

Health and Safety Baseline Topic Report

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Introduction

This report is one of a series of baseline reports which seek to characterize existing conditions, regional needs, patterns, trends, challenges and opportunities with respect to a particular issue in the thirteen-county northern New Jersey region. Public health and safety are important outcomes of decisions about the physical environment regardless of whether those decisions are designed to boost local economic competitiveness, promote affordable housing, increase transportation choices, or leverage financial investments. Health and safety are woven throughout the federal livability principles (U.S. Department of Housing and Urban Development) as well as the “Garden State Values” in the draft New Jersey State Strategic Plan (New Jersey State Planning Commission, 2012). But health and safety need not be mere outcomes of planning and policy. Consideration of health and safety as important priorities throughout the planning process can inform policy decisions and be used as an opportunity to improve health outcomes.

For these reasons, Together North Jersey (TNJ) is taking a “health in all policies” approach as part of the development of the Regional Plan for Sustainable Development (RPSD) and intends to build capacity throughout the RPSD planning process in order to support consideration of public health impacts within development of recommendations for various topic areas such as transportation, energy, and housing.

This report is in four sections. The first describes existing conditions and key trends with respect to health and safety in the North Jersey region. It includes an overview of existing health issues and trends, with a focus on major areas of health concern: chronic diseases, communicable disease, infant mortality, unintentional death and injury, intentional death and injury, and environmental health. This section also takes a closer look at disparities in health outcomes among different races, genders, and geographic areas, identifies existing community health and safety resources and their accessibility across the region, and concludes with a summary of major challenges and trends in the region with respect to health and safety.

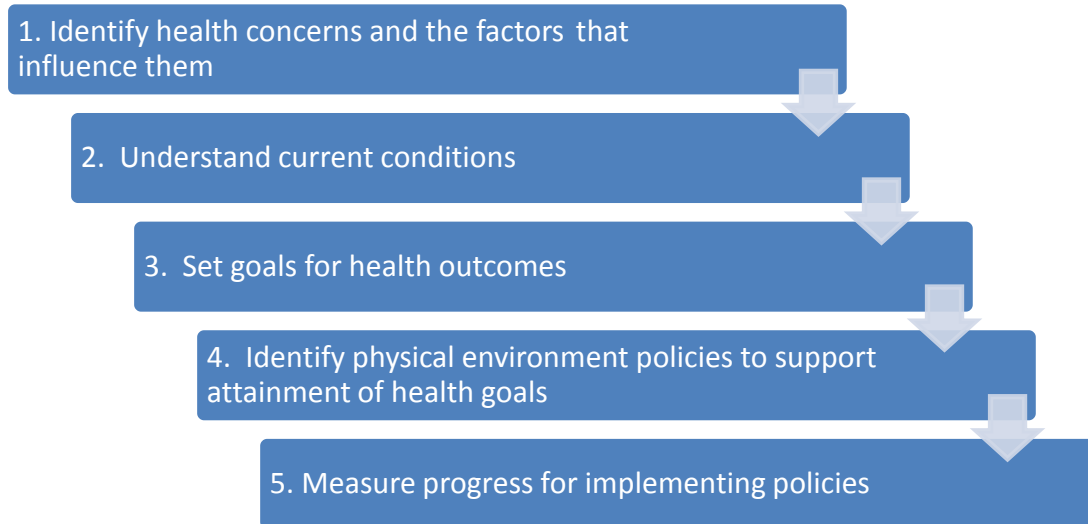
The second section focuses on the policy, planning and resource environment for health and safety in the region. It summarizes existing public health infrastructure in the region, state and regional policies and regulations affecting health and safety, the interaction between public health and urban planning decision-makers, and finally the challenges and opportunities likely to influence the course of public health in the coming years.

The third section identifies desirable health and safety outcomes for the region within the context of the livability principles of the sustainable communities initiative. To the greatest extent possible, the health goals of the RPSD will align with the Healthy New Jersey 2020 initiative administered by the state Department of Health and Senior Services. The challenge facing the development of a Health and Safety Topic Report is to support articulation of health and safety outcomes in ways that are relevant to planning and decision-making affecting the physical or built environment. For example, traditional articulation of health outcomes that focus on substance abuse may consider percentage of the population in drug treatment programs, whereas, for the purposes of the RPSD, the emphasis of subtopics and indicators may, instead, consider zoning requirements that dictate density of liquor stores in proximity to residential areas. Similarly, traditional health outcomes that focus on obesity may consider the percentage the region’s population that is overweight whereas, for the purposes of the RPSD, the emphasis of subtopics and indicators may, instead, focus on proximity to areas that provide active recreational opportunities and grocery stores or farmers’ markets.

The final section summarizes the availability of indicators that can be used going forward to determine how, and to what extent, the desired outcomes are actually taking place.

The Health and Safety Subcommittee is organizing its deliberations around a logic model that involves identifying health outcome goals for major categories of health concerns as well as the identification of physical environment policies to support attainment of those health goals. See Figure 1.1.

Figure 1.1 Logic Model for Health and Safety Components of the RPSD



Existing Conditions and Trends

The purpose of this section is to describe existing conditions and key trends in health and safety in the northern New Jersey region and its component parts. We begin by identifying health concerns in the following major categories:

- Chronic diseases
- Communicable disease
- Infant mortality
- Unintentional death and injury
- Intentional death and injury
- Environmental health
- Access to health resources

This section defines health concerns in each category, discusses trends over time and across the region for particular health issues, including notable health disparities, and briefly sets forth a relationship between each health outcome and the factors that cause it. For each health concern, data in the North Jersey Region and its component counties are presented to provide a baseline for goal setting in the RPSD. These baseline conditions inform the development of desired long-term outcomes for health and safety in the region and form the starting point for identification of physical environment policies that support attainment of these health goals. Long-term goals and potential policies are presented in the later sections of this report, along with an identification of challenges and opportunities facing the region related to health and safety.

To facilitate future tracking and comparisons, existing sources and compilations of data are used and kept to a core minimum. Health data and statistics in New Jersey are maintained by the state Department of Health and Senior Services through the New Jersey State Health Assessment Data (NJSHAD) system. NJSHAD includes written publications and indicator reports and also allows for custom queries (New Jersey Department of Health: Center for Health Statistics). Data is updated as available but is typically three years behind due to the time required to collect, process, and perform quality control on the data (New Jersey Department of Health: Center for Health Statistics). NJSHAD also houses data compiled by NJDHSS and the New Jersey Department of Environmental Protection under the national Environmental Public Health Tracking Program (EPHT) (New Jersey Department of Health, Environmental Public Health Tracking Program, 2012). Additionally, data from three sources that nationally rank health data is used to complement NJSHAD data. These include: the Robert Wood Johnson Foundation County Health Rankings Report, which is released annually, Statehealthfacts.org which is a project of the Henry J. Kaiser Family Foundation and is updated regularly as new data becomes available, and the America's Health Rankings program, which is a project of the United Healthcare Foundation and the American Public Health Association. Data on safety and unintentional death and injury was obtained largely from the New Jersey State Police Department's annual reports. County level data is provided where available; state level data is used in the absence of county level sources.

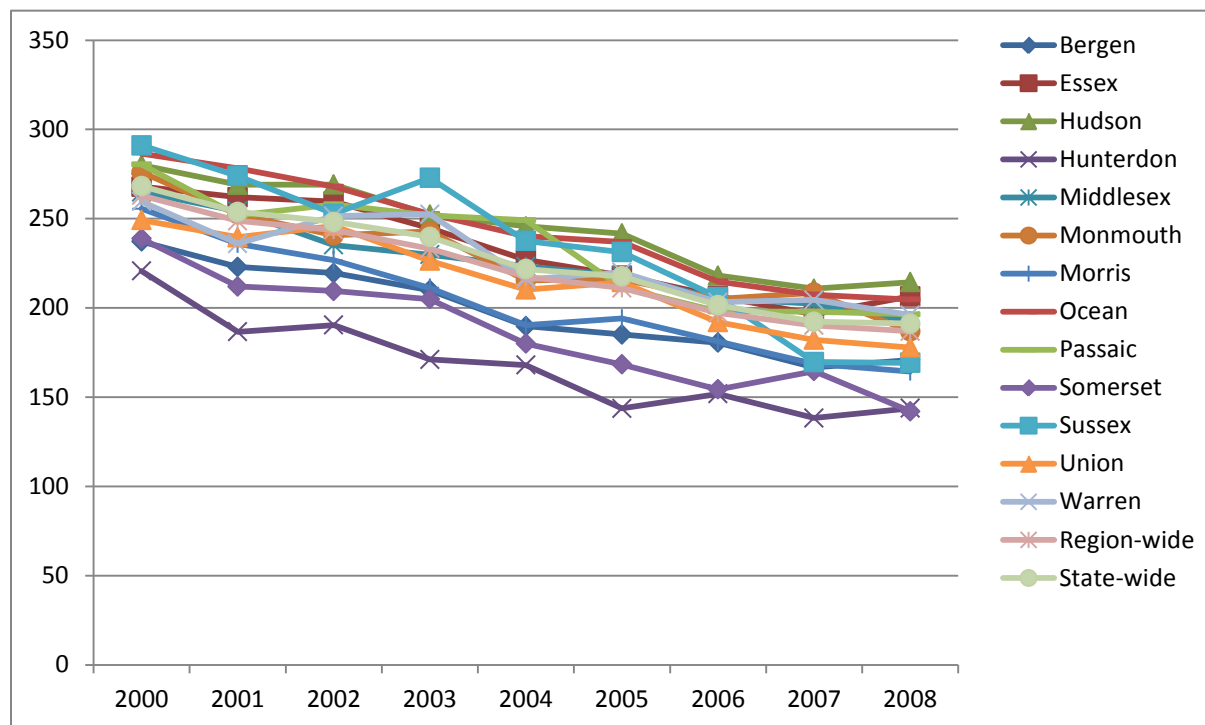
Chronic Diseases

Heart Disease

Heart disease is the leading cause of death in New Jersey. Heart disease and stroke are amongst the most costly conditions in the United States, accounting for more than \$500 billion in health care expenditures in 2010. Leading risk factors for heart disease and stroke include high blood pressure, high cholesterol, cigarette smoking, diabetes, poor diet and physical inactivity, and being overweight or obese. Cardiovascular health is substantially influenced by societal factors such as access to health care, access to healthy foods, educational opportunities, opportunities for physical activity, and healthy working conditions (Healthy People 2020, 2013).

New Jersey has made progress in reducing heart-related mortality over the past decade. Heart disease was responsible for 191.2 per 100,000 deaths in New Jersey in 2008, down from 268.2 in 2000 (New Jersey Department of Health: Center for Health Statistics). The age-adjusted rate of death due to stroke was 32.9 per 100,000 in 2008, down from 48.8 in 2000. Hospitalizations due to heart attacks have declined from 26.1 per 10,000 in 2000 to 18.2 in 2009. Death rates due to heart disease are highest in Hudson, Essex, and Ocean counties (New Jersey Department of Health: Center for Health Statistics).

Figure 2.1 Age-adjusted Death Rates Per 100,000 due to Heart Disease



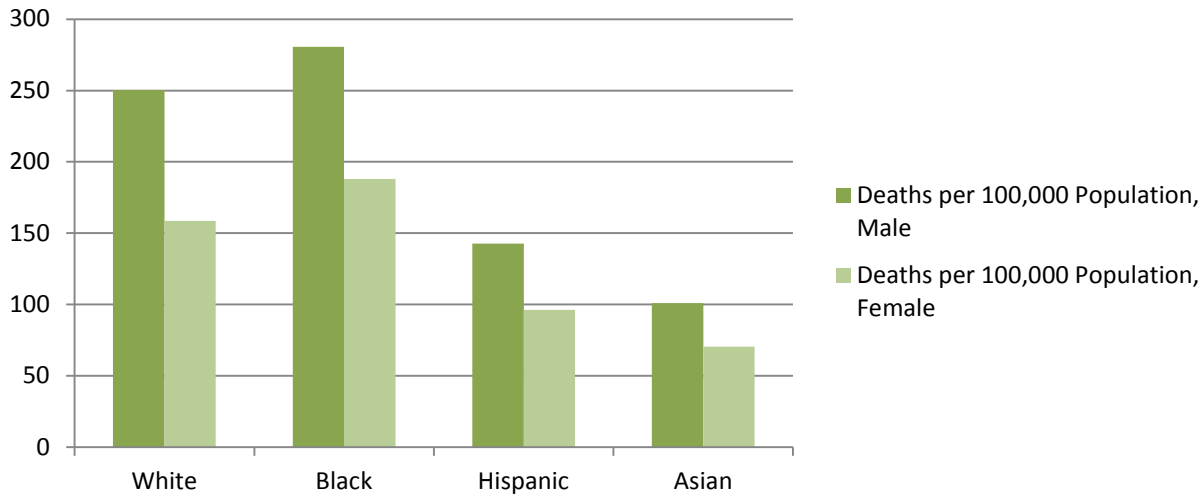
Data source: NJSHAD

	2000	2001	2002	2003	2004	2005	2006	2007	2008
Bergen	237.2	222.9	219.5	209.9	189.8	185.1	180.5	166.6	170.8
Essex	267.9	262	259.6	244.6	227	218.1	206.5	196.5	206.4
Hudson	280	269	269.1	252.2	245.7	241.7	218.1	210.7	214.4
Hunterdon	220.7	186.6	190.4	171.1	168	143.7	151.8	138.3	143.8
Middlesex	264.9	254.2	235.2	229.8	223.3	218	205.2	202.4	192.6
Monmouth	276	252.4	240.7	242.8	215.4	215.9	205	208.5	186.8
Morris	255.6	235.9	226.7	211.2	190.3	194.1	181.2	168.6	164.4
Ocean	286.4	278.2	267.9	252.5	240.1	236.9	214.8	207.4	204.7
Passaic	280.4	251.8	258	251.9	249.2	211.3	198	197.9	196.4
Somerset	238.8	212	209.5	204.9	180	168.3	154.3	164.6	142.1
Sussex	291.1	273.9	252.7	272.9	237.5	231.3	206	169.7	169.2
Union	249.2	239.6	246	226.4	210.3	214.4	192	182.1	177.8
Warren	259.6	236	251.4	252.5	216	220	203.2	204.5	196
Region-wide	263	248.7	243.6	233.2	217.4	211.1	197.1	190.2	186.9
State-wide	268.2	253.8	248.2	239.8	221.8	217.6	201.5	192.3	191.2

Despite New Jersey's progress in reducing heart disease-related mortality, there continue to be racial disparities in mortality rates. Blacks have the highest rate of deaths due to heart disease (234.4), followed by whites

(204.5), Hispanics (119.5), and Asians (85.75). Amongst all racial groups, males are much more likely than females to die as a result of heart disease (193.75 deaths per 100,000 for males and 128.3 for females in 2008) (New Jersey Department of Health: Center for Health Statistics).

Figure 2.2 Age-Adjusted Death Rate due to Heart Disease by Race/Ethnicity and Gender, NJ, 2008



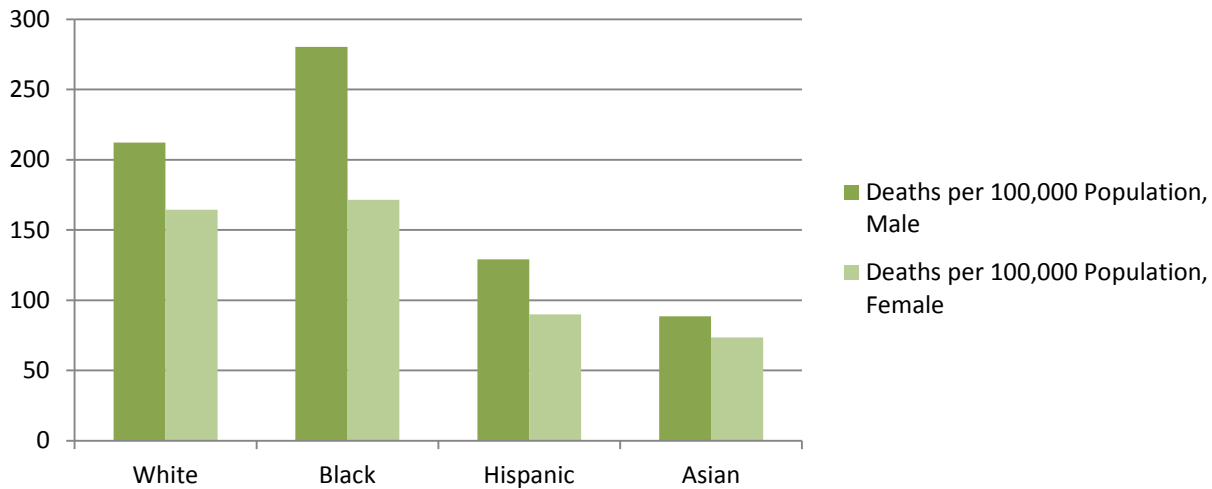
Data source: NJSHAD

Cancer

Cancer is the second most common cause of death in the United States. While the causes of cancer are complex, some cancers are preventable by reducing risk factors such as use of tobacco products, physical inactivity and poor nutrition, obesity, ultraviolet light exposure, and exposure to air toxics. The EPA's National-Scale Air Toxics Assessment (NATA) evaluates all air toxics in the U.S., including estimates of the risk of cancer and other health effects from inhaling air toxics (Environmental Protection Agency, 2013). Screening is critical in identifying certain types of cancer, including breast, cervical, and colorectal cancers (Healthy People 2020, 2013), underscoring the need to facilitate easy access to clinics where screenings are available.

There were 16,740 cancer-related deaths in New Jersey in 2008. There has been a slow but steady decline in cancer mortality over the past decade, with the death rate declining from 205.3 per 100,000 in 2000 to 174.6 in 2008 (New Jersey Department of Health: Center for Health Statistics). The incidence of cancer statewide was 494.9 per 100,000 population in 2008, according to the Kaiser Family Foundation (Kaiser Family Foundation). The most common types of cancer in New Jersey are prostate cancer (162.5 per 100,000), breast cancer (129.8 per 100,000) and lung/bronchus cancer (62.7 per 100,000) (Centers for Disease Control and Prevention, 1999–2008 Incidence and Mortality Web-based Report, 2012). Death rates have declined slightly for all three of the most common cancers since 2000. There are notable racial and gender disparities in overall cancer mortality in New Jersey (New Jersey Department of Health: Center for Health Statistics).

Figure 2.3 Age-Adjusted Death Rate due to Cancer by Race/Ethnicity and Gender, New Jersey, 2008



Data source: NJSHAD

Prostate Cancer

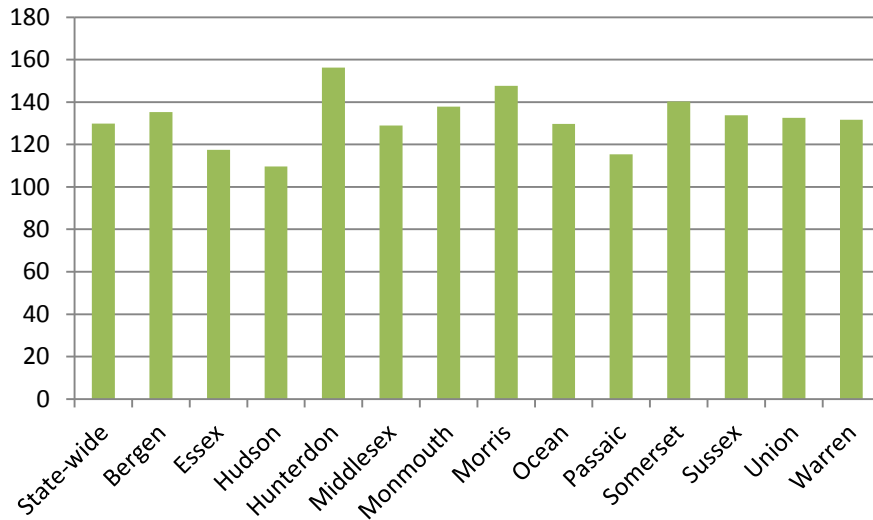
Prostate cancer is the most common cancer among men. People at higher risk of prostate cancer include African Americans, men older than 50, and men with a family history of prostate cancer (Centers for Disease Control). Deaths due to prostate cancer have been declining in New Jersey, from 30.4 per 100,000 in 1999 to 23.6 in 2007 (New Jersey Department of Health: Center for Health Statistics). There is a large racial disparity in prostate cancer death rates, at 53.4 per 100,000 for blacks compared with 21.8 for whites, and 19.5 among Hispanics (New Jersey Department of Health: Center for Health Statistics)

Breast Cancer

Breast cancer is the second most common cancer among women in the United States. Risk factors include family history of breast cancer, early onset of menstruation (before age 12), radiation exposure, being obese or overweight, and lack of physical activity. Breast cancer incidence rates are particularly high in Hunterdon, Somerset, and Morris counties, with rates ranging from 140.3 in Somerset up to 156.3 per 100,000 in Hunterdon County. Statewide, incidence levels of breast cancer have been relatively stable for a decade (New Jersey Department of Health: Center for Health Statistics).

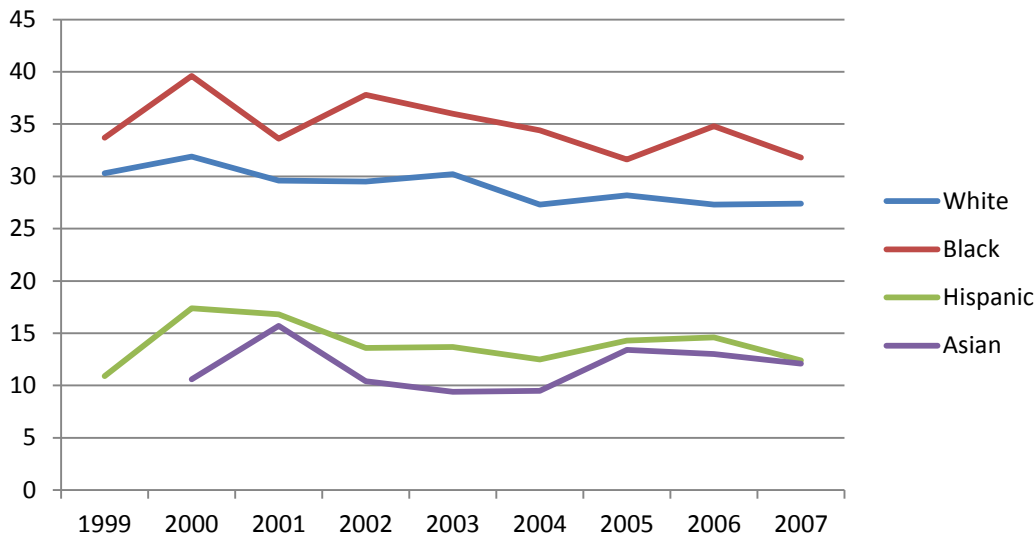
Deaths due to breast cancer are more common among black women (31.8 per 100,000) and white women (27.4) than among Hispanic (12.4) and Asian (12.1) women (New Jersey Department of Health: Center for Health Statistics). These mortality rates do not match up with the rates of screening for cancer; 77.7% of white women aged 50 and older in New Jersey had a mammogram in the period 2008-2010, compared with 81.1% of black women, and 80.7% of Hispanic women (Kaiser Family Foundation).

Figure 2.4 Age-Adjusted Invasive Breast Cancer Incidence in Females, New Jersey, 1990 – 2009



Data source: NJSHAD

Figure 2.5 Death Rate due to Female Breast Cancer, Age-Adjusted, by Year and Race/Ethnicity, New Jersey



Data source: NJSHAD

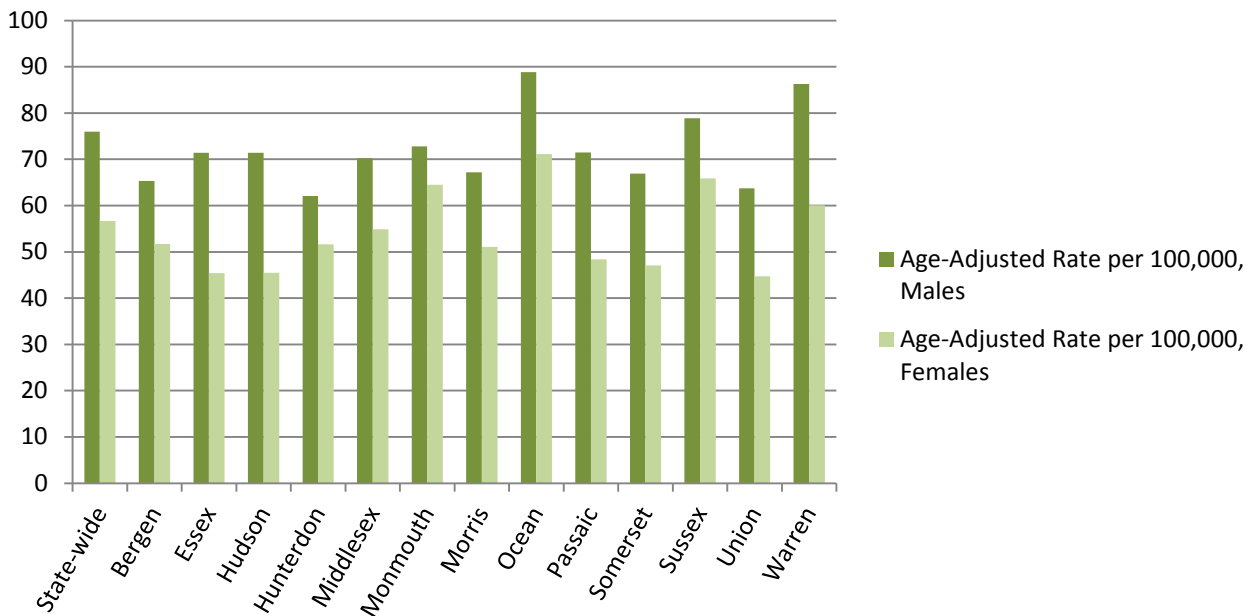
Lung and Bronchus Cancer

Lung and bronchus cancer cause the greatest number of cancer deaths among New Jersey residents. Over 90% of lung cancer cases are attributed to cigarette smoking. Other risk factors include exposure to secondhand tobacco smoke, radon, radiation, and air pollution, especially particulates from burning fossil fuel. Lung and bronchus cancer incidence has been decreasing among men and has remained relatively flat for women over the period 1990-2009, so while there was once a large gender disparity, this gap is narrowing, with incidence rates per 100,000 of 69.9 for males and 53.4 for females in 2009. Incidence of lung and bronchus cancers is notably higher in South Jersey than North Jersey, but certain counties in the NJTPA region have relatively high incidence

rates: Warren and Sussex for males (86.3 and 78.9 per 100,000 respectively) and Monmouth and Sussex for females (64.5 and 65.9) (New Jersey Department of Health: Center for Health Statistics).

In New Jersey, 15.8% of adults over age 18 regularly smoke cigarettes, down from a high of 23% in 1996. Warren County has a particularly high rate for North Jersey, at 18.2% (New Jersey Department of Health: Center for Health Statistics). There has been a dramatic decline of smoking among high school students in New Jersey, with 14.3% of high school age students who reported using cigarettes in 2008, down from 36.6% in 1998. The decline amongst middle school students has been even more dramatic, with rates decreasing from 13% in 1999 to 2.8% in 2008 (New Jersey Department of Health: Center for Health Statistics).

Figure 2.6 Age-Adjusted Lung and Bronchus Cancer Incidence, 2005-2009



Data source: NJSHAD

Colorectal Cancer

Mortality due to colorectal cancer is more common among black men (23.7 per 100,000) than white men (19.1) or Hispanic men (11.2), and much lower among Asian men (6.3) (New Jersey Department of Health: Center for Health Statistics). Hispanic men were the least likely to have gotten a colorectal screening; 58.2% of Hispanic men had not been screened in 2006-2008, compared with 52% of black men and 39.9% of white men (Kaiser Family Foundation).

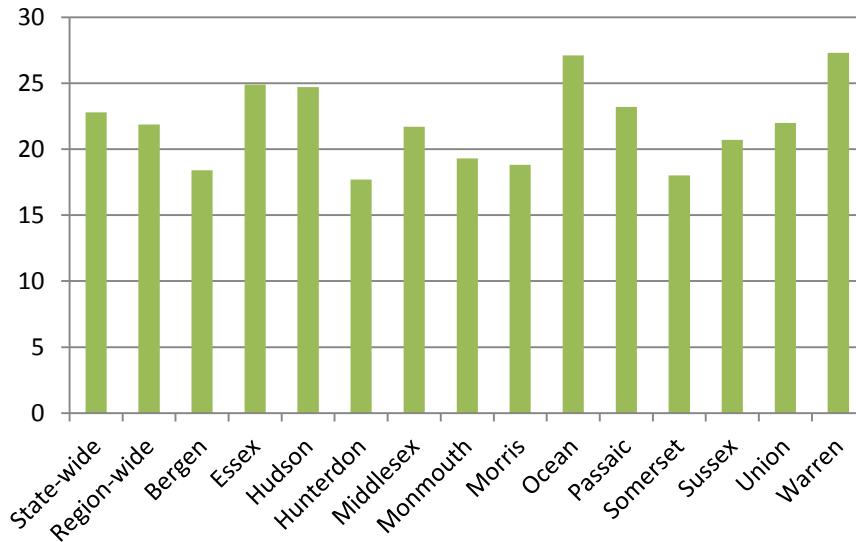
Obesity

Overweight and obesity describe ranges of weights that are higher than what is considered healthy for a given height. Obesity is caused by a variety of factors, including genetics, overeating, and lack of adequate physical activity. As weight increases, people are at greater risk for a range of health conditions, including heart disease, Type 2 diabetes, cancer, hypertension, stroke, and respiratory problems (Centers for Disease Control).

Obesity in New Jersey has been rising, with 23.7% of adults in the state considered obese in 2007, compared with 17% in 1999 (New Jersey Department of Health: Center for Health Statistics). In North Jersey, Ocean and

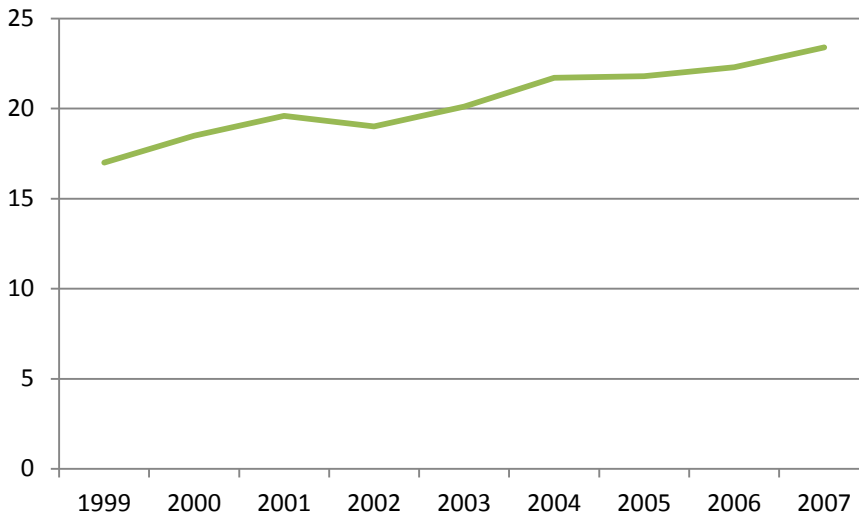
Warren counties have the highest adult obesity rates, at 27% each (Robert Wood Johnson Foundation, 2012). The percent of overweight (but not obese) adults in 2007 was 38.2%, bringing the total of overweight plus obese adults to 61.9% of the population (New Jersey Department of Health: Center for Health Statistics).

Figure 2.7 Percentage of Persons Aged 18 and Older who are Obese by County, 2006-2008



Data source: NJSHAD

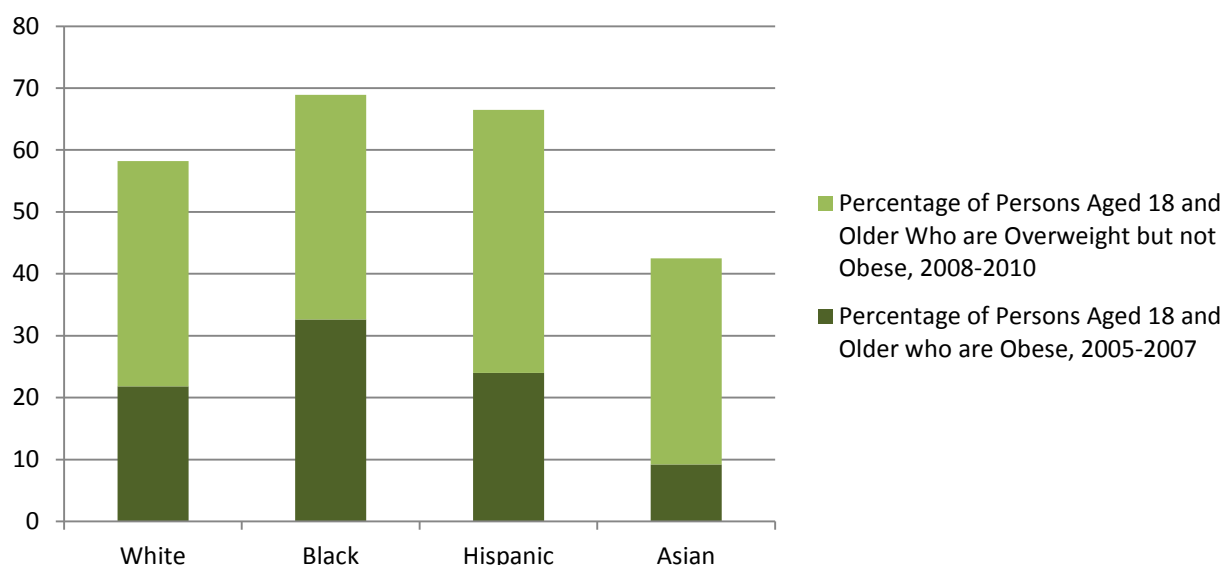
Figure 2.8 Percentage of Persons Aged 18 and Older who are Obese by Year, New Jersey, 1999-2007



Data source: NJSHAD

While obesity is a rising problem for all populations in New Jersey, there are substantial racial disparities present. Obesity is most prevalent amongst blacks, with 32.6% of blacks in New Jersey aged 18+ considered obese, compared with 24% of Hispanics, 21.8% of whites, and 9.2% of Asians (New Jersey Department of Health: Center for Health Statistics). This disparity starts at a young age, with 16.5% of black adolescents (grades 9-12) considered obese in 2007, compared with 8.2% of white adolescents (New Jersey Department of Health: Center for Health Statistics).

Figure 2.9 Percentage of NJ Adults who are Overweight or Obese by Race/Ethnicity



Data source: NJSHAD

Diabetes

Diabetes occurs when the body cannot produce or respond to insulin, a hormone required to absorb sugar as energy. Diabetes lowers life expectancy by up to fifteen years, increases the risk of heart disease by up to 4 times, and is the leading cause of kidney failure, lower limb amputation, and adult onset blindness. Research indicates that the onset of Type II diabetes can be prevented or delayed by lifestyle changes such as healthier dietary choices and increased physical activity (Healthy People 2020, 2013).

According to NJSHAD, diabetes is the sixth leading cause of death in New Jersey. Diabetes was responsible for 1,614 deaths in the North Jersey 13-county region in 2008, the most recent year for which data is available, down from 1,859 in 2000. Over the decade 2000-2008, deaths due to diabetes declined slightly, with a statewide age-adjusted death rate of 23.1 per 100,000 in 2008, down from 28.2 in 2000 (New Jersey Department of Health: Center for Health Statistics). Statewide, as of 2009, diabetes prevalence in adults 20 years of age and over was 8.7%. The average in the NJTPA region was 8.4%, with the highest rates in the region in Essex and Ocean counties at 9.5 and 10.9% respectively (Robert Wood Johnson Foundation, 2012).

Table 2.1 Age-Adjusted Death Rates Per 100,000 due to Diabetes mellitus

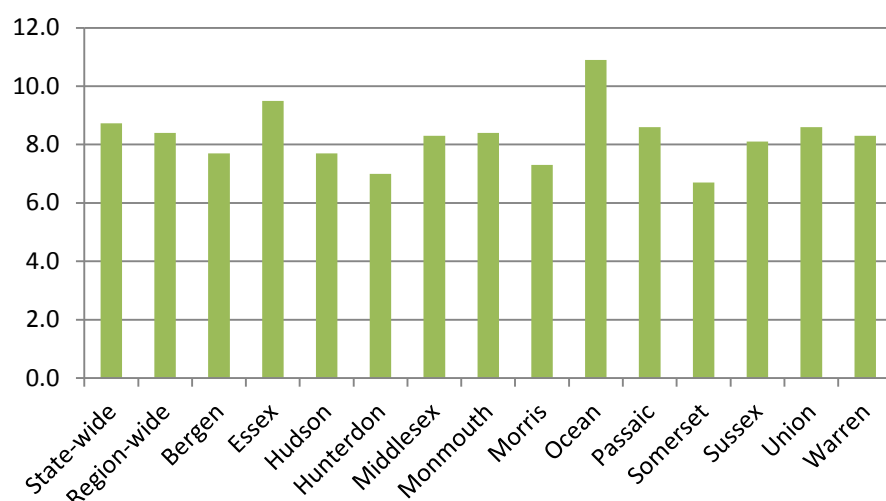
	2000	2001	2002	2003	2004	2005	2006	2007	2008
Bergen	20.7	20.2	19.5	18.5	21.2	18.4	18.1	18.4	16.7
Essex	37.4	41.4	35.4	38.9	34.6	35.6	36.8	31.9	29.5
Hudson	37.3	37.5	35.8	40.4	36.8	39.4	38.4	32.4	37.2
Hunterdon	22.2	29.1	28		21.8	24.9	22.4		
Middlesex	27	24.8	24.4	24.7	27.5	22.8	25.6	22.4	21.3
Monmouth	30.1	31.7	29	27.8	28.4	27.8	25	23.1	22.4
Morris	20.2	24.3	20.6	18.7	22	24	22.8	18.6	18

Ocean	27.9	27.8	25.4	23.7	25.9	23.8	21.4	20.8	16.9
Passaic	33.7	30.4	33.2	29.3	31.1	34.4	33.6	29.6	28.3
Somerset	26.4	26.6	22.6	28.7	27.7	23.7	20.2	23.8	20.2
Sussex	28.7	26.9	21.5	19.8	38.2	29.7	26.1	27.2	18.1
Union	23	26.5	28.4	24.7	30.5	31.5	29	24.6	23.7
Warren	28.2	25.6	29.6	30.8	35.9	17.6	21.5	27.5	19.2
Region-wide	27.9	28.6	27		28.2	27	26.2		
State-wide	26.8	28.2	28.7	28.1	27.2	28.3	27.2	26.1	24.4

Note: Data not included where there were fewer than 20 cases in the numerator or denominator.

Data source: NJSHAD

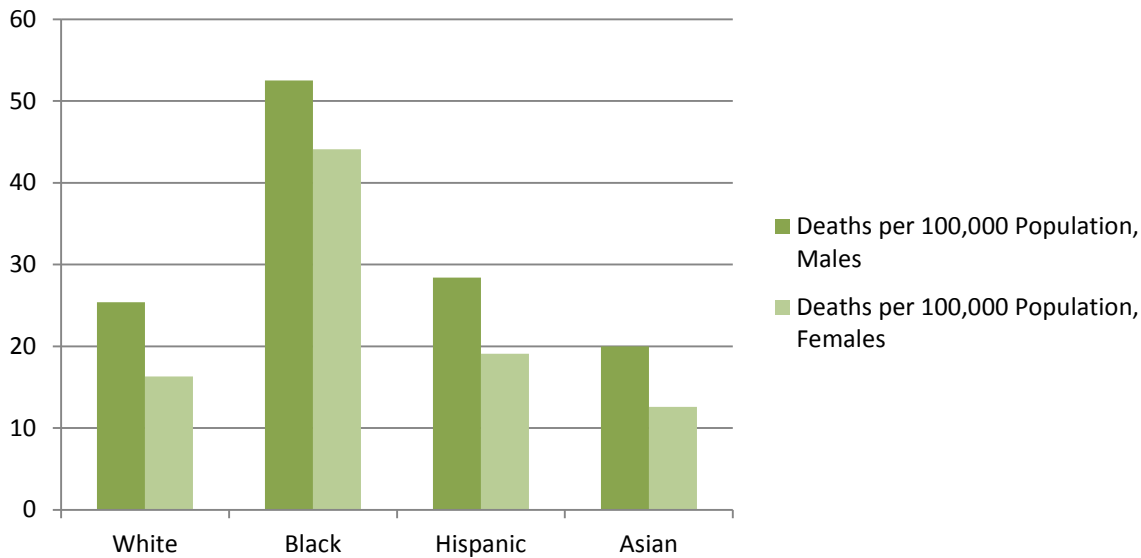
Figure 2.10 Percent of Adults Aged 20+ Diagnosed with Diabetes by County, 2009



Data source: Robert Wood Johnson Foundation (2012)

Diabetes morbidity in New Jersey varies substantially by race/ethnicity and by gender; 13.7 percent of non-Hispanic blacks have diabetes compared to 7.8 percent of non-Hispanic whites and 8.5 percent of Hispanics (United Healthcare Foundation). The death rate for diabetes is higher for males than females across all races, and highest amongst blacks compared with other racial groups (New Jersey Department of Health: Center for Health Statistics).

Figure 2.11 Age-Adjusted Death Rate due to Diabetes by Race/Ethnicity and Gender, New Jersey, 2008



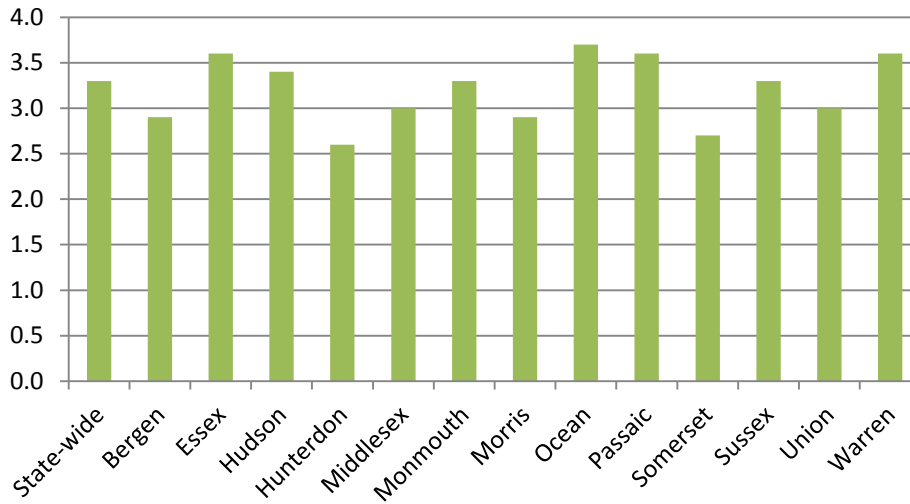
Data source: NJSHAD

Mental Health

Healthy People 2020 defines mental health as “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, maintaining interpersonal relationships, and the ability to contribute productively to society. Mental health disorders, which are characterized by changes in thought, mood, or behavior that impair mental health, are one of the leading causes of disability in the United States, and suicide is one of the leading causes of death. Mental and physical health are closely related in that mental illnesses such as depression and anxiety often interfere with the ability to maintain good physical health, while chronic physical health problems negatively impact mental health, which can in turn interfere with recovery and treatment (Healthy People 2020, 2013).

The Robert Wood Johnson County Health Rankings has a measure called ‘Poor Mental Health Days’ which is based on responses to the question “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?” The responses in New Jersey ranged from 2.6 to 4.3 poor mental health days per month, with an average of 3.3. The ‘unhappiest’ counties in North Jersey, by this measure, are Ocean, Warren, Essex, and Passaic counties, with responses of 3.6-3.7 poor mental health days per month (Robert Wood Johnson Foundation, 2012).

Figure 2.12 Reported Number of Poor Mental Health Days in Past Month. 2004-2010



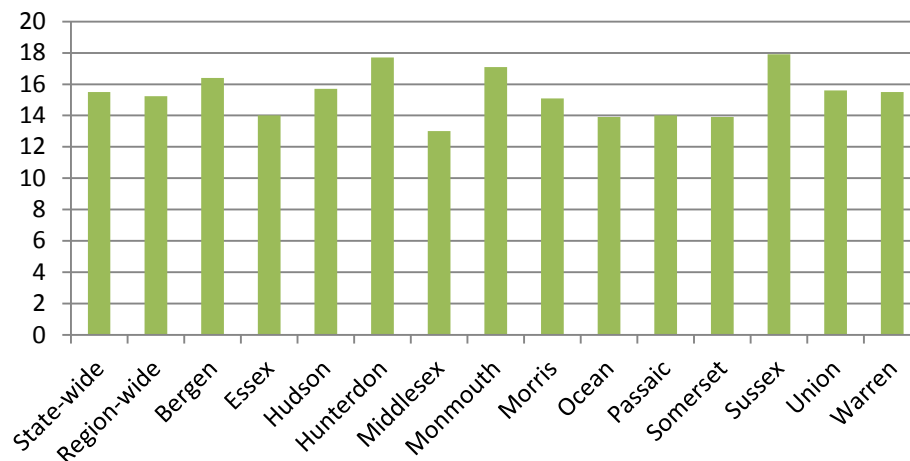
Data source: Robert Wood Johnson Foundation 2012

Substance Abuse

Substance abuse refers to the consumption of mind- and behavior-altering substances that have negative behavioral and health outcomes. Abuse of drugs and alcohol contributes to a number of social, physical, and mental health issues, including teenage pregnancy, HIV and other sexually transmitted diseases, domestic violence, child abuse, motor vehicle crashes, crime, and homicide.

Overall, 15.5% of adults surveyed in New Jersey (15.2% in North Jersey) report excessive drinking, per the Centers for Disease Control and Prevention's Behavioral Risk Factor Surveillance System (BRFSS), a random-digit dial survey. Excessive drinking is defined as either binge drinking, which entails consuming more than 4 (women) or 5 (men) alcoholic beverages on a single occasion in the past 30 days, or heavy drinking, which entails drinking more than 1 (women) or 2 (men) drinks per day on average. Hunterdon and Sussex counties have the highest reported rates at 18% (Robert Wood Johnson Foundation, 2012).

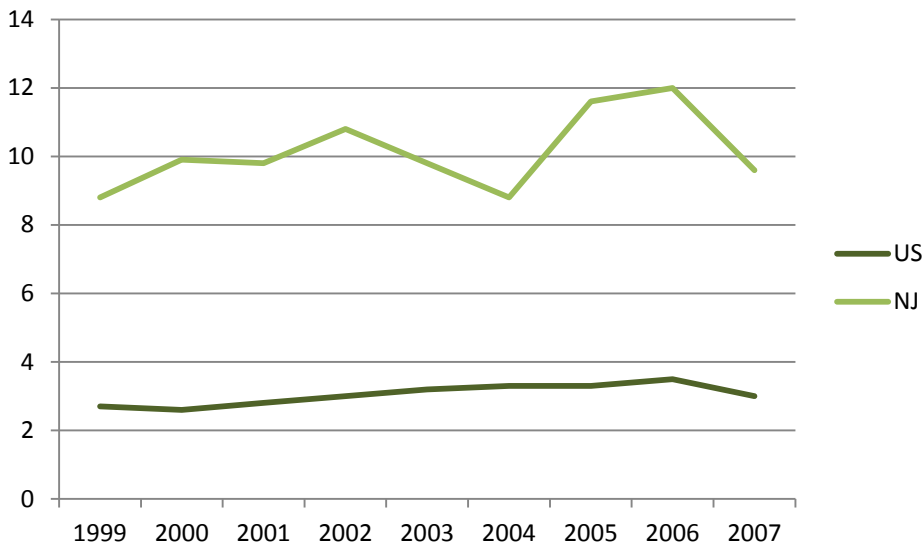
Figure 2.13 Percentage Surveyed Reporting Excessive Drinking in Past 30 Days, 2004-2010



Data source: Robert Wood Johnson Foundation (2012)

Drug-related deaths include deaths with an underlying cause of drug overdose, drug psychoses, drug dependence, non-dependent abuse of drugs other than alcohol or tobacco, suicide by drugs, homicidal poisoning by any drug or medicament, or drug poisoning that is undetermined whether accidentally or purposefully inflicted. The number of deaths in New Jersey attributed to drugs per 100,000 has increased from 8.8 in 1999 to 9.6 in 2007, with the highest rate (12 per 100,000) reported in 2006 (New Jersey Department of Health: Center for Health Statistics).

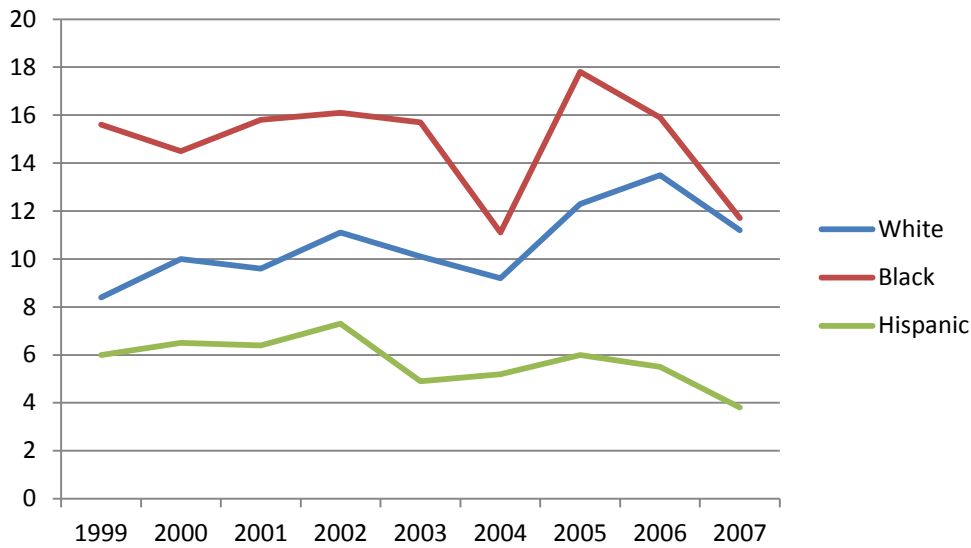
Figure 2.14 Age-Adjusted Death Rates due to Drug-Related Causes by Year



Data source: NJSHAD

The disparity between drug-related deaths between whites and blacks has been declining over time, mostly due to an increase in drug-related deaths among whites. The 2007 drug-related mortality rate in New Jersey was 11.7 per 100,000 among blacks, compared with 11.2 for whites and 3.8 for Hispanics (New Jersey Department of Health: Center for Health Statistics).

Figure 2.15 Age-Adjusted Mortality Rate due to Drug-Related Causes by Race/Ethnicity, New Jersey



Data source: NJSHAD

Developmental Disabilities

Developmental disabilities include attention deficit hyperactivity disorder (ADHD), autism spectrum disorders, cerebral palsy, intellectual and learning disabilities, and hearing and vision impairment. Causes of developmental disabilities include Down syndrome, fetal alcohol poisoning, cytomegalovirus (CMV) infection, low birthrate, premature birth, and newborn jaundice (Centers for Disease Control). According to the New Jersey Department of Human Services, more than 42,000 individuals in the state are eligible to receive services funded by the Division of Developmental Disabilities (New Jersey Department of Human Services).

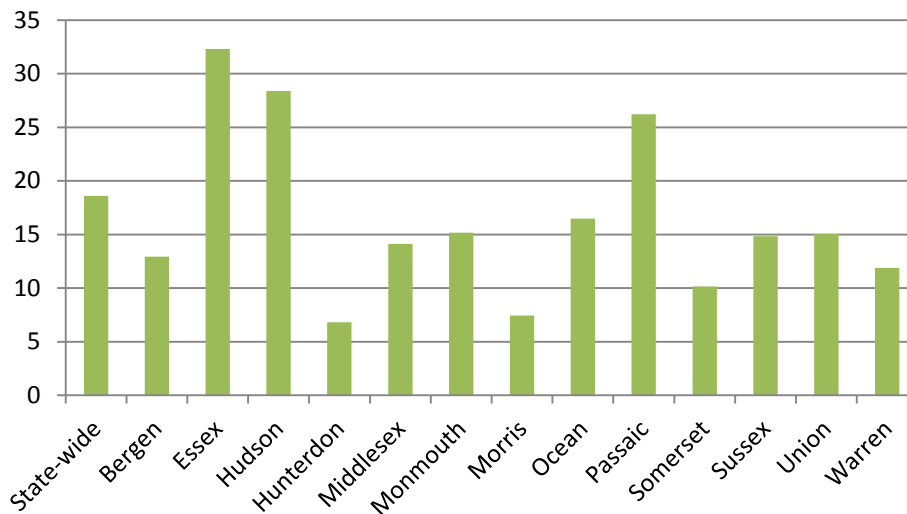
While available data sources contain limited information regarding overall estimates of the population in New Jersey affected by specific developmental disorders, data does exist on some of the causes and indicators of developmental disabilities. For example, 8.3% of births in New Jersey in 2007 were low birth weight (less than 2,500 grams); most counties in Northern Jersey had rates around 7.9%, though Essex County had a much higher rate at 10.6% (New Jersey Department of Health: Center for Health Statistics). Statewide, the prevalence of Down syndrome was 12.8 per 10,000 live births in 2007. Ninety-four percent of pregnant women abstained from alcohol during pregnancy in 2007 and 88.6% abstained from tobacco (New Jersey Department of Health: Center for Health Statistics).

Asthma

Asthma is a chronic inflammatory disorder of the airways characterized by episodes of breathing problems due to airway narrowing and obstruction. Symptoms include wheezing, coughing, and shortness of breath; episodes can range from mild to life-threatening. Risk factors include family history of asthma, having childhood respiratory infections, and being overweight (Healthy People 2020, 2013). Episodes are triggered by a variety of factors, including pollen, air pollution, cigarette smoke, mold, pet dander, and dust mites. As a chronic disease, asthma cannot be cured, but avoiding environmental and occupational triggers helps in reducing episodes of asthma (New Jersey Department of Health: Center for Health Statistics).

The average rate of asthma hospitalizations per 10,000 in New Jersey was 18.6 in 2009. This rate varied substantially by county with Passaic (26.2), Essex (32.3) and Hudson (28.4) counties experiencing the highest rates of asthma hospitalization, and Hunterdon (6.8) and Morris (7.4) counties experiencing the lowest rates. Statewide, asthma hospitalization rates increased from 15.2 in 2000 to 18.6 in 2009 (New Jersey Department of Health: Center for Health Statistics). The reported asthma prevalence rate amongst adults in New Jersey was 8.7% in 2010 (Kaiser Family Foundation). Asthma is much more common among women than men in New Jersey (10.8% compared with 6.5%), and asthma prevalence is higher amongst black adults (10.7%) than white adults (8.6%) (Kaiser Family Foundation).

Figure 2.16 Hospitalizations Due to Asthma, Age-Adjusted Rates by County, 2009



Data source: NJSHAD

Communicable Disease

Common Vaccine-Preventable Diseases

Vaccines are one of the most cost-effective preventive medical services and provide a very high return on investment, yet people in the United States continue to get vaccine preventable diseases such as tuberculosis, measles, and influenza (Healthy People 2020, 2013). By two years of age, it is recommended that all children should have received 4 doses of diphtheria-tetanus-pertussis (DTP), 3 doses of polio, 1 dose of measles-mumps-rubella (MMR), 3 doses of Hepatitis B, 3 doses of Haemophilus Influenza, type B (Hib), and 1 dose of Varicella vaccine (New Jersey Department of Health: Center for Health Statistics). Access to clinics and primary care physicians that can provide vaccines as well as education on the importance of vaccination are critical for this health outcome indicator.

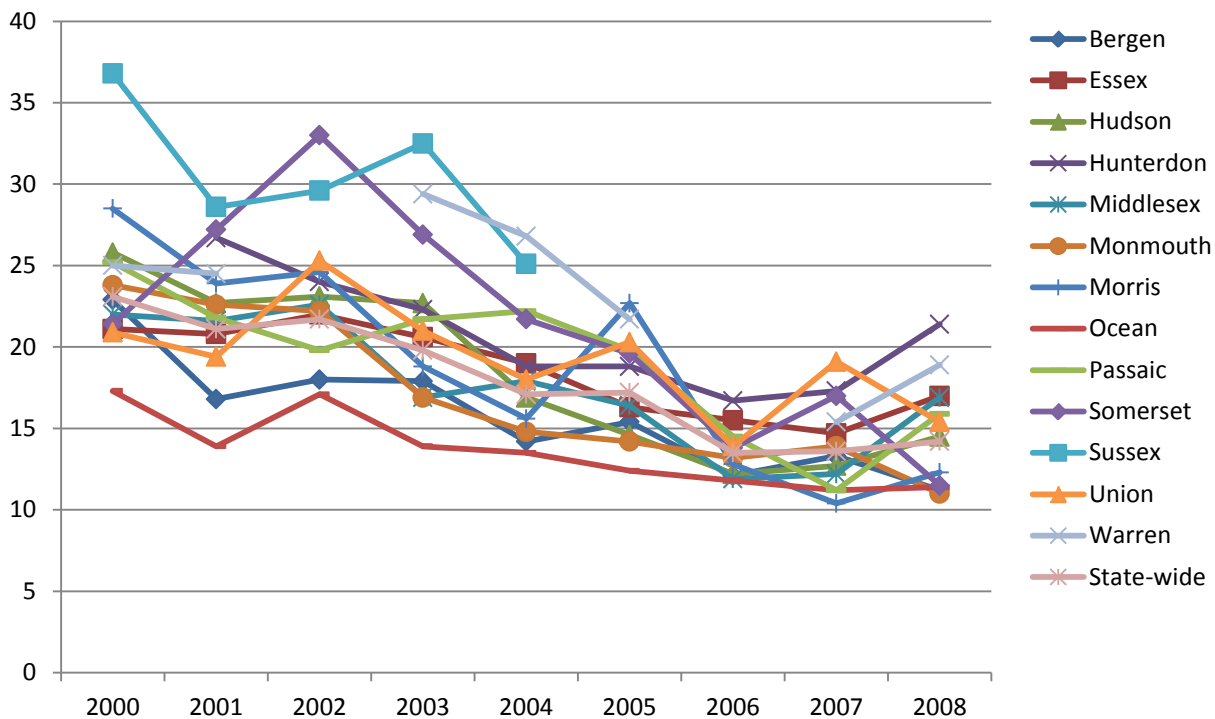
In 2008, the percentage of children in New Jersey who had received DTaP, polio, MMR, Hib and hepatitis B vaccines by age 2, separately and/or as part of the 4-3-1 series, was 72.6%, down from a high of 84.1% in 2004 (New Jersey Department of Health: Center for Health Statistics). United Healthcare ranks New Jersey 45th among the states in immunization coverage (United Healthcare Foundation).

Influenza and Pneumonia

Influenza is a contagious respiratory illness caused by influenza viruses which can cause mild to severe illness. Flu complications include pneumonia and bronchitis and can lead to death in severe cases. Elderly people, children under five, and people with existing health conditions are at higher risk of developing serious flu complications. The best way to prevent the flu is by getting vaccinated each year (Centers for Disease Control).

In 2010, 65.7% of New Jersey adults aged 65 and over had received an influenza vaccination in the previous 12 months; the immunization rate has averaged 66.5% over the past decade. Deaths in New Jersey due to influenza and pneumonia have been declining over the last decade; the death rate was 14.8 per 100,000 in 2008, down from 23.1 per 100,000 in 2000. During this time period, there were 10,964 deaths due to pneumonia and 93 due to influenza in North Jersey (New Jersey Department of Health: Center for Health Statistics).

Figure 2.17 Age-Adjusted Death Rates per 100,000 due to Influenza and Pneumonia

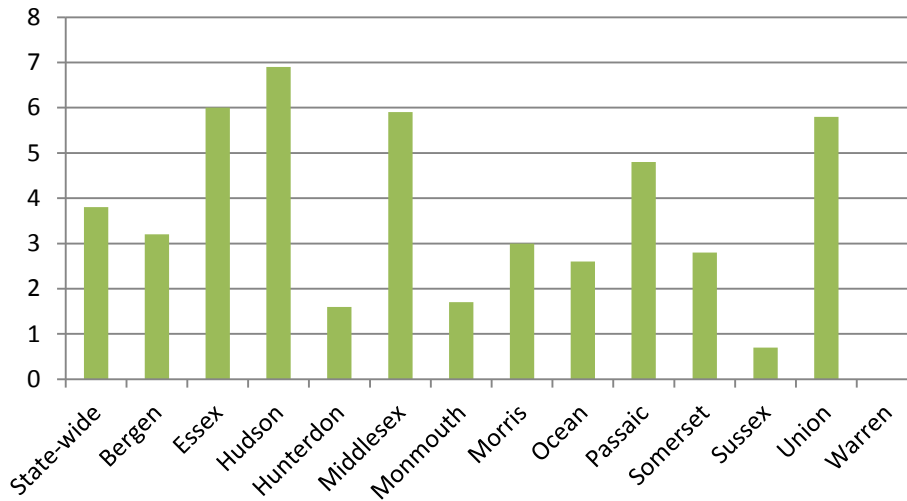


Note: Data not available where there were fewer than 20 cases in the numerator and/or denominator.
Data source: NJSHAD

Tuberculosis

Tuberculosis is a bacterial disease in which the bacteria typically attack the lungs. Severe cases can be fatal. People with weakened immune systems, particularly those with HIV, are more likely to develop TB disease (Centers for Disease Control). There were 141 deaths due to tuberculosis in the North Jersey region in the period 2000-2008 (0.2 per 100,000) (New Jersey Department of Health: Center for Health Statistics). According to the NJDOH Tuberculosis Control program, which releases annual statistics, tuberculosis morbidity in New Jersey declined from 848 cases in 1995 to 331 cases in 2011. The most cases were reported in Hudson, Middlesex, Essex, and Union counties, with higher prevalence amongst Asians and Hispanics (New Jersey Department of Health, Tuberculosis Control Program).

Figure 2.18 Tuberculosis Morbidity Case Rate per 100,000, 2011



Data source: NJDOH

MRSA

Methicillin-resistant *Staphylococcus Aureus* (MRSA) is a type of staph bacteria that is resistant to certain antibiotics. Severe MRSA infections occur most frequently among patients in healthcare settings. Factors leading to infections include use of medical devices such as catheters and ventilators, complications following surgery, and transmission between patients and healthcare workers. Research indicates that implementing preventive practices can reduce healthcare-associated infections by 70 percent (Healthy People 2020, 2013). New Jersey requires acute care facilities to report the number of MRSA bloodstream infections (BSIs) per 1,000 patient days; these regulations were passed in 2007 and updated in 2011 (N.J.S.A 26:2H-12.35 et. seq.). In 2009, the incident rate among New Jersey hospitals was 0.142 MRSA infections per 1000 patient days (71 total incidences) (National Healthcare Safety Network, 2011).

Sexually Transmitted Diseases

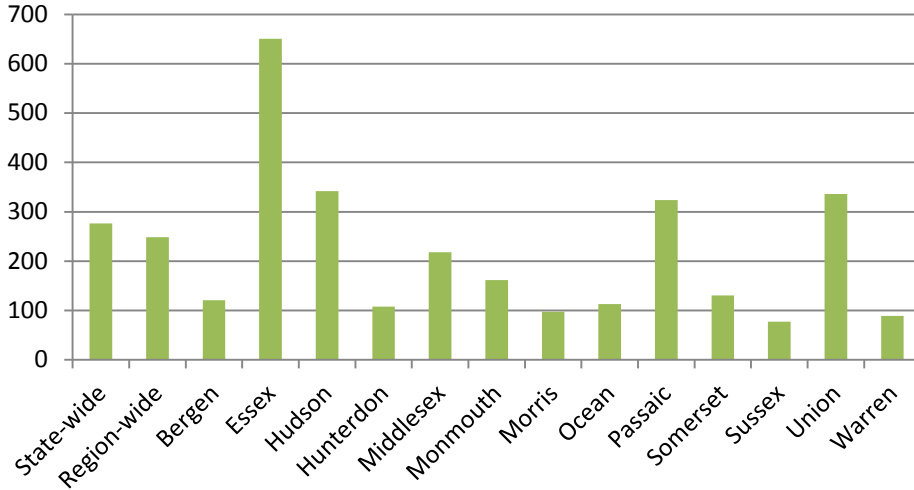
Sexually transmitted diseases refer to infections transmitted primarily through sexual activity. STDs are largely preventable, yet there are more than 19 million new STD infections each year, nearly half amongst people aged 15 to 24, though this number may be low as many cases go unreported or undiagnosed. STDs cause many complications, including reproductive health problems and infertility, fetal and perinatal health problems, and cancer. Common STDs include chlamydia, gonorrhea, syphilis, human papilloma virus (HPV) and genital herpes. Factors influencing the transmission and spread of STDs include access to health care, substance abuse, poverty, and social norms and networks (Healthy People 2020, 2013).

Chlamydia

Chlamydia is the most common bacterial sexually transmitted infection in North America. The chlamydia incidence rate in the North Jersey region is 248 per 100,000, with the highest rates of infection in Essex (651) and Mercer (377) counties according to 2009 data from the CDC's National Center for Hepatitis, HIV, STD, and TB Prevention compiled by the Robert Wood Johnson Foundation (Robert Wood Johnson Foundation, 2012). Chlamydia is about four times more common among women than among men (Kaiser Family Foundation).

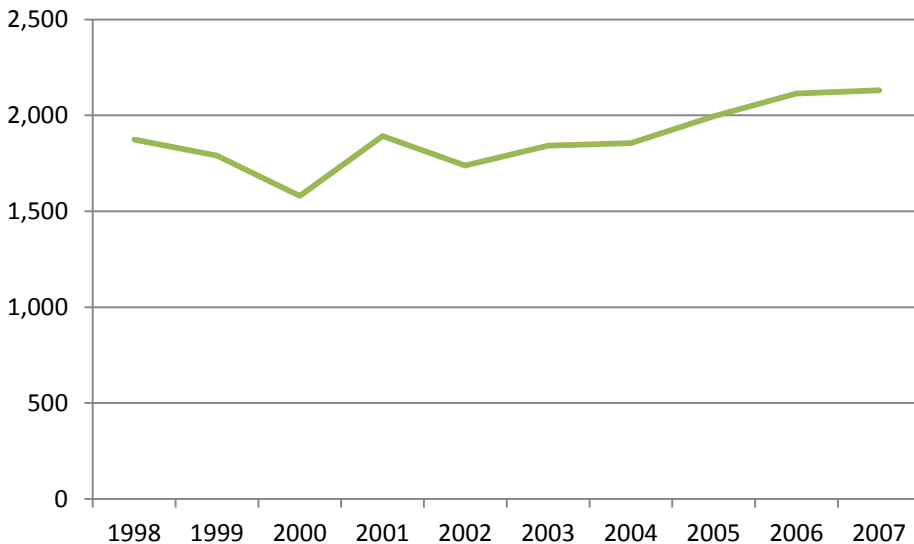
Incidence rates among 15-19 year old females in New Jersey have been rising, from 1,873 per 100,000 in 1998 to 2,130 per 100,000 in 2007 (New Jersey Department of Health: Center for Health Statistics).

Figure 2.19 Chlamydia Rates per 100,000 Population, 2009



Data source: Robert Wood Johnson Foundation (2012)

Figure 2.20 Chlamydia Cases in New Jersey, Incidence among Females Aged 15 to 19 Years Old



Data source: NJSHAD

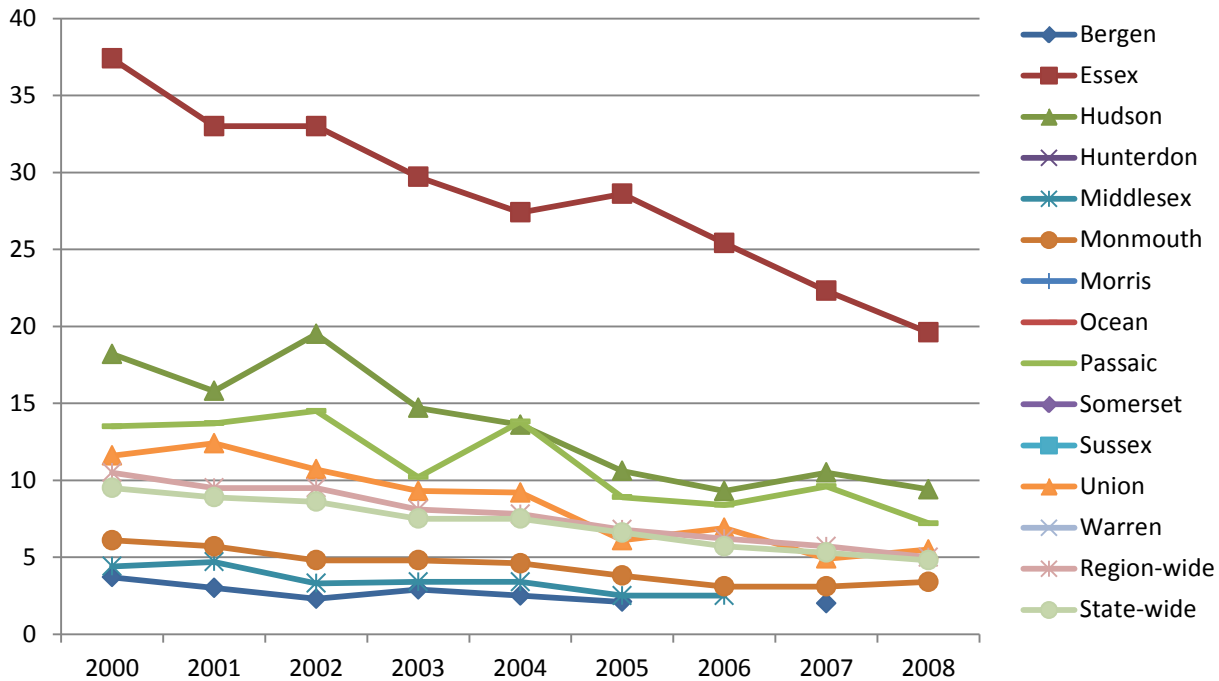
HIV/AIDS

Human immunodeficiency virus (HIV) is a virus that can lead to acquired immune deficiency syndrome (AIDS). People with AIDS have severely compromised immune systems and therefore have difficulty fighting off diseases. Due to medicines developed in the 1990s, people can now live decades without HIV progressing into AIDS (Centers for Disease Control). HIV is preventable and effective interventions can reduce HIV transmission. For example, people who test positive for HIV can make behavioral changes to improve their health and reduce

the risk of transmission to others. It is therefore important to foster access to screening, treatment, and preventive services (Healthy People 2020, 2013).

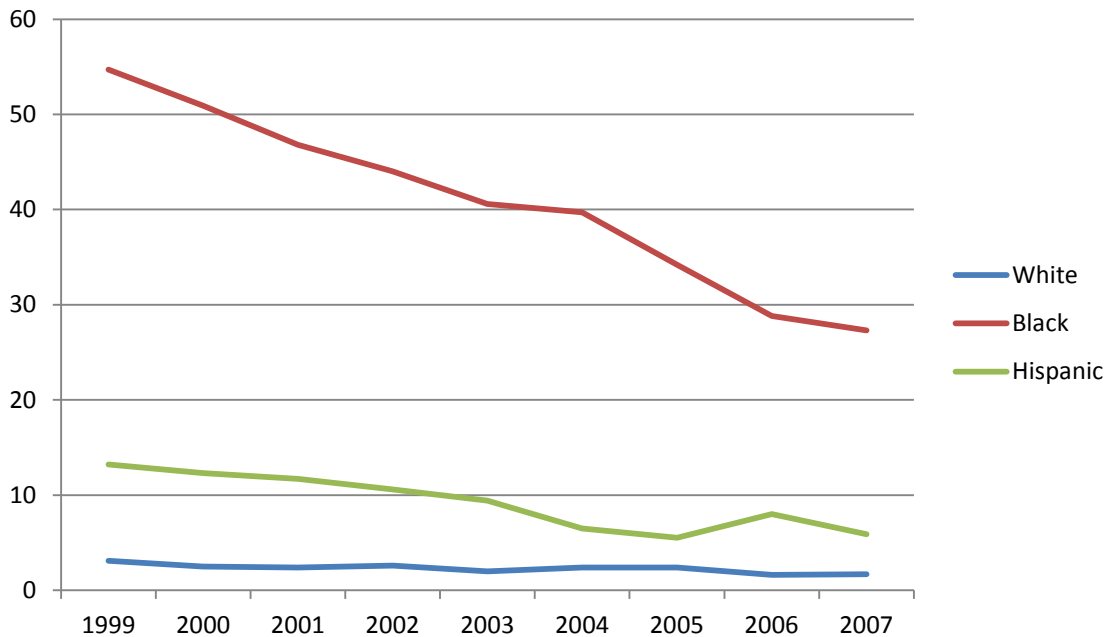
According to NJSHAD, the HIV death rate in the North Jersey region declined from 10.5 in 2000 to 5.0 in 2008, with notably higher rates in Essex County. The death rate for HIV is much higher among blacks (23.9 per 100,000 in 2008) than for Hispanics (6.1) and whites (1.5), though it has been declining for all racial groups. HIV/AIDS remains about twice as common among males as among females (New Jersey Department of Health: Center for Health Statistics). As of December 2008, there were approximately 34,000 people in New Jersey living with HIV/AIDS (Kaiser Family Foundation).

Figure 2.21 HIV Age-Adjusted Death Rates per 100,000 Population



Note: Data not available where there were fewer than 20 cases in the numerator and/or denominator.
Data source: NJSHAD

Figure 2.22 Death Rate due to HIV Disease, Age-Adjusted, by Race/Ethnicity, New Jersey, 1999-2007



Data source: NJSHAD

Other STDs

Gonorrhea incidence in New Jersey has been gradually declining, from a high of 104.8 per 100,000 in 2001 to 70 per 100,000 in 2007. Incidence of primary and secondary syphilis has increased from 1.3 per 100,000 in 1998 to 2.6 per 100,000 in 2007. Syphilis is much more common among non-whites than whites (4.5 versus 1.6 per 100,000 in 2007). While primary and secondary syphilis has increased, congenital syphilis in New Jersey has declined substantially, from 77.2 per 100,000 births in 1998 to 10.6 in 2007 (New Jersey Department of Health: Center for Health Statistics).

Vector-Borne Diseases

Vector-borne diseases are transmitted when infected blood-sucking insects, such as mosquitos and ticks, bite a person. Common vector borne diseases in New Jersey include Lyme disease, Rocky Mountain Spotted Fever, Ehrlichiosis, and Babesiosis. These diseases are typically treated with antibiotics but can become serious if not caught and treated early (New Jersey Department of Health, Vector Borne Illness, 2012).

Disease prediction and surveillance is key in prevention and control of vector-borne diseases. Land use policies that impact vector breeding grounds can play a role in management and control of vector borne diseases. Changing climate conditions are also a concern; warming temperatures have been linked to the expansion of the range of certain vector-borne diseases. For example, hantavirus outbreaks have been shown to increase as average temperatures rise, though as of June 29, 2012 there have been no reported cases of hantavirus pulmonary syndrome in New Jersey (Centers for Disease Control and Prevention, Hantavirus Pulmonary Syndrome (HPS) Cases, by State of Reporting, 2013).

The New Jersey Department of Health requires that most vector-borne diseases be reported to local health departments within 24 hours of diagnosis. The New Jersey Communicable Disease Service releases annual

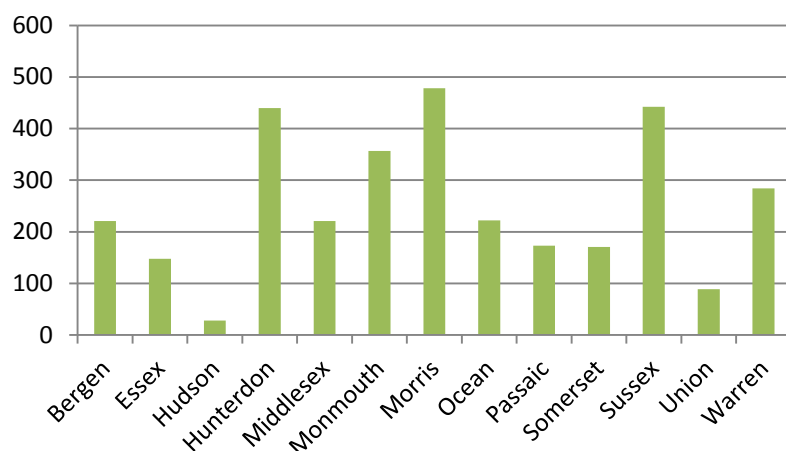
reports of the number of cases of all reportable diseases. A summary of some of the more common diseases is presented in Table 2.2 below.

Table 2.2 Reported Cases of Selected Vector-Borne Diseases in New Jersey, 2011

Disease	Reported Cases	Vector
Lyme Disease	4,262	Mosquitoes
Ehrlichiosis	193	Ticks
Babesiosis	166	Ticks
Rocky Mountain Spotted Fever	136	Ticks
Malaria	97	Mosquitoes
Dengue Fever	21	Mosquitoes
West Nile Virus	7	Mosquitoes

Data source: NJDOH Communicable Disease Service, Reportable Disease Statistics (2011)

Figure 2.23 Reported Cases of Lyme Disease, 2011



Data source: NJDOH Communicable Disease Service

Food- and Water-Borne Illness

Foodborne illness is caused by consumption of foods infected with bacteria, viruses, or parasites. Each year, 1 in 6 Americans get sick as a result of consuming contaminated food. Common foodborne pathogens include salmonella, campylobacter, norovirus, cryptosporidium, and E coli. Surveillance and tracking is critical in preventing and treating foodborne illness, as are food safety standards and enforcement (Centers for Disease Control).

Waterborne diseases such as giardiasis and legionellosis can be transmitted by both drinking water and recreational water use (e.g. swimming). Contamination by infectious agents or chemicals can cause mild to severe illness. Protecting water sources and minimizing exposure to contaminated water sources are important components of environmental health. Water contamination is more common in the wake of natural disasters, particularly major flooding (CCSP, 2008).

Though New Jersey requires most common food and water borne illnesses to be reported, these types of diseases are typically underreported. A summary of common food- and water-borne illnesses in New Jersey are presented in Table 2.4 below.

Table 2.3 Reported Cases of Selected Food- and Water-Borne Illnesses in New Jersey, 2011

	Reported Cases	Transmission
Non-typhoid salmonellosis	1,222	Improperly cooked meat or eggs
Campylobacteriosis	1,165	Improperly cooked meat or eggs
Giardiasis	437	Contaminated water
Legionellosis	234	Contaminated water
Cryptosporidiosis	56	Contaminated water

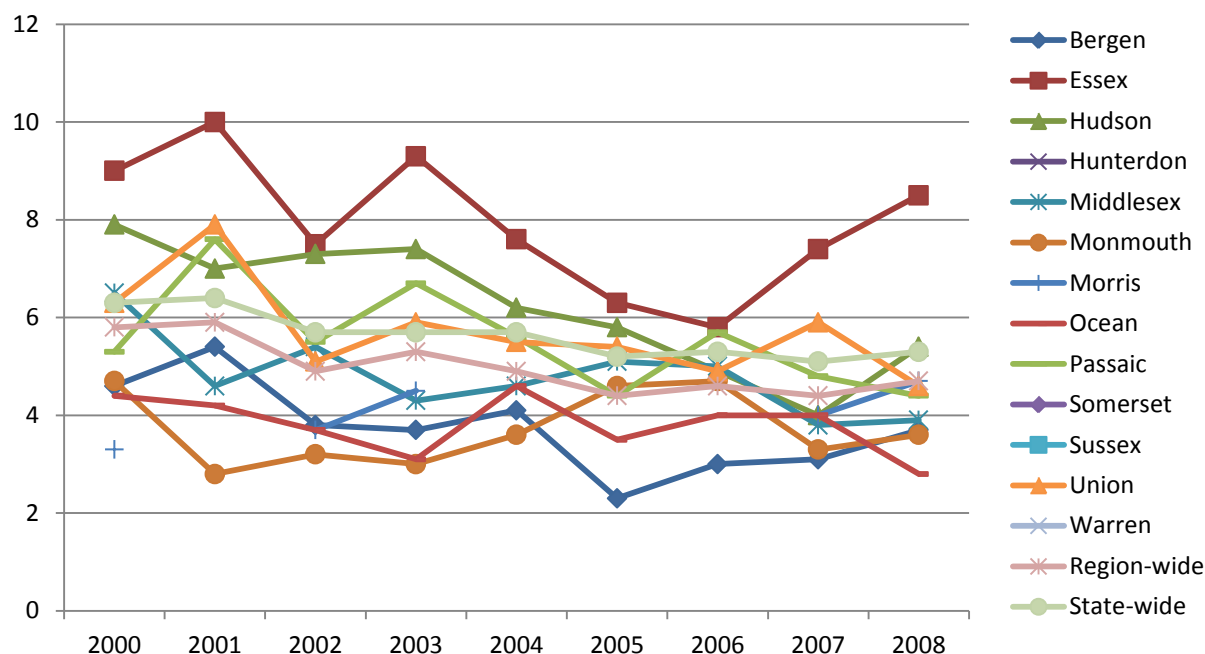
Data source: NJDOH Communicable Disease Service, Reportable Disease Statistics (2011)

Infant Mortality

The infant mortality rate measures the number of deaths of children under one year of age in a given year per 1,000 live births that year. The infant death rate is a key indicator of a population's overall health status and well-being (New Jersey Department of Health: Center for Health Statistics). Many factors affect pregnancy and childbirth, including preconception health status, age at conception, access to prenatal and postnatal health care, and poverty (Healthy People 2020, 2013).

According to NJSHAD, the infant mortality rate in New Jersey has been declining since the early 1900s. The rate in the North Jersey region declined from 5.8 deaths per 1,000 live births in 2000 to 4.7 per 1,000 in 2008. There are substantial racial disparities in infant mortality rates in New Jersey, with a death rate of 12.7 for blacks, compared with 4.4 for Hispanics, 3.6 for whites, and 2.2 for Asians (New Jersey Department of Health: Center for Health Statistics).

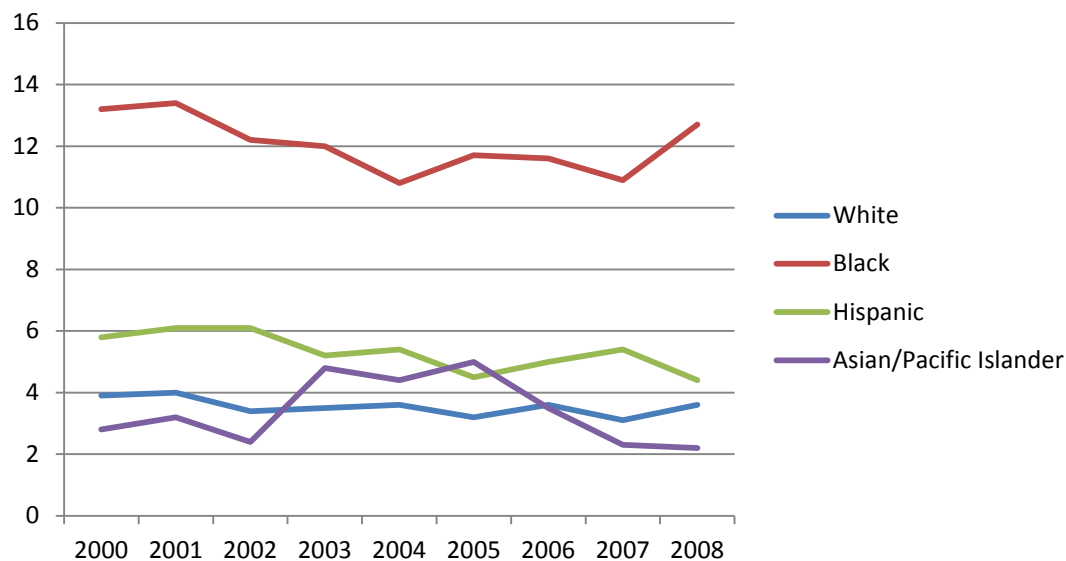
Figure 2.24 Infant Mortality Rate per 1,000 by County of Residence



Data source: NJSHAD

Note: Data not available where there were fewer than 20 cases in the numerator and/or denominator.

Figure 2.25 Infant Mortality Rate by Mother's Race/Ethnicity, New Jersey, 2000-2008



Data source: NJSHAD

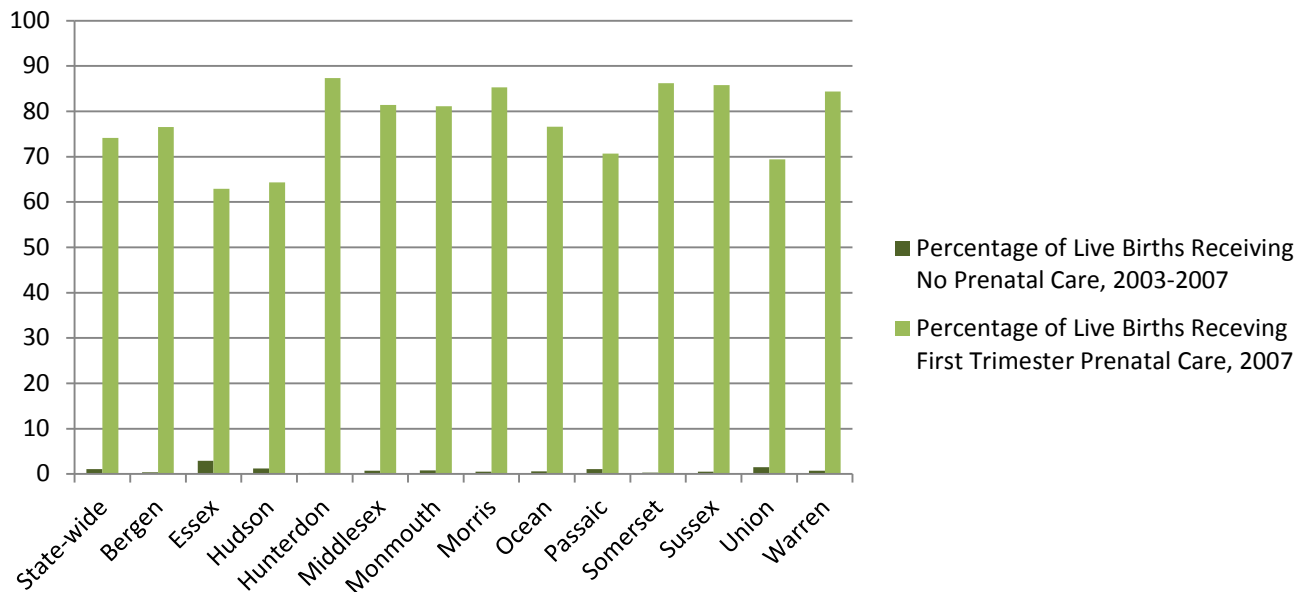
Prenatal Care

Women who receive consistent prenatal care (medical care during pregnancy) are much more likely to give birth to a healthy child. According to NJSHAD, which measures lack of prenatal care as the number of live births to pregnant women who did not receive prenatal care at any time during their pregnancy as a percentage of the

total number of live births, 1.1% of births in New Jersey in 2007, the most recent year for which data is available, received no prenatal care at all. Rates varied substantially by county, with 2.9% of live births in Essex County receiving no prenatal care.

Health care providers recommend that prenatal care begin during the first trimester of pregnancy. In 2007, 74.1% of live births in New Jersey received prenatal care during the first trimester, well below the United States' rate of 82%. Rates ranged from 62.9% in Essex County to 87.3% in Hunterdon County (New Jersey Department of Health: Center for Health Statistics).

Figure 2.26 Percent of Live Births Receiving Prenatal Care by County of Residence



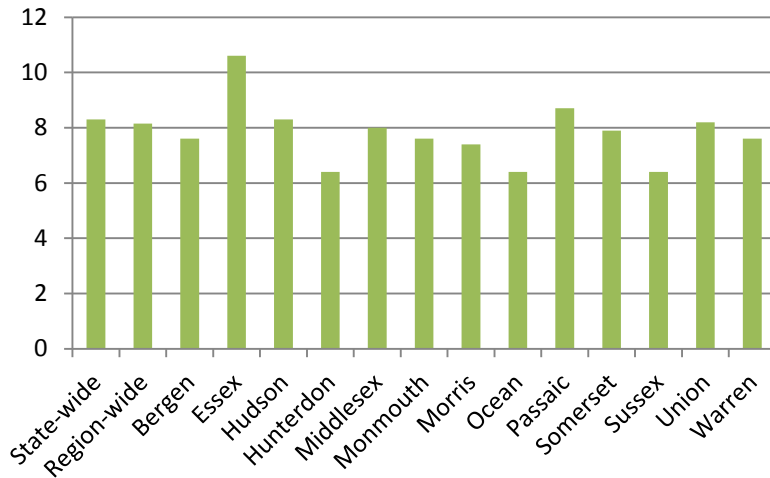
Data source: NJSHAD

Low Birth Weight

Low birth weight is defined as live infants with a birth weight of less than 2,500 grams (approximately 5 lbs, 8 oz). Low birth weight infants have a substantially higher risk of infant morbidity and mortality, and are at higher risk of developmental disabilities and chronic illnesses throughout life. Birth weight is affected by a variety of factors, including whether the mother received prenatal care, environmental exposures during pregnancy, and maternal behaviors such as weight gain, smoking, and alcohol consumption.

According to the Robert Wood Johnson County Health Rankings, 8.1% of births in the North Jersey region were low birth weight in 2007. Essex County, at 10.6%, had a substantially above-average rate of low birth weight births, while Sussex, Ocean and Hunterdon Counties had a much lower rate, at 6.4% (Robert Wood Johnson Foundation, 2012). In 2007, 94% of pregnant women in New Jersey abstained from alcohol during pregnancy and 88.6% abstained from tobacco (New Jersey Department of Health: Center for Health Statistics).

Figure 2.27 Percentage of Low Birth Weight Births, 2007



Data source: Robert Wood Johnson Foundation (2012)

Maternal Health

Many factors affect maternal health, including maternal age, preconception health status, access to health care, and socioeconomic factors. Pregnancy can provide an opportunity to identify existing health risks in women, including hypertension and heart disease, unhealthy weight, depression, genetic conditions, sexually transmitted diseases, tobacco and alcohol use, and inadequate nutrition. Receiving health care preconception (before pregnancy) and interconception (between pregnancies) is especially important for positive maternal health outcomes (Healthy People 2020, 2013).

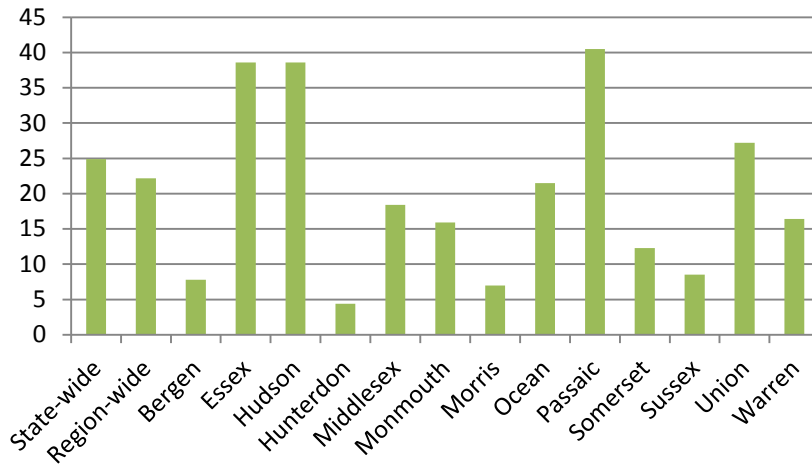
The median age of New Jersey mothers at first birth was 27.5 in 2007, with a median age at all births of 30.2. Median age at first birth was youngest among black women (21.7) and highest among white women (29.5). In 2007, 36.9% of births in New Jersey were by Cesarian section, up from 23.3% in 1990 (New Jersey Department of Health: Center for Health Statistics).

Teen Pregnancy

Teen pregnancy is defined here as the number of infants born to mothers aged 15-19. Infants born to teenage mothers have a higher risk of poor birth outcomes such as low birth weight, preterm birth, and infant death. Additionally, teenage mothers often have more limited educational, social, and financial resources, creating greater risks for infant and maternal health (New Jersey Department of Health: Center for Health Statistics).

According to the Robert Wood Johnson Foundation, using data from the CDC's National Vital Statistics System (NVSS) at the National Center for Health Statistics, the teen birthrate in the North Jersey region was 22.2 per 1,000 females aged 15-19 over the period 2002-2008. There was a dramatic regional disparity in teen pregnancy, with birth rates ranging from 4.4 per 1,000 in Hunterdon County to 40.5 per 1,000 in with Passaic County (Robert Wood Johnson Foundation, 2012).

Figure 2.28 Teen Birth Rate per 1,000: Live Births To Mothers Aged 15-19, 2002-2008



Data source: Robert Wood Johnson Foundation (2012)

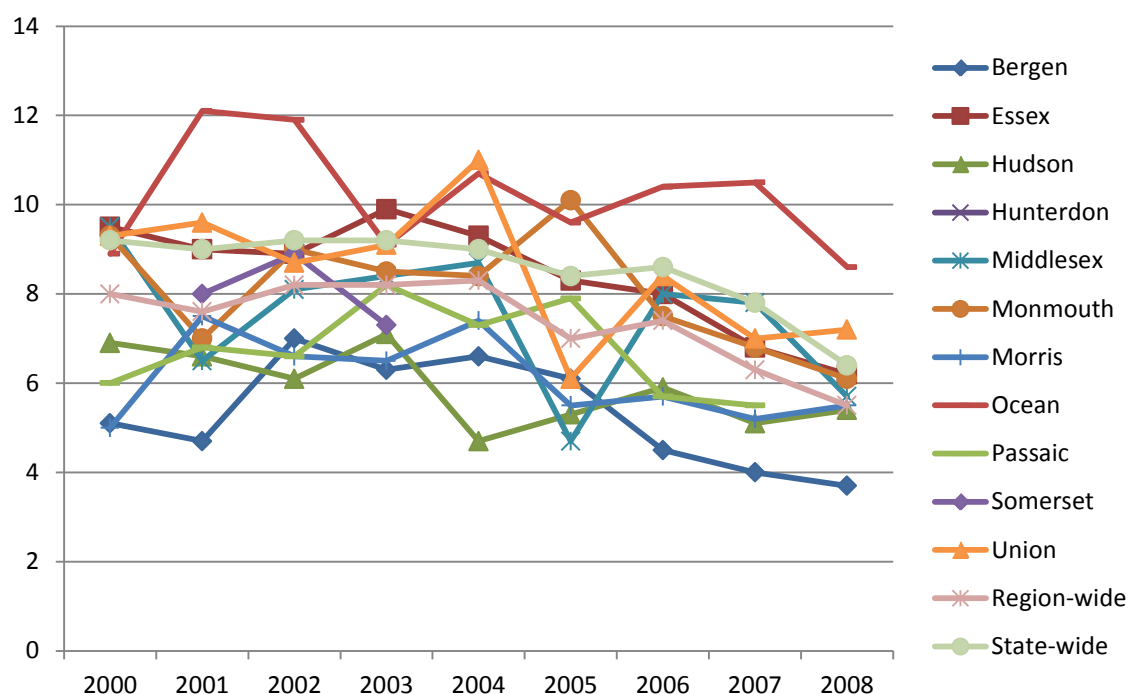
Unintentional Death and Injury

Motor Vehicle Accidents

Motor-vehicle related deaths include motor vehicle drivers and passengers as well as pedestrians and bicyclists struck by motor vehicles. Motor vehicle crashes are the leading cause of unintentional injury death in New Jersey and in the United States. Rates are highest among young adults and the elderly, and nearly 70% percent of motor vehicle-related fatalities are among males. Each year there are approximately 300,000 motor vehicle crashes in New Jersey, resulting in an average of 6,900 hospitalized injuries and 700 deaths (New Jersey Department of Health: Center for Health Statistics). Factors influencing motor vehicle accidents and mortality rate include alcohol impairment, age of driver, and speed at which the driver was driving.

In 2007, the death rate in New Jersey due to motor-vehicle related injuries was 7.8 per 100,000, down from a high of 9.2 in 2003. That same year, 3.4 deaths per 100,000 population resulted from pedestrians being struck by motor vehicles (New Jersey Department of Health: Center for Health Statistics). According to the New Jersey State Police, there were 627 people killed in traffic fatalities in 2011, more than the 556 killed in 2010, though the overall trend has been downward since 1992; fatalities were in the 700s annually from 1992 until 2007. The majority of the 627 fatalities in 2011 were amongst drivers (362), followed by pedestrians (143), passengers (105), and bicyclists (17) (New Jersey Department of Law and Public Safety, Fatal Motor Vehicle Crash Comparative Data Report for the State of New Jersey, 2011). Although the overall trend over the past decade has been a decrease in traffic fatalities, fatalities amongst pedestrians and cyclists have held steady, and have not declined in line with driver and passenger fatalities.

Figure 2.29 Age-adjusted Death Rates Per 100,000 Population due to Motor Vehicle Crashes



Note: Data not available where there were fewer than 20 cases in the numerator and/or denominator.
Data source: NJSHAD

Table 2.4 NJ Traffic Fatalities by Victim Classification

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Driver	416	425	427	430	429	320	315	303	362	312
Passenger	171	131	150	162	133	112	98	99	105	100
Cyclist	11	16	17	12	12	20	14	13	17	16
Pedestrian	137	151	154	167	150	138	157	142	143	163
TOTAL	735	732	748	771	724	590	584	557	627	591

Data source: New Jersey State Police Fatal Accident Investigation Unit, 2012 Statistics & 2011 Report

Transit-Related Deaths

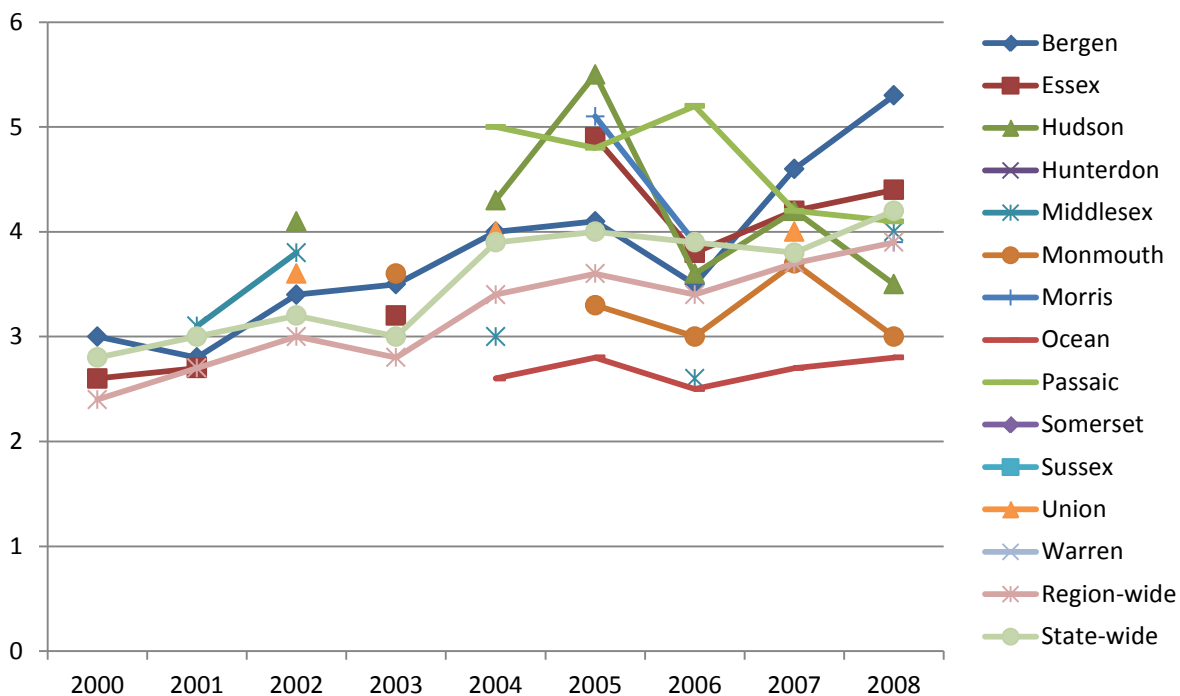
Transit-related deaths include all incidents in which passengers are struck by New Jersey Transit trains. Accidental deaths may result from poor signage at grade crossings and unsafe pedestrian conditions, or from pedestrians trespassing on tracks. Data for passengers struck by buses or other forms of transit was not available. According to the NJDOT's Safety Along Railroads Short-Term Action plan released in February 2012, there were 81 incidents involving NJ transit trains at grade crossings or along the tracks in 2010-2011, resulting in 51 deaths. 21 of the 51 deaths were determined to be intentional; the remaining 30 were either accidental or undetermined (New Jersey Department of Transportation, 2012).

Falls

Falls are the leading cause of death due to injury among persons 65 years and older in New Jersey. Falls among elderly people lead to a substantial number of injuries, medical expenses, and mortalities (New Jersey Department of Health: Center for Health Statistics). Factors that can reduce the likelihood of falls for older adults include getting regular exercise and improving home safety by reducing trip hazards and adding railings and grab bars (Centers for Disease Control). As the population in North Jersey ages, incidence of falls is likely to become an increasing health and safety concern.

In 2007, falls accounted for 14.9 deaths per 100,000 amongst New Jersey residents 65-84 years old and 77.4 per 100,000 amongst residents aged 85 and over. In the North Jersey region, there were 2,006 fall-related mortalities from 2000-2008; the overall death rate in the region due to falls was 3.9 per 100,000 in 2008 (New Jersey Department of Health: Center for Health Statistics).

Figure 2.30 Age-adjusted Death Rate Per 100,000 due to Falls



Note: Data not available where there were fewer than 20 cases in the numerator and/or denominator.
Data source: NJSHAD

Workplace Injuries

Occupational injuries (injuries/fatalities that occur in the workplace) are largely preventable, yet in 2010 there were 3.1 million nonfatal injuries and 3,690 fatal occupational injuries in the United States. From 1990-2010, the most common cause of workplace injuries in New Jersey was motor-vehicle/transportation related (30.7%), followed by falls (17%), homicide/assault (14.1%) and machine-related (10.1%). Other causes include electrocution, suicide, toxic exposure, and being struck by or caught between objects (New Jersey Department of Health: Center for Health Statistics).

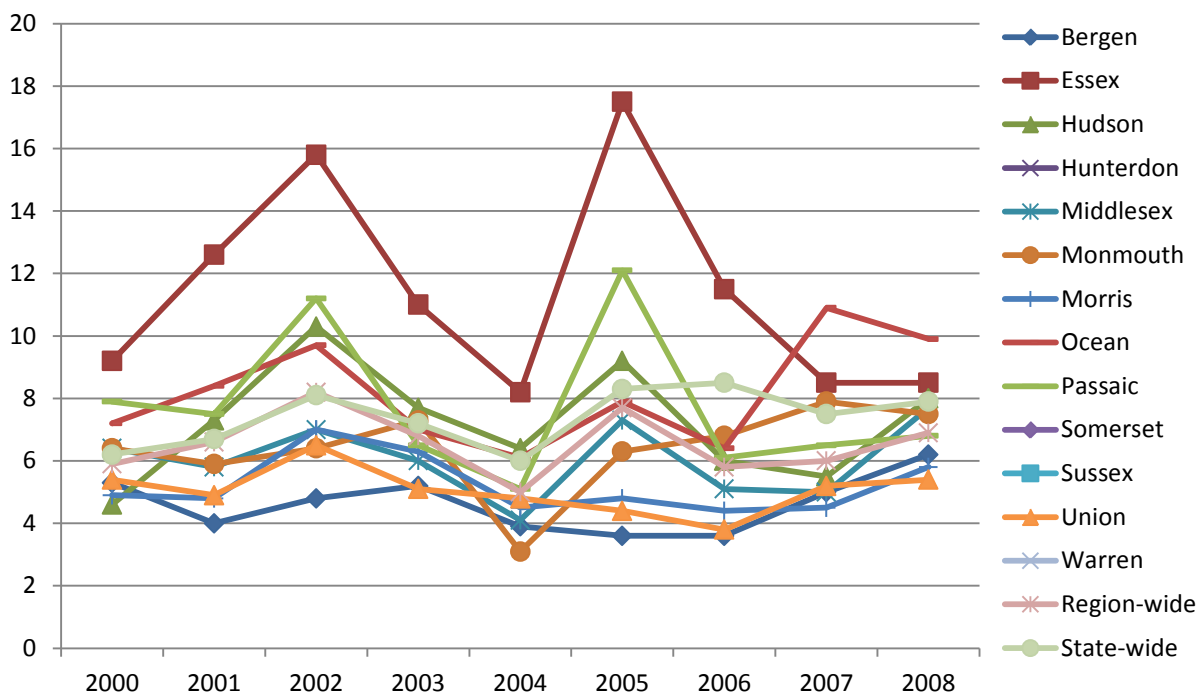
According to NJSHAD, there were 91 fatalities due to occupational injuries in New Jersey in 2010; the fatality rate was 2.2 per 100,000. According to the Bureau of Labor Statistics, in 2011, there were 98 occupational fatalities in New Jersey. The majority of fatal incidents occurred to workers aged 45 to 54. There were 3.5 incidences of nonfatal occupational injuries in New Jersey per 100 FTE workers, resulting in 1.4 days away from work per 100 workers (Bureau of Labor Statistics, 2011).

Unintentional Poisoning

A poison is any substance, including medications, that is harmful to your body if too much is eaten, inhaled, injected, or absorbed through the skin. According to the CDC, 91% of unintentional poisoning deaths in the country in 2009 were caused by drugs, most commonly prescription painkillers such as hydrocodone and oxycodone. Unintentional poisoning was second to motor vehicle crashes as a cause of unintentional injury death for all ages in 2009 (Centers for Disease Control).

There were 454 deaths in the North Jersey region due to accidental poisoning and exposure to noxious substances in 2008 (6.9 per 100,000), with a total of 3,824 deaths in the period 2000-2008. The death rate due to drugs in New Jersey was 9.6 per 100,000 in 2007 (New Jersey Department of Health: Center for Health Statistics).

Figure 2.31 Age-adjusted Death Rates Per 100,000 due to Accidental Poisoning and Exposure to Noxious Substances



Note: Data not available where there were fewer than 20 cases in the numerator and/or denominator.
Data source: NJSHAD

Fire-Related Morbidity and Mortality

Fire and burn-related injuries cost about \$7.5 billion each year in the United States; in 2010 there were 13,350 fire injuries and 2,640 fire-related deaths. Most victims of fire die from smoke or toxic gases, rather than from burns. Many fire deaths are preventable; over one-third of home fire deaths occur in homes without smoke

alarms. Vulnerable populations include children and elderly adults, people living in substandard housing, and people in rural areas (Centers for Disease Control, Fire Deaths and Injuries Fact Sheet).

There were 422 deaths in the North Jersey region from 2000-2008 resulting from accidental exposure to smoke, fire, and flames, averaging 46.7 deaths per year, with a death rate of 0.7 per 100,000. Statewide, there were 97 deaths due to unintentional carbon monoxide exposure from 2000-2006, 51% of which were fire-related. From 2000 to 2009, there were 522 carbon-monoxide related hospitalizations in the state, only 14% of which were fire-related (New Jersey Department of Health: Center for Health Statistics).

Heat-Related Morbidity and Mortality

Exposure to extreme heat can result in heat stress, which manifests itself in several ways including heat stroke, heat exhaustion, heat syncope (fainting), heat cramps, or heat rashes. Heat can exacerbate existing chronic health conditions, including cardiovascular and respiratory diseases, and elderly people are especially susceptible to heat related morbidity and mortality. With average temperatures predicted to rise due to climate change, heat stress may become a bigger public health issue (CCSP, 2008).

Overexposure to heat causes approximately 45-170 hospitalizations annually in New Jersey, but typically results in fewer than 10 deaths per year. However, in 1999 and 2002, two of the hottest summers on record in New Jersey, 30 and 18 people died respectively (New Jersey Department of Health, Beat the Heat! Avoid Heat Related Illnesses, 2008).

Extreme Weather

Natural disasters such as lightning, tornados, flooding, hurricanes, heat, cold, winter, rip current, and wind cause a variety of injuries and illnesses. Common causes of weather-related death include drowning and crush-related injuries. Other causes of death include hypothermia due to power outages, carbon monoxide poisoning from generators, and accidents during clean-up efforts. Emergency preparedness is critical in preventing natural-disaster related injuries and deaths.

Careful coordination between the public health community and the emergency response community is very important in the wake of storm events. Food and water poisoning incidents tend to increase in the aftermath of natural disasters, as does the need for mental health services.

The national weather service attributed 16 fatalities and 377 injuries in New Jersey to hazardous weather in 2011 (National Weather Service, 2011). Preliminary estimates put the total death toll from Hurricane Sandy at 97, including 5 in Essex County and 6 in Middlesex County (New York Times, 2012).

Suffocation

Suffocation is when a person is unable to breathe. According to the CDC, two-thirds of unintentional injury-related deaths amongst children under 1 year of age are due to suffocation. Accidental deaths due to suffocation most often occur when a child is sleeping (Borse, et al., 2008). According to NJSHAD, from 2000-2008, there were 34 infant deaths (under 1 year of age) attributed to accidental suffocation and strangulation in the North Jersey region (New Jersey Department of Health: Center for Health Statistics).

Drowning

Drowning is the leading cause of unintentional injury death for young children ages 1 to 4 (Centers for Disease Control). In the North Jersey region, there were 41 deaths due to accidental drowning and submersion in 2008 (a rate of 0.6 per 100,000). The rate of deaths due to drowning has been fairly constant since 2000, with an average of 41.7 deaths annually (0.7 per 100,000) (New Jersey Department of Health: Center for Health Statistics).

Animal-Related

Most animal-related incidents result in only minor injuries, though an estimated 200 to 500 people die annually in the United States due to animal-related injuries such as falls from horses, bites from venomous snakes and arthropods, and dog attacks (Adams, 2009). New Jersey-specific data on animal-related injuries is not available. There were 215 animal-related fatalities in the Northeastern United States in the period 1991-2001, with nearly half of these deaths due to hornets, bees, and wasps (Langley, 2005). In 2009, there were 1.2 million hospital admissions nationwide due to animal-related injury. In the Northeast, the “treat and release” incident rate was 468.8 per 100,000; 20.3 per 100,000 were hospitalized (Adams, 2009).

Unintentional Shootings

Unintentional shootings result from the accidental discharge of firearms. From 2000-2008, there were 65 deaths in the North Jersey region attributed to accidental discharge of firearms, 19 of which were in Essex County (New Jersey Department of Health: Center for Health Statistics).

Intentional Death and Injury

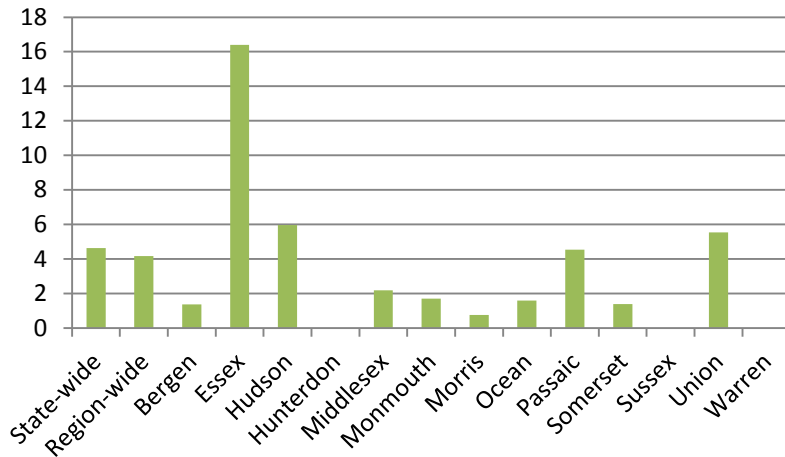
Assault (Homicide)

Homicide refers to death resulting from the intentional use of force or power, threatened or actual, against another person, group, or community. The homicide rate is calculated as the number of deaths due to homicide per 100,000 population.

According to the Robert Wood Johnson Foundation, New Jersey’s homicide rate over the period 2002-2008 was 5 per 100,000 (4.2 in the North Jersey region). Homicide rates are highest in counties with urban areas, particularly Essex County, at 16 per 100,000 (Robert Wood Johnson Foundation, 2012). In the North Jersey region, there were 1,507 homicides due to discharge of firearms from 2000-2008, with an average of 167 per year. There was an average of 101 homicides per year by means other than firearms from 2000-2008; 2001 has been excluded from this calculation because that number is skewed by September 11 fatalities (New Jersey Department of Health: Center for Health Statistics).

Young black males are disproportionately victims of homicide. In 2005, the homicide rate among black males was 221 per 100,000 compared with 45 per 100,000 among white males (Jacquemin, Crabtree, & Kelly, 2008).

Figure 2.32 Homicide Rate per 100,000, 2002-2008



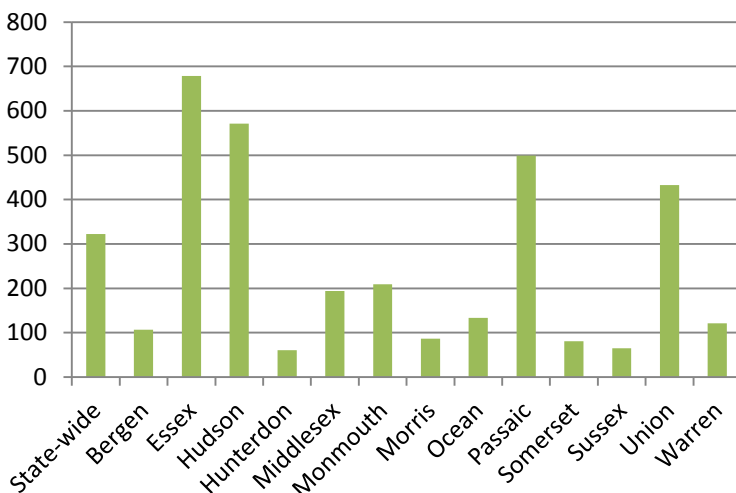
Data source: Robert Wood Johnson Foundation (2012)

Violent Crime

Violent crime includes homicide, forcible rape, robbery, and aggravated assault. High levels of violent crime compromise both physical safety and psychological well-being. High crime rates may also deter residents from pursuing healthy behaviors such as exercising out-of-doors, and may cause increased stress levels that can exacerbate other health problems.

According to the Robert Wood Johnson Foundation, using 2007-2009 data from the Uniform Crime Reporting Program, the violent crime rate is 322 per 100,000 in New Jersey (Robert Wood Johnson Foundation, 2012).

Figure 2.33 Violent Crime Rate per 100,000, 2007-2009



Data source: Robert Wood Johnson Foundation (2012)

Gang Presence

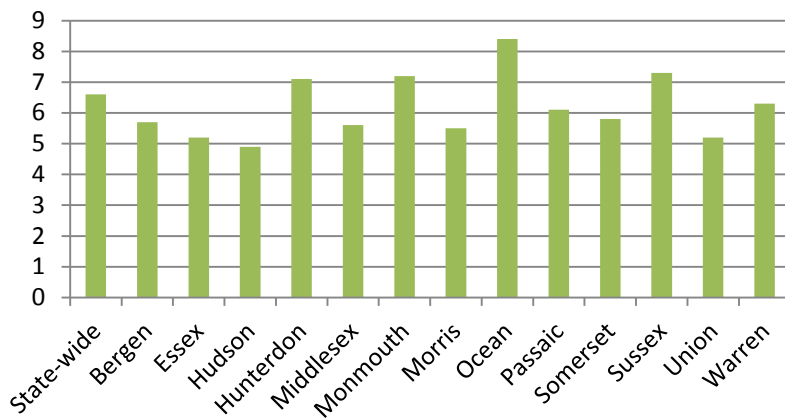
According to the New Jersey Department of Health and Senior Services Report on Violent Death in New Jersey in 2003-2005, more than half the homicides in New Jersey in 2005 were associated with gang activity (Jacquemin, Crabtree, & Kelly, 2008). In addition to the direct effects of gang violence, perceptions of gang activity in a neighborhood can have a negative impact on the physical and mental well-being of residents of that neighborhood.

In a 2007 survey conducted by the New Jersey State police, 43% of respondents statewide reported street gang presence in their municipalities, with the reported gang activity much higher in South Jersey (55%) than North Jersey (37%, comprising Bergen, Essex, Hudson, Morris, Passaic, Sussex, and Warren counties) or Central Jersey (40%, comprising Hunterdon, Mercer, Middlesex, Monmouth, Ocean, Somerset, and Union counties). Drug crimes, notably retail sales of marijuana and cocaine, constitute almost half of all criminal activity related to gangs (New Jersey Department of Law and Public Safety, Gangs in New Jersey, 2007).

Suicide

Suicide is a leading cause of death in the United States. Older white males are at the highest risk of suicide, and males in general are more than twice as likely to commit suicide than females. Risk factors for suicide include depression or other mental illness, alcohol or drug abuse, family history of suicide or violence, and physical illness (Centers for Disease Control). According to the New Jersey Department of Health and Senior Services report on Violent Death in New Jersey in 2003-2005, the most common means of suicide in New Jersey are hanging/suffocation, followed by firearms and poisoning. There were 1,758 suicides in New Jersey between 2003 and 2005, averaging 580 per year, with a suicide rate of 6.6 per 100,000 population (Jacquemin, Crabtree, & Kelly, 2008). In 2010, there were 719 suicides in the state (American Foundation for Suicide Prevention, 2012).

Figure 2.34 Suicide Rate per 100,000, 2003-2005



Data source: Jacquemin et al (2008)

Domestic Violence

Domestic violence refers to physical, sexual, or psychological harm by a current or former partner or spouse. Domestic violence crimes include assault, sexual assault, homicide, stalking, harassment, trespassing, and burglary.

Intimate partner homicide accounted for about 50 deaths each year in New Jersey from 2003-2005 (Jacquemin, Crabtree, & Kelly, 2008). The number has since declined; there were 39 murders related to domestic violence in 2009 and 38 in 2010. According to the New Jersey State Police Uniform Crimes Reporting Unit, which releases annual reports on domestic violence, there were 74,244 domestic violence offenses reported by the police in 2010. Females were the victims in 75% of domestic violence offenses (New Jersey Department of Law and Public Safety, 2010).

Carjacking

Carjacking is defined as the unlawful taking of a motor vehicle in which the perpetrator either inflicts injury or uses force upon the person in possession or control of the vehicle, threatens to inflict injury or commit crime, or operates the vehicle while the rightful owner or possessor was an occupant of the vehicle.

The New Jersey State Police Uniform Crimes Reporting Unit releases annual carjacking reports, with the most recent containing 2010 data. There were 359 reported carjacking offenses in New Jersey in 2010, an increase of 52% from 2009. Region I of the state police, which consists of Essex, Hudson, and Union counties, accounted for 88% of all the carjackings (New Jersey Department of Law and Public Safety, 2010).

Bias Incidents

Bias incidents are crimes which have a racial, religious, ethnic, sexual or gender component as well as crimes against individuals with handicaps. The most common types of bias offenses were criminal mischief (e.g., graffiti) and harassment.

The New Jersey State Police Uniform Crimes Reporting Unit releases annual bias incident reports, with the most recent containing 2010 data. There were 775 bias incidents in the state in 2010; 42% were attributed to racial bias. Blacks were the target of 34% of bias offenses; Jews were the target of another 34% of the offenses. Harassment accounted for 45% of offenses; property damage/criminal mischief accounted for 38% of bias incident offenses (New Jersey Department of Law and Public Safety, 2010).

Environmental Health

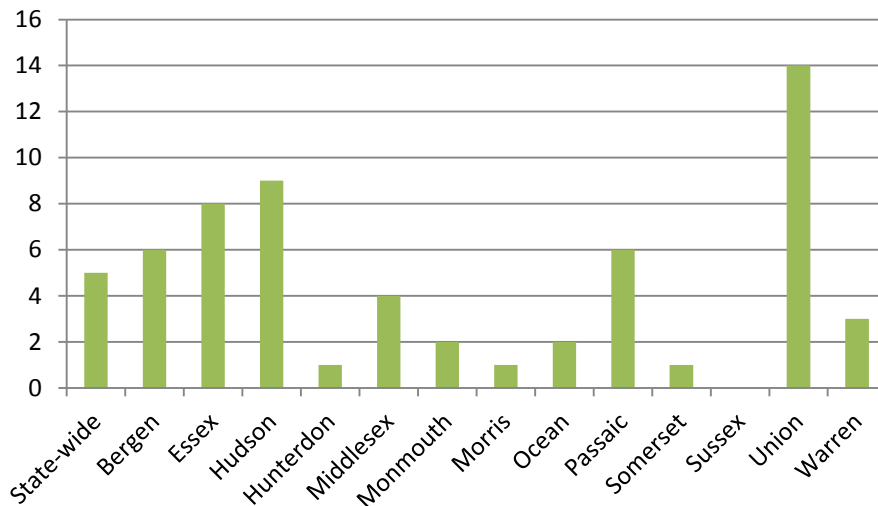
Air Quality

Negative consequences of ambient air pollution such as fine particulate matter and ozone include decreased lung function, chronic bronchitis, asthma, and other adverse pulmonary effects. The Robert Wood Johnson Foundation, using data from the CDC and EPA's Public Health Air Surveillance Evaluation (PHASE) project, calculated the number of days annually that air quality was unhealthy for sensitive populations due to fine particulate matter and due to ozone.

Fine Particulate Matter

On average, New Jersey experiences 5 days per year during which the air quality is unhealthy due to particulate matter. There is a wide disparity by geographic location. At 14 days annually, Union County experiences by far the most poor air quality days due to particulate matter (Robert Wood Johnson Foundation, 2012).

Figure 2.35 Annual Number of Unhealthy Air Quality Days due to Fine Particulate Matter (PM 2.5)

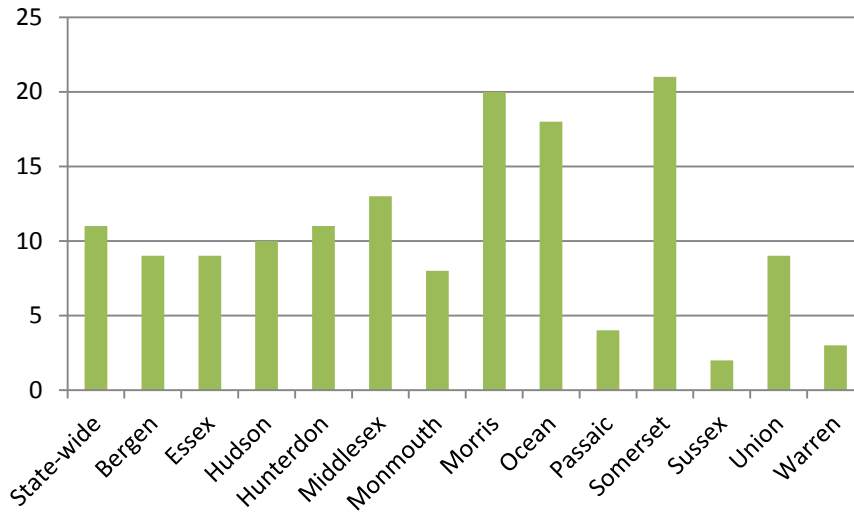


Data source: Robert Wood Johnson Foundation (2012)

Ozone

On average, New Jersey experiences 11 high ozone days annually, with the worst ozone problems in Somerset and Morris counties at 21 and 20 days annually, respectively (Robert Wood Johnson Foundation, 2012). Climate change patterns suggest that levels of ozone in the air will increase over time, creating a greater risk for public health (CCSP, 2008).

Figure 2.36 Annual Number of Unhealthy Air Quality Days Due to Ozone



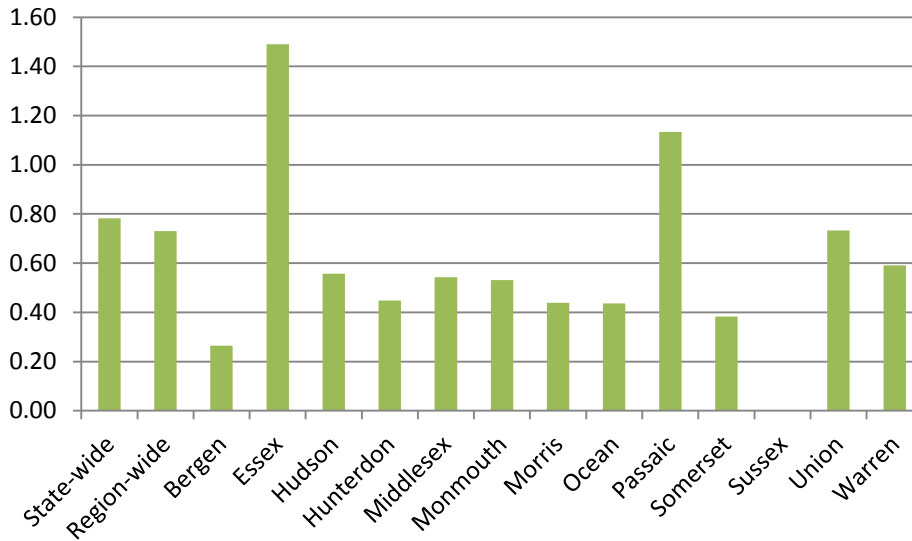
Data source: Robert Wood Johnson Foundation (2012)

Lead Exposure

Lead exposure can lead to damage to the brain, nervous system, kidneys, and blood cells, with potential effects including learning disabilities, hyperactivity, mental retardation, and hearing loss. Children are especially susceptible to damage for lead exposure because their brains and nervous systems are still developing. Major sources of lead exposure include peeling leaded paint and airborne lead-contaminated dust created by removal of lead paint.

In 2008, 72,647 children under 3 years of age were tested for elevated blood lead levels. In the North Jersey region, 0.73 percent of children had an elevated blood lead level, defined as more than 10 ug/DL. Test results varied by county, ranging from 0% in Sussex County to 1.49% in Essex County (New Jersey Department of Health: Center for Health Statistics).

Figure 2.37 Percent of Tested Children under 3 Years of age with Blood Lead $\geq 10\mu\text{g}/\text{DL}$



Data source: NJSHAD

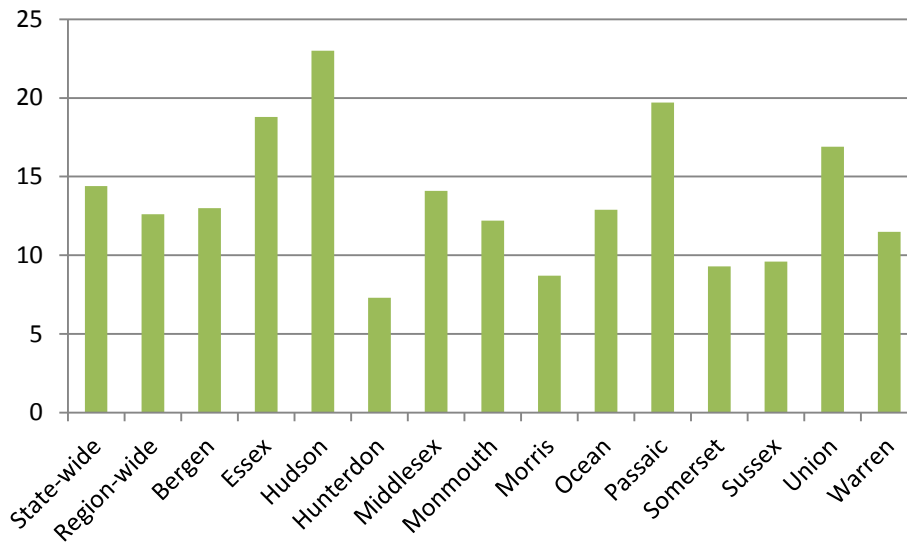
Access to Community Health Resources

Access to health services and related community health infrastructure is critical in improving the health outcomes of New Jersey residents. Adequate access to healthcare and resources leads to improved physical and mental health, prevention of disease, detection and treatment of health conditions, and higher likelihood of preventing preventable deaths. Typical barriers to access include lack of availability, high cost, lack of insurance coverage, lack of transportation, and lack of knowledge about available resources (Healthy People 2020, 2013).

Insurance Coverage

One of the major determinants affecting whether people seek out preventive care and appropriate treatment for illnesses is whether they have health insurance. Lack of adequate coverage makes it difficult for people to afford the health care they need and burdens them with large medical bills when they do seek care (Healthy People 2020, 2013). According to the Robert Wood Johnson Foundation, using 2009 data from the U.S. Census Bureau's Small Area Health Insurance Estimates, 12.6% of people in the North Jersey region under age 65 do not have health insurance (Robert Wood Johnson Foundation, 2012).

Figure 2.38 Percentage of Population Under Age 65 Without Health Insurance, 2009



Data source: Robert Wood Johnson Foundation (2012)

Hospitals and Health Clinics

Availability of hospitals is important as a measure of whether adequate resources exist to provide appropriate medical treatment. Proximity and accessibility of hospitals is especially important in enabling a quick response to medical emergencies.

The New Jersey Hospital Association consisted of 112 hospitals as of June 2012, with a particular concentration of hospitals in Middlesex, Union, Essex and Bergen counties (New Jersey Hospital Association, 2012). According to the Kaiser Family Foundation, which utilizes data from the AHA Annual Survey by Health Forum LLC, there was a capacity of 2.4 hospital beds per 1,000 population in New Jersey in 2010. In this measure, only beds in community hospitals were counted, which includes all nonfederal, short-term general, and specialty hospitals, but does not include federal hospitals, long term care hospitals, psychiatric hospitals, institutions for the mentally retarded, and institutions for alcoholism and other chemical dependencies (Kaiser Family Foundation).

Federally-funded health clinics do not require insurance and provide a range of services ranging from primary medicine to preventative care to prenatal and women's health to mental health services. Having sufficient availability of and access to clinics and primary care physicians is essential so that people can get preventive and primary care, as well as referrals to appropriate specialty care when needed.

As of 2010, there were 119 service delivery sites operated by federally funded federally qualified health centers (FQHCs) in New Jersey (Kaiser Family Foundation), including 2 FQHCs in Bergen County, 13 in Essex, 13 in Hudson, 3 in Mercer, 3 in Middlesex, 7 in Monmouth, 2 in Morris, 5 in Ocean, 5 in Passaic, 1 in Sussex, 2 in Union, and 2 in Warren Counties (New Jersey Department of Health, Federally Qualified Health Centers).

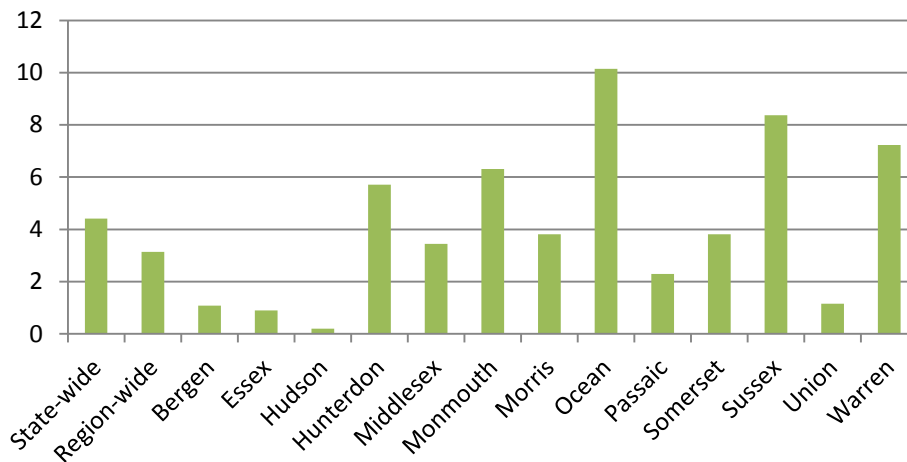
Access to Healthy Foods

A healthful diet is defined as one which includes nutrient-dense foods within and across the food groups, especially whole grains, fruits, vegetables, low-fat or fat-free milk or milk products, lean meats and other protein sources, combined with limited intake of saturated and trans fats, cholesterol, added sugars, sodium, and

alcohol. Maintaining a healthy diet is critical in promoting a healthy body weight and preventing chronic diseases such as Type II Diabetes, heart disease, and certain types of cancer. In order to maintain a healthy diet, it is important that residents have access to sources of healthful food, such as grocery stores and farmers markets.

To judge access to healthy food, the Robert Wood Johnson Foundation analyzed the proportion of residents who are both living in poverty and do not live close to a grocery store, which in metro counties is defined as living within 1 mile of a store and in non-metro counties as living less than 10 miles from a grocery store. In North Jersey, by this measure, 3% of the population has limited access to grocery stores, with the most limited access occurring in less dense areas such as Ocean and Sussex counties (Robert Wood Johnson Foundation, 2012). An analysis done by The Reinvestment Fund's PolicyMap program maps areas considered to have limited supermarket access (LSA); there are large pockets in northwestern New Jersey, near Newton, Hackettstown, and Flemington, areas in central Jersey near Millstone, Bridgewater, Jamesburg, Iselin, Woodbridge, and Sayreville, as well as smaller pockets in Newark, Elizabeth, the Oranges, and Paterson (The Reinvestment Fund, 2011).

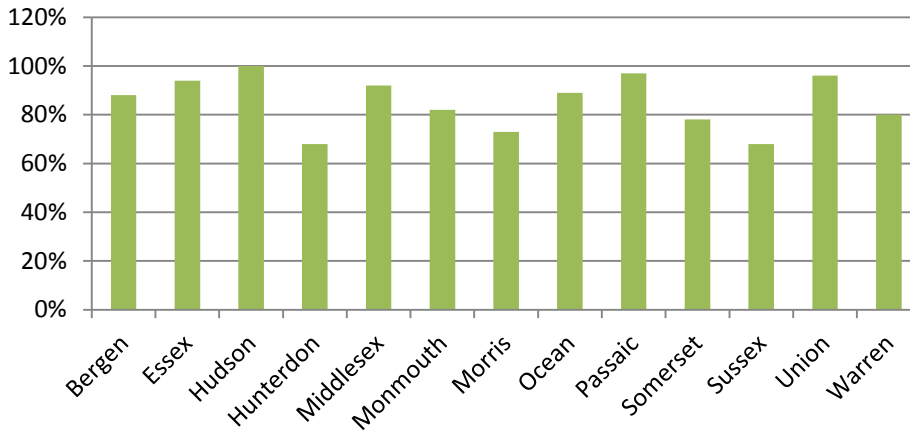
Figure 2.39 Percent of Population with Limited Access to Healthy Food, 2006



Data source: Robert Wood Johnson Foundation (2012)

Robert Wood Johnson also measures the percentage of zip codes in a county containing a healthy food outlet, defined as a grocery store, produce stand, or farmers' market. By this measure, 85% of zip codes in North Jersey contain at least one healthy food outlet. More rural counties such as Hunterdon and Sussex counties had the lowest percentage of zip codes with healthy food outlets. According to Jersey Fresh, a program of the state Department of Agriculture, there are 119 community farmer's markets in the North Jersey region, an average of 9 per county. Community farmers' markets are concentrated in the more urban counties, while rural counties have greater numbers of roadside farm stands (New Jersey Department of Agriculture: Jersey Fresh).

Figure 2.40 Percentage of Zip Codes with a Healthy Food Outlet, 2009



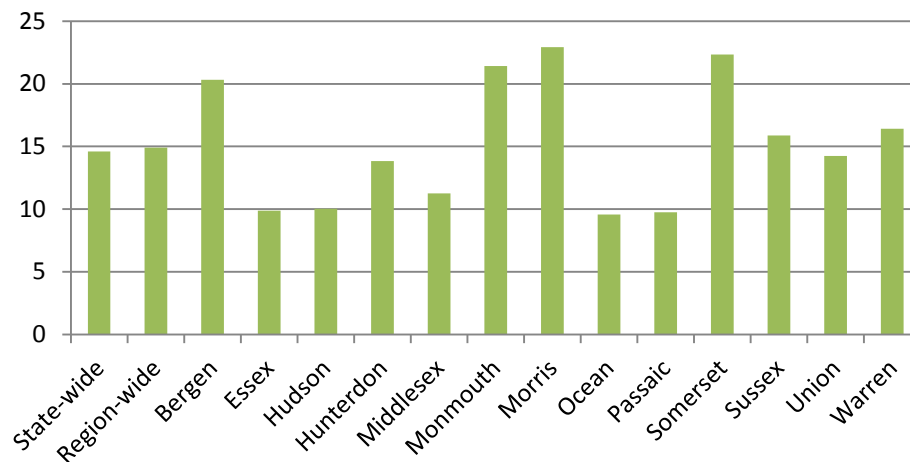
Data source: Robert Wood Johnson Foundation (2012)

Access to Recreational Facilities

There is a strong correlation between participation in regular physical activity and positive health outcomes such as a reduction in chronic disease. Many factors in the physical environment can increase levels of physical activity, including availability of recreational facilities such as sidewalks, bike lanes, trails, parks, and sporting facilities, enjoyable scenery, safe neighborhoods, safe pedestrian and cycling facilities, and presence of destinations within walking distance.

The Robert Wood Johnson Foundation, in its annual county health rankings, has a measure called 'Access to Recreational Facilities'. This measure represents the number of recreational facilities per 100,000 population in a given county. Recreational facilities are defined as establishments primarily engaged in operating fitness and recreational sports facilities, featuring exercise and other active physical fitness activities such as swimming, skating, or racquet sports. The rate across the North Jersey region is 14.9 facilities per 100,000 people, with the lowest rates in Essex, Ocean, Hudson and Passaic counties (10) and the highest rates in Monmouth, Somerset, Bergen, and Morris counties (20-23) (Robert Wood Johnson Foundation, 2012).

Figure 2.41 Recreational Facilities per 100,000 Population, 2009



Data source: Robert Wood Johnson Foundation (2012)

Summary of Health Challenges Facing the State and Region

- **Obesity in the region has been rising steadily for the past decade.** 23.7% of adults in New Jersey are obese, compared with 19% in 2002. Poor diet and physical inactivity are major risk factors for chronic diseases such as heart disease, cancer, stroke, and diabetes, which are among the leading causes of death in New Jersey. Limited access to recreational facilities and the difficulty of utilizing active transport are an impediment to residents achieving healthy outcomes.
- **There are dramatic health outcome disparities amongst racial and ethnic groups,** with non-Hispanic blacks experiencing notably higher rates of obesity, diabetes, heart disease, cancer, infant mortality, teenage pregnancy, sexually transmitted diseases, substance abuse issues, and violence than other racial groups.
- **Poor air quality compromises the respiratory health of residents.** New Jersey ranks 25th in the nation in population-weighted exposure to fine particulate matter, a type of air pollution which can cause respiratory problems, asthma, decreased lung function, and chronic bronchitis (United Health Foundation, 2012). Union County experiences a high number of poor air quality days each year due to fine particulate matter, with 14 poor air quality days annually compared with 5 days in the state overall. Asthma hospitalizations have been increasing statewide over the past decade, with the highest hospitalization rates in Passaic, Essex, and Hudson counties. Environmental health and air quality issues raise concerns about environmental justice due to the proximity of historically disadvantaged communities to pollutant-emitting industrial zones.
- **Despite an overall reduction in traffic fatalities, motor-vehicle related deaths among pedestrians are rising.** Each year, there are around 300,000 motor vehicle crashes in New Jersey, resulting in approximately 600 deaths. While New Jersey has been successful in reducing the overall number of traffic-related fatalities over the past decade, from 735 in 2003 to 591 in 2012, the number of traffic-related fatalities amongst pedestrians has actually risen, from 137 in 2003 to 163 in 2012, and the number of cyclist fatalities has held steady in the mid-teens annually. Lack of safety or perceived safety is a major deterrent for pedestrians and cyclists seeking to use active forms of transportation in New Jersey.
- **Residents have limited access to healthy food outlets, particularly in less dense areas.** In North Jersey, 3% of residents are both living in poverty and do not live close to a grocery store. In metro counties, 'close' is defined as living within 1 mile of a store, while in non-metro counties 'close' is defined as living less than 10 miles from a grocery store. There are major disparities by region, with larger access issues in the more rural counties. Over 10% of residents in Ocean County lack access to a grocery store, as do 8% in Sussex County and 7% in Warren County.

Planning, Policy and Implementation Context

Oversight of public health in New Jersey is under the auspices of the State Department of Health and Senior Services (NJDOH). Primary responsibility for services lies with local public health agencies, per the Local Health Services Act (statute N.J.S.A. 26:3A2-10.c). Local health departments (LHDs) are responsible for a wide range of services including preventive care, immunizations, investigation of communicable diseases, environmental health and sanitary code inspections, public health education, and emergency planning and response (New Jersey Department of Health, A Study of New Jersey's Local Public Health System, 2008).

Basic public health responsibilities include:

- Preventing epidemics and the spread of disease
- Protecting against environmental hazards
- Preventing injuries
- Promoting and encouraging healthy behaviors
- Responding to disasters and assist communities in recovery
- Assuring the quality and accessibility of health services.

Local Public Health Structure

Primary responsibility for provision of public health services lies with the local health departments. Local health departments may serve one or more municipalities and one or more counties. In areas where the population is more concentrated, there is a tendency to have more health departments. There are 82 LHDs in the North Jersey region, ranging from county-wide health departments (in Hunterdon, Sussex, & Warren counties) to more fragmented local health departments that cover individual municipalities (New Jersey Department of Health, Directory of Local Health Departments in New Jersey, 2012). Each local health department is required to employ a full-time NJ licensed health officer. Additional staff may include a public health nurse, health educator, registered environmental health specialist, and others.

Each municipality has a board of health that is accountable to NJDOH and ensures that public health services are provided within their jurisdiction. The board is either the elected governing body or a separate, appointed board. If it does not directly provide a service, the board of health may contract with or otherwise arrange for another entity to provide the service. Almost all local health departments in NJ provide direct service for communicable disease investigations, Sanitary Code inspections, and public health emergency response.

Pursuant to the provisions of *Public Health Practice Standards of Performance for Local Boards of Health in New Jersey, N.J.A.C. 8:52*, each local health agency shall ensure the enforcement of various public health statutes and rules. These rules address communicable diseases (including vaccine preventable diseases, rabies and zoonosis control, tuberculosis control, sexually transmitted diseases, human immunodeficiency infection), recreational bathing, campgrounds, youth camps, food surveillance, environmental health services, public health nuisances, childhood lead poisoning, improved pregnancy outcomes, cancer services, diabetes services, cardiovascular disease services, health services for older adults, health education/health promotion, and public health nursing.

State Public Health Structure

The NJDOH is tasked with the responsibility of protecting the public health through the promulgation and enforcement of various statutes and rules. Most of these mandates are vested within the authority of the Department of Health while others are vested within the Departments of Environmental Protection and Community Affairs. The NJDOH is comprised of three primary divisions:

- **Office of Policy and Strategic Planning:** This division is responsible for management and administration, quality improvement, health information technology, diversity and equity services, minority and multicultural health, human resources, information technology, legislative services, health statistics, communications, vital statistics and registry, and legal and regulatory compliance.
- **Health Systems:** This division is responsible for health facilities evaluation and licensing and healthcare financing.
- **Public Health Services:** This division is responsible for epidemiology, environmental and occupational health, HIV/STD/TB, laboratories, medicinal marijuana, regional health infrastructure preparedness, health emergency plans and operations, emergency medical services, and public health infrastructure. NJDOH runs a wide variety of public health programs, including HIV/AIDS/STD hotlines, a cancer education and early detection program, a family health hotline, an environmental health hotline, the infectious and zoonotic disease program, a vaccine and preventable disease program, and alcohol and tobacco control programs.

Public Safety Facilities and Personnel

Public safety facilities and personnel include police, fire departments, and emergency medical services. Public safety in New Jersey is overseen by the Department of Law and Public Safety, which includes the Division of State Police, the Division of Criminal Justice, and the Division of Highway Traffic Safety.

Public safety personnel and resources are critical to quickly respond to health and safety incidents and to deter crime and violence. Residents are also more likely to be physically active in neighborhoods perceived as safe. Policing in New Jersey is largely done at the municipal level. In 2010, according to the annual report of the New Jersey Department of Law & Public Safety's Uniform Crime Reporting Unit, there were 37,506 full time police officers in New Jersey. The majority (55%) worked for local municipalities, with 15% employed by counties, 8% by the state police, 1% by colleges and universities, and 21% by other agencies, most notably the Department of Corrections and the Port Authority. North Jersey has 2.3 municipal police officers per 1,000 population, with the most in Essex County (3.6 per 1,000) (New Jersey Department of Law and Public Safety, 2010).

There are 472 fire departments in the North Jersey region, with distribution by county varying greatly, ranging from 8 departments in Hudson County to 70 in Bergen County. Some departments are volunteer and some have paid personnel. EMS services are typically part of the fire department; 25% of fire department responses in 2011 were EMS calls. In 2011, fire departments in Union County responded to the greatest number of incidents (56,993). While the majority (60%) of fire incidents occurred in structures, 88% of which were residential structures, Essex and Union counties had a notably high number of vehicle fires (New Jersey Division of Fire Safety, 2011). A 2007 review of the EMS services in New Jersey found that response time for EMS in the state was around 7.5 minutes. This same review recommended that the EMS system be overhauled to be organized at the county or regional level rather than the local level (TriData, A Division of System Planning Corporation, 2007).

Environmental Regulation

The New Jersey Department of Environmental Protection (NJDEP) is responsible for regulation and oversight of the natural resources of the state. It is responsible for a range of issues that have an important impact on public health including air quality, surface and groundwater, open space, waste management, regulation of chemicals and toxic materials, pollution prevention and control, and parks and wildlife management. Many of these

activities fall under the auspices of the Environmental Management division. The New Jersey Environmental Public Health Tracking (EPHT) Network, a collaborative effort of NJDEP and NJDOH, collects data on environmental hazards that pose risks to human health and tracks patterns and trends over time.

At the local level, environmental commissions in New Jersey advise local governments and inform residents on environmental issues, laws and programs. Their activities include educational programming, reviewing development proposals, promoting long-term environmental planning, and conducting studies and inventories of natural resources. Environmental commissions in New Jersey are typically organized at the municipal level. There are 269 environmental commissions in the North Jersey region, ranging from 6 in Hudson County to 44 in Monmouth County (ANJEC).

Challenges and Opportunities

Narrowly Defined Duties of Public Health Practitioners

A major challenge identified by local health department officers is that public health in New Jersey, as currently structured, focuses largely on service delivery and not enough on the larger goal of creating healthy communities. The list of services that LHDs are required to provide, by statute, includes provision of immunizations, food surveillance, recreational facilities inspections, and rabies control. These types of “boots on the ground” activities take up a large amount of LHDs’ time and resources, leaving public health officers too busy to deal with larger questions of policy and planning. Public health officers have expressed a desire to facilitate partnerships with planners, emergency management officials, and other relevant stakeholders in order to incorporate health issues and concerns into larger planning processes, but do not necessarily feel that they are empowered to play this type of ‘facilitator’ role as their responsibilities are currently defined. Creation of partnerships between the public health and planning community, and increased awareness of the public health effects of built environment policies, were identified as critical to achieve improvements in health outcomes in New Jersey. Additionally, practitioners have suggested that the statutes regulating the duties of local health departments be re-evaluated in light of the health issues and resource environment of the twenty-first century.

Decentralization and Lack of Communication

Due to the wide range of state agencies that play a role in public health and safety in New Jersey (e.g. DOH, DEP, DCA, OEM, Police) as well as the decentralized local nature of the public health system in the state, communication and coordination is an ongoing issue that complicates implementation of health-related policy changes. Personnel are not necessarily aware of the projects being undertaken by other departments and organizations, nor are they always aware of data or funding available through other agencies or organizations. Regular communication about the impacts of public policy on health and safety is not currently built into institutional processes and procedures. Public health practitioners have expressed interest and enthusiasm for a more collaborative environment that allows them to play a role in shaping the physical environment to support positive health outcomes, but do not always know how to obtain or share information that would foster such outcomes.

Cost of Health Coverage

Though it is beyond the scope of Together North Jersey to address, lack of health insurance coverage remains a major barrier in improving health outcomes in the region. The escalating cost of health care prevents residents, particularly low-income residents, from seeking out preventative care and appropriate treatments. The increasing cost of health care and insurance also places a major burden on governments and employers around the state. However, this challenge also presents an opportunity to address the causes of poor health outcomes,

rather than the effects. The increasing cost of health care has raised general interest in policies that create sustainable communities in which health, fitness, and nutrition are primary concerns, and which integrate opportunities for recreation and active transport as a means of preventing expensive chronic diseases.

Demographic Change

Over the two decades from 2010 through 2030, the Baby Boom cohort will move into the ranks of the elderly, swelling the region's population of people 65 and over. Older people require more health care, which will have a major impact on the public health needs of the region and the deployment of state and local health care resources. In addition, elderly people are more likely to have mobility issues which limits accessibility to health and recreation facilities and grocery stores, and which complicates evacuations and relocations during heat waves and storm events. This issue is particularly pronounced in car-dependent areas, where elderly people who are no longer able to drive and who do not have nearby family or friends have very limited options in terms of mobility.

Northern New Jersey is a major destination for immigrants to the United States, and there has been dramatic growth in the region's Latino and Asian populations over the past several decades. In 2010, five of the region's counties were 'majority-minority' counties, comprised of less than 50% non-Latino white residents (Essex, Hudson, Middlesex, Passaic and Union). Immigrants, particularly Latino immigrants, tend to be younger and have larger households than non-Latino white communities. Language barriers and differing cultural norms may present a challenge in implementing public health and safety programs. Additionally, immigrants tend to have fewer financial resources and therefore settle in areas where housing is less expensive, often in older urban areas that are proximate to industrial uses and/or heavy traffic. Environmental justice issues are of particular concern amongst immigrant communities that may not have knowledge of the impacts of such facilities on public health, nor have access to existing networks of power that can improve hazardous environmental health conditions.

A change in market preference amongst the younger demographic for more compact, walkable communities translates into a real opportunity for creation of physical environments that encourage more active lifestyles and promote better health outcomes.

Climate Change

Warming average air temperatures and increased vulnerability to major storm events are likely to have impacts on several aspects of public health in the region. An increase in heat waves can be expected to lead to an increase in heat-related morbidity and mortality, particularly among the elderly. Rising temperatures may also lead to a longer pollen seasons, exacerbating episodes of asthma and other allergenic diseases. Increased levels of ground level ozone and particulate matter may lead to an increase in pulmonary and respiratory diseases, with a more pronounced effect in urban areas. Warming temperatures could also lead to the expansion of the ranges of certain vector-borne diseases such as Lyme disease and West Nile virus. Sea level rise will exacerbate the effects of storm surge, creating even greater challenges for public health and safety during and after storm events, particularly in the coastal counties. Together North Jersey has the opportunity both to work on capacity building activities that increase climate resiliency for communities, as well as the opportunity to mitigate future climate impacts by promoting policies that reduce greenhouse gas emissions.

Increased Interest in 'Health in All Policies'

Despite these challenges, there is increased interest and enthusiasm for a Health in All Policies approach, and Together North Jersey has the opportunity to capitalize on federal and public interest in such an approach. A

number of programs are already in place that sit at the nexus of public health and urban planning. Shaping NJ is a program funded by the Centers for Disease Control which aims to prevent obesity by improving nutrition and increasing physical activity amongst New Jerseyans. Shaping NJ is a partnership of more than 300 organizations across the state, including child care centers, schools, communities, businesses, and healthcare facilities. Grants are awarded for projects that improve opportunities for physical activity and increase access to healthy food. Previously awarded grants include installation of back racks along a trail in Red Bank, opening up play streets in Irvington and Perth Amboy, and developing recommendations to improve the safety of parks in Camden (New Jersey Department of Health, Shaping NJ).

Similarly, there has been a recent growth in interest in issues related to healthy food access. The U.S. Department of Agriculture's Fresh Fruit and Vegetable program, which exposes schoolchildren to healthy fruits and vegetables in an effort to instill lifelong healthy eating habits, was introduced to New Jersey school systems in 2008-2009. Organizations such as the New Brunswick Community Food Alliance work towards providing residents with access to affordable and nutritious food.

A brochure jointly prepared by the New Jersey Chapter of the American Society of Landscape Architects and the New Jersey Association of County & City Health Officials, outlining basic components of healthy community design, is a step in the direction of a more collaborative approach between design and health practitioners.

Desired Long Term Outcomes

The federal government's Healthy People Initiative, run by the U.S. Department of Health and Human Services, is a 10-year initiative that sets health objectives for the nation and monitors progress towards achieving those objectives. The overarching goals of Healthy People 2020 are to:

- Attain high quality, longer lives free of preventable disease;
- Achieve health equity and eliminate health disparities;
- Create social and physical environments that promote good health; and
- Promote quality of life, healthy development and healthy behaviors across life stages.

New Jersey has developed a state-specific complement to the federal government's Healthy People program. The Healthy New Jersey 2010 Initiative set quantitative goals for the state for preventing and reducing major diseases, strengthening public health capacity, and tracking health outcomes for the first decade of the new millennium (New Jersey Department of Health, Healthy New Jersey 2010, 2001). Healthy New Jersey 2020 is currently in development and expected to be released in 2013. The Healthy New Jersey 2020 effort updates baselines and targeted goals for a number of topic areas and objectives, ranging from access to health services to chronic diseases to environmental health.

To the greatest extent possible, Together North Jersey's RPSD will benefit from alignment with Healthy People 2020 and Healthy New Jersey 2020. The overall goal for the RPSD as relates to health and safety is to ensure that communities are safe, healthy, and great places to live. In particular, focus should be given to improving public health outcomes and reducing health disparities. Development of the health and safety elements of the RPSD involves articulating health and safety outcomes in ways that can drive decision-making for the physical or built environment. Specific targets for health outcomes are set in Healthy New Jersey 2020 and need not be replicated here. Instead, the focus here is on outlining long-term outcomes related to the built environment that will aid in achieving the overall health goals of the North Jersey region.

- 1. Create safe, stable neighborhoods with high quality housing, low vacancy rates, and strong demand.**
 - a. Reduce crime.
 - b. Enforce property maintenance codes.
 - c. Address abandoned properties.
- 2. Reduce exposure to environmental and health hazards.**
 - a. Improve air and water quality.
 - b. Reduce exposure to radon, lead, and toxic chemicals.
 - c. Limit density of housing near high traffic areas.
- 3. Enable more active lifestyles as a means of reducing chronic diseases.**
 - a. Increase the number of neighborhoods considered walkable, bikable & transit friendly.
 - b. Build roads that are safe and easy for all users.
- 4. Improve access to local parks and recreation.**
 - a. Connect natural areas and parks with a network of greenways, trails, bike paths and sidewalks
 - b. Increase the proportion of population located close to walking trails, parks and green space, especially for low income populations.
- 5. Improve traffic safety to reduce crashes, especially amongst cyclists and pedestrians.**
- 6. Enable residents to maintain healthy diets.**
 - a. Improve availability of fresh foods within convenient travel distance from home and jobs.
 - b. Reduce density of alcohol and fast food establishments.
- 7. Increase the proportion of the population, especially low-income residents, with good access to health care facilities, including neighborhood clinics and hospitals.**

Physical environment policies that affect health outcome-based goals include measures that fall within the categories of land use, infrastructure, resources, education, capacity building and community design. These policies can affect health outcome goals through direct impacts on environmental quality, community safety, personal behaviors, access to quality care, availability of nutritious food, emergency preparedness and prevention, and opportunities for active living, recreation, and active transport. Examples of physical environment policies affecting health outcome-based goals are outlined in Table 4.1 below.

Table 4.1 Examples of Physical Environment Policies Affecting Health Goals

Land Use	• Standards for proximity of residential centers and schools to polluting industrial operations and mobile sources of pollution; • Land use strategies that facilitate active transport including compact development, mixed use, infill development, and street connectivity; • Location of housing close to parks and recreational facilities; • Restrictions on density of alcohol establishments and billboards in residential areas; • Restrictions on density of convenience stores and fast food restaurants in residential areas;
Infrastructure	• Availability of amenities that support regular active transport such as bike paths, sidewalks, and trails; • Availability of public recreational facilities; • Signage that increases access to active transport modes;

	• Public access to drinking water fountains;
Transportation	• Incorporation of traffic calming, crosswalks and other street design measures shown to reduce traffic accidents; • Complete streets policies; • Walkability standards and guidelines; • Availability of car and bike sharing programs; • Safe routes to school programs;
Community Resources	• Availability of resources to support lead and radon abatement; • Resources to support urban and community gardening; • Access to quality health care facilities, especially for medically underserved communities; • Access to fresh foods (e.g. grocery stores, farmers markets); • Crime prevention measures, including community policing;
Community Design	• Design guidelines that promote active transport, including those that address ADA compliance; • Design that incorporates noise buffers; • Design that facilitates increased tree canopy and green infrastructure. • No-smoking restrictions; • Increased enforcement of property maintenance codes;
Education and Capacity Building	• Procedures to increase coordination between health practitioners, planners, emergency management personnel, and community groups; • Improved awareness among the general population of the relationship between physical activity, nutrition, and health;

Measuring Progress

In order to ascertain the effectiveness of policies implemented to improve the health and safety of residents in the North Jersey region, it is necessary to identify indicators that can be measured and tracked on a regular basis to see whether and how conditions are changing. The availability of reliable and regularly updated data is a key limiting factor in selecting indicators. Table 5.1 summarizes potential indicators that can be used to measure progress in achieving health and safety goals, along with suggestions of where data can be obtained from.

Data on crime, safety, and traffic fatalities are available from the New Jersey State Police Department. The Rutgers Center for Advanced Infrastructure and Transportation (CAIT) also maintains databases on traffic safety statistics.

The New Jersey State Health Assessment Data (NJSHAD) system, maintained by the New Jersey Department of Health's Center for Health Statistics, is a valuable source for statistics on health outcomes in New Jersey. NJSHAD maintains data on mortality rates, chronic disease morbidity and mortality, and birth rates, among much other health-related data, generally broken out at the county level.

NJSHAD also houses data compiled by NJDHSS and the New Jersey Department of Environmental Protection under the national Environmental Public Health Tracking Program (EPHT). The NJDEP also has a great deal of data available on the locations of environmental health hazards such as contaminated sites.

Determining the proportion of population with access to parks requires combination of multiple sources of data. Population and demographic information is available from the U.S. Census Bureau's American Community Survey (ACS). Fitness and recreational sports centers can be identified by the Census Bureau's North American Industrial Classification System (NAICS) code 713940. The NJDEP maintains GIS data layers of county and state owned open space, and recreational land is identified in the Land Use/Land Cover data sets.

The Reinvestment Fund's PolicyMap program maintains data on locations of healthy food outlets. This data can be combined with socio-economic data from the ACS to measure access to nutritious food. The Robert Wood Johnson Foundation, in its annual County Health Rankings, generates a similar compilation of data, using data from the U.S. Department of Agriculture. The ACS, in addition to socio-economic and demographic information, also includes data on health insurance coverage status.

Table 5.1 Potential Indicators

Desired Outcome	Potential Indicator	Potential Source	Scale at which Available
Create safe, stable neighborhoods	Crime rates by geography and population subgroup: • Crime rates per capita (assault, violent crime, domestic violence) • Property crimes per capita • Crime victims as a percent of total population • Juvenile crime rates	New Jersey State Police Uniform Crime Reporting Division	County
	Police incidents: • In and near parks • In and near transit stops • Related to drugs or alcohol	NJ State Police?	
	Emergency response times • Fire • EMT		
	Foreclosures per square mile	NJ Division of Banking	
Reduce exposure to environmental health hazards	NATA Cancer Risk exposure	USEPA	Census tract
	Number of poor air quality days annually • Due to PM 2.5 • Due to ozone	NJ EPHT (via NJSHAD) or Robert Wood Johnson County Health Rankings	County
	Exposure rates to air pollutants	EPHT, Census	
	Exposure rates to lead paint	EPHT	County
	Exposure rates to radon	EPHT has data on number of homes tested for radon & number treated, but not rates	County
	Locations of environmental health hazards overlaid with population data by geography and subgroup • Dry cleaners • Junkyards • Contaminated sites • Major regulated sites	NJDEP, combined with ACS data	
	Location and concentration of truck traffic overlaid on population data and affordable housing sites		

Enable more active lifestyles in order to reduce chronic diseases	Rates of chronic disease by geography and population subgroup • Obesity • Heart disease • Cancer • Diabetes • Asthma	NJSHAD	County
	Number of municipalities that have adopted bicycle and pedestrian master plans		
	Number of municipalities that have adopted complete streets ordinances		
	Number of municipalities that have adopted smart growth ordinances		
Improve access to local parks and recreation	Number of recreational facilities per capita	Robert Wood Johnson Foundation County Health Rankings	County
	Acres of public use parks and open space per capita	ACS, NJDEP	
	Percentage of total regional population that resides within ½ mile (urban areas) or one mile (rural areas) of a public access park or open space <i>(Flagship)</i>	ACS, NJDEP	
	Number of affordable housing units located within ½ mile of parks and open space		
Improve traffic safety to reduce crashes	Number of crashes and fatalities involving: • Pedestrians • Bicycles • Drivers/passengers	NJ State Police, Rutgers CAIT	County
Enable residents to maintain healthy diets	Proportion of regional population within one mile (urban areas) and 10 miles (rural areas) of a supermarket/grocery store	Policy Map, ACS	
	Proportion of regional population that reside in a low-income census tract AND reside within one mile (urban areas) and 10 miles (rural areas) of a supermarket/grocery store <i>(Flagship)</i>	PolicyMap, Robert Wood Johnson County Health Rankings	
	Proportion of regional population living within a community with a <i>Jersey Fresh</i> farmer's market		
	Number of retail alcohol establishments per capita		

	Number of fast food establishments per capita		
Increase access to health care	Proportion of population covered by health care insurance by geography and population subgroups	ACS	
	Proportion of low income population residing within one mile (urban areas) or 10 miles (rural areas) of a health clinic		

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