MIAMI-DADE COUNTY HEALTH SNAPSHOT

HYPERTENSION

Scope Of The Problem and Best Practice Models

Who has hypertension?

There are 73.6 million Americans age 20 and older with hypertension or approximately 1 in 3 adults. Of these 71.8% are aware they have it, 61.4% are under current treatment with only 35.1% who have it under control.[1] it is estimated that about 25 percent of the U.S. population age 20 and older has prehypertension.[2]

In Miami-Dade County 25.3% of all persons were diagnosed with hypertension in 2007 and increase of 1.7% since 2002, but lower than the state rate of 28.2%. Of these 93.5% were told by a doctor to engage in control measures. Of those diagnosed, 80.6% were on high blood pressure medication and 92% were engaged in control measures in 2007, compared to 82.1% and 96.4% the state level.[3]

Hypertension as risk factor

In the US approximately 69% of people who have a first heart attack, 77% who have a first stroke and 74% who have chronic heart failure have high blood pressure.[1] Hypertension is also a risk factor for blindness and kidney disease.

Who dies from Hypertension

The number and rate of deaths with hypertension as the primary cause in Miami-Dade County have generally been on the rise since 2006. The county rate for 2008 was the same as for the state (Table 1).

In 2006 high blood pressure was listed as a primary or contributing cause of death for 319,000 Americans.[2]

Table 1. Deaths from Hypertension: Florida and Miami-Dade County

	Average Number of Deaths			Death Rate		
	2006	2007	2008	2006	2007	2008
State of Florida	1826	1712	1833	7.1	6.5	6.8
Miami-Dade County	161	175	192	6.0	6.4	6.8

Hypertension Disparities

High Blood Pressure rates differ by gender and increase with age

- More females are admitted to a hospital with hypertension (58.7%) than males in Miami-Dade County.
- Nationally A higher percentage of men than women have HBP until age 45 and over age 64. From ages 45–54 and 55–64, the percentage of men and women is similar.[2]
- Hypertension admissions are significantly older than Miami-Dade County residents as a whole with a median age of 64.0 versus. This is in keeping with national trends which reveal increased prevalence of hypertension with increased age.[5]
- Prehypertension and high blood pressure among children and adolescents (ages 8 to 17) trended upwards from 1988 to 1999; prehypertension increased 2.3 percent and high blood pressure increased 1 percent.[5]

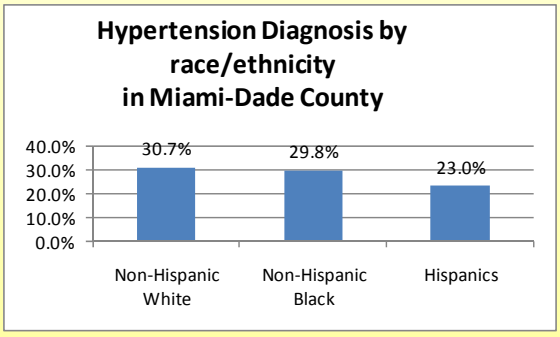


Figure 1

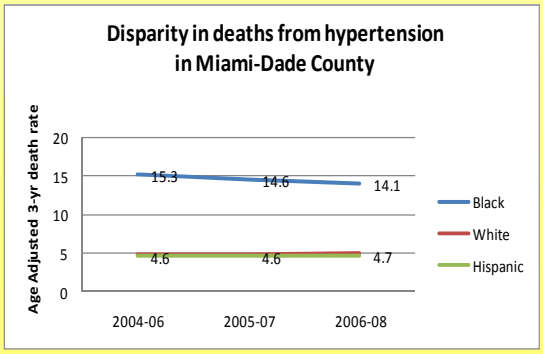


Figure 2

High Blood Pressure rates and outcomes differ by race and ethnicity

- Hypertension prevalence rates are highest among Non-Hispanic Whites (30.7.1 in 2007) and lowest among Hispanics (23.0 in 2007) in Miami-Dade County (Figure 1).[3]
- Nationally 32% of non-Hispanic black adults had ever been told by their doctors that they had hypertension compared with 21% of Hispanic adults and 23% of non-Hispanic white adults. [5] Among blacks, with the highest rates are more likely to be middle-aged or older, less educated, overweight or obese, physically inactive, and have diabetes.
- Deaths from hypertension, although on the decline since 2004-06, is significantly higher in the black population in Miami-Dade county. (Figure 2) [3]. The three year age-adjusted death rates for blacks in Miami-Dade County was almost 10% higher than for White and Hispanic persons for 2006-2008.[3]

Hypertension Admission Rate in Miami-Dade County

The hypertension admission rate was among the 20 worse performing indicators reported in the *2007 Miami-Dade County Community Health Report Card,* which reports on leading health issues affecting the county. The hypertension admission rate is one of 14 Prevention Quality Indicators (PQIs) developed by for the Agency for Healthcare Research and Quality (AHRQ). Although hypertension is a common condition, hospitalizations for complications of hypertension are relatively uncommon. Hypertension is often controllable in an outpatient setting with appropriate use of drug therapy.

Extent of the Problem and the Cost to the Community

- The rate of hypertension admissions per 100,000 adults increased dramatically between 2006 and 2007 before falling slightly to 129.8 in 2008. The overall trend in admissions between 2001 and 2008 is upwards.
- In 2008, 2,450 adults were admitted to a hospital with a principal diagnosis of hypertension and had no cardiac procedure performed during their stay. The undiscounted cost for services rendered by hospitals associated with these admissions totaled $56,414,945; an average of $23,026 for a single admission.
- The principal payer of these charges was Medicare (45%) with total gross charges of 25 million. Commercial Insurers and Medicaid followed with 21% ($12 million) and 14% ($8 million) respectively. Self-pay/Under-insured (no 3rd party coverage or less than 30% estimated insurance coverage) accounted for 14% ($8 million), and charity 5% ($3 million).

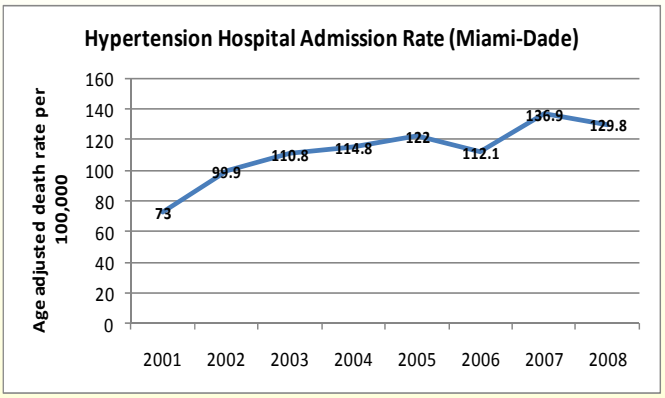
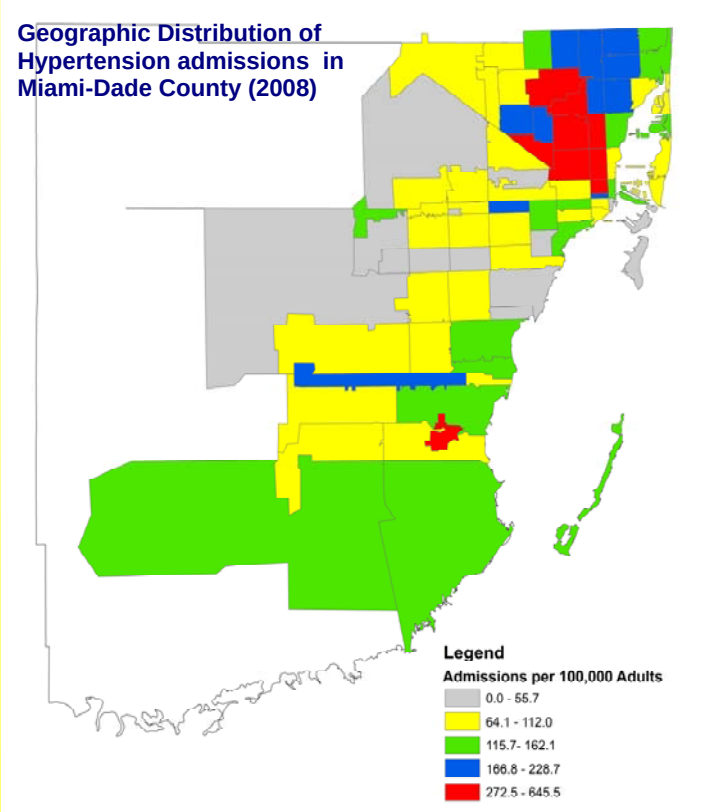


Figure 3



The Hospitals

Nine hospitals account for 54.7% of hypertension admissions, with Miami-Dade County's public hospital system, Jackson Health System's (JHS) three campuses, accounting for 20.7% of total admissions.

Hospital	Admissions	
	Number	Percent
Total Admissions	2,450	100.0%
Jackson Health System	506	20.7%
Jackson Memorial Hospital	227	9.3%
Jackson North Medical Center	177	7.2%
Jackson South Community Hospital	102	4.2%
Hialeah Hospital	204	8.3%
Aventura Hospital and Medical Center	181	7.4%
Mount Sinai Medical Center	170	6.9%
Kendall Medical Center	146	6.0%
University of Miami Hospital	144	5.9%
North Shore Medical Center	142	5.8%
Palmetto General Hospital	139	5.7%
Mercy Hospital	111	4.5%
Palm Springs General Hospital	104	4.2%
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Palm Springs General Hospital	104	4.2%

Table 2: Hypertension admission by facility

Lifestyle Changes for Prevention

Key components of preventing and treating hypertension are healthy lifestyles, having ongoing medical care, and following the treatment plan prescribed by a doctor. Obesity is associated with a 2- to 6-fold increase in risk of occurrence of hypertension. As such weight loss, is a foundation of any lifestyle modification effort designed to decrease blood pressure. Additional lifestyle changes that lower blood pressure include reduced sodium intake, moderation of alcohol intake, adequate potassium consumption and increased physical activity.[9]

- A decreased intake of calories, sodium, and alcohol, along with increased physical activity, combined is associated with a 50% reduction in the 5-year incidence of hypertension.
- On the average, for each10-kg (approx. 20 lbs) increase over ideal body weight, systolic BP rises 2 to 3 mm Hg and diastolic BP rises 1 to 3 mm Hg (20). Moderate loss of 4.5 kg (approx. 10lbs) in an obese patient with hypertension can significantly reduce high blood pressure [9]

Guidelines for Improving Health Outcomes in People with hypertension

Patient motivation is essential to the success of any hypertension therapy prescribed by a clinician. As such self-management education is key to improving health outcomes for people with hypertension or prehypertension.

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

- Using evidence-based guidelines for hypertension care such as those created by the National Heart Lung and Blood Institute 's 7th Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure and the American Association of Clinical Endocrinologists clinical practice guidelines.
- Adoption of the Dietary Approaches to Stop Hypertension (DASH) eating plan
- Providing patients with written self management plans
- Providing referrals for support services to manage mental, emotional, financial, home/work stress for alcohol abuse treatment and tobacco cessation

Keys to controlling high blood pressure [10]

- **Maintain a Healthy Weight**
- **Be Active**
- **Maintain a Healthy Diet**
- **Moderate Alcohol Use**
- **Prevent and Control Diabetes**
- **No Tobacco**
- **Use Medications as prescribed**

A Self-Management Plan Includes:

Self- Monitoring:	Measuring systolic and diastolic blood pressure
	Monitoring of blood glucose
Exercise and lifestyle changes	Planned physical activity 3-5 days a week Smoking cessation and alcohol reduction
Nutrition	Meal plans to promote a healthy weight, reduced sodium intake and increased potassium intake
Stress management	Stress reduction at work and at home
Medication	Taking medications as prescribed by a doctor

Defining hypertension [4]

- High blood pressure or hypertension for adults is defined as a systolic blood pressure of 140 mmHg or higher or a diastolic blood pressure of 90 mmHg or higher. Persons with high blood pressure require lifestyle modifications and typically two or more antihypertensive medications to achieve blood pressure goals
- Normal blood pressure is a systolic blood pressure of less than 120 mmHg and a diastolic blood pressure of less than 80 mmHg.
- Prehypertension is defined as a systolic blood pressure of 120–139 mmHg or a diastolic blood pressure of 80–89 mmHg. Persons with prehypertension are at increased risk to progress to hypertension and should be targeted for lifestyle modifications

Know Your Numbers – Modifiable Risk Factors

Measure	Goal	Find out more
Blood Pressure	Normal: ≤ 120/80 mm Hg	
BMI	18 to 24.9	Healthy Weight and nutrition guidelines http://www.cdc.gov/healthyweight/index.html http://www.cdc.gov/nutrition/index.html http://www.nhlbi.nih.gov/hbp/prevent/h_eating/h_eating.htm
Level of physical activity	Moderate level of physical activity, 30 minutes a day for most days of the week	Physical Activity guidelines http://www.cdc.gov/physicalactivity/index.html http://www.nhlbi.nih.gov/hbp/prevent/p_active/p_active.htm
Sodium intake	< 2300 mg/day for adults in general <1500 mg/day for adults over 40, Blacks and those with hypertension	Sodium reduction http://www.cdc.gov/dhdsp/library/sodium.htm http://www.nhlbi.nih.gov/hbp/prevent/sodium/sodium.htm
Blood sugar	Before meal: 70–130 mg/dl (5.0–7.2 mol/l) After meal:<180 mg/dl (<10.0 mol/l) A1c: <7	Checking your Blood Glucose, ADA http://www.diabetes.org/type-2-diabetes/blood-glucose-checks.jsp

Evidence-based practices in Hypertension Care

- Programs with Promising or Best Practice Outcomes

Program	Interventions	Outcome Measures
Kaiser Permanente – Colorado Region and Colorado Permanente Medical Group, PC Denver, Colorado, USA— *A Focus on Hypertension: Four Years of Improvement*	To increase blood pressure (BP) control rates in their commercial population from 36 percent to 65 percent within three to five years as measured by the Healthcare Effectiveness Data and Information Set (HEDIS). Changes made to existing system: • Regional and local improvement ideas were combined to improve the health of hypertensive patients across 20 clinic departments. • A multidisciplinary task force developed regional interventions including a foundation program, education, guidelines, and tools. • Local improvements and pilots were customized to meet the needs and interests of the local care teams, including group visits, RN visits, home BP monitoring, Clinical Pharmacist support, and targeted outreach. Lesson learned: • Commitment to a long-term goal was key. • Process involved continual learning, training and sharing of ideas • Basing the program on the successes of programs across the region built a solid foundation • Early success and continued improvement should be celebrated • Ask for volunteers • The closer data/metrics are to providers, the more meaning it has to them • Share data regularly to show improvements and so all involved know that it remains important.	• Diastolic Blood Pressure • Systolic Blood Pressure
Medical Information Systems Unit, Boston University Medical Center Hospital, MA A telecommunications system for monitoring and counseling patients with hypertension. Impact on medication adherence and blood pressure control	The study compared subjects who received usual medical care with those who used a computer-controlled telephone system in addition to their usual medical care during a period of 6 months to evaluate the effectiveness of the automated telephone patient monitoring and counseling on patient adherence to antihypertensive medications and on blood pressure control. • Patients recruited from community sites who were >or= 60 years of age, on antihypertensive medication, with a systolic blood pressure (SBP) of >or= 160 mm Hg and/or a diastolic blood pressure (DBP) of >or= 90 mm Hg. • Weekly, subjects in the telephone group reported self-measured blood pressures, knowledge and adherence to antihypertensive medication regimens, and medication side-effects. • Information was sent to their physicians regularly. Weekly use of the automated telephone system improved medication adherence and blood pressure control in hypertension patients. This system can be used to monitor patients with hypertension or with other chronic diseases, and is likely to improve health outcomes and reduce health services utilization and costs.	At 6 months: • Change in antihypertensive medication adherence • Diastolic Blood Pressure • Systolic Blood Pressure • Patient satisfaction • Perceived utility for physicians • Cost effectiveness
Department of Medicine, Johns Hopkins Medical Institutions, Baltimore, MD Effects of comprehensive lifestyle modification on blood pressure control	Participants were randomized to one of 3 intervention groups: • (1) "Established": a behavioral intervention that implemented established recommendations (Weight loss, sodium reduction, increased physical activity, and limited alcohol intake) • (2) "Established plus DASH,": also implemented the DASH diet with other established recommendations; • (3) "Advice only" comparison group Individuals with above-optimal BP, including stage 1 hypertension, can make multiple lifestyle changes that lower BP and reduce their cardiovascular disease risk.	At 6 months: Primary • Blood pressure measurement • Hypertension status months Secondary • Weight reduction • Fitness level • Fruit and vegetable intake • Level of sodium intake
State of South Carolina and Duke Endowment The Hypertension Initiative http://research.musc.edu/bp/multi_hisc.html	The goal of the Hypertension Initiative is to make possible the transition of South Carolina and the Southeast from a leader in cardiovascular disease to a model of heart and vascular health, i.e., 'worst to first' in cardiovascular health. The program implements a two fold strategy: • Management of major modifiable risk factors including hypertension, hyperlipidemia and diabetes through effective primary care • Promoting healthy lifestyle, especially good nutrition and physical activity utilizing DASH and the Stroke Belt Initiative. Physicians can monitor treatment patterns and patient outcomes through the Initiative's database and feedback reporting system. The Initiative assists primary care physicians to become certified Hypertension Specialists through the American Society for Hypertension's (ASH) certification process.	• Blood pressure control rates (target Health People 2010 goal of ~50% for overall population and ~70% for persons diagnosed with hypertension) • Patient blood pressure rates

Resources/Websites:

Diagnosis, Evaluation, and Treatment of High Blood Pressure in Children and Adolescents, http://www.nhlbi.nih.gov/health/prof/heart/hbp/hbp_ped.pdf
American Heart Association, High Blood Pressure, http://www.americanheart.org/presenter.jhtml?identifier=2114
Center for Disease Control, High Blood Pressure, http://www.cdc.gov/bloodpressure/index.htm
NCHS Data brief: http://www.cdc.gov/nchs/data/databriefs/db03.pdf
An evidence based view of patient centered interventions: http://www.ajpm-online.net/article/S0749-3797(01)00356-7/abstract
National Guideline Clearinghouse, http://www.guideline.gov

Sources:

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2. American Heart Association, Heart Disease and Stroke Statistics, Retrieved fromhttp://www.americanheart.org/downloadable/heart/1240250946756LS-1982%20Heart%20and%20Stroke%20Update.042009.pdf
3. Florida Department of Health, Florida CHARTS, Chronic Diseases, Diabetes, Retrieved from http://www.floridacharts.com/charts/Domain2.aspx?Domain='02'
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7. Agency for Healthcare Research and Quality, Department of Health and Human Services, Prevention Quality Indicators: Technical Specifications, Version 3.2, February 29, 2008.
8. American Association of Clinical Endocrinologists, Clinical Practice Guidelines, Retrieved from: http://www.aace.com/pub/pdf/guidelines/HypertensionGuidelines.pdf
9. Center for Disease Control, High Blood Pressure, Prevention, Retrieved from http://www.cdc.gov/bloodpressure/prevention.htm