New Jersey Diabetes Action Plan Report

April 13, 2016

Report to the Governor and the New Jersey Legislature on diabetes-related efforts in the Department of Health, Department of Human Services, and Department of Children and Families.

Diabetes Action Plan Committee Members

The following people participated in the preparation of this report.

New Jersey Department of Health (DOH)
Division of Family Health Services, Community Health and Wellness Unit
Melita J. Jordan, CNM, MSN, APRN C, CPM, Senior Executive Director
LorieAnn Wilkerson-Leconte, MPH, Diabetes Prevention and Control Program Coordinator
Serita M. Reels, MPH, MCHES, Public Health Program Prevention Specialist
Melissa Santorelli, PhD, MPH, Research Scientist

New Jersey Department of Human Services
Division of Medical Assistance and Health Services (DMAHS)
Thomas Lind, MD, FAAP, DMAHS Medical Director
Margaret Springer, RN, MSN, APN-C, Healthcare Administrator
JoAnn Baxter, RN, AAS, Regional Staff Nurse
Patric Mac, Program Specialist
Vanessa Wills, RN, BSN, Nursing Consultant

New Jersey Department of Children and Families (DCF)
Charmaine L. Thomas, MSW, Assistant Commissioner, Family and Community Partnerships
Mollie A. Brodsky-Greene, MA, Director, Clinical Services
Sunday Gustin, RN, MPH, Administrator, Early Childhood Services
Arnesha Roper-Lewis, County Services Specialist
Marilyn Panella, RN, MAS, Quality Assurance Specialist

Rutgers University School of Nursing
Francois-Xavior Bagnoud Center
Mary Weglarz DNP, RN, APN, CPNP, CPMHS,
Assistant Director, Child Health Family Nurse Program

National Association of Chronic Disease Directors
Marti Macchi, MEd, MPH, Senior Consultant for Diabetes

Table of Contents

List of Figures:

List of Tables:

EXECUTIVE SUMMARY

Diabetes mellitus is a chronic disease in which blood glucose levels are above normal. The pancreas makes a hormone called insulin to help glucose get into the cells of our bodies. When diabetes occurs, the body either doesn't make enough insulin, (known as Type 1 diabetes) or can't use its own insulin as well as it should (known as Type 2 diabetes). Diabetes mellitus is a leading cause of death in New Jersey, ranking sixth among the most common causes and accounting for more than 2,200 deaths in 2011, the most recent year for this data (New Jersey State Health Assessment Data, 2015). An estimated 9.2% of New Jersey adults (632,785 residents) have diabetes mellitus (New Jersey Behavioral Risk Factor Surveillance System, 2013). From 1996 to 2010, the estimated rate of new adult diabetes mellitus cases more than doubled in New Jersey (New Jersey Behavioral Risk Factor Surveillance System, 2010). Both type 1 and 2 diabetes are associated with long-term complications that significantly impact quality of life. Individuals with diabetes mellitus are at increased risk for serious health complications, such as lower limb amputations, blindness, kidney failure, and cardiovascular disease. Furthermore, the number of people with diagnosed type 2 diabetes is rapidly increasing, having tripled in the United States over the last 30 years (Centers for Disease Control and Prevention (CDC), 2013).

The rise of type 2 diabetes is linked to the growing obesity epidemic. As of 2013, 26.3% of New Jersey adults were obese (Behavioral Risk Factor Surveillance System, 2013). It is estimated that almost 50% of overweight or obese adults have prediabetes, and about 25% of Americans with prediabetes are expected to develop diabetes within three to five years of a prediabetes diagnosis (New Jersey State Report, Providing Access to Healthy Solutions (PATHS), 2014). As of 2011, data from the Pediatric Nutrition Surveillance System showed 14.2% of low-income children under five in New Jersey were obese. These obese children are more likely to grow into overweight teens and adults who will be at increased risk for a chronic condition like diabetes in the future.

According to the Study on the Economic Cost of Diabetes, the nationwide total costs of diagnosed diabetes mellitus have risen from $174 billion in 2007 to $245 billion in 2012, which included $176 billion in direct medical costs and $69 billion in reduced productivity (American

Diabetes Association, 2013). By 2025, the total number of people with diabetes mellitus (diagnosed and undiagnosed) in New Jersey is projected to be 1,500,400 individuals, and the cost to the State is projected to reach $14.5 billion, including lost productivity (Institute for Alternative Futures, 2011).

This report demonstrates that diabetes mellitus is a rapidly growing and costly disease in New Jersey. Consider the following highlights:

- An estimated 9.2% of New Jersey adults (632,785 residents) have diabetes mellitus (NJ BRFSS, 2013).
- Adult diabetes mellitus prevalence is highest in Salem (11.6%), Cumberland (11.6%), and Cape May (11.4%) counties (NJ BRFSS, 2011-2013).
- The proportion of New Jersey adults with diabetes mellitus who have ever taken a self-management class is about 42.3%, which is below the national estimate of 54.2% (NJ BRFSS and United States BRFSS, 2013). Diabetes self-management education (DSME) helps people gain the knowledge, skills, and the ability necessary for diabetes self-care.
- Among pregnant NJ FamilyCare recipients, the highest total paid per person in 2013 was for women with pre-existing diabetes at $26,473, followed by $24,175 for women who had gestational diabetes (NJ FamilyCare claims data, 2013).
- NJ FamilyCare managed care and fee-for-service members with diabetes mellitus incur significant healthcare costs. In 2013, the total cost of diabetes mellitus for adult and youth NJ FamilyCare and fee-for-service members was $161,420,327 (NJ FamilyCare claims data, 2013).

This report also includes findings from the 2014 New Jersey State Report, Providing Access to Healthy Solutions (PATHS): An Analysis of New Jersey's Opportunities to Enhance Prevention and Management of Type 2 Diabetes, prepared by the Center for Health Law and Policy Innovation of Harvard Law School. The PATHS report was funded through Together on Diabetes™, the flagship philanthropic program of the Bristol-Myers Squibb Foundation.

Diabetes Action Plan Committee Proposed Recommendations

1. Encourage providers to establish, maintain, and implement as part of normal operating procedures a verifiable system to:
    - Screen patients with risk factors for prediabetes and diabetes according to the latest clinical guidelines set forth by the American Diabetes Association;

- Encourage immediate communication regarding the results and implications of said screenings with patients as part of the patient's electronic medical record; and

- Educate patients identified as prediabetic about the potential risks to their health and available resources for further education.

2. Communicate the results and implications of diabetic screenings with patients as part of the medical record.
    - Educate patients identified as prediabetic about the potential risks and available resources.
    - Refer at-risk individuals to appropriate prevention and treatment programs.

3. Encourage evidence-based diabetes self-management education, training, and services for patients diagnosed with type 2 diabetes and gestational diabetes.

4. Encourage evidence-based diabetes prevention education and CDC-recognized lifestyle change programs for the primary prevention of type 2 diabetes among patients diagnosed with prediabetes or at those at high risk for type 2 diabetes.

5. Work to reduce the cost of diabetes mellitus in the community by providing education for families and providers, and by specifically targeting diabetics over the age of 65.

INTRODUCTION

Purpose of the Report

This report is generated in accordance with a statute passed by the New Jersey Legislature and signed by the Governor. The statute, N.J.S.A. §26:2-142.1, requires three State agencies – the New Jersey Department of Health (DOH), the New Jersey Department of Children and Families (DCF), and the New Jersey Department of Human Services (DHS) – to collaborate to develop a biennial report on the impact of diabetes mellitus in New Jersey, with a set of actionable items to be considered by the Legislature.

Report Development

The Diabetes Action Plan Committee (DAPC) consisted of key individuals designated by the three State agencies to participate in the development of the report. The DAPC used the Model for Community Change, created by the *Workgroup for Community Health and Development at the University of Kansas,* as a conceptual framework to guide the process (Figure 1). The framework outlines a dynamic process for facilitating community change and improvement. In addition, the DAPC used a community engagement and participatory process with principles that included: 1) building on collective strengths and shared resources, 2) facilitating partnership and capacity building throughout the process, and 3) transparency. To that end, it was recognized that each of the three State agencies brought to the table assets, strengths, expertise, and resources that could be leveraged to develop a comprehensive report that would ultimately improve health outcomes for those living with or at risk for diabetes mellitus in New Jersey.

Figure 1: Model for Community Change (Developed by the Workgroup for Community Health and Development at the University of Kansas)

6 Phases for Building a Healthier Community

Collaborative Planning	Utilization of community-level indicators to measure and document the extent of problems at the local level.
Development of Action Plan	Identification of the specific actions and/or strategies to address the issues.
Community Action & Intervention	Execution of actions and/or strategies outlined in the action plan.
Community & System Changes	Development of a new program (or modifying an existing one), to bring about a change in policy.
Risk and Protective Factors Widespread System Change	Changes to the environment in which a person behaves and that greatly impacts risk and protective factors.
Improvements in Outcomes	Reducing the risk factors (and enhancing the protective factors) for the issue being addressed is the ultimate goal of collaborative partnerships.

The Community Toolbox. (2014). Workgroup for Community Health and Development Model for Building Healthier Communities. Retrieved from http://ctb.ku.edu/en/table-of-contents/overview/model-for-community-change-and-improvement/building-capacity/main.

The first DAPC meeting was held to construct the foundation for the implementation of the Diabetes Action Plan (DAP). Members gained an understanding of the genesis and purpose of the legislation. The DAPC discussed the framework for collaborative partnerships and model for

reducing the burden of diabetes in New Jersey. The committee also established partnership roles and responsibilities and identified key data indicators for data analysis. From that meeting, the group established a project timeline and work plan.

Leveraging an established partnership with the National Association of Chronic Disease Directors (NACDD), the Department of Health invited the organization to meet with the DAPC to help shape the preliminary work plan. NACDD works with states to assist them through the process of developing a DAP. NACDD presented DAP activities from the national perspective, and shared experiences from other states that have implemented similar legislation. Evidence-based interventions and strategies were provided for consideration by the DAPC.

Subsequent meetings focused on each agency's priorities for addressing diabetes mellitus, data collection and analysis, and the collaborative development of actionable items to be considered by the Legislature.

This report describes the work of the DAPC that was completed in a spirit of cooperation and mutual respect, and could not have been accomplished without the active participation of all members.

UNDERSTANDING DIABETES

Diabetes Trends

Diabetes mellitus is a leading cause of death in New Jersey, ranking sixth among the most common causes and accounting for more than 2,200 deaths in 2011, the most recent year for this data (New Jersey State Health Assessment Data, 2015). An estimated 9.2% New Jersey adults (632,785 residents) have diabetes (New Jersey Behavioral Risk Factor Surveillance System, 2013). From 1996 to 2010, the estimated rate of new adult diabetes mellitus cases more than doubled in New Jersey (New Jersey Behavioral Risk Factor Surveillance System, 2010). According to the CDC Infographics on Diabetes: A Snapshot: Diabetes In The United States, diabetes mellitus affects 9.3% of the US population, including 21 million with diagnosed diabetes mellitus and another 8.1 million who remain undiagnosed. An additional 37% of U.S. adults, or 86 million (more than one in three adults) have prediabetes and are at an increased risk for developing type 2 diabetes, heart disease, and stroke.

Diabetes Risk Factors

Social determinants, such as income, education, housing, and access to health care play a critical role in the development and progression of type 2 diabetes (Hills JO, Galloway JM, Goley A, et al, 2013). Individuals with lower incomes and education are two to four times more likely to develop diabetes (Hill J, Nielsen M, Fox M, 2013). In New Jersey, diabetes mellitus prevalence is higher among adults with household incomes below $50,000, and adults with less than a high school education (New Jersey Behavioral Risk Factor Surveillance System, 2013).

Over 26% of New Jersey residents aged 65 and older have diabetes mellitus (CDC, 2014). Although less prevalent than type 1 diabetes, type 2 is increasing among children, adolescents and younger adults (CDC, 2014). In New Jersey, 14.2% of low-income children under the age of five are obese (Pediatric Nutrition Surveillance System, 2011). Nearly one out of four (24.7%) children aged 10-17 is overweight or obese (National Survey of Children's Health 2011-2012). Obese children are more likely to grow into adults who will be at an increased risk for a chronic health condition like diabetes in the future.

The rise of type 2 diabetes in the last 30 years parallels the increase in obesity, suggesting that weight plays a major role in the development of the disease. With the increased consumption of processed foods that are high in carbohydrates and sugars, supersized portions, and sedentary lifestyles, the Body Mass Index (BMI) of adults and children have been expanding over the years. More than one in three (35.3%) New Jersey adults eat fruits less than once a day and more than one in five (21.4%) eat vegetables less than once a day (New Jersey Behavioral Risk Factor Survey, 2013). Only 19% of New Jersey high school students eat the recommended servings of five or more fruits and vegetables per day (New Jersey Student Health Survey, 2013). In New Jersey, only 21.6% of adults (New Jersey Behavioral Risk Factor Survey, 2013) and 49% of high school students meet the national physical activity guideline for their age (New Jersey Student Health Survey, 2013).

Complications and Costs

Individuals with diabetes mellitus are at an increased risk for serious health complications such as lower limb amputations, blindness, kidney failure, and cardiovascular disease (CDC, 2015). Poorly controlled diabetes can complicate pregnancy resulting in preterm birth, preeclampsia, intrauterine growth restriction, and congenital anomalies (CDC, 2015).

In 2012, the total cost of diabetes mellitus in the United States was $245 billion, which included $176 billion in direct cost and $69 billion in reduced productivity (American Diabetes Association, 2013). The total annual diabetes mellitus cost for New Jersey in 2010 was estimated to have been $9.3 billion, of which $6.6 billion was for medical costs and $2.7 billion for nonmedical costs (Institute for Alternative Futures, 2011). By 2025, the total number of people affected by diabetes mellitus (diagnosed and undiagnosed) in New Jersey is projected to be 1,500,400 individuals, and its cost to the State is projected to reach $14.5 billion, including lost productivity (Institute for Alternative Futures, 2011). Currently, one in five healthcare dollars is spent on caring for someone diagnosed with diabetes mellitus (Kaiser Commission on Medicaid and Uninsured, 2012).

Diabetes Control & Management

The nation's leading healthcare experts recommend a combination of clinical and community-based interventions to address the growing prevalence of diabetes and prediabetes.

The Guide to Community Preventive Services (Guide) is a resource to help public health professionals choose programs and policies to improve health and prevent disease. Developed by the Community Preventive Services Task Force, an independent group established by the U.S. Department of Health and Human Services, the Guide offers evidence-based recommendations for effective public health strategies. Strategies and interventions recommended for managing diabetes mellitus include:

- ensuring that persons with diabetes or who are at risk for diabetes get the care needed from healthcare providers;
- teaching people self-care practices to prevent complications from diabetes, and;
- helping people change their lifestyles to prevent type 2 diabetes.

The Guide recommends the following strategies for effectively managing diabetes mellitus: 1) diabetes disease management, 2) diabetes care management, 3) diabetes self-management education (DSME), and 4) combined diet and physical activity promotion programs.

1. Diabetes Disease Management

Disease management is a system of coordinated healthcare interventions across the spectrum of the disease and tailored communications to empower individuals to manage their diabetes and prevent complications. Disease management is designed to improve the quality of clinical care for populations with the greatest diabetes burden and risk in order to improve clinical outcomes, such as hemoglobin A1C, blood pressure, and cholesterol. The Community Preventive Services Task Force recommends diabetes disease management, noting strong evidence of effectiveness in improving glycemic control, providing monitoring of glycated hemoglobin (GHb), and screening for diabetic retinopathy (The Guide to Community Preventive Services, 2015).

The American Diabetes Association, Standards of Medical Care in Diabetes, 2015, provides specific medical guidelines that healthcare providers should follow when caring for a person with diabetes mellitus. They are as follows:

- Measure blood pressure at every visit;
- Conduct comprehensive foot exams and risk assessments at every office visit, or at least annually;
- Perform an hemoglobin A1C test at least twice a year in patients who have stable glycemic control;
- Perform an A1C test quarterly in patients whose therapy has changed or who are not meeting glycemic goals;
- Assess kidney function through urine and renal function blood tests at least once a year;
- Test blood lipids (fats)—total cholesterol; LDL or low-density lipoprotein ("bad" cholesterol); HDL or high-density lipoprotein ("good" cholesterol) and triglycerides at least once a year;
- Perform a dilated eye exam once a year; and
- Provide an annual flu shot.

2. Diabetes Care Management

Care management is a set of patient-centered, goal-oriented, culturally relevant and logical steps to assure that a patient receives needed services in a supportive, results-driven, efficient, timely and cost-effective manner. Care management emphasizes prevention, continuity of care and coordination of care, which advocates for, and links patients to, services across providers and settings. At a minimum, care management functions include, but are not limited to:

- Early identification of patients who have or may have special needs;
- Assessment of a patient's risk factors;
- Development of a plan of care;
- Referrals and assistance to ensure timely access to providers;

- Coordination of care actively linking the patient to providers; medical services; and residential, social, behavioral, and other support services where needed;
- Monitoring blood glucose levels;
- Continuity of care; and
- Follow-up and documentation.

Care management is driven by quality-based outcomes such as: improved/maintained functional status, improved/maintained clinical status, enhanced quality of life, patient satisfaction, adherence to the care plan, improved patient safety, cost savings, and patient autonomy (MCO Care Management Work Book, 2015).

3. Diabetes Self-Management Education (DSME)

Diabetes Self-Management Education helps people gain the knowledge, skills, and the ability necessary for diabetes self-care. DSME supports informed decision-making, problem-solving, and active collaboration with the healthcare team. DSME held in community gathering places has shown to be an effective strategy for improving glycemic control, health status, and quality of life for adults with type 2 diabetes (The Guide to Community Preventive Services, 2015).

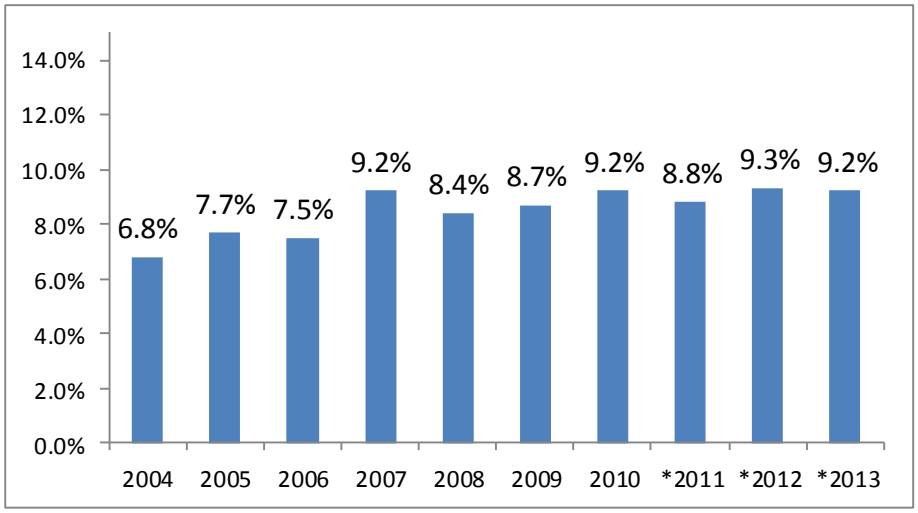
4. Combined Diet and Physical Activity Promotion Programs to Prevent Type 2 Diabetes Among People at Increased Risk

According to the Guide, combined diet and physical activity promotion programs have proven to be effective in reducing new onset diabetes. These programs have demonstrated that they can improve diabetes and cardiovascular disease risk factors, such as obesity, high blood glucose, high blood pressure, and abnormal lipid profile (The Guide to Community Preventive Services, 2015). It is estimated that 15% to 30% of people with prediabetes will go on to develop type 2 diabetes within five years (The Guide to Community Preventive Services, 2015). Combined diet and physical activity promotion programs have been successfully implemented by several national and state-wide organizations, the majority of which are part of the National Diabetes Prevention Program (DPP). The CDC-led DPP is a one-year evidence-based lifestyle change program

that helps people with prediabetes (or high risk for type 2 diabetes) prevent or delay the onset of type 2 diabetes. Lifestyle Coaches work with participants in a group setting to provide education on nutrition, physical fitness, and skills-building instruction during 16 core sessions (usually one per week) and six post-core sessions (one per month). The program has proven to help people make achievable and realistic lifestyle changes and cut their risk of developing type 2 diabetes by 58% (National Diabetes Prevention Program, 2015).

SCOPE OF DIABETES BURDEN IN NEW JERSEY

Figure 2: Diabetes Prevalence Estimates for NJ Adults, BRFSS

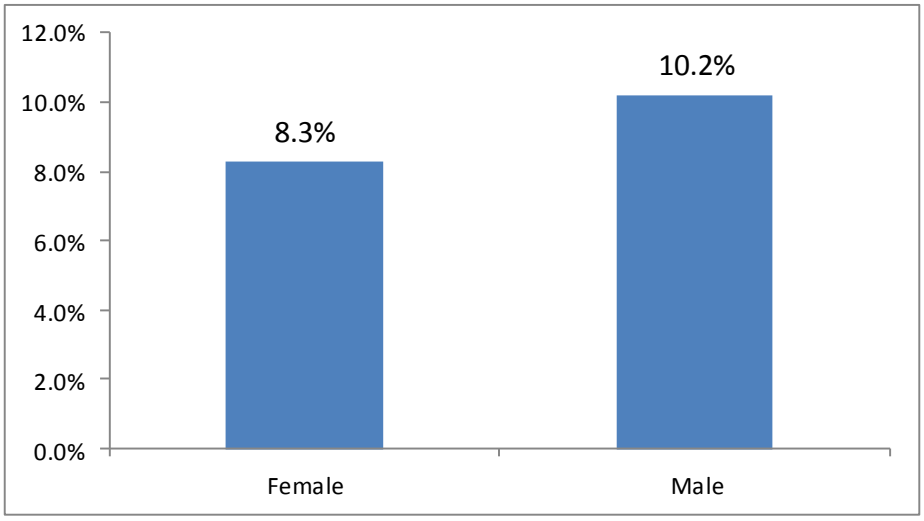


Source: Behavioral Risk Factor Surveillance System data was analyzed by the New Jersey Department of Health, Community Health and Wellness Unit.
2011-2013 not comparable to previous years due to changes in survey methodology.

Key Points:

- An estimated 9.2% of New Jersey adults have diabetes (632,785 residents).
- Diabetes prevalence has been increasing over time.

Figure 3: Diabetes Prevalence Estimates for NJ Adults by Gender, 2013 BRFSS

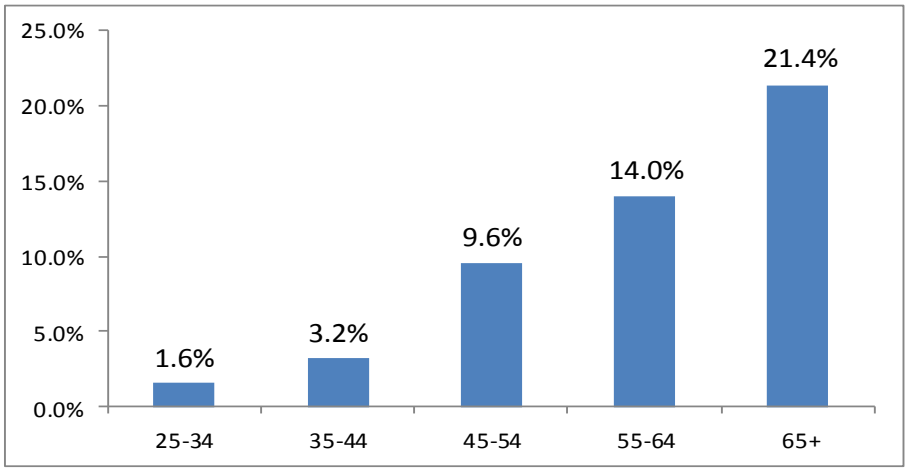


Source: Behavioral Risk Factor Surveillance System data was analyzed by the New Jersey Department of Health, Community Health and Wellness Unit.

Key Point:

- Diabetes prevalence is higher for male adults as compared to female adults.

Figure 4: Diabetes Prevalence Estimates for NJ Adults by Age, 2013 BRFSS

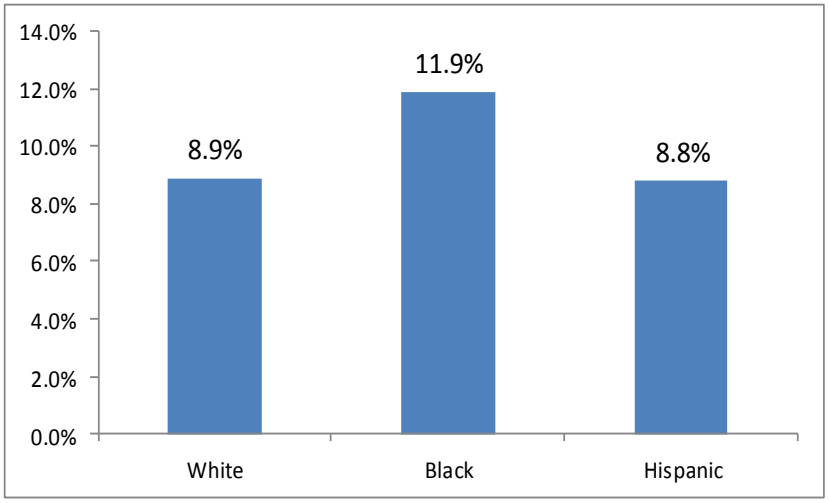


Source: Behavioral Risk Factor Surveillance System data was analyzed by the New Jersey Department of Health, Community Health and Wellness Unit.
Estimates are not available for adults 18-24 due to a low survey sample size.

Key Point:

- Diabetes prevalence increases with age.

Figure 5: Diabetes Prevalence Estimates for NJ Adults by Race/Ethnicity, 2013 BRFSS

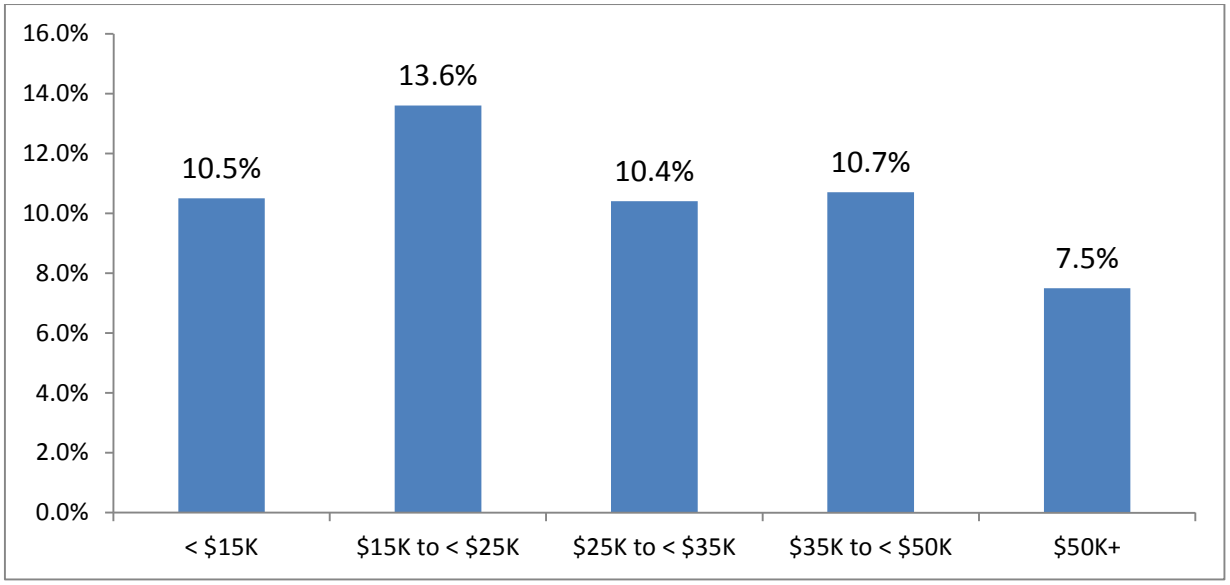


Source: Behavioral Risk Factor Surveillance System data was analyzed by the New Jersey Department of Health, Community Health and Wellness Unit.

Key Point:

- Diabetes prevalence is higher for black adults as compared to white and Hispanic adults.

Figure 6: Diabetes Prevalence Estimates for NJ Adults by Annual Household Income, 2013 BRFSS

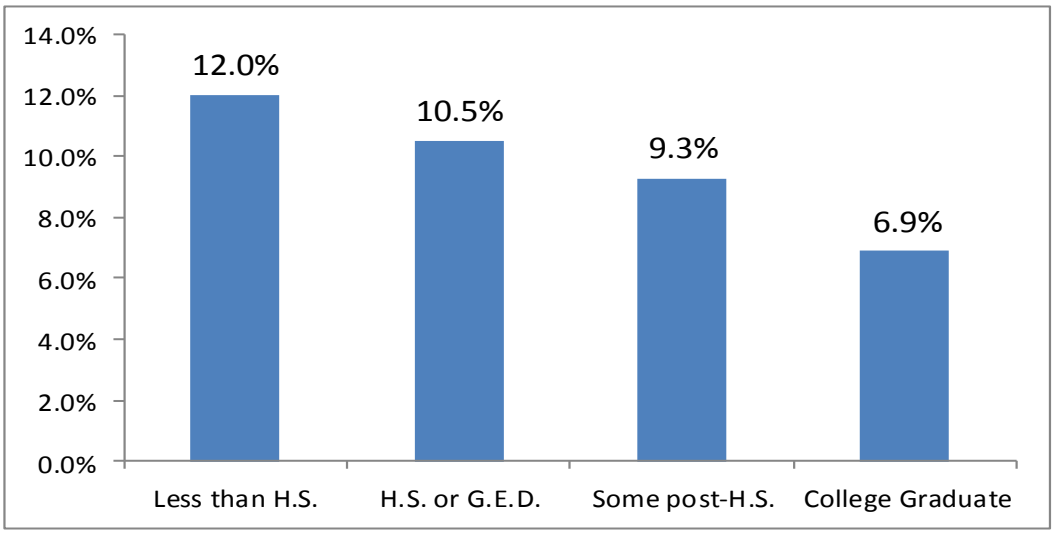


Source: Behavioral Risk Factor Surveillance System data was analyzed by the New Jersey Department of Health, Community Health and Wellness Unit.

Key Point:

- Diabetes prevalence is higher among adults with annual household incomes below $50,000.

Figure 7: Diabetes Prevalence Estimates for NJ Adults by Educational Attainment, 2013 BRFSS



Source: Behavioral Risk Factor Surveillance System data was analyzed by the New Jersey Department of Health, Community Health and Wellness Unit.

Key Point:

- Diabetes prevalence is higher among adults with lower levels of education.

Table 1: Adult Diabetes Prevalence Estimates by NJ County, 2011-2013 BRFSS

County	Percentage	Number
ATLANTIC	10.6%	21,761
BERGEN	7.6%	52,747
BURLINGTON	9.5%	32,387
CAMDEN	10.0%	38,113
CAPE MAY	11.4%	8,747
CUMBERLAND	11.6%	13,525
ESSEX	10.2%	58,341
GLOUCESTER	10.9%	23,225
HUDSON	7.4%	37,536
HUNTERDON	6.4%	6,060
MERCER	9.6%	26,282
MIDDLESEX	9.5%	58,321
MONMOUTH	8.8%	41,276
MORRIS	7.6%	27,963
OCEAN	10.9%	47,249
PASSAIC	9.0%	32,922
SALEM	11.6%	5,701
SOMERSET	8.3%	20,112
SUSSEX	8.2%	9,038
UNION	7.9%	31,495
WARREN	8.7%	7,006

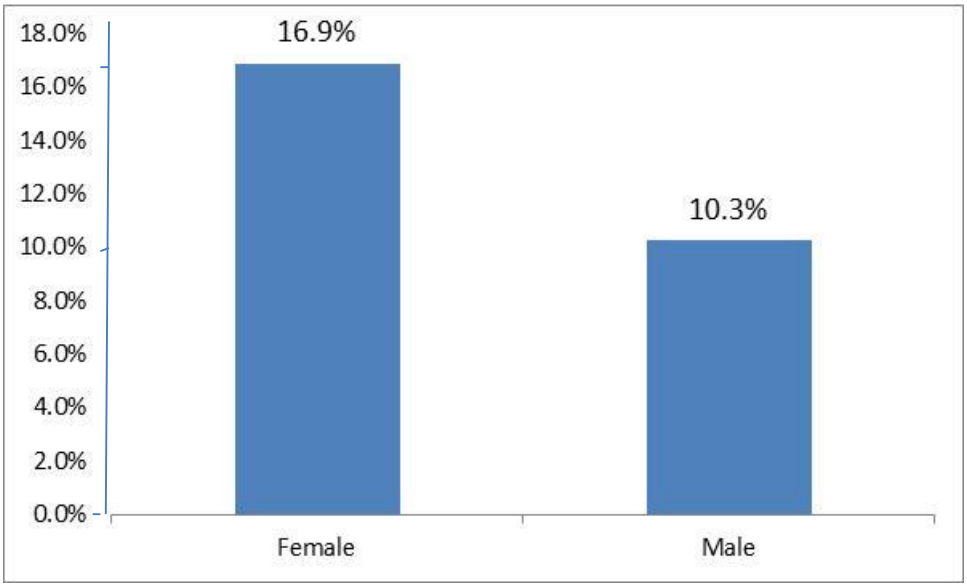
Data Source: Centers for Disease Control and Prevention. Diabetes Data and Statistics. Accessed from http://www.cdc.gov/diabetes/atlas/countydata/atlas.html?filter=filter4,New%20Jersey&indicator=i3 on March 24, 2015.

Key Point:

- Adult diabetes prevalence is highest in the southern counties of Salem (11.6%), Cumberland (11.6%), and Cape May (11.4%). The number of adults with diabetes is highest in Essex (58,341), Middlesex (58,321), Bergen (52,747), and Ocean (47,249) counties.

Prevalence of Diabetes Among NJ FamilyCare Members in New Jersey

Figure 8: Prevalence of Diabetes among NJ FamilyCare Members 20 Years and Older by Gender, 2013



Source: Actual Cost-Paid fee-for-service claims and managed care encounter for services provided to NJ FamilyCare eligible individuals between 1/1/2013 and 12/31/2013.

Key Point:

- Diabetes prevalence is higher for female compared to male adult NJ FamilyCare recipients; however, among the general population, diabetes prevalence is lower for females. See Figure 3: Diabetes Prevalence Estimates for NJ Adults by Gender, 2013 BRFSS.

Table 2: Prevalence of Diabetes among NJ FamilyCare Members 20 Years and Older, by County, 2013

	Females		Males	
County	Members	Percent	Members	Percent
ATLANTIC	1,663	9.8%	1,141	6.8%
BERGEN	3,136	18.6%	1,914	11.3%
BURLINGTON	1,520	9.0%	1,063	6.3%
CAMDEN	4,013	23.8%	2,545	15.1%
CAPE MAY	435	2.6%	367	2.2%
CUMBERLAND	1,410	8.4%	829	4.9%
ESSEX	8,183	48.4%	4,415	26.1%
GLOUCESTER	1,071	6.3%	687	4.1%
HUDSON	7,550	44.7%	4,298	25.4%
HUNTERDON	186	1.1%	157	0.9%
MERCER	1,978	11.7%	1,268	7.5%
MIDDLESEX	3,790	22.4%	2,471	14.6%
MONMOUTH	1,881	11.1%	1,150	6.8%
MORRIS	1,122	6.6%	846	5.0%
OCEAN	1,714	10.2%	1,399	8.3%
PASSAIC	5,417	32.1%	3,028	17.9%
SALEM	457	2.7%	264	1.6%
SOMERSET	805	4.8%	511	3.0%
SUSSEX	313	1.9%	246	1.5%
UNION	3,371	20.0%	1,826	10.8%
WARREN	391	2.3%	208	1.2%
Total	50,406	16.9%	30,633	10.3%

Source: Actual Cost-Paid fee-for-service claims and managed care encounter for services provided to NJ FamilyCare eligible individuals between 1/1/2013 and 12/31/2013.

Key Point:

- Diabetes prevalence among female and male adult NJ FamilyCare recipients is highest in Essex (48.4% for females, 26.1% for males), Hudson (44.7% for females, 25.4% for males), and Passaic (32.1% females, 17.9% males) counties.

Table 3: Prevalence of Diabetes among NJ FamilyCare Members Age 20 and Younger by County, 2013

County	Members	Percentages
ATLANTIC	103	0.6%
BERGEN	159	0.9%
BURLINGTON	81	0.5%
CAMDEN	187	1.1%
CAPE MAY	23	0.1%
CUMBERLAND	66	0.4%
ESSEX	379	2.2%
GLOUCESTER	68	0.4%
HUDSON	288	1.7%
HUNTERDON	11	0.1%
MERCER	117	0.7%
MIDDLESEX	193	1.1%
MONMOUTH	122	0.7%
MORRIS	53	0.3%
OCEAN	153	0.9%
PASSAIC	292	1.7%
SALEM	22	0.1%
SOMERSET	50	0.3%
SUSSEX	19	0.1%
UNION	361	2.1%
WARREN	19	0.1%
Total	**2,766**	**0.7%**

Source: Actual Cost-Paid fee-for-service claims and managed care encounter for services provided to NJ FamilyCare eligible individuals between 1/1/2013 and 12/31/2013.

***For information about the application of the business rule, refer to technical notes # 9.**

Key Point:

- Diabetes prevalence among youth NJ FamilyCare recipients is highest in Essex (2.2%), Union (2.1%), Passaic (1.7%), and Hudson (1.7%) counties. Overall, the prevalence of diabetes among NJ FamilyCare youth members below 20 years of age is low.

Diabetes Preventative Care Practices

Table 4: Preventative Care Practices among Adults with Diabetes, 2013 BRFSS NJ and United States

Preventative Care Practice	New Jersey	United States*
Had Professional Foot Exam in Prior Year	71.0%	72.9%
Had Annual Dilated Eye Exam in Prior Year	69.4%	68.5%
Had 2+ A1C Tests in Prior Year	73.2%	71.7%
Performs Daily Self Foot Exams	61.3%	63.1%
Performs Daily Self Blood Glucose Monitoring	58.4%	63.7%
Had Flu Vaccine in Prior Year	53.5%	55.5%
Ever Had Pneumonia Shot	51.8%	59.2%
Ever took a Self-Management Class	42.3%	54.2%

Source: Behavioral Risk Factor Surveillance System data was analyzed by the New Jersey Department of Health, Community Health and Wellness Unit. Thirty-nine States participated in the survey module.

Key Points

- The proportion of New Jersey adults with diabetes who have taken a self-management class is 42.3%, which is below the national estimate of 54.2%.
- It is unknown whether this percentage of adults attended an evidence-based DSME such as the American Diabetes Association-recognized program, the American Association of Diabetes Educators-accredited program, or the Stanford Licensed Diabetes Self-Management Program.
- In 2012, about 3.5% of people diagnosed with diabetes indicated that they participated in these programs.

Diabetes Awareness

- According to national estimates, about 37% of adults 20+ years have prediabetes, while only about 7% of New Jersey adults are aware of ever having the condition (2012 BRFSS). DOH is monitoring prediabetes awareness using BRFSS to observe trends over time.

Diabetes Complications

- An estimated 137,036 adults with diabetes were told by a doctor that the disease affected their eyes or that they had retinopathy, representing 22.0% of New Jersey adults with diabetes (BRFSS, 2013).
- An estimated 2,749 lower limb amputations related to diabetes were performed among residents at general acute care hospitals in New Jersey (Uniform Billing Data, 2013).

- An estimated 1,408 new cases of end-stage renal disease were diagnosed among New Jersey adults with diabetes (Quality Insights Renal Network 3 Annual Report, 2013).

Diabetes and Pregnancy

- Approximately 11.2% of New Jersey women 18-44 years who had a live birth were diagnosed with gestational diabetes (PRAMS, 2009-2011).
- Approximately 2.8% of New Jersey women 18-44 years who had a live birth were diagnosed with type 1 or type 2 diabetes prior to pregnancy (PRAMS, 2009-2011).

Table 5: Vaginal Deliveries and C-Sections Performed by Maternal Diabetes Diagnosis, 2013

	Vaginal Delivery		Cesarean Section	
	Number	Percent	Number	Percent
With Gestational Diabetes	3,067	49.6%	3,113	50.4%
With Diabetes Complicating Pregnancy	269	33.4%	537	66.6%
All Maternal Delivery Stays	59,076	62.1%	36,122	37.9%

Source: The data source for hospitalization and ED visits is the 2013 New Jersey UB data file, analyzed by the New Jersey Department of Health, Community Health and Wellness Unit.
Excludes deliveries that do not take place in a New Jersey general acute care hospital.

- Among 2013 maternal delivery hospital stays, women with gestational diabetes and women with pre-existing diabetes that complicated pregnancy both had a higher proportion of cesarean section births relative to all maternal delivery stays.

Diabetes Emergency Department Visits

Table 6: Emergency Department (ED) Visits for Diabetes among NJ Residents by Diagnosis, 2013

Primary Diabetes ICD-9-CM Diagnosis Code	Number	Percent
(250.0) Without mention of complication	8,621	57.9%
(250.1) Ketoacidosis	395	2.7%
(250.2) Hyperosmolarity	100	0.7%
(250.3) With other coma	19	0.1%
(250.4) With renal manifestations	33	0.2%
(250.5) With ophthalmic manifestations	71	0.5%
(250.6) With neurological manifestations	935	6.3%
(250.7) With peripheral circulatory disorders	57	0.4%
(250.8) With hypoglycemic manifestations	4,366	29.3%
(250.9) Unspecified complications	301	2.0%
	14,898	100%

Source: The data source for hospitalization and ED visits is the 2013 New Jersey UB data file, analyzed by the New Jersey Department of Health, Community Health and Wellness Unit.
Excludes out of state ED visits and visits that result in hospital admission.

Key Point:

- In 2013, the most common diagnosis reported for diabetes ED visits was diabetes without mention of complication (57.9%) followed by diabetes with hypoglycemic manifestations (29.3%).

Table 7: ED Visits for Diabetes among NJ Residents by County of Residence, 2013

County	Number	Percent	Crude Rate (per 100K population)
Atlantic	818	5.5%	297
Bergen	845	5.7%	91
Burlington	592	4.0%	131
Camden	1,260	8.5%	246
Cape May	114	0.8%	119
Cumberland	586	3.9%	372
Essex	2,225	14.9%	282
Gloucester	446	3.1%	161
Hudson	1,134	7.6%	172
Hunterdon	89	0.6%	70
Mercer	865	5.8%	234
Middlesex	1,026	6.9%	124
Monmouth	959	6.4%	152
Morris	305	2.1%	61
Ocean	827	5.6%	142
Passaic	996	6.7%	197
Salem	153	1.0%	235
Somerset	248	1.7%	75
Sussex	126	0.9%	86
Union	1,108	7.4%	202
Warren	156	1.1%	145

Source: The data source for hospitalization and ED visits is the 2013 New Jersey UB data file, analyzed by the New Jersey Department of Health, Community Health and Wellness Unit.

Excludes out of state ED visits and visits that result in hospital admission.

Key Point

- The 2013 diabetes ED visit rate ranged by county from 297 visits per 100,000 population (Atlantic) to 61 visits per 100,000 (Morris).

Table 8: ED Visits for Chronic Conditions among NJ Residents by Diagnosis, 2013

Primary Diagnosis	Number	Rate (per 100K population)
Diabetes	14,898	167
Adult Asthma	33,944	494
Child Asthma	18,528	916
COPD	24,882	280
Ischemic Heart Disease	4,552	51
Heart Failure	3,393	38
Hypertension	21,935	246
Chronic Kidney Disease	2,547	29
Stroke	4,827	54

Source: The data source for hospitalization and ED visits is the 2013 New Jersey UB data file, analyzed by the New Jersey Department of Health, Community Health and Wellness Unit. Excludes out-of-state ED visits and visits that result in hospital admission.

Key Point:

- The diabetes ED visit rate in 2013 was 167 visits per 100,000 population, which was higher than the corresponding rates for ischemic heart disease, heart failure, chronic kidney disease, and stroke.

Table 9: ED Visits for Chronic Conditions among NJ Residents with and without Diabetes, 2013

	With Diabetes		Without Diabetes	
Primary Diagnosis	Number	Percent	Number	Percent
Ischemic Heart Disease	1,292	28.4%	3,260	71.6%
Heart Failure	1,166	34.4%	2,227	65.6%
Hypertension	3,409	15.5%	18,526	84.5%
Chronic Kidney Disease	694	27.3%	1,853	72.8%
Stroke	947	19.6%	3,880	80.4%

Source: The data source for hospitalization and ED visits is the 2013 New Jersey UB data file, analyzed by the New Jersey Department of Health, Community Health and Wellness Unit. Excludes out-of-state ED visits and visits that result in hospital admission.

Key Point:

- A high percentage of NJ residents who visited the ED for other chronic conditions in 2013 also had diabetes. For example, 34.4% of ED visits for heart failure in 2013 were among residents with diabetes.

Diabetes Hospitalizations

Table 10: Hospitalizations for Diabetes among NJ Residents by Diagnosis, 2013

Primary Diabetes ICD-9-CM Diagnosis Code	Number	Percent	Average Stay in Days
(250.0) Without mention of complication	1,699	10.6%	3.1
(250.1) Ketoacidosis	4,040	25.1%	3.8
(250.2) Hyperosmolarity	782	4.9%	4.4
(250.3) With other coma	54	0.3%	7.2
(250.4) With renal manifestations	433	2.7%	6.0
(250.5) With ophthalmic manifestations	42	0.3%	3.9
(250.6) With neurological manifestations	2,010	12.5%	5.5
(250.7) With peripheral circulatory disorders	1,661	10.3%	10.3
(250.8) With hypoglycemic manifestations	5,322	33.1%	6.4
(250.9) Unspecified complications	50	0.3%	3.3
	16,093	100%	5.6

Source: The data source for hospitalization and ED visits is the 2013 New Jersey UB data file, analyzed by the New Jersey Department of Health, Community Health and Wellness Unit. Excludes out-of-state hospitalizations.

Key Point:

- The most common diagnosis reported for 2013 diabetes hospitalizations was diabetes with hypoglycemic manifestations (33.1%), followed by diabetes with ketoacidosis (25.1%).

Table 11: Hospitalizations for Diabetes among NJ Residents by County of Residence, 2013

County	Number	Percent	Rate (per 100K population)
Atlantic	600	3.7%	218
Bergen	963	6.0%	104
Burlington	868	5.4%	193
Camden	1,360	8.5%	265
Cape May	198	1.2%	206
Cumberland	470	2.9%	299
Essex	1,973	12.3	250
Gloucester	506	3.1%	174
Hudson	1,319	8.2%	200
Hunterdon	111	0.7%	88
Mercer	851	5.3%	230
Middlesex	1,264	7.9%	152
Monmouth	1,092	6.8%	173
Morris	495	3.1%	99
Ocean	1,072	6.7%	184
Passaic	1,041	6.5%	206
Salem	181	1.1%	278
Somerset	341	2.1%	103
Sussex	237	1.5%	162
Union	998	6.2%	182
Warren	153	1.0%	142

Source: The data source for hospitalization and ED visits is the 2013 New Jersey UB data file, analyzed by the New Jersey Department of Health, Community Health and Wellness Unit. Excludes out-of-state hospitalizations.

Key Point:

- The 2013 diabetes hospitalization rate ranged by county from 299 hospitalizations per 100,000 population (Cumberland) to 88 hospitalizations per 100,000 (Hunterdon).

Table 12: Hospitalizations for Select Chronic Conditions among NJ Residents by Diagnosis, 2013

Primary Diagnosis	Number	Rate (per 100K population)	Average Stay in Days
Chronic Kidney Disease	18,685	210	6.2
Heart Failure	30,206	339	6.0
Stroke	20,532	231	5.7
Diabetes	**16,093**	**181**	**5.6**
COPD	17,253	194	5.2
Hypertension	9,883	111	5.1
Ischemic Heart Disease	33,373	375	4.6
Adult Asthma	10,402	151	4.3
Child Asthma	3,687	182	2.4

Source: The data source for hospitalization and ED visits is the 2013 New Jersey UB data file, analyzed by the New Jersey Department of Health, Community Health and Wellness Unit. Excludes out-of-state hospitalizations.

Key Point:

- The average length of stay for diabetes hospitalizations in 2013 was 5.6 days, which is longer than the corresponding average for adult asthma, child asthma, COPD, ischemic heart disease, and hypertension hospitalizations.

Diabetes Deaths

Table 13: Diabetes Deaths among NJ Residents, 2011

County	Number	Percent	Crude Rate (per 100K population)	Age-Adjusted Rate (per 100K standard population)
ATLANTIC	74	3.3%	26.9	22.8
BERGEN	190	8.6%	20.8	16.0
BURLINGTON	96	4.3%	21.3	18.1
CAMDEN	133	6.0%	25.9	23.2
CAPE MAY	37	1.7%	38.3	23.7
CUMBERLAND	65	2.9%	41.2	39.4
ESSEX	222	10.0%	28.2	28.8
GLOUCESTER	65	2.9%	22.5	21.7
HUDSON	191	8.6%	29.6	34.2
HUNTERDON	16	0.7%	**	**
MERCER	101	4.6%	27.5	25.2
MIDDLESEX	148	6.7%	18.1	16.9
MONMOUTH	179	8.1%	28.4	23.7
MORRIS	90	4.1%	18.2	15.5
OCEAN	188	8.5%	32.4	20.7
PASSAIC	112	5.0%	22.2	21.2
SALEM	34	1.5%	51.5	41.1
SOMERSET	62	2.8%	19.0	16.8
SUSSEX	35	1.6%	23.6	21.5
UNION	159	7.2%	29.4	27.2
WARREN	21	0.9%	19.4	16.4

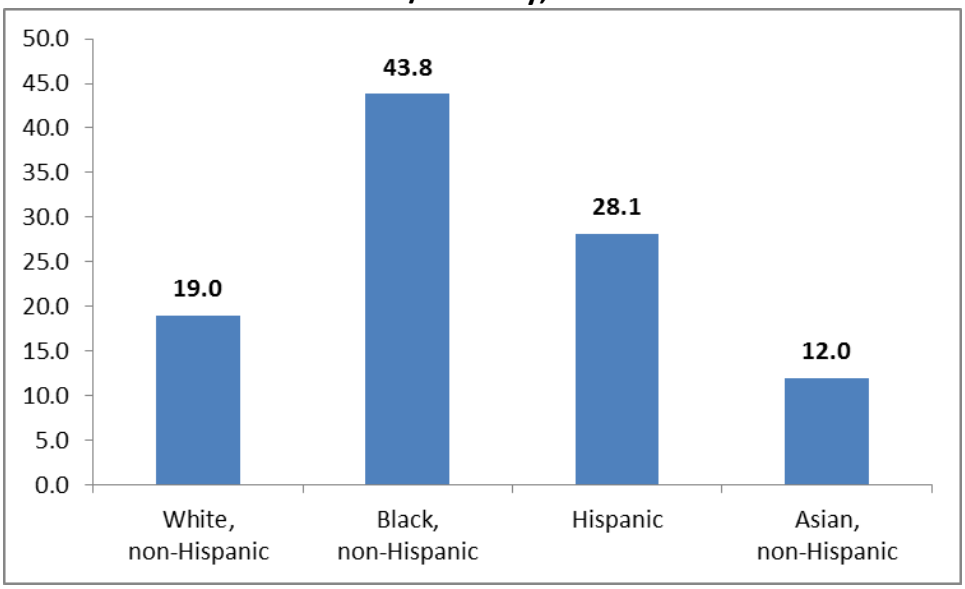
The value has been suppressed because it does not meet standards of reliability or precision.

Source: Diabetes Query for the Age-Adjusted Mortality Rates for Counties Measure, 2011.
Retrieved from NJDOH on 7/30/15, Center for Health Statistics, NJSHAD website http://nj.gov/health/shad.

Key Points:

- Diabetes is the sixth leading cause of death in NJ and seventh in the United States.
- In 2011, a total of 2,218 NJ adults died from diabetes. The age-adjusted death rate ranged from 15.5 deaths per 100,000 standard population (Morris County) to 41.1 deaths per 100,000 standard population (Salem County).

Figure 9: New Jersey Age-Adjusted Diabetes Death Rate by Race/Ethnicity, 2011



Source: Age-Adjusted Death Rate due to Diabetes by Year and Race/Ethnicity, New Jersey, 2000-2011. Retrieved from NJDOH on 7/30/15, Center for Health Statistics, NJSHAD website http://nj.gov/health/shad.

Key Point:

- The age-adjusted diabetes death rate in NJ is highest among black, non-Hispanic individuals, followed by Hispanic residents.

Diabetes Costs

Table 14: Total Cost for Diabetes and Related Complications for NJ FamilyCare Members, 2013

DIABETES & COMPLICATIONS	TOTAL MEMBER COST	ADULT MEMBER COST	% OF COST	YOUTH MEMBER COST	% OF COST
DIABETES WITHOUT COMPLICATIONS	$111,938,210	$108,344,310	70%	$3,593,900	61%
GESTATIONAL DIABETES	$12,453,056	$12,098,417	8%	$354,639	6%
DIABETES WITH OTHER SPECIFIED MANIFESTATIONS	$8,185,263	$8,007,892	5%	$177,371	3%
DIABETES WITH PERIPHERAL CIRCULATORY DISORDERS	$5,957,837	$5,957,151	4%	$686	0%
DIABETES WITH KETOACIDOSIS	$6,956,529	$5,450,500	4%	$1,506,029	26%
DIABETES WITH NEUROLOGICAL MANIFESTATION	$5,270,439	$5,229,811	3%	$40,628	1%
DIABETES WITH UNSPECIFIED COMPLICATIONS	$4,747,610	$4,577,349	3%	$170,261	3%
DIABETES WITH OPHTHALMIC MANIFESTATIONS	1,771,298	$1,764,731	1%	$6,567	0%
DIABETES WITH HYPEROSMOLARITY	$1,638,506	$1,634,270	1%	$4,236	0%
DIABETES WITH RENAL MANIFESTATIONS	$1,571,739	$1,569,271	1%	$2,468	0%
DIABETES WITH OTHER COMA	$929,839	$927,814	1%	$2,025	0%
TOTAL:	**$161,420,326**	**$155,561,516**	**100%**	**$5,858,810**	**100%**

Source: Actual Cost-Paid fee-for-service claims and managed care encounter for services provided to NJ FamilyCare eligible individuals between 1/1/2013 and 12/31/2013.

Key Point:

- NJ FamilyCare managed care and fee for service plans incur significant costs for members with diabetes. The total cost of diabetes for adult and youth NJ FamilyCare members in 2013 (managed care and fee for service) was $161,420,326.

Table 15: Cost of Pre-existing Diabetes and Gestational Diabetes Compared to All Pregnancies for NJ FamilyCare Members, 2013

Pregnancy Complications	Total Cost	Member Count	Average Total Cost/Member
Pre-existing Diabetes (All Inclusive)	$13,104,048	495	$26,473
Gestational Diabetes (All Inclusive)	$22,506,888	931	$24,175
All Pregnancy	$893,488,167	51,251	$17,434

Source: Actual Cost-Paid fee-for-service claims and managed care encounter for services provided to NJ FamilyCare eligible individuals between 1/1/2013 and 12/31/2013.

Key Point:

- Among pregnant NJ FamilyCare recipients, the highest total paid per person in 2013 was for women with pre-existing diabetes at $26,473, followed by $24,175 for women with gestational diabetes.

Table 16: Total Cost of Diabetes among NJ FamilyCare Members by County and Per Member, 2013

County	Member	Cost Per County	Cost Per Member
ATLANTIC	3,176	$5,164,506	$1,626
BERGEN	5,572	$11,009,236	$1,976
BURLINGTON	2,950	$5,734,241	$1,944
CAMDEN	7,283	$11,446,008	$1,572
CAPE MAY	879	$1,347,978	$1,534
CUMBERLAND	2,518	$3,725,250	$1,479
ESSEX	13,790	$19,720,468	$1,430
GLOUCESTER	1,979	$1,936,834	$979
HUDSON	12,929	$20,234,153	$1,565
HUNTERDON	401	$586,537	$1,463
MERCER	3,606	$5,550,104	$1,539
MIDDLESEX	6,945	$13,444,076	$1,936
MONMOUTH	3,405	$7,490,710	$2,200
MORRIS	2,169	$4,953,178	$2,284
OCEAN	3,510	$4,729,697	$1,347
PASSAIC	9,296	$14,313,311	$1,540
SALEM	801	$1,460,214	$1,823
SOMERSET	1,449	$3,131,363	$2,161
SUSSEX	620	$955,089	$1,540
UNION	5,879	$10,965,684	$1,865
WARREN	653	$1,156,937	$1,772
Total	**89,810**	**$149,055,574**	**$1,660**

Source: Actual Cost-Paid fee-for-service claims and managed care encounter for services provided to NJ FamilyCare eligible individuals between 1/1/2013 and 12/31/2013.

Key Points:

- Diabetes carries the highest total costs in Hudson ($20,234,153), Essex ($19,720,468), and Passaic ($14,313,311) counties.
- Diabetes carries the highest cost per member in Monmouth ($2,200), Morris ($2,284) and Somerset ($2,161) counties.

Table 17: Comparison of Overall and Per Member Diabetes Costs and Other Chronic Disease Costs among NJ FamilyCare Members, 2013

Chronic Conditions	Total Members with Chronic Condition	Total Cost per Chronic Condition	Cost per Member	Percentage
Diabetes ≥ 20 Years	83,774	$149,068,319	$1,779	19%
Diabetes ≤ 20 Years	54	$45,675	$846	0%
Congestive Heart Failure	20,050	$84,163,020	$4,198	11%
Coronary Heart Disease	34,570	$77,345,202	$2,237	10%
COPD and Allied Conditions	47,426	$65,925,881	$1,390	9%
Hypertension	133,831	$327,046,119	$2,444	43%
Asthma ≥ 20 Years	35,282	$31,511,168	$893	4%
Asthma ≤ 20 Years	72,294	$34,248,088	$474	4%
Sum:		**$769,353,472**		**100%**

Source: Actual Cost-Paid fee-for-service claims and managed care encounter for services provided to NJ FamilyCare eligible individuals between 1/1/2013 and 12/31/2013

Key Point:

- Of the more than $769 million in costs for the above conditions, 43% of the costs are associated with hypertension, followed by 19% associated with adult diabetes.

CURRENT DIABETES EFFORTS

Department of Health

The New Jersey Diabetes Prevention and Control Program (DPCP) is committed to increasing awareness of diabetes mellitus and its complications, improving the quality of diabetes care and access to care, developing community-clinical linkages, and using data to better allocate resources and improve health outcomes. The key strategies of the program focus on population-based public health interventions that support the control and management of diabetes by optimizing healthcare systems. DPCP partners with health care providers to enhance screening and treatment protocols for diabetes management; and promote community resources that prevent and control diabetes.

The DPCP is supported by federal funding from the Preventive Health and Health Services Block Grant and the CDC DP13-1305 Grant: State Public Health Action to Prevent & Control Diabetes, Heart Disease, Obesity, and Associated Risk Factors and Promote School Health. The DPCP receives $1.5 million in funding to address diabetes. Key efforts of the DPCP are described below.

- **Community Clinical Linkages Pilot Project:** DPCP has established three Diabetes Resources Coordination Centers (DRCCs) at the Center for Human Services (Cumberland County), the New Jersey Medical School at Rutgers University (Essex and Hudson Counties) and Zufall Health Center (Morris and Hunterdon Counties). The DRCCs promote community clinical linkages to increase access to, referrals to, and use of Diabetes Self-Management Education (DSME) and Diabetes Prevention Programs (DPPs) by engaging healthcare providers to develop health system policies and practices that facilitate patient referrals to community DSME. The current state inventory for DSME is 75 and there are 13 DPPs.

- **Diabetic Eye Disease Detection:** The DPCP supports the Commission for the Blind and Visually Impaired - Diabetic Eye Disease Detection Program (DEDD) to provide dilated eye screenings to underserved populations. In addition to providing eye examinations, blood

pressure screenings, and nutrition education, provider referral and follow-up services are included with the DEDD's basic services. The DEDD also leverages strategic partnerships to offer hemoglobin A1C tests, podiatric and dental screenings, and eyeglasses. Vocational training, limited to residents with vision impairment or blindness, is available at no cost to equip individuals with skills to maintain their independence.

- **DSME and Support:** The DPCP partners with the New Jersey Medical School at Rutgers University (Rutgers) to increase community-clinical linkages to increase the use of diabetes prevention and management programs for residents with, or at risk for, type 2 diabetes. Rutgers collaborates with local Stanford model Diabetes Self-Management Program delivery sites, YMCA Diabetes Prevention Programs, and healthcare providers in Essex and Hudson counties to facilitate referral systems for patients' participation.

- **Health Systems Quality Improvement:** The DPCP works with healthcare systems to increase the implementation of quality improvement processes, increase electronic health records (EHR) adoption and the use of health information technology, and increase the use of team-based care to control hemoglobin A1C and blood pressure. Currently, DOH supports a clinical decision support system project at the Trenton Health Team to optimize clinical workflows, EHR functionality, and reporting for diagnosing and managing prediabetes, diabetes, and high blood pressure.

- **Worksite Wellness Tool Kit for Employers:** In September 2012, New Jersey Heart Disease and Stroke Prevention Program awarded a grant to Rutgers University/Rutgers Cooperative Extension/Department of Family and Community Health Sciences, to pilot a worksite wellness toolkit for employers – Working Well in New Jersey (WWNJ). Originally developed to specifically address heart healthy strategies that employers can adopt in the workplace, WWNJ's offerings have expanded beyond blood pressure control best practices to include obesity prevention and smoking cessation.

  The DOH relaunched the new WWNJ Toolkit on January 28, 2015, at the Partnering for a Healthy NJ stakeholders meeting. To date, more than 100 employers have registered

with DOH to obtain the WWNJ toolkit, and have been offered technical assistance four to six weeks post-receipt of the toolkit.

- **The Delivery System Reform Incentive Payment (DSRIP) Program** is a major component of New Jersey's Comprehensive Medicaid Waiver as approved by the Centers for Medicare & Medicaid Services (CMS). DSRIP is a demonstration program designed to result in better care for New Jersey's low-income individuals (including access to care, quality of care, health outcomes), better health for the general population, and lower costs by transitioning hospital funding to a model where payment is contingent on achieving health improvement goals.

  As part of DSRIP, hospitals may choose one of eight chronic diseases or medical conditions on which to focus improvements. Hospitals have chosen among the following diseases and conditions: HIV/AIDS, Cardiac Care, Asthma, Diabetes, Obesity, Pneumonia, Behavioral Health and Substance Abuse. Thirteen hospitals are implementing demonstration projects aimed at improving diabetes control, including: increasing the overall quality of care for patients diagnosed with diabetes mellitus and hypertension, and increasing opportunities for patient, provider, and community education.

DOH also uses funds from the Preventive Health and Health Services Block Grant and Prevention and Public Health Fund to expand statewide capacity to implement and support population-based strategies to promote wellness and prevent chronic disease. DOH supports several programs that create healthy communities and build environments in efforts to increase access to health education and encourage physical activity and healthy food choices. Funding supports the following primary prevention programs:

- **Shaping NJ Community Grants:** *ShapingNJ* is the statewide public/private partnership for nutrition, physical activity and obesity prevention. The goal of this partnership is to implement obesity prevention strategies that improve the health of New Jersey's most vulnerable populations. Nineteen municipalities statewide have received community grants to create environmental and policy changes that increase access to healthy food

and routine physical activity in an effort to improve health outcomes for low-income communities.

ShapingNJ also utilizes funds to support HealthCorps sites at Memorial High School located in West New York, New Jersey, Hudson County; Admiral William F. Halsey Leadership Academy located in Elizabeth, New Jersey, Union County; and Millville Senior High School located in Cumberland County. HealthCorps is a nationwide movement founded by heart surgeon Dr. Mehmet Oz to combat the childhood obesity epidemic. This funding supports schools to recruit and hire a school-based youth coordinator to serve as a peer mentor to address nutrition, physical activity and healthy lifestyles with students, teachers and the external school community.

- **Faith In Prevention:** *Faith In Prevention* is a pilot program that employs the *Faithful Families Eating Smart, Moving More* framework to expand the role of faith-based organizations in the delivery of an evidence-based health prevention curriculum in Trenton, Camden, and Newark. The program links faith-based organizations to the healthcare delivery system and provides training to lay leaders to curb obesity through increased physical activity and nutrition education. Moreover, grantees link congregants with or at-risk for diabetes to diabetes self-management resources.

- DOH also convenes the **New Jersey Council on Physical Fitness and Sports.** The council is dedicated to good health, nutrition, regular physical activity and recreation. Comprised of governor-appointed volunteers from a variety of wellness, fitness, sports and nutrition agencies and entities throughout the state; the Council works to promote public awareness and to ensure that all citizens of New Jersey have the opportunity to pursue healthy lifestyles.

Department of Human Services, Division of Medical Assistance and Health Services

The Division of Medical Assistance and Health Services (DMAHS) provides services to 89,810 members with diabetes. Family members are not included in the Division's records as a data set, and cannot be tracked. Nonetheless, DMAHS supports patient-centered care that recognizes family members in their role as caregiver. In 2013, the total expenditure paid by DMAHS for treatment of diabetes mellitus care, and for complications linked to the primary diagnosis of diabetes mellitus, was $161,420,327. The following table summarizes the financial impact of diabetes mellitus in comparison to other chronic diseases:

Table 18: NJ FamilyCare Cost for Diabetes and other Common Chronic Disease, 2013

NJ FamilyCare Costs for Diabetes and Other Common Chronic Diseases, Calendar Year 2013			
CONDITION	**MEMBERS**	**TOTAL SERVICE COST**	**COST PER MEMBER**
CONGESTIVE HEART FAILURE	20,050	$84,163,020.01	$4,197.66
OSTEOARTHRITIS	7,174	$18,738,410.86	$2,611.99
HYPERTENSION	133,831	$327,046,119.10	$2,443.72
CORONARY HEART DISEASE	34,570	$77,345,201.54	$2,237.35
DIABETES MELLITUS (with complications only)	86,929	$154,799,166.02	$1,780.75
COPD	47,426	$65,925,881.05	$1,390.08
ASTHMA	107,576	$65,759,256.63	$611.28
OVERWEIGHT/OBESITY	28,737	$14,020,115.82	$487.88
CHRONIC BACK	79,243	$34,006,526.58	$429.14

Source: "Members" and "Total Service Costs" from paid fee for service claims and managed care encounters for services provided to NJ FamilyCare eligible individuals between 1/1/2013 and 12/31/2013. "Congestive Heart Failure", "Hypertension", "Coronary Heart Disease", "Diabetes Mellitus (with complications only)", "COPD", and "Asthma" based on US Centers for Disease Control and Prevention definitions (http://www.cdc.gov/pcd/issues/2013/pdf/12_0239.pdf); other conditions defined by NJ FamilyCare clinical staff based on ICD-9 diagnoses

Notes: $2,815,022.66 duplicated between " Congestive Heart Failure" and " Hypertension" ; diagnosis codes 402.01, 402.11, 402.91, 404.03, 404.13, 404.91, 404.93 are included in the CDC definitions for both conditions

DMAHS reviewed diabetes-specific programmatic narratives provided by the NJ FamilyCare managed care plans. DMAHS is confident that all plans were consistent in measuring Healthcare Effectiveness Data and Information Set (HEDIS) scores, providing tobacco cessation services to diabetics, providing patient self-management education, and supporting evidence-based disease management. DMAHS receives federal funding for provision of care to eligible populations, but no funding is specifically directed toward the treatment of diabetes mellitus.

In support of the DAP, DMAHS has provided relevant data to DOH and DCF, assigned staff to consult with DOH and DCF to support implementation of the DAP, and developed a working group to assist in meeting the overall goals of the DAP.

The DAP has allowed DMAHS to engage with New Jersey managed care organizations (MCOs) and take a closer look at the MCOs initiatives that address members with and at risk for diabetes. Areas of improvement have been identified, and DMAHS will be working with the health plans to improve any identified gaps in care.

In addition, a full 20% of DMAHS' Performance Based Contracting incentive program is directed at diabetes care beginning in January 2015, namely, the HEDIS measure for Hemoglobin A1C <8. Managed care plans will be reimbursed directly based upon their ability to improve the diabetes care received by their members. The incidence and severity of diabetes-related complications would be expected to decrease with an increase in the percentage of members with Hemoglobin A1C <8.

DMAHS' priorities for pregnant women follow American College of Obstetrics and Gynecology guidelines in that NJ FamilyCare and its plans reimburse providers for universal diabetes screenings at 24 weeks of gestation, and for the care management required for those members with positive screens. The needs, costs, and resources required to implement the DAP recommendations applicable to DMAHS are already included in the NJ Family Care budget.

Department of Children and Families

The New Jersey Department of Children and Families (DCF) has implemented several programs that reach individuals with diabetes mellitus. Within DCF's Division of Child Protection and Permanency (DCPP), healthcare case management is provided by Child Health Unit (CHU) nurses.

- The Child Health Units (CHUs) are responsible for ensuring medical milestones are met for children in Out-of-Home Placement (OOH) through DCPP. CHU nurses assess the healthcare needs of each child in OOH placement, facilitate access to care, and administer a coordinated health care plan. The CHU nurses provide case management to assist with identifying children that require care by a Pediatric Diabetic Team (including a pediatric endocrinologist).

- The total number of children in OOH placement is approximately 7,500; less than 1% have been diagnosed with diabetes mellitus (DCF Safe Measures, January 2015). The number of children in OOH placement represents 15% of the children involved with DCPP (DCF Safe Measures, January 2015).
- CHU nurses report that among children in OOH placement, approximately 13.09% of children are overweight and 14.60% are obese, with a total of 27.69% of children who may be at increased risk for type 2 diabetes (Table 19).
- The CHU nurses provide health education to caregivers, children, and youth on nutrition and healthy activity.

Table 19. Child Health Unit Program Serving Children in Out-of-Home Placement, January 2015

Program	Population Served	Members with Diabetes		Members at Increased Risk of Diabetes
CHU Nurses	Children in out-of-home placement (OOH) through the state's child welfare system (DCPP)	Type 1: 16 children in OOH	Type 2: 7 children in OOH	13.09% of children in OOH are overweight; 14.60% of children in OOH are obese

Source: DCF Child Health Unit records, 2015.

The Division of Family and Community Partnerships (FCP), Office of Early Childhood Services, funds three evidence-based homes visiting models that begin working with families during pregnancy. While diabetes management is not a primary function of home visiting, one of these three models employs nurse home visitors who track data for gestational diabetes mellitus (GDM) and help to facilitate access to prenatal care to ensure that women with GDM receive appropriate medical care and adhere to health and nutritional recommendations.

- The Nurse Family Partnership program, managed by FCP's Office of Early Childhood Services, had 722 families enrolled in FY14 (per the NFP data system). Of these, nine women (1.2%) were identified as having GDM.

Table 20: DCF Family & Community Partnerships and Nurse Family Partnership (NFP) Programs, 2014

Program	Population Served	Participants with Diabetes
Family & Community Partnerships (FCP) Home Visiting–Nurse-Family Partnership (NFP)	First-time pregnant women enrolled during the second trimester of pregnancy and participate until the child reaches age 2	9 pregnant (1.2%) women enrolled in NFP had a report of GDM

Source: DCF New Jersey NFP program data, 2014.

There are also services available to address the needs of a specific subset of the child diabetic population, through the Children's System of Care (CSOC):

- CSOC is the lead agency for developing the Children's Behavioral Health Home (BHH) Program, working with the Department of Human Services-Division of Mental Health and Addiction Services and DMAHS, under the direction of CMS;
- BHH services are provided to families through the MCOs. BHH is currently available in Bergen and Mercer Counties, and will be available in Atlantic, Cape May, and Monmouth Counties in January 2016.
- As designated BHH providers, the MCOs will integrate and coordinate primary, acute, behavioral health, and other services and supports for children with qualifying chronic conditions;
- The BHH model will provide services to children with diabetes;
- In addition to BHH, CSOC offers services to those youth who require out-of-home treatment to address behavioral health challenges but also need to manage diabetes.

EFFECTIVENESS:

- The CHUs were implemented in 2008, and have ensured that children in OOH placement have access to a broad array of healthcare services. Specific to diabetes, the nurses ensure that: 1) children with diabetes are managed by a Pediatric Diabetic Team, 2) families understand the care needs outlined in the health plan developed by the treatment team, 3) caregivers are educated on diabetes and the child's unique needs, and 4) the child's response to treatment is monitored.
- Currently, diabetes management is not a primary function of FCP's prevention programs. However, as a part of DCF's commitment to the Diabetes Action Team, DCF will begin to examine ways to support New Jersey's efforts for the prevention and early detection of type 2 diabetes across FCP programs and services—Early Childhood, School-Linked Services, Family Support Services, and the Division on Women (DOW).

FUNDING:

- DCF funds the CHUs to support its coordinated health plan for children in OOH placements.
- Currently, no FCP or DOW funds are directed specifically to diabetes management.

DIABETES ACTION PLAN COMMITEEE PROPOSED RECOMMENDATIONS

1. Encourage providers to establish, maintain, and implement as part of normal operating procedures a verifiable system to:

    - Screen patients with risk factors for prediabetes and diabetes according to the latest clinical guidelines set forth by the American Diabetes Association;
    - Encourage immediate communication regarding the results and implications of said screenings with patients as part of the patient's electronic medical record; and
    - Educate patients identified as prediabetic about the potential risks to their health and available resources for further education.

2. Communicate the results and implications of diabetes screenings with patients as part of the medical record.
    - Educate patients identified as prediabetic about the potential risks and available resources.
    - Refer at-risk individuals to appropriate prevention and treatment programs.

3. Encourage evidence-based diabetes self-management education, training, and services for patients diagnosed with type 2 diabetes and gestational diabetes.

4. Encourage evidence-based diabetes prevention education and CDC-recognized lifestyle change programs for the primary prevention of type 2 diabetes among patients diagnosed with prediabetes or those at high risk for type 2 diabetes.

5. Work to reduce the cost of diabetes mellitus in the community by providing education for families and providers, and by specifically targeting diabetics over the age of 65.

NEXT STEPS

Access to Health Care Coverage

- Many NJ residents who receive services from the Department of Children and Families (DCF) are also receiving or are eligible for NJ FamilyCare. DCF and DMAHS will continue to collaborate to ensure that families served by DCF are able to access coverage for medical services in the timeliest fashion.

Stakeholder identification and analysis

- The DAP Committee will implement a systematic process for identifying and engaging new internal and external stakeholders for the development of the second DAP report.
- The group will work to establish criteria for identifying and prioritizing stakeholders' involvement.
- The group will identify hospitals, non-profit organizations, federally qualified health centers, and universities to participate on the committee for the next report cycle.
- Measures will be taken to ensure equitable stakeholder contribution while remaining focused on the legislative charge.

Development of Joint Benchmarks

- Moving forward in the collaboration to address diabetes mellitus, DOH, DMAHS, and DCF will develop joint benchmarks and strategies to achieve them.

REFERENCES

1. New Jersey State Health Assessment Data Site (2015). Retrieved July 29, 2015, from https://www26.state.nj.us/doh-shad/indicator/view/DiabetesDeath.Trend.html.

2. Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Interview Statistics, (2013, November 19). Diabetes Public Health Resource. Retrieved June 1, 2015, from http://www.cdc.gov/Diabetes/statistics/prev/national/figpersons.htm.

3. Kaiser Commission on Medicaid and the Uninsured. (2012, November). Fact Sheet: The Role for Medicaid for People with Diabetes. Retrieved March 15, 2015, from https://kaiserfamilyfoundation.files.wordpress.com/2013/01/8383_d.pdf.

4. Centers for Disease Control Website (2015, April). Retrieved June 29, 2015, from http://www.cdc.gov/diabetes/library/socialmedia/infographics.html.

5. American Diabetes Association. (2013, March). The economic cost of diabetes in the U.S. in 2012. *Diabetes Care*. doi: 10.2337/dc12-2625.

6. The Community Toolbox. (2014). Workgroup for Community Health and Development Logic Model for Building Healthier Communities. Retrieved January 19, 2015, from http://ctb.ku.edu/en/table-of-contents/overview/model-for-community-change-and-improvement/building-capacity/main.

7. Centers for Disease Control, National Center for Chronic Disease Prevention and Health Promotion, Division of Diabetes Translation. (2014). National Diabetes Statistic Report, 2014. Retrieved March 9, 2015, from http://www.cdc.gov/diabetes/pubs/statsreport14/national-diabetes-report-web.pdf.

8. 2014 New Jersey State Report, Providing Access to Healthy Solutions (PATHS): An analysis of New Jersey's Opportunities to Enhance Prevention and Management of Type 2 Diabetes. (2014). Retrieved June 16, 2015, from http://www.chlpi.org/wp-content/uploads/2013/12/PATHS_NJ_Report_3.18.14.pdf.

9. Institute for Alternative Futures. (2011). Diabetes 2025 Forecast, 2011, New Jersey's Diabetes Crisis: Today and Future Trends. Retrieved June 16, 2015, from

http://www.altfutures.org/pubs/diabetes2025/NEW_JERSEY_Diabetes2025_DataAndForecasts_2011.pdf.

10. Pediatric Nutrition Surveillance System, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control. (2011).

11. Behavioral Risk Factor Surveillance System. (2013). Prevalence and Trend Data. Retrieved June 16, 2015, from http://apps.nccd.cdc.gov/brfss/age.asp?cat=OB&yr=2013&qkey=8261&state=NJ.

12. Hills JO, Galloway JM, Goley A, et al. (2013, August). Scientific statement: sociological determinants of prediabetes and type 2 diabetes. *Diabetes Care.* 36(8):2430-2439.

13. Hill J, Nielsen M, Fox M. (2013). Understanding the social factors that contribute to diabetes: a means to informing healthcare and social policy for the chronically ill. *The Permanente Journal.* 17(2):67-72.

14. *The Guide to Community Preventive Services Site* (2015, May 27). Retrieved June 10, 2015, from http://www.thecommunityguide.org/diabetes/index.html.

15. National Diabetes Prevention Program Site (2015, April 17). Retrieved August 19, 2015, from http://www.cdc.gov/diabetes/prevention/about.htm

16. American Diabetes Association. (2015) Standards of Medical Care in Diabetes, 2015. *Diabetes Care.* 38 (2). Retrieved June 10, 2015, from http://care.diabetesjournals.org/content/suppl/2014/12/23/38.Supplement_1.DC1/January_Supplement_Combined_Final.6-99.pdf.

17. New Jersey Student Health Survey. (2013). Retrieved June 29, 2015.

18. MCO Care Management Workbook DMAHS definition (revised July 2015).

THIS PAGE IS INTENTIONALLY LEFT BLANK

TECHNICAL NOTES

1. Unless otherwise indicated, Behavioral Risk Factor Surveillance System data was analyzed by the New Jersey Department of Health, Community Health and Wellness Unit.

2. Hospitalization and ED visits represent hospital discharges and ED discharges from acute care hospitals in New Jersey.

3. The data source for hospitalization and ED visits is the 2013 New Jersey UB data file.

4. Diabetes was defined in hospital and ED discharge records using ICD-9 code 250.x.

5. Diabetes-related lower limb amputations were defined in hospital discharge records using ICD-9 procedure code 841.x as any-listed procedure and ICD-9 diagnosis code 250.x as any-listed diagnosis with transfers and maternal hospitalizations excluded.

6. Chronic conditions were defined in hospital and ED discharge records as follows:

Condition	**ICD-9 Diagnosis Code**[2]
Asthma	493
COPD	490 - 492, 494, 496
Ischemic Heart Disease	410, 411, 412, 413, 414.0, 414.12, 414.2, 414.3, 414.4, 414.8, 414.9
Heart Failure	398.91, 402.01, 402.11, 402.91, 404.01, 404.11, 404.91, 404.03, 404.13, 404.93, 428
Hypertension	362.11, 401, 402, 403, 404, 405, 437.2
Chronic Kidney Disease	16.0, 095.4, 189.0, 189.9, 223.0, 236.91, 249.4, 250.4, 271.4, 274.10, 283.11, 403.01, 403.11, 403.91, 404.02, 404.03, 404.12, 404.13, 404.92, 404.93, 440.1, 442.1, 572.4, 580, 581, 582, 583, 584, 585, 586, 587, 588, 591, 753.12, 753.13, 753.14, 753.15, 753.16, 753.17, 753.19, 753.2, 794.4
Stroke	430, 431, 433.01, 433.11, 433.21, 433.31, 433.81, 433.91, 434.00, 434.01, 434.10, 434.11, 434.90, 434.91, 435.0, 435.1, 435.3, 435.8, 435.9, 436, 997.02

7. Gestational diabetes was identified in hospital records using ICD-9 diagnosis code 648.8x as any-listed diagnosis. Diabetes complicating pregnancy was identified using ICD-9 diagnosis code 648.0x as any-listed diagnosis. Non-delivery maternal hospital stays were

identified using ICD-9 diagnosis codes 630-679 as any-listed diagnosis. Maternal delivery hospital stays for cesarean section were identified using MS-DRG codes 765 and 766. Maternal delivery hospital stays for vaginal delivery were identified using MS-DRG codes 767, 768, 774, and 775.

8. Age-adjusted rates were calculated using 2000 US Standards Population.

9. Prevalence and cost data from Department of Human Services was obtained from "Members" and "Total Actual Costs" from paid fee-for-service claims and managed care encounters for services provided to NJ FamilyCare-eligible individuals between 1/1/2013 and 12/31/2013, based on US Centers for Disease Control and Prevention definitions (http://www.cdc.gov/pcd/issues/2013/pdf/12_0239.pdf). Counts were obtained using the business rule.

10. Safe Measures is a data and management tool that transforms case management data into actionable information. The tool is used to improve performance with key indicators and process and outcome measures, such as safety, permanency, and well-being of children.

11. The definition of overweight and obesity for children was obtained by the US Center for Disease Control and Prevention. (CDC, 2015). Body Mass Index (BMI) is calculated as weight divided by height. For children, their BMI is compared to children of the same age and sex, because there are differences in weight, height, and body fat with age and sex. A child is overweight if their BMI is at or above the 85th percentile and below the 95th percentile, or the child is obese if their BMI is above the 95th percentile compared to children of the same sex and age. BMI percentile is calculated after accurate measurement of height and weight, and interpreted from the CDC growth charts, which were based on national survey data collected from 1963-65 to 1988-944" (CDC, 2015). http://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/about_childrens_bmi.html#normalWeightRanges

Appendix A: N.J.S.A. §26:2-142.1

CHAPTER 104

AN ACT concerning diabetes and supplementing Title 26 of the Revised Statutes.

BE IT ENACTED by the Senate and General Assembly of the State of New Jersey:

C.26:2-142.1 Diabetes action plan, report to Governor, Legislature.

1. a. The Department of Health, in consultation with the Department of Human Services and the Department of Children and Families, shall develop a diabetes action plan to reduce the impact of diabetes in the State of New Jersey. The plan shall identify goals and benchmarks related to reducing the incidence of diabetes in New Jersey, improving diabetes care, and controlling complications associated with diabetes.

b. The Department of Health, in consultation with the Department of Human Services and the Department of Children and Families, shall, no later than 24 months after the effective date of this act and biannually thereafter, present a report to the Governor, and to the Legislature pursuant to section 2 of P.L.1991, c.164 (C.52:14-19.1), on the following:

(1) The financial impact and reach of diabetes of all types on the Department of Health, the Department of Human Services, and the Department of Children and Families, as well as the population Statewide and in specific areas of the State. The report shall include: (a) the number of people with diabetes receiving services provided by each department; (b) the number of people with diabetes and family members impacted by diabetes prevention and control programs implemented by each department; (c) the financial impact of diabetes and its complications on each department; and (d) the financial impact of diabetes and its complications on each department in comparison to other chronic diseases and conditions;

(2) The benefits of implemented programs and activities aimed at preventing or controlling diabetes. This assessment shall document the amount and source of any funding directed to each department for programs and activities aimed at reaching those with diabetes;

(3) The level of coordination among the three departments and the divisions and agencies thereof on activities, programmatic activities, and messaging related to the management, treatment, or prevention of all forms of diabetes and its complications;

(4) The development or revision of a detailed action plan for preventing and controlling diabetes with a range of actionable items for consideration by the Legislature. The plan shall identify proposed actions to reduce the impact of all forms of diabetes, pre-diabetes, and complications related to diabetes; identify expected outcomes of the proposed actions in the following biennium; and establish benchmarks for preventing and controlling relevant forms of diabetes, reducing the incidence of diabetes, improving diabetes care, and controlling complications associated with diabetes; and

(5) The development of a detailed budget blueprint identifying needs, costs, and resources required to implement the plan pursuant to paragraph (4) of this subsection. This blueprint shall include a budget range for each proposed action presented in the plan pursuant to paragraph (4) of this subsection for consideration by the Legislature.

2. This act shall take effect immediately.

Approved August 7, 2013.