pay/charity care/underinsured patients (15.5%) utilizing ED and Inpatient services as compared to the State (15.8%).
- Within the Combined Service Area there are pockets of higher percentages of self-pay/charity care/underinsured patients that may indicate an opportunity to improve access to care through increases in Medicaid/Medicaid HMO enrollment.
- In 2015, Avenel has the highest rate of self-pay/charity care/underinsured patients (18.4%) in the Combined Service Area, 22.7% greater than in Middlesex County (15.0%).

¹⁶⁴ *ibid*

Figure 4.127

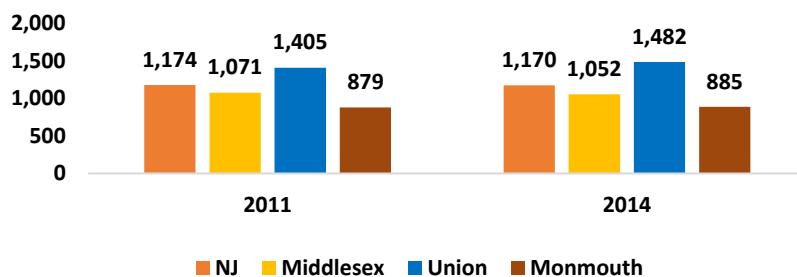
% SELF-PAY/CHARITY CARE/UNDERINSURED (2015) ED & IP			
GEOGRAPHIC AREA	RATE	GEOGRAPHIC AREA	RATE
New Jersey	15.8%	07001: Avenel	18.4%
Middlesex County	15.0%	07008: Carteret	17.8%
RBMC-PA	15.9%	08879: South Amboy	16.5%
RBMC-OB	14.2%	08859: Parlin	16.3%
RBMC-PA/OB Combined	15.5%	08861: Perth Amboy	16.3%

Primary Care Physicians

Nationally, many areas lack sufficient providers to meet patient needs; as of January 2014, there are about 6,000 primary care, 3,900 mental health and 4,800 dental federally designated Health Professional Shortage Areas in the US. Having a usual primary care provider is associated with a higher likelihood of appropriate care and better outcomes. In 2010, 86% of Americans have a usual source of care, but those with low incomes are less likely to than those with higher incomes, and the uninsured are twice as likely as the insured to lack a usual care source.¹⁶⁵

- In 2014, Middlesex County (1052:1) has 11.2% fewer primary care physicians than New Jersey (1170:1).
- Between 2011 and 2014, the ratio of primary care physicians to population in Middlesex County decreases by 19:1.
- In 2014, the Middlesex County (1052:1) ratio for primary care providers is below the CHR national benchmark (1051:1) by a single provider.
- Middlesex County performs in the middle quartile of all New Jersey counties for the ratio of primary care physicians to population.

Figure 4.128
Primary Care Physicians: Ratio of Physicians: 1 Population¹⁶⁶



County Health Rankings & Roadmaps
Building a Culture of Health, County by County

A Robert Wood Johnson Foundation program

National Benchmark: 1051:1
Middlesex County 2014: 1052:1

¹⁶⁵ <http://www.countyhealthrankings.org/our-approach/health-factors/access-care>

¹⁶⁶ Source: Healthy People 2020 - CDC Behavioral Risk Factor Surveillance System

Health/Health Care Indicators	Healthy People 2020 Target	County Health Rankings Benchmark	New Jersey
Uninsured Rate % of Non-Elderly Population			
Primary Care Physicians Ratio of Physicians to Population	N.A.	N.A.	

5. Neighborhood and Built Environment

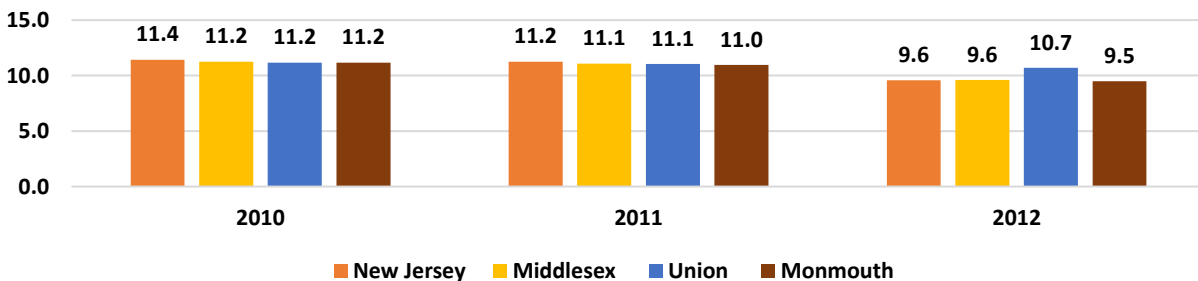
The neighborhood and built environment contribute to health in a variety of ways. Pollution, crime, and access to healthy food and water are environmental and neighborhood factors that may be hazardous to a community's health¹⁶⁷.

Air Quality

Outdoor air quality has improved since the 1990, but many challenges remain in protecting Americans from air quality problems. Air pollution may make it harder for people with asthma and other respiratory diseases to breathe.¹⁶⁸ County level data masks ZIP Code level analysis that may reveal higher concentrations of air pollution, particularly in industrialized areas of a county.

- In 2012, the daily measure of fine particle matter in Middlesex County (9.6 PM2.5) is equivalent to the State (9.6 PM2.5). Compared to all 21 counties, Middlesex ranks in the middle quartile.
- Middlesex County experiences a 30.8% reduction in fine particulate matter in between 2005 (13.87 per cubic meter) and 2012 (9.6 per cubic meter).
- In 2012, Middlesex County (9.6 PM2.5) average daily measure of fine particles is 0.1 percentage point greater than the CHR national benchmark (9.5 PM2.5,) lower than the CHR benchmark, but within an established 25% margin.

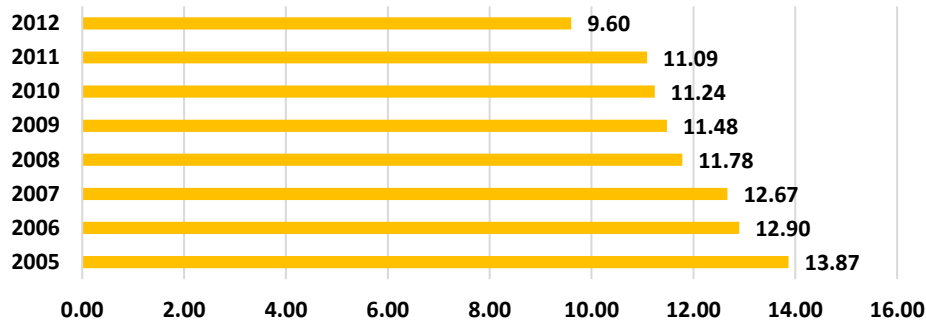
Figure 4.129
Average Daily Density of Fine Particulate Matter / Micrograms/Cubic Meter (PM2.5)
Middlesex County¹⁶⁹



¹⁶⁷ Source: Commission to Build a Healthier America, Robert Wood Johnson Foundation <http://www.commissiononhealth.org/PDF/888f4a18-eb90-45be-a2f8-159e84a55a4c/Issue%20Brief%203%20Sept%2008%20-%20Neighborhoods%20and%20Health.pdf>

¹⁶⁸ <http://www.cdc.gov/air/default.htm>

¹⁶⁹ Source: CDC Wonder, Environmental Public Health Tracking Network



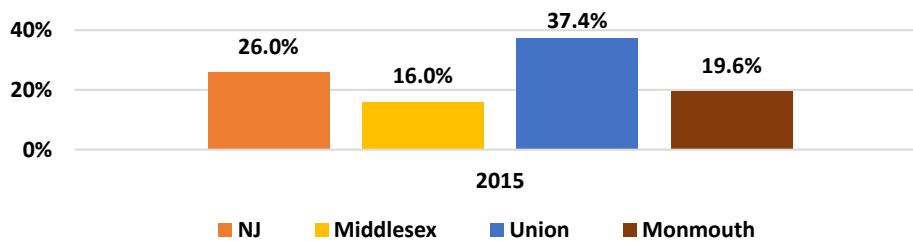
National Benchmark: 9.5 PM2.5
Middlesex County 2012: 9.6 PM2.5

Housing Built before 1950

The potential for exposure to lead based paint in housing units built before 1950 is high. A main source of lead exposure is found in household dust with lead based paint. Children are highly vulnerable to exposure to lead because of its adverse effects on the developing brain and nervous system.¹⁷⁰

- In 2015, 16.0% of housing units are built before 1950, 10 percentage points fewer than New Jersey overall at 26%.
- Middlesex County has the third lowest percentage of housing units built before 1950. Among all counties in New Jersey, Middlesex ranks in the best performing quartile.

Figure 4.130
Percent of Pre-1950 Housing Units, 2015¹⁷¹



Lead Hazards

The Centers for Disease Control and Prevention (CDC) defines lead poisoning in children as a blood lead level of 10 micrograms per deciliter ($\mu\text{g}/\text{dL}$) or above. Young children can be exposed by swallowing lead dust or soil that gets on their hands or objects they put into their mouths such as toys; swallowing leaded

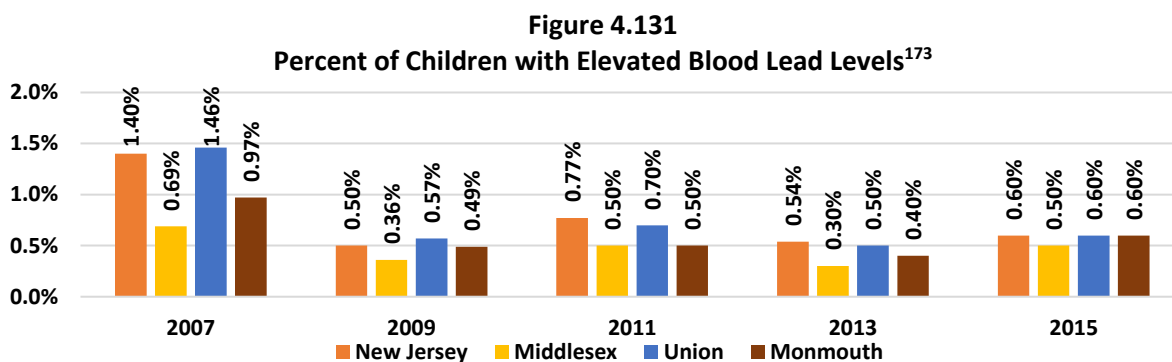
¹⁷⁰ Report On the National Survey of Lead-Based Paint in Housing, <https://www.epa.gov/sites/production/files/documents/r95-003.pdf>

¹⁷¹ <https://www26.state.nj.us/doh-shad/indicator/view/pre1950home.percent.html>

paint chips; breathing leaded dust or lead contaminated air and eating food or drinking water that is contaminated with lead.

Very high levels of lead can cause seizures, brain damage, developmental or intellectual disabilities, coma and even death. Exposure to lead, even at low levels, has been associated with decrease hearing, lower intelligence, hyperactivity, attention deficit, and developmental problems.¹⁷² County level analysis cannot reveal individual town disparities in blood lead levels particularly in towns with housing stock built before 1950.

- In 2015, 0.5% of Middlesex County children has elevated blood lead levels compared to 0.6% statewide.
- Middlesex County reports a decrease in children with elevated blood lead levels from 2007 (0.7%) to 2015 (0.5%). In 2015, Middlesex County ranks among the middle quartile among all counties statewide.



Access to Healthy Foods

Choices about food and diet are influenced by accessibility and affordability of retailers. Specifically, travel time to shopping, availability of healthy foods and food prices are key to decision making. Low-income families face greater barriers in accessing healthy and affordable food retailers, which in turn negatively affect diet and food security.¹⁷⁴

- In 2015, nearly four percent of New Jersey and Middlesex County low income residents do not live close to a grocery store.
- In 2015, Middlesex County (3.7%) exceeds the CHR national benchmark (1%) for low income residents residing far from a grocery store; Middlesex County performs lower than the CHR benchmark by more than 25%.
- In 2015, 54% of Middlesex County restaurants are fast food compared to 50% of statewide, ranking the county in the middle quartile among all New Jersey counties.
- In 2015, Middlesex County (54%) has 50% more fast food establishments than the CHR national benchmark (27%).
- In 2011, Middlesex County (16/100,000) has 20% fewer liquor stores than New Jersey (20/100,000), and ranks in the highest performing quartile.

¹⁷² <http://www.nj.gov/health/fhs/newborn/lead.shtml>

¹⁷³ Source: CDC, <https://www.cdc.gov/nceh/lead/data/state/njdata.htm>

¹⁷⁴ <https://www.ers.usda.gov/data-products/food-environment-atlas/go-to-the-atlas/>

Figure 4.132
Limited Access to Healthy Foods¹⁷⁵

	NJ	Middlesex	Union	Monmouth
Percent of Population Who Are Low Income And Do Not Live Close to A Grocery Store (2015)	3.9%	3.7%	1.0%	4.6%
Percent of All Restaurants That Are Fast Food Establishments (2015)	50.0%	53.6%	45.4%	43.6%
Number of Liquor Stores (2011) (Rate / 100,000 Population)	20.0	16.0	23.0	21.0



Percent of Population Who Are Low Income And Do Not Live Close to A Grocery Store:
National Benchmark 1.0%
Middlesex County 2015: 3.7%

Percent of All Restaurants That Are Fast Food Establishments
National Benchmark: 27.0%
Middlesex County 2015: 53.6%

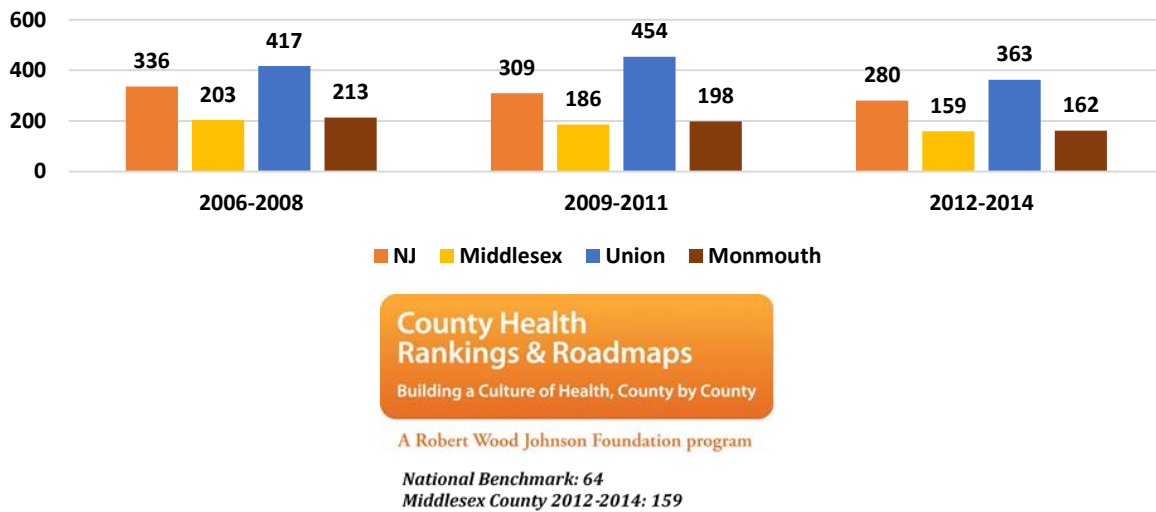
Injury and Crime Prevention

Injuries and violence are widespread. Most events resulting in injury, disability or death are predictable and preventable. Individual behaviors, physical environment, access to health services and the social environment affect the risk of unintentional injury and violence. Violent crime, burglaries and motor vehicle crash deaths in Middlesex County have seen steady decreases and are lower than rates Statewide.

- The 2012-2014 violent crime rate in Middlesex County (159/100,000) is 43.2% lower than the State crime rate (280/100,000).
- The violent crime rate in Middlesex County decreases 21.6% from 2006-2008 (203/100,000) to 2012-2014 (159/100,000).
- From 2012-2014, the Middlesex County (159/100,000) violent crime rate is 2.5 times greater than the CHR national benchmark (64/100,000). Middlesex County performs lower than the CHR benchmark by more than 25%.
- Compared to all 21 counties statewide, Middlesex County’s violent crime rate ranks in the best performing quartile.

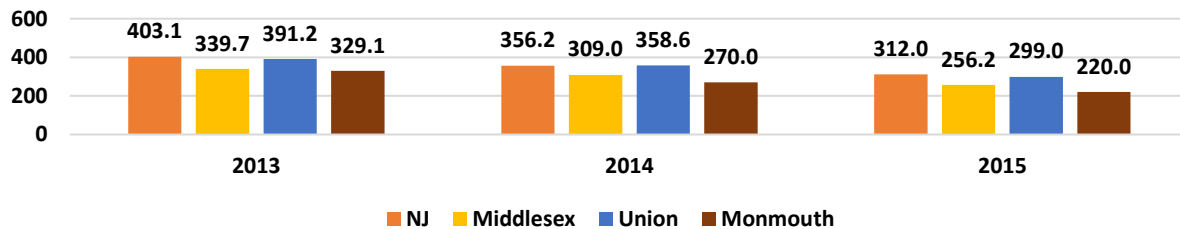
¹⁷⁵ Source: County Health Rankings, US Census Bureau’s County Business Patterns – United States Department of Agriculture Food Environment Atlas

Figure 4.133
Violent Crime: Rate / 100,000 Population¹⁷⁶



- Middlesex County (256.2/100,000) has 17.9% fewer burglaries than New Jersey (312/100,000) in 2015.
- The Middlesex County burglary rate decreases 24.5% from 339.7/100,000 in 2013 to 256.2/100,000 in 2015.
- Middlesex County's violent crime rate ranks in the middle quartile of New Jersey counties.

Figure 4.134
Burglary: Rate / 100,000 Population¹⁷⁷

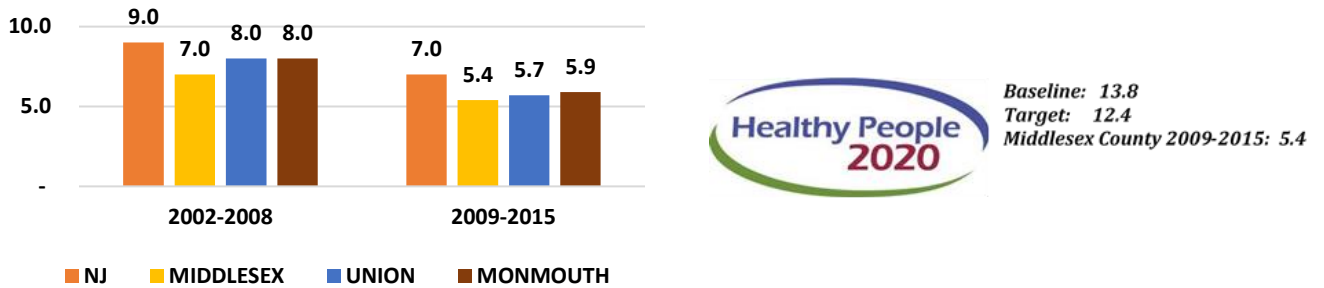


- In 2009-2015, Middlesex County (5.4/100,000) has 22.8% fewer motor vehicle crash deaths than New Jersey (7.0/100,000).
- Deaths due to motor vehicle accidents decrease 22.8% in Middlesex County between 2002-2008 (7.0/1,000) and 2009-2015 (5.4/1,000).
- 2009-2015 Middlesex County (5.4/1,000) car accident related deaths occur 56.5% less often than the Healthy People 2020 target (12.4/1,000).

¹⁷⁶ Source: County Health Rankings - The Uniform Crime Reporting (UCR) Program

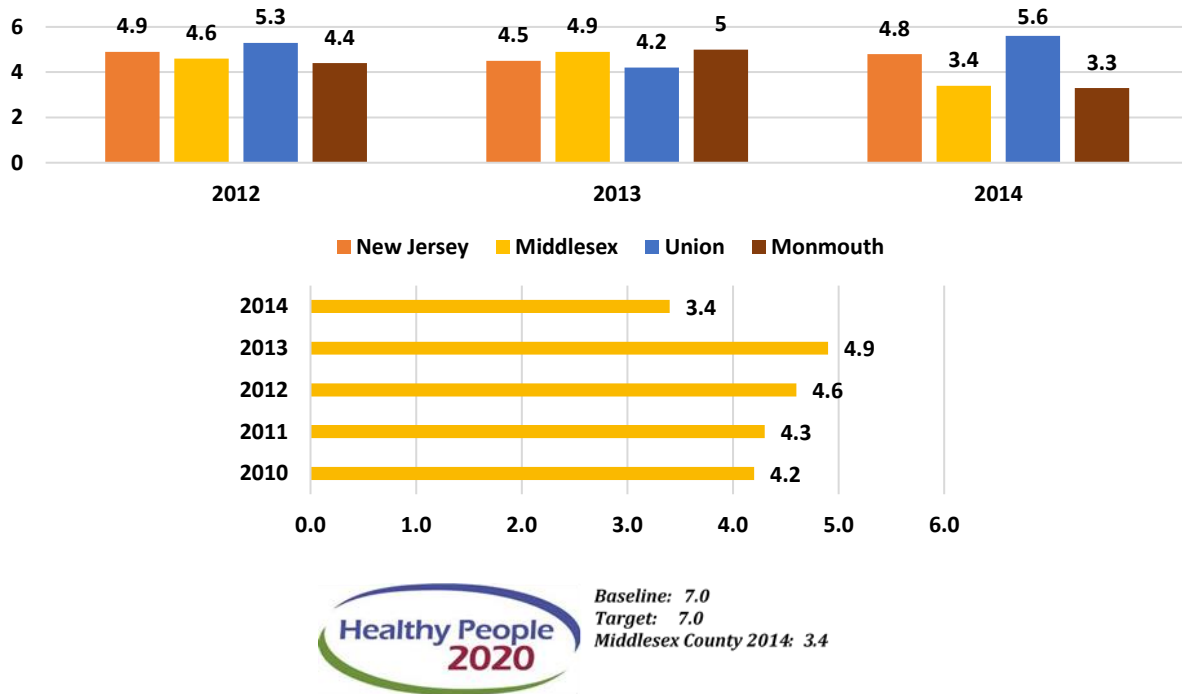
¹⁷⁷ Source: NJ Department Of Law And Public Safety, Division Of State Police – Uniform Crime Reporting Unit <http://www.njsp.org/info/stats.html>, Nielson Claritas 2013-2015 Straight Line Projection

Figure 4.135
Motor Vehicle Crash Deaths: Age-Adjusted Rate / 100,000 Population¹⁷⁸



- The 2014 Middlesex County death rate due to falls (3.4/100,000) is below the New Jersey rate (4.8/100,000).
- Middlesex County experiences a 26.1% decline in deaths due to falls between 2012 (4.6/100,000) and 2014 (3.4/100,000).
- In 2014, Middlesex County (3.4/100,000) has 51.4% fewer deaths due to falls than the Healthy People 2020 target (7/100,000) and ranks in the middle quartile among all New Jersey counties.

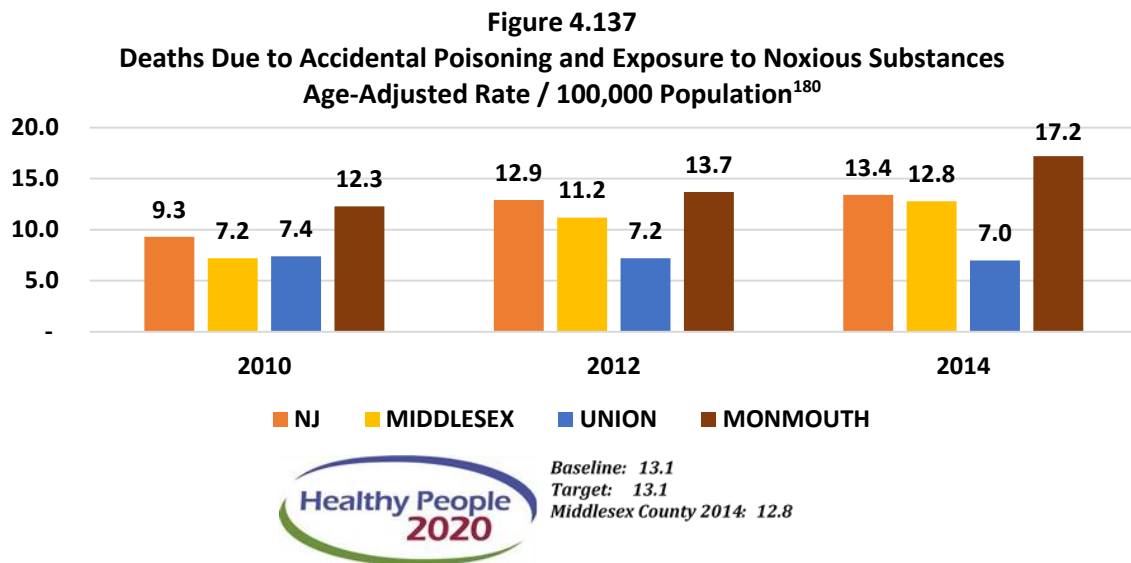
Figure 4.136
Deaths Due to Falls: Age-Adjusted Rate per 100,000: Middlesex County¹⁷⁹



¹⁷⁸ Source: NJDOH Center For Health Statistics, State Health Assessment Data

¹⁷⁹ *ibid*

- In 2014, Middlesex County (12.8/100,000) has 4.5% more deaths due to accidental poisoning and exposure to noxious substances than statewide (13.4/100,000).
- Accidental deaths as a result of poison and exposure to noxious fumes increases over 70% from 2010 (7.2/100,000) to 2014 (12.8/100,000).
- Middlesex County has fewer deaths due to accidental poisoning and exposure to noxious substances in 2014 than the Healthy People 2020 target (13.1/100,000) and ranks in the middle quartile among all New Jersey.



Environment Indicators - All	Healthy People 2020 Target	County Health Rankings Benchmark	New Jersey
Air Quality: Average Daily Density of PM2.5	N.A.		
Lead Hazards % of Housing Built Before 1950s	N.A.	N.A.	
Lead Hazards % of Children With Elevated Blood Lead Levels	N.A.	N.A.	
Limited Access to Healthy Foods	N.A.		
Violent Crime <i>Rate per 100,000 Population</i>	N.A.		
Burglary <i>Rate per 100,000 Population</i>	N.A.	N.A.	
Motor Vehicle Crash Deaths <i>Rate per 100,000 Population</i>		N.A.	
Deaths Due to Falls <i>Rate per 100,000 Population</i>		N.A.	
Deaths Due to Poisoning and Exposure to Noxious Substances <i>Rate per 100,000 Population</i>		N.A.	

¹⁸⁰ *ibid*

5. ASSETS AND GAPS ANALYSIS

The analysis of assets and gaps for the Middlesex County/Raritan Bay Medical Center Service Areas highlights health outcomes and health factors which perform well and those that require improvement. The asset and gap analysis integrates information from the Middlesex County Service Area Health Profile and includes secondary source data analysis, resource inventories, consumer survey responses and meetings with the Community Benefits Task Force.

LEADING CAUSES OF DEATH

Assets

- Between 2010 and 2014, six of the top 10 leading causes of death for Middlesex County improve including: heart disease (-11.0%), cancer (-7.3%), stroke (-9.9%), CLRD (-21.7%), diabetes (-19.6%) and Alzheimer's (-1.6%).
 - The AAMRs for CLRD and diabetes demonstrate greatest improvement.

Gaps

- Between 2010 and 2014, the Middlesex County age-adjusted mortality rates (AAMR) increases for unintentional injuries (5.3%), kidney disease (15.2%), and drug induced deaths (75.9%).
 - In 2014, drug induced deaths enter the Top 10 leading causes of death for the first time.
- Despite decreases in incidence from 2010 to 2014, heart disease (155.2/100,000) and cancer (148.3/100,000) remain far more prevalent causes of death than the third leading cause, stroke (26.5/100,000).

Heart Disease Mortality

Assets

- The 2014 Middlesex County mortality rate due to heart disease (155.2/100,000) is 6.2% lower than Statewide (165.4/100,000) and is similar to neighboring Union and Monmouth Counties.
- Across all race/ethnicities, the Middlesex County death rate for heart disease improves from 2010 through 2014.
 - In 2014, the Middlesex County heart disease mortality rate for Whites (176.2/100,000) is similar to New Jersey (173.4/100,000).
 - Within the County, Whites have the highest heart disease mortality rate as compared to statewide statistics in which Blacks (191.2/100,000) have the highest rate.
 - The statewide rate for Blacks exceeds that of Middlesex County Whites by 19.9%.

Gaps

- Despite an 11% decline between 2010 (174.4/100,000) and 2014 (155.2/100,000) and a top 25% statewide ranking, deaths due to heart disease perform lower than the Healthy People 2020 target (108.8/100,000) by 42.6%.

Cancer Mortality

Assets

- Middlesex County deaths due to cancer decline 7.3% from 2010 (160.0/100,000) to 2014 (148.3/100,000).

- The 2014 County mortality rate is 4.5% lower than New Jersey (155.3/100,000) and ranks in the middle performing quartile statewide.
- The 2014 Middlesex County AAMR is lower than surrounding Union and Monmouth Counties.
- The 2014 Middlesex County cancer AAMR (148.3/100,000) performs 7.7% better than the Healthy People 2020 target of 160.6/100,000.
 - This demonstrates an improvement from the 2014 CHNA which reports the 2009 AAMR (170.7/100,000) exceeds this target by 6.3%.

Gaps

- Despite an overall decline, the Middlesex County death rate for malignant neoplasms among Blacks and Hispanics increases from 2010 through 2014.
 - By race/ethnicity, in 2014, Black non-Hispanics have the highest death rate due to cancer in New Jersey (184.3/100,000), Middlesex County (180.5/10,000) and surrounding counties.

Stroke Mortality

Assets

- The Middlesex County stroke AAMR decreases 9.9% from 2010 (29.4/100,000) to 2014 (26.5/100,000).
 - In 2014, the County AAMR is 21.6% lower than the Healthy People 2020 target (33.8/100,000).
- The 2014 Middlesex County stroke AAMR (26.5/100,000) is 15.1% lower than the State (31.2/100,000) and ranks in the top quartile statewide, outperforming neighboring Union and Monmouth Counties.

Gaps

- By race/ethnicity, 2012-2014, Black non-Hispanics have the highest death rate due to stroke in New Jersey (45.6/100,000), Middlesex County (37.7/100,000) and surrounding counties.
 - The 2014 Middlesex County death rate for strokes for Blacks (37.7/100,000) is 37.5% greater than the rate for Whites (29.6/100,000).

Chronic Lower Respiratory Disease Mortality

Assets

- Although similar in 2010, CLRD death rates in Middlesex County decrease 21.7% from 2010 (29.9/100,000) to 2014 (23.4/100,000), almost double the 11.5% statewide reduction from 30.4/100,000 to 26.9/100,000.
 - The 2014 Middlesex County CLRD AAMR ranks in the top quartile statewide.

Unintentional Injury Mortality

Assets

- The 2014 Middlesex unintentional injury AAMR performs 27.8% better than the Healthy People 2020 target of 36.0/100,000.

- The Middlesex County unintentional injury death rate for Blacks (17.4/100,000) is 44.4% lower than New Jersey (31.3/100,000).

Gaps

- The unintentional injury death rate increases between 2010 and 2014 in Middlesex, Union, and Monmouth Counties as well as throughout the State.
 - Despite ranking in the middle performing quartile among New Jersey counties, the Middlesex County AAMR due to intentional injuries increases 5.3% from 24.7/100,000 to 26.0/100,000 as compared to a 16% increase Statewide.
 - The 2012-2014 Middlesex County death rate for unintentional injury for Whites (37.6/100,000) is 53.7% greater than for Blacks (17.4/100,000).

PREMATURE DEATHS

Assets

- Throughout New Jersey, Middlesex and neighboring Union and Monmouth Counties, YPLL decrease from 2008-2010 through 2012-2014.
 - In 2012-2014, the Middlesex County YPLL (4,537/100,000) is 17.5% lower than Statewide (5,500/100,000) and ranks in the top performing statewide quartile.
- The 2012-2014 Middlesex County YPLL (4,537/100,000) outperforms the County Health Rankings benchmark (5,636/100,000) by 19.5%.

BEHAVIORAL HEALTH-RELATED DEATHS

Assets

- Middlesex County's 2014 suicide rate, 28% fewer deaths due to suicide than the State, ranks in the top performing quartile statewide.
- The 2014 Middlesex County suicide rate (5.9/100,000) is 42.2% lower than the Healthy People 2020 target (10.2/100,000).

INFANT MORTALITY AND LOW BIRTH WEIGHT INFANTS

Assets

- The overall infant mortality rate declines 15.4% Statewide from 2006-2008 (5.2/100,000) to 2012-2014 (4.4/100,000) and 19.1% in Middlesex County from 4.2/100,000 to 3.4/100,000 in the same timeframe.
 - Neighboring Union County also experiences a decline while Monmouth County remains constant at 3.9/100,000.
- Middlesex County ranks in the middle performing quartile among New Jersey counties for overall infant mortality in 2012-2014 and outperforms the Healthy People 2020 target of 6.0/1,000 by 43.3%.
- In 2015, 7.5% of Middlesex County babies are low birth weight as compared to 8.1% statewide; the County ranks within the middle quartile compared to all New Jersey counties.
- The 2015 percent of Middlesex County low birth weight babies is better than the Healthy People 2020 target of 7.8%; this exhibits an improvement from the previous CHNA as the 2010 County percentage of low birth weight babies exceeded this target at 8.4%.

- The percentage of Middlesex County low birthweight babies decreases for all race/ethnicities between 2011 and 2015.
- In 2015, 1.3% of Middlesex County babies are very low birth weight as compared to 1.4% statewide; the County ranks within the middle quartile compared to all New Jersey counties.
- The 2015 percent of very low birth weight babies in Middlesex County is better than the Healthy People 2020 target of 1.4%.

Gaps

- The Middlesex County 2010–2014 Black infant mortality rate of 7.4/100,000 is 60.9% greater than the State rate of 4.6/100,000.
 - The Middlesex County rate is significantly higher than comparative Union and Monmouth Counties.
 - Compared to all 21 New Jersey counties, Middlesex ranks in the middle quartiles.
- The Middlesex County 2015 percent of Black low birth weight babies is 25% higher than Whites.
- The Middlesex County 2015 percent of Black (2.4%) very low birth weight babies is double Whites (1.2%).

GENERAL HEALTH STATUS AND BEHAVIORAL HEALTH STATUS

Gaps

- Between 2012 and 2015, BRFSS data reports a small increase in the percent of Middlesex County residents who indicate their health as “poor or fair,” from 13.0% to 13.5%.
- Compared to the County Health Ranking, more (greater than 25% more) Middlesex County residents report “fair or poor” health than the 10.0% benchmark.
- JBRFSS reports that the number of Middlesex County adults with 14 or more physically unhealthy days (in the last 30 days) increases over 4 percentage points between 2012 (7.2%) and 2015 (11.4%) as the State remains relatively constant at 9.7%.
- County-wide adults who report 14 or more of the past 30 days with “not good” mental health status increase 2.7 percentage points from 8.1% in 2012 to 10.8% in 2015.
 - The 2015 Middlesex County report of 14+/30 days with “not good” mental health is similar to New Jersey at 10.9%.

MORBIDITY

Heart Disease

Assets

- According to BRFSS, the percent of Middlesex County residents told they have angina or coronary heart disease remains relatively stable from 3.5% in 2012 to 3.6% in 2015.
- In 2015, BRFSS indicates 3.9% of New Jersey respondents has angina or coronary heart disease, 9.1% greater than Middlesex County.
- Middlesex County heart attack use rates (2012-2015) are lower than those in the hospital Service Areas (Combined, RBMC-PA, RBMC-OB) and the ZIP Codes of Perth Amboy and Old Bridge.
- Old Bridge residents report the lowest utilization rate for heart attacks of 1.26/1,000.
- Middlesex County residents report the lowest hospital utilization rate for heart failure/CHF of 2.92/1,000.

Gaps

- According to BRFSS, the percent of Middlesex County residents who report they had a heart attack increases 1.4 percentage points from 3.4% in 2012 to 4.8% in 2015.
 - In 2015, BRFSS indicates 3.4% of New Jersey respondents are told they had a heart attack, 41.1% greater than Statewide.
- Middlesex County ranks in the lowest performing quartile compared to all 21 New Jersey counties for residents told they had a heart attack.
- In 2015, Perth Amboy residents exhibit the highest utilization rate for heart attacks at 1.79/1,000.
- In 2015, Old Bridge residents exhibit the highest hospital utilization rate for heart failure/CHF at 4.16/1,000.

Stroke, Hypertension and Cholesterol

Assets

- In 2015, Middlesex County (1.7%) reports fewer strokes than the state (2.0%) and the Country (2.9%).
- Middlesex County (105.52/1,000) has the lowest hospital use rates for hypertension in the region.
- In 2015, the hospital use rate for high cholesterol discharges/1,000 population is lowest in Middlesex County (19.33/1,000).

Gaps

- From 2012 through 2015, Perth Amboy has the highest hospital utilization rate for stroke/TIA compared to the RBMC Service Areas, Old Bridge and Middlesex County.
- The hospital use rate for hypertension discharges/1,000 population is highest in Perth Amboy for each year 2012 through 2015.
- In 2015, Perth Amboy (172.21/1,000) has the highest hospital use rates for hypertension in the region.
- In 2015, the hospital use rate for high cholesterol discharges/1,000 population is highest in Perth Amboy (37.55/1,000).

Cancer

Assets

- Incidence of overall invasive cancer in Middlesex County decreases 6.6% from 495.6/100,000 in 2009 to 462.8/100,000 in 2013.
- In 2013, the overall incidence of cancer in Middlesex County (465.5/100,000) is 3.7% lower than the State (483.3/100,000).
- In 2013, prostate cancer, lung cancer and melanoma rates in Middlesex County are lower than New Jersey.
- Lung cancer incidence in Middlesex County performs in the top 25% statewide.
- Between 2010 and 2013, incidence trends by site:
 - Prostate – 16.3% decrease
- In 2015, the hospital use rate for cancer discharges/1,000 population is lowest in Middlesex County (23.94/1,000).
- In 2015, the hospital use rate for history of cancer discharges/1,000 population is lowest in Middlesex County (11.26/1,000).

Gaps

- Middlesex County's overall invasive cancer incidence is nearly three times greater than Healthy People 2020 target of 161.4.
- Between 2010 and 2013, incidence trends by site:
 - Melanoma – 21.0% increase
 - Colon/Rectum - .7% increase
 - Lung – 1.0% increase
 - Breast – 10.9% increase
- In 2015, the hospital use rate for cancer discharges/1,000 population is highest in RBMC-OB Service Area (26.63/1,000).
- In 2015, the hospital use rate for history of cancer discharges/1,000 population is highest in RBMC-OB Service Areas (15.84/1,000).

Asthma and Chronic Obstructive Pulmonary Disease

Assets

- Hospital use rates for asthma are lowest in RBMC-OB Service Area at 22.25/1,000.
- In 2015, the hospital use rate for COPD discharges/1,000 population is lowest in Middlesex County (15.21/1,000).
- In 2015, the hospital use rate for diabetes discharges/1,000 population is lowest in Middlesex County (48.49/1,000).
- In 2015, the hospital use rate for renal failure discharges/1,000 population is lowest in Middlesex County (1.77/1,000).

Gaps

- The percent of Middlesex County residents with asthma (8.1%) exceeds the state (7.3%).
- In 2015, hospital use rates for asthma in Perth Amboy (81.22/1,000) exceeds Middlesex County (26.24/1,000) rate by a factor of 3.
- In 2015, the hospital use rate for COPD discharges/1,000 population is highest in Old Bridge (20.18/1,000).

Diabetes

Gaps

- Diabetes has been increasing among Middlesex County residents.
 - Between 2012 (8.4%) and 2015 (9.9%), an additional 1.5 percentage point increase of County residents report having the disease.
- In 2015, the hospital use rate for diabetes discharges/1,000 population is highest in Perth Amboy (90.24/1,000).
- In 2015, the hospital use rate for renal failure discharges/1,000 population is highest in Perth Amboy (2.58/1,000).

Arthritis

Gaps

- Between 2012 and 2015, the percentage of Middlesex County residents reporting arthritis increases from 15.4% to 20.9%.
- The percentage of Middlesex County residents reporting arthritis surpasses the State (20.6%) and comparison counties between 2012 and 2015

CLINICAL CARE MEASURES

Inpatient and ED Utilization

Assets

- Middlesex County's 2015 inpatient utilization rate (143.45/1,000) is 5.6% lower than the State (151.93/1,000).
- Middlesex County's 2015 ED use rate (275.57/1,000) is 20.8% less than State rate (348.03/1,000).

Gaps

- Raritan Bay Medical Center's 2015 Combined Service Area inpatient rate (159.92/1,000) is 11.5% higher than Middlesex County (143.45/1,000) and 5.3% higher than the State (151.93/1,000) rate.
- Monroe Township's (208.08/1,000) older population drives a high inpatient use rate, 45% higher than Middlesex County (143.45/1,000) in 2015.
- Raritan Bay Medical Center's 2015 Combined Service Area (291.96/1,000) ED use rate exceeds Middlesex County (275.57/1,000) by 5.9%.
- In 2015, Perth Amboy's ED use rate (597.5/1,000) is more than double the Middlesex County rate (275.57/1,000).
- In 2015, the ED use rates of Perth Amboy, Carteret, South River, Woodbridge, and South Amboy are greater than Middlesex County.

Cesarean Section

Assets

- The 2015 Middlesex County's Primary C-section rate (25.9%) is similar to the State rate (26.0%).
- County-wide, women with a primary C-section trends downward from 2009 through 2015, decreasing 10.1% from 2011 to 2015.
- The 2015 Middlesex County's VBAC rate (11.2%) is similar to the State rate (11.5%).
- County-wide women with a VBAC trends upward from 2009 through 2015, increasing 31.8% from 2011 to 2015.

Gaps

- As compared to all New Jersey counties, Middlesex County ranks in the lowest performing quartile of all 21 New Jersey counties.
- The 2015 Middlesex County Primary C-section rate (25.9%) is 8.4% lower than the Healthy People 2020 target of 23.9%.
- In 2015, the primary C-section rate in Helmetta (43.8%) exceeds Middlesex County (25.9%), New Jersey (26.0%) and Healthy People 2020 target (23.9%) rates.

HEALTH BEHAVIORS

Maternal/Fetal Health

Assets

- In 2015, 6.5% more Middlesex County (78.4%) women entered prenatal care in the first trimester than in New Jersey (73.6%).
- In 2015, Middlesex County performs better than the Healthy People 2020 target of 77.9% women enrolled in first trimester care.
- The 2008-2014 Middlesex County (13.4/1,000) teen birth rate among teens aged 15-19 is 29.5% better than the State rate (19.0/1,000) and in the top performing quartile statewide.
- The 2008-2014 Middlesex County teen (age 15-19) birth rate (13.4/1,000) is 32.0% better than the CHR benchmark (20.0/1,000) and 63.0% better the Health People 2020 target (36.2/1,000).
- The teen birth rate among Middlesex County women aged 15-17 improve 31.4% from 5.1/1,000 in 2013 to 3.5/1,000 in 2015 and is in the top performing quartile statewide.
- For both age cohorts, 15-17 and 15-19, the percent of Middlesex County teen births is consistently lower than statewide rates.

Gaps

- Middlesex County women enrolled in first trimester prenatal care declines 9.0% between 2011 (86.2%) and 2015 (78.4%).
- The percent of Middlesex County women without prenatal care trends upward from .7% in 2011 to 1.3% in 2015.
- 2015 Birth rate to teens age 15-19 in Perth Amboy (36.4/1,000) is four times the Middlesex County rate (9.4/1,000).

High Risk Sexual Behaviors, Sexually Transmitted Infections, and HIV/AIDS

Assets

- In 2015, Middlesex County (281.6/1,000) has 19.9% fewer cases of chlamydia than New Jersey (351.7/1,000) and performs in the top quartile statewide.
- In 2015, Middlesex County (37.1/100,000) has 54.1% fewer cases of gonorrhea than New Jersey (80.8/100,000).
- In 2015, Middlesex County (7.2/100,000) has 44.6% fewer cases of syphilis than New Jersey (13/100,000).
- In 2016, HIV/AIDS is 39.6% less prevalent in Middlesex County (250.4/100,000) than in New Jersey (414.9/100,000).
 - Middlesex County is in the top performing quartile statewide.
 - Middlesex County has fewer HIV cases than neighboring Union and Monmouth Counties.

Gaps

- The rate of chlamydia in Middlesex County (281.6/1,000) is more than double the CHR national benchmark (123/100,000).
- In 2016, African Americans compose the highest proportion of persons living with HIV/AIDS in all geographies studied.
 - In Middlesex County, 36% of cases are African American, 33% White and 28% Hispanic.

Tobacco, Alcohol and Drug Use

Assets

- Middlesex County smokers decreases from 12.5% in 2013 to 10.6% in 2015 similar to the statewide decrease in this time frame from 15.9% to 14.0%.
- In 2015, there are 24.3% fewer smokers in Middlesex County (10.6%) than New Jersey (14.0%). Middlesex County has fewer adult smokers than neighboring Union (12.4%) and Monmouth (14.5%) Counties.
 - Middlesex County performs in the top quartile statewide.
- In 2015, Middlesex County performs better than the Healthy People 2020 target of 12% of adults that smoke.
- In 2015, Middlesex County has 1.4 percentage points fewer smokers than the CHR national benchmark of 14%.
- In 2015, 14.5% of Middlesex County residents are binge drinkers compared to 17% statewide.
 - Middlesex County has fewer binge drinkers than surrounding Union and Monmouth Counties.

Gaps

- Binge drinkers, those men that consume more than 5 drinks and women that consume more than 4 drinks in one occasion, increase 21.8% from 2013 (11.9%) to 2015 (14.5%).

Diet and Exercise

Assets

- In 2015, 16% less Middlesex County residents (25.7%) are obese than the Healthy People 2020 target (30.6%)
- Middlesex County resident reporting no leisure-time physical activity more than Monmouth County (22.3%).
- In 2015, similar percentages of Middlesex County residents (49.2%), New Jersey residents (48.8%) and Union County residents participate in enough aerobic and muscle strengthening exercises to meet guidelines.

Gaps

- County-wide individuals with a Body Mass Index (BMI) ≥ 30 trends upward from 21.4% in 2011 to 25.0% in 2013.
- In 2015, 2.8% more Middlesex County residents (25.7%) have a BMI ≥ 30 than the CHR national benchmark (25%).
- In 2015, a higher rate of obesity among patients hospitalized are from Perth Amboy (16.3/1,000), compared to Middlesex County (11.2/1,000).
- Between 2012 and 2015 obesity among hospitalized patients is higher in the RBMC-PA Service Area, RBMC-OB Service Area, Combined Service Area, Perth Amboy and Old Bridge than in Middlesex County overall.
- Within Middlesex County, individuals reporting no leisure time physical activity trends upward from 23.9% in 2011 to 26.2% in 2013.
- In 2015, 24.7% more Middlesex County adults over age 20 indicate no leisure-time physical activity (26.2%) than the CHR national benchmark (21%).

- Middlesex County residents reporting fewer leisure time physical activity than neighboring Union County (28.0%)

Health Screenings and Vaccinations

Assets

- In 2014, slightly more Middlesex County adults over age 50 (68.0%) participated in colon-rectal screening than adults statewide (66.9%).
 - Compared to all New Jersey counties, Middlesex performs in the top quartile.
- In 2014, 4.9% more Middlesex County adults (68.0%) over age 50 have a colonoscopy/sigmoidoscopy than in 2012 (64.8%).
- The percent of Middlesex County diabetic Medicare enrollees receiving HbA1c screening trends upward from 2010 (82%) to 2014 (85%).
- 2015 Hospital utilization rates for pneumonia (based on principle diagnosis) are lowest in Middlesex County at 4.09/1,000 as compared among all geographies.
- The percent of Middlesex County adults reporting high cholesterol to BRFSS trends downward from 2011 (34.7%) through 2015 (31.3%), decreasing 10.4%

Gaps

- In 2014, 10.5% more Middlesex County women over age 40 (26.3%) did not have a mammography within the past two years than statewide (23.8%).
- 24.6% fewer Middlesex County women did not have a mammography in the last two years in 2012 (21.1%) than in 2014 (26.3%).
- In 2014, 39.2% more Middlesex County women (26.3%) did not have a mammogram in the last two years than the Healthy People 2020 target for noncompliance (18.9%).
- In 2014, 76% of Middlesex County women over age 18 have a pap smear within the past three years as compared to 83.6% of New Jersey women 18+.
 - Fewer Middlesex County women over age 18 have a pap test within 3 years than in comparative Union (85.7%) and Monmouth (87.6%) Counties.
- Between 2012 and 2014, Middlesex County women who have a pap test within the past three years declines over 10 percentage points from 86.8% to 76%.
- Middlesex County is below the Healthy People 2020 target of 70.5% of adults (50+) ever having colon-rectal screening in 2014, lower than the Healthy People 2020 target but within an established 25% margin.
- In 2014, fewer Middlesex County diabetic Medicare enrollees (85%) are screened than the CHR national benchmark (90%).
 - Middlesex County is lower than the CHR benchmark, but within an established 25% margin.
- In 2015, 29.2% of Middlesex County adults are aware that they suffer from hypertension, slightly higher than New Jersey adults (28.2%).
 - As compared to all New Jersey counties, Middlesex ranks in the lowest quartile.
- In 2015, Middlesex County (29.2%) exceeds the Healthy People 2020 target (26.9%) for adults with high blood pressure.
 - Middlesex County is lower than the Healthy People 2020 benchmark but within an established 25% margin.
- The 2015 Middlesex County percent of adults who has their cholesterol checked and are told it is high (29.2%) is more than double the Healthy People 2020 target of 13.5%.

- Middlesex County performs lower than the Healthy People 2020 target by more than 25%.
- Since 2013, the percent of Middlesex County adults that did not receive the flu shot in the past year is lower than Statewide.
- The percent of 2015 Middlesex County adults that did not receive the flu shot in the past year is lower than the Healthy People 2020 target of 10.0%.
 - Middlesex County performs lower than the Healthy People 2020 target by more than 25%.
- In 2015, the percent of Middlesex County (38.0%) adults that have never has a pneumonia vaccine is higher than Statewide (34.9%) and more than 3 ½ times the Healthy People 2020 target (10.0%).
 - Middlesex County performs lower than the Healthy People 2020 target by more than 25%.
- 2015 Hospital utilization rates for pneumonia (based on principle diagnosis) are highest in the City of Perth Amboy at 6.97/1,000 as compared among all geographies.

BEHAVIORAL HEALTH UTILIZATION

Mental Health

Assets

- In 2015, Middlesex County (2.7/1,000) has 46% fewer hospital admissions for mental health conditions than the State (5.0/1,000).
- In 2015, Middlesex County (8.3/1,000) has 24.5% fewer ED visits for mental health conditions than the State (11.0/1,000).
- In 2015, the emergency department utilization rate for mental health in Old Bridge (6.2/1,000) is 35.4% less than the New Jersey rate (10.9/1,000) and 22.5% less than Middlesex County rates (8.0/1,000).

Gaps

- Middlesex County has 17.4% more hospital admissions for mental/behavioral health conditions in 2015 (2.7/1,000) than in 2012 (2.3/1,000).
- Middlesex County has 12.2% more ED visits for mental/behavioral health conditions in 2015 (8.3/1,000) than in 2012 (7.4/1,000).
- In 2015, inpatient hospitalizations for mental/behavioral health in Perth Amboy (5.9/1,000) exceeds New Jersey rate (4.7/1,000) and Middlesex County rate (2.5/1,000).
- In 2015, the emergency department utilization rate for mental/behavioral health in Perth Amboy (17.4/1,000) is 117.5% greater than Middlesex County (8.0/1,000) and 81.3% greater than New Jersey (10.9/1,000).

Substance Abuse

Assets

- In 2015, Middlesex County (6.0/1,000) has 21.1% fewer residents ED visits for substance abuse than the State (7.6/1,000).
- Inpatient hospitalization for Substance Abuse in the RBMC-PA (1.9/1,000) and RBMC-OB Service Areas (1.35/1,000), Old Bridge (.77/1,000) and Middlesex County (1.4/1,000) are below the State rate (2.11/1,000).

- In 2015, emergency department utilization rates for substance abuse in Old Bridge (3.5/1,000) are 53% less than the New Jersey rate (7.5/1,000) and 40% less than Middlesex County rates (5.8/1,000).

Gaps

- Across all age cohorts county-wide, there is an increase in inpatient admissions for substance abuse from 2011 through 2015.
- Between 2011 and 2015, ED visits for substance abuse in Middlesex County increase 20% from 5.0/1,000 to 6.0/1,000.
- In 2016, in New Jersey, Middlesex County and neighboring counties, heroin and other opiates are the leading reason for admission to a drug treatment center followed by alcohol and marijuana.
- Similar to New Jersey (50%) in 2016, 46.5% of Middlesex County drug treatment admissions are due to heroin or other opiates.
- Perth Amboy's (2.6/1000) inpatient hospitalization for substance abuse is .5 point higher than the State (2.44/1,000) and 1.2 point higher than Middlesex County (1.4/1,000).
- In 2015, emergency department visits for substance abuse in Perth Amboy (13.4/1,000) are 131% greater than the Middlesex County rate (5.8/1,000) and 78.7% greater than the New Jersey rate (7.5/1,000).

SOCIO-DEMOGRAPHIC AND ECONOMIC FACTORS

Income and Poverty

Assets

- Middlesex County 2017 median household income (\$86,445) exceeds the New Jersey median household income (\$75,854) by \$10,591 or 14%.
- According to the US Census, in 2015, Middlesex County (9.0%) has fewer individuals living below the federal poverty level than New Jersey (10.8%).
- RBMC-OB Service Area poverty rate among individuals is better than Middlesex County, Perth Amboy and New Jersey.
- As of December 2016, .91% of Middlesex County children are receiving Work First NJ/TANF benefits, 55% fewer than statewide (2.02%); Middlesex County ranks 8/21 statewide.
- As of December 2016, .09% of Middlesex County adults are receiving Work First NJ/TANF benefits, 66.7% fewer than statewide (.27%); Middlesex County ranks 11/21 statewide.
- Between 2015 and 2017, the percentage of adults and children receiving WFNJ/TANF benefits declines approximately 50%.
- In 2017, 23.7% fewer Middlesex County children (14.8%) use the SNAP benefits than children Statewide (19.4%).
- In 2017, 25% fewer Middlesex County adults (4.5%) use SNAP than throughout the State (6.0%).
- Between 2015 and 2017, Middlesex County experiences a 2.6% decline in the percentage of adults and a 4.3% decline in the percentage of children receiving SNAP benefits.

Gaps

- Perth Amboy 2017 median household income is \$38,740 (44.9%) less than Middlesex County and \$28,149 (37.1%) less than New Jersey.
- Perth Amboy and Carteret have among the highest poverty rates and exceed those of the State.

- The 2015 ACS Survey reports 19.8% of Perth Amboy families and 11.1% of Carteret families are living below the FPL compared to 6.5% in Middlesex County and 8.2% statewide.

Unemployment

Assets

- Between 2010 and 2014, New Jersey, Middlesex County, Old Bridge and Woodbridge experience at least a 25% reduction in unemployment while Perth Amboy demonstrate a 16% decline in the same time frame.

Gaps

- In 2014, the Perth Amboy unemployment rate (13.2%) is double that of Middlesex County (6.6%).

Education and Limited English Proficiency

Assets

- In 2017, one-quarter of the RBMC-OB Service Area earns a Bachelor's degree, almost equivalent to the County and exceeding the State.

Gaps

- New Jersey, Middlesex County, RBMC-PA and RBMC-OB Service Area residents have a higher percentage of individuals who did not complete a high school education than the Healthy People 2020 target of 2.1%.
- The percent of Middlesex County residents (11.2%) without a high school diploma in 2017 is five times greater than the Healthy People 2020 target (2.1%).
 - In 2017, Perth Amboy (27.3%) has two and a half times the percent of residents with less than a high school education than Middlesex County (11.2%).
 - Perth Amboy (10.4%) has less than half the amount of resident college graduates compared to statewide (22.8%).
- Similar to 2017 statewide, 11.2% of the Middlesex County population did not earn a high school diploma. This remains relatively unchanged since 2012.
 - In 2017, approximately 8% of the RBMC-PA population report completing less than a grade 9 education, more than double the RBMC-OB Service Area of 3.2%. Strikingly, the City of Perth Amboy reports 17.5% of its residents attained less than a grade 9 education.
- In 2015, according to the U.S. Census, 26.8% more Middlesex County residents over age 5 (16.8%) report speaking English as "less than very well" than across New Jersey (12.3%).
- Middlesex County experiences a 0.4 percentage point increase in the population that reports limited English proficiency between 2012 (16.4%) and 2015 (16.8%).
- Middlesex County ranks in the lowest quartile, indicating a high LEP population relative to all NJ counties.

SOCIAL AND COMMUNITY CONTEXT

Assets

- Compared to New Jersey (6.9/1,000), Middlesex County (5.5/1,000) has a lower rate of arrests due to domestic violence in 2015.
- Between 2013 and 2015, the rate of domestic violence arrests in Middlesex County decreases 6.8%.

Gaps

- Between 2012 and 2014, Middlesex County has lower membership association rates than New Jersey, Union County, and Monmouth County.
- The membership association rate for Middlesex County falls within the lowest performing quartile.
- The percentage of children eligible for free lunch increase throughout New Jersey, Middlesex, Union and Monmouth counties between 2010-2011 and 2014-2015.
- Middlesex County saw a 12 percentage point increase in the percentage of students eligible for free lunch from 23% during the 2010-2011 school years to 35% in 2014-2015 school years.

ACCESS TO CARE

Health Insurance

Assets

- In 2012, Middlesex County (15%) residents report having any kind of health coverage is similar to Statewide at 15%.
- Coverage for Middlesex County residents improves 20% from 15% in 2012 to 12% in 2014.
- Between 2012 and 2015, the percentage of uninsured Perth Amboy residents receiving inpatient care decreases 5.7 percentage points, while Old Bridge decreases 3.7 points, Middlesex County 3.4 percentage points and 6.0 percentage points Statewide.
- Between 2012 and 2015, the percentage of uninsured Perth Amboy residents visiting the ED decreases 11.7 percentage points, while Old Bridge decreases 5.3 points, Middlesex County 8.0 percentage points and 9.9 percentage points Statewide.

Gaps

- In 2014, Middlesex County (12.0%) exceeds the ambitious Healthy People 2020 target of no person without health coverage. As compared to the CHR benchmark, Middlesex County is lower but within an established 25% margin.
- In 2015, 17.6% of ED visits made by Perth Amboy residents have no insurance compared to 8.7% in Old Bridge, 14.5% in Middlesex County and 12.9% Statewide.

Providers

Gaps

- In 2014, Middlesex County (1052:1) has 11.2% fewer primary care physicians than New Jersey (1170:1).
- Between 2011 and 2014, the ratio of primary care physicians: population in Middlesex County decreases by 19:1.

- In 2014, the Middlesex County (1052:1) ratio for primary care providers is below the CHR national benchmark (1051:1) by a single provider.

Ambulatory Care Sensitive Conditions

Emergency Department Utilization for Ambulatory Care Sensitive Conditions

Assets

- Middlesex ranks 16/21 counties with 44.81/1,000 ACSC ED visits in 2015, a 14.9% decrease in the ACSC ED rate from 2012.
- In 2015, Middlesex County (44.81/1,000) has 22% fewer ACSC ED visits than statewide (57.48/1,000).
- In 2015, Middlesex County (74.5/1,000) has 5.6% less ACSC ED visits for children age 0-17 than statewide (78.9/1,000).
- ED ACSC visits among children in Middlesex County decrease 15.6% from 2012 (88.3/1,000) to 2015 (74.5/1,000).
- RBMC-PA, RBMC-OB, and RBMC Combined Service Areas all experience declines in ACSC ED visits for children by 14.8%, 24.2%, and 15.7%, respectively.
- The ED utilization rate for children in the RBMC-OB Service Area is significantly lower than all comparative geographies.
- Middlesex County pediatric ACSC ED visits for ENT, asthma, gastrointestinal obstruction, and cellulitis decrease between 2013 and 2015.
- The 2015 Middlesex County adult ED ACSC rate (36.4/1,000) is 29% lower than the State rate (51.3/1,000).
- Middlesex County experiences a 13.3% decrease in the adult ED ACSC rate between 2012 and 2015 (42.0/1,000 to 36.4/1,000).
- In 2015, 21.3% fewer Middlesex County adults (7.0/1,000) visited the ED for ENT ACSC than the State (8.9/1,000).

Gaps

- The 2015 pediatric ED ACSC rate in Perth Amboy (207.43/1,000) is the highest in the Combined Service Area and is more than 2 ½ times Middlesex County (74.54/1,000) and New Jersey (78.85/1,000) rates.
- In 2015, 6.5% more Middlesex County children (46.5/1,000) visited the ED for an ENT related ACSC than statewide (43.5/1,000).
- Middlesex County pediatric ACSC ED visits for kidney/urinary infection increase slightly between 2013 (3.78/1,000) and 2015 (3.81/1,000).
- The 2015 adult ED ACSC rate in Perth Amboy (92.18/1,000) is the highest in the Combined Service Area at more than double the Middlesex County rate (36.40/1,000).

Inpatient Utilization for Ambulatory Care Sensitive Conditions

Assets

- Middlesex ranks 15/21 counties with 16.17/1,000 ACSC Inpatient admissions in 2015, an 11.2% decrease from 2012
- In 2015, Middlesex County (16.17/1,000) has 8.8% fewer ACSC Inpatient admissions than the State (17.59/1,000).

- The 2015 inpatient ACSC rate for Middlesex County (16.17/1,000) is 8.1% lower than New Jersey (17.59/1,000).

Gaps

- In 2012 and 2015, RBMC-PA Service Area inpatient use rates are higher than New Jersey, Middlesex County and other comparative Service Areas.
- In 2015, Perth Amboy (25.98/1,000) has the highest inpatient admissions due to ACSC followed by Monroe (24.80/1,000) and South Amboy (21.79).
- The 2015 Inpatient ACSC for Perth Amboy (25.98/1,000) is 47.7% higher than the State rate (17.59/1,000).

NEIGHBORHOOD AND BUILT ENVIRONMENT

Air Quality

Assets

- In 2012, the daily measure of fine particle matter in Middlesex County (9.6 PM2.5) is equivalent to the State (9.6 PM2.5).
- Middlesex County experiences a 30.8% reduction in fine particulate matter in between 2005 (13.87 per cubic meter) and 2012 (9.6 per cubic meter).

Gaps

- In 2012, Middlesex County (9.6 PM2.5) average daily measure of fine particles is 0.1 percentage point greater than the CHR national benchmark (9.5 PM2.5).

Lead Hazards

Assets

- In 2015, 16.0% of housing units are built before 1950, 10 percentage points fewer than New Jersey overall at 26%.
- Middlesex County has the third lowest percentage of housing units built before 1950. Among all counties in New Jersey, Middlesex ranks in the best performing quartile.
- In 2015, 0.5% of Middlesex County children has elevated blood lead levels compared to 0.6% statewide.
- Middlesex County reports a decrease in children with elevated blood lead levels from 2007 (0.7%) to 2015 (0.5%).

Access to Healthy Foods

Assets

- In 2011, Middlesex County (16/100,000) has 20% fewer liquor stores than New Jersey (20/100,000), and ranks in the highest performing quartile.

Gaps

- In 2015, nearly four percent of New Jersey and Middlesex County low income residents do not live close to a grocery store.

- In 2015, Middlesex County (3.7%) exceeds the CHR national benchmark (1%) for low income residents residing far from a grocery store; Middlesex County performs lower than the CHR benchmark by more than 25%.
- In 2015, 54% of Middlesex County restaurants are fast food compared to 50% of statewide, ranking the county in the middle quartile among all New Jersey counties.
- In 2015, Middlesex County (54%) has 50% more fast food establishments than the CHR national benchmark (27%).

Injury and Crime Prevention

Assets

- The 2012-2014 violent crime rate in Middlesex County (159/100,000) is 43.2% lower than the State crime rate (280/100,000).
- The violent crime rate in Middlesex County decreases 21.6% from 2006-2008 (203/100,000) to 2012-2014 (159/100,000).
- Compared to all 21 counties statewide, Middlesex County's violent crime rate ranks in the best performing quartile.
- Middlesex County (256.2/100,000) has 17.9% fewer burglaries than New Jersey (312/100,000) in 2015.
- The Middlesex County burglary rate decreases 24.5% from 339.7/100,000 in 2013 to 256.2/100,000 in 2015.
- In 2009-2015, Middlesex County (5.4/100,000) has 22.8% fewer motor vehicle crash deaths than New Jersey (7.0/100,000).
- Deaths due to motor vehicle accidents decrease 22.8% in Middlesex County between 2002-2008 (7.0/1,000) and 2009-2015 (5.4/1,000).
- 2009-2015 Middlesex County (5.4/1,000) car accident related deaths occur 56.5% less often than the Healthy People 2020 target (12.4/1,000).
- The 2014 Middlesex County death rate due to falls (3.4/100,000) is below the New Jersey rate (4.8/100,000).
- Middlesex County experiences a 26.1% decline in deaths due to falls between 2012 (4.6/100,000) and 2014 (3.4/100,000).
- In 2014, Middlesex County (3.4/100,000) has 51.4% fewer deaths due to falls than the Healthy People 2020 target (7/100,000) and ranks in the middle quartile among all New Jersey counties.

Gaps

- From 2012-2014, the Middlesex County (159/100,000) violent crime rate is 2.5 times greater than the CHR national benchmark (64/100,000). Middlesex County performs lower than the CHR benchmark by more than 25%, the indicator is red.
- In 2014, Middlesex County (12.8/100,000) has 4.5% more deaths due to accidental poisoning and exposure to noxious substances than statewide (13.4/100,000).
- Accidental deaths as a result of poison and exposure to noxious fumes increase over 70% from 2010 (7.2/100,000) to 2014 (12.8/100,000).

**APPENDIX A
EVALUATION OF IMPACT**



Appendix: Evaluation of Impact



Hackensack
Meridian *Health*
Raritan Bay Medical Center

Raritan Bay Medical Center developed and approved an Implementation Plan Report in 2014 to address the significant health needs identified through the 2014 Community Health Needs Assessment. From 2014 through 2016, both divisions of Raritan Bay Medical Center (RBMC) focused on the following five priorities:

- Healthy Nutrition/Obesity
- Mental Health and Substance Abuse
- Heart Disease
- Diabetes
- Cancer

The report below summarizes the impact the hospital's actions had on these health needs over the previous CHNA coverage period. For more information on the 2014 Implementation Plan and priority health needs, please visit

<https://www.rbmc.org/wp-content/uploads/2017/02/RBMC-CHNA-IP-2015.06.15-FINAL.pdf> .



Healthy Nutrition/Obesity

Goal: *Enhance community awareness of healthy nutrition and reduce the incidence of obesity in adults and children.*

Highlighted Impact:

- Educated the community on the benefits of healthy nutrition to curtail the impact of obesity and diet-related chronic diseases through community outreach events provided at various locations throughout Middlesex County.
 - RBMC provided: 416 health education lectures; 36 health fairs and; 56,920 screenings.
- The Institute for Weight Loss at RBMC was accredited as a Comprehensive Bariatric Center under the Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP).
 - Approximately 518 weight loss surgeries were performed and over 400 outpatient nutritional visits were provided.
- Increased education and promotion on exclusive breastfeeding and enhanced lactation support services.
- Launched the Learning Garden at the Perth Amboy campus in Spring 2015, to inspire hospital employees, patients and the public to make healthier food choices.
- Launched the Sodexo 12-week Employee Weight Loss Management Program in Spring 2016.
 - 80% of participants realized their weight loss/nutrition goals.
- Joined the Boundary Spanning Leadership Team, comprised of five, multi-sector organizations, charged with the development and implementation of a Blueprint for Action for Perth Amboy's Culture of Health – a 4-year grant, funded by New Jersey Health Initiatives, a program of the Robert Wood Johnson Foundation.

Mental Health and Substance Abuse

Goal: *Improve access to mental health/alcohol and substance abuse services for the community.*

Highlighted Impact:

- Partnered with Middlesex County Prosecutor's Office to launch the Narcan Rapid Replacement Program in 2016 to equip local police with opioid antidote replacement kits and help combat opioid overdoses.
 - 89 replacement kits have been used, saving a total of 63 lives since the program's inception.
- Provided referrals for substance abuse treatment to all patients admitted to the Emergency Department.
- Provided opioid overdose education at all cardiopulmonary resuscitation (CPR) classes administered.
 - Provided 312 CPR classes for EMS and the community.
- Continued participation and support of local community programs and events that promote opioid overdose and addiction awareness including: National Night Out, FED UP!, and Perth Amboy Youth Alliance programs.
- Recognized Mental Health Awareness Month each year to increase awareness and understanding of mental health in an effort to reduce negative stigmas that prevent individuals from seeking life-saving treatment.

Heart Disease

Goal: *Improve outcomes for cardiovascular disease through education, outreach efforts, and improvements in care transitions.*

Highlighted Impact:

- Provided over 20 heart healthy events each month, of which include free education about chronic heart conditions, medication management, blood pressure screenings and heart rate testing.
- Received the American Heart Association's Mission: Lifeline[®] EMS Gold Award for implementing quality improvement measures for the treatment of patients who experience severe heart attacks.
- Implemented Care in Transitions, a Delivery System Reform Incentive Program (DSRIP) that aims to strengthen continuity of care between the hospital and subsequent settings in order to reduce risk of avoidable 30-day readmissions.
 - Continued efforts to reduce 30-day readmissions
 - Increased funding amounting to more than \$3 million to continue program over the next five years.
- Provided Cardiopulmonary Resuscitation (CPR) classes for medical professionals as well as the general public sponsored in partnership with the American Heart Association.
 - Provided 312 CPR classes.
- Annually participated in Heart Month and the American Heart Association's Go Red for Women movement to promote heart health and create awareness of all heart diseases and conditions.

Diabetes

Goal: *Improve Community's understanding and control of diabetes and reduce unnecessary ED visits and admissions.*

Highlighted Impact:

- Became an affiliate of Joslin Diabetes Center, a leader in diabetes research and clinical care organization, enabling the medical center to now deliver some of the latest advances for treating diabetes and its complications as well as patient education programs, diabetes management information and support services.
- Provided diabetes education and preventive screenings at community outreach events offered throughout Middlesex County, thereby reaching individuals who might not otherwise receive these screenings due to access and cost.
 - RBMC staff provided: 416 health education lectures; 36 health fairs and; 56,920 screenings.
- Participated in the American Diabetes Association's Diabetes Awareness Month each year to increase awareness of the disease and educate the community on risk factors.
- Continued to improve efforts aimed at reducing unnecessary Emergency Department visits and admissions.

Cancer

Goal: *Improve Community's understanding and control of diabetes and reduce unnecessary ED visits and admissions.*

Highlighted Impact:

- Distributed Cancer Education and Early Detection (CEED) information and referrals at all screenings and community health fairs RBMC participated in.
- Continued to offer smoking cessation services, pulmonary rehabilitation, counseling and support programs to help educate and prevent cancer.
 - Increased the number of Physician-referred outpatient Pulmonary Rehabilitation visits, averaging about 2,000 patient visits per year.
 - Launched the Pulmonary Rehabilitation Maintenance program in August 2015, with an additional 946 patient visits.
- Partnered with the American Cancer Society to provide colon cancer information and educate the community on the importance of colon cancer screenings at the Perth Amboy Campus in Spring 2016. Visitors were invited to walk through the Hackensack Meridian *Health* walk-in colon educational tool.
- Annually participated in several cancer initiatives such as National Prostate Cancer Awareness Month and Breast Cancer Awareness Month to educate the community on these diseases and increase screenings.

APPENDIX B SECONDARY DATA SOURCES

Source

Agency for Healthcare Research and Quality
American Cancer Society
Bureau of Labor Statistics (BLS), Local Area Unemployment Statistics (LAUS)
California Department of Public Health
CDC
CDC BRFSS
CDC's National Center for Hepatitis, HIV, STD, and TB Prevention
CDC National Vital Statistics Reports
CDC Office of Minority Health & Health Disparities
CDC Pediatric and Pregnancy Nutrition Surveillance System
CDC WONDER, Environmental Public Health Tracking Network
Commission to Build a Healthier America, Robert Wood Johnson Foundation
County Health Rankings
FBI/Interuniversity Consortium for Political and Social Research (ICPSR) National Archive of Criminal Justice Data
Health Resources and Services Administration's Area Resource File
Healthy People 2020
Healthy People.gov
Legal Services of New Jersey
MedicineNet.com
Medline Plus
National Center for Chronic Disease Prevention and Health Promotion/CDC/BRFSS (CHR)
National Center for Health Statistics
National Health Interview Survey
National Institute of Health; National Heart, Lung and Blood Institute
National Vital Statistics System (NVSS), National Center for Health Statistics
NCHS Ambulatory Care Survey
New Jersey BRFS
New Jersey Cancer Registry
New Jersey Department of Agriculture
New Jersey Department of Health and Human Services
New Jersey Department of Health and Human Services, Bureau of Vital Statistics, New Jersey Birth Certificate Database
New Jersey Department Human Services, Division of Addiction Services, New Jersey Drug and Alcohol Abuse Treatment
New Jersey Department of Health and Senior Services, Center for Health Statistics
New Jersey Department of Health and Senior Services, County Health Profiles
New Jersey Department of Health and Senior Services, Division of Family Health Services
New Jersey Department of Labor
New Jersey Discharge Data Collection System
New Jersey Department of Labor and Workforce Development
New Jersey Department of Law and Public Safety, Uniform Crime Reporting
Nielson-Claritas Population Estimates
Planned Parenthood
Report On The National Survey of Lead-Based Paint in Housing, Environmental Protection Agency
Robert Wood Johnson Foundation
Small Area Health Insurance Estimates/ACS/CPS ASEC

Source

Small Area Income and Poverty Estimates (SAIPE)
State of New Jersey Department of Health; Childhood Lead Poisoning Prevention
TANF Program
Truven Health Analytics – Community Need Index
UB - 04 Hospital and Emergency Room Discharge Data - Multiple Years (NSI)
U.S. Bureau of Labor Statistics
U.S. Census Bureau
U.S. Census Bureau, American Community Survey
U.S. Census Bureau, County Business Patterns
U.S. Census Bureau, Small Area Health Insurance Estimates (SAHIE)
USDA Economic Research Service
USDA Food Environment Atlas
USDA Food Environment Atlas/County Business Patterns
USDA Food and Nutrition Service
U.S. Department of Health and Human Services
U.S. Department of Health & Human Services; Agency for Healthcare Research and Quality
U.S. Department of Health & Human Services; HRSA
U.S. Department of Health & Human Services; Office of Adolescent Health
U.S. National Library of Medicine
World Health Organization

APPENDIX C
HMH-RARITAN BAY MEDICAL CENTER
COMMUNITY HEALTH NEEDS ASSESSMENT
SURVEY QUESTIONNAIRE SAMPLE

- Heart Disease/Congestive Heart Failure/High Blood Pressure/High Cholesterol/Stroke

Q.1 Number of People Impacted

Answer Choices:

1. Fewest People Impacted
2. Few to Moderate Number of People Impacted
3. Moderate Impact
4. Moderate to Many People Impacted
5. Most People Impacted

Q.2 Risk of Morbidity and Mortality Associated with the Problem

Answer Choices:

1. Fewest People Impacted
2. Few to Moderate Number of People Impacted
3. Moderate Impact
4. Moderate to Many People Impacted
5. Most People Impacted

Q.3 Impact of the Problem on Vulnerable Populations

Answer Choices:

1. Fewest People Impacted
2. Few to Moderate Number of People Impacted
3. Moderate Impact
4. Moderate to Many People Impacted
5. Most People Impacted

Q.4 Availability of Resources to Address the Problem

Answer Choices:

1. Few Resources Available
2. Few to Moderate Resources Available
3. Moderate Resources Available
4. Moderate to Many Resources Available
5. Most Resources Available

Q.5 Relationship of Issue to Other Community Issues

Answer Choices:

1. Not Related to Other Community Issues
2. Somewhat Less Than Moderately Related to Other Community Issues
3. Moderately Related to Other Community Issues
4. Somewhat More Than Moderately Related to Other Community Issues
5. Closely Related to Other Community Issues

Q.6 Meaningful Progress Can Be Made Within a 3-Year Period

Answer Choices:

1. Little to No Progress can be Made in a 3-Year Period
2. Somewhat Less Than Moderate Progress Can Be Made in a 3-Year Period
3. Moderate Progress Can Be Made in a 3-Year Period
4. Somewhat More Than Moderate Progress Can Be Made in a 3-Year Period
5. Much Progress Can Be Made in a 3-Year Period

Q.7 It is Within the Organization's Capability/Competency to Impact this Issue

Answer Choices:

1. Not Within the Organization's Competency/Capability
2. Less Than Moderately Within the Organization's Competency/Capability
3. Moderately Within the Organization's Competency/Capability
4. More Than Moderately Within the Organization's Competency/Capability
5. Very Much Within the Organization's Competency/Capability

These questions were repeated for the remaining 17 Priority Issues, shown below.

- Mental Health
- Diabetes
- Physical Activity/Obesity
- Cancer
- COPD/Asthma
- Access to Healthy Food/Nutrition
- Substance/Alcohol Abuse
- Renal Disease
- C-Section Rates
- Low Birth Weight infants
- Poverty
- Access to Health Services
- High Crime Rate/Safety
- Emergency Department Use As Primary Medical Care
- Limited English Proficiency
- Teen Births
- High School Completion Rate/Quality Schooling

APPENDIX D RESOURCE INVENTORY

Many residents of Union, Middlesex and Monmouth counties rely on Raritan Bay Medical Center (RBMC) for their healthcare needs. The RBMC Service Areas make up 75% of the hospital's patients. There are other locations within the Service Area and surrounding areas that are available to help patients with specific needs and other healthcare options. Following is a brief synopsis of selected provider types located within RBMC's Service Area.

Behavioral Health

Behavioral Health encompasses treatment of patients with mental health and/or substance abuse conditions. Within the RBMC Service Area there are the following Behavioral Health providers:

- 1 location that treats patients with emergency mental health needs
- 3 sites that provide short-term outpatient services
- 2 locations that provide partial-care and partial hospitalization
- 2 providers of programs for assertive community treatment
- 3 locations that provide residential treatment
- 1 site that provides self-help
- 1 short-term care facility
- 1 supported employment service
- 2 supportive housing services
- 1 voluntary behavioral health unit
- 5 outpatient substance abuse programs,

Outside of the RBMC Service Areas, there are other Behavioral Health treatment facilities that provide the following services;

- acute care treatment
- comprehensive personal rehab
- county mental health boards
- deaf enhanced screening centers
- free-standing detox residential location
- early intervention and support services
- emergency services
- homeless services
- inpatient services
- integrated case management
- intensive family support services
- involuntary outpatient services
- justice involved services
- outpatient services
- partial care/partial hospitalization services
- primary screening services
- programs for assertive community treatment
- residential services
- RIST
- self-help centers
- short-term care facilities
- supported education
- supportive housing
- system advocacy
- voluntary behavioral health units

Clinical Care

There are several types of facilities that fall under Clinical Care, where patients receive medical treatment outside of a hospital setting. There is 1 dental clinic within RBMC's Service Areas, 1 primary healthcare center (FQHC), 3 CVS minute clinics, 1 primary care facility and 8 urgent care locations.

Outside of the RBMC's Service Areas, there are other Clinical Care locations such as after-hours clinics, dental clinics, primary healthcare centers (FQHC's), CVS minute clinics, primary care facilities, and urgent care centers.

Family and Social Support Services

Family and Social Support Services help individuals overcome hardships within family dynamics and social aspects of life. Within RBMC's Service Area there is 1 county welfare location, 2 early childhood services, 1 family support service and 5 school-linked services.

Outside of the RBMC's Service Area, there are other Family and Social Support Services such as County welfare services, domestic violence and child abuse services, early childhood services, family support services and school linked services.

Acute Care Services and Ambulatory Care

There are 3 hospitals within RBMC's Service Areas. Other healthcare locations outside of the RBMC's Service Areas include; general acute care hospitals, regular hospitals, off-site ambulatory care and surgical practices.

Rehabilitation and Long-Term Care

Within the RBMC's Service Areas there are Inpatient Rehabilitation and Long-Term Care facilities available to those with severe behavioral health or substance abuse issues. There are 8 long-term residential healthcare locations. There are also long-term residential healthcare locations outside of RBMC's Service Areas.

Women's Health Services

Within the RBMC's Service Areas there are some Women's Healthcare locations that provide specific services to women only. There is 2 family planning/women's health centers and 5 pediatrics/prenatal women's health centers. There is also family planning, pediatric and prenatal women's health centers outside of RBMC's Service Areas.

Senior Health Services

Within RBMC's Service Areas there are Senior Service locations that are provided for people ages 65 and older. There are 9 adult day care centers and 23 senior health service locations. Outside of RBMC's services areas there is adult day care centers, comprehensive care centers, end stage renal dialysis locations and senior health service locations.

Provider Type	Provider Name	Street Address	Town	ZIP Code	County	Service Area
Adult Day Care	2Nd Home Perth Amboy, LLC	420 Fayette Street	Perth Amboy	08861	Middlesex	PSA-PA
Adult Day Care	Aberdeen Senior Health Care Center	1027 Highway 34	Aberdeen	07747	Monmouth	PSA-OB
Adult Day Care	All In A Day	104 Pension Road	Englishtown	07726	Monmouth	PSA-OB
Adult Day Care	Always At Home	8 Jocama Blvd	Old Bridge	08857	Middlesex	PSA-PA & OB
Adult Day Care	Graceland Adult Medical Day Care	316 Madison Avenue	Perth Amboy	08861	Middlesex	PSA-PA
Adult Day Care	Just Home Medical Adult Day	7 Edgeboro Road	East Brunswick	08816	Middlesex	PSA-OB
Adult Day Care	Just Like Home	426 Raritan Street, Raritan Center	Sayreville	08872	Middlesex	PSA-PA & OB
Adult Day Care	Saint Peter's Adult Day Center	200 Overlook Drive, Pondview Plaza	Monroe Township	08831	Middlesex	PSA-OB
Adult Day Care	Sewa Adult Day Care	1020 Route 18 North, Suite M	East Brunswick	08816	Middlesex	PSA-OB
Adult Day Care	South Amboy Adult Day Health Care Center	540 Bordentown Avenue	South Amboy	08879	Middlesex	PSA-PA & OB
Ambulatory Care	Advanced Medical Imaging of Old Bridge	3548 Route 9 South	Old Bridge	08857	Middlesex	PSA-PA & OB
Ambulatory Care	Atrium Diagnostic Imaging. L.L.C.	224 Taylors Mills Road, Suite 108	Manalapan	07726	Monmouth	PSA-OB
Ambulatory Care	East Brunswick Imaging Center, LLC	647 Route 18 South	East Brunswick	08816	Middlesex	PSA-OB
Ambulatory Care	East Brunswick Open Upright MRI, LLC	620 Cranbury Road, Suite 10	East Brunswick	08816	Middlesex	PSA-OB
Ambulatory Care	East Brunswick Primary Care Pa	F1 Brier Hill Ct	East Brunswick	08816	Middlesex	PSA-OB
Ambulatory Care	Freehold MRI Associates	176 Route 9 North	Englishtown	07726	Monmouth	PSA-OB
Ambulatory Care	Jewish Renaissance Medical Center Mobile Van	275 Hobart Street	Perth Amboy	08861	Middlesex	PSA-PA
Ambulatory Care	JRMC-SBHC Mobile Van	275 Hobart Street	Perth Amboy	08861	Middlesex	PSA-PA
Ambulatory Care	Perth Amboy Diagnostic Imaging	607 Amboy Avenue	Perth Amboy	08861	Middlesex	PSA-PA
Ambulatory Care	Planned Parenthood of Northern, Central and Southern New Jersey, Inc.	450 Market Street	Perth Amboy	08861	Middlesex	PSA-PA
Ambulatory Care	Princeton Healthcare System Occupational Health	2 Centre Drive, Suite 400	Monroe Township	08831	Middlesex	PSA-OB
Ambulatory Care	Princeton Orthopaedic Associates	11 Centre Drive	Monroe Township	08831	Middlesex	PSA-OB
Ambulatory Care	Princeton Radiology Associates Pa	9 Centre Drive	Jamesburg	08831	Middlesex	PSA-OB
Ambulatory Care	Raritan Bay Diagnostic Imaging, LLC	551 New Brunswick Avenue	Perth Amboy	08861	Middlesex	PSA-PA
Ambulatory Care	SPUH Outpatient Wound Care Center at Monroe	294 Applegarth Road	Monroe Township	08831	Middlesex	PSA-OB
Ambulatory Care	UMCP Surgical Center-Monroe	8 Centre Drive	Monroe Township	08831	Middlesex	PSA-OB
Ambulatory Care	University Radiology Group, Pc	111 Union Valley Road	Monroe Township	08831	Middlesex	PSA-OB
Ambulatory Care	University Radiology Group, Pc	483 Cranbury Road	East Brunswick	08816	Middlesex	PSA-OB
Behavioral Health Locations	Bridgeway Rehabilitation Services, Inc	720 King Georges Road, Suite 111	Woodbridge Twp: Fords	08863	Middlesex	PSA-PA
Behavioral Health Locations	Catholic Charities, Diocese of Metuchen	288 Rues Ln	East Brunswick Township	08816	Middlesex	PSA-OB
Behavioral Health Locations	Catholic Charities, Diocese of Metuchen	319 Maple St	Perth Amboy City	08861	Middlesex	PSA-PA
Behavioral Health Locations	Catholic Charities, Diocese of Metuchen Community Mental Health Center	288 Rues Lane	East Brunswick	08816	Middlesex	PSA-OB
Behavioral Health Locations	Clarity Treatment Services	262 State Street	Perth Amboy	08861	Middlesex	PSA-PA
Behavioral Health Locations	Community YMCA Family Services	166 Main Street	Matawan	07747	Monmouth	PSA-OB
Behavioral Health Locations	Core Health	540 Bordentown Avenue	South Amboy	08879	Middlesex	PSA-PA & OB
Behavioral Health Locations	CPC Behavioral Healthcare	1088 Highway 34	Aberdeen	07747	Monmouth	PSA-OB
Behavioral Health Locations	CPC Behavioral Healthcare	1088 Highway 34	Aberdeen	07747	Monmouth	PSA-OB
Behavioral Health Locations	CPC Behavioral Healthcare Aberdeen Center	1088 Highway 34	Aberdeen Township	07747	Monmouth	PSA-OB

Provider Type	Provider Name	Street Address	Town	ZIP Code	County	Service Area
Behavioral Health Locations	CPC Behavioral Healthcare: Aberdeen Counseling Center	1088 Highway 34	Aberdeen Township	07747	Monmouth	PSA-OB
Behavioral Health Locations	CPC Care Aberdeen Center	1088 Highway 34	Aberdeen Township	07747	Monmouth	PSA-OB
Behavioral Health Locations	Declarations	345 Union Hill Rd, Building 2, Suite C	Manalapan	07726	Monmouth	PSA-OB
Behavioral Health Locations	Declarations	223 Taylors Mills Road	Manalapan	07726	Monmouth	PSA-OB
Behavioral Health Locations	Diocese Of Catholic Charities	288 Rues Lane	East Brunswick Township	08816	Middlesex	PSA-OB
Behavioral Health Locations	Easter Seal Society Of NJ Middlesex Behavioral Health Services	1 Kimberly Rd	East Brunswick Township	08816	Middlesex	PSA-OB
Behavioral Health Locations	George J. Otowski Mental Health Center	570 Lee St	Perth Amboy City	08861	Middlesex	PSA-PA
Behavioral Health Locations	George J. Otowski Mental Health Center	570 Lee St	Perth Amboy City	08861	Middlesex	PSA-PA
Behavioral Health Locations	Habit OPCO, Inc. D/B/A/ Strathmore Treatment Associates	1 Lower Main St	South Amboy	08879	Middlesex	PSA-PA & OB
Behavioral Health Locations	Journey to Wellness, Inc.	220 Market Street	Perth Amboy	08861	Middlesex	PSA-PA
Behavioral Health Locations	Pathway to Wellness, LLC, DBA Center for Wellness	312 Applegarth Road Suite 200	Monroe	08831	Monmouth	PSA-OB
Behavioral Health Locations	Raritan Bay Medical Center	530 New Brunswick Avenue	Perth Amboy	08861	Middlesex	PSA-PA
Behavioral Health Locations	Raritan Bay Mental Health Center	530 New Brunswick Ave	Perth Amboy City	08861	Middlesex	PSA-PA
Behavioral Health Locations	Raritan Bay Mental Health Center for Living	530 New Brunswick Ave	Perth Amboy City	08861	Middlesex	PSA-PA
Behavioral Health Locations	Stress Care Of New Jersey	4122 Route 516	Matawan	07747	Monmouth	PSA-OB
Dental Clinic	Jewish Renaissance Medical Center	275 Hobart Street	Perth Amboy	08861	Middlesex	PSA-PA
Dialysis	Dialysis Clinic Inc Monroe	2 Research Way	Monroe Township	08831	Middlesex	PSA-OB
Dialysis	East Brunswick Dialysis Center	629 Cranbury Road, Suite 101	East Brunswick	08816	Middlesex	PSA-OB
Dialysis	Freehold Dialysis	300 Craig Road	Manalapan	07726	Monmouth	PSA-OB
Dialysis	Garden State Kidney Center	345 Main Street	Woodbridge	07095	Middlesex	PSA-PA
Dialysis	Madison Dialysis Center Of Matawan	625 Highway 34	Matawan	07747	Monmouth	PSA-OB
Dialysis	Matawan Dialysis	762 Highway 34, Suite A	Matawan	07747	Monmouth	PSA-OB
Dialysis	Monroe Township Dialysis	298 Applegarth Road	Monroe Township	08831	Middlesex	PSA-OB
Dialysis	Old Bridge Dialysis	3 Hospital Plaza, 1st Floor 101	Old Bridge	08857	Middlesex	PSA-PA & OB
Dialysis	Perth Amboy Dialysis	530 New Brunswick Avenue	Perth Amboy	08861	Middlesex	PSA-PA
Dialysis	Renal Center of Monroe	300 Overlook Drive, Pondview Plaza, Building C	Monroe	08831	Middlesex	PSA-OB
Dialysis	Woodbridge Dialysis Center	541 Main Street	Woodbridge	07095	Middlesex	PSA-PA
Family & Social Support Services	Healthy Families (Perth Amboy): Visiting Nurse Association of Central Jersey	313 State Street, Suite 416	Perth Amboy	08861	Middlesex	PSA-PA
Family & Social Support Services	Jewish Renaissance Family Success Center	242 Madison Avenue	Perth Amboy	08861	Middlesex	PSA-PA
Family & Social Support Services	Middlesex County Board of Social Services	252 Madison	Perth Amboy	08861	Middlesex	PSA-PA
Family & Social Support Services	Strengthening Families: Community Child Care Solutions	103 Center Street	Perth Amboy	08861	Middlesex	PSA-PA
Family Planning/Women's Health Center	Jewish Renaissance Medical Center	275 Hobart St	Perth Amboy	08861	Middlesex	PSA-PA
Family Planning/Women's Health Center	Jewish Renaissance Medical Center	275 Hobart St	Perth Amboy	08861	Middlesex	PSA-PA

Provider Type	Provider Name	Street Address	Town	ZIP Code	County	Service Area
Family Planning/Women's Health Center	Perth Amboy Center	450 Market St	Perth Amboy	08861	Middlesex	PSA-PA
Family Planning/Women's Health Center	Perth Amboy WIC Program	313 State Street, 2Nd Floor	Perth Amboy	08861	Middlesex	PSA-PA
Family Planning/Women's Health Center	Presbyterian Church of Jamesburg	179 Gatzmer Avenue	Jamesburg	08831	Middlesex	PSA-OB
Family Planning/Women's Health Center	Renaissance Revival Church Center	45 Edwin Street	Carteret	07008	Middlesex	PSA-PA
Family Planning/Women's Health Center	Saint Mary's Catholic Church	256 August Street	South Amboy	08879	Middlesex	PSA-PA & OB
FQHC - Primary Health Care Center	Jewish Renaissance Medical Center	275 Hobart Street	Perth Amboy	08861	Middlesex	PSA-PA
General Acute Care Hospital	Hackensack Meridian Health Raritan Bay Medical Center Old Bridge	One Hospital Plaza	Old Bridge	08857	Middlesex	PSA-PA & OB
General Acute Care Hospital	Hackensack Meridian Health Raritan Bay Medical Center Perth Amboy	530 New Brunswick Avenue	Perth Amboy	08861	Middlesex	PSA-PA
Long-Term Residential Health Care	2Nd Home Perth Amboy, LLC	420 Fayette Street	Perth Amboy	08861	Middlesex	PSA-PA
Long-Term Residential Health Care	Alameda Center for Rehabilitation And Healthcare	303 Elm Street	Perth Amboy	08861	Middlesex	PSA-PA
Long-Term Residential Health Care	All In A Day Medical Daycare Center	104 Pension Road	Englishtown	07726	Monmouth	PSA-OB
Long-Term Residential Health Care	Always At Home	8A Jocama Blvd	Old Bridge	08857	Middlesex	PSA-PA & OB
Long-Term Residential Health Care	Amboy Care Center	1 Lindberg Avenue	Perth Amboy	08861	Middlesex	PSA-PA
Long-Term Residential Health Care	Atrium Post Acute Care of Matawan	38 Freneau Avenue	Matawan	07747	Monmouth	PSA-OB
Long-Term Residential Health Care	Atrium Senior Living of Matawan	40 Freneau Avenue	Matawan	07747	Monmouth	PSA-OB
Long-Term Residential Health Care	Brandywine Assisted Living at Governor's Crossing	49 Lasatta Avenue	Englishtown	07726	Monmouth	PSA-OB
Long-Term Residential Health Care	Brookdale Monroe	380 Forsgate Drive	Monroe Township	08831	Middlesex	PSA-OB
Long-Term Residential Health Care	Care One at East Brunswick	599 Cranbury Road	East Brunswick	08816	Middlesex	PSA-OB
Long-Term Residential Health Care	Cranbury Center	292 Applegarth Road	Monroe Township	08831	Middlesex	PSA-OB
Long-Term Residential Health Care	Golden Living Center - Old Bridge	6989 Rt18	Old Bridge	08857	Middlesex	PSA-PA & OB
Long-Term Residential Health Care	Golden Years Care	108 Woodward Road	Manalapan	07726	Monmouth	PSA-OB
Long-Term Residential Health Care	Graceland Adult Medical Day Care	316 Madison Avenue	Perth Amboy	08861	Middlesex	PSA-PA
Long-Term Residential Health Care	Just Home Medical Adult Day	7 Edgeboro Road	East Brunswick	08816	Middlesex	PSA-OB
Long-Term Residential Health Care	Just Like Home	426 Raritan Street, Raritan Center	Sayreville	08872	Middlesex	PSA-PA & OB
Long-Term Residential Health Care	Madison Center	625 State Highway 34	Matawan	07747	Monmouth	PSA-OB
Long-Term Residential Health Care	Memory Care Living South River	69 Burton Avenue	South River	08882	Middlesex	PSA-PA & OB
Long-Term Residential Health Care	Millennium Memory Care at Monroe	310 Buckelew Avenue	Monroe	08831	Middlesex	PSA-OB
Long-Term Residential Health Care	Monroe Village Health Care Center	One David Brainerd Drive	Monroe Township	08831	Middlesex	PSA-OB
Long-Term Residential Health Care	Parker at Monroe	395 School House Road	Monroe	08831	Middlesex	PSA-OB

Provider Type	Provider Name	Street Address	Town	ZIP Code	County	Service Area
Long-Term Residential Health Care	Pine Brook Care Center	104 Pension Road	Englishtown	07726	Monmouth	PSA-OB
Long-Term Residential Health Care	Preferred Care at Old Bridge, LLC	6989 Rt18	Old Bridge	08857	Middlesex	PSA-PA & OB
Long-Term Residential Health Care	Reformed Church Home	1990 Route 18 North	Old Bridge	08857	Middlesex	PSA-PA & OB
Long-Term Residential Health Care	Roosevelt Care Center at Old Bridge	1133 Marlboro Road	Old Bridge	08857	Middlesex	PSA-PA & OB
Long-Term Residential Health Care	Saint Peter's Adult Day Center	200 Overlook Drive, Pondview Plaza	Monroe Township	08831	Middlesex	PSA-OB
Long-Term Residential Health Care	Sewa Adult Day Care	1020 Route 18 North, Suite M	East Brunswick	08816	Middlesex	PSA-OB
Long-Term Residential Health Care	South Amboy Adult Day Health Care Center	540 Bordentown Avenue	South Amboy	08879	Middlesex	PSA-PA & OB
Long-Term Residential Health Care	St. Joseph's Home Assisted Living & Nursing Center Inc, DBA St. Joseph's Senior Home	1-3 St Joseph's Terrace	Woodbridge	07095	Middlesex	PSA-PA
Long-Term Residential Health Care	Summer Hill Nursing Home	111 Route 516	Old Bridge	08857	Middlesex	PSA-PA & OB
Long-Term Residential Health Care	Sunrise Assisted Living of East Brunswick	190 Summerhill Road	East Brunswick	08816	Middlesex	PSA-OB
Long-Term Residential Health Care	The Chelsea at East Brunswick	606 Cranbury Road	East Brunswick	08816	Middlesex	PSA-OB
Long-Term Residential Health Care	The Chelsea at Forsgate	319 Forsgate Drive	Jamesburg	08831	Middlesex	PSA-OB
Long-Term Residential Health Care	The Chelsea at Manalapan	445 Route 9 South	Manalapan	07726	Monmouth	PSA-OB
Long-Term Residential Health Care	The Gardens at Monroe Healthcare And Rehabilitation	189 Applegarth Road	Monroe Township	08831	Middlesex	PSA-OB
Long-Term Residential Health Care	The Venetian Care & Rehabilitation Center	275 John T O'Leary Boulevard	South Amboy	08879	Middlesex	PSA-PA & OB
Minute Clinic	CVS Minute Clinic	253 Gordon Corner Road	Manalapan	07726	Monmouth	PSA-OB
Minute Clinic	CVS Minute Clinic	330 Rues Lane	East Brunswick	08816	Middlesex	PSA-OB
Minute Clinic	CVS Minute Clinic	2988 Highway 516	Old Bridge	08857	Middlesex	PSA-PA & OB
School Linked Services	Carteret High School	199 Washington Avenue	Carteret	07008	Middlesex	PSA-PA
School Linked Services	NJ Child Assault Prevention - Middlesex County Cap, Inc.	11 Ely Avenue	Laurence Harbor	08879	Middlesex	PSA-PA & OB
School Linked Services	NJ Child Assault Prevention Network Cap of Monmouth County Inc.	Po Box 241	Matawan	07747	Monmouth	PSA-OB
School Linked Services	Perth Amboy High School	300 Eagle Avenue	Perh Amboy	08861	Middlesex	PSA-PA
School Linked Services	Robert N. Wilentz Elementary School	51 1St Street	Perth Amboy	08861	Middlesex	PSA-PA
Senior Services- Health	Amboy Care Center	1 Lindberg Avenue	Perth Amboy	08861	Middlesex	PSA-PA
Senior Services- Health	Aristacare At Alameda	303 Elm Street	Perth Amboy	08861	Middlesex	PSA-PA
Senior Services- Health	Atrium of Matawan	38 Freneau Avenue	Matawan	07747	Middlesex	PSA-OB
Senior Services- Health	Care One at East Brunswick	599 Cranbury Road	East Brunswick	08816	Middlesex	PSA-OB
Senior Services- Health	Cranbury Center	292 Applegarth Road	Monroe Township	08831	Middlesex	PSA-OB
Senior Services- Health	Gardens at Monroe	189 Applegarth Road	Monroe Township	08831	Middlesex	PSA-OB
Senior Services- Health	Golden Living Center - Old Bridge	6989 Rt.18 South	Old Bridge	08857	Middlesex	PSA-PA & OB
Senior Services- Health	Madison Center Genesis ElderCare	625 Route 34	Matawan	07747	Middlesex	PSA-OB
Senior Services- Health	Monroe Village Health Care Center	1 David Brainerd Drive	Monroe Township	08831	Middlesex	PSA-OB
Senior Services- Health	Reformed Church Home	1990 Rt. 18 North	Old Bridge	08857	Middlesex	PSA-PA & OB
Senior Services- Health	Roosevelt Care Center at Old Bridge	1133 Marlboro Road	Old Bridge,	08857	Middlesex	PSA-PA & OB
Senior Services- Health	St. Joseph's Seniors' Home Nursing Center & Assisted Living	1-3 St. Joseph's Terrace	Woodbridge	07095	Middlesex	PSA-PA
Senior Services- Health	Summer Hill Nursing Home	111 Route 516	Old Bridge	08857	Middlesex	PSA-PA & OB
Senior Services- Health	Venetian Care and Rehabilitation Center	275 John T. O'Leary Boulevard	South Amboy	08879	Middlesex	PSA-PA & OB
Senior Services- Health	Victoria Health Care Center	38 Freneau Ave	Matawan	07747	Monmouth	PSA-OB
Senior Services- Social	Carteret Office on Aging	100 Cooke Avenue	Carteret	07008	Middlesex	PSA-PA
Senior Services- Social	Manalapan Senior Center	211 Freehold Road	Manalapan	07726	Monmouth	PSA-OB
Senior Services- Social	Monroe Office of Senior Services/Senior Center	12 Halsy Reed Road	Monroe Twp.	08831	Middlesex	PSA-OB

Provider Type	Provider Name	Street Address	Town	ZIP Code	County	Service Area
Senior Services- Social	Old Bridge Senior Center/Office on Aging	1 Old Bridge Plaza	Old Bridge	08857	Middlesex	PSA-PA & OB
Senior Services- Social	Perth Amboy Alexander J. Jankowski Community Center	1 Olive Street	Perth Amboy	08861	Middlesex	PSA-PA
Senior Services- Social	Sayreville Senior Center Office on Aging	423 Main Street	Sayreville	08872	Middlesex	PSA-PA & OB
Senior Services- Social	South Amboy Senior Center	108 South Stevens Avenue	South Amboy	08872	Middlesex	PSA-PA & OB
Senior Services- Social	South River Senior Center Office on Aging	55 Reid Street	South River	08882	Middlesex	PSA-PA & OB
Special Hospital	Care One at Raritan Bay Medical Center, LLC	530 New Brunswick Avenue, 2Nd Floor Green	Perth Amboy	08861	Middlesex	PSA-PA
Surgical Center	Ambulatory Surgery Center at Old Bridge	400 Perrine Road, Suite 408	Old Bridge	08857	Middlesex	PSA-PA & OB
Surgical Center	Center for Bone and Joint Surgery	195 Route 9 South, Suite 210	Manalapan	07726	Monmouth	PSA-OB
Surgical Center	Contemporary Plastic Surgicenter, LLC	579A Cranbury Road, Suite 202	East Brunswick	08816	Middlesex	PSA-OB
Surgical Center	Endo Surgi Center of Old Bridge LLC	42 Throckmorton Lane	Old Bridge	08857	Middlesex	PSA-PA & OB
Surgical Center	Jersey Ambulatory Surgical Center, L.L.C.	561 Cranbury Road - Suite D	East Brunswick	08816	Middlesex	PSA-OB
Surgical Center	Manalapan Surgery Center, Inc.	50 Franklin Lane	Manalapan	07726	Monmouth	PSA-OB
Surgical Center	Metropolitan Surgical Institute L.L.C.	540 Bordentown Avenue	South Amboy	08879	Middlesex	PSA-PA & OB
Surgical Center	Precision Surgical Center	620 Cranbury Road, Suite 115	East Brunswick	08816	Middlesex	PSA-OB
Surgical Center	Robert Wood Johnson-Endosurgical Center LLC	800 Ryders Lane	East Brunswick	08816	Middlesex	PSA-OB
Surgical Center	Surgery Center at Old Bridge The	2 Hospital Plaza, Third Floor, Suite 350	Old Bridge	08857	Middlesex	PSA-PA & OB
Surgical Center	University Surgicenter	561 Cranbury Road	East Brunswick	08816	Middlesex	PSA-OB
Urgent Care	Brunswick Urgent Care	641 Route 18 South	East Brunswick	08816	Middlesex	PSA-OB
Urgent Care	Doctors Care Center	579 Cranbury Rd., Suite A	East Brunswick	08816	Middlesex	PSA-OB
Urgent Care	Doctors Medi Center Inc	835 Roosevelt Ave, Suite 4A	Carteret	07008	Middlesex	PSA-PA
Urgent Care	East Brunswick Healthcare	741 New Jersey 18	East Brunswick	08816	Middlesex	PSA-OB
Urgent Care	Excel Urgent Care	2624 Highway 516	Old Bridge	08857	Middlesex	PSA-PA & OB
Urgent Care	Medexpress Urgent Care	418 New Jersey 18	East Brunswick	08816	Middlesex	PSA-OB
Urgent Care	My Instadoc Urgent Care	167 Us 9 South	Marlboro	07726	Monmouth	PSA-OB
Urgent Care	The Doctors Office	120 Craig Road	Manalapan	07726	Monmouth	PSA-OB

APPENDIX E
IRS FORM 990, SCHEDULE H COMPLIANCE

IRS Form 990, Schedule H	See Report Page(s)
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