Florida Diabetes Advisory Council

Created by statute & appointed by the Governor of Florida

2019

Florida Diabetes Report

Presented to

Honorable Ron DeSantis, Governor

Honorable Jose Oliva, Speaker of the House of Representatives

Honorable Bill Galvano, President of the Senate

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Agency for Health Care Administration

Florida HEALTH

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Florida Diabetes Report

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Executive Summary

Created by the Florida Legislature over 40 years ago, the Diabetes Advisory Council (DAC) is mandated by section 385.203, Florida Statutes, to "guide a statewide comprehensive approach to diabetes prevention, diagnosis, education, care, treatment, impact, and costs thereof." Members are appointed by the Governor to represent professional sectors involved in diabetes prevention and care, as well as citizens with diabetes and other citizen advocates. In 2015, the Florida Legislature updated this statute and charged the DAC with the biennial submission of a report describing the public health consequences and financial impact of all types of diabetes and its resulting complications. The legislation instructed the DAC to collaborate with the Department of Health (DOH), Department of Management Services (DMS), and the Agency for Health Care Administration (AHCA) to describe the burden of diabetes and state programs and activities being implemented to address the burden, and to develop an action plan to reduce the impact of all types of diabetes.

The report includes data on the scope and cost of diabetes in Florida; how each partner agency is addressing diabetes prevention and control for their population; how partners are coordinating efforts; recent successes; and recommended actions to reduce the impact of diabetes. Recommendations are provided and anticipated outcomes are described for optimal and no funding scenarios.

The Scope of Diabetes in Florida

In Florida, it is estimated that over 2.4 million people have diabetes and over 5.8 million have prediabetes.[1] Over the past 20 years, the prevalence of diagnosed diabetes among Florida adults more than doubled, increasing from 5.2 percent in 1995 to 11.8 percent in 2016.[2] The Centers for Disease Control and Prevention project that one out of three adults could have diabetes by 2050 if trends continue, due to an aging population more likely to develop type 2 diabetes, population increases among minority groups at high risk for type 2 diabetes, and people with diabetes living longer.[3] This is of particular concern in Florida which has the largest proportion and second largest population of adults ages 65 and older in the nation.

In 2014, approximately one out of 10 mothers giving birth in Florida experienced gestational diabetes during their pregnancy. Gestational diabetes puts mothers at an increased risk of developing type 2 diabetes later in life, increases the risk of birth complications, and increases the risk of the infant being obese and developing type 2 diabetes in the future. While the data for diabetes in youth are somewhat limited, studies have shown that the number of youth being diagnosed with both type 1 and type 2 diabetes is increasing. Nationally, there were approximately 18,000 children and adolescents younger than age 20 newly diagnosed with type 1 diabetes and more than 5,000 young people ages 10 to 19 years newly diagnosed with type 2 diabetes during 2011-2012.[4]

The Public Health Consequences of Diabetes in Florida

Diabetes and related complications create significant individual, societal, and financial burden. People with diabetes are twice as likely to have heart disease or a stroke as people without diabetes, and at an earlier age. Diabetes is the leading cause of kidney failure, lower-limb amputations, and adult-onset

blindness.[5] People with diabetes report lower health status, poorer physical health, and poorer mental health than people without diabetes.

Diabetes in Dollars

More than 20 percent of national health care spending is for people with diagnosed diabetes.[5] It is estimated that in 2012 the total cost of diabetes in Florida was $24.3 billion, with $19.3 billion attributed to direct medical expenses for diagnosed and undiagnosed diabetes, prediabetes, and gestational diabetes and $5 billion attributed to indirect costs. People with diabetes have medical expenditures approximately 2.3 times higher than those who do not have diabetes.[1]

In state fiscal year 2016-2017, the estimated cost of diabetes to Florida Medicaid was $248 million. In 2017, the estimated cost of diabetes to the Division of State Group Insurance (DSGI) was $20.7 million. These cost estimates were calculated by examining expenses of individuals with one or more diabetes-related claims during the year and likely underestimate the true costs.

The good news is that diabetes is manageable and, in the case of type 2 diabetes, preventable. The programs supported by the DAC, DOH, DSGI, and AHCA are effective. If the recommendations described in this report are enacted, even more can be done to prevent and manage diabetes and its complications, resulting in a healthier population, more productive workforce, and reduced burden on the health care system. This will ultimately improve quality of life for our citizens and promote better outcomes for the people of Florida who have or are at risk for diabetes.

This report will be updated biennially to include recommendations enacted, benchmarks set, and outcomes subsequently achieved.

Introduction

Problem Statement

Diabetes is a lifelong disease that affects the way the body produces and/or uses insulin and often leads to disability and death. In 2014, diabetes was the seventh leading cause of death in the United States, killing more individuals than AIDS and breast cancer combined.[6,7] In 2015, the Centers for Disease Control and Prevention (CDC) estimated that 30.3 million (9.4%) individuals nationally had diabetes and of those, 7.2 million (23.8%) have not been diagnosed and therefore are not aware of their illness.[8] The rate of individuals diagnosed with diabetes has increased over the past 20 years, and research suggests that the rate will continue to increase and may affect nearly one in three American adults in 2050.[8] In 2012, it was estimated that 37 percent of adults over the age of 20 had prediabetes, and 208,000 (0.25%) of youth have diagnosed diabetes (type 1 or type 2).[9] Among pregnant women it is estimated that between 2 and 10 percent have been diagnosed with gestational diabetes.[10] Diabetes can affect anyone; however, some groups are disproportionally more affected than others. Diabetes is most prevalent among adults ages 65 years or older and diabetes affects a larger percentage of non-Hispanic Blacks and Hispanics than non-Hispanic Whites.[11]

The estimated annual costs attributable to diabetes in the United States for adults ages 19 and older is $421.6 billion, which includes $191.5 billion in direct medical costs and $230.1 billion in indirect costs (presenteeism, household productivity losses, inability to work, and premature mortality).[12] The average annual medical expenditures among individuals with diabetes are 2.3 times higher than among individuals who have not been diagnosed with diabetes.[1]

In Florida, it is estimated that over 2.4 million people have diabetes and over 5.8 million have prediabetes. In 2012, the estimated cost of diabetes in Florida was $24.3 billion, with $19.3 billion spent on direct medical expenses for diagnosed and undiagnosed diabetes, prediabetes, and gestational diabetes and an additional $5 billion spent on indirect costs.[1]

There are different types of diabetes, and while the risk factors and health outcomes vary based on the specific type, all types must be managed carefully. Type 1 diabetes is an incurable auto-immune disease, where the body attacks the insulin-producing beta cells in the pancreas. Insulin must be injected daily or infused continuously; without external insulin, an individual with type 1 diabetes will die.[13] Type 2 diabetes is a metabolic disease, where the body either does not produce enough insulin to meet daily needs or develops resistance to the insulin produced.[13] Prediabetes is a condition in which individuals have high blood glucose or hemoglobin A1C levels but not high enough to be classified as diabetes.[13] Gestational diabetes develops during pregnancy and increases the risk of birth complications and increases the risk of an individual developing type 2 later in life.[13]

Individuals with any type of poorly managed diabetes may develop serious complications that can lead to disability and work loss, which can potentially reduce their overall quality of life. Diabetes can also place an individual at an increased risk of developing other chronic diseases such as hypoglycemia, hypertension, dyslipidemia, cardiovascular disease, heart attack, stroke, blindness, and kidney disease.[14]

Diabetes can be treated, managed, and in type 2 diabetes, prevented by healthful eating, regular physical activity, and/or taking medications to lower blood glucose levels.[3] Patient education and self-management of diabetes is a critical component to reduce poor health outcomes that can potentially occur among this population.

Purpose of the Report

The Diabetes Advisory Council (DAC) was created by the Florida Legislature over 40 years ago and is mandated by section 385.203, Florida Statutes. Members are appointed by the Governor to represent professional sectors involved in diabetes prevention and care, as well as citizens with diabetes and other citizen advocates.

In 2015, the Florida Legislature passed a bill updating the statute and requiring the DAC, in conjunction with the Department of Health (DOH), the Department of Management Services (DMS), and the Agency for Health Care Administration (AHCA), to develop a report on diabetes and its impact in Florida. The report must be submitted to the Governor, the President of the Senate, and the Speaker of the House of Representatives in odd-numbered years beginning in 2017. The statute specifies three populations: the general public, state employees, and people with diabetes who are covered by Medicaid. These populations are served by DOH, DMS, and AHCA, respectively.

Specific requirements of the report include:

- The public health consequences and financial impact on the state of all types of diabetes and resulting health complications
- A description of current programs and activities, including the amount and sources of funding
- A description of the coordination among state agencies to prevent and manage all types of diabetes
- An assessment of the effectiveness of the diabetes programs and activities implemented by each state agency

In addition, the statute requires a detailed action plan for preventing and controlling diabetes. The action plan at the end of this report includes evidence-based recommendations to reduce the number of new cases of diabetes and improve education and care of people with diabetes and discusses the expected outcomes if the plan is implemented. Benchmarks for preventing and controlling diabetes will be established and tracked. The report also includes the cost savings realized as a result of the implementation of recommended programs and activities.

Report Development

The DAC met in person on April 18, 2018, to discuss key factors and priority areas for the 2019 report. A team consisting of representatives from the three partnering agencies was convened to establish consensus on methods and approaches for collecting data to describe the diabetes burden and programs that address diabetes in their respective agencies.

Throughout the next several months, staff of the three agencies partnering with the DAC continued to compile data and content for the report. The DAC met periodically to finalize data needs and revise

recommendations. As this is the state's second report of this nature, many partners and systems were already established, allowing for great coordination and collaboration.

Diabetes in Florida

The following section discusses the scope and impact of diabetes in Florida. Data for this section were compiled from multiple sources, including national health surveys, state-based telephone surveys, vital statistics, and administrative health care data. These data provide a comprehensive picture of the prevalence of diabetes, as well as its associated health complications, overall and within specific populations. More detailed information about each of the data sources is available in Appendix A.

Statewide Prevalence of Prediabetes and Diabetes

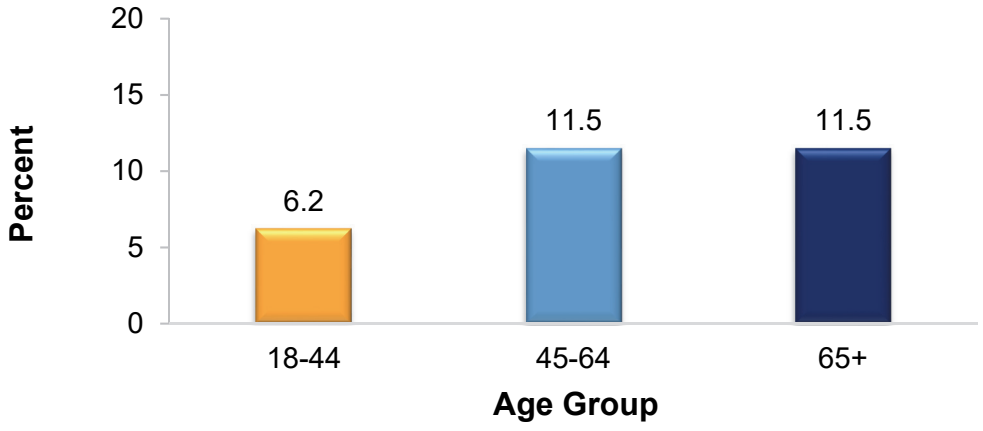
Prediabetes

Prediabetes is a serious health condition that increases the risk of developing type 2 diabetes, heart disease, and stroke. People with prediabetes are 5 to 20 times more likely to develop type 2 diabetes than someone with normal blood glucose (blood sugar) levels.[15] The CDC estimates that 1 in 3 adults nationally have prediabetes; however, 9 out of 10 people who have prediabetes are unaware.

The following data from the 2016 Behavioral Risk Factor Surveillance System (BRFSS) include adults who report that they have ever been told by a doctor, nurse, or other health professional that they have prediabetes. The BRFSS is a telephone-based survey, overseen by the CDC and conducted annually in Florida since 1986, that captures information about disease and behavioral risk factors. The true prevalence of chronic conditions on the BRFSS is often under-reported due to lack of awareness.

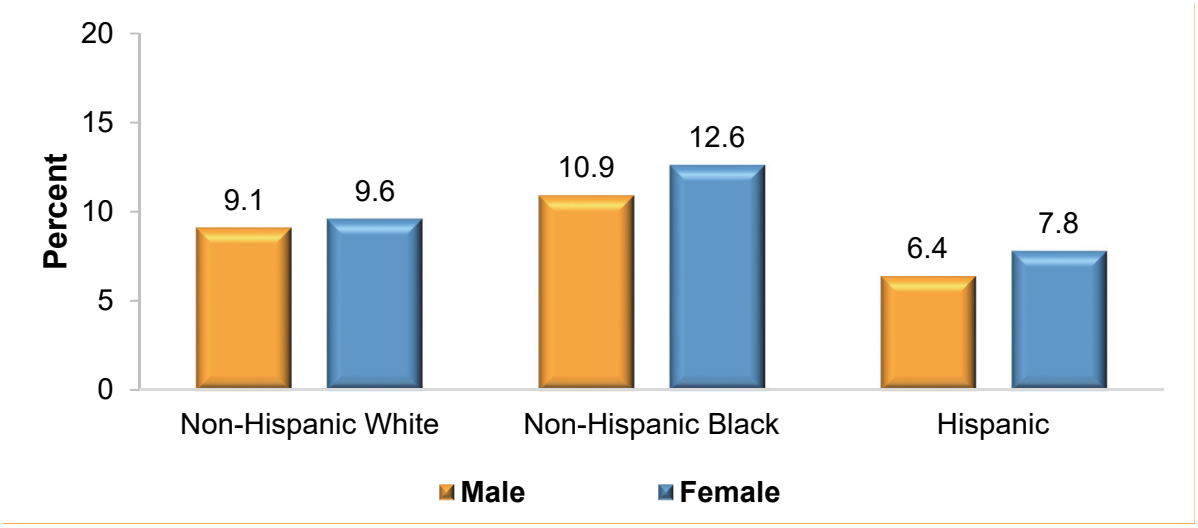
In 2016, approximately 1 out of 11 Florida adults (9.4%) had ever been diagnosed with prediabetes. The prevalence of prediabetes was slightly higher among women (9.7%) compared to men (8.9%), but this was not a statistically significant difference. The prevalence of prediabetes increases with age. Florida adults ages 18 to 44 (6.2%) had a statistically significant lower prevalence of prediabetes compared to Florida adults ages 45 to 64 and Florida adults ages 65 and older (11.5%) (Figure 1).

Figure 1. Florida Prevalence of Prediabetes by Age Group, BRFSS 2016



The prevalence of prediabetes among Florida adults differed significantly by race/ethnicity in 2016. The prevalence of prediabetes was 9.4 percent among non-Hispanic Whites, 11.8 percent among non-Hispanic Blacks, and 7.2 percent among Hispanics. Figure 2 shows the difference in prevalence of prediabetes by gender and by race/ethnicity. Non-Hispanic Black women (12.6%) had the highest prevalence of prediabetes and Hispanic men (6.4%) had the lowest prevalence of prediabetes in 2016.

Figure 2. Florida Prevalence of Prediabetes by Gender by Race/Ethnicity, BRFSS 2016



The prevalence of prediabetes did not differ significantly by income or education, but estimates were slightly higher for those with lower household incomes. In 2016, the prevalence of prediabetes was 9.9 percent among Florida adults with an annual household income less than $25,000, 9.5 percent for those with an annual household income between $25,000 and $49,999, and 8.9 percent among those with an annual household income of $50,000 or greater.

In 2016, more than half of Florida's counties (36) had a prevalence of prediabetes higher than the state rate, but the only county with a statistically significant difference was Leon County (13.1%). Two counties, Manatee and Miami-Dade, had a prediabetes prevalence statistically lower than the state rate (5.0% and 6.4%, respectively).

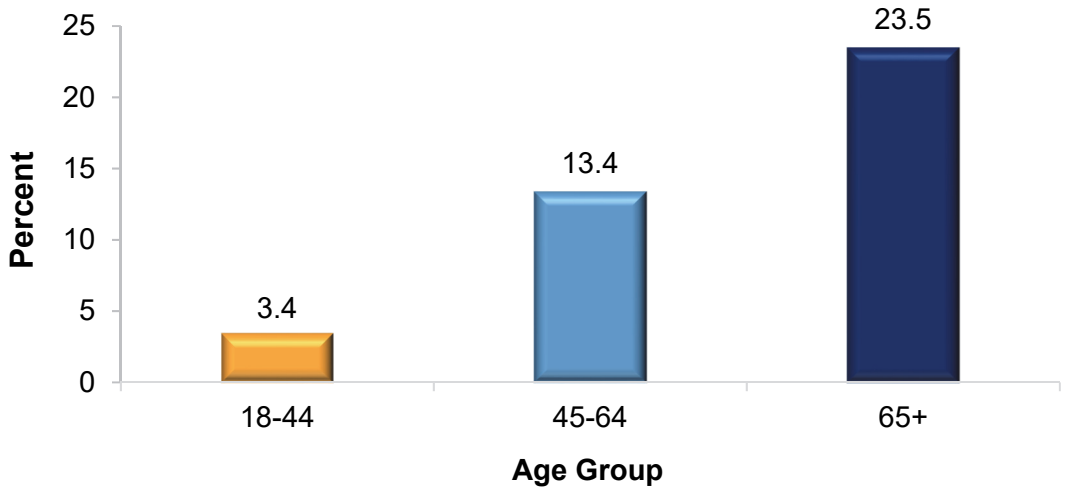
Diabetes

Diabetes is a lifelong disease that affects the way the body produces and/or uses insulin. People with diabetes either don't make enough insulin (type 1 diabetes) or can't use insulin properly (type 2 diabetes).[13] Type 2 diabetes accounts for 90 to 95 percent of all diagnosed diabetes cases, and type 1 diabetes accounts for about 5 percent.[5] The following data from the BRFSS include individuals who report that they have ever been told by a doctor, nurse, or other health professional that they have diabetes, including both types 1 and 2.

Over the past 20 years, the prevalence of diabetes among Florida adults more than doubled, increasing from 5.2 percent in 1995 to 11.8 percent in 2016. Diabetes prevalence among Florida women was 11.0 percent compared to 12.5 percent among Florida men in 2016. Like prediabetes, the prevalence of

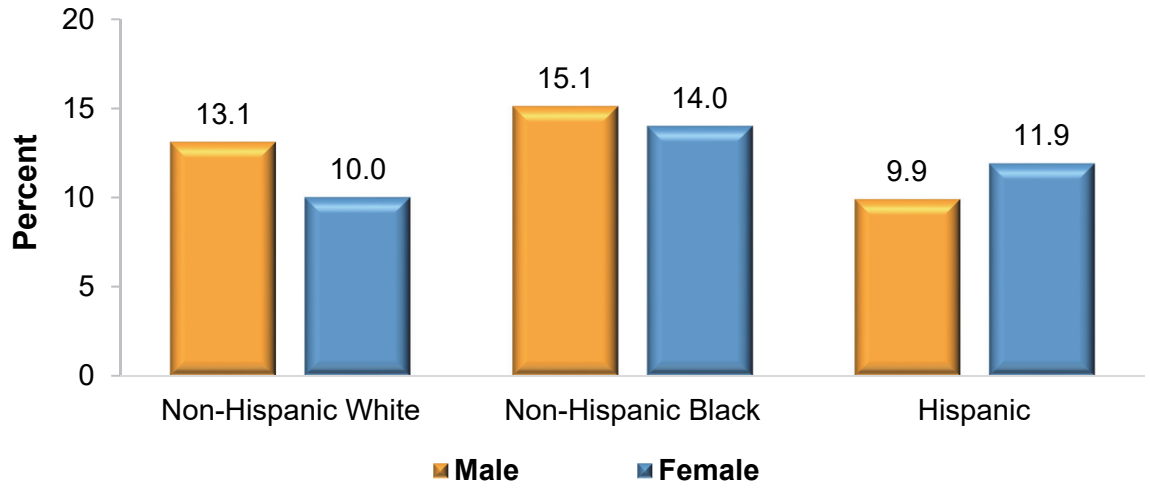
diabetes also increases statistically with age. In 2016, 3.4 percent of Florida adults ages 18 to 44 reported having ever been diagnosed with diabetes compared to 13.4 percent of adults ages 45 to 64 and 23.5 percent of adults ages 65 and older (Figure 3).

Figure 3: Florida Prevalence of Diabetes by Age Group, BRFSS 2016



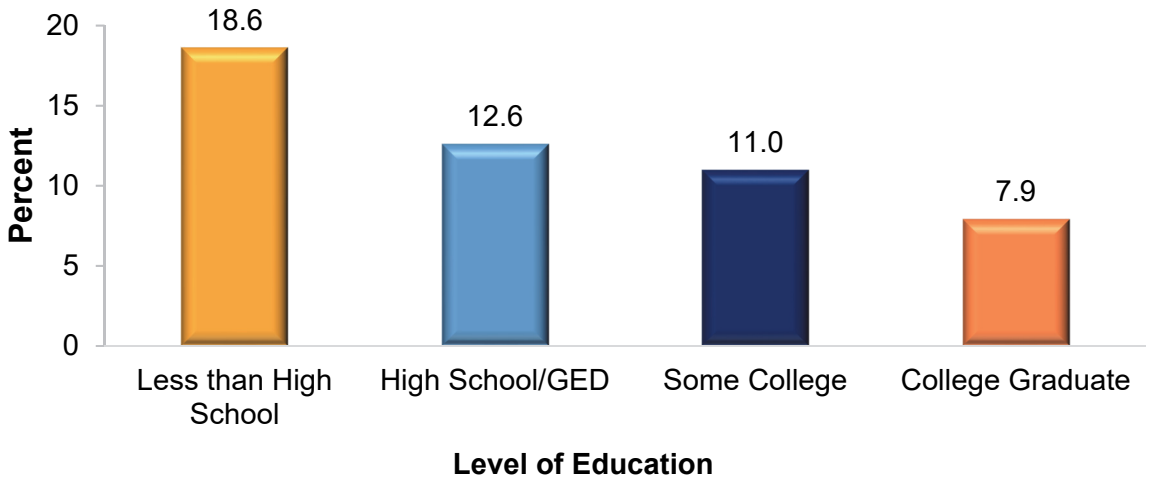
In 2016, the prevalence of diabetes was highest among non-Hispanic Blacks (14.5%), compared to non-Hispanic Whites (11.5%) and Hispanics (10.9%). A similar pattern is observed for racial/ethnic groups by gender. The prevalence of diabetes among non-Hispanic Black men (15.1%) was higher than non-Hispanic White men (13.1%) and Hispanic men (9.9%). A different pattern was observed among women. Although the prevalence of diabetes was statistically higher among non-Hispanic Black women (14.0%) compared to all other race/ethnicity groups, diabetes prevalence was lower among non-Hispanic White women (10.0%) than Hispanic women (11.9%) (Figure 4).

Figure 4: Florida Prevalence of Diabetes by Gender by Race/Ethnicity, BRFSS 2016



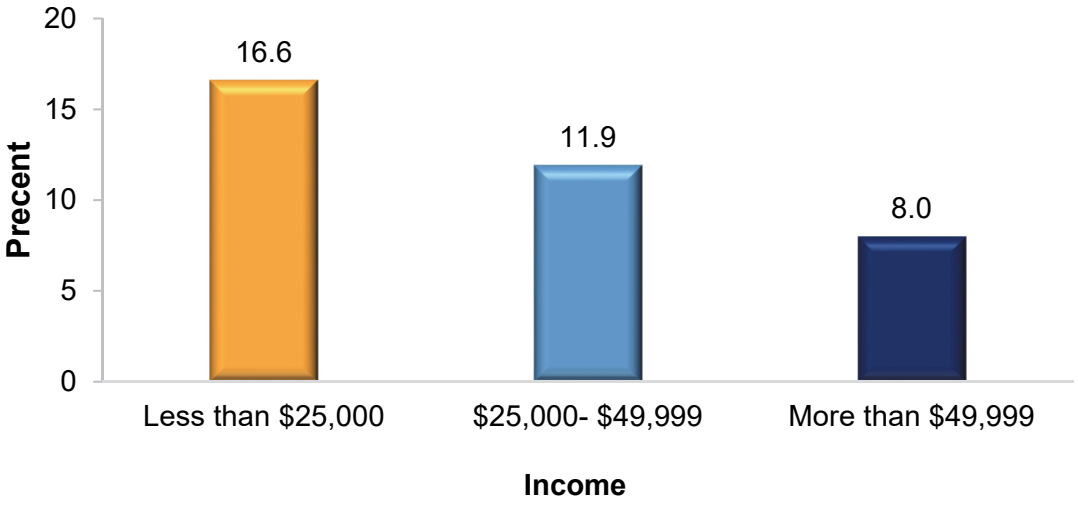
Differences in prevalence of diabetes are also observed when considering socioeconomic factors such as education and income. Florida adults with less than a high school education (18.6%) have a statistically higher prevalence of diabetes when compared to adults with a high school education or GED (12.6%), adults who attended some college (11.0%), and adults who graduated college (7.9%) (Figure 5).

Figure 5. Florida Prevalence of Diabetes by Education Level, BRFSS 2016



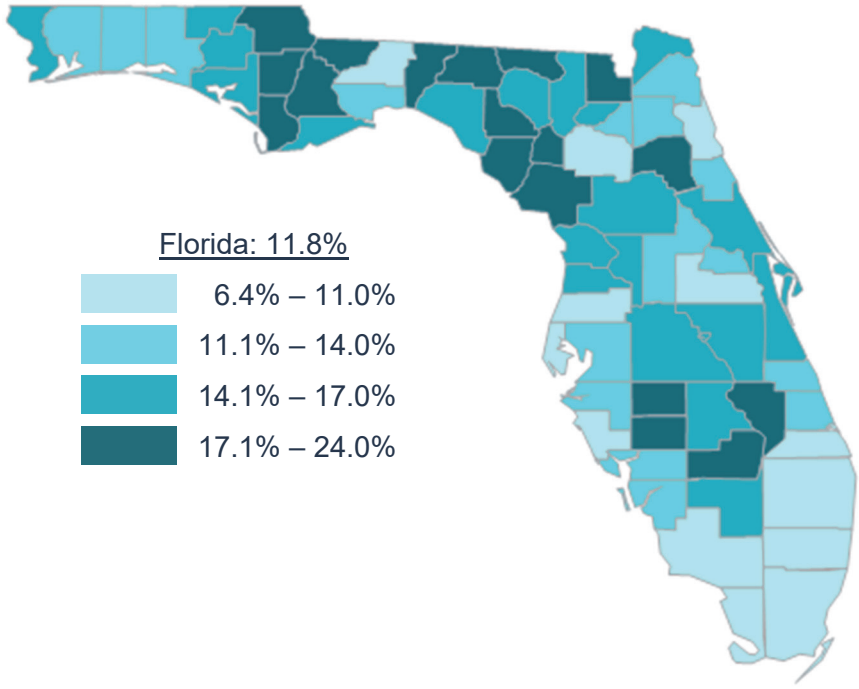
In 2016, the prevalence of diabetes among Florida adults living in households with an annual income less than $25,000 (16.6%) was statistically higher than those with an annual household income between $25,000 and $49,999 (11.9%) and those with an annual household income of $50,000 or greater (8.0%) (Figure 6).

Figure 6. Florida Prevalence of Diabetes by Household Income Level, BRFSS 2016



The prevalence of diabetes varies geographically across the state. In 2016, two counties, Collier (7.8%) and St. Johns (6.4%) had a diabetes prevalence statistically lower than the state rate and twenty-five counties had a diabetes prevalence statistically higher than the state rate. The highest prevalence of diabetes was observed in Baker (22.3%), Gadsden (23.4%), and Hardee (23.6%) counties.

Map 1. Florida Prevalence of Diabetes by County, BRFSS 2016



Youth Diabetes

Data sources about diabetes among youth statewide are limited. About 17,900 new cases of type 1 diabetes and more than 5,300 new cases of type 2 diabetes are estimated to be diagnosed among US youth younger than age 20 each year.[8] The 2016 National Survey of Children's Health estimates that approximately 300,000 children ages 0 to 17 in the US (0.4%) currently have diabetes.[16]

School Health Services

In cooperation with the Florida Department of Education, local school districts, and local community partners, DOH and local School Health Services Programs provide the services mandated in sections 381.0056, 1006.062 and 1002.20(3)(j), Florida Statutes, and Florida Administrative Code Rule 6A-6.0253. School health services are intended to minimize health barriers to learning for public school students in pre-kindergarten through 12th grade. Annually, county school health programs report data on student health conditions and services provided.

In 2016–2017, there were 7,889 students with reported diabetes in Florida schools (an increase of 4.8 percent from 2014–2015), of which 6,062 required insulin administration. School health staff provided an estimated 648,468 carbohydrate-counting services, 732,528 insulin administration services, and

1,091,376 glucose monitoring services. These service counts do not include self-administered diabetes management by students authorized to self-carry their diabetes care equipment and supplies.

During 2016–2017, the state average registered professional school nurse (RN) to student ratio in Florida was one RN to 2,382 students, and the RN to school ratio was one RN to 3.15 schools. The RN to school ratio recommended by the National Association of School Nurses (NASN) is one RN for every school, “all day, every day.” A 2016 policy statement from the American Academy of Pediatrics also recommends a full-time RN in every school, as does a 2018 policy brief from the American Academy of Nursing. Due to the high caseloads in Florida schools, student diabetes services are commonly provided by unlicensed assistive personnel (UAP), who may be nursing assistants, health aides or technicians, or school staff (such as office clerks, administrative staff, teachers, coaches, bus drivers, and others) who have been designated by the principal to assist with medications and medical procedures.

To assist RNs who provide direct services to students with diabetes and those who delegate these services to UAPs, DOH published the Guidelines for the Care and Delegation of Care for Students with Diabetes in Florida Schools - January 2015.[17] These guidelines were developed in collaboration with a stakeholder workgroup of state and local members from both the public and private sectors.

In May 2018, DOH’s School Health Services Program convened a workgroup of experts involved in managing the care of Florida students with diabetes. The workgroup’s primary objective is to develop a diabetes medical management plan (DMMP) template which will be available for use/adaptation by county school health programs statewide. The School Health Services Program determined there was a need for a comprehensive DMMP template from observation that DMMPs in use by Florida’s 67 county school health programs varied widely in terms of structure, comprehensiveness, and clarity. The DMMP template is expected to be available for use by local school health programs and health care providers during the 2018–19 school year.

Diabetes and Pregnancy

Gestational diabetes is a form of diabetes that develops only during pregnancy. Gestational diabetes is distinct from pre-existing diabetes, which includes type 1 and type 2 diabetes that a woman had before becoming pregnant. Both gestational and pre-existing diabetes can lead to serious health complications for mother and baby, including preeclampsia, premature birth, cesarean delivery, and higher risk of birth injury. Poorly managed pre-existing diabetes also increases the risk of birth defects, miscarriage, or stillbirth, while gestational diabetes puts both mother and baby at a higher risk of developing type 2 diabetes later in life.[18]

According to data from the 2015 Pregnancy Risk Assessment Monitoring System (PRAMS), 1.8 percent of recent mothers in Florida reported having pre-existing diabetes before their most recent pregnancy and 12.1 percent reported having gestational diabetes during their most recent pregnancy.[19]

Diabetes Among the Medicaid Population

For this report, a series of tables was prepared by the Agency for Health Care Administration's (AHCA) Division of Medicaid (Medicaid), Bureau of Medicaid Data Analytics (MDA). These tables relate to the occurrence and trend of diabetes – type 1, type 2, any type, or gestational – in the state of Florida Medicaid population, for both children and adults.

All data fall into one of two categories: fee-for-service (FFS) data and managed care plan encounter data or simply encounter data. Where possible, the information in the tables that follow was derived from both FFS data and encounter data. Unlike FFS data where payment is based on these data, encounter data do not drive payment to the managed care plans. As such, care should be taken in the interpretation of any results that are dependent on the encounter data.

Medicaid Adult Diabetes

Table 1 shows the prevalence rate, number of diabetes cases, and total adult enrollment among Florida adult Medicaid members (ages 18 and older) over time from State Fiscal Year (SFY) 12/13 to SFY 16/17. The prevalence rates of diabetes among women and men have decreased over time.

Table 1. Prevalence of Diabetes Among Florida Medicaid Adult Members Ages 18 and Older, SFY 2012-13 to SFY 2016-17

State Fiscal Year (SFY)	Prevalence Rate		Number of Diabetes Cases		Total Adult Enrollment	
	Women	Men	Women with Diabetes	Men with Diabetes	Total Women Enrolled	Total Men Enrolled
SFY 12/13	7.6%	7.3%	106,964	58,113	1,413,481	793,476
SFY 13/14	7.7%	7.5%	113,806	61,761	1,477,133	827,878
SFY 14/15	6.1%	6.3%	93,276	53,600	1,521,874	857,167
SFY 15/16	5.9%	6.1%	92,484	54,461	1,579,415	899,200
SFY 16/17	6.5%	6.8%	103,301	61,000	1,577,971	894,853

Note: *Data include region 99.*
Source: *MDA SQL claims and encounter tables as of August 8, 2018.*

The prevalence of diabetes in SFY 13/14 increased slightly from the previous year, followed by a decrease in SFY 14/15. A decrease also took place in SFY 15/16, but increased in SFY 16/17 among both women and men.

From SFY 12/13 to SFY 16/17, the number of diabetes cases in women decreased from 106,964 to 103,301, but increased in men from 58,113 to 61,000. Total Medicaid enrollment increased for both women and men during this time period.

Medicaid Youth Diabetes (0-17 years of age)

Table 2 shows the prevalence rate, number of diabetes cases, and total child enrollment among Florida child Medicaid members (ages 0 to 17) from SFY 12/13 to SFY 16/17. The prevalence rate of diabetes among girls decreased slightly during this period from 0.3% to 0.2%, while diabetes prevalence among boys did not change.

From SFY 12/13 to 15/16, the number of diabetes cases increased among both girls and boys, but decreased in both groups in SFY 16/17. Total child enrollment increased for both girls and boys from SFY 12/13 to 16/17.

Table 2. Prevalence of Diabetes Among Florida Medicaid Child Members Ages 17 and Younger, SFY 2012-13 to SFY 2016-17

State Fiscal Year (SFY)	Prevalence Rate		Number of Diabetes Cases		Total Child Enrollment	
	Girls	Boys	Girls with Diabetes	Boys with Diabetes	Total Girls Enrolled	Total Boys Enrolled
SFY 12/13	0.3%	0.2%	2,864	2,686	1,033,419	1,082,748
SFY 13/14	0.3%	0.2%	3,155	2,813	1,076,080	1,127,633
SFY 14/15	0.3%	0.2%	3,090	2,783	1,135,070	1,189,056
SFY 15/16	0.3%	0.2%	3,122	2,817	1,173,997	1,230,010
SFY 16/17	0.2%	0.2%	2,978	2,638	1,191,215	1,248,103

Note: *Data include region 99.*
Source: *MDA SQL claims and encounter tables as of August 8, 2018.*

Medicaid Diabetes and Pregnancy

Table 3 displays numbers of pregnant Medicaid women with gestational diabetes, preexisting diabetes, or neither from SFY 12/13 to 16/17. The numbers of women with gestational diabetes and preexisting diabetes increased from SFY 12/13 to 14/15, then decreased in SFYs 15/16 and 16/17.

Among pregnant Medicaid women members in SFY 16/17, 0.2 percent had pre-existing diabetes, and 2.2 percent had gestational diabetes.

Table 3. Diabetes and Pregnancy Among Florida Medicaid Women Members, SFY 2012-13 to SFY 2016-17

State Fiscal Year (SFY)	Pregnant Women with Gestational Diabetes	Pregnant Women with Pre-existing Diabetes	Pregnant Women with Neither Pre-existing nor Gestational Diabetes
SFY 12/13*	3,668	582	102,386
SFY 13/14*	3,996	610	104,811
SFY 14/15*	3,733	650	103,216
SFY 15/16	2,743	413	107,060
SFY 16/17	2,450	212	110,135

Source: *MDA SQL claims and encounter tables as of August 8, 2018*
**** Changes in distinct recipient counts are likely due to more complete reporting of encounter claims since the last data request.***

Diabetes Among Individuals Covered by the Division of State Group Insurance

The Department of Management Services, Division of State Group Insurance (DSGI) offers and manages a comprehensive package of health and welfare insurance benefits for active and retired state employees and their families. Individuals with one or more claims with a diabetes code during a calendar year were included in the counts presented in the following section.

DSGI Adult Diabetes

In 2017, there were 2,441 adults with type 1 diabetes and 30,174 adults with type 2 diabetes whose health care visits were covered by the DSGI (Table 4).

Table 4. Number of Adults (Ages 18 and Older) Covered by DSGI with One or More Diabetes Claims during the Calendar Year, 2016-2017

Year	Number of Adults	
	Type 1	Type 2
2016	2,540	30,283
2017	2,441	30,174

DSGI Youth Diabetes (0-17 years of age)

In 2017, there were 177 children with type 1 diabetes and 102 children with type 2 diabetes whose health care visits were covered by the DSGI (Table 5).

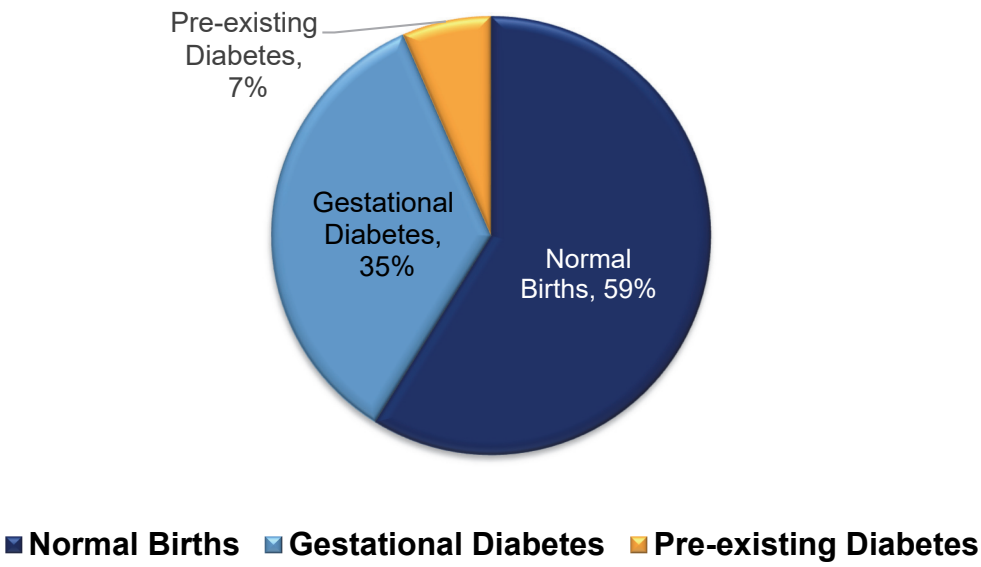
Table 5. Number of Children (Ages 0 to 17) Covered by DSGI with One or More Diabetes Claims during the Calendar Year, 2016-2017

Year	Number of Children	
	Type 1	Type 2
2016	173	98
2017	177	102

DSGI Diabetes and Pregnancy

In 2017, there were a total of 2,085 births among individuals covered by DSGI. While the majority of new mothers (59%) did not experience any diabetes during pregnancy, approximately 7 percent had diabetes prior to becoming pregnant, and one out of three women (35%) experienced gestational diabetes (Figure 7).

Figure 7. Percent of Births Covered by DSGI by Diabetes Status, 2017



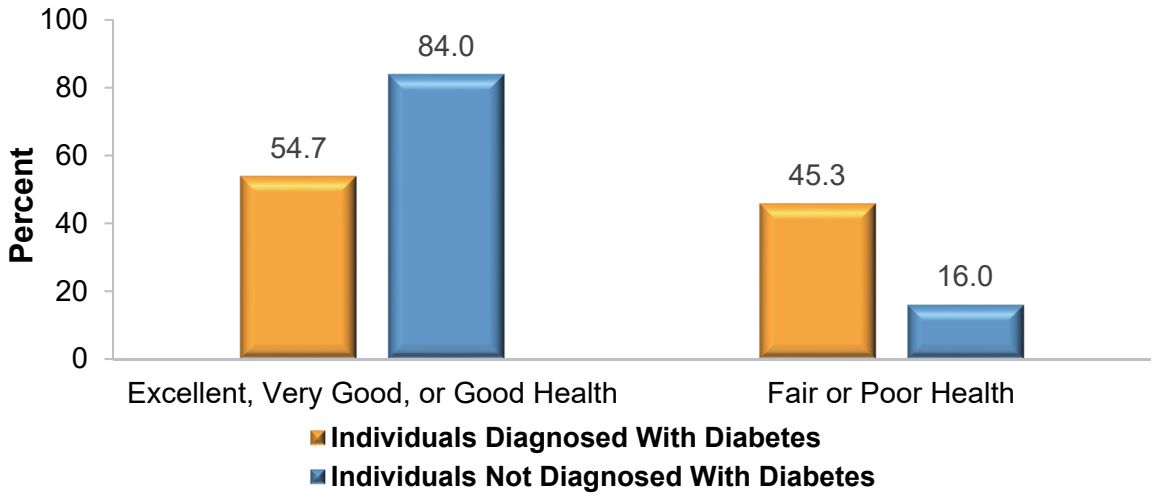
Public Health Consequences and Financial Impact of Diabetes

Diabetes and related complications create significant individual, societal, and financial burden.[1, 3, 13] People with diabetes are twice as likely to have heart disease or a stroke as people without diabetes, and at an earlier age.[14] Diabetes is the leading cause of kidney failure, lower-limb amputations, and adult-onset blindness. More than 20 percent of national health care spending is for people with diagnosed diabetes.[5] This section of the report highlights some of the ways diabetes impacts Florida's residents, health systems, and economy.

Health Status

Individuals with diabetes have a lower overall health status when compared to individuals who do not have diabetes. Among Florida adults with diabetes, 54.7 percent reported that their health is excellent, very good, or good, compared to 84.0 percent of adults without diabetes. Additionally, 45.3 percent of adults with diabetes reported that their health is fair or poor, compared to 16.0 percent of adults without diabetes in 2016 (Figure 8).

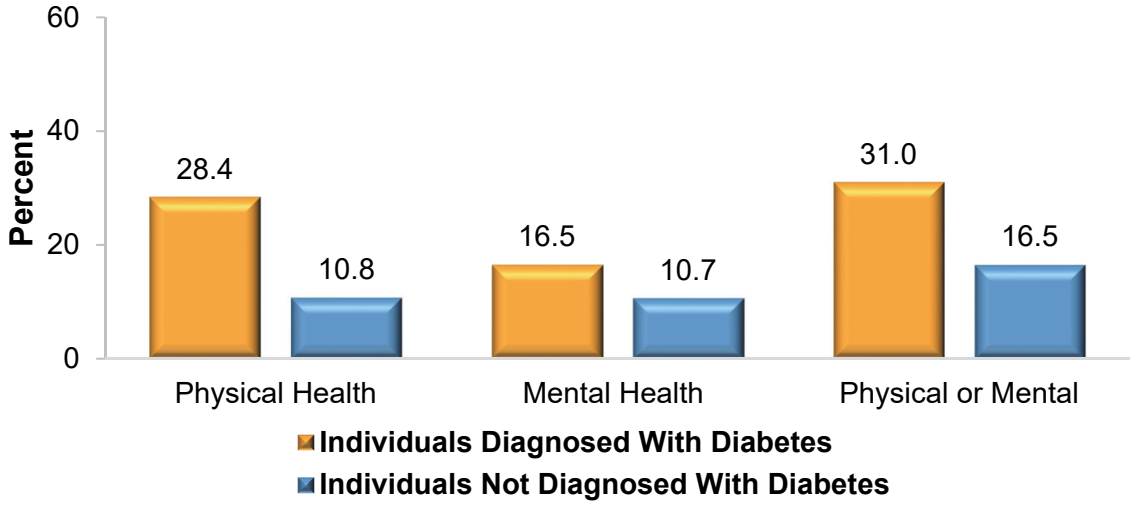
Figure 8. Self-Reported Health Status by Diabetes Status, Florida, BRFSS 2016



Physical and Mental Health

The following data demonstrate that diabetes influences both physical and mental health. More than one out of four adults with diabetes (28.4%) reported that their physical health was not good for two or more weeks during the past month, compared to one out of 10 adults without diabetes (10.8%). Approximately one out of six of adults with diabetes (16.5%) reported that their mental health was not good for two or more weeks during the past month, compared to one out of 10 (10.7%) adults without diabetes. When assessing physical and mental health combined, nearly one out of three adults with diabetes (31.0%) reported that their physical or mental health was not good for two or more weeks during the past month, compared to one out of six adults without diabetes (16.5%) (Figure 9).

Figure 9. Self-Reported Poor Physical or Mental Health on 14 or More Days in One Month by Diabetes Status, Florida, BRFSS 2016



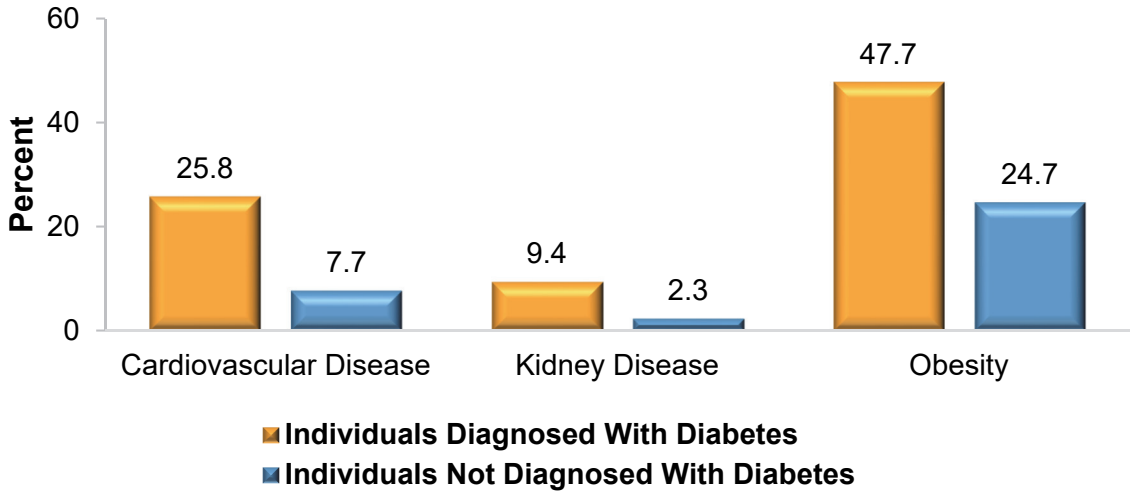
Comorbidities

Several chronic conditions are commonly associated with diabetes. Some of these comorbidities include coronary heart disease, heart attack, stroke, cardiovascular diseases, kidney diseases, and obesity. Figure 10 depicts the prevalence of chronic condition by diabetes status in Florida.

In 2016, Florida adults with diabetes had a significantly higher prevalence of cardiovascular diseases, kidney diseases, and obesity than Florida adults without diabetes (Figure 10).

- One out of four of adults with diabetes (25.8%) had a history of cardiovascular diseases, including heart attack, stroke, or coronary heart disease, compared to 7.7 percent of adults without diabetes
- One out of 11 adults with diabetes (9.4%) had kidney disease compared to one out of 40 adults without diabetes (2.3%)
- Nearly half of adults with diabetes (47.7%) were obese compared to nearly one out of four adults without diabetes (24.7%)

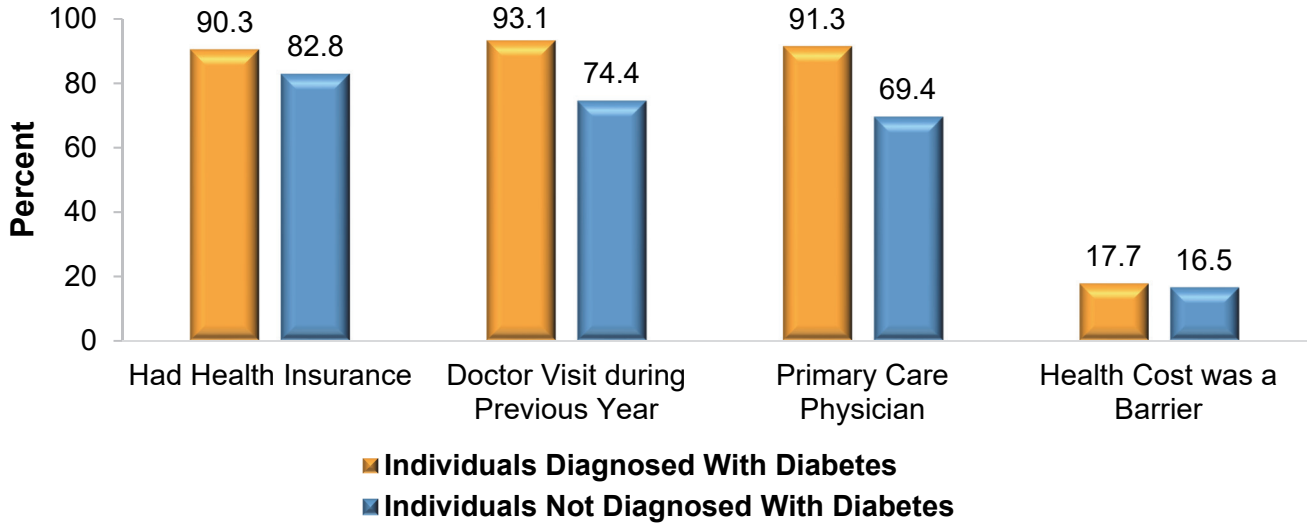
Figure 10. Chronic Conditions by Diabetes Status, Florida, BRFSS 2016



Health Care Access

In 2016, adults with diabetes had a higher prevalence of having health insurance (90.3%), having a doctor visit in the past year for a routine check-up (93.1%), and having one person they think of as their personal doctor or health care provider (91.3%) compared to adults without diabetes (82.8%, 74.4%, and 69.4%, respectively). Approximately one out of six adults reported that there was a time during the past year when they needed to see a doctor but could not because of cost, regardless of diabetes status (Figure 11).

Figure 11. Health Care Access by Diabetes Status, Florida, BRFSS 2016

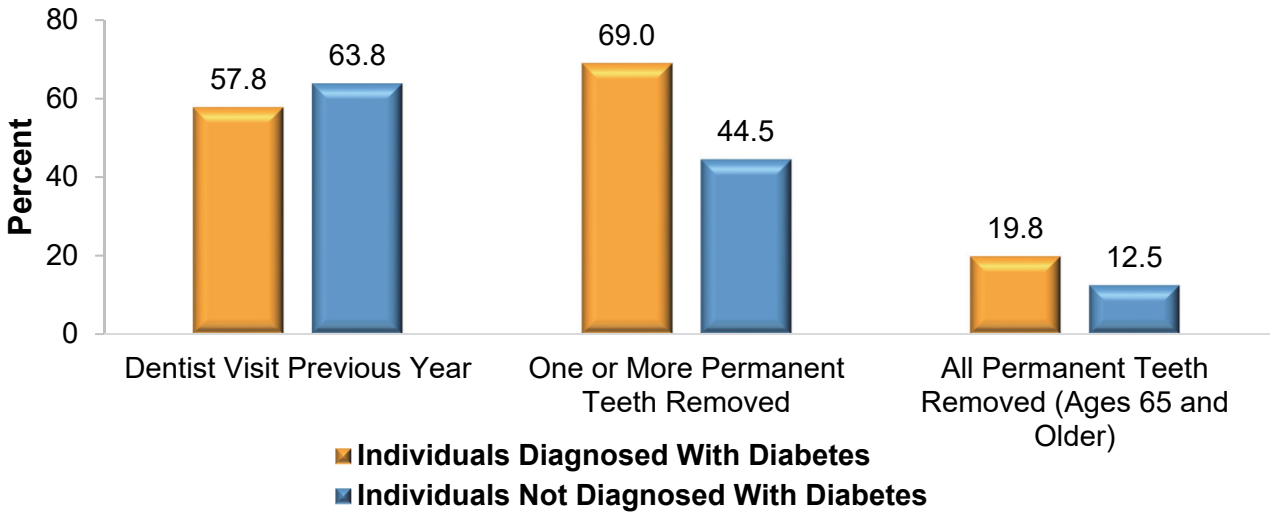


Oral Health and Diabetes

Persons with diabetes are at higher risk for oral health problems, such as gingivitis (an early stage of gum disease) and periodontitis (serious gum disease). People with diabetes are at an increased risk for serious gum disease because they are generally more susceptible to bacterial infection and have a decreased ability to fight bacteria that invade the gums. In addition, recent research shows periodontitis may have the potential to affect blood glucose control and contribute to the progression of diabetes.[20]

Oral diseases are significant issues among Florida's residents, and especially those with diabetes (Figure 12). Adults with diagnosed diabetes (57.8%) had a lower prevalence of seeing a dentist in the past year compared to adults without diabetes (63.8%). The prevalence of having one or more permanent teeth removed was significantly higher among adults with diagnosed diabetes (69.0%) compared to adults without diabetes (44.5%). And among adults ages 65 and older, nearly one out of five with diabetes (19.8%) had all of their permanent teeth removed compared to one out of eight without diabetes (12.5%).

Figure 12. Oral Health Indicators by Diabetes Status, Florida, BRFSS 2016



Emergency Department Visits and Hospitalizations

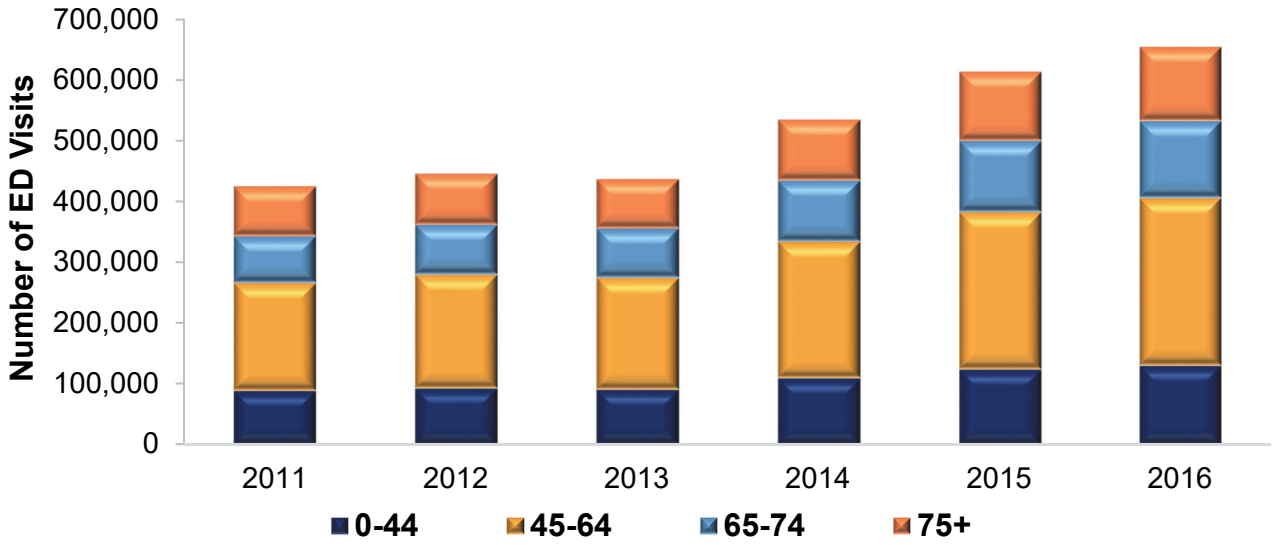
Diabetes-related emergency department (ED) visits and subsequent hospitalization occur because of serious health complications that often accompany undetected or poorly controlled diabetes. This includes cardiovascular disease, dehydration, ulcers, kidney problems, nerve damage, blindness, and lower-limb amputation. Many of these ED visits and hospitalizations could be avoided with improved access to care, appropriate diagnosis and monitoring of diabetes in the physician's office, increased adherence to treatment regimens, and diabetes self-management education (DSME). In 2014, there were 14.2 million ED visits with diabetes as any-listed diagnosis among adults ages 18 years and older.[8]

The following section presents Florida data on ED visits with diabetes as any-listed diagnosis and hospitalizations with diabetes as first-listed diagnosis using the International Classification of Diseases, Clinical Modification, 9th Revision (ICD-9-CM) diagnosis code 250 and 10th Revision (ICD-10-CM) diagnosis codes E10, E11 and E13. The first-listed diagnosis code represents the diagnosis chiefly responsible for the admission. Although hospitalizations with diabetes as first-listed diagnosis are the focus of this section, it is important to note that the number of hospitalizations substantially increases when cases with diabetes as any-listed diagnosis are included. ED and inpatient hospitalization data sets from the Agency for Health Care Administration (AHCA) were used for this analysis.

ED Visits over Time

From 2011 to 2016, the number of ED visits in Florida with diabetes as any-listed diagnosis increased by 54.0 percent from 424,457 to 653,917. During this time, the largest number of ED visits occurred among Floridians ages 45-64 years (Figure 13). The age-specific rate for this group also increased during this time (from 344.6 per 10,000 in 2011 to 511.4 per 10,000 in 2016), indicating that the difference is not simply due to an increase in population size.

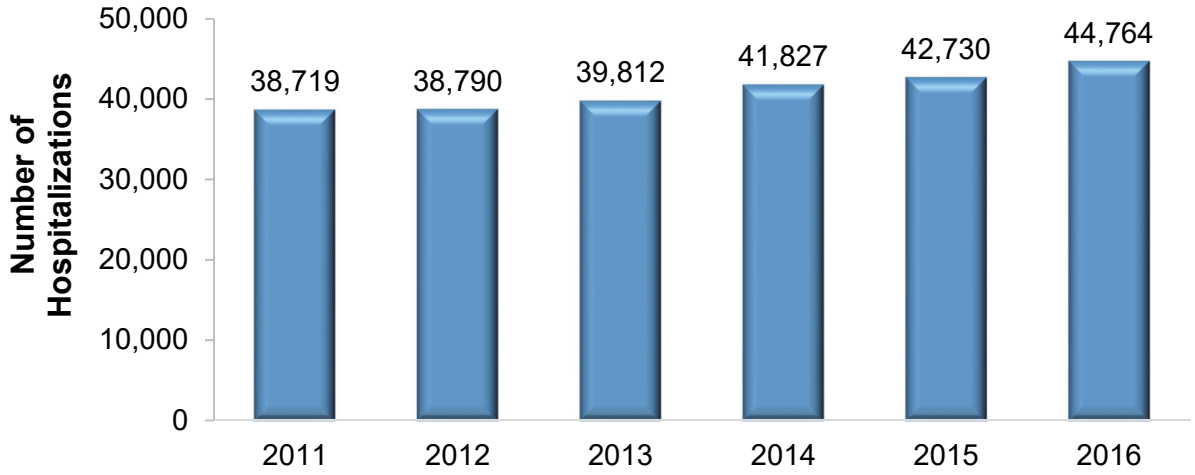
Figure 13. Total Number of ED Visits with Diabetes as Any-Listed Diagnosis by Age Group, AHCA 2011-2016



Hospitalizations Over Time

Over the last six years, the number of hospitalizations in Florida with diabetes as first-listed diagnosis increased by 16 percent from 38,719 in 2011 to 44,764 in 2016 (Figure 14). During this time, the age-adjusted rate increased by 9 percent, from 18.4 per 10,000 in 2011 to 20.0 per 10,000 in 2016. This means that the increase seen in the number of hospitalizations is not due solely to the growing population.

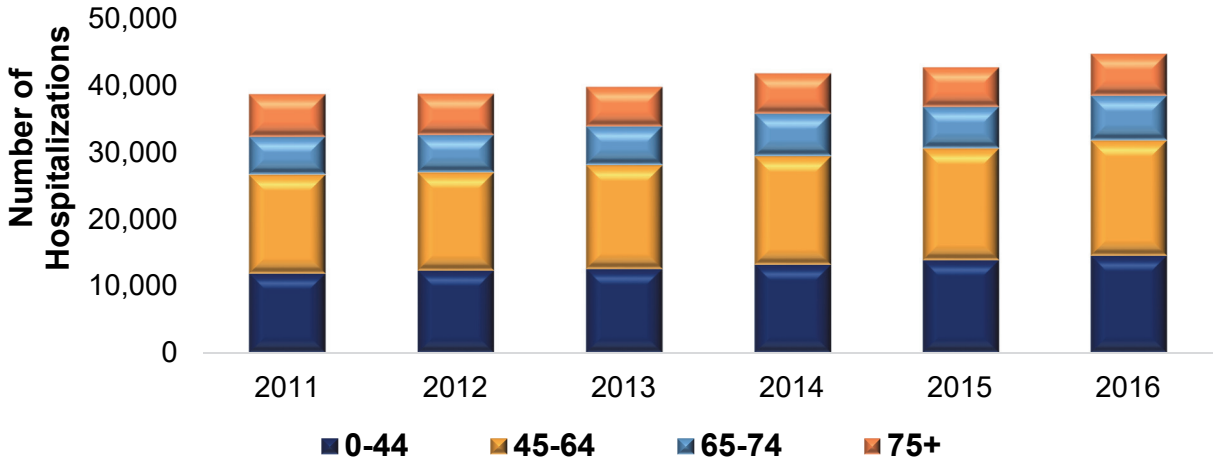
Figure 14. Total Number of Hospitalizations with Diabetes as First-Listed Diagnosis, AHCA 2011-2016



Hospitalizations by Age Group

From 2011 to 2016, the largest number of hospitalizations with diabetes as first-listed diagnosis occurred among Floridians ages 45-64 years (Figure 15). This number increased by 16 percent from 14,771 in 2011 to 17,208 in 2016. During this time, the number of hospitalizations among Floridians ages 0-44 years and 65-74 years also increased by 22.0 percent and 18.0 percent, respectively.

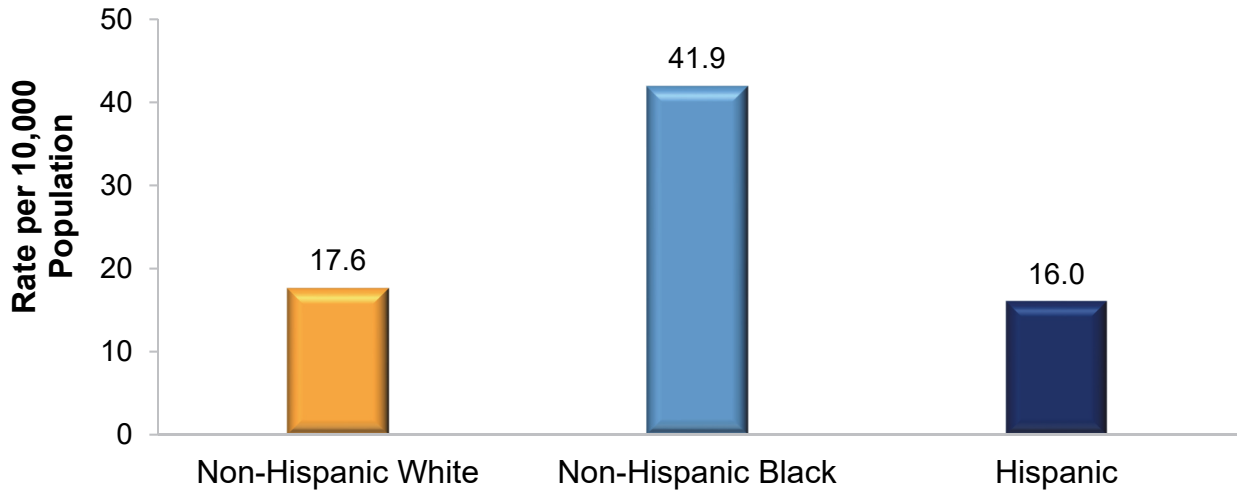
Figure 15. Total Number of Hospitalizations with Diabetes as First-Listed Diagnosis by Age Group, AHCA 2011-2016



Hospitalizations by Race/Ethnicity

Large disparities exist in hospitalization rates by race/ethnicity. In 2016, the age-adjusted hospitalization rate with diabetes as first-listed diagnosis for non-Hispanic Blacks (41.9 per 10,000 population) was more than double that of non-Hispanic Whites (17.6 per 10,000 population) and Hispanics (16.0 per 10,000 population) (Figure 16).

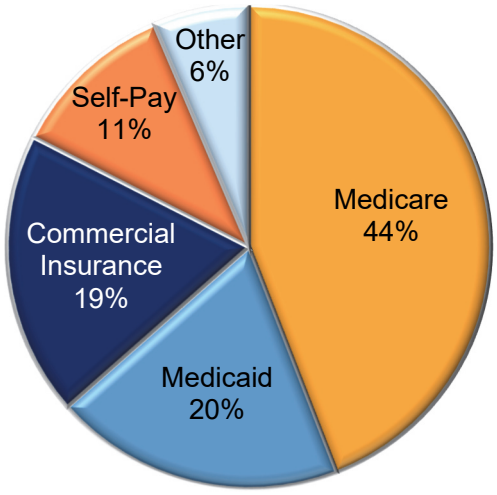
Figure 16. Age-adjusted Hospitalization Rate per 10,000 Population with Diabetes as First-Listed Diagnosis by Race/Ethnicity, AHCA 2016



Hospitalizations by Payer Type

In 2016, Medicare covered the largest number of hospitalizations with diabetes as first-listed diagnosis (44%), followed by Medicaid (20%), and commercial insurance (19%). The fewest number of hospitalizations were covered by self-pay and other funds (11% and 6%, respectively) (Figure 17).

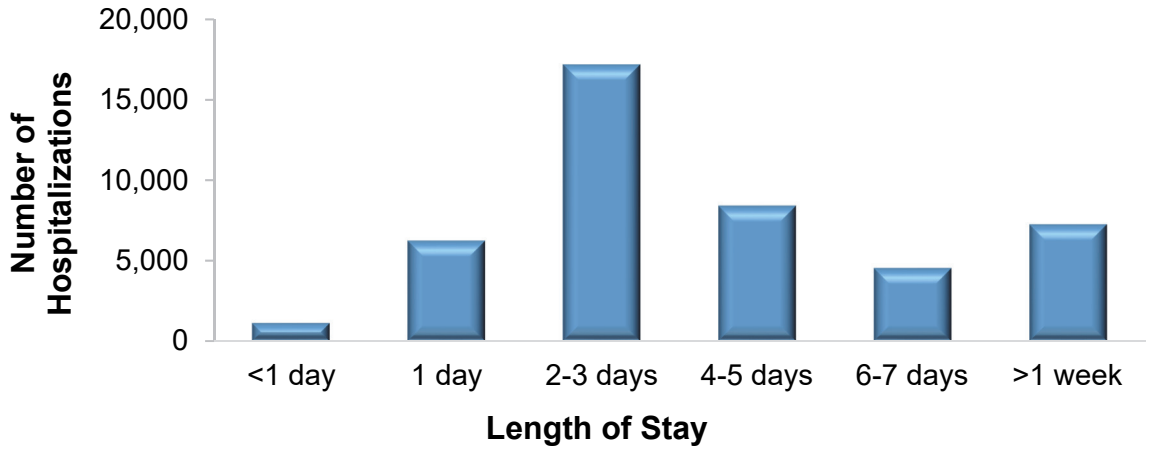
Figure 17. Hospitalizations with Diabetes as First-Listed Diagnosis by Payer Type, AHCA 2016



Hospitalizations by Length of Stay

The average length of stay for hospitalizations with diabetes as first-listed diagnosis was 4.9 days in 2016. Approximately two out of five (38%) Floridians admitted to the hospital with diabetes as the primary diagnosis were discharged within three days. Of the remaining patients admitted to the hospital for diabetes, 19 percent were discharged within four to five days, 10 percent were discharged within six to seven days, and 16 percent were discharged more than one week later (Figure 18).

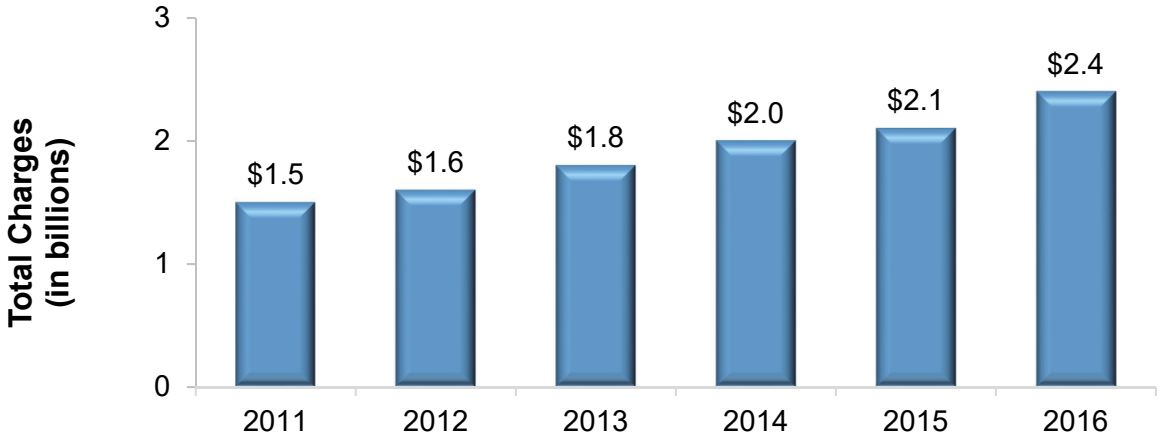
Figure 18. Length of Stay for Hospitalizations with Diabetes as First-Listed Diagnosis, AHCA 2016



Hospitalization Charges

The median charge per hospitalization with diabetes as the first-listed diagnosis was $32,729 in 2016. The total charges for hospitalizations with diabetes as the first-listed diagnosis increased by 56.5 percent, from $1.5 billion in 2011 to $2.4 billion in 2016 (Figure 19). As stated previously, the number of hospitalizations only increased by 16 percent during this same time frame, meaning that the total charges per hospitalization with diabetes as the first-listed diagnosis are increasing.

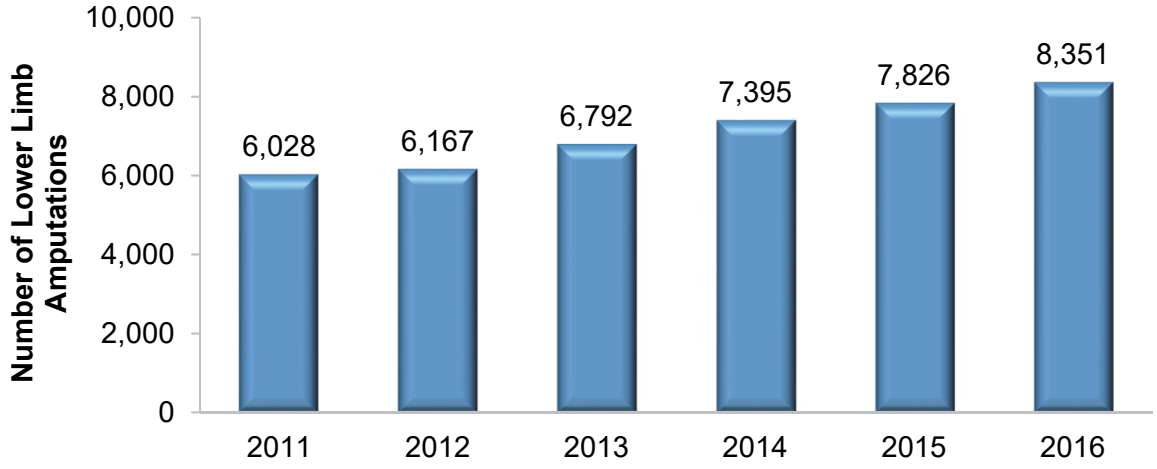
Figure 19. Total Charges for Hospitalizations with Diabetes as First-Listed Diagnosis, AHCA 2011-2016



Lower Limb Amputation Hospitalizations

From 2011 to 2016, the number of lower limb amputation hospitalizations with diabetes as any-listed diagnosis increased by 38.5 percent, from 6,028 in 2011 to 8,351 in 2016 (Figure 20*).

Figure 20. Number of Lower Limb Amputation Hospitalizations with Diabetes as Any-Listed Diagnosis, AHCA 2011-2016

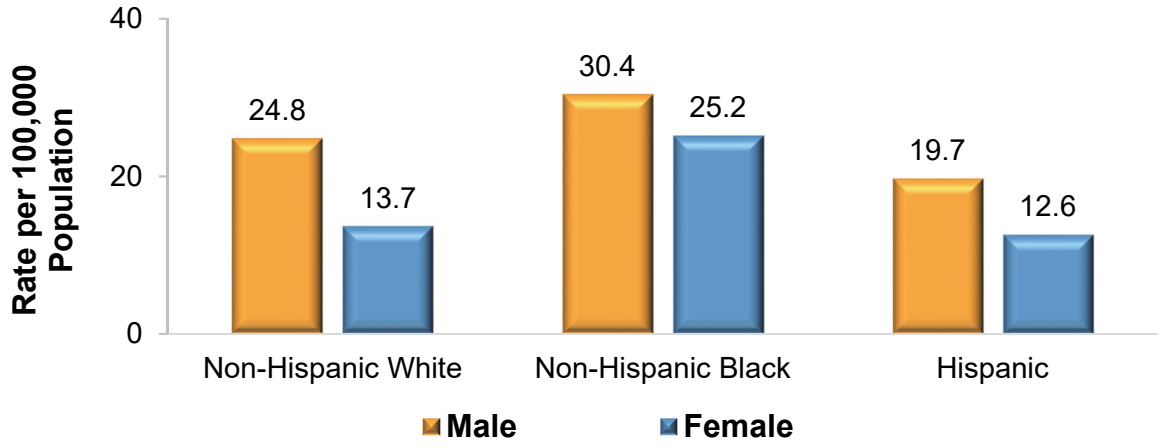


**Note: Numbers differ from the 2017 Diabetes Legislative Report due to a change in methodology.*

Diabetes Mortality

Diabetes is the seventh leading cause of death in Florida. In 2016, there were 5,776 deaths with diabetes listed as the underlying cause. The diabetes mortality rate has remained consistent over the past several years. However, when looking at age-adjusted diabetes mortality rates by gender and race/ethnicity, large disparities are seen. Males have an age-adjusted diabetes mortality rate of 26.5 per 100,000 population, higher than the female rate of 15.9 per 100,000 population. Non-Hispanic Blacks have a higher age-adjusted diabetes mortality rate than both non-Hispanic Whites and Hispanics. Figure 21 shows the age-adjusted diabetes mortality rate by gender and by race/ethnicity.

Figure 21. Age-Adjusted Diabetes Mortality Rate per 100,000 by Gender by Race/Ethnicity, AHCA 2016



Financial Consequences

CDC estimates that the annual costs attributable to diabetes in the United States for adults ages 19 and older is $421.6 billion, which includes $191.5 billion in direct medical costs and $230.1 billion in indirect costs (morbidity and mortality). Indirect costs reflect the labor and household productivity losses including premature mortality ($102 billion), inability to work ($74.5 billion), on-the-job productivity losses or presenteeism ($40.1 billion), missed work days ($7.2 billion), and household productivity loss ($6.1 billion).[12]

It is estimated that in 2012 the total cost of diabetes in Florida was $24.3 billion, with $19.3 billion attributed to direct medical expenses for diagnosed and undiagnosed diabetes, prediabetes, and gestational diabetes and $5 billion attributed to indirect costs. People with diabetes have medical expenditures approximately 2.3 times higher than those who do not have diabetes.[1] This not only creates a significant problem for the health care system, but also generates health inequities and loss of quality life for people with diabetes.

DSGI Costs

In 2017, the total DSGI combined cost for adults and youth with one or more type 1 or type 2 diabetes claims was $20.7 million. The total DSGI costs for type 1 diabetes (adults and youth combined) increased by 15.2 percent, from $4.8 million in 2016 to $5.6 million in 2017. During this same time, the number of clients covered by DSGI with type 1 diabetes claims decreased by 4 percent from 2,713 to 2,618.

Similarly, the total DSGI costs for type 2 diabetes (adults and youth combined) increased by 18.3 percent, from $12.8 million in 2016 to $15.2 million in 2017. During this same time, the number of clients covered by DSGI with one or more type 2 diabetes claims did not change greatly (30,381 in 2016 vs. 30,276 in 2017).

From 2016 to 2017, the average cost per client covered by DSGI with one or more type 1 diabetes claims increased by 19.3 percent, while the average cost per client covered by DSGI with one or more type 2 diabetes claims increased by 18.8 percent (Table 6).

Table 6. Total Cost for Adults and Youth Covered by DSGI with One or More Diabetes Claims during the Calendar Year, 2016-2017

Year	Type 1		Type 2	
	Total	Average per Client	Total	Average per Client
2016	$4,843,357	$1,785	$12,801,692	$421
2017	$5,577,248	$2,130	$15,150,577	$500

Medicaid Costs

In SFY 2016-17, the total Florida Medicaid cost of diabetes was $248 million. Table 7 provides a comparison of total and average costs for select chronic conditions including hypertension, any diabetes, COPD, coronary heart disease, congestive heart failure, asthma less than 20 years of age, and asthma 20 years of age and older. COPD is the most costly condition, totaling more than $357 million in Medicaid spending in SFY 2016-17. Hypertension and diabetes are the second and third most costly conditions, respectively. The Medicaid cost per member with diabetes was $1,652. It is important to remember that diabetes is a risk factor for, and a common co-morbid condition of, coronary heart disease. Expenditures from Managed Care Plans are self-reported in the encounter data and do not drive payments to the Managed Care Plans, so caution should be used when using this information to draw inferences.

Table 7: Medicaid, Cost Comparison of Chronic Conditions, SFY 2016-17

Chronic Condition	Total Medicaid Spending	Member Count	Cost Per Member
Diabetes - any	$ 248,266,564	150,290	$1,652
Congestive Heart Failure	$ 131,177,690	23,159	$5,664
Coronary Heart Disease	$ 115,667,690	39,798	$2,906
COPD and Allied Conditions	$ 357,790,458	303,047	$1,181
Hypertension	$ 350,453,655	232,614	$1,507
Asthma - 20 and Over	$ 25,224,313	41,732	$ 604
Asthma - Less than 20	$ 64,221,254	159,448	$ 403

Notes: *Includes all dually eligible recipients, all MCO and fee-for-service populations*
Source: *MDA SQL claims and encounter tables as of August 8, 2018*

Table 8 shows the number of Florida Medicaid members with diabetes from SFY 12/13 to SFY 16/17. The number of type 1 diabetes cases among adults decreased during this period from 35,488 to 17,944, while the number of type 1 diabetes cases among children increased slightly. The number of type 2 diabetes cases among adults increased during this period, while type 2 diabetes cases among children decreased from 4,095 to 2,941. Also, the number of cases for any diabetes slightly increased for both adults and children from SFY 12/13 to 16/17. Changes observed starting in SFY 14/15 should be interpreted with caution, as the transition to ICD-10 coding is likely to have impacted these numbers.

Table 8: Number of Florida Medicaid Members with Diabetes, SFY 2012-13 to 2016-17

	Number of Type 1 Diabetes Cases			Number of Type 2 Diabetes Cases			Number of Cases - Any Diabetes		
State Fiscal Year (SFY)	**Adults 18 Years of Age or More**	**Children Less than 18 Years of Age**	**Total**	**Adults 18 Years of Age or More**	**Children Less than 18 Years of Age**	**Total**	**Adults 18 Years of Age or More**	**Children Less than 18 Years of Age**	**Total**
SFY 12/13*	35,488	3,366	38,854	156,750	4,095	160,845	164,664	5,519	170,183
SFY 13/14*	34,447	3,516	37,963	167,875	4,540	172,415	175,174	5,939	181,113
SFY 14/15*	21,860	3,633	25,493	140,739	3,958	144,697	146,474	5,840	152,314
SFY 15/16	19,228	3,818	23,046	140,038	3,427	143,465	146,442	5,900	152,342
SFY 16/17	17,944	3,778	21,722	157,250	2,941	160,191	163,822	5,585	169,407

Notes: *Utilizes both fee-for-service (FFS) claim data and managed care organization (MCO) encounter data. Does not include region 99. Care should be taken in drawing inferences based on the encounter data. Gestational diabetes not included in this analysis. Run date - 8/6/2018.*

**** Changes in distinct recipient counts are likely due to more complete reporting of encounter claims since the last data request.***

Source: *MDA SQL claims and encounter tables as of August 8, 2018*

State Agency Programs and Activities

The programs and activities implemented by each state agency help prevent diabetes from occurring, improve the lives of people in Florida who have diabetes, and reduce the financial burden of diabetes. The programs, funding sources, and cost savings realized as a result of state agency initiatives are described below.

Florida Department of Health

The Florida Department of Health (DOH), Bureau of Chronic Disease Prevention (Bureau) promotes evidence-based programs for diabetes prevention and education, increases provider awareness and referrals to these programs, and promotes clinical best practices. From 2013-2018, the bureau received funding from the Centers for Disease Control and Prevention (CDC) through the “State Public Health Actions to Prevent and Control Diabetes, Heart Disease, Obesity and Associated Risk Factors and Promote School Health (DP13-1305)” grant, referred to as 1305, to support diabetes prevention and diabetes self-management goals and objectives.

The Bureau began a new five-year cooperative agreement with CDC, “Improving the Health of Americans Through Prevention and Management of Diabetes and Heart Disease and Stroke” on September 30, 2018. Under this agreement, the Bureau now receives $1.4 million annually to address diabetes, a slight increase of approximately $287,000 per year from the previous cooperative agreement. This new funding allows the Bureau to continue and expand efforts around implementing and evaluating evidence-based strategies to prevent and manage cardiovascular disease (CVD) and diabetes in high-burden populations/communities. For the past two years, the Bureau has received approximately $187,000 per year as a subrecipient of a CDC cooperative agreement granted to the National Association of Chronic Disease Directors (NACDD), titled “Scaling the National Diabetes Prevention Program in Underserved Areas (1705).”

Health Systems Interventions and Community-Clinical Linkages

The Bureau’s diabetes efforts largely focus on health systems interventions and community-clinical linkages. Efforts are aligned with cardiovascular disease efforts when possible to create synergy between partners and maximize staff, resources, and funding as these two chronic diseases share risk factors, approaches for prevention, and often occur concurrently.

Health systems interventions focus on increasing awareness and use of evidence-based practices among health care professionals to prevent or enable early detection of disease, reduce risk factors, and manage complications. This includes the implementation of quality improvement efforts, maximizing the use of electronic health records, establishing referral systems to evidence-based programs, and implementing a team-based approach to care that engages non-physicians, such as nurses, community health workers, and pharmacists.

Community-clinical linkage interventions include strategies that establish and strengthen connections between community organizations and settings and clinical services to ensure that people with or at high risk of chronic diseases have access to the resources they need to prevent or manage these diseases. This approach recognizes that people need to be aware of and connected to the tools that

can empower them to improve their quality of life, delay the onset or progression of disease, avoid complications, and reduce the need for more health care with appropriate education and support systems. The Bureau focuses significant effort on increasing the awareness and availability of, participation in, and referral to National Diabetes Prevention Programs and Diabetes Self-Management Education Programs.

Diabetes Prevention

The National Diabetes Prevention Program (DPP) is a year-long evidence-based program that emphasizes healthy eating and active living, based on a research study that proved type 2 diabetes can be prevented in people who are at high risk. Certain factors such as being diagnosed with prediabetes, having family history of diabetes, having ever had gestational diabetes, being of older age, and being obese increase the risk of developing type 2 diabetes. The study demonstrated that participants losing 5 to 7 percent of their body weight reduced their risk of developing type 2 diabetes by 58 percent; among participants over age 60, their risk was reduced by 71 percent.[3]

Additional research supports the use of lifestyle/behavior change programs, including the DPP:

- The United States Preventive Services Task Force (USPSTF) recommends referring adults who are overweight or obese and have additional cardiovascular risk factors (e.g., unhealthy cholesterol levels, high blood pressure, cigarette smoking, lack of physical activity) to intensive behavioral counseling interventions that promote a healthful diet and physical activity. The DPP is one of two programs mentioned in the guidelines that can be delivered in either primary care or community settings.[21]
- The Community Preventive Services Task Force recommends combined diet and physical activity programs for people at increased risk of type 2 diabetes. The Community Guide's systematic review of 10 studies showed that DPPs yielded a median quality-adjusted life year of $13,761.[22]

The CDC's 6|18 initiative focuses on connecting health care purchasers, payers, and providers with CDC researchers, economists, and policy analysts to find ways to improve health and control costs for six high-burden health conditions through implementation of effective interventions. Diabetes is one of those six conditions, and the goal is simple: "Expand access to the National Diabetes Prevention Program (the National DPP), a lifestyle change program for preventing type 2 diabetes." [23]

Health insurance coverage for the National DPP is growing across the nation. As of 2016, two state Medicaid Programs, Montana and Minnesota and more than 60 commercial health plans offered the NDPP as a covered benefit. In addition, more than 3 million state and other public employees and dependents throughout 11 states had the NDPP as a covered benefit.[18] As of April 1, 2018, eligible Medicare beneficiaries have the Medicaid DPP expanded model as a covered benefit.

To ensure fidelity to the evidence-based DPP, the CDC recognizes diabetes prevention programs that use an approved curriculum that meets the duration, intensity, and reporting requirements described in the Diabetes Prevention Recognition Program Standards.[24] Programs can be added to the registry as "pending recognition" while they collect two years' worth of data showing participants achieved the desired results of 5 to 7 percent reduction in body weight over the year-long course. Currently, there

are 74 Florida DPPs listed on the CDC registry, a substantial increase from 31 in 2014. The Bureau promotes the National DPP criteria by:

- Encouraging CHDs to establish or partner with community organizations to establish a DPP and to develop referral policies with local health systems and physicians
- Increasing awareness of prediabetes and the DPP through marketing efforts (e.g. infographics, events, websites, webinars)
- Offering funding to organizations to establish CDC-recognized DPPs and/or to conduct health care provider outreach and establish referral systems into existing programs. During state fiscal year 2017-18, $108,716 was awarded to 14 organizations serving 19 counties.

Diabetes Prevention in Underserved Areas

Through the 1705 partnership with the NACDD, the Bureau has partnered with the Bay County Health Department (CHD) to provide training, support, and technical assistance to five rural counties in north Florida on establishing an implementing a DPP. During the first year of the grant (October 2017 – September 2018), 16 CHD staff were trained as lifestyle change coaches and all five CHDs (Baker, Gadsden, Putnam, Union, and Washington) have received pending recognition status from the CDC Diabetes Prevention Recognition Program. Because of the diverse population within these counties, many are utilizing innovative and non-traditional methods to recruit, promote, and sustain their programs.

In total, 16 CHDs are listed on the CDC's registry with four (Bay, Escambia, Lake, and Santa Rosa) having achieved full recognition. The Bureau plans to continue offering training and support to additional CHDs to establish DPPs, building off of the achieved successes and working toward the goal of having DPPs available in every county.

DPP State Engagement Meeting

In April 2018, with support from the NACDD, the Bureau hosted a Diabetes Prevention Statewide Engagement Meeting, bringing together more than 120 partners representing over 50 organizations including health systems, community organizations, non-profit organizations, universities, insurers, and businesses. The first day was dedicated to learning sessions to increase awareness of the national and state diabetes prevention landscapes and opportunities and the second day focused on developing a state action plan to address the four drivers of DPPs:

- Increasing awareness of prediabetes and enrollment in DPPs
- Increasing screening and testing of people with prediabetes and referrals to DPPs
- Increasing public (Medicaid, state employees) and private coverage for DPPs
- Increasing support for and availability of DPPs in the state

NACDD is continuing to provide technical assistance and support as Florida finalizes and implements this state action plan which is scheduled to launch in January 2019. Meetings are ongoing with Leavitt Partners to conduct interviews with five key organizations that will help inform and drive DPP efforts forward in Florida. For more information on this effort and presentations from this meeting please visit flhealth.gov/diabetes.

Diabetes Self-Management Education (DSME)

For people who have diabetes, taking a quality DSME course can delay or prevent complications such as kidney failure, blindness, and lower extremity amputations.[5] DOH supports quality DSME that meets the national standards by offering subawards to organizations that want to build infrastructure to obtain recognition by the American Diabetes Association (ADA) or accreditation by the American Association of Diabetes Educators (AADE). Recognition or accreditation signifies that the organization offers quality DSME. Only organizations with recognition or accreditation are eligible for reimbursement. The Bureau promotes DSME by:

- Encouraging CHDs to establish or partner with community organizations to establish a DSME program and to develop referral policies with local health systems and physicians
- Increasing awareness of diabetes and the benefits of DSME through marketing efforts (e.g. infographics, events, websites, webinars)
- Offering subawards to organizations to build their DSME program's infrastructure toward accreditation or recognition, including establishment of satellite sites in counties with limited access to quality DSME. A unique feature of the mini-grant program is provision of a mentor with auditing experience in partnership with the Florida Diabetes Alliance for either the ADA recognition process or the AADE accreditation process. During state fiscal year 2017-2018, $97,230 in funding was provided to 10 organizations serving 16 counties.
- Promoting awareness of DSME via telehealth as a mechanism for increasing access to quality DSME in rural communities
- Providing subawards to organizations in Florida to serve as a provider or consumer site for providing DSME via telehealth

County Health Departments

Healthiest Weight Florida (HWF) is a public-private collaboration bringing together state agencies, not for profit organizations, businesses and entire communities to help Florida's children and adults make informed choices about healthy eating and active living. HWF provides funding through the Preventive Health and Health Services Block Grant to Florida's 67 CHDs to implement policy, systems, and environmental interventions to improve access to healthy foods, increase opportunities for physical activity, and promote chronic disease prevention activities. During state fiscal year 2017-2018, each CHD received $35,000 to complete activities promoting best practices related to physical activity, nutrition, and chronic disease prevention in the following healthy places: birthing facilities, early care and education centers, schools, worksites, health care settings, and communities. In health care settings, CHDs are tasked with promoting chronic disease prevention strategies and programs, specifically addressing high blood pressure, heart disease, diabetes, and associated risk factors. CHDs that selected health care settings as a healthy place are required to complete the following activities specifically related to diabetes prevention and management:

- Implement a policy within the CHD to refer patients with prediabetes to a CDC-recognized DPP and to follow the AADE algorithm for referring patients with diabetes to a DSME Program.
- Partner with a health care provide (external to DOH) to increase referrals of eligible patients to a CDC-recognized DPP and to AADE-accredited or ADA-recognized DSME programs.

The Bureau provides CHDs with guidance documents, ongoing technical assistance, data, collateral materials, and information on diabetes educational and grant opportunities throughout the year.

Health Equity – Persons with Disabilities

Health equity is achieved when all individuals have the opportunity to attain their highest level of health. The Bureau has participated in various health equity trainings to be better educated and equipped on aligning interventions to the needs of different populations. The Florida Disability and Health Program, housed within the Bureau, is focused on increasing provider cultural competency to work with persons with disability and increasing inclusivity of all chronic disease efforts. This team recognized that the standard DPP curriculum did not take into consideration the needs for persons with mobility limitations to participate. With support and partnership from the National Center on Health, Physical Activity, and Disability (NCHPAD) and the Lakeshore Foundation, the Florida Disability and Health Program is working to build state and local Inclusive Health Coalitions in three counties and pilot testing NCHPAD's inclusive "Prevent T2 for All" DPP curriculum.

Diabetes Advisory Council

The Bureau acts as an administrative liaison to the DAC as required by statute. Staff fulfill the following support functions:

- Facilitate conference calls, webinars, and an annual in-person meeting (with funding from the Preventive Health and Health Services Block Grant)
- Publicly notice all DAC meetings and subcommittee meetings
- Document and disseminate meeting minutes/summary of actions and decisions
- Assist with travel arrangements
- Act as liaison with the DOH Boards and Councils office and the Governor's appointments office
- Assist in development of the DAC's annual recommendations to the State Surgeon General
- Plan for the DAC chair's annual meeting with the State Surgeon General to discuss recommendations
- Facilitate the development and coordination of the biennial report to the Florida Legislature

Department of Management Services - Division of State Group Insurance

The Division of State Group Insurance (DSGI) procures and administers a $2.5 billion package of tax-favored insurance benefits for members in the State Group Insurance Program, including health, life, disability, dental, vision, and other supplemental plans. DSGI covers active and retired employees, their eligible dependents, and surviving spouses. Fifty-six employers participate in the program, including the executive, legislative, and judicial branches of government, the State University System, and statutorily defined agencies.

Currently, DSGI contracts with and oversees five health plans, offering both preferred provider organization (PPO) or health maintenance organization (HMO) services, and a pharmacy benefits manager to provide health and pharmacy coverage to members. DSGI health plans offer a variety of disease management and wellness programs as well as online resources and health compliance reminders. The goals in providing these extensive services and resources are to encourage personal health management, empower plan members to be proactive about their health, and provide those struggling with chronic conditions with tools to manage their diseases.

DSGI offers health plans with a minimum level of benefits, including age-based and gender-based wellness benefits. These benefits are statutorily defined as “aerobic exercise, education in alcohol and substance abuse prevention, blood cholesterol screening, health risk appraisals, blood pressure screening and education, nutrition education, program planning, safety belt education, smoking cessation, stress management, weight management, and women’s health education.”

The health status of members covered under the program is compiled annually in the Population Health Management Report, prepared for DSGI by a contracted vendor, to identify health risks affecting the state group population and to monitor year-over-year trends for the program.

Among members who sought care in 2017, the report identified weight-related conditions, including type 2 diabetes and hypertension, among the most common diagnoses for 2017 in both number of claims and members affected.

Table 9. Common Diagnoses and Claims among DSGI Members, 2017

Diagnosis	Number of Members	Number of Claims
Hypertension	58,373	139,043
Type 2 diabetes mellitus	23,484	66,594

A snapshot of members covered by the program in 2017 indicates that many members who are affected by chronic health conditions are affected by more than one chronic condition.

Table 10. Number of Chronic Conditions among DSGI Members, 2017

Number of Chronic Conditions	Equal to 0	Between 1 and 2	Between 3 and 4	Between 5 and 6	Greater than 6
PPO Members	63,796	43,151	23,729	14,020	17,848
HMO Members	95,640	61,913	26,742	11,742	8,685

Additionally, the report highlighted the number of claims, hospital admissions, and financial implications of weight-related conditions based on members who sought care during the 2017 plan year. Members with co-morbidities may accrue claims in multiple diagnosis categories.

Table 11. DSGI Member Claims, Hospital Admissions, and Costs, 2017

Diagnosis	Number of Members with Claims		Number of Admissions		Average Cost Per Patient		Cost* (in millions)	
Health Plan	**PPO**	**HMO**	**PPO**	**HMO**	**PPO**	**HMO**	**PPO**	**HMO**
Cardiovascular	18,292	10,494	2,027	1,286	$1,808	$4,728	$33.1	$46.9
Diabetes	19,192	19,589	2,317	2,281	$2,149	$3,370	$41.3	$66.0
Weight-related conditions	31,287	38,631	1,442	2,117	$1,204	$1,815	$37.7	$70.1

** The cost calculation from the Population Health Management Report includes fully insured and self-insured plans. This total does not reflect plan payment.*

In response to the 2015 Population Health Management Report, which showed similar data related to chronic disease in the state group insurance program population, DSGI launched a diabetes prevention pilot program on April 1, 2016, in the Tallahassee area. With support from Florida Blue and Capital Health Plan, the pilot went on for two years and provided 347 participants access to the Diabetes Prevention Program, for a year, at no cost to the state. In total, participants lost 1,449 pounds through the pilot program.

During the 2017 Legislative Session, the Florida Legislature directed DMS to initiate a pilot program to provide coverage for the treatment and management of obesity and related conditions. Following direction from the Florida Legislature, DSGI began work in July 2017 to implement a weight management pilot program.

DSGI launched the Weight Management Pilot Program with an application period in late 2017. In total, 797 applications were received and after a thorough review, 762 participants were approved. Beginning January 1, 2018, participants had access to prescription drug coverage for FDA-approved drugs for chronic weight management and were able to enroll in a department-approved wellness program. All wellness programs were lifestyle change programs listed on the CDC's website as having received CDC-Recognition or being in the process of applying for recognition. During the course of the year, 255 participants, or 33 percent of all participants, provided a mid-year report and 211 participants, or 28 percent of all participants, submitted an end-of-year report. Results at the end of 10 months were as follows:

- Participants reported a total weight loss of 3,528 pounds – an average of 16.8 pounds per participant
    - 121 participants achieved a weight loss of 5 percent or more
    - 73 participants achieved a weight loss of 10 percent or more
- 165 participants reduced their Body Mass Index (BMI) – the average BMI reduction was 2.8
    - 24 participants moved from an obese BMI to an overweight BMI
    - 7 participants moved from an obese BMI to a healthy BMI
    - 3 participants moved from an overweight BMI to a healthy BMI
- 55 participants saw improvements in blood pressure
- Participants saw improvements in cholesterol; 35 participants improved their LDL cholesterol, 14 participants improved their HDL cholesterol, 32 participants improved their Triglycerides

- 109 participants reported having improved their A1C. Of those, 35 participants reported having improved their A1C from either prediabetic (A1C between 5.7 and 6.4 percent) or type 2 diabetic level (A1C over 6.5 percent) to a normal A1C (A1C below 5.7 percent)

Improvements in health status, such as weight loss and the prevention of type 2 diabetes, have the potential to lower future health care costs. To date, the financial impact of this pilot to the state group insurance program is $663,039.59; however, it is important to note that this number may change when final data becomes available.

Agency for Health Care Administration

Definitions

- **Disease Management (DM) —** A system of coordinated health care intervention and communication for populations with conditions in which patient self-care efforts are significant. Disease management supports the physician or practitioner/patient relationship and plan of care; emphasizes prevention of exacerbations and complications using evidence-based practice guidelines and patient empowerment strategies, and evaluates clinical, humanistic and economic outcomes on an ongoing basis with the goal of improving overall health.
- **Health Assessment —** A complete health evaluation combining health history, physical assessment, and the monitoring of physical and psychological growth and development.
- **Healthy Behaviors —** A program offered by Managed Care Plans in accordance with s. 409.973(3), F.S., that encourages and rewards behaviors designed to improve the enrollee's overall health.
- **Incentive —** Related to an MMA Healthy Behaviors Program, something offered to an enrollee that encourages or motivates him or her to take action. For example, an incentive may be offered for enrolling in a series of educational classes focused on the target behavior. Incentives should be linked to effective engagement strategies. For example, providing a financial incentive to address a substance abuse problem must be supported by an effective, evidence-based approach/program.
- **Intervention —** Related to an MMA Healthy Behaviors Program, something offered to an enrollee that encourages or motivates him or her to take action. For example, an incentive may be offered for enrolling in a series of educational classes focused on the target behavior. Incentives should be linked to effective engagement strategies. For example, providing a financial incentive to address a substance abuse problem must be supported by an effective, evidence-based approach/program.
- **Reward —** Related to an MMA Healthy Behaviors Program, if used in the program, something that may be offered to an enrollee after successful completion of a milestone (meaningful step toward meeting the goal) or goal attainment. A reward should be linked to positive behavior change. For example, a reward may be offered after successful completion of a series of educational classes focused on a target behavior.

In Florida, the Agency for Health Care Administration (Agency) is responsible for the oversight and administration of the Medicaid program. The Agency successfully completed the implementation of the Statewide Medicaid Managed Care (SMMC) program in 2014. The Agency has procured new health plans, and they are slated to go live in late 2018/early 2019 operating under the new 2018-2023 SMMC contract. Under the SMMC program, most Medicaid recipients are enrolled in a health plan. Nationally accredited health plans were selected through a competitive procurement for participation in the program.

The Agency is committed to collaborating with stakeholders to help reduce the burden of diabetes in the state of Florida. To support the legislative requirements, the Agency conducted a qualitative systematic review of the health plans' disease management (DM) programs and policies operating under the new 2018-2023 SMMC contract and analyzed the utilization of diabetes self-management education.

Disease Management (DM) Program Overview

Medicaid health plans are required to implement disease management (DM) programs that address asthma, cancer, diabetes, hypertension, mental health, and substance abuse. The DM programs incorporate a system of care coordination to ensure a comprehensive assessment of identifying

Medicaid enrollees with primary chronic diseases, comorbid conditions, and special health care needs.[25]

Plans have DM program policies and procedures that address the following:

- Enrollee identification process
- Enrollee education on diagnosis and self-management
- Evidence-based practice guidelines and informed decision making
- Effective communication (feedback) with providers, enrollees, and health plan(s)
- Process evaluation and improvement of clinical outcomes

Diabetes Management Program Cost and Evaluation

The Florida Medicaid program generates capitated payments to managed care plans, which, in turn, make payments to network providers for services rendered and allocates funding to programs.[26] Health plans are required to evaluate their DM programs at least annually, and use findings to verify compliance, identify areas for improvement, and support quality initiatives. The Agency is currently developing a streamlined process to determine program effectiveness by plan.

Diabetes Disease Management (DDM) Program

The Diabetes Disease Management (DDM) Programs in Medicaid managed care provide secondary and tertiary prevention interventions using a multidisciplinary team-based and system-wide approach. Participation is optional, and an enrollee may opt out at any time.

Medicaid Coverage – Diabetes Prevention and Management

Healthy Behaviors Programs

Pursuant to section 409.973(3), Florida Statutes, Florida Medicaid Managed Medical Assistance (MMA) plans must establish and maintain programs to encourage and reward healthy behaviors. The Agency must approve each program prior to implementation.

The Managed Care Plan may, through its Healthy Behavior programs, deploy a number of interventions as part of the overall therapeutic process. Examples of interventions:[27]

- Series of diet and nutrition counseling services
- Diabetes outpatient self-management education sessions
- Series of behavior therapy or lifestyle change classes
- Meal planning services (e.g., NutriSystem®)
- Provision of medication therapy management support services provided by a community health worker
- Diabetes prevention programs with a status of recognized, pending recognition, or preliminary recognition on the CDC's Diabetes Prevention Recognition Program registry
- Gym or YMCA memberships

Rewards and or incentives are provided to enrollees who complete milestones and the requirements of the Healthy Behaviors program(s). Plans must limit rewards or incentives to a value of twenty dollars.

There are exceptions to this monetary limit based on program completion of a series of health education classes, activities, and participation in multiple healthy behavior programs.

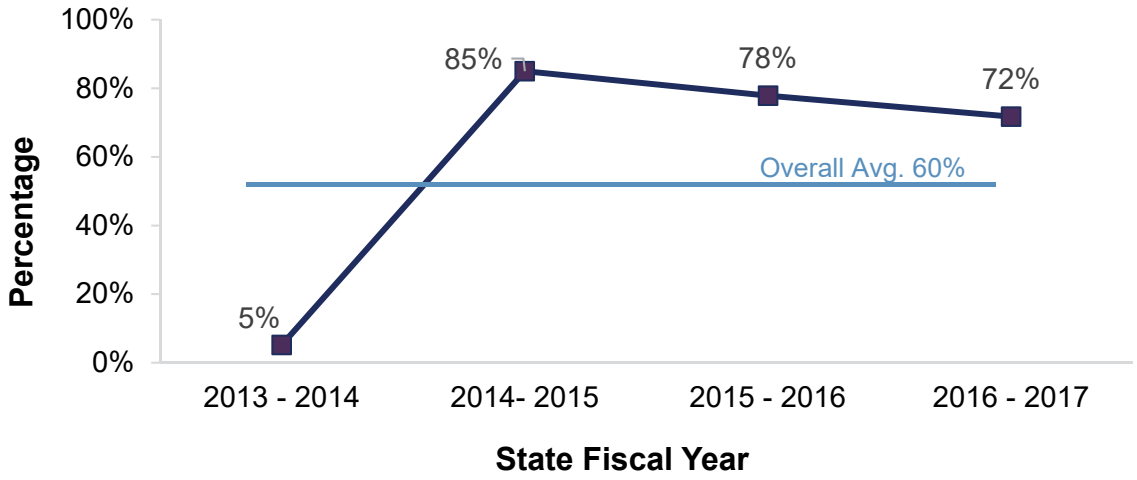
Diabetes Self-Management Education (DSME)

The Agency is required by section 627.65745(3), Florida Statutes, to adopt standards for diabetes outpatient self-management training and education (DSMT/E) services, taking into consideration standards approved by the ADA necessary to treat diabetic enrollees. MMA plans have adopted and operate according to clinical practice guidelines recommended by the ADA.[28]

Medicaid – DSME Utilization

Medicaid managed care plan enrollees with diabetes may receive outpatient DSMT/E services as a covered benefit to help manage and control their chronic condition. Figure 22 shows the percentage of Medicaid recipients with diabetes who had an encounter or claim for DSMT/E services (G0108 and G0109) from SFY 2013-14 – 2016-17. While there were year to year fluctuations, the four-year average was 60%.[29]

Figure 22: Percentage of Medicaid Recipients with Diabetes Who Had an Encounter or Claim for DSME Services, SFY 2013-2017



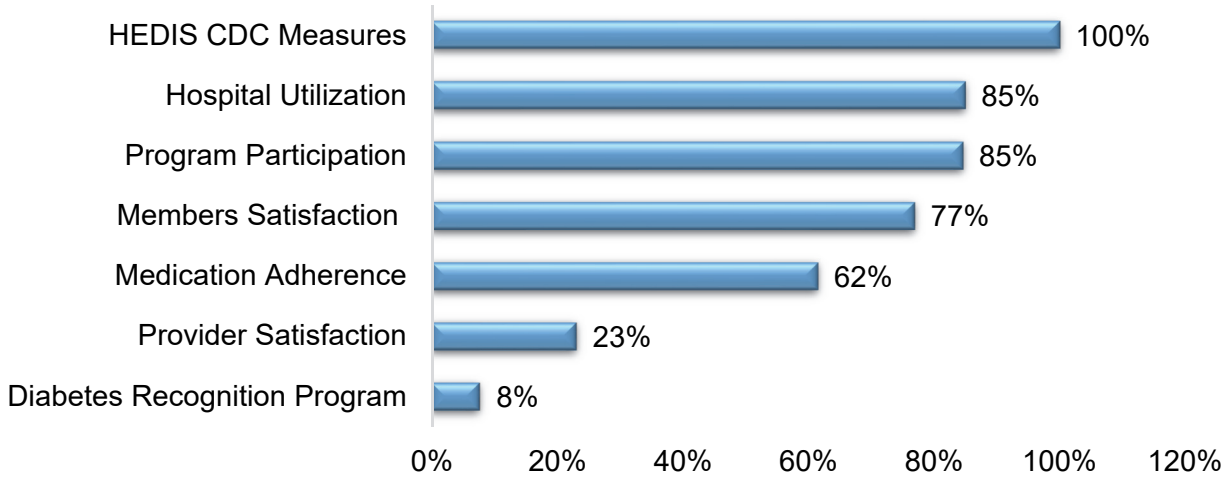
Source: Florida Medicaid Data Analytics, Data Solutions Unit, 2018

- ◆ *Encounter data are electronic records of Medicaid-covered services provided to enrollees of, and paid by, a capitated health plan*
- ★ DSME services include individual and group sessions using procedure codes G0108 and G0109, respectively.

Diabetes Disease Management Program Effectiveness

MMA plans may measure the effectiveness of their DDM programs using a variety of indicators.[30] Figure 23 shows indicators for program effectiveness used by MMA plans. Healthcare Effectiveness Data and Information Set (HEDIS) *Comprehensive Diabetes Care (CDC)* measures were used by 100 percent of plans. Other frequently used measures of effectiveness are hospital utilization rates and program participation (85%), member satisfaction (77%), and medication adherence rates (62%).

Figure 23: Diabetes Management Program Effectiveness Indicators



Source: Plan-reported through Diabetes Disease Management Survey

HEDIS Measures

Florida Medicaid managed care plans showed improvements from calendar years (CY) 2015 through 2017 on all HEDIS measures related to diabetes care provided to adults, as shown in Table 9.

Table 12: Florida Medicaid Managed Care HEDIS Diabetes Measures Calendar Years 2015-2017

Comprehensive Diabetes Care Measure Components	CY 2015	CY 2016	CY 2017
Hemoglobin A1c (HbA1c) Testing	81%	82%	86%
HbA1c Poor Control (>9.0%)•	48%	45%	41%
HbA1c Good Control (<8.0%)	43%	44%	49%
Eye Exam (Retinal) Performed	51%	56%	55%
Micro-albumin/Nephropathy Test	92%	91%	93%

Source: Plan-reported HEDIS data, certified by National Committee for Quality Assurance-certified HEDIS auditors
•Comprehensive Diabetes Care Measure – HbA1c Poor Control is an inverse measure. Lower rates are better.

Promising Interventions

Table 10 below provides a list of promising interventions by DDM program goal that plans are implementing to prevent and control diabetes.[24] To improve health outcomes for enrollees with diabetes, interventions focus on common goals that include, but are not limited to:

- Access to services
- Care coordination
- Diabetes education/self-monitoring
- Patient compliance (medical visits and medication adherence)
- Referral to diabetes community programs

Table 13: Promising Interventions by DDM Program Goal

Promising Intervention	Program Goal	% of Plans that Implement
Physician Care Gap Reports	Patient compliance	100%
Family/Caregiver Support	Patient compliance	62%
Healthy Behaviors Program	Access to services Referral to diabetes community programs	54%
Biometric Monitoring/ Glucometers	Diabetes education/self-monitoring	31%
Home Visiting Initiatives	Access to services Care coordination Patient compliance	23%
Social Determinants of Health Initiatives	Access to services Diabetes education/self-monitoring Patient compliance	15%
Telehealth	Access to services Diabetes education/self-monitoring Patient compliance	8%

Source: Plan-reported through Disease Management Programs and Policies, 2018

Recommendations and Action Items to Address Diabetes

Type 2 diabetes, along with obesity, may yet be the greatest chronic disease epidemic in the history of human existence.[31] People with this condition should have access the most up-to-date information and treatment options.

The Diabetes Advisory Council (DAC) has identified a broad range of recommendations to address preventing the development of new cases of diabetes and improving the management for Floridians of all ages living with diabetes. These recommendations will highlight specific actions to support prevention of type 2 diabetes and gestational diabetes, and awareness and control of all types of diabetes.

These recommendations and action items are supported by evidence-based research, national standards developed by the American Association of Diabetes Educators and the American Diabetes Association, and other diabetes state legislative reports. These recommendations and action items are consistent with national and state efforts to prevent and control diabetes such as section 385.203, Florida Statutes, which mandates the DAC and the Florida Diabetes Strategic Plan 2015-2020.

Cost and no-cost strategies are recommended for implementation.

DAC Recommendation # 1:

Increase awareness about the signs and symptoms of prediabetes, type 1, and type 2 diabetes to reduce the number of new cases of type 2 diabetes and to promote early identification and diagnosis of type 1 and type 2 diabetes.

Primary Focus: Implement an awareness campaign that will educate people about the signs and symptoms that indicate the risk or presence of diabetes, and steps to reduce risks and negative health outcomes.

We recommend using an Ad Council campaign to increase awareness of prediabetes and the signs and symptoms of diabetes. In partnership with the Centers for Disease Control and Prevention (CDC), the Ad Council developed radio, print, and television materials which states may use; however, placement of these materials must be non-paid. Budget can be used to produce materials for distribution to media outlets and for placement in other locations in which health care providers work, including closed-circuit television in doctor's offices waiting rooms. Another resource is the CDC's in-house toolkit, Prevent T2 Diabetes, which can be tailored to Florida or to a specific region, county, or community. A third resource that is being promoted in Florida is the Prevent Diabetes STAT campaign to increase awareness of prediabetes among patients, health care providers, employers, and insurers. Additionally, a website, fldiabetesprevention.com, was developed through a contract between the Department of Health and the University of South Florida. Camera-ready copies may be downloaded from the site and tailored as needed.

Rationale: There is a need for more emphasis on Floridians' understanding of the signs and symptoms of diabetes resulting in earlier recognition of the symptoms and, thus, earlier diagnosis with

consequent decrease in the development of comorbidities. The American Diabetes Association promotes awareness of the symptoms of diabetes, as early detection and treatment of diabetes can decrease (cost of hospitalization and) the risk of developing the complications of diabetes. Although type 1 diabetes cannot be prevented, knowing the signs and symptoms is especially important to be able to diagnose the disease, begin treatment as early as possible, and reduce the risk of further complications. In addition, as nine out of ten individuals with prediabetes are unaware of their condition, there is a need to increase awareness of prediabetes and the opportunities to reduce the risk of developing type 2 diabetes.

Budget Request

Optimal Funding Level: $5,000,000 annually

Outcomes Achievable at this Amount: $5,000,000 will be used to create a statewide awareness campaign that addresses all types of diabetes. This level of funding will allow diabetes awareness messages to be televised throughout the year with maximum saturation in priority regions. Out of home ads such as billboards, bus stops, and health magazines and publications are also achievable within this budget. Social media campaigning by means of Twitter, Facebook, and Instagram will allow an effective reach of our target audience. Digital advertising is also possible through websites, online ads and online banners.

Outcomes Achievable with No Funding: A media campaign is not possible without funding. Existing no-cost opportunities and avenues will continue to be used.

Action Items:

1. The Legislature will provide funding to support creation of awareness campaign.
2. DOH will contract with a marketing firm to develop, launch, and manage an awareness campaign incorporating available and new resources.
3. The marketing contractor will work with DOH, other agencies, and state providers to create an awareness campaign for all Floridians and visitors to be aware of prediabetes and the signs and symptoms of diabetes.
4. The marketing contractor will utilize Facebook, Twitter, and other forms of social media platforms to promote the awareness campaign.
5. The marketing contractor will provide infographics, handouts, recordings, videos, and public service announcements to reach Floridians via print, radio, and television.
6. The marketing contractor will create poster materials to place in locations such as schools, grocery stores, county health departments, and public libraries to promote the campaign.
7. The county health departments will form partnerships with community centers and faith-based organizations to extend the campaign’s reach to increase health equity among all Floridians.
8. DOH will develop and maintain a website that provides a central location for education, support, and resources for all types of diabetes.

DAC Recommendation # 2

Facilitate compliance with federal and state policies that prohibit discrimination in school or day care settings by allocating funding for registered nurses to coordinate diabetes care in all school districts in Florida.

Primary Focus: To ensure children with diabetes have access to safe and appropriate patient-centered care at public and private schools and day care facilities statewide.

Rationale: Individuals who attend school or day care can face discrimination based on their disability in decisions about where they may go to school, conditions of employment, or admission or access to the goods, programs, or benefits of state or local government or businesses offering public accommodations.[32] Collaboration among pediatricians, families, school staff, school physicians, and school nurses is increasingly critical to optimal health care in school settings. Although state and federal laws prohibit discrimination, shortage of school nurses can hinder the medical management of students with diabetes. School nurses play an important role in interpreting medical recommendations within the educational environment and participate in the development of action plans for diabetes management and safe transportation of a child with such health care needs.

Budget Request

Optimal Funding Level: $4,522,705 per year

Outcomes Achievable at this Amount: At this amount, 67 registered nurses (RNs) can be hired as diabetes care coordinators to coordinate, facilitate, and if needed, provide diabetes care in all of Florida's school districts. These positions would coordinate individualized health care planning, training, delegation, and supervision and monitoring of staff involved in the care of students with diabetes.

Action Items:

1. Each county health department will receive funding to obtain the services of a registered nurse to serve as the diabetes care coordinator for the county/school district.
2. The diabetes care coordinators will ensure that all students with diabetes in all 67 Florida school districts are afforded the protections and school-based accommodations and care pursuant to:
    a. Section 1002.20(3)(j), Florida Statutes
    b. Florida Administrative Code Rule 6A-6.0253
    c. Nursing Guidelines for the Care and Delegation of Care for Students with Diabetes-2015
    d. Section 504 of the Rehabilitation Act of 1973 (Section 504)
    e. Individuals with Disabilities Education Act (IDEA)
3. To facilitate compliance with the above statutes, rules, and guidelines, diabetes care coordinators will ensure the following for all district students with diabetes:
    a. A current diabetes medical management plan (DMMP) from the student's physician on file at school

b. An individualized health care plan (IHP) consistent with the National Association for School Nurses position statement, Individualized Healthcare Plans: The Role of the School Nurse, 2015

c. An individualized emergency care plan (ECP)

d. School clinic staff and additional school staff trained who have received the following training:
   - Level 1: Diabetes Overview and How to Recognize and Respond to an Emergency Situation
   - Level 2: Diabetes Basics and What to Do in an Emergency Situation
   - Level 3: General and Student-Specific Diabetes Care Tasks

4. A school clinic in compliance with State Requirements for Educational Facilities in which to perform safe diabetes care for students who do not yet self-manage.

5. Accommodations for students with parent and physician authorization to safely self-carry diabetes care supplies, perform glucose testing and self-administer insulin, glucagon or high carbohydrate food or drink in the least restrictive environment.

6. Accommodations for all students with diabetes to use restroom facilities, eat, or drink as necessary to manage their diabetes.

7. Provide a ½ day of training in diabetes management to all school health personnel, that will focus on the basics of diabetes care and the latest technology. This can be done during the week before school resumes after summer break.

Outcomes Achievable with No Funding: With no additional funding, school RN staffing levels cannot be increased and no progress will be made toward meeting the standards recommended by NASN, AAP, and AAN. Moreover, not increasing RN staffing as the number of students with diabetes and other chronic health conditions requiring daily management at school continues to increase will likely decrease the level of safe and appropriate care to which students have access. This will also limit RN-directed self-management instruction and healthy lifestyle interventions consistent with reducing long-term burden on the state's health care systems.

DAC Recommendation # 3:

Fund a direct appropriation to the Diabetes Advisory Council (DAC) to perform the functions mandated by statute.

Primary Focus: Direct appropriation to the DAC would enhance their productivity and effectiveness.

Rationale: Meeting face-to-face facilitates the DAC's ability to complete the following activities required by statute:

- Biennial legislative report on public health and financial consequences of diabetes and the cost and effectiveness of diabetes programs and activities implemented by state agencies in Florida.
- Annual recommendations to the State Surgeon General regarding the public health aspects of the prevention and control of diabetes.
- Conduct the business of the council, including strategic planning and collaboration with state and national partners in diabetes prevention and control.

Budget Request

Optimal Funding Level: $52,000 per year

Outcomes Achievable at This Amount: This amount would allow four face-to-face meetings per year, including facility rental fees and travel reimbursement for DAC members, staff, and a limited number of experts invited to make presentations on relevant diabetes issues. This funding would also facilitate collaboration with key state level partners such as the Bureau of Chronic Disease Prevention and the School Health Services Program to increase alignment in diabetes efforts.

Outcomes Achievable with No Funding: Without funding, quarterly face-to-face meetings are not possible. The DAC will continue to meet via conference calls and/or webinars. This would greatly limit the effectiveness of the DAC in its statutorily mandated functions.

Action Items:

1. Provide funding appropriation to the DAC for face-to-face meetings.
2. Develop a calendar of face-to-face meetings.
3. Develop annual recommendations document to the State Surgeon General regarding the public health aspects of prevention and control of diabetes.
4. Perform strategic planning and collaboration with state and national partners in diabetes prevention and control.
5. Develop a biennial legislative report on public health and financial consequences of diabetes.
6. Include in the biennial legislative report the cost and effectiveness of diabetes programs and activities implemented by state agencies in Florida.

DAC Recommendation # 4

Increase access to metabolic bariatric surgery for extremely obese patients with type 2 diabetes.

Primary Focus: A legislative mandate that all carriers admitted to the state of Florida cover metabolic bariatric surgery for severely obese (BMI>35) patients with type 2 diabetes mellitus.

Rationale: Type 2 diabetes, along with obesity, may yet be the greatest chronic disease epidemic in the history of human existence.[25] Individuals who develop this disease should have access to all effective treatment options.[33] There have been 11 randomized controlled trials (RCTs) demonstrating that bariatric/metabolic surgery achieves superior glycemic control and reduction of cardiovascular disease risk factors compared with medical/lifestyle interventions. Clinical and mechanistic evidence supports inclusion of metabolic surgery among interventions for people with type 2 diabetes and obesity. Beyond weight-loss related mechanisms, some operations engage mechanisms that improve glucose homeostasis independent of weight loss. The mortality benefit of metabolic surgery among patients with type 2 diabetes and obesity is 92 percent compared to medical treatment. There has been a 41 percent increase in expenditures related to type 2 diabetes over the past five years, according to data compiled by the American Diabetes Association. The expenditure for type 2 diabetes is now $1 out of every $3 spent by Medicare and $1 out of every $5 spent in total health care expenditures.[34] According to the International Diabetes Federation (IDF) statement in 2010, the average cost per individual with type 2 diabetes is between $172,000 and $305,000. The IDF concluded that weight loss (metabolic) surgery is not just cost effective, but results in cost savings.[35] A study completed in South Carolina determined that metabolic surgery resulted in a $2.7 million savings in direct costs per 1000 patients and $5.4 million total savings per 1000 patients over 10 years.[36] Coverage of metabolic surgery does not significantly increase the cost of insurance premiums.[37] Other studies such as the Comprehensive Budget Analysis" published in 2018 by S. Palli, J. Rizzo and N. Heidrich show substantial evidence that providing bariatric surgery coverage may have a modest short-term budget impact increase but would lead to long-term net cost savings in a general population model. The cost savings found were much more pronounced in the T2DM model.[38] The Maryland Commission report studied this issue and determined only a 0.6 percent increase in premium; a recent study of health care exchanges in Oklahoma, Oregon, and Virginia found that premiums either decreased or had a negligible increase.[36, 39]The Florida Medical Association supports legislation to promote access to metabolic bariatric surgery among severely obese (BMI>35) patients with type 2 diabetes.

Budget Request

This recommendation can be implemented with no additional budget.

Action Items:

1. Implement a statutory change that requires all carriers admitted to the state of Florida cover metabolic bariatric surgery for severely obese (BMI>35) patients with type 2 diabetes.
2. Inform insurance carriers of the change.

DAC Recommendation # 5

Require health care professionals to take continuing education units/continuing medical education that focuses on all types of diabetes.

Primary Focus: Implement statutory changes that require at least 2 hours of mandatory continuing education units/continuing medical education (CEU/CME) in diabetes prevention, education, and care for Florida licensure and re-licensure of all health care professionals. Educational modules will encompass symptoms, management, and referral options for all types of diabetes.

Rationale: Certification renewal demonstrates that professionals previously certified have maintained a level of contemporary knowledge in diabetes education. It is the responsibility of each health care professional to stay abreast of changes in certification and/or renewal requirements and to recertify in a timely manner. CEUs and CMEs are important because they provide evidence-based, peer-reviewed instruction on quality diabetes management. Continuing education helps health professionals solve real world problems, advance team-based care, and achieve their institutions' goals.[40] The establishment of this statutory change would be a benchmark for preventing and controlling diabetes.

Budget Request

This recommendation can be implemented with no additional budget. Health care professionals would bear the cost of obtaining CEUs/CMEs. This recommendation requires a statutory change.

Action Items:

1. The Florida Legislature will amend Florida Statutes to include a requirement for health care practitioners in professions regulated by the DOH to receive one semester instruction in diabetes prevention, education, and care to obtain initial licensure and 2 hours of CEU/CME credits in diabetes prevention, education, and care within each renewal period to renew their license.

2. The DOH will update its Continuing Education Tracking System (CEBroker) to reflect the new continuing education requirements.

The DOH Division of Medical Quality Assurance will disseminate information to boards, associations, post-secondary schools and colleges, and health care licensees to notify them of the change in educational requirements.

DAC Recommendation # 6:

Support policy changes to reduce the impact of all types of diabetes.

Primary Focus:

A. Include passage of statewide changes to reimburse Credentialed Diabetes Educators (CDEs) and Board Certified-Advanced Diabetes Management (BC-ADM) educators for providing diabetes self-management education (DSME); increase reimbursement for DSME from Medicaid.

B. Require that all health plans offered to state employees cover CDC-recognized (or pending recognition) diabetes prevention programs (DPP) for employees who are eligible.

Rationale:

A. A credentialed diabetes educator is a health care professional who specializes in teaching individuals with diabetes to develop the necessary skills and knowledge to manage their diabetes and are certified as a diabetes educator by a recognized certifying body.[41] A credentialed diabetes educator can greatly impact the life of a person with diabetes by providing self-management knowledge about nutrition, medication adherence, exercise, and coping skills. This is very important because diabetes is a chronic disease that impacts all facets of a person's life including home, work, school, social, and community involvement. People with diabetes who receive diabetes education have lower health care costs, decreased hospitalizations and readmissions as well as decreased lifetime health care costs related to lower risks for complications than those who do not receive diabetes education. Providing policy changes to allow credentialed diabetes educators to receive reimbursement for DSME will reduce the harmful impact that diabetes has on people's lives. In addition to improved health outcomes, a return on investment has been shown.[42]

B. The DPP is an evidence-based program that is proven to reduce the risk of developing type 2 diabetes by 58 percent among all participants and by 71 percent among those 60 years of age and older.[43] The risk of progression from prediabetes to diabetes is about 5-10 percent per year.[44] The return on investment for providing the DPP to its eligible employees is approximately $55,000 over 10 years for each employee with prediabetes who does not develop diabetes.[45]

Budget Request

The specific budget amounts needed implement these recommendations would need to be determined.

Action Items:

The Florida Legislature will pass legislation to increase reimbursement for diabetes prevention and education as follows:

1. Increase reimbursement for accredited or recognized diabetes education provided by credentialed diabetes educators
2. Increase reimbursement for Diabetes Prevention Programs on the CDC registry of recognized programs and programs pending recognition.

3. Increase reimbursement for Diabetes Self-Management Education for all types of diabetes.
4. Include credentialed diabetes educators as providers who can receive reimbursement for Diabetes Self-Management Education.
5. Increase reimbursement for Diabetes Self-Management Education for telehealth services.
6. Increase Medicaid reimbursement for related co-morbidities and all types of diabetes.
7. Legislative mandates for inclusion of diabetes education that lead to incentives for the workplace.
8. Provide reimbursement for metabolic surgery for extremely obese patients with diabetes.

Conclusions

Diabetes is a serious condition that merits thoughtful consideration and attention by public health, health system, and legislative stakeholders. If not addressed effectively and timely, Florida may face an increased burden of diabetes. The recommendations in this report address ways to prevent and manage diabetes and associated complications. If implemented, these actions can result in significant health care savings and improvement in quality of life. To reduce the looming diabetes health care crisis, changes must occur throughout state, local, and national health care systems.

Florida's 2017-2021 State Health Improvement Plan includes objectives around increasing participation in CDC-recognized Diabetes Prevention Programs and increasing the number of people with diabetes who have taken a course to help them manage their diabetes. Partnerships and collaborations are occurring in Florida to improve outcomes for people with or at risk for diabetes and will strengthen the state's economic outlook and its population's wellness. Implementation of the recommendations in this report will support and accelerate these efforts.

Appendix A. Data Sources and Methods

Data Sources

Behavioral Risk Factor Surveillance System

The Behavioral Risk Factor Surveillance System (BRFSS) is a telephone-based survey that uses a random-digit dial sampling methodology to collect state data from respondents 18 years of age and older concerning their health and health behaviors. The BRFSS has been conducted annually in Florida since 1986 and gathers detailed information about chronic health conditions, health-related risk behaviors, and the prevalence of preventive health care practices among Florida adults. The BRFSS is conducted at the county-level every third year. Over 35,000 surveys were completed statewide in the 2013 calendar year, with a target sample size of 500 completed surveys in each of Florida's 67 counties. The BRFSS data were analyzed by age group, gender, combined race and ethnicity, household income level, and geographic locality.

The BRFSS data included in this report have been weighted to be representative of the state population. Weighting is a procedure that adjusts for the chance of being selected to participate in the survey and for discrepancies between those who complete the survey and the overall population of Florida. The data were weighted to the respondent's probability of selection by county, as well as age and gender.

Pregnancy Risk Assessment Monitoring System

The Pregnancy Risk Assessment Monitoring System (PRAMS) is an ongoing population-based surveillance project sponsored by the Centers for Disease Control and Prevention (CDC). PRAMS was designed to establish and maintain state-specific data on maternal attitudes and experiences before, during, and shortly after pregnancy. The information collected by PRAMS is used to supplement vital records and inform state and local efforts to reduce infant morbidity and mortality. Currently, 47 states and several territories and tribes participate in PRAMS, representing about 83 percent of all U.S. births.

Florida PRAMS began data collection in 1993. Each year, a sample of approximately 2,500 women who have recently had a live birth are randomly selected from the state's birth certificate file. Women from high-risk groups are oversampled to ensure adequate data are available for these populations. Sampled women are contacted by mail or telephone and asked to complete the Florida PRAMS questionnaire. Topics typically addressed include attitudes and feeling about pregnancy, source and content of prenatal care, maternal use of alcohol and cigarettes, contraception, and pregnancy-related morbidity, however, the questionnaire is revised every four years to address current and important issues for mothers and infants. Florida PRAMS data included in this report are weighted to be representative of the state's entire population of live births.

The National Survey of Children's Health

The National Survey of Children's Health (NSCH), sponsored by the Maternal and Child Health Bureau of the Health Resources and Services Administration, is a cross-sectional telephone-based survey designed to provide national and state-level data on the health and well-being of children 0-17 years of

age. The NSCH places special emphasis on physical and developmental health, access to quality health care, family interactions, activities in and outside of school, and neighborhood safety. The resulting data are used to support policies and programs aimed at improving the health of children, families, and communities.

The NSCH was conducted four times between 2003 and 2016. In each round of data collection, a random-digit dial sampling methodology is used to identify households with one or more children under 18 years of age. In each household, one child is randomly selected to be the subject of the interview. A parent or guardian with the most knowledge of the selected child's health completes the survey. Over 50,000 surveys were completed nationally in 2016. The NSCH data in this report are based on the 2016 national survey and have been weighted to be representative of the population of children in the US.

School Health Services Reports

The School Health Services report draws from a compilation of data sources. The sources include services entered into DOH's health management system (HMS), local county health department's annual school health reports, and Department of Education's annual school and student population data.

Emergency Department Visits and Hospitalizations

In Florida, the Agency for Health Care Administration (AHCA) is tasked with collecting patient discharge data from all Florida hospitals for emergency department visits and hospitalizations. However, there are some hospitals in Florida, such as state operated, federally funded, or Shriner's hospitals, that are not required to report to AHCA.

AHCA's Emergency Department (ED) Visit dataset and Hospital Inpatient (HI) dataset have a detailed record for each visit or admission including discharge date, demographics of the patient, primary and additional diagnoses, procedures, charges, and payer information. The ED and HI datasets are mutually exclusive. If a patient enters into the ED and is then admitted to the hospital, their record for that visit is removed from the ED dataset and included in the HI dataset. The data were collected by hospitals primarily for the purpose of medical billing and therefore clinical accuracy may vary.

Cases with diabetes listed as the primary diagnosis (determined by ICD-9-CM code 250 or ICD-10-CM codes E10-E13), and cases with diabetes listed as any diagnosis (primary and other diagnoses) are the main focus of this report. These data were analyzed by year, age group, race/ethnicity, and payer.

Hospitalizations for lower limb amputation included those with a diabetes diagnosis code (ICD-9-CM 250/ICD-10-CM E10-E13) and one of the following amputation procedure codes: ICD-9-CM 84.1/ICD-10-CM 0Y6C0Z2, 0Y6C0Z3, 0Y6D0Z1, 0Y6D0Z2 ,0Y6D0Z3 ,0Y6F0ZZ, 0Y6G0Z, 0Y6H0Z1, 0Y6H0Z2, 0Y6H0Z3, 0Y6J0Z1, 0Y6J0Z2, 0Y6J0Z3, 0Y6M0Z0, 0Y6M0Z4, 0Y6M0Z5, 0Y6M0Z6, 0Y6M0Z7, 0Y6M0Z8, 0Y6M0Z9, 0Y6M0ZB, 0Y6M0ZC, 0Y6M0ZD, 0Y6M0ZF, 0Y6N0Z0, 0Y6N0Z4, 0Y6N0Z5, 0Y6N0Z6, 0Y6N0Z7, 0Y6N0Z8, 0Y6N0Z9, 0Y6N0ZB, 0Y6N0ZC, 0Y6N0ZD, 0Y6N0ZF, 0Y6P0Z0, 0Y6P0Z1, 0Y6P0Z2, 0Y6P0Z3, 0Y6Q0Z0, 0Y6Q0Z1, 0Y6Q0Z2, 0Y6Q0Z3, 0Y6R0Z0, 0Y6R0Z1, 0Y6R0Z2, 0Y6R0Z3, 0Y6S0Z0, 0Y6S0Z1, 0Y6S0Z2, 0Y6S0Z3, 0Y6T0Z0, 0Y6T0Z1,

0Y6T0Z2, 0Y6T0Z3, 0Y6U0Z0, 0Y6U0Z1, 0Y6U0Z2, 0Y6U0Z3, 0Y6V0Z0, 0Y6V0Z1, 0Y6V0Z2, 0Y6V0Z3, 0Y6W0Z0, 0Y6W0Z1, 0Y6W0Z2, 0Y6W0Z3, 0Y6X0Z0, 0Y6X0Z1, 0Y6X0Z2, 0Y6X0Z3, 0Y6Y0Z0, 0Y6Y0Z1, 0Y6Y0Z2, 0Y6Y0Z3.

Mortality Data

The mortality data in this report are derived from the Florida Department of Health, Bureau of Vital Statistics and only include cases with diabetes listed as the underlying cause of death (determined by ICD-10 codes E10-E14). Mortality counts and rates were pulled from Florida CHARTS (www.FLCHARTS.com).

Medicaid Data

For this report, a series of tables was prepared by AHCA's Bureau of Medicaid Data Analytics (MDA). These tables relate to the occurrence and trend of diabetes – type 1, type 2, any type or gestational – in the state of Florida Medicaid population, both children and adults. All data for those tables reside in either AHCA's Decision Support System (DSS) and/or internal databases maintained by MDA. Data residing in the DSS were extracted using SAP Business Objects, version 12.5.0, build 1190. Data residing in MDA's internal databases were pulled using either Microsoft SQL Server 2014 or SAS (aka, Statistical Analysis Suite), version 9.4. All data fall into one of two categories: fee-for-service (FFS) data and managed care plan encounter data or simply encounter data. Where possible, the information in the tables was derived from both FFS data and encounter data. Unlike FFS data where payment is based on these data, encounter data does not drive payment to the managed care plans. As such, care should be taken in the interpretation of any results which are dependent on the encounter data.

In the Medicaid tables, the types of diabetes are defined as follows:

Diabetes Tables 1-3	ICD-9 Codes Dates of service on or before September 30, 2015	ICD-10 Codes Dates of service on or after October 1, 2015
Type 1 Diabetes	250.01, 250.03, 250.11, 250.13, 250.21, 250.23, 250.31, 250.33, 250.41, 250.43, 250.51, 250.53, 250.61, 250.63, 250.71, 250.73, 250.81, 250.83, 250.91, 250.93	E10-E10.xx
Type 2 Diabetes	250.00, 250.02, 250.10, 250.12, 250.20, 250.22, 250.30, 250.32, 250.40, 250.42, 250.50, 250.52, 250.60, 250.62, 250.70, 250.72, 250.80, 250.82, 250.90, 250.92	E11-E11.xx
Any Diabetes	250-250.xx	E10-E13.xx

Chronic Condition (SFY 16-17) Table 7	ICD-9 Codes Dates of service on or before September 30, 2015	ICD-10 Codes Dates of service on or after October 1, 2015
Diabetes - Any	n/a	E10-E13.xx
Congestive Heart Failure	n/a	I50.2-I50.4, I09.81, I11.0, I13.0, I13.2
Coronary Heart Disease	n/a	I20-I25.9
COPD and Allied Conditions	n/a	J40-J47.9
Hypertension *& hypertensive diseases*	n/a	I10-I16.9
Asthma - 20 and Over	n/a	J45-J45.999
Asthma - Less than 20	n/a	J45-J45.999

Pregnancy and Diabetes	ICD-9 Codes Dates of service on or before September 30, 2015	ICD-10 Codes Dates of service on or after October 1, 2015
Delivery	650, V27.0-V27.9	O80, Z37.0-Z37.9
Gestational Diabetes Mellitus	648.8	O24.415, O24.419, O24.425, O24.429, O24.435, O24.439, O99.810, O99.814, O99.815
Pre-existing Diabetes Mellitus in Pregnancy	648.00-648.04	O24.319, O24.32, O24.911, O24.912, O24.913, O24.92, O24.93

Division of State Group Insurance Data

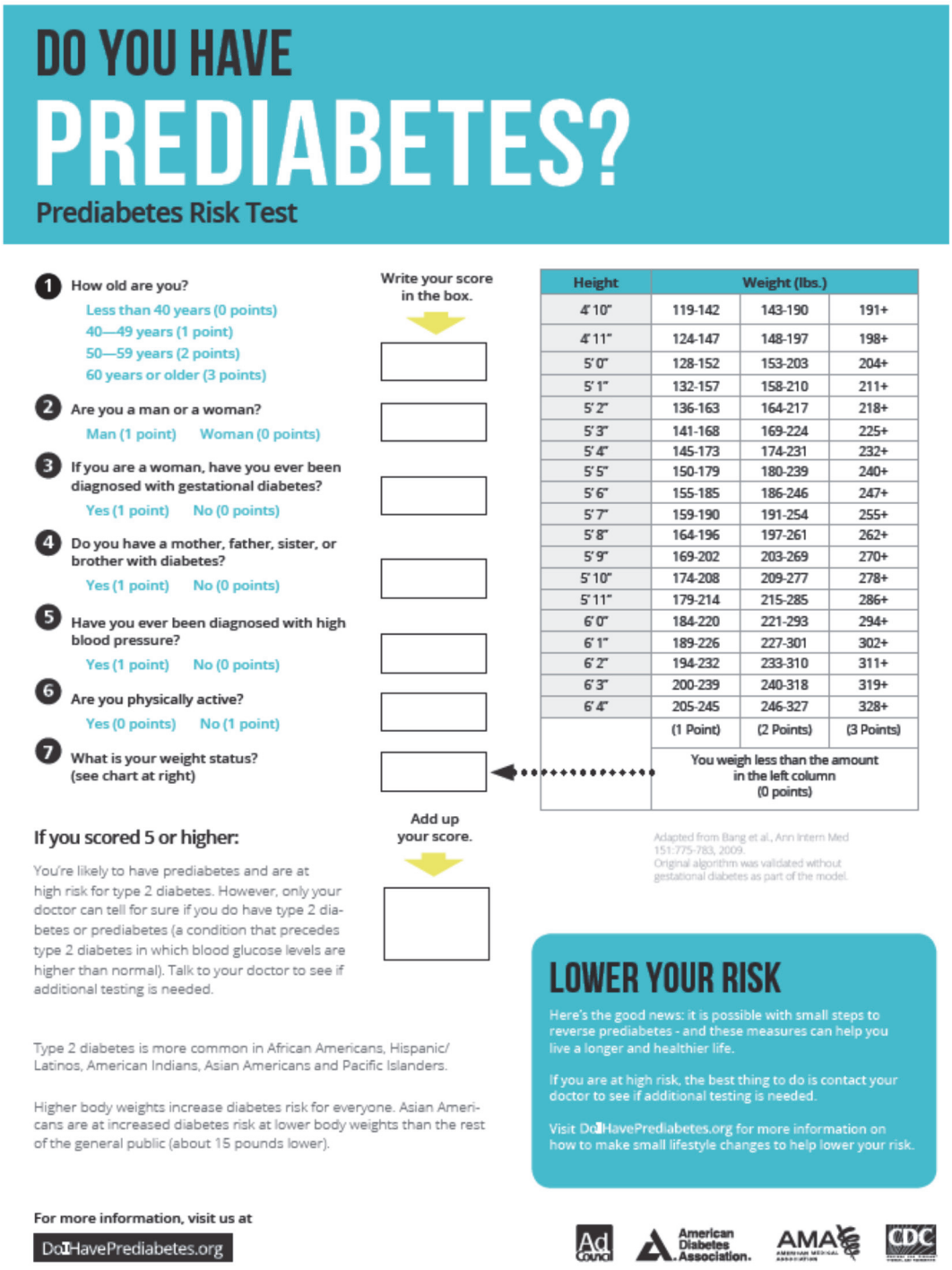
For this report, records from the Division of State Group Insurance HIMIS were analyzed. Records were analyzed to identify claims with diabetes ICD-9 and ICD-10 codes as outlined in the Medicaid section above. Tables include claims with a 'Service From' date, excluding pharmacy claims.

Methods

Race and Ethnicity

Race and ethnicity are presented as a combined measure in this report. In most cases, race and ethnicity were captured as two separate measures. Race and ethnicity measures were combined to create the following groups when possible: non-Hispanic White, non-Hispanic Black, and Hispanic. Any individual coded as Hispanic was considered Hispanic, regardless of race.

Appendix B. Prediabetes Risk Quiz



DO YOU HAVE
PREDIABETES?
Prediabetes Risk Test

1. How old are you?
   - Less than 40 years (0 points)
   - 40—49 years (1 point)
   - 50—59 years (2 points)
   - 60 years or older (3 points)
2. Are you a man or a woman?
   - Man (1 point)
   - Woman (0 points)
3. If you are a woman, have you ever been diagnosed with gestational diabetes?
   - Yes (1 point)
   - No (0 points)
4. Do you have a mother, father, sister, or brother with diabetes?
   - Yes (1 point)
   - No (0 points)
5. Have you ever been diagnosed with high blood pressure?
   - Yes (1 point)
   - No (0 points)
6. Are you physically active?
   - Yes (0 points)
   - No (1 point)
7. What is your weight status? (see chart at right)

Write your score in the box.

Height	Weight (lbs.)		
4' 10"	119-142	143-190	191+
4' 11"	124-147	148-197	198+
5' 0"	128-152	153-203	204+
5' 1"	132-157	158-210	211+
5' 2"	136-163	164-217	218+
5' 3"	141-168	169-224	225+
5' 4"	145-173	174-231	232+
5' 5"	150-179	180-239	240+
5' 6"	155-185	186-246	247+
5' 7"	159-190	191-254	255+
5' 8"	164-196	197-261	262+
5' 9"	169-202	203-269	270+
5' 10"	174-208	209-277	278+
5' 11"	179-214	215-285	286+
6' 0"	184-220	221-293	294+
6' 1"	189-226	227-301	302+
6' 2"	194-232	233-310	311+
6' 3"	200-239	240-318	319+
6' 4"	205-245	246-327	328+
	(1 Point)	(2 Points)	(3 Points)
	You weigh less than the amount in the left column (0 points)		

Adapted from Bang et al., Ann Intern Med 151:775-783, 2009.
Original algorithm was validated without gestational diabetes as part of the model.

Add up your score.

If you scored 5 or higher:

You're likely to have prediabetes and are at high risk for type 2 diabetes. However, only your doctor can tell for sure if you do have type 2 diabetes or prediabetes (a condition that precedes type 2 diabetes in which blood glucose levels are higher than normal). Talk to your doctor to see if additional testing is needed.

Type 2 diabetes is more common in African Americans, Hispanic/Latinos, American Indians, Asian Americans and Pacific Islanders.

Higher body weights increase diabetes risk for everyone. Asian Americans are at increased diabetes risk at lower body weights than the rest of the general public (about 15 pounds lower).

LOWER YOUR RISK

Here's the good news: it is possible with small steps to reverse prediabetes - and these measures can help you live a longer and healthier life.

If you are at high risk, the best thing to do is contact your doctor to see if additional testing is needed.

Visit DoIHavePrediabetes.org for more information on how to make small lifestyle changes to help lower your risk.

For more information, visit us at
DoIHavePrediabetes.org

Ad Council · American Diabetes Association. · AMA · CDC

Source: https://doihaveprediabetes.org/prediabetes-risk-test.html

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