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Florida department of health in Miami-Dade county
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Preventable Diabetes Related Emergency Department Visits and Hospitalizations among Adults in Miami-Dade County, Florida, 2007-2012
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Florida HEALTH
Miami-Dade County

What is diabetes?

Diabetes is a group of diseases linked to high levels of blood glucose that results from defects in insulin production, insulin action, or both. Serious complications and premature death may arise from uncontrolled diabetes. Complications of uncontrolled diabetes can include heart disease and stroke, hypertension, blindness, kidney disease, nervous system diseases, amputations, dental disease, and pregnancy complications (1). Patients can reduce their risk of developing complications and control the disease by working closely with their healthcare providers, families and friends. Diabetes is the seventh leading cause of death and is the leading cause of kidney failure, nontraumatic lower-limb amputations and new cases of blindness among adults in the U.S. (1).

There are two types of diabetes, type 1 and type 2. Type 1 diabetes (insulin-dependent diabetes mellitus) or juvenile-onset diabetes, develops when the body's immune system destroys pancreatic beta cells, the cells in the body that make the hormone insulin. Insulin is used by the body to regulate blood glucose. To survive, individuals that suffer from type 1 diabetes must have insulin delivered by injection or pump. In adults, type 1 diabetes accounts for approximately 5% of all diagnosed cases of diabetes (1).

Type 2 diabetes (non-insulin dependent diabetes mellitus) or adult onset diabetes, accounts for 90-95% of all diagnosed cases of diabetes. Type 2 begins as insulin resistance, a disorder where the cells do not use insulin properly, and progresses to the pancreas eventually loosing its ability to produce insulin.

Who does diabetes affect?

Diabetes affects children and adults of all races, ethnicities and gender. In 2010, it was estimated that 25.6 million or 11.3% of all people 20 years of age and older were living with diabetes in the United States (U.S). Risk factors for type 1 diabetes may include autoimmune, genetic or environmental components, while type 2 diabetes is associated with older age, obesity, physical inactivity, race/ethnicity, family history of diabetes, and impaired glucose metabolism (1).

The American Diabetes Association estimates that in the year 2050, one in three U.S. adults could have diabetes if current trends continue (2).

Treating diabetes

There are multiple factors in treating and controlling diabetes. A combination of diet, insulin and oral medication to lower blood glucose levels are the basis of diabetes management. Other important components include patient education and self-care, including monitoring their blood sugar type 1 diabetics need insulin for survival that is either delivered by a pump or injection. Type 2 diabetics can control their blood sugar by following a healthy diet and

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exercise program, losing excess weight, and taking oral medication. In some cases, type 2 diabetics do need insulin to control their blood sugar. Individual suffering from either type of diabetes need to ensure healthy behaviors and have to work with diabetes educators to help increase their knowledge of diabetes self-management and help them gain coping skills needed to manage their disease and its related conditions (2).
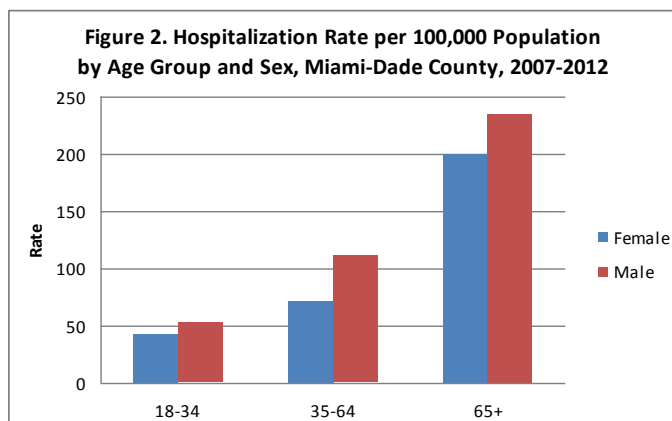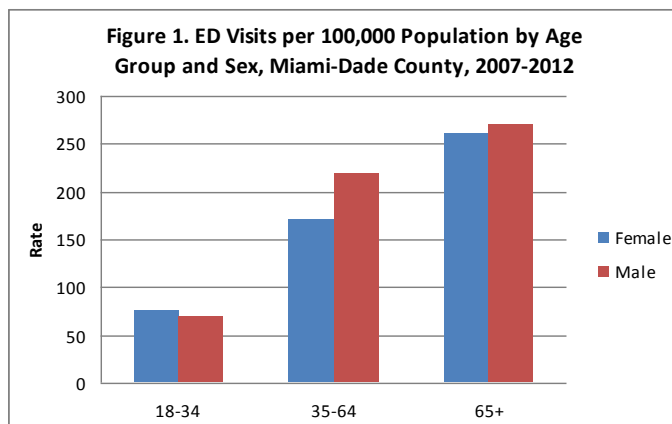
Economic burden of diabetes
Not only does diabetes have significant health effects on the population, but it causes a substantial economic burden to individuals diagnosed with diabetes, the healthcare system and employers. In 2012 the estimated cost of diagnosed diabetes in the U.S. was $245 billion, a 41% increase from 2007 ($174 billion) of which $176 billion was direct medical costs and $69 billion in reduced productivity (2). The largest components of direct costs are hospital inpatient care (43%), prescription medications to combat complications of diabetes (18%), antidiabetic agents and diabetes supplies (12%), physician office visits (9%), and nursing/residential stays (8%). On average, individuals diagnosed with diabetes have medical expenditures approximately 2.3 times higher than what expenditures would be if diabetes was not present. Diabetes is the fourth leading comorbid condition associated with any hospital discharge in the U.S. Indirect costs include increased absenteeism ($5 billion) and reduced productivity in the work place ($20.8 billion) for employed diabetic patients, reduced productivity for non-employed patients ($2.7 billion), inability to work as a result of disease related disability ($21.6 billion), and lost productive capacity due to premature mortality ($18.5 billion) (2).

Diabetes in Miami-Dade County 2007-2012
The American Diabetes Association estimates that approximately 181,000 adults are living with diabetes in Miami-Dade County (3). Diabetes accounts for a significant amount of emergency department (ED) visits and hospitalizations.

In Miami-Dade, as individual's age, the proportion of diabetes related ED visits changes for male and females. As seen in Figure 1, female adults 18-34 had a slightly higher rate of ED visits than males. As age increases, 35-64 and 65+, males have a greater rate of diabetes related ED visits and hospitalizations (Figures 1, 2).

Figure 1. ED Visits per 100,000 Population by Age Group and Sex, Miami-Dade County, 2007-2012

Figure 2. Hospitalization Rate per 100,000 Population by Age Group and Sex, Miami-Dade County, 2007-2012

Non-Hispanic Black adults in Miami-Dade County have a greater rate of emergency department visits from 2007 to 2008 for diabetes as compared to non-Hispanic White and Hispanic adults (Figures 3, 4, 5). A similar trend by race/ethnicity is seen for diabetes related hospitalizations in Miami-Dade County as well.

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Figure 3. ED Visits per 100,000 Population Aged 18-34 by Race/Ethnicity, Miami-Dade County, 2007-2012
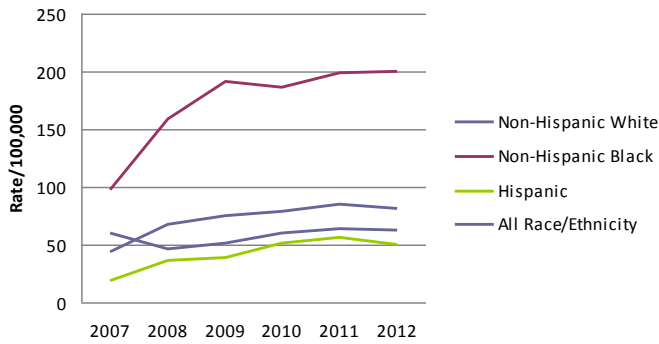

Figure 4. ED Visits per 100,000 Population Aged 35-64 by Race/Ethnicity, Miami-Dade County, 2007-2012

Figure 5. ED Visits per 100,000 Population Aged 65+ by Race/Ethnicity, Miami-Dade County, 2007-2012

Figure 6. Median Cost (US Dollars) of Hospitalization due to Diabetes among Adults, Miami-Dade County 2007-2012
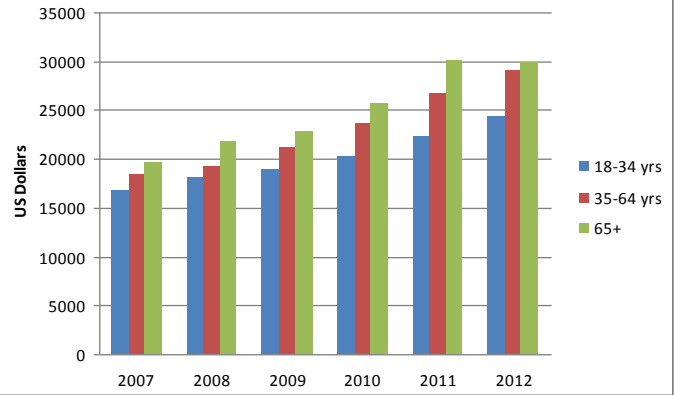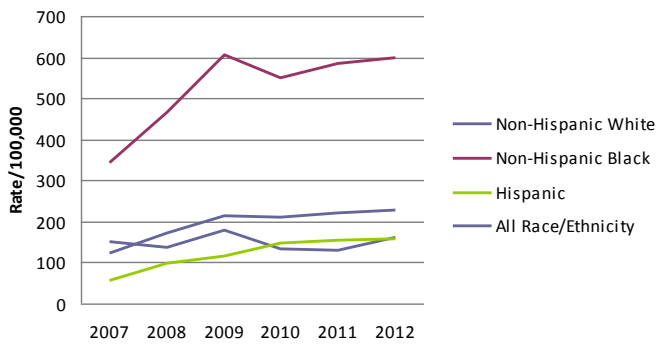

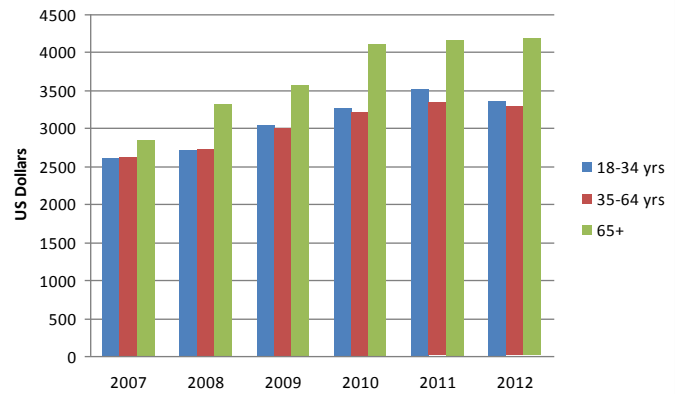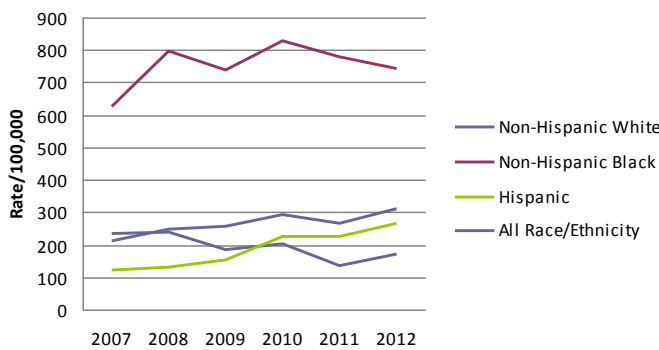Figure 7. Median Cost (US Dollars) of ED Visit due to Diabetes among Adults, Miami-Dade County 2007-2012

Medicaid accounts for 32.5% of payments for diabetes related ED visits and 45.2% of payments for diabetes related hospitalizations (Figures 8, 9).

Figure 8. Method of Payment for Diabetes Related ED Visits among Adults, Miami-Dade County, 2007-2012
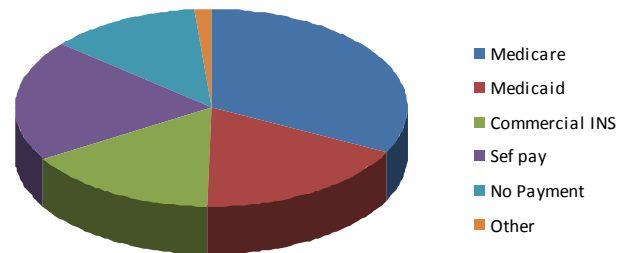
Along with the economic burden due to diabetes nationally, Miami-Dade County has seen an increase in the median cost associated with diabetes related ED visits among adults from 2007 to 2012 and steady median cost for hospitalizations among individuals 65+ from 2010 to 2012 (Figure 6, 7).

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Figure 9. Method of Payment for Diabetes Related Hospitalizations among Adults, Miami-Dade County, 2007-2012

Legend: Medicare, Medicaid, Commercial INS, Sef pay, No Payment, Other
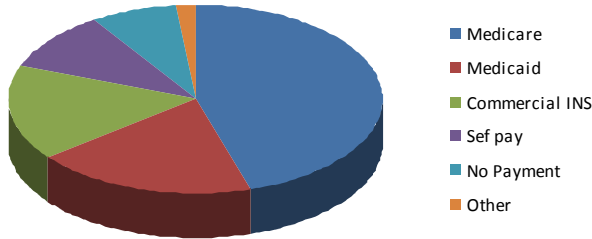
In 2012, on average Miami-Dade adults aged 18-34 spent a median of 2 days in the hospital due to diabetes as compared to adults 35-64 who spent a median of 3 days, and adults 65+ who spent a median of 4 days hospitalized (Figure 10).

Figure 10. Median Days of Hospitalization due to Diabetes among Adults, Miami-Dade County 2007-2012

Legend: 18-34 yrs, 35-64 yrs, 65+

Data Source
The data for ED visits and hospitalizations was obtained from Florida Agency for Health Care Administration (AHCA). The ICD-9-CM codes listed as 250.0, 250.1, 250.2, 250.3, 250.8, 250.9 in the principal diagnosis was selected as preventable diabetes related emergency department visits and hospitalizations. SAS 9.3 was utilized to analyze the data.

Conclusion
Diabetes has significant health effects and economic effects on individuals, the healthcare system and employers. Healthy lifestyles that include healthy diets, physical activity, weight management and education can help prevent type 2 diabetes and control type 1 diabetes (1, 2). Most diabetes related ED visits and hospitalizations are called "potentially preventable," because if the individual had access to and cooperated with appropriate outpatient healthcare and had compliance with treatment plans, the ED visit and hospitalization would likely not have occurred.

The Diabetes Prevention Program (DPP), a large prevention study for people at high risk for diabetes, showed that lifestyle changes that included weight loss and increase physical activity reduced the development of type 2 diabetes by 58% during a 3-year period. Among adults 60 years or older, the reduction in risk was 71%. The study also showed that treatment with metformin reduced the risk by 31% overall and was most effective in younger (25-44 years of age) and heavier (body mass index ≥35) individuals. Metformin intervention was shown to be effective among all racial and ethnic groups in preventing or delaying type 2 diabetes for a minimum of 10 years (1).

Interventions to prevent or delay type 2 diabetes has shown not only to be effective in helping keep people healthy longer, but proven to be cost-effective as well. Research shows that lifestyle interventions are more cost-effective than medications (1).

References:
1. Centers for Disease Control and Prevention. National diabetes fact sheet: national estimates and general information on diabetes and prediabetes in the United State, 2011. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2011.
2. Economic Costs of Diabetes in the U.S. in 2012. American Diabetes Association. Diabetes Care, 2013.
3. "In My Community." *American Diabetes Association.* Web. 18 Dec. 2013. http://www.diabetes.org/in-my-community/local-offices/miami-florida/

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Influenza-Like-Illness, All Age

Percentage of Emergency Department Visits Attributable to
Influenza-Like Illness
Miami-Dade County, 2011-2014
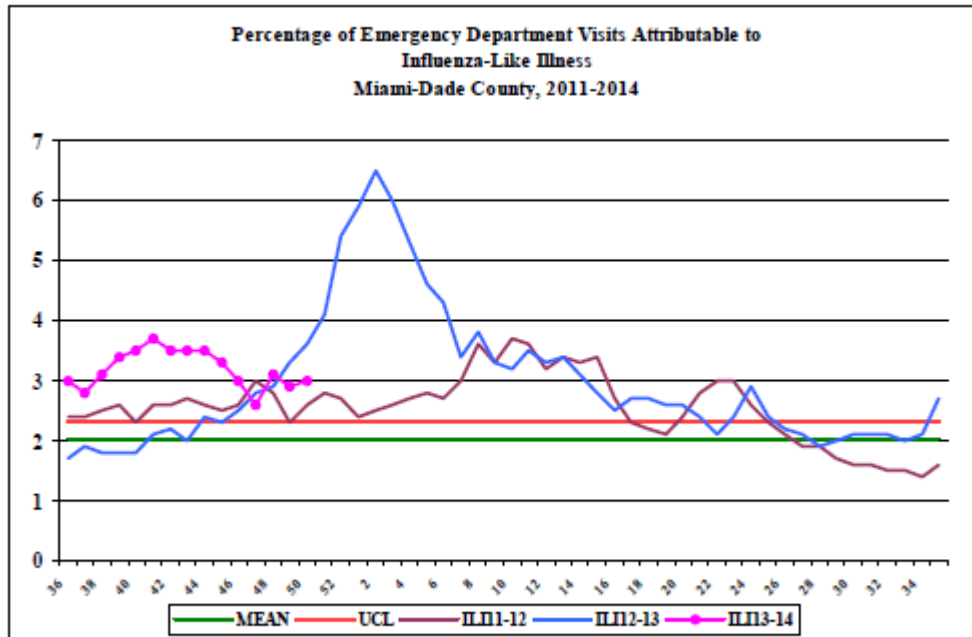
During this period, there were 22,607 ED visits; among them 679 (3.0%) were ILI. At the same week of last year, 3.6% of ED visits were ILI.

PARTICIPATE IN INFLUENZA SENTINEL PROVIDER SURVEILLANCE

Florida Department of Health in Miami-Dade County NEEDS Influenza Sentinel Providers!

Sentinel providers are key to the success of the Florida Department of Health's Influenza Surveillance System. Data reported by sentinel providers gives a picture of the influenza virus and ILI activity in the U.S. and Florida which can be used to guide prevention and control activities, vaccine strain selection, and patient care.

- Providers of any specialty, in any type of practice, are eligible to be sentinel providers.

- Most providers report that it takes **less than 30 minutes a week** to compile and report data on the total number of patients seen and the number of patients seen with influenza-like illness.

- Sentinel providers can submit specimens from a subset of patients to the state laboratory for virus isolation **free of charge**.

For more information, please contact
Lakisha Thomas at 305-470-5660.

About the Epi Monthly Report

The Epi Monthly Report is a publication of the Florida Department of Health in Miami-Dade County: Epidemiology, Disease Control & Immunization Services. The publication serves a primary audience of physicians, nurses, and public health professionals. Articles published in the Epi Monthly Report may focus on quantitative research and analysis, program updates, field investigations, or provider education. For more information or to submit an article, contact Kathleen Ochipa at (305) 470-6918.

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Select Reportable Disease/Conditions
November 2013

Diseases/Conditions	2013 Current Month	2013 Year to Date	2012 Year to Date	2011 Year to Date
HIV/AIDS				
AIDS*	47	665	533	670
HIV	87	1327	993	1186
STD				
Infectious Syphilis*	23	333	282	279
Chlamydia*	683	9087	8632	7898
Gonorrhea*	140	2126	2117	2150
TB				
Tuberculosis**	11	110	98	117
Epidemiology, Disease Control & Immunization Services				
Epidemiology				
Campylobacteriosis	29	327	320	381
Ciguatera Poisoning	3	25	19	17
Cryptosporidiosis	0	20	21	21
Cyclosporiasis	0	3	1	5
Dengue Fever	4	46	39	16
E. coli, O157:H7	0	6	7	15
E. coli, Non-O157	0	0	0	0
Encephalitis, West Nile Virus	0	0	0	0
Giardiasis, Acute	19	252	212	259
Influenza Novel Strain	0	0	0	0
Influenza, Pediatric Death	0	1	2	0
Legionellosis	0	21	18	16
Leptospirosis	0	0	0	0
Listeriosis	0	2	1	4
Lyme disease	0	6	8	2
Malaria	0	8	6	18
Meningitis (except aseptic)	2	31	21	30
Meningococcal Disease	0	15	16	15
Salmonellosis	47	553	550	543
Shigellosis	5	67	74	106
Streptococcus pneumoniae, Drug Resistant	5	78	64	80
Toxoplasmosis	0	1	3	0
Typhoid Fever	0	2	3	3
Vibriosis	0	10	3	2
West Nile Fever	0	0	0	1
Immunization Preventable Diseases				
Measles	0	0	0	0
Mumps	0	0	1	0
Pertussis	2	0	0	0
Rubella	0	0	0	0
Tetanus	0	0	0	0
Varicella	9	62	42	46
Hepatitis				
Hepatitis A	2	31	23	20
Hepatitis B (Acute)	4	18	17	5
Lead				
Lead Poisoning	3	81	93	117

*Data is provisional at the county level and is subject to edit checks by state and federal agencies.

** Data on tuberculosis are provisional at the county level.