Diabetes Facts for Marion County 2009

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Diabetes Facts for Marion County 2009

Incidence [New Cases]:

- Nationally, new cases of diabetes have increased 123% in the past 27 years, especially since the early 1990s.
- The *lifetime risk* of being diagnosed with diabetes for U.S. children born in 2000 is over 30%, e.g. nearly one-in- three are now estimated to develop diabetes sometime in adulthood.

Prevalence: People Living with Diabetes

- Marion County prevalence increased over 60 percent from 2000-2008, to 10.0% of adults (over 62,000 cases) but is not statistically different than national or state rates.
- Marion County's 2008 prevalence is four times the Health People 2010 target for diabetes prevalence of 2.5% among adults.
- Marion County Black residents have a 60% higher prevalence rate than White residents and 33% higher rate than Hispanic residents.

Diabetes Morbidity:

- Diabetes-related hospital admissions, an avoidable reason for hospitalization, resulted in approximately 1,400 admissions/year, ranging between a rate of 191 cases per 100,000 population (2004) to 205 per 100,000 population (2008), a rate similar to U.S. rates (2005).
- Marion County non-trauma lower limb amputations decreased from 43 cases per 100,000 population (2004), to 36 per 100,000 (2008). Some 60% of non-trauma amputations in the nation are among persons with diabetes.
- In 2007, the Centers for Disease Control and Prevention (CDC) estimated total direct and indirect costs of diabetes to be $174 billion.

Diabetes Mortality Rates:

- Marion County's 2008 diabetes mortality rate of 15.1 deaths per 100,000 is now lower than the U.S. (22.4 per 100,000 in 2007). Both national and local diabetes death rates have declined in recent years.
- Marion County diabetes mortality has declined significantly for all ethnicity groups between 2005 and 2008, down from 27.2 deaths per 100,000 population. In 2008, diabetes no longer ranked in the top ten causes of death among Whites, and fell to the 9th leading cause among Blacks. In 2007 U.S. diabetes mortality ranked 7th among leading causes of death [at 22.4 deaths per 100,000].
- Despite declining mortality, Marion County Blacks remained twice as likely as Whites to die of diabetes (2008: 25.6 per 100,000 versus 11.8 per 100,000 for Whites, or 209% higher).

Diabetes: An Introduction

Diabetes mellitus is a group of metabolic diseases characterized by hyperglycemia (high blood sugar) resulting from defects in insulin secretion, insulin action, or both. Prolonged duration of high blood sugar levels damages the small arteries and capillaries essential to healthy circulation for eyes, kidneys, heart, and peripheral nerves. Persons with diabetes are more susceptible to other conditions such as heart attacks, kidney failure, heart failure, skin ulceration and infection, diabetic blindness, and lower extremity amputations, and costly hospitalizations for these events.[1]

Over 90 percent of diabetes cases are Type 2; another 5 to 10 percent are Type 1.[2] Type 2 diabetes is more prevalent among older individuals, some minority populations and persons who are obese. However, the onset of Type 2 diabetes may be prevented or significantly delayed by healthful behaviors, including maintaining a healthy body weight and normal blood pressure level, and keeping physically active.[3]

Prevalence, or the burden of a disease like diabetes in a population, is driven by: 1) the *incidence*, or rate at which new cases develop [and are diagnosed] among population members, and 2) *duration of the disease*, or period in which cases of a chronic disease survive, but are uncured. Prevalence can change under several situations, including: greater access to medical surveillance and screening, thus increasing diagnosis rates; increasing incidence due to exposure to risk factors, such as obesity; and improvements in treatment and/or as medical intervention(s) keeping patients from developing, or dying from, diabetes' complications. One-fourth of persons with diabetes are undiagnosed, as early stages are relatively non-symptomatic.[4] Healthy People 2010 (HP2010) targets at least 78% of adults with diabetes over age 20 will be medically diagnosed[5], and under care. The true prevalence of diabetes is likely to be underestimated in statistics based on population surveys where adults self-report whether a health-provider has ever diagnosed diabetes.

Lifetime Risk of Diabetes for Americans born in 2000: Increasing Incidence

Currently, the lifetime risk of developing diabetes among Americans born in 2000 is over 30%, or nearly one-in-three individuals are now estimated to develop diabetes sometime in adulthood. Risk is highest for minority females, where half of Hispanic females born in 2000 (52.5%) and 49.0% of Black females, are projected to develop this disease.

% Percent of persons born in 2000 estimated to develop diabetes later in life.[6]

	Male (%)	Female (%)
Overall	32.8	38.5
White, not Hispanic	26.7	31.2
Black, not Hispanic	40.2	49.0
Hispanic	45.4	52.5
Other	36.9	43.3

U.S. diabetes incidence rates increased 123% from 1980-2007, from 3.5 to 7.8 per 1,000 population, or nearly double the Healthy People 2010 target rate of 3.8 cases per 1,000 population.[7] The rapid increase following 1990 suggests much of the change is not due to population aging[8] (Figure 1). Incidence is expected to continue increasing, in part due to unprecedented increases in U.S. obesity rates. Middle-aged adults' incidence has been increasing since 1990 and now matches that once seen only in the elderly. Young adults' incidence has increased from the late 1990s. Whites' incidence rates have increased since 2000. Blacks' incidence rates are nearly double that of Whites', and Hispanic incidence rates now approach that of Black members of the U.S. population (Figure 2).

Figure 1 New [incident] U.S. cases of diabetes, by age group: 1980-2007

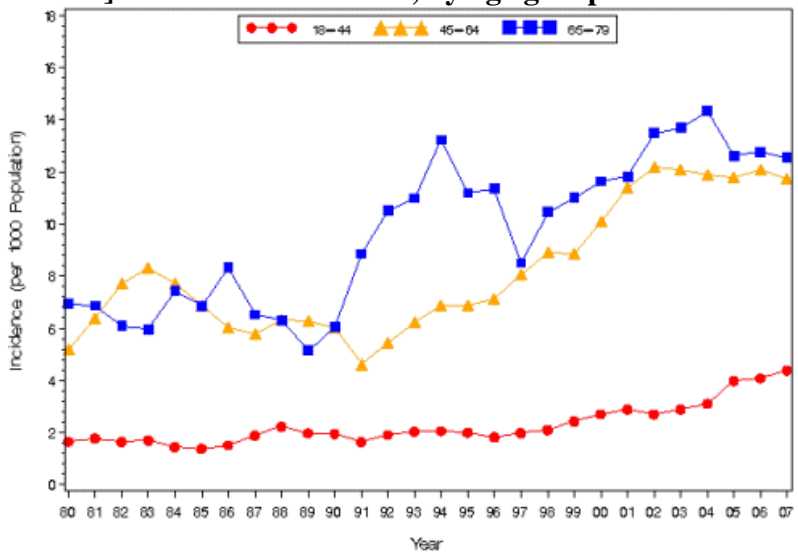


Figure 2 New (incident) U.S. cases of diabetes, by Ethnicity: 1980-2007

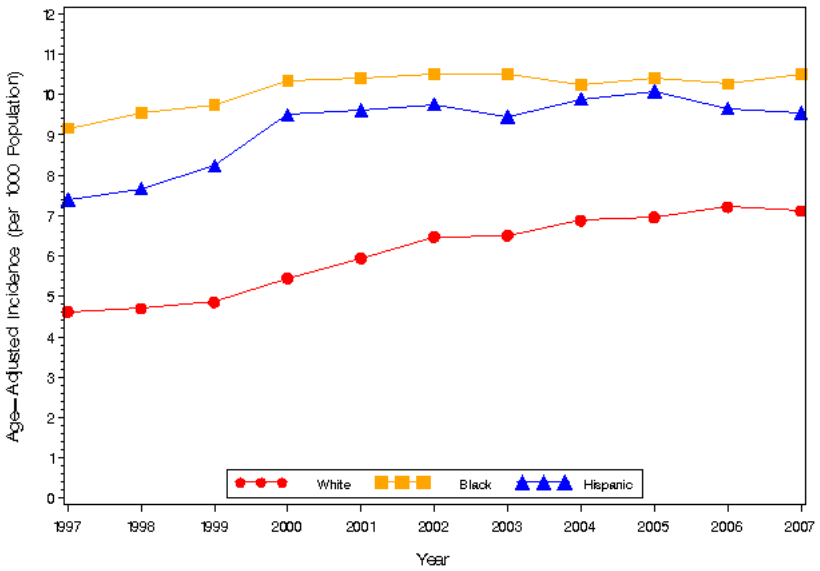


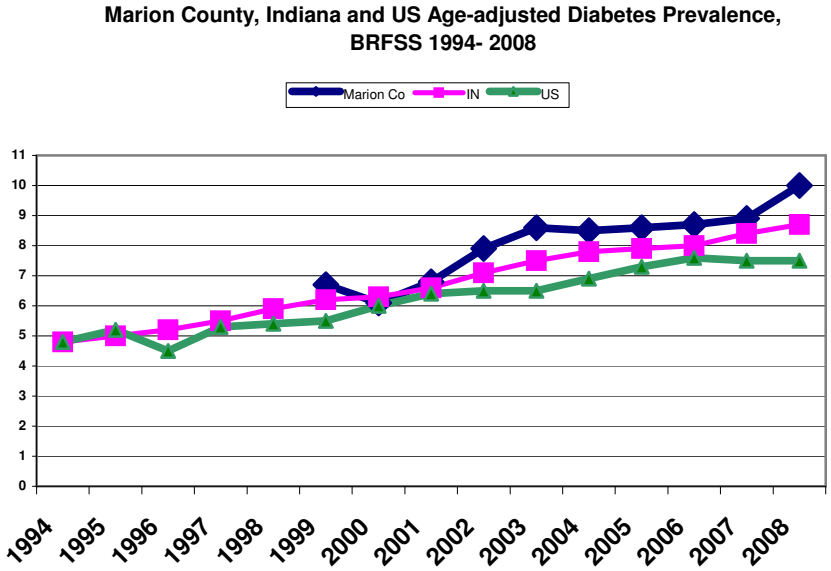
Figure 1 and 2 Source: CDC's Diabetes Program - Data & Trends Chronic Disease\Diabetes\CDC's Diabetes Program - Data & Trends - Crude and Age-Adjusted Incidence of Diagnosed Diabetes per 1000 Population Aged 18-79 Years, United States, 1980-2007.

Diabetes Prevalence

Between 2000 and 2008, national and state prevalence rates of diabetes have risen (Figure 3), due to *both* greater incidence, or new cases, in the population, *and* longer survival of persons with diabetes (affecting the duration of the disease) [See Diabetes Mortality, below].[9]

Marion County's diabetes prevalence has increased over 60 percent from 6.1 percent in 2000, to 10.0 percent in 2008 (Table 1), but is not statistically significantly different than recent national or state age-adjusted prevalence rates. Marion County is the top quarter of counties for diabetes prevalence in Indiana[10] and is four times the HP2010 target rate of 2.5% for diabetes prevalence.[11] A 10% estimated diabetes prevalence translates to over 62,000 Marion County adults who are known to have this disease.

Figure 3 Diabetes Prevalence



Source: BRFSS data 1994-2008; BRFSS-SMART data 1999-2008.[12]

The CDC's Behavioral Risk Factor Surveillance System (BRFSS) phone surveys also estimate the prevalence of the different types of diabetes.[13] Differences between national, state and Marion County figures for diabetes, gestational-onset and pre-diabetes conditions are not statistically significant (Table 1), though the prevalence in Marion County and Indiana tended to be higher than the national prevalence.

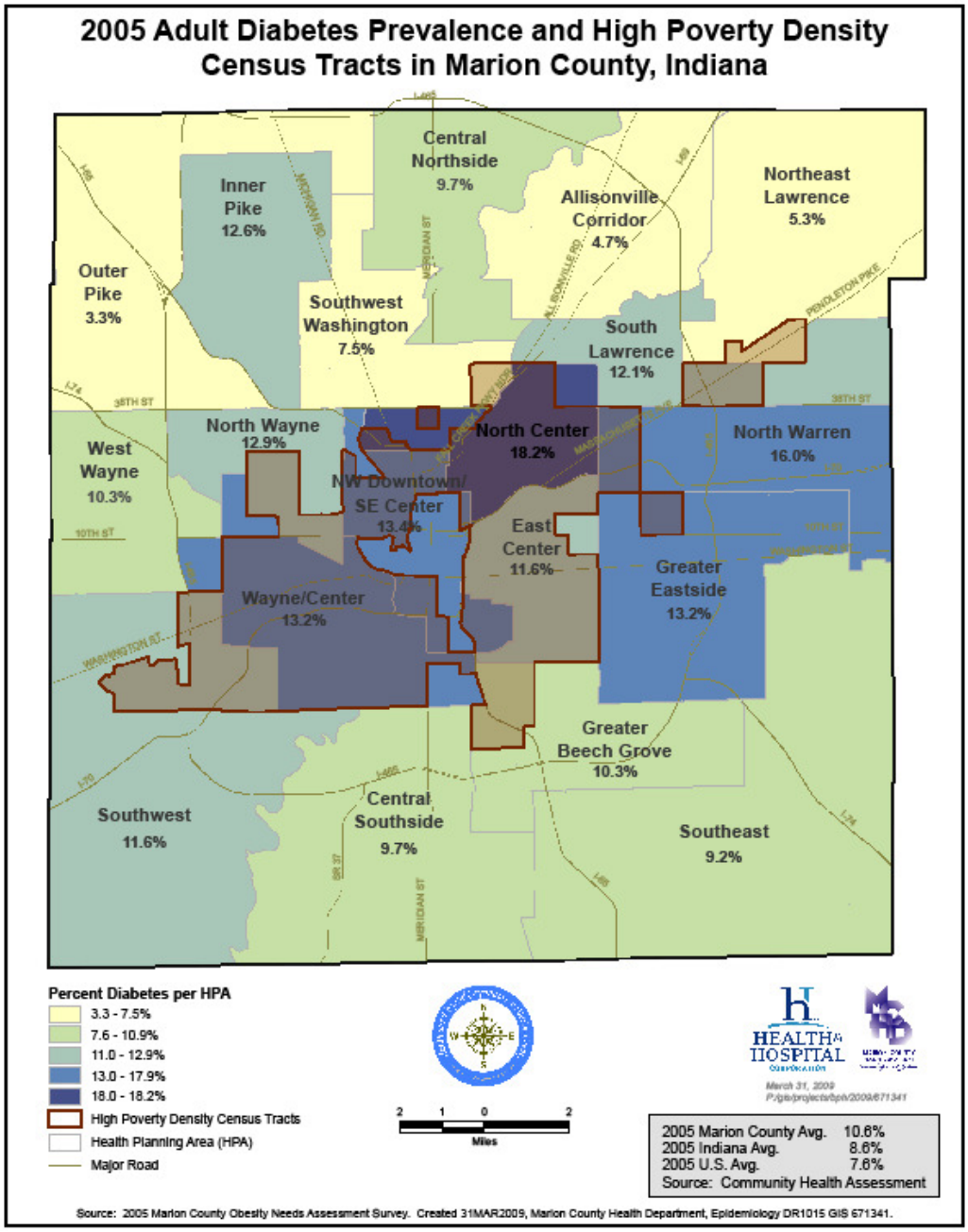
Table 1 2008 Prevalence of Diabetes, Gestational Diabetes, and Pre-Diabetes

	Diabetes	Gestational Diabetes	Pre-Diabetes	No Diabetes
Marion County: Total %	10.0%	0.6%	1.1%	88.2%
Indiana: Total %	9.6%	0.7%	1.8%	88.0%
U.S.: Median percentage, 50 states	8.3%	0.9%	1.1%	90.0%

Source: CDC BRFSS survey, SMART Marion County; BRFSS Indiana and U.S. 2008.[14]

Diabetes is not equally distributed geographically in Marion County and follows both high-poverty areas (Figure 4) and areas where adult obesity is also more prevalent. Diabetes data for Marion County (2005)[15] shows nearly a six-fold difference among Health Department planning areas (each with populations of about 50,000), ranging between 3.3% and 18.2% diabetes prevalence.

Figure 4 Marion County Diabetes Prevalence Distribution



Ethnicity and Age-Group Differences: 2005 Marion County Adult Survey

A 2005 telephone survey of nearly 5,000 Marion County adults provides the most recent detailed information on ethnicity, gender, and age-group differences in diabetes prevalence.[16]

The Black/White difference in diabetes prevalence in Marion County is similar to that seen in Indiana and the nation. Diabetes prevalence among Marion County Hispanics is not statistically different than the state or national Hispanic prevalence, or Marion County's White population's prevalence[17] (Table 2). No statistically significant ethnicity differences are seen in male-to-female comparisons of diabetes prevalence.

Prevalence among Marion County Blacks is 60 percent higher than Whites (Odds Ratio: 1.61), and 33% higher than Hispanic residents (Odds Ratio: 1.33). Major disparities in diabetes prevalence between Blacks and the two other ethnic groups emerge after the age of 25 (Table 3). For example, Black adults in several age groups have twice the prevalence of diabetes than similarly aged adults of other ethnicities. Diabetes prevalence in Marion County adults ages 18-24 is 2 to 3 times greater than that seen in the state and nation for this age group. Prevalence among the elderly is also significantly higher in Marion County than that seen for the nation (Table 2).[18]

Detailed prevalence estimates by age, gender and ethnicity are seen in Table 3.

Table 2 Diabetes Prevalence in the U.S., Indiana, and Marion County by Age Group, Race and Gender, 2005.

Category	U.S. 2005	Indiana 2005	Marion County, 2005
Male	7.7%	9.0%	10.1%
Female	7.2%	7.8%	11.1%
White	6.8%	7.8%	9.3%
Black	11.4%	10.4%	15.0%
Hispanic	6.6%	10.0%	7.0%
Ages: 18-24	0.8%	0.6%	1.9%
Age 65+	16.9%	20.5%	23.9%
Total	**7.3%**	**8.3%**	**10.6%**

Source: National BRFSS Data, CDC (2005). Indiana BRFSS data, ISDH (2005); Marion County Community Health Assessment Telephone Survey (2005) (DR0502).

Table 3 2005 Marion County Diabetes Prevalence by Gender, Age and Ethnicity (%)

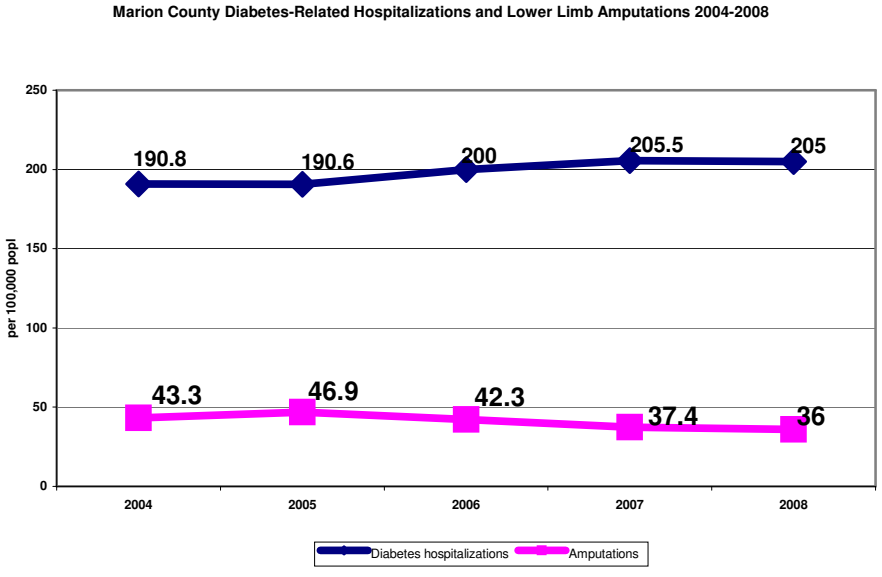
Race/Gender Group	Total	18-24	25-64	65+
White, Total [non-Hispanic]	**9.3**	**2.1**	**7.6**	**20.2**
White Males	8.4	1.6	6.5	23.8
White Females	10.2	2.6	8.7	17.9
Black, Total [non-Hispanic]	**15**	**1.0**	**13.6**	**39.9**
Black Males	15.9	0	16.5	39.4
Black Females	14.2	2.6	11.3	40.2
Hispanic Total	**7.0**	**1.4**	**7.2**	**27.7**
Hispanic Males	5.7	0	5.7	40
Hispanic Females	9.1	3.8	9.6	16.7
Other Race/Ethnicity Total	**13.2**	**15.4**	**10.1**	**26**
Other Race/Ethnicity Males	15.1	0	12.6	22.2
Other Race/Ethnicity Females	10.9	20	7.1	33.3
All Males	10.1	0.9	8.7	26.7
All Females	11.1	3.3	9.3	22.1
Marion County Total	**10.6**	**1.9**	**9**	**23.9**

Source: 2005 Marion County Adult Obesity Needs Assessment Survey 02/23/07 (DR0502).

Diabetes Complications

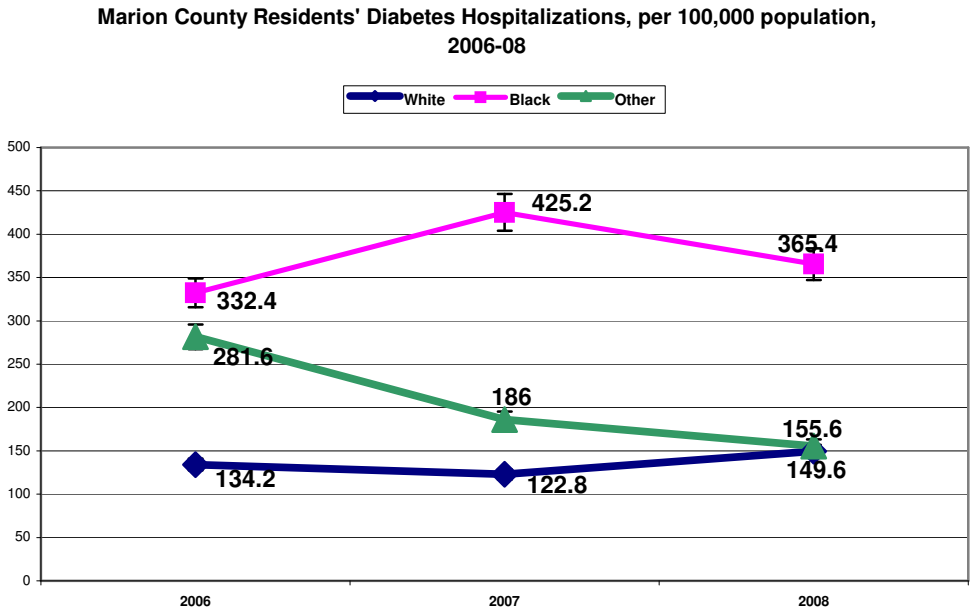
Diabetes-related admissions are one of the most common avoidable reasons for hospitalizations in the U.S.[19] The overall Marion County diabetes-related[20] hospitalization rate is 205 admissions per 100,000 population (2008), up from 190.8 per 100,000 (2004) (Figure 5). Marion County rates were similar to the U.S. of 194 diabetes-related admissions per 100,000 (2005).[21] Inpatient care for diabetes is significantly higher among elderly[22] (Table 4) and minority populations (Figure 6).

Figure 5 Marion County Diabetes-related Hospitalizations and Amputations.



Source: DR1260 Gary Weir Epidemiology. Unadjusted Rates per 100,000 total population

Figure 6 Diabetes Hospitalizations by Ethnicity



Source: DR1236 "other" ethnic includes Hispanics, all races/ethnicities other than White or Black.

Diabetes-related Amputations: Americans with diabetes are 15 times more likely than persons without diabetes to have a lower extremity amputation, a risk increasing in frequency among older patients (Table 4). Nationally 60 to 70 percent of persons with diabetes develop mild-to-severe nerve damage (neuropathy), a major contributor to lower-extremity amputations. Such amputations are considered to be preventable through proper management of blood sugar levels and appropriate foot care.[23]

Marion County rates of non-trauma related lower-limb amputations declined over the past five years to between 36 to 37 amputations per 100,000 in 2007-08 (Figure 5). While county discharge data cannot distinguish patients with or without diabetes, national estimates indicate 60% of non-trauma amputations occur in patients with diabetes.[24] The HP2010 target is to limit the rate of amputations *among persons diagnosed with diabetes* to a 3-year averaged rate of 2.9 amputations per 1,000 persons with diabetes.[25]

Marion County hospital discharge data exclude accidental/trauma-related emergency amputations, but do not allow amputation estimates to be limited to only inpatients with a prior diagnosis of diabetes, and may be difficult to compare directly to HP2010 objectives reported here.

Table 4 Marion County Diabetes-related Hospitalizations and Total Non-trauma related Amputations, per 100,000 total population, by Age: 2004-2005

	<15*	15-24*	25-44	45-64	65+	Total
Diabetic Hospital Admissions						
2004	34.5	112.7	142.9	305.8	507.6	190.8
2005	32.8	118.5	145.8	324.9	445.7	190.6
Lower Limb Amputations						
2004	0.5	2.7	12.8	88.3	173.8	43.3
2005	0.5	1.8	15.6	82.6	208.0	46.9

Source: Marion County Hospital Discharge Data (DR0490-T20) is not limited to patients with diabetes.
*Note: Small numbers of amputation cases under age 24 years may make these estimates unreliable.

Other Complications: Diabetes is the leading cause of kidney failure in the U.S., accounting for 44% of new cases (2005).[26] Total Marion County *inpatient* dialysis cases rose from 100 per 100,000 (1999) to 182 per 100,000 (2005), declining to174.5 (2008). As noted above, hospital discharge data do not allow limiting these analyses to *only* patients with diabetes, and many diabetic patients on long-term dialysis are treated in outpatient, not inpatient, settings.[27]

Diabetes is the leading cause of new cases of blindness among U.S. adults aged 20–74 years, and 3 in 4 persons with diabetes also have high blood pressure (hypertension). Poorly controlled diabetes also increases risk of pregnancy complications, risk of infection and rates of disability.[28]

Diabetes Mortality

Nationally, diabetes ranks as the 7th leading cause of death (2006-07), at 22.4 deaths per 100,000 (2007).[29] The risk of death among persons with diabetes, however, is twice that of similarly aged persons without this disease.[30]

Diabetes has ranked among the ten most common causes of death in Marion County between 2000 and 2005, following deaths due to cancer, heart disease, chronic obstructive pulmonary disease (COPD), and stroke (Table 5). In 2008, diabetes ranked 9th among leading causes of death among county Blacks, and 12th most common cause among Whites in Marion County (Table 7). Compared to similar-sized cities, Indianapolis ranks in the middle of the range of diabetes mortality rates seen in cities with population sizes of 500,000 to under 1 million persons.[31]

Marion County diabetes-related mortality[32] has fallen significantly from 27.2 deaths per 100,000 in 2000 to 15.1 deaths per 100,000 in 2008 (Table 5)***. County diabetes-related deaths are now significantly lower than the U.S. diabetes mortality rate of 22.4 per 100,000 (2007).*** Similar declines have occurred in U.S. diabetes mortality since 2005 when the mortality rate was 25.3 per 100,000.[33] The HP2010 target for the rate of diabetes deaths is 46 deaths per 100,000 population.[34]

Table 5 Marion County, Indiana, and U.S. Death Rates* by cause, per 100,000 persons

	Marion County				
Cause of Death	**2000**	**2005**	**2008**	**Indiana 2006**	**U.S. 2007**
Cancer	217.4	214.4	184.7	197.20	183.8
Heart Disease	247.8	191.5	186.3	216.02	211.1
COPD	57.5	59.1	64.3	50.64	43.2
Stroke	61.1	45.1	38.3	48.77	46.6
Diabetes	**27.2**	**26.8**	**15.1**	**25.74**	**22.4**
Accidents	25.3	21.9	29.6	38.06	39.1
Total Mortality	931.4	864.0	802.6	845.12	798.8

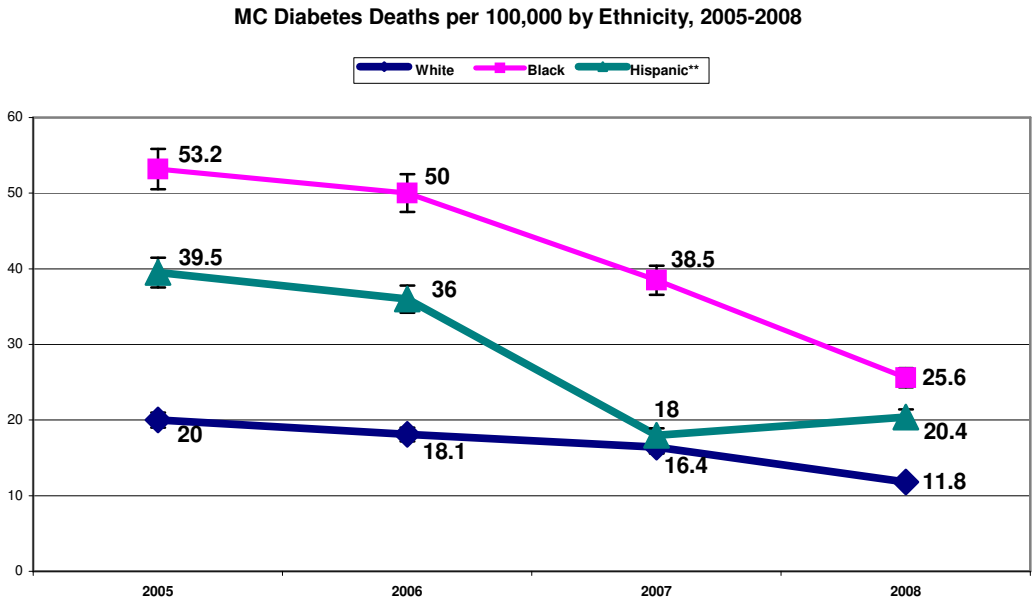
* All rates are age-adjusted to match the age distribution of the 2000 U.S. population. Source: Marion County Death Certificates DR1024 24JUL2009 (DR0483-T37); IN: Indiana Mortality Report 2006 ISDH[35] (most recent data), U.S.: CDC, National Center for Health Statistics.[36]

Ethnicity Disparities in Mortality

Diabetes mortality has declined significantly for all Marion County ethnicity groups between 2005 and 2008 (Figure 7). ***Blacks remained twice as likely to die of diabetes than Whites,*** despite declining mortality rates overall, (2008: 25.6 diabetes deaths per 100,00 versus 11.8 for Whites, or 209% higher). Excess-risk of diabetes deaths among Marion County Blacks is similar to national disparities in diabetes death rates (Odds Ratio: 2.12, 2006).[37]

Risks of cardiovascular and cerebrovascular diseases are 2 to 4 times higher among individuals with diabetes.[38] Given their higher diabetes prevalence among Blacks, heart disease and stroke death rates among Marion County Blacks are also 33% and 56% higher, respectively, compared to Whites. Hispanic diabetes deaths are rare, but their rates are likely to fall between those for Whites and Black residents (Table 6).

Figure 7 Diabetes Deaths, Marion County 2005-08, by Ethnicity.



Death rates per 100,000 population are age-adjusted to the age distribution of the 2000 U.S. population.
** Note: Mortality rates for Hispanics are too small to provide stable estimates; interpret with caution.
Source: Marion County Death Data DR0483-T39 and DR 1236 (11/09).

Table 6 Marion County, 2008 Chronic Disease Death Rates and Black or Hispanic versus White Mortality Disparities in Death Rate Ratios

Cause	Black Deaths per 100,000 Black Persons*	White Deaths per 100,000 White Persons*	Hispanic Deaths per 100,000 Hispanic Persons*	Black:White Mortality Rate Ratio	Hispanic:White Mortality Rate Ratio
All Causes	986.5	764.3	312.7	1.30	.41
Heart Disease	235.8	177.6	50.1	1.33	.28
Cancer	222.3	174.9	35.9	1.27	.21
Diabetes Mellitus	25.6	11.8	20.4**	**2.09**	**1.72**
Stroke	54.1	34.6	24.2	1.56	.70

* Age-adjusted to match the age distribution of the 2000 U.S. population.
** Diabetes deaths among Hispanics are rare, and their unstable rate estimates must be interpreted with caution.
Source: Marion County Health Department death certificate data, U.S. Census population estimates (DR1236, 11/2009)

Table 7 Ranked Leading Causes of Death by Ethnicity: Marion County

	2008		2005		2002	
Cause of Death	**White**	**Black**	**White[5]**	**Black[5]**	**White**	**Black**
Heart Disease	1*	1	1	2	1	2
Cancer	2*	2	2	1	2	1
COPD	3	3	3	5	3	8
Stroke	4	4	4	3	4	3
Unspecified Dementia	6	8	5	8	6	13
Accidents	5	6	6	9	7	6
Alzheimer's	8	11	7	10	10	>11
Diabetes	**12**	**9**	**8**	**4**	**9**	**5**
Pneumonia & Influenza	7		9	>11	8	12
Kidney Disease	11	7	10	7	11	7
Homicide		5	21	6	21	4
Suicide	9					
Atherosclerosis	10	12				
Septicemia		10				

Source: Marion County Death Certificates (DR0483-T36) and DR1024. *White mortality for heart disease and cancer were closely tied in rank for 2008 (177.6 and 174.9 deaths per 100,000, respectively).

National Cost of Diabetes

The CDC estimates total U.S. direct and indirect costs of diabetes to be $174 billion (2007), including $116 billion in direct medical care and $58 billion in lost productivity, premature death and disability. Medical expenditures among people with diabetes were 2.3 times higher than expenditures among individuals without diabetes[39].

Sources

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http://apps.nccd.cdc.gov/ddtstrs/Index.aspx?stateId=18&state=Indiana&cat=prevalence&Data=data&view=TO&trend=prevalence&id=1
[13] BRFSS definition of "diabetes prevalence" does not include gestational or pre-diabetes conditions.
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[16] Marion County Community Health Assessment Telephone Survey (2005) (DR0502). http://www.mchd.com/obesitysurvey.htm.
[17] Indiana Behavioral Risk Factor Surveillance System Data, Indiana State Department of Health (2005); National Behavioral Risk Factor Surveillance System Data, Centers for Disease Control and Prevention (2005). 95% confidence limits overlap among these population estimates.
[18] Indiana Behavioral Risk Factor Surveillance System Data, Indiana State Department of Health (2005); National Behavioral Risk Factor Surveillance System Data, Centers for Disease Control and Prevention (2005).
[19] Nationally, 12 percent of all admissions have been attributed to Ambulatory Care Sensitive (ACS) conditions, including uncontrolled diabetes, pneumonia, congestive heart failure, and asthma. Ambulatory care sensitive (ACS) conditions are conditions for which hospitalizations may be prevented by appropriate access to primary care. [Pappas G, Hadden WC, Kozak LJ, Fisher GF. Potentially avoidable hospitalizations: inequalities in rates between U.S. socioeconomic groups. Am J Public Health, 1997; 87(5): 811–816.]
[20] Diabetes-related hospitalizations are any which include diabetes in the discharge diagnoses fields. Hospital discharge data does not distinguish between patients with and without diabetes. These rates are not restricted to only patients with diabetes.
[21] Most recently available data for diabetes as first listed diagnosis on hospital discharge records. CDC Diabetes Surveillance data: Hospitalizations http://www.cdc.gov/diabetes/statistics/dmfirst/fig7.htm . National hospitalization rates for diabetes have been relatively unchanged since the 1990's.

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[26] CDC National diabetes fact sheet, 2007 http://www.cdc.gov/diabetes/pubs/estimates07.htm There is no HP2010 objective addressing diabetes related dialysis.
[27] Source: DR1260 Epidemiology 1/2010. It should be noted that in-patient dialysis is not restricted to patients with diabetes. As many diabetic patients on long-term dialysis are treated in out-patient settings, which are not reflected in these rates, estimating rates of dialysis treatment among county diabetics is not feasible. Outpatient discharge data from local hospital systems were not available for this report.
[28] CDC National diabetes fact sheet, 2007 http://www.cdc.gov/diabetes/pubs/estimates07.htm
[29] Diabetes Mortality for ICD-10 codes E10-E14. National Center for Health Statistics Preliminary 2007 Results http://www.cdc.gov/nchs/data/nvsr/nvsr58/nvsr58_01.pdf National Vital Statistics Reports, Vol. 58, No. 1, August 19, 2009, Table 7.
[30]Diabetes is likely to be underreported as a cause of death, as only about 35% to 40% of decedents with diabetes had it listed anywhere on the death certificate. Only about 10% to 15% had it listed as the underlying cause of death. The number of deaths with diabetes as any listed cause of death among U.S. residents was obtained from the multiple cause-of-death dataset, National Center for Health Statistics, Centers for Disease Control and Prevention. Centers for Disease Control and Prevention. National Diabetes Fact sheet: general information and national estimates on diabetes in the United States, 2007. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2008. Available at: http://www.cdc.gov/diabetes/pubs/estimates07.htm
[31] *Big Cities Health Inventory: The Health of Urban America, 2007,* National Association of County and City Health Officials, Benbow, N., Editor. Washington, D.C. 2007. Table 3.19
[32] County age-adjusted rates are calculated using NCHS definition: e.g. number of deaths due to diabetes, coded as ICD-10 codes E10 - E14, and reported as the *underlying cause* of death [but not included diabetes on multiple-cause listing].
[33] National Center for Health Statistics Deaths: leading causes for 2005. Volume 58, Number 8 December 23, 2009 http://www.cdc.gov/nchs/data/nvsr/nvsr58/nvsr58_08.pdf In this report, tabulations of cause-of-death statistics are based solely on the *underlying cause* of death. The underlying cause is defined by WHO as the disease or injury that initiated the train of events leading directly to death, or the circumstances of the accident or violence that produced the fatal injury (4). It is selected from the conditions entered by the physician in the cause-of-death section of the death certificate. When more than one cause or condition is entered by the physician, the underlying cause is determined by the sequence of conditions on the certificate, provisions of the ICD, and associated selection rules and modifications. Generally, more medical information is reported on death certificates than is directly reflected in the underlying cause of death. This is captured in NCHS multiple cause-of-death statistics (37–39).
[34] Healthy People2010: Diabetes Objective 5-5. Diabetes mortality [in the general population] target rate is 46 diabetes deaths per 100,000 standard population. HP2010 defines this as number of deaths due to diabetes (ICD-10 codes E10 - E14) reported as the underlying *or multiple cause of death*. The mortality HP2010 target therefore is not directly comparable to NCHS and county reported diabetes death rates as the latter only include underlying [not multiple] causes of death in the count of "diabetes deaths"
ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Datasets/DATA2010/Focusarea05/O0505.pdf
[35] Indiana State Department of Health, Epidemiology Resource Center, Data Analysis Team. Indiana Mortality Top Ten leading causes of Death 2006 Table 10-3
http://www.in.gov/isdh/reports/mortality/2006/table03/tbl03_1_00.htm
[36] National Center for Health Statistics. Deaths: Preliminary Data for 2007.
http://www.cdc.gov/nchs/data/nvsr/nvsr58/nvsr58_01.pdf National Vital Statistics Reports, Vol. 58, No. 1, August 19, 2009, Table 7. Diabetes Mortality for ICD-10 codes E10-E14.
[37] USDHHS/Office of Minority Health/ National Partnership for Action to End Health Disparities, *National Plan for Action 2009* Exhibit 2-14, in http://minorityhealth.hhs.gov/npa/images/plan/nationalplan.pdf

source: National Vital Statistics System (NVSS) from the Centers for Disease Control and Prevention (CDC): Health Data Interactive; Risk factors and disease prevention; Table on Mortality by underlying cause, ages 18+: US/State, 2001-2006

[38] CDC National diabetes fact sheet, 2007 http://www.cdc.gov/diabetes/pubs/estimates07.htm

[39] CDC National Diabetes Fact Sheet, 2007 http://www.cdc.gov/diabetes/pubs/estimates07.htm