

# MIAMI-DADE COUNTY HEALTH SNAPSHOT

## DIABETES

### Scope Of The Problem and Best Practice Models

#### Who has diabetes? <sup>1,2</sup>

8.7% of all Floridians and 7.6% of Miami-Dade County residents reported having been diagnosed with diabetes (in 2007). In Miami-Dade County 181,425 people have diabetes.

Approximately 23.6 million children and adults in the United States have diabetes (17.9 million diagnosed and 5.7 million undiagnosed). 57 million people have pre-diabetes including 2 million adolescents.

#### How many people die from diabetes? <sup>3,4</sup>

Diabetes is the fifth-deadliest disease in the United States and since 1987 the death rate due to diabetes has increased by 45 percent to 24.6 per 100,000. Death rates due to heart disease, stroke, and cancer have declined.

|                   | Average Number of Deaths |         |         | Age-Adjusted 3-year Death Rate (per 100,000) |         |         |
|-------------------|--------------------------|---------|---------|--|---------|---------|
|                   | 2004-06                  | 2005-07 | 2006-08 | 2004-06                                      | 2005-07 | 2006-08 |
| State of Florida  | 5,036                    | 5,137   | 5,128   | 21.2   | 21.1    | 20.6    |
| Miami-Dade County | 613                      | 636     | 639     | 23.5   | 24.0    | 23.5    |

Age-adjusted mortality rates from diabetes in 2008 (Table 1) were highest in Miami-Dade County (23.5), greater than the state of Florida (20.6) and the surrounding Counties of Broward (18.2), Palm Beach (14.4), Monroe (10.2) and Collier (10.4).

#### Diabetes Disparities <sup>1,2,4,5</sup>

##### Diabetes rates increase with age

- Diabetes is the 3<sup>rd</sup> most common cause of death for those aged 65 -74 in Miami-Dade County.
- 23.1% of all people over 60 have diabetes.

##### Diabetes rates and outcomes differ by race and ethnicity <sup>1,2,4</sup>

- Diabetes prevalence rates are highest among Non-Hispanic Blacks (14.1 in 2007) and lowest among Hispanics (6.2 in 2007) in Miami-Dade County (Figure 1).
- Nationally, rates of diabetes diagnosis are lowest among Non-Hispanic Whites (6.6%), and highest among minority groups such as Asian Americans (7.5%), Hispanics (10.4%) and Non-Hispanic Blacks (11.8%).

One explanation for lower diabetes rates for Hispanics in Miami-Dade than the national average, may be their national origin. National data show diabetes rates are higher among Mexican Americans (11.9%) and Puerto Ricans (12.6%), the largest Hispanic populations at the national level, while they are lower among Cubans (8.2%), who make up about half of the Hispanic population in Miami-Dade.

- According to cause of death and hospitalization data, the Black community in Miami-Dade is disproportionately impacted by diabetes. Rates of death from diabetes among Blacks are on average about twice the rate among Whites and Hispanics (Figure 2).

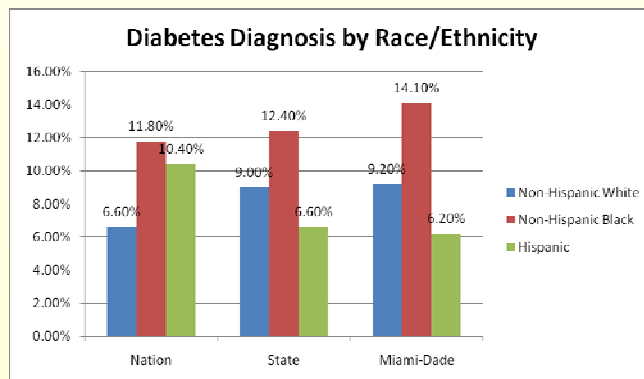


Figure 1

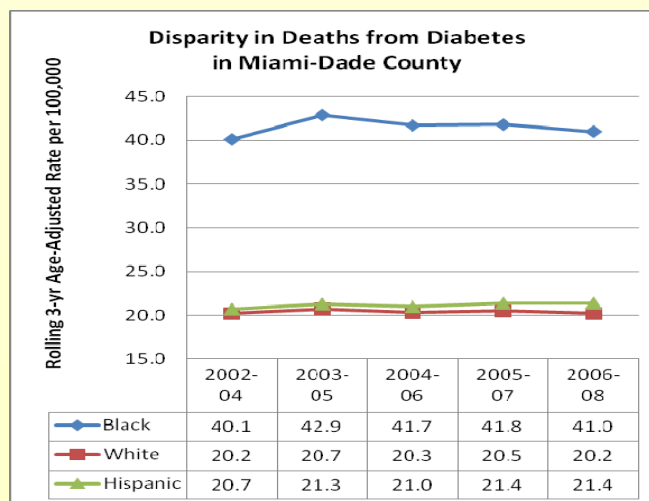


Figure 2

## Diabetes Long-term Complications Admission Rate in Miami-Dade County<sup>6,7</sup>

The adult diabetes long-term complications admission rate was among the 20 worse performing indicators reported in the 2007 Miami-Dade County Community Health Report Card. The diabetes long-term complications admission rate is one of 14 Prevention Quality Indicators (PQIs) developed by the Agency for Healthcare Research and Quality.

### Extent of the Problem and the Cost to Miami-Dade County<sup>4,8</sup>

- The rate of adult diabetes long-term complications admissions was 150.9 in 2008 and has shown a general upward trend since 2001 (Figure 3).
- 2,847 adults were admitted to a hospital for diabetes long-term complications (2008).
- The cost of these admissions was \$139 million for services rendered by hospitals. These services averaged \$48,947 per admission, excluding associated professional fees and personal convenience items.
- The principal payer of these charges was Medicare (60%), with total gross charges of \$83 million. Commercial Insurance and Medicaid followed with 16% (\$22 million) and 15% (\$21 million) respectively. Self-pay/Under-insured (no 3<sup>rd</sup> party coverage or less than 30% estimated insurance coverage) and charity accounted for 6% (\$8 million) and 3% (\$4 million) respectively.
- The rate of pediatric diabetes hospital admissions for ages 5-11 increased from 33.81 (per 100,000) in 2007 to 36.9 in 2008 while the rate for ages 12-18 declined from 120.4 to 114.8.

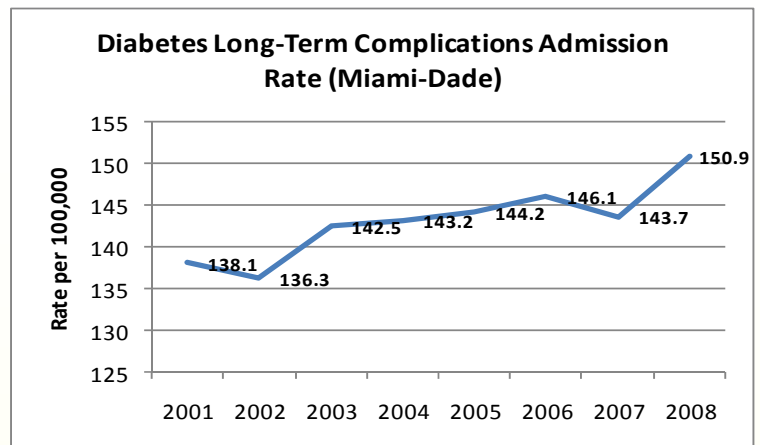


Figure 3

### Geographic Distribution of Diabetes Long-term Complications Admissions in Miami-Dade County

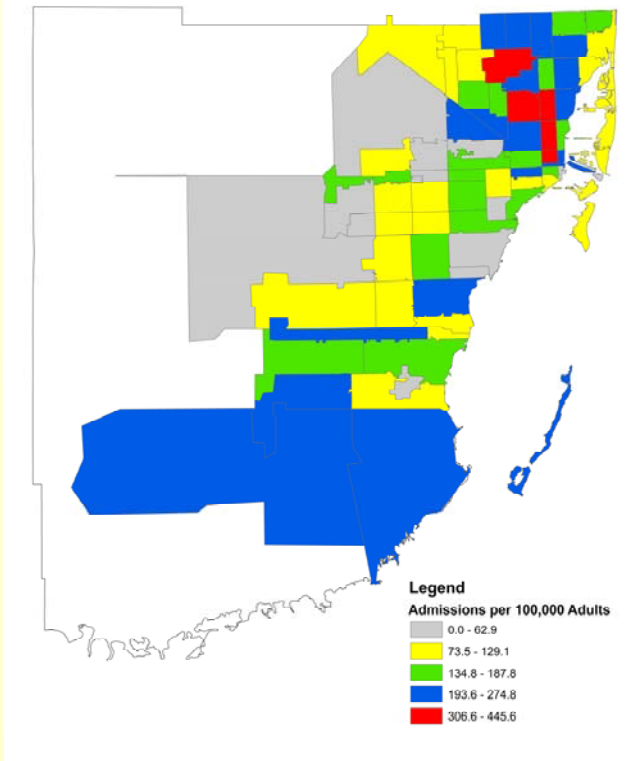


Figure 4

### The Hospitals<sup>8</sup>

Ten hospitals account for 55.8% of diabetes long-term complications admissions. Miami-Dade County's public hospital, Jackson Health System's (JHS) three campuses, accounted for 22.2% of total admissions in 2008 (Table 3).

| Hospital                             | Admissions   |               |
|--------------------------------------|--------------|---------------|
|                                      | Number       | Percent       |
| <b>Total Admissions (2008)</b>       | <b>2,847</b> | <b>100.0%</b> |
| Jackson Health System                | 631          | 22.2%         |
| Jackson Memorial Hospital            | 239          | 8.4%          |
| Jackson North Medical Center         | 235          | 8.3%          |
| Jackson South Community Hospital     | 157          | 5.5%          |
| Baptist Hospital of Miami            | 201          | 7.1%          |
| North Shore Medical Center           | 197          | 6.9%          |
| Aventura Hospital and Medical Center | 181          | 6.4%          |
| University of Miami Hospital         | 164          | 5.8%          |
| Palmetto General Hospital            | 158          | 5.5%          |
| South Miami Hospital                 | 155          | 5.4%          |
| Mercy Hospital                       | 140          | 4.9%          |
| Mount Sinai Medical Center           | 134          | 4.7%          |
| Homestead Hospital                   | 134          | 4.7%          |
| Hialeah Hospital                     | 126          | 4.4%          |

Table 3

## Lifestyle Changes for Prevention <sup>1,9,-11</sup>

- Research has shown that taking action to manage blood glucose in pre-diabetics, can delay or prevent Type 2 diabetes from developing.
- Modest improvements in weight, a low fat, high fiber diet, and regular physical activity are all aspects of prudent advice to prevent pre-diabetes and Type 2 diabetes. In Miami-Dade County 33.5% of all adults reported no leisure time physical activity and 38.9% were overweight (2007).
- Breastfeeding appears to decrease the risk of obesity/overweight and type 2 diabetes in mother and child.

The National Institute of Diabetes and Digestive and Kidney Diseases and the American Diabetes Association published a Position Statement on "[The Prevention or Delay of Type 2 Diabetes](#)" (ADA 2002) to help guide health care professionals in treating their patients with pre-diabetes.

## Guidelines for Diabetes Self Management Programs & Implementation <sup>12</sup>

Controlling diabetes reduces episodes of hypo/hyperglycemia (low/high blood sugar) avoids or delays long term complications and decreases emergency room visits. Controlling weight, blood glucose, blood pressure and cholesterol can prevent heart attacks, strokes, kidney disease and damage to the blood vessels, feet and eyes. Good diabetic control can be achieved using a team approach that focuses on preventive care, and utilizes proven strategies to assist patients to better manage their care.

Since compliance and self-care management are patient directed, the goal of any Diabetes Management program is to provide patients with the knowledge and skills that enable behaviors needed to cope and live with diabetes on a daily basis. This can be accomplished by:

- Using evidence-based guidelines for basic diabetes care such as the American Diabetes Association's (ADA) "[Standards of Medical Care in Diabetes](#)" (ADA 2008).
- Having as a primary goal the regulation of blood glucose.
- Including referral to comprehensive disease management and treatment programs where diabetes care is provided by a team of health care professionals.

### Team

Advisors helping to develop and individualized self management plan:

- Doctor
- Dietitian
- Nurse
- Diabetes educator
- Behavioral medicine specialist
- Other multi-specialty health care providers

### A Self-Management Plan Includes:

|                                    |   |
|------------------------------------|---|
| <b>Monitoring:</b>                 | Blood glucose, blood pressure, lipids   |
| <b>Screening for:</b>              | Diabetic Retinopathy (eye disease), Nephropathy (kidney disease) & Neuropathy (nerve disease) |
| <b>Establishing:</b>               | medical regimens, planned physical activity, meal plans, smoking cessation, foot care.        |
| <b>Identifying &amp; treating:</b> | Depression & episodes of illness  |

### Preventing Diabetic Complications <sup>1,4</sup>

- Every 1% reduction in A1c blood levels reduces the risk of eye, kidney and nerve disease by 40%. 76.1% of adult diabetics in Miami-Dade reported daily self-monitoring of glucose levels (2007). 69.2% had two A1c tests in the previous year.
- Comprehensive foot care programs can reduce lower extremity amputations. Although 78.1% of adult diabetics report annual foot exams<sup>21</sup>, the number and rate of amputations is on the rise in Miami-Dade County (845 hospitalizations for amputations at a rate of 34.3 per 100,000 in 2007.<sup>22</sup>
- Detecting eye disease can reduce the incidence of severe vision loss by 50-60%. 79.2% of adults with diabetes in Miami-Dade had eye-exams in 2007.

### Know Your Numbers – Modifiable Risk Factors

| <u>Measure</u> | <u>Goal</u>   | <u>Find out more</u>   |
|----------------|---|--|
| Blood Pressure | <130/80 mmHg  | Treating High Blood Pressure in People with Diabetes, ADA<br><a href="http://www.diabetes.org/type-1-diabetes/well-being/treating-high-bp.jsp">http://www.diabetes.org/type-1-diabetes/well-being/treating-high-bp.jsp</a>   |
| Blood Sugar    | Before meal: 70–130 mg/dl (5.0–7.2 mol/l)<br>After meal:<180 mg/dl (<10.0 mol/l)<br>A1c: <7           | Checking your Blood Glucose, ADA<br><a href="http://www.diabetes.org/type-2-diabetes/blood-glucose-checks.jsp">http://www.diabetes.org/type-2-diabetes/blood-glucose-checks.jsp</a>  |
| Cholesterol    | LDL: <100 mg/dl (<2.6 mol/l)<br>Triglycerides: <150 mg/dl (<1.7 mol/l)<br>HDL: >40 mg/dl (>1.1 mol/l) | Treating Cholesterol in People with Diabetes, ADA<br><a href="http://www.diabetes.org/type-1-diabetes/well-being/treating-cholesterol.jsp">http://www.diabetes.org/type-1-diabetes/well-being/treating-cholesterol.jsp</a>   |
| BMI            | < 25 kg/m2  | Overweight & Obesity, Check-up America, ADA<br><a href="http://www.diabetes.org/food-nutrition-lifestyle/lifestyle-prevention/check-up-america/cua-obesity.jsp">http://www.diabetes.org/food-nutrition-lifestyle/lifestyle-prevention/check-up-america/cua-obesity.jsp</a> |

*Evidence-based practices in Diabetes Care*  
**- Programs with Promising or Best Practice Outcomes**

| Program   | Interventions  | Outcome Measures  |
|---|--|---|
| Summa Health System— Collaborative Intensification Model<br><br>(Internal Medicine Center, Akron, OH)<br><br><a href="http://www.medscape.com/viewarticle/568422">http://www.medscape.com/viewarticle/568422</a>  | An interdisciplinary team environment promoting intensified care with: <ul style="list-style-type: none"> <li>Planned visits with Nurse Practitioners</li> <li>Electronic medical records</li> <li>Redefined roles for nurses and clinic staff</li> <li>Monthly self management support groups</li> <li>Self management education at each visit</li> <li>Dietician available</li> <li>Treatment algorithms</li> <li>Care team decision making</li> <li>Monthly team meetings</li> <li>Senior level administrative and clinical leader champions</li> </ul>   | <ul style="list-style-type: none"> <li>Blood Pressure</li> <li>LDL Cholesterol</li> <li>A1c</li> </ul>  |
| Diabetes Disease Management Program<br><br>(County Clinic, Los Angeles, CA)<br><br><a href="http://professional.diabetes.org/Content/Posters/2006/p1144-P.pdf">http://professional.diabetes.org/Content/Posters/2006/p1144-P.pdf</a>                    | Patients in a low-income, minority population were placed under nurse-directed care including: <ul style="list-style-type: none"> <li>Clinical visits</li> <li>Diabetes education</li> <li>Nutritional counseling</li> <li>Eye exams</li> </ul> <p>A nurse following detailed treatment algorithms carried out ADA process measures resulting in improved outcome measures for those completing the program and a reduction in emergency room or urgent care visits and hospitalizations.</p>  | <ul style="list-style-type: none"> <li>LDL Cholesterol</li> <li>A1c</li> <li>Outcomes after one year compared to prior to starting the program</li> </ul>   |
| Reach In! Reach Out!<br><br>(Community and family based)<br><br><a href="http://www.uchicagokidshospital.org/specialties/diabetes/why-choose-us.html">http://www.uchicagokidshospital.org/specialties/diabetes/why-choose-us.html</a>                   | Fourteen weekly group sessions involving parents and children.<br><br>Sessions include: <ul style="list-style-type: none"> <li>Hands on education (food and exercise)</li> <li>Sample nutrition activities (learning to read food labels, tour of the grocery store)</li> <li>Goal setting</li> </ul> <p>Progress follow-up each week by session leaders and telephone calls between sessions.<br/>Follow-up up to 18 months after the training sessions.</p>  | <ul style="list-style-type: none"> <li>Measure of body habitus (height, weight, waist and hip circumference, body fat)</li> <li>Biochemical markers (glucose tolerance, lipid panel, insulin, hemoglobin A-1-C)</li> <li>Behavior measurements (food, physical activity, weight loss, stress, support and television viewing)</li> <li>Cost Assessment (costs incurred to attend meetings, eat healthier, exercise more)</li> </ul> |
| <b>Promising practice:</b><br>The Stanford Diabetes Self-Management Program<br><br>(Community Based)<br><br><a href="http://patienteducation.stanford.edu/programs/diabeteseng.html">http://patienteducation.stanford.edu/programs/diabeteseng.html</a> | 2½ hours workshop, once a week for six weeks, in groups of 12-16 persons with Type 2 diabetes.<br><br>Workshops are facilitated from a highly detailed manual by two trained leaders, one or both of whom are peer leaders with diabetes themselves.<br><br>Workshops focus on day-to-day self-management skills such as: <ul style="list-style-type: none"> <li>Techniques to deal with the symptoms of diabetes, fatigue, pain, hyper/hypoglycemia, stress, and emotional problems such as depression, anger, fear and frustration</li> <li>Appropriate exercise for maintaining and improving strength and endurance;</li> <li>Healthy eating</li> <li>Appropriate use of medication;</li> </ul> <p>Working more effectively with health care providers. Participants will make weekly action plans, share experiences, and help each other solve problems they encounter in creating and carrying out their self-management program.</p> | <ul style="list-style-type: none"> <li>Health Behaviors (diet exercise, glucose monitoring, foot exams, communication with provider)</li> <li>Self Efficacy</li> <li>Health Status</li> <li>Healthcare utilization</li> </ul>   |

**Resources/Websites:**

American Diabetes Association (ADA) [www.diabetes.org](http://www.diabetes.org)  
American Dietetic Association (ADA) [www.eatright.org](http://www.eatright.org)  
Behavioral Diabetes Institute [www.behavioraldiabetes.org](http://www.behavioraldiabetes.org)  
Centers for Disease Control and Prevention (CDCP) [www.cdc.gov/diabetes](http://www.cdc.gov/diabetes)  
Healthy People 2010 [www.healthypeople.gov](http://www.healthypeople.gov)  
National Diabetes Education Program, National Institute of Health <http://ndep.nih.gov>  
National Institute of Diabetes & Digestive & Kidney Disease (NIDDK) [www.niddk.nih.gov](http://www.niddk.nih.gov)  
The Community Guide, [www.thecommunityguide.org/diabetes/index.html](http://www.thecommunityguide.org/diabetes/index.html)  
US Food and Drug Administration, Department of Health and Human Services [www.fda.gov/Diabetes/qna.html](http://www.fda.gov/Diabetes/qna.html)

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