MICHIGAN DIABETES ACTION PLAN

Working Together to Prevent and Control Diabetes

FOCUSED GOALS
FOR 2009 – 2011

Diabetes Partners in Action Coalition

Supported by the Michigan Department of Community Health, Diabetes Prevention and Control Program.

2009

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Dear Michigan Citizens:

We are pleased to present the *Michigan Diabetes Action Plan*. This plan was developed by the Diabetes Partners in Action Coalition (DPAC) with support from the Michigan Department of Community Health's Diabetes Prevention and Control Program.

Diabetes is a complex metabolic disease that is continuing to be a major public health challenge in the United States and Michigan:

- Diabetes affects 24 million Americans and an estimated 927,000 Michigan citizens.
- Prediabetes, a condition in which individuals have blood glucose levels higher than normal but not high enough to be classified as diabetes, affects 57 million Americans, including 2 million citizens in Michigan.
- Diabetes costs the United States $174 billion annually and over $6.5 billion per year in Michigan.
- Diabetes disproportionately affects some groups of people more than others, such as certain racial/ethnic groups, physically inactive people, overweight people and those who have a familial predisposition to the disease.
- Type 2 diabetes is becoming more common among children.

Not since the discovery of insulin has there been a more exciting time in diabetes research and care than now. Research has shown that diabetes onset and complications can be offset from occurring or delayed with blood sugar control and management. Lifestyle modifications such as healthy eating, moderate exercise and modest weight reduction have been shown to prevent type 2 diabetes by up to 60%. These same strategies, in conjunction with other self-management techniques, can help prevent or delay diabetes complications. These solutions are low-tech and low-cost, yet they produce a high impact. Michigan could significantly reduce the health-related and economic burden of diabetes with the application of these proven prevention and control strategies.

Through statewide leaders in diabetes, the *Michigan Diabetes Action Plan* establishes a unified course of action to help reduce the increasing prevalence and burden of this disease. The plan calls for decision makers, health care providers, public and private health officials, researchers, businesses, community groups and people with diabetes to implement the most promising diabetes prevention and control strategies in the most cost-effective manner. Recommendations in the plan are specifically targeted to address the populations most at risk for diabetes and diabetes complications.

The Diabetes Partners in Action Coalition extends its thanks and gratitude to the individuals who serve on the DPAC Board and Workgroups. They volunteer their time and expertise with their heart-felt dedication to improve the lives of people in Michigan with diabetes and those at risk for diabetes.

Sincerely,

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INTRODUCTION

"The present findings demonstrate that the burden of diabetes and its complications on the individual and on the health care system is significant. Much of this cost is preventable through improved diet and exercise, prevention initiatives to reduce the prevalence of diabetes and its co-morbidities, and improved care for people with diabetes to reduce the need for costly complications. Improved understanding of the economic cost of diabetes and the major determinants of costs helps to inform and motivate decisions that can reduce the national burden of this disease."

— American Diabetes Association[2]

Diabetes affects millions of people in our country, as well as their families and communities. One of the most common, complex and costly chronic health conditions, diabetes is a leading cause of death and disability in the United States. It is also one of the most manageable and preventable, and yet, the number of people being diagnosed with diabetes is growing every year. In fact, the number of people in the United States with diagnosed diabetes has more than doubled in the last 15 years[3] and U.S. diabetes prevalence is increasing by 5 percent annually.[4]

Michigan currently has the 11th highest diabetes prevalence rate in the nation, meaning only a handful of other states have a higher proportion of their residents diagnosed with the disease.[5]

Diabetes directly affects the health and well being of a sizable portion of Michigan's residents, whether directly or indirectly. During years 2005-2007 combined, an estimated 8.5 percent of Michigan adults age 18 and older—a total of 648,100 individuals[6]—had been diagnosed with diabetes, while another 279,100[7] Michigan adults were living with undiagnosed diabetes and had not sought treatment.

In addition, researchers estimate approximately two million Michigan adults have a medical condition known as prediabetes,[8] meaning their blood sugar levels are higher than normal, but not yet high enough to be defined as diabetes. These individuals are at increased risk for developing diabetes and must take immediate steps to lower their blood sugar to normal levels if they want to prevent a diabetes diagnosis.

It is safe to say diabetes has reached epidemic proportions in the United States, and the impact of the disease is being felt throughout the nation. Research indicates that roughly one of every three persons born in the United States during the year 2000 will develop diabetes in his or her lifetime. In fact, the number of individuals in the United States living with diagnosed diabetes is projected to increase 165 percent between 2000 and 2050, with the fastest increase occurring among older adults and high-risk racial and ethnic populations.[9] The latest data indicate that more than 23.5 million adults age 20 years or older in America or 10.7% of all people in this age group have diabetes.[10] Although an estimated 17.5 million of them have been diagnosed and told that they have the disease, a full 7.1 million or 30.1% have not been diagnosed and thus, are unaware they have diabetes, how it should be treated, and its ramifications.[11] This is of special concern because uncontrolled diabetes is associated with increased mortality and morbidity.

Michigan currently has the 11th highest diabetes prevalence rate in the nation.

Causes for the diabetes epidemic have been linked to lifestyle changes that have put the population at greater risk for developing diabetes. Americans are increasingly making poor dietary choices and are less physically active. These unhealthy lifestyle choices lead to increased rates of overweight and obesity that in turn, increase the risk of acquiring diabetes.

Some racial and ethnic minority groups face an even greater lifetime risk of developing the disease. It is projected that two of every five African Americans and Hispanics and one of every two Hispanic females will develop diabetes in their lifetime.[12] In Michigan, an estimated 7.8 percent of non-Hispanic whites, 14.8 percent non-Hispanic blacks, 9.0 percent of Asians, 14.4 percent of American Indians, and 9.0 percent of Hispanics were living with diagnosed diabetes in 2007.[13]

The Disease Of
DIABETES[14]

Diabetes is defined as a disorder of the body's metabolism. Unlike what happens in the body of a person without the disease, in a person with diabetes, the body cannot convert the sugars and starches (carbohydrates) consumed into the energy necessary for healthy cell growth and maintenance.

Typically, during the process of digestion, the body converts most of the food consumed into a form of blood sugar called glucose. The glucose, which serves as the body's main source of fuel, enters the bloodstream and is carried throughout the body so it can be used for cellular growth and other vital functions. However, for glucose to move into the cells, insulin must be present; without insulin, these processes cannot occur.

Insulin is a hormone produced by the pancreas, a large gland located behind the stomach. In healthy individuals, the pancreas automatically produces the right amount of insulin for the body to move glucose from the bloodstream into the cells, where it can be used. In people with diabetes, however, the pancreas either produces too little insulin, or the cells do not respond appropriately to the insulin that is produced. As a result, glucose cannot move into the cells, resulting in an increase of glucose in the blood while the cells are starved of energy.

Over time, if this extra glucose is allowed to remain in the blood too long, it can harm nerves and blood vessels and lead to organ damage and other long-term complications. In fact, diabetes is the primary cause of new cases of adult blindness, kidney failure, and non-traumatic lower-limb amputation and it also can be the impetus for nervous system disease, heart disease, stroke, high blood pressure, dental disease, pregnancy complications, and other life-threatening conditions.

TYPES OF DIABETES[15, 16]

Three major types of diabetes have been identified: type 1 diabetes, type 2 diabetes and gestational diabetes.*

Type 1 diabetes, which was previously known as insulin-dependent diabetes mellitus (IDDM) or juvenile-onset diabetes, is an autoimmune disease in which the immune system destroys the pancreas' insulin-producing beta cells and, thus, the pancreas' ability to produce the insulin necessary for blood glucose regulation and use. Since their bodies cannot produce adequate insulin, individuals with type 1 diabetes must take replacement insulin via either injection or pump every day of their lives in order to survive.

Type 1 diabetes accounts for about 5 - 10 percent of all diagnosed diabetes cases in the United States. Although type 1 diabetes is most apt to develop in children and young adults, it can appear in individuals at any age. Risk factors for type 1 diabetes may include autoimmune, genetic, and environmental factors, possibly viruses. Because none of these factors are easy to modify, they do not lend themselves well to primary prevention efforts.

**In addition to the three major types of diabetes, a small number of cases result from specific genetic conditions (e.g., maturity-onset diabetes of youth), surgery, medications, infections, pancreatic disease, and other illnesses.*

Type 2 diabetes, which was previously known as non-insulin-dependent diabetes mellitus (NIDDM) or adult-onset diabetes, occurs when the body fails to make enough insulin or cannot properly use insulin.

The onset of type 2 diabetes is usually gradual, with little or no symptoms initially, and many people with the disease are unaware they have it and are not receiving the treatment and education they need. Type 2 diabetes usually begins as insulin resistance, a disorder in which the pancreas is usually producing enough insulin, but for unknown reasons, the body's cells are not using the insulin properly. After several years, as the need for insulin rises, the pancreas gradually loses its ability to produce insulin.

Type 2 is the most common form of diabetes, accounting for about 90 to 95 percent of all diagnosed diabetes cases in the United States. Risk factors for type 2 diabetes include: older age, obesity, family history of diabetes, personal history of gestational diabetes, impaired glucose metabolism, physical inactivity, and certain racial or ethnic heritages. African Americans, Hispanic/Latino Americans, American Indians, and some Asian Americans and Native Hawaiians or other Pacific Islanders are at particularly high risk for type 2 diabetes.

Nearly four-fifths of people with type 2 diabetes are overweight, and most cases of type 2 diabetes are diagnosed in people older than 40. However, the number of young people diagnosed with type 2 diabetes is increasing. Although nationally representative data do not exist, anecdotal data based upon clinical reports and regional studies indicate that type 2 diabetes is now being diagnosed more frequently in children and adolescents, particularly among American Indians, African Americans, and Hispanic/Latino Americans, and Asians/Pacific Islanders.

Gestational diabetes is a form of glucose intolerance that is diagnosed in some women during pregnancy, even though they have had no known prior history of diabetes. Gestational diabetes is caused by the hormones of pregnancy or a shortage of insulin. If not controlled, gestational diabetes can cause the baby to grow extra large and lead to problems with delivery for the mother and the baby.

Gestational diabetes often can be controlled through diet changes and regular physical activity, but some women with gestational diabetes also must take insulin shots. In general, gestational diabetes requires treatment only during pregnancy. Treatment helps normalize the mother's blood glucose levels and also prevents complications in the infant.

About 3 - 8 percent of pregnant women in the United States develop gestational diabetes, and some women may develop it late in their pregnancy. Gestational diabetes occurs more frequently among African Americans, Hispanic/Latino Americans, and American Indians, and it is also more common among obese women and women with a family history of diabetes.

Although this form of diabetes usually disappears after the birth of the baby, 5 – 10 percent of women with gestational diabetes are diagnosed with type 2 diabetes after pregnancy. Women with gestational diabetes have a 40 - 60 percent chance of developing type 2 diabetes within the next 5 - 10 years, although they can reduce their risk of developing the disease by maintaining a healthy body weight and being physically active.

PREDIABETES

Prediabetes, a condition in which a person's blood glucose levels are higher than normal, but not yet high enough to be diagnosed as diabetes, has received increasing attention in recent years.

The U.S. Centers for Disease Control and Prevention estimates that nearly 26 percent of the U.S. adult population aged 20 years and older—an estimated 57 million American adults—were living with prediabetes in 2007. Like diabetes prevalence rates, prediabetes prevalence rates vary by racial and ethnic population. It is estimated that, in 2007, approximately 21 percent of African American adults, 25 percent of Caucasian adults, and 26 percent of Hispanic adults living in the United States had prediabetes.[17]

In Michigan, it is estimated* that in 2004, 27 percent of adults aged 18 to 85—approximately two million individuals, three-quarters of whom were 40 years old or older—have prediabetes.[18]

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Prediabetes is not a condition that is limited to adults, particularly given the fact that U.S. adolescent are mirroring adults' increasingly sedentary lifestyle and overeating behavior. In 1999-2000, the latest year for which data are available, it is estimated that 7 percent of all U.S. teenagers age 12-19 years had prediabetes.[19]

Prediabetes is increasingly considered a serious problem that must be addressed. Research has shown that persons with prediabetes are 5 - 15 times more likely to develop type 2 diabetes within the next 5 years than are persons with normal blood glucose levels. Although people with prediabetes often do not show any symptoms, their impaired glucose status places them at greater risk for complications. Studies have shown that prediabetes itself may lead to long-term damage to the body, particularly to the heart and circulatory system, as well as to the eyes.

The risk factors for prediabetes are similar to those for type 2 diabetes (i.e., overweight, age, family history of diabetes, racial or ethnic background, personal history of gestational diabetes or high birth weight, and high blood pressure). These risk factors can, in many cases, be modified successfully through the adoption of healthy lifestyle changes. Research has shown that lifestyle modifications are much more effective than glucose-lowering medications in preventing a progression to diabetes among those individuals shown to have prediabetes.

Results of one landmark clinical trial, the Diabetes Prevention Program, showed that modest lifestyle changes, such as losing 5 - 7 percent of one's body weight, and physical activity (defined as exercising moderately 150 minutes per week) was nearly twice as effective as oral diabetes medication in preventing the onset of type 2 diabetes (58 percent relative reduction versus 31 percent relative reduction, respectively). Indeed, the Diabetes Prevention Program research indicated that lifestyle modifications may actually prevent or delay the onset of diabetes for as much as 3 years. The fact that lifestyle modifications are safe and do not pose the potential side effect risks as seen with some glucose-lowering medications, coupled with the fact lifestyle modifications offer additional secondary benefits of lowering risk factors for cardiovascular and other chronic diseases have led researchers to conclude lifestyle modification should be the first choice for those hoping to prevent or delay the onset of diabetes.[20]

**To derive this prediabetes prevalence rate for Michigan adults, the national prediabetes prevalence rate was applied to Michigan's population.*

DIABETES PREVALENCE

National survey data show the number of Americans with diabetes tripled between 1980 and 2006, rising from 5.6 million to 16.8 million.[21] The growth in U.S. diabetes prevalence began to accelerate noticeably in 1990 and more than doubled in the 15 years between 1992 and 2007.[22] It currently shows no sign of slowing down and continues to escalate; it is expected that by 2050, the number of Americans with diabetes will soar to 29 million, a prevalence of 7 percent.[23]

This spiraling growth in diabetes prevalence is due to a number of contributing factors, most notably rising rates of obesity* and physical inactivity and the population's increasingly poor diet and nutrition. Additional factors include the aging of the nation's population and growth in the racial and ethnic populations at highest risk for diabetes.[24] It is apparent that, since the survival rate of U.S. residents with diabetes is no different than the survival rate of the U.S. population as a whole, this growth in diabetes prevalence is not the result of more people with diabetes living longer, but rather is directly attributable to a rise in the number of new cases of diabetes diagnosed each year.[25]

Although Michigan's growth in diabetes prevalence during the past decade has paralleled national trends,[26,27] the state's prevalence has consistently exceeded that of the nation as a whole. Data from years 2005-2007 combined indicate that an estimated 648,100 adults in Michigan—8.5 percent of the state's total adult population—have been diagnosed with diabetes.[28]

**Obesity and overweight in adults are determined by using weight and height values to calculate a "body mass index" (BMI), which for most people, correlates with the amount of body fat. An adult who has a BMI of 30 or more is considered obese, and an adult with a BMI of 25 to 29.9 is considered overweight.*

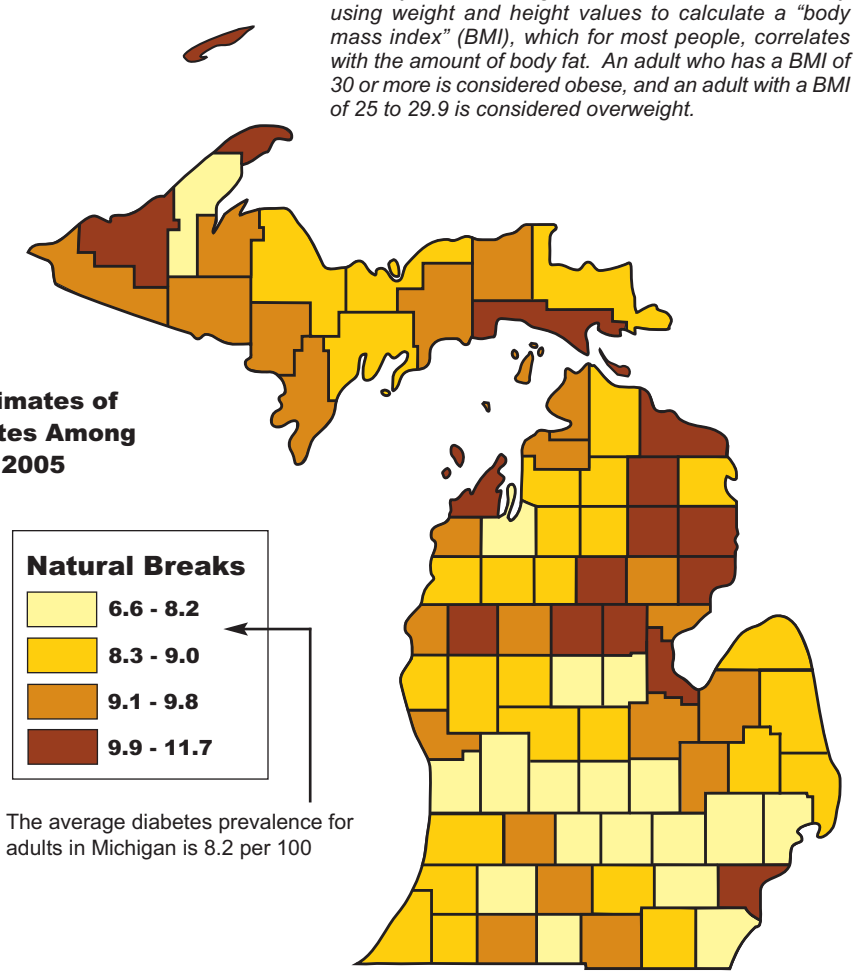

FIGURE 1
County-Level Estimates of Diagnosed Diabetes Among Michigan Adults, 2005

In Michigan, diabetes prevalence varies widely by demographic characteristic: Males have higher diabetes prevalence rates than females; older age groups have higher prevalence rates than younger age groups (although prevalence peaks among 65 to 74 year olds); and among racial/ethnic groups, non-Hispanic whites have the lowest prevalence and non-Hispanic blacks experience the highest prevalence. (See Table 1.)

Table 1

Prevalence of Diagnosed Diabetes by Demographic Characteristics
(Michigan, 2007)

Demographic Characteristic		Prevalence (%)	95% Confidence Level
Gender	Male	9.5	(8.4 - 10.8)
	Female	8.5	(7.6 - 9.4)
Age	18 - 24 yrs old	0.9	(0.3 - 2.6)
	25 - 34 yrs old	1.8	(0.9 - 3.4)
	35 - 44 yrs old	5.0	(3.6 - 6.9)
	45 - 54 yrs old	7.8	(6.4 - 9.5)
	55 - 64 yrs old	16.9	(14.8 - 19.3)
	65 - 74 yrs old	22.0	(19.2 - 25.0)
	75 yrs old+	20.3	(17.6 - 23.2)
Race/ Ethnicity	White non-Hispanic	7.8	(7.1 - 8.5)
	Black non-Hispanic	14.8	(12.3 - 17.8)
	Other non-Hispanic	11.6	(8.1 - 16.3)
	Hispanic	9.0	(4.9 - 16.1)
Household Income	< $20,000	16.3	(13.8 - 19.1)
	$20,000 - $34,999	11.4	(9.6 - 13.4)
	$35,000 - $49,999	8.2	(6.7 - 10.1)
	$50,000 - $74,999	8.0	(6.4 - 10.0)
	$75,000+	4.6	(3.6 - 5.9)

Contributing Factors

Obesity, Physical Inactivity, and Poor Dietary Choices: A direct correlation can be drawn between the national rise in obesity and the nation's increasing rate of diabetes prevalence: In 1986, obesity in the U.S. population began to increase at a faster pace; four years later, the nation's diabetes rate also began to increase significantly.[31] In fact, between 1976 and 2004, U.S. diabetes prevalence increased by 73 percent (from 5.1 percent to 8.8 percent). Data indicate that as much as four-fifths of the increase can be attributed to obesity prevalence which more than doubled (from 14 percent to 31 percent) during the same time.[32] Research also has shown a strong statistical correlation between rates of physical inactivity and obesity, as well as a strong relationship between obesity and physical inactivity and type 2 diabetes and a number of other health problems. In fact, 8 of the 10 states with the highest rates of adult diabetes also rank among the top 15 states with the highest obesity rates.[33]

In 2007, 49.5 percent of U.S. adults and 50.7 percent of Michigan adults met recommendations for physical activity (at least 30 minutes of moderate physical activity 5 or more days per week, or at least 20 minutes of vigorous physical activity 3 or more days per week). Michigan adults are increasing their levels of physical activity: The proportion of state adults who met the guidelines rose from 45.6 percent in 2001 to 50.7 percent in 2007.[34]

In 2007, the diets of 24.4 percent of U.S. adults and 21.3 percent of Michigan adults met recommendations to consume five or more servings of fruits and vegetables a day. In Michigan, however, consumption of fruits and vegetables actually declined between 1996 (23.4 percent) and 2007 (21.3 percent).[35]

The national obesity prevalence increased from 15.9 to 26.3 percent between 1995 and 2007 (an increase of 65 percent); during that same period, Michigan's obesity prevalence rose 55 percent (from 18.2 to 28.2 percent).[36]

Researchers estimate that 36 percent of Michigan adults are overweight and nearly 27 percent of Michigan adults are obese. Thus, roughly 63 percent—nearly two-thirds—of Michigan adults are considered to be either overweight or obese. In fact, Michigan is tied with Indiana, Oklahoma, Missouri, and Texas for the ninth highest adult obesity rate in the nation.[37]

In 2005, 39 of the 40 communities funded under the Centers for Disease Control and Prevention's Steps Program conducted surveys to collect health outcome data for residents age 18 and older. The compiled results showed that Michigan tribal communities that were part of the Steps program grant, which was overseen by the Inter-Tribal Council of Michigan, had an estimated adult obesity prevalence of 44.0 percent, the highest of any of the 39 communities reporting and nearly 80 percent higher than the 2005 Behavioral Risk Factor Surveillance System (BRFSS) nationwide median of 24.6 percent. Data also showed that the Michigan tribal communities that were part of the grant had a diagnosed adult diabetes prevalence rate (excluding gestational diabetes) of 16.6 percent, the highest of any of the 39 communities and more than twice the 2005 national BRFSS median rate of 7.3 percent.[38] For more information, see *Plan for Diabetes Prevention and Control in Tribal Communities, Michigan Diabetes Prevention and Control Program, 2009-2014*.

Nationally, two-thirds of adults are either overweight or obese.[39] In the past few decades, Americans have begun consuming more calories (including more

sugar and more dietary fat); drinking more soda and fruit juice and less milk; eating fewer fruits, vegetables and whole grains; and increasing both their portion sizes and the number of meals they eat out.[40]

Aging of the Overall Population: The effect of an aging population on diabetes prevalence can be seen by comparing prevalence rates from both crude and the age-adjusted data.* For adults in the United States from 1980 through 2002, these data show that crude prevalence was consistently slightly lower than age-adjusted prevalence. Starting in 2002, this relationship began to reverse itself, with crude prevalence beginning to be consistently slightly higher than age-adjusted prevalence.[41] This pattern is consistent with the aging of the baby boomers cohort and reveals the contribution of their aging on trends for increasing diabetes prevalence.

Similarly, the crude diabetes prevalence for Michigan adults in 2005 was 7.9 percent, while the age-adjusted prevalence was somewhat lower at 7.7 percent.[42] The difference between these rates (0.2 percent) indicates that changes in the age distribution of Michigan's population play a less influential role in rising diabetes prevalence trends than do other factors, such as decreasing physical activity and increasing obesity.

Growth in High-Risk Racial and Ethnic Populations: Demographic trends for growth in high-risk racial and ethnic populations can impact the overall diabetes burden and unadjusted prevalence rates. Between 1990 and 2006, Michigan experienced a growth from 2.2 to 3.9 percent in the population identified as having Hispanic origin and a growth from 1.2 to 2.5 percent in the population identified as Asian and Pacific Islander. During that same period, the Native American population in the state grew from 0.6 to 0.7 percent of the overall population, while the African-American population grew from 14.0 to 14.8 percent. With the increase in high-risk racial and ethnic populations has come a corresponding decrease in whites as a portion of the state's total population. The white population in Michigan declined from 84.2 to 82.0 percent of the population as a whole between 1990 and 2006.[43]

While changing demographics in Michigan certainly make a minor contribution to the diabetes burden in Michigan, it is clear that the major causes for the increasing trend in diabetes prevalence can be attributed to risk factors that cut across both ethnic and racial categorizations.

Diabetes In Special Populations

Racial and Ethnic Populations:[44,45] Research has shown that type 1 diabetes is more common in whites than in non-whites. Data from the World Health Organization's Multinational Project for Childhood Diabetes indicate that type 1 diabetes is relatively rare within most African, American Indian, and Asian populations, while some populations in northern European countries, including Finland and Sweden, have relatively high rates of type 1 diabetes.

Type 2 diabetes, on the other hand, is more common in older people, especially those who are overweight, and most often arises in African Americans, American Indians, some Asian Americans, Native Hawaiians and other Pacific Islanders, and Hispanics/Latinos.

■ On average, non-Hispanic African Americans are 1.8 times more likely to have diabetes as non-Hispanic whites of the same age.

*Crude data are raw data that are not adjusted for age or any another factor. Age-adjusted data are artificial estimates that have been adjusted to minimize the effects of different age distributions and allow comparisons between different population groups. Age-adjusted data represent what the crude data would have been in the study population if that population had the same age distribution as the standard population.

- American Indians have one of the highest rates of diabetes in the world. On average, American Indians and Alaska Natives are 2.2 times as likely to have diabetes as non-Hispanic whites of similar age.

- Although prevalence data for diabetes among Asian Americans and Pacific Islanders are limited, some groups, such as Native Hawaiians, Asians, and other Pacific Islanders aged 20 and older residing in Hawaii are more than twice as likely to have diabetes as white Hawaiian residents of similar age.

- Mexican Americans are 1.7 times as likely to have diabetes as non-Hispanic whites of similar age. Data are not available to derive estimates of diabetes rates in other Hispanic/Latino groups. However, residents of Puerto Rico are 1.8 times as likely to have diagnosed diabetes as are non-Hispanic U.S. whites.

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In Michigan, adult diabetes prevalence is significantly higher among African Americans (14.8 percent), American Indians (14.4 percent), Asian Amercans (9.0 percent), and Hispanic Americans (9.0 percent) than among white adults (7.8 percent).[46]

Michigan is the home of the largest Arab concentration outside the Middle East, and the Arab American population represents the third largest minority group in Michigan. In 2003, a study of Arab Americans residing in the Detroit Metropolitan Area reported an age-adjusted diabetes prevalence of 15.5 percent in Arab-American women and 20.1 percent in Arab-American men.[47]

Although type 2 diabetes in children and adolescents is still relatively rare, studies show that it is being diagnosed more frequently among young American Indians, African Americans, Hispanic/Latino Americans, and Asians/Pacific Islanders.

People with Disabilities: [48] People with disabilities include those individuals with developmental disabilities, chronic conditions, or injuries. In Michigan, the prevalence of disability among adults age 18 and older is 20.6 percent, which is slightly higher than the national average of 19.1 percent. These rates measure disability "based upon limitations to activities due to physical, mental or emotional conditions and/or required use of special equipment due to a health condition."

Data indicate that people with disabilities are more likely to have diabetes and that a high proportion of individuals living with diabetes have one or more disabilities. In fact, Michigan residents with disabilities have a diabetes prevalence rate of 18.3 percent, exactly three times higher than the diabetes prevalence rate of those residents without disabilities. In part, this may be due to the fact that, compared to their peers without disabilities, people with disabilities: have higher rates of conditions that are secondary to their disabilities; are less physically active; have higher levels of obesity and smoking; and are less apt to see a health care provider, due to the costs and other barriers involved. In 2006, 48.5 percent of Michigan residents with diabetes had at least one disability.

Urban versus Rural: Both metropolitan and non-metropolitan areas have similar leading causes of death, but rural counties have higher crude death rates, which reflect the overall burden of disease and death on a community, as well as the need for health care resources to address disease and disability. For Michigan in 2005, crude diabetes death rates were approximately 25 per 100,000 for metropolitan areas, 35 per 100,000 for micropolitan areas, and 40 per 100,000

for rural areas. Rural counties have higher crude death rates primarily because the leading causes of death impact older people, and rural areas tend to be older. Age-adjusted death rates, which inherently control for the variation in the age cohort for different populations, are similar in rural, micropolitan, and metropolitan areas. Mortality rates for heart disease and cancer—the two leading causes of death in Michigan—have been steadily declining within Michigan since 1990; in 2005, the two accounted for 57 percent of total deaths in Michigan. By contrast, diabetes death rates and kidney disease death rates have both risen since 1990.[49]

Underinsured and Uninsured: Growing numbers of Michigan residents are underinsured, meaning that their health care insurance coverage is not sufficient to meet their needs. Those who are underinsured face significant barriers to accessing health care services. In fact, a study of data from the Commonwealth Fund 2003 Biennial Health Insurance Survey revealed that underinsured adults are nearly as likely as uninsured adults to go without needed medical care and to incur medical debt. Lower-income and sicker adults are most at risk of having inadequate health care insurance coverage.[50]

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An increasing number of Americans are uninsured, meaning they have no health care insurance coverage. Between 1998 and 2007, the proportion of Michigan adults between the ages of 18 and 64 that did not have health care coverage grew by more than half (moving from 9.3 to 14.4 percent) and the number of adults in the state who had been diagnosed with diabetes more than doubled (rising from 4.4 to 11.4 percent). Like their underinsured counterparts, adults without health care insurance coverage are less likely to access health care services and are more likely to delay getting care when needed, a serious situation, given that a lack of appropriate diabetes care can result in the onset of life-threatening complications. Data show that people without health care insurance coverage also are more likely to be physically inactive and smoke.[51]

Even with all the information that exists regarding diabetes prevalence among special populations, it is still apparent that while some populations are at an increased risk of developing type 2 diabetes, modifiable lifestyle factors are the most important contributors to prevalence rates. The aging of the population and increasing growth of high-risk racial and ethnic populations both contribute to the prevalence of diabetes, because people who are older and people who are members of certain racial and ethnic populations are more likely to develop diabetes. However, these factors by themselves do not represent critical contributors to the overall increases in diabetes prevalence that we are seeing in Michigan and throughout the nation.

THE IMPACT OF DIABETES [52, 53]

Diabetes is recognized as one of the leading causes of death and disability in the United States, as well as within the state of Michigan. Overall, persons with diabetes are twice as likely to die as their peers of similar age who do not have the disease.

A study of U.S. death certificates from 2006 showed diabetes to be the seventh leading listed cause of death in the nation that year. Diabetes was listed as the underlying cause of death on 72,507 certificates in 2006. In 2005, the latest year for which contributing causes of death are available, diabetes contributed to 233,619 deaths. It is worth noting that diabetes is

likely to be under-reported as a cause of death. Studies have found that diabetes was listed somewhere on the death certificate for only about 35 percent to 40 percent of decedents with diabetes and as the underlying cause of death for only about 10 percent to 15 percent of such decedents. About 68 percent of deaths among those with diabetes are attributed to heart disease and stroke.

A study of Michigan death certificates from 2006 found diabetes was the 6th leading cause of death among state residents, accounting for 2,823 deaths (3.3 percent of the total). It was listed as a contributory cause of death for another 5,812 state residents. In 2006, Michigan's diabetes-related death rate per 100,000 people was 28.0, compared with 24.9 for the whole country in 2004. In 2006, Michigan's race-specific death rates per 100,000 people were 29.0 for white males, 21.3 for white females, 47.8 for black males, and 36.5 for black females.[54]

Medical Complications

Diabetes is associated with long-term complications that affect almost every part of the body. Diabetes frequently leads to vision-related complications, heart and blood vessel disease, stroke, high blood pressure, kidney disease, nerve damage, amputations, dental disease, and/or other complications. Uncontrolled diabetes can complicate pregnancy, and birth defects are more common in babies born to women with diabetes.

Vision-Related Complications [55,56,57]

- Diabetes is the leading cause of new cases of blindness among U.S. adults aged 20 to 74 years.
- In 2005, 3.2 million adults with diabetes (21 percent) reported visual impairment, that is, trouble seeing even when using their glasses or contact lenses.
- Diabetic retinopathy results in 12,000 to 24,000 new cases of blindness each year in the United States.
- In 2007, 126,380 Michigan residents with diabetes (19.5 percent) had been diagnosed with retinopathy.

Cardiovascular Complications [58,59]

- In 2004, heart disease was noted on 68 percent of death certificates for U.S. residents with diabetes aged 65 years and older, and stroke was noted on 16 percent.
- U.S. adults with diabetes have two to four times the heart disease death rate of adults who do not have diabetes.
- Individuals with diabetes have a two to four times higher risk for stroke.
- In 2007, 17.4 percent (112,700) of the 648,100 Michigan residents with diabetes also had a personal medical history of heart attack; likewise, 104,344 (16.1 percent) also had a personal medical history of angina or coronary heart disease (CHD), and 51,200 (7.9 percent) also had a personal medical history of stroke.

High Blood Pressure [60, 61]

- In 2003-2004, 75 percent of U.S. adults with diabetes had high blood pressure (i.e., blood pressure greater than, or equal to, 130/80 mm Hg) or used medications for hypertension.
- In 2007, 67.2 percent of residents with diabetes (an estimated 435,523 individuals) had also been diagnosed with hypertension.

Kidney Disease [62, 63]

- Diabetes is the leading cause of kidney failure and accounted for 44 percent of new U.S. cases in 2005.
- In 2005, 46,739 U.S. and Puerto Rican residents with diabetes began treatment for end-stage kidney disease.
- In 2005, a total of 178,689 U.S. and Puerto Rican residents with end-stage kidney disease due to diabetes were living

on chronic dialysis or with a kidney transplant.

- In 2006, 42.0 percent of the 3,931 Michigan residents newly diagnosed with chronic end-stage renal disease had a primary diagnosis of diabetes.
- At the end of 2006, there were 12,039 end-stage renal disease dialysis patients living in Michigan, and 41.5 percent of them had a primary diagnosis of diabetes.
- During 2006, 973 kidney transplants were performed in Michigan; 34.6 percent of the recipients of those transplants had a primary diagnosis of diabetes.

Nervous System Disease[64]

- About 60 to 70 percent of people with diabetes have mild to severe forms of nervous system damage that could result in impaired sensation or pain in the feet or hands, slowed digestion of food in the stomach, carpal tunnel syndrome, erectile dysfunction, and/or other nerve problems.
- Almost 30 percent of people with diabetes aged 40 years or older have impaired sensation in the feet (i.e., at least one area that lacks feeling).
- Severe forms of diabetic nerve disease are a major contributing cause of lower-extremity amputations.

Amputations[65, 66]

- Overall, more than 60 percent of non-traumatic lower-limb amputations occur in individuals with diabetes.
- In 2004, about 71,000 non-traumatic lower-limb amputations were performed in people with diabetes.
- In 2006, 2,737 individuals were discharged from Michigan hospitals with diabetes-related lower-limb amputations.

Oral Health[67, 68]

- People with diabetes are more apt to develop periodontal (gum) disease, and young adults with diabetes have nearly twice the risk of periodontal disease as do their peers without diabetes.
- Individuals with poorly controlled diabetes are almost three times more likely to have severe periodontitis.
- Almost one-third of people with diabetes have severe periodontal disease with loss of attachment of the gums to the teeth measuring 5 millimeters or more.
- In 2007, an estimated 4.5 percent Michigan adults with diabetes had periodontal disease, compared with 3.0 percent of adults without diabetes.

Complications of Pregnancy[69]

- Poorly controlled diabetes before conception and during the first trimester of pregnancy can cause major birth defects in 5 percent to 10 percent of pregnancies and spontaneous abortions in 15 percent to 20 percent of pregnancies.
- Poorly controlled diabetes during the second and third trimesters of pregnancy can lead to excessively large babies, posing a risk to both mother and child.

Sexual Dysfunction[70]

- Men with diabetes are twice as likely to experience erectile dysfunction as are men without diabetes.
- Women with type 1 diabetes are twice as likely to experience sexual dysfunction as are women without diabetes.

Mobility[71]

Diabetes can impact an individual's ability to live a healthy and/or active lifestyle. Among persons who are aged 60 or older, those with diabetes are two to three times more likely than their peers to report difficulty walking one-quarter of a mile, climbing stairs, doing housework, or using a mobility aid.

Other Complications [72, 73]

- Uncontrolled diabetes frequently results in biochemical imbalances that can cause acute life-threatening events, such as diabetic ketoacidosis and hyperosmolar (nonketotic) coma.

- During 2006, a total of 10,607 adults between the ages of 18 and 64 were admitted to Michigan hospitals for a primary diagnosis of diabetes; 4,896 (46.2 percent) of those admissions were the result of uncontrolled diabetes that had led to such conditions as diabetic ketoacidosis, hyperosmolarity, and coma.

- Research has shown that people with diabetes are more susceptible to many other serious illnesses and, once they acquire these illnesses, they often have worse prognoses than their peers without diabetes.

- People with diabetes are more likely to die of pneumonia or influenza than are people who do not have diabetes.

Psychosocial Aspects[74, 75]

Diabetes can affect the overall emotional well being of an individual, and to be successful in managing their disease, individuals with diabetes must develop the necessary skills for managing stress, coping, and problem solving as they work to modify their lifestyle, monitor their blood glucose levels, and adapt their treatment regimen.

Research has shown a strong link between diabetes and depression. People with diabetes are one-and-a-half times more likely to be depressed than are people without diabetes. Research has shown that among people with diabetes, psychosocial factors such as depression are stronger predictors of medical outcomes, such as hospitalization and death, than are physical and metabolic factors, such as presence of complications, body mass index, or HbA1c level.

It appears that active and effective disease-specific coping can trigger a positive surge of enhanced well-being, more active diabetes self-management, better glycemic control, and fewer complications. This suggests that people with diabetes who do not actively cope—or who are not effective at coping—may benefit from interventions designed to enhance their coping skills.

Recent studies provide evidence suggesting a bidirectional causal relationship between diabetes and depression: Depression increases risk of diabetes, and diabetes increases risk of depression. People who have symptoms of depression are more apt to be overweight, eat more, exercise less, and smoke, all factors that can increase one's risk for type 2 diabetes. Conversely, depression in individuals with diabetes is associated with increases in diabetes symptoms and greater impairment of functioning, as well as poor adherence to medication regimens and diet, exercise, and smoking treatment plans. Results of the study indicate that individuals with diabetes who are depressed, but who receive education about depression and behavioral changes and either start treatment with an antidepressant medication or enter problem-solving therapy, can improve their depression outcomes and reduce their five-year average total medical costs by as much as $3,900.[76, 77]

Economic Costs[78, 79]

Although the burden of diabetes falls most heavily on people with diabetes and their families, in reality, it is borne by all sectors of society. Employees and employers bear its weight in the form of higher insurance premiums and reduced earnings as a result of loss of productivity. All members of the community bear its burden through the reduced overall quality of life for people with diabetes, as well as their families and friends; missed work or social/family events; and fear of disability or premature death.

A recent American Diabetes Association study indicates that diabetes cost the United States an estimated total of $174 billion in 2007 ($116 billion in direct medical costs for diabetes care and $58 billion in reduced productivity from work-related absenteeism, reduced productiv-

ity at work and at home, unemployment caused by chronic disability, and premature death). It is important to note that this figure, although staggering, is only an estimate and could be much higher in reality. It does not include the costs of intangibles, such as reduced quality of life and pain and suffering on the part of individuals with diabetes, their families, and their friends. It also does not take into account the value of care provided by non-paid caregivers, excess medical costs associated with undiagnosed diabetes, medical costs for diabetes-related conditions, and other health care expenditure categories, such as health care system administrative costs, over-the-counter medications, clinician training programs, and research and infrastructure development.

Nationwide, persons with diagnosed diabetes spend an average of $11,744 a year on direct medical care, a full 57 percent of that total can be directly attributed to diabetes. Approximately one of every 10 health care dollars expended can be attributed to diabetes. On average, persons with diagnosed diabetes spend approximately 2.3 times more on medical expenditures than their non-diabetic peers. The fact that individuals with diagnosed diabetes also tend to have lower incomes only exacerbates the financial burden of diabetes care.

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Indirect costs for diabetes also have a tremendous impact. In 2007 alone, indirect costs for diabetes reduced national productivity in the United States by $58.2 billion ($2.6 billion in increased absenteeism and $20.0 billion in reduced productivity while at work for the employed population; $800 million in reduced productivity for those not in the labor force; $7.9 billion in unemployment from disease-related disability; and $26.9 billion in productive capacity lost due to early mortality).

Like the nation, Michigan feels the economic impact of diabetes. In 2007, diabetes cost Michigan residents an estimated $4.3 billion in direct medical costs and an estimated $2.1 billion in indirect costs resulting from lost workdays, restricted activity days, mortality, and permanent disability due to diabetes.[80]
(See Table 2., page 16)

DIAGNOSIS, CARE AND TREATMENT

It is no secret that appropriate diabetes care and treatment depends first and foremost upon a timely and accurate diagnosis. However, diabetes frequently is not diagnosed until complications appear which, for the average person with diabetes, can be as much as 12 years after the disease begins. Data indicate that approximately one-third of all people with diabetes may be undiagnosed.[81]

One in five people with undiagnosed diabetes only seek medical care after developing the symptoms of diabetic retinopathy. Adults 40 years or older with undiagnosed diabetes have nephropathy and peripheral neuropathy prevalence rates that are similar to persons who already have been diagnosed with diabetes.[82]

Early detection of people with undiagnosed diabetes at the population level is complicated by the question of whether or not it is appropriate to screen for diabetes in the general population in order to identify asymptomatic individuals who are likely to have diabetes.[83] This highlights a major distinction between diagnostic testing and screening.[84] When an individual exhibits symptoms or signs of a

Table 2

Estimated Costs of Diabetes for Michigan, 2007

Category	Costs	Totals
Direct (Excess Medical Expenditures)		**$4,300,000,000**
Care to directly treat diabetes	$1,000,000,000	
Treat diabetes-related chronic complications: (Hospital Inpatient, Physician's Office, Emergency Department, Hospital Outpatient)		
Neurological	$ 137,000,000	
Peripheral vascular	$ 118,000,000	
Cardio-vascular	$ 834,000,000	
Renal	$ 142,000,000	
Metabolic	$ 9,000,000	
Ophthalmic	$ 40,000,000	
Other (Nursing home days, Home health visits, Hospice care days, Other)	$ 137,000,000	
Excess general medical costs	$ 732,000,000	
	$1,148,000,000	
Indirect (Reduced National Productivity)		**$2,200,000,000**
TOTAL (DIRECT & INDIRECT)		**$6,500,000,000**

disease, diagnostic tests are performed; such tests do not constitute screening for the disease. Currently, there are no randomized trials demonstrating the benefits of early diagnosis of diabetes through screening of asymptomatic individuals.[85] Nevertheless, there is sufficient indirect evidence to justify opportunistic screening in a clinical setting of individuals who are considered to be at high risk for the disease.[86] The following conditions place a person at risk: high blood pressure, dyslipidemia (a history of abnormal cholesterol and triglyceride levels), obesity, and/or a history of high blood sugar.[87]

Presently, there are no consensus guidelines for diabetes screening, and experts continue to debate. In 2003, the U.S. Preventive Services Task Force recommended screening for type 2 diabetes in adults with hypertension or hyperlipidemia. However, members found insufficient evidence to determine whether routine screening of otherwise healthy populations provides an additional benefit beyond that offered by initiating treatment after clinical diagnosis.[88] In contrast, the American Diabetes Association does offer guidelines, and suggests screening asymptomatic adults 45 years or older every three years, especially if they are overweight.[89] Medicare benefits cover a screening blood sugar test to check for diabetes among those individuals who are at risk for developing diabetes.[90]

Despite the questions surrounding the value of population-wide diabetes screening, there is universal agreement

that once persons are diagnosed with diabetes, they should be treated aggressively with proper care and management to delay the development of diabetes-related complications.

Diagnosis [91]

Although diabetes can begin with few or no warning signs, as the disease progresses, individuals may begin to experience one or more symptoms, including frequent urination, excessive thirst, unexplained weight loss, extreme hunger, sudden vision changes, tingling or numbness in hands or feet, feeling very tired much of the time, very dry skin, sores that are slow to heal, and more infections than usual. In addition, individuals who undergo an abrupt onset of insulin-dependent diabetes (type 1 diabetes) also may feel nauseous, vomit, or have stomach pains.

When a health care provider suspects that a patient has either diabetes or prediabetes, he or she will order blood glucose tests. Three tests are employed to help determine whether an individual has diabetes or prediabetes.

The **fasting plasma glucose test**, which measures blood sugar levels after a fasting period of eight hours or more, can detect diabetes or prediabetes. Because it is the most convenient testing method, it is the preferred diagnostic test; it is most reliable when done in the morning. Plasma glucose levels of 99 mg/dL or less are considered normal. Results of 100 mg/dL to 125 mg/dL are indicators that the individual has prediabetes, while results of 126 mg/dL or more indicate diabetes.

The **oral glucose tolerance test** can also be used to diagnose diabetes or prediabetes. Individuals taking an oral glucose tolerance test are asked to fast for at least eight hours before testing. Their blood sugar is then tested immediately before and two hours after drinking a glucose-laced beverage. Two-hour plasma glucose results of 139 mg/dL or below are considered normal. Results of 140 mg/dL to 199 mg/dL are considered indicators that the individual is pre-diabetic, while results of 200 mg/dL and above are indicators of diabetes.

The oral glucose tolerance test is also a diagnostic tool for gestational diabetes. However, when testing for gestational diabetes, lab technicians test a woman's blood glucose levels four times in a series (after eight hours of fasting, an hour after drinking the glucose-heavy beverage, two hours after drinking, and three hours after drinking). Women whose blood glucose levels are above normal on at least two of the readings are considered to have gestational diabetes. Typically, above-normal readings would be considered 95 mg/dL or higher after fasting; 180 mg/dL or higher after an hour; 155 mg/dL or higher after two hours; and 140 mg/dL or higher after three hours.

The third type of test, the **random plasma glucose test**, is used to test an individual who has not been fasting. Test results showing a random blood glucose level of 200 mg/dL or more, coupled with increased thirst, increased urination, and unexplained weight loss, as well as other symptoms of diabetes, can indicate a diagnosis of diabetes. The test cannot be used to diagnose prediabetes.

Disease Management [92, 93]

It is important that people with diabetes receive routine disease management and monitoring from a health care provider. Depending upon their needs, individuals with diabetes also may benefit from the care provided by an endocrinologist (specialized diabetes manage-

ment and monitoring), a certified diabetes educator (daily diabetes management skills), a podiatrist (foot health), and an ophthalmologist or an optometrist (eye health).

Persons with type 1 or type 2 diabetes should receive height, weight, BMI, blood pressure, and cardiovascular risk assessments, as well as a comprehensive foot exam, depression screening, and a dilated eye exam, on a routine basis. Individuals with diabetes also should receive appropriate laboratory tests and education, counseling, and risk factor modification counseling at time of diagnosis and as needed after that. Medical care for persons with diabetes should include tobacco cessation treatment, and hypertension, lipid, and glycemic control.[94,95]

At the core of the diabetes management team is the person with diabetes, and self-management of the disease by those individuals who have it is crucial. It is generally accepted that 95 percent of the tasks required for successful diabetes management are performed daily by the patient or the patient's significant other or caregiver.

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Persons with type 1 diabetes typically use a combination of healthy eating, physical activity, and insulin injections to maintain their blood glucose levels within healthy limits. They must regularly monitor their blood glucose levels and then take the proper amount of insulin, based upon their blood glucose readings, food intake and anticipated physical activity.

Many people with type 2 diabetes control their blood glucose levels by following a healthy eating pattern and exercising regularly, working to lose excess weight, and, if necessary, taking medication. As with type 1 diabetes, blood glucose testing is a vital daily management tool for type 2 diabetes. Depending upon the success of their diet and physical activity modifications, individuals with type 2 diabetes may need either oral medications and/or insulin injections to keep their blood glucose levels under control.

Successful self-management also requires that individuals with diabetes address their higher-than-average risk for cardiovascular disease by managing their blood pressure and cholesterol levels through healthy diet, exercise, not using tobacco products and possibly, the use of appropriate treatment medications.

Diabetes self-management education, which focuses on teaching and encouraging self-care behaviors, such as healthy eating, living an active lifestyle, and self-monitoring of blood sugar levels, is a key step in improving health outcomes and quality of life for individuals with diabetes and is recommended as a core component of diabetes care management plans. Because it is critically important that people with diabetes receive self-management education, providers should follow patients' progress to ensure that they have received such training.

By working as a team, people with diabetes, their health care providers, and their families or other core support group members can lessen and perhaps even avoid diabetes complications by making positive lifestyle changes, controlling blood glucose levels, blood pressure, and blood lipids, and receiving smoking treatment and other preventive care practices in a timely manner.

Lifestyle Changes

■ The Diabetes Prevention Program study reported that lifestyle changes were even more effective than medications in managing prediabetes.[97] It is recommended that people with diabetes stay at a healthy weight and engage in physical

activity for 30 minutes to 60 minutes on most days of the week.

■ It is important that people with diabetes monitor what they eat, how much they eat, and when they eat to keep good control of their blood glucose levels. By eating a healthy diet, they can lose weight (if needed) and lower their risk for heart disease, stroke, and other problems caused by diabetes. The diabetes food pyramid divides foods into groups, based upon what they contain, and provides information to help people with diabetes to make wise food choices.[98]

■ Physical activity can help people with diabetes control their weight, blood glucose, and blood pressure and also lower their LDL (bad) cholesterol and raise their HDL (good) cholesterol.

"Today, self-management education is understood to be such a critical part of diabetes care that medical treatment of diabetes without systematic self-management education is regarded as inadequate."

— American Diabetes Association[96]

■ The Centers for Disease Control and Prevention's Division of Nutrition, Physical Activity and Obesity guidelines recommend that adults between the ages of 18 and 64 do at least 150 minutes a week of moderate-intensity aerobic activity (or 75 minutes a week of vigorous intensity aerobic physical activity) in episodes of at least 10 minutes throughout the week and perform muscle-strengthening activities for all major muscle groups two or more days a week. Individuals who would like to lose weight should further increase physical activity and control caloric intake. People with diabetes should discuss the types and amounts of exercise that are appropriate for them with their health care provider.[99]

Glucose Control

■ Research has shown that individuals with either type 1 or type 2 diabetes can benefit from improved glycemic control. In fact, there are indications that every percentage point drop in HbA1c blood test results (which reflect average blood glucose over a two- to three-month period) can reduce the risk of microvascular complications (eye, kidney, and nerve disease) by 40 percent. [100]

■ Studies also have shown that in persons with type 1 diabetes, intensive insulin therapy has long-term beneficial effects on the risk of cardiovascular disease. [101]

Blood Pressure Control

■ Blood pressure control pays dividends, reducing the risk of cardiovascular disease (heart disease or stroke) among persons with diabetes by 33 percent to 50 percent and the risk of microvascular complications (eye, kidney, and nerve disease) by 33 percent.[102]

■ With every 10 mm Hg drop in systolic blood pressure, there is a correlating 12-percent drop in the risk for diabetes-related complications.[103]

Control of Blood Lipids

■ Studies have shown that improved control of LDL cholesterol can reduce cardiovascular complications by 20 to 50 percent.[104]

Preventive Care Practices

■ Regular eye exams and timely treatment could prevent as much as 90 percent of diabetes-related blindness.[105]

■ Detecting and treating diabetic eye disease with laser therapy can reduce the development of severe vision loss by an estimated 50 percent to 60 percent.[106]

■ Comprehensive foot care programs can reduce amputation rates by 45 percent to 85 percent.[107]

■ Detecting and treating early diabetic kidney disease by lowering blood pres-

sure can reduce kidney function decline by 30 percent to 70 percent. Treatment with angiotensin-converting enzyme (ACE) inhibitors and angiotensin receptor blockers (ARBs) are more effective than other blood pressure-lowering drugs in reducing the decline in kidney function.[108]

Smoking Treatment

- Smoking among people with diabetes decreased from 19.4 percent in 2002 to 16.5 percent in 2006.[109]

- In Michigan, people with diabetes are more likely to have macrovascular complications, such as cardiovascular disease (i.e., a heart attack or myocardial infarction, angina or coronary heart disease, or a stroke), if they smoke now or have ever smoked (33 percent) compared with people with diabetes who have never smoked (26 percent).[110]

- Smoking impacts the ability of a person with diabetes to heal after injury. More people with diabetes who smoke now or who have ever smoked report having sores or ulcers on their feet that take a longer time to heal (14 percent) compared with people with diabetes who have never smoked (10 percent).[111]

- The risk of diabetes complications is aggravated by smoking. In all individuals, smoking decreases HDL (good) cholesterol, may trigger a blood clot to form, increases the risk for insulin resistance, and makes it harder to control blood sugar levels.[112]

- 65 percent of people with diabetes die from heart attacks; people with diabetes who smoke are at higher risk and can cut their risk in half by quitting smoking.[113]

- Scientifically proven smoking cessation treatments, including counseling and medications, or a combination of both, can double a person's chances of quitting smoking.[114]

Immunizations

Pneumococcal polysaccharide (PPV23) vaccine is recommended for persons with diabetes mellitus ages 2 to 64 and for all persons over the age of 65. This vaccination is usually given only once. However, some people may require a one time re-vaccination; no more than two lifetime doses are recommended.

Any adult who wants to be safe from the flu should get an annual flu vaccine. This is highly recommended for persons with chronic diseases, such as diabetes, as well as for persons who live with, or care for, people with such diseases.

Diabetes Self-Management and Education

Diabetes management guidelines from the American Diabetes Association (ADA) and the Michigan Quality Improvement Consortium (MQIC)* recommend individualized, comprehensive diabetes self-management education (DSME) as a critical component of a successful diabetes care management program.[115,116] In addition, Healthy People 2010 has made increasing the proportion of persons with diabetes who receive formal diabetes education as one of its objectives.[117]

Diabetes self-management education leads to appropriate care, which leads to a reduction in complications. People who have received self-management education are 50 percent more likely to seek recommended medial care and to engage in daily self-care activities.

**MQIC is a collaborative effort whose participants include physicians and other personnel representing the Michigan HMOs, as well as the Michigan State Medical Society, the Michigan Osteopathic Association, the Michigan Association of Health Plans, the Michigan Peer Review Organization, and Blue Cross Blue Shield of Michigan.*

Additionally, people with diabetes who have received such education are more than twice as likely to get all of their recommended medical care (including HbA1c tests, eye exam, and foot exam) in a single year.[118]

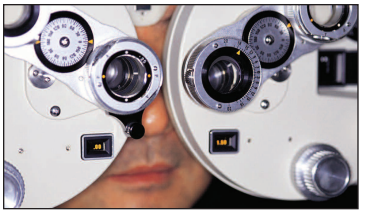
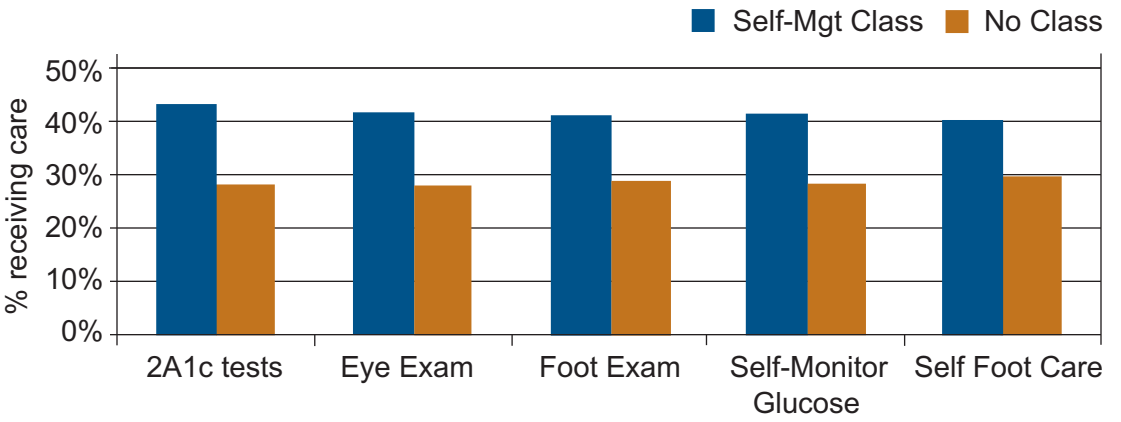


Figure 2

Change in Behaviors among People with Diabetes Who Have Received Self-Management Education
(Michigan, 2005-2006)[119]



Access to Care

In recent decades, increasing numbers of Americans have had to face the realities of living without health care insurance coverage* in a society in which medical care is increasingly more expensive.[120] While lack of health care coverage would be a major concern for nearly all adults, lack of coverage poses more immediate and substantial risks to the health of people with diabetes, individuals for whom accessing routinely scheduled, appropriate health care services is a critical key to controlling the onset of life-threatening complications. Adults who lack health care coverage are both less likely to access health care services and more likely to delay getting care when needed. They are also more likely to smoke and be physically inactive.[121, 122]

In the decade between 1998 and 2007, the proportion of Michigan adults ages 18 to 64 who were living without health care coverage increased by 55 percent (from 9.3 percent to 14.4 percent). The proportion of Michigan adults who had ever been told by a doctor that they had diabetes* but were living without health care coverage grew from 4.4 percent in 1998 to 11.4 percent in 2007, more than a two and one half fold increase.[123] (See Table 3., page 22) Data from intervening years show a steady trend for this increase, with the possibility that the increase has stabilized in recent years; this stabilization also appears to parallel national figures.[124] (See Figure 3., page 22)

**Health care insurance coverage is defined as including health insurance; prepaid plans, such as HMOs; or governmental plans, such as Medicare.*

**These data exclude women who had diabetes only during pregnancy and adults who were diagnosed with prediabetes.*

Table 3

Health Care Coverage in Adults Ages 18 to 64, by Diabetes Status

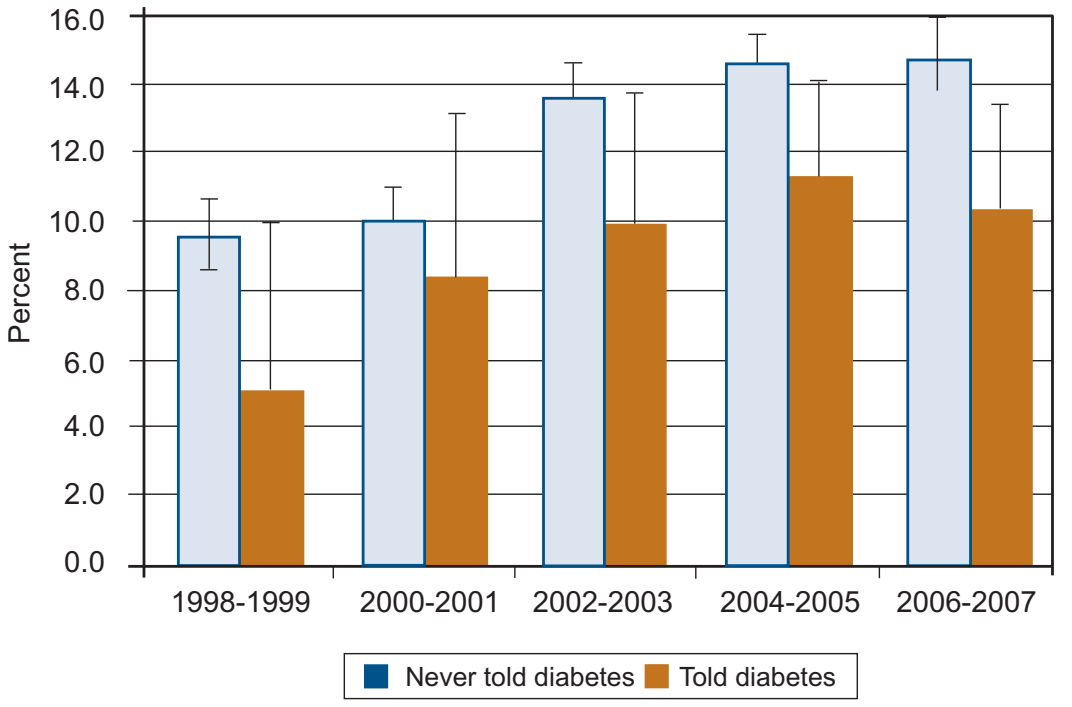
(Michigan, 1998 vs. 2007)[125]

		1998			2007		
		Never told diabetes (%)	Told diabetes (%)	Total (%)	Never Told diabetes (%)	Told diabetes (%)	Total (%)
Have health care coverage	No	9.5	4.4	9.3	14.6	11.4	14.4
	Yes	90.5	95.6	90.7	85.4	88.6	85.6

Figure 3

Adults Ages 18 to 64 Living without Health Care Coverage, by Diabetes Status

(Michigan, 1998 vs. 2007)[126]



Health care reform is needed to ensure that persons with diabetes receive the necessary care to ensure their health and a good quality of life. State-level programs and policies are needed to address the barriers to appropriate care faced by vulnerable populations. Addressing these social determinants of health (factors in the social environment that contribute to, or detract from, the health of individuals or communities) will allow stakeholders to more effectively address health and health care disparities and improve diagnosis and care for people with diabetes.

As efforts are made to improve access to medical care for people with diabetes, care must also be taken to ensure access to diabetes education and support programs that help people with diabetes manage their disease. Efforts need to be made to help overcome access barriers for people in rural communities and for those who may be geographically distant from health care providers or who do not have the type of health care insurance accepted by providers in their area. In addition, it is important to build cultural competency among providers to help ensure that people from all racial and ethnic groups can access providers who understand their language, as well as their cultural attitudes and preferences. Community health workers may be used to increase the availability of culturally appropriate education and support groups. Persons with disabilities may experience additional challenges, and special programs will be needed to address barriers to high-quality care (e.g., physical access and programs tailored to individuals with hearing disabilities).

MICHIGAN PARTNERS WORKING TOGETHER

In the fall of 2003, the Diabetes Partners in Action Coalition (DPAC) released the Michigan Diabetes Strategic Plan, which it had developed in conjunction with diabetes leaders from around the state to address the most pressing issues related to diabetes control and prevention within Michigan. The 2003 strategic plan identified the need for: 1) increased diabetes prevention and public awareness efforts, 2) statewide advocacy and policy initiatives that reduce barriers to care, 3) effective use of diabetes data and research in clinical settings, and 4) targeted diabetes training and program opportunities for people with diabetes and prediabetes and their service providers. The strategic plan set forth 14 recommendations to meet those needs.

DPAC in conjunction with the Michigan Department of Community Health Diabetes Prevention and Control Program immediately began work toward achievement of the 14 strategic recommendations. DPAC assumed leadership of the effort. It established five workgroups to address the main focus areas in the plan: 1) Advocacy and Policy, 2) Communication and Public Awareness, 3) Data, Research, and Evaluation, 4) Prevention, and 5) Training and Education Programs. Further, DPAC used the strategic recommendations to guide its activities and set a unified, collaborative course toward the reduction of diabetes and its complications in Michigan.

In early 2008, after evaluating their accomplishments and assessing the current status of diabetes in Michigan, the partners decided to revisit the 2003 strategic plan and use it as the basis of a revised action plan for a more focused approach to accomplishing diabetes control and prevention. Throughout 2008, the Diabetes Prevention and Control Program, the DPAC Board and workgroups, and their key collaborative partners

worked together to review the 2003 Michigan Diabetes Strategic Plan, modify its recommendations to reflect current needs, and develop and prioritize the goals, objectives and activities that would become the foundation of a new two-year action plan for Michigan.

This document, the Michigan Diabetes Action Plan for 2009-2011, will guide collaborative diabetes control and prevention work within Michigan for the next two years. As part of its mission to provide statewide leadership to prevent and control diabetes and reduce its impact in Michigan, DPAC will assume the lead role for achieving the plan's goals, mobilizing resources and recruiting other key partners when necessary. While not all of the activities will be led or completed by DPAC workgroups and DPAC members, DPAC will oversee implementation of the plan. In preparation for this work, each of the five DPAC workgroups has developed its own annual work plan in conjunction with the 2009-2011 Action Plan goals, objectives and activities. These work plans define DPAC targets, identify the organization(s) or person(s) responsible for each activity, and set timelines for completion of each activity and objective. DPAC workgroups have begun to set in place review systems to help monitor their progress regularly and refocus their efforts as needed.

At its core, the new Michigan Diabetes Action Plan for 2009-2011 has seven achievable goals for Michigan stakeholders to accomplish by the end of 2011:

- Prevent and delay the onset of diabetes by promoting diabetes and prediabetes screening, weight loss, improved nutrition and increased physical activity among Michigan residents.
- Develop and implement a statewide communication plan and an ongoing public awareness campaign about diabetes.
- Enhance diabetes-related advocacy and policy efforts by fostering and coordinating activities among organizations that represent people with diabetes to address state and federal policy priorities.
- Ensure that all people with diabetes have access to self-management training, supplies, and health care.
- Reduce health disparities among high-risk, racial and ethnic groups and other special populations.
- Increase the knowledge of health care providers and professional organizations regarding the impact of diabetes and evidence-based clinical knowledge and programs to improve the quality of diabetes care.

The depth and breadth of these goals would not be possible without the determination and collaborative efforts of DPAC and its professional and community-based partners throughout the state. Today, three decades after its founding, DPAC has grown to 110 members, representing the voices and needs of consumers, health care professionals, business/industry leaders, and many other sectors of the greater Michigan diabetes community.*

DPAC is a partnership of like-minded individuals and organizational representatives who work to reduce the impact of diabetes in Michigan. Members of DPAC are individuals with diabetes, those with an interest in diabetes, or representatives from organizations who work closely with diabetes or a related health issue. DPAC members represent the following sectors: business and industry; labor organization/unions; civic organizations; managed care organizations; community members or consumers; occupational health organizations; environmental or environmental health organizations; physicians and other health care workers; faith-based institutions; professional public health and health care associations; foundations or philanthropic organizations; public safety and emergency response organizations; governmental agencies; schools; hospitals and health care facilities; social service providers; institutions of higher education; and transportation providers.

Current DPAC organizational members include:

- Advantage Health Centers
- American Association of Diabetes Educators
- American Diabetes Association
- American Dietetics Association
- Amylin Pharmaceuticals
- Blue Cross Blue Shield of Michigan
- Botsford Hospital
- Detroit Department of Health & Wellness Promotion
- Eli Lilly and Company
- Garden City Hospital
- Glaxo-Smith Kline
- Great Lakes Medical Supply
- Greater Detroit Area Health Council
- Hurley Medical Center
- INNOVEX
- Johnson & Johnson Co.
- Juvenile Diabetes Research Foundation
- Kent County Health Department
- Mary Free Bed Rehabilitation Hospital
- McLaren Regional Medical Center
- Med Net One
- Mercy General Health Partners
- Michigan Association of Health Plans Foundation
- Michigan Association for School Nurses
- Michigan Department of Community Health, Bureau of Epidemiology
- Michigan Department of Community Health, Cardiovascular Health Section
- Michigan Department of Community Health, Diabetes & Other Chronic Diseases Section
- Michigan Department of Community Health, Genomics and Birth Defects
- Michigan Department of Community Health, Oral Health Program
- Michigan Department of Community Health, Tobacco Section
- Michigan Diabetes Outreach Network
- Michigan Diabetes Research & Translation Center
- Michigan Dietetic Association
- Michigan Education Special Services Association
- Michigan Optometric Association Michigan Organization of Diabetes Educators
- Michigan Pharmacists Association
- Michigan Primary Care Association
- Michigan State University Extension Family and Consumer Sciences
- National Kidney Foundation of Michigan
- Novo Nordisk
- Oak Park YMCA
- Otsego Memorial Hospital
- Pfizer Inc.
- Priority Health
- REACH Detroit Partnership/CHASS
- Region 2 Area Agency on Aging
- St. Joseph Mercy Oakland Hospital
- St. Mary's Health Link
- Sanofi Aventis
- Takeda Pharmaceuticals
- University of Detroit Mercy, School of Dentistry
- University of Michigan
- University of Michigan Medical School
- Up Hill Solutions
- Wayne State University
- Wayne State University School of Medicine
- Western Michigan University
- Without a Vision the People will Perish

As you review the goals, objectives and activities set forth in the following pages, we encourage you to consider where you might best help in our efforts to prevent the spread of diabetes and enhance the quality of life of those who are currently living with this disease. For more information on how you can get involved in diabetes prevention and control efforts in Michigan, please contact the Diabetes Partners in Action Coalition of the Michigan Department of Community Health Diabetes Prevention and Control Program at 517-335-8445 or visit **www.michigan.gov/diabetes.**

GOALS
IMPACT STATEMENTS
OBJECTIVES
AND
ACTIVITIES

Primary PREVENTION

GOAL

Prevent and delay the onset of diabetes by promoting diabetes and prediabetes screening, weight loss, improved nutrition, and increased physical activity among Michigan residents.

IMPACT STATEMENT

Diabetes is often called a "silent" disease, because its onset typically is gradual and symptoms of the disease usually do not become evident until significant damage has already occurred. People can have type 2 diabetes for years and not even know it. In Michigan, an estimated 279,100 adults are living with undiagnosed diabetes, meaning not only are they unaware of their disease, but they are also unaware of how to treat it or the ramifications to their health. Individuals with diabetes face a host of long-term complications that affect almost every part of their bodies, such as vision-related problems, heart and blood vessel disease, stroke, high blood pressure, kidney disease, nerve damage, amputations, dental disease, and/or other health issues. Uncontrolled diabetes can complicate pregnancy, and birth defects are more common in babies born to women with diabetes.

Today, nearly 4 of 5 people diagnosed with type 2 diabetes are overweight, and individuals older than age 40 account for the majority of newly diagnosed cases. However, the face of diabetes is changing, and the number of young people being diagnosed with type 2 diabetes is rapidly increasing. Data from clinical reports and regional studies indicate that type 2 diabetes is now being diagnosed much more frequently in adolescents, particularly among young people of American Indian, African American, Hispanic/Latino American, and Asian/Pacific Islander heritage.

Prediabetes, a condition in which an individual's blood glucose levels are higher than normal, but not yet high enough to be considered diabetes, is increasingly common in the United States. It is estimated that 2.1 million Michigan adults (nearly a quarter of the state's adult population) have prediabetes and are at increased risk for developing diabetes. In fact, data show that persons who are identified with prediabetes are 5 - 15 times more likely than their peers to develop type 2 diabetes within the next 5 years. Even without progressing to diabetes, prediabetes itself can lead to long-term damage to the body, particularly to the heart and circulatory system and the eyes.

Prediabetes is not a sure destiny to diabetes, and it is possible to lower one's blood glucose levels to normal range. Most people identified with prediabetes may not be aware that losing weight and increasing physical activity can help bring their glucose levels to the normal range, potentially delaying or preventing the onset of diabetes. In the landmark Diabetes Prevention Program clinical trial, 58 percent of intervention group participants with prediabetes who made lifestyle modifications to lose 5 – 7 percent of their body weight and exercise 30 minutes a day, 5 days a week, brought their glucose levels into normal range within 16 weeks.

Not only can prevention and control efforts benefit Michigan residents who have either diabetes or prediabetes, but they also can benefit those who are at higher-than-average risk of developing diabetes due to their weight, personal

health history, level of inactivity, family history, age, racial/ethnic background, and/or other risk factors.

Because diabetes is such a deadly disease (it is the sixth leading cause of death for Michigan residents) and because it can result in such a wide range of health complications, diabetes stakeholders must collaborate to ensure that diabetes prevention and control activities (e.g., healthy eating, physical activity, smoking treatment, weight control, blood pressure control, and cholesterol control) are included in coronary heart disease, kidney disease, nutrition, school health, obesity, and smoking treatment programs. These and other prevention and control efforts aim to: 1) a reduce the incidence of prediabetes and diabetes among those most at risk and 2) prevent or delay the complications in those individuals who are already living with either prediabetes or diabetes.

OBJECTIVES AND ACTIVITIES

OBJECTIVE #1:

By 2014, statewide chronic disease strategic plans will include diabetes prevention (later target date due to varied review dates for strategic plans).

Activities:

A. Request that others programs within the Michigan Department of Community Health (MDCH) Division of Chronic Disease and Injury Prevention provide an opportunity for Diabetes Prevention and Control Program (DPCP) staff to be included in their strategic plan development and review processes.

Completion Indicator(s):

- All state plans known to impact diabetes updated between 2009 and 2011 to include input from DPCP staff.

Responsibility of:

- MDCH Diabetes Prevention and Control Program
- Other MDCH Division of Chronic Disease and Injury Prevention sections, as appropriate

B. Solicit and include integrated activities from other MDCH Division of Chronic Disease and Injury Control sections in Michigan diabetes strategic plans.

Completion Indicator(s):

- Other sections within the Division have reviewed the 2011 Michigan Diabetes Strategic Plan and provided input to address integrated activities

Responsibility of:

- MDCH Diabetes Prevention and Control Program
- Other MDCH Division of Chronic Disease and Injury Prevention sections, as appropriate

OBJECTIVE #2:

By 2011, Michigan health care providers will screen, treat, and refer individuals with prediabetes according to the 2008 American Diabetes Association Clinical Practice recommendations.

Activities:

A. Distribute the recommended prediabetes and diabetes treatment plan to health care providers.

Completion Indicator(s):

- # of treatment plans distributed to health care providers

Responsibility of:

- Diabetes Partners in Action Coalition (DPAC) Prevention Workgroup
- Michigan Diabetes Outreach Network (MDON)
- Michigan Diabetes Self Management Training Certification Program
- Michigan Diabetes Prevention and Control Program (MDPCP)

B. Review and revise resource lists for prediabetes education and support programs.

Completion Indicator(s):

- Updated resource lists posted on MDCH and MDON Web sites

Responsibility of:

- DPAC Prevention Workgroup
- MDON
- Michigan Diabetes Self Management Training Certification Program

C. Disseminate the recommended prediabetes and diabetes treatment plan to state medical societies.

Completion Indicator(s):

- # of state medical societies that are sent the prediabetes and diabetes guidelines
- # of medical societies that publish prediabetes article in newsletter or distribute to membership through other means (ex. post on website, send email)

Responsibility of:

- DPAC Prevention Workgroup

D. Advocate for health care insurance coverage to screen, treat and refer those people identified with prediabetes.

Completion Indicator(s):

- Submitted feedback to the Michigan Quality Improvement Consortium for guidelines that address diabetes or co-occurring chronic diseases.
- # of employers, providers, and health care plans to whom DPAC promoted the business case for diabetes prevention

Responsibility of:

- DPAC Prevention Workgroup
- DPAC Advocacy and Public Policy Workgroup
- MDON
- Michigan Diabetes Self Management Training Certification Program

E. Advocate to Michigan-based laboratories to place fasting patient values from 100 mg/dL to 125 mg/dL on laboratory reports, to be considered "impaired fasting glucose/prediabetes," according to current American Diabetes Association guidelines and flag.

Completion Indicator(s):

- # of Michigan laboratories contacted to assess current reporting procedure
- # of laboratories that revise their policy or indicate an interest in reviewing their policy at the time of follow-up

Responsibility of:

- DPAC Prevention Workgroup
- MDON
- Michigan Diabetes Self Management Training Certification Program (DSMT)

OBJECTIVE #3:

By 2011, increase consumer awareness of ways to reduce the risk of diabetes and prediabetes, including screening and lifestyle changes that normalize blood glucose levels.

Activities:

A. Develop and implement a statewide communications plan to increase consumer awareness of risks and prevention for diabetes and prediabetes .

Completion Indicator(s):

- Key messages for prevention of diabetes and prediabetes identified and communication plan developed
- # of media outlets receiving public awareness messages

Responsibility of:

- DPAC Prevention Workgroup
- DPAC Communication and Public Awareness Workgroup
- MDON
- Michigan Organization of Diabetes Educators (MODE)
- American Diabetes Association

B. Utilize National Diabetes Education Program (NDEP) materials where appropriate and broaden reach in Michigan.

Completion Indicator(s):

- # of partners receiving NDEP materials
- # of NDEP public service announcements distributed to media outlets

Responsibility of:

- DPAC Prevention Workgroup
- MDON
- MODE
- DSMT Program

C. Promote prediabetes education among children (through schools, within families, and integrated into other youth-focused programs).

Completion Indicator(s):

- TBD

Responsibility of:

- DPAC Prevention Workgroup
- MDON
- MODE
- NKFM

OBJECTIVE #4:

By 2011, develop the Diabetes Primary Prevention Environmental Impact Plan.

Activities:

A. Develop a statewide plan to address primary prevention at the environmental and policy level.

Completion Indicators:

- Diabetes Primary Prevention Environmental Impact Plan completed
- # of partners engaged in Plan

Responsibility of:

- MDCH Diabetes Prevention and Control Program
- DPAC Prevention Workgroup
- DPAC Advocacy Workgroup

Communication And PUBLIC AWARENESS

GOAL

Develop and implement a statewide communication plan and an ongoing public awareness campaign about diabetes.

IMPACT STATEMENT

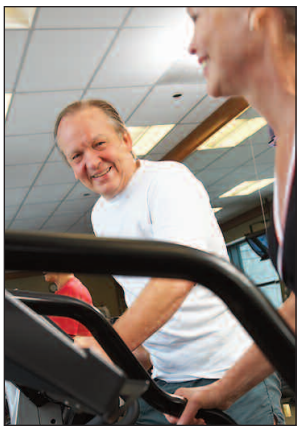
Diabetes has reached epidemic proportions in the United States. Due to a growing trend toward obesity, a sedentary lifestyle, and a number of other contributing factors, diabetes prevalence is increasing at a rate of 5 percent per year in this country, and it shows no signs of slowing. Interestingly, diabetes presents a type of conundrum for public health stakeholders: Although the disease is one of the most common, complex and costly chronic health conditions in the United States, it is also one of the most manageable and preventable.

Diabetes is a silent disease that often shows no early symptoms. Frequently, individuals with diabetes are unaware that they have the disease when it is still in its early stages. In fact, experts estimate that more than one-fourth (27.5 percent) of the 24.1 million-plus Americans who now have diabetes have not been diagnosed. Because they do not know they have diabetes, these individuals are not taking the necessary steps to manage their condition and prevent further medical complications, therefore risking long-term damage to their health.

Similar to diabetes, prediabetes typically is a silent condition, showing no outward symptoms, and similar to diabetes, prediabetes is becoming increasingly common in the United States. Data indicate that 57 million U.S. adults — 26 per-

cent of the adult population — had prediabetes in 2007, compared with 41 million adults with prediabetes in 2000, an increase of nearly 39 percent in seven years. Research has shown that persons with prediabetes are five to 15 times more likely to develop Type 2 diabetes within the next five years as are persons with normal levels of blood glucose. Prediabetes itself can lead to medical complications and long-term damage to the body.

Type 2 diabetes and prediabetes share many of the same risk factors (e.g., obesity, age, family history of diabetes, racial or ethnic background, personal history of gestational diabetes or high birth weight, and high blood pressure), and thousands more Michigan citizens are in danger of developing prediabetes and/or diabetes and do not know it. Although some of these risk factors are inherited and cannot be altered, studies have shown that many of them can be successfully modified through the adoption of healthy eating habits and lifestyle changes. In fact, research has shown that lifestyle modifications are much more effective than glucose-lowering medications in preventing a progression to diabetes among those individuals with prediabetes.



It is, therefore, of paramount importance that diabetes professionals, consumers, and other stakeholders develop a concerted communications and public awareness strategy to educate professionals and members of the public about the symptoms and potential risks associated with diabetes and prediabetes, as well as the ways in which the two conditions are diagnosed and managed. The overarching goal of this initiative should be to increase awareness and adoption of diabetes prevention and self-management strategies by clearly communicating the proven success of eating a healthy diet, quitting smoking, increasing physical activity, and incorporating other healthy lifestyle changes into one's daily routine.

Health communication strategies are increasingly recognized as vital to the success of efforts to impact individual, community, and societal awareness and action to improve health. Healthy People 2010 includes health communication among the key strategies recommended to improve health. The University of Kansas Community Tool Box provides evidence that communication can affect multiple types of change, including:

- increasing the intended audiences' knowledge and awareness of a health issue, problem or solution;
- influencing or reinforcing perceptions, beliefs and attitudes that may change social norms;
- encouraging prompt action;
- showing the benefits of behavioral change;
- advocating a position on a health issue or policy; and/or
- refuting myths and misconceptions.

When used in combination with other strategies, health communication can lead to sustained change in which an individual adopts and maintains a new health behavior or an organization adopts and maintains a new policy or direction. At the individual level, communication strategies can affect a person's awareness, knowledge, attitudes, self-efficacy, skills, and commitment to behavioral change. At the community level, health communication can promote increased awareness of an issue, which can lead to changes in policies and the services available. At the societal level, health communication strategies can lead to changes in norms and attitudes, laws and policies, and the structure of environments (e.g., smoking and seatbelt use).

A wide array of methods can be used to implement health communication, including public relations, promotion of messages about a health issue or behavior in the mass media, and advertising. The most effective health communication campaigns involve multiple partners who can each contribute resources and networks. Together with the Diabetes Partners in Action Coalition (DPAC), partner organizations and stakeholders can identify target audiences to whom key messages about diabetes, kidney disease, prediabetes and risk factors should be communicated. DPAC partners also can contribute to efforts to tailor messages to subgroups at high risk of developing diabetes, such as African Americans, Hispanic/Latinos, American Indians, and older adults.

The action plan follows the recommendations laid out by the National Prevention Information Network's "characteristics of effective communication campaigns." Stakeholders will:

- identify core messages that need to be addressed through communication to general audiences;
- identify the audiences and the best ways to reach them;
- develop and test communication messages and materials;
- implement the health communication program; and
- assess how effectively the messages reached the target audience and then modify the program as needed.

Given the limited resources and the availability of high-quality materials, such as those from the National Diabetes Education Program and the National Institute of Diabetes and Digestive and Kidney Diseases, the best approach is to limit development costs by reviewing and utilizing existing materials and focus on increasing the availability of appropriate messages and materials to the state's key target audiences, thereby expanding the public's awareness of the risk factors, diagnosis, prevention, and management of prediabetes and diabetes.

The end result of these activities will be increased action to control and prevent diabetes, both on the part of the public and the health care community. The general public will understand the significance of prediabetes and diabetes risk factors and various symptoms and will be more apt to seek medical advice and/or testing, as well as support those who have already been diagnosed in their quest to make healthy lifestyle changes and otherwise manage their condition. Persons who have received a diagnosis of either prediabetes or diabetes will be more likely to acknowledge the seriousness of their condition, seek appropriate treatment, and work to effectively self-manage the disease and prevent or delay complications. With this increased public awareness of prediabetes and diabetes, health care providers will be more likely to make prevention, treatment, and self-management of these diseases a priority in their practices.

OBJECTIVES AND ACTIVITIES

OBJECTIVE #1:

By 2010, identify partners and their communication methods and develop a collaborative communications plan to share information on diabetes and prediabetes with the general public.

Activities:

A. Facilitate ongoing communication within DPAC and among its workgroups.

Completion Indicator(s):

- DPAC newsletter distributed quarterly
- Ongoing e-mail communication disseminated approximately once a month
- DPAC workgroup reports provided at each full DPAC membership meeting

- Workgroup and committee co-chairs provide updates at each DPAC Board meeting and discuss opportunities for collaboration

Responsibility of:

- Michigan Department of Community Health (MDCH) Diabetes Prevention and Control Program
- DPAC Board
- DPAC Communication and Public Awareness Workgroup

B. By December 2009, promote DPAC and its mission to partner with organizations and the general audiences.

Completion Indicator(s):

- # of DPAC brochures distributed
- # of education conferences or professional meetings at which DPAC has an exhibit

Responsibility of:

- DPAC Communication and Public Awareness Workgroup
- MDCH Diabetes Prevention and Control Program
- MDON

C. Seek funding opportunities for implementation of a public awareness campaign.

Completion Indicator(s):

- Funding opportunities are identified
- Applications are submitted, as needed, to pursue funding opportunities

Responsibility of:

- DPAC Communication and Public Awareness Workgroup
- MDCH Diabetes Prevention and Control Program

D. Promote Diabetes Awareness Month and World Diabetes Day to the general public.

Completion Indicator(s):

- Information on Diabetes Awareness Month and World Diabetes Day is submitted to diabetes partners electronically and posted on the Web
- A proclamation is obtained from the State of Michigan to recognize Diabetes Awareness Month

Responsibility of:

- DPAC Communication and Public Awareness Workgroup
- MDCH Diabetes Prevention and Control Program
- American Diabetes Association

E. By March 2009, identify external partners and their target audiences and communication vehicles (e.g., Michigan Organization of Diabetes Educators [MODE] and Michigan Diabetes Outreach Network [MDON]).

Completion Indicator(s):

- List of external partners, their target audiences, and communication vehicles is developed and included in the communication plan

Responsibility of:

- DPAC Communication and Public Awareness Workgroup
- MDCH Diabetes Prevention and Control Program
- MDON

F. By March 2009, determine preferred methods of communication (e.g., fax blasts) and frequency of communication using these methods.

Completion Indicator(s):

Preferred methods of communication are identified for each of the target audiences and included in the communication plan

Responsibility of:

- DPAC Communication and Public Awareness Workgroup

- MDCH Diabetes Prevention and Control Program
- MDON

G. By April 2009, develop tools and templates for communication needs (e.g., template for fax blasts).

Completion Indicator(s):

- Communication tools and templates are completed for each of the preferred delivery methods and included as attachments in the communication plan

Responsibility of:

- DPAC Communication and Public Awareness Workgroup
- MDCH Diabetes Prevention and Control Program

OBJECTIVE #2:

By 2010, disseminate via five communication channels a core set of facts and other emerging diabetes-related issues aimed at the general public.

Activities:

A. By January 2009, gather existing public education materials from sources such as the National Diabetes Education Program, the National Institute of Diabetes Digestive and Kidney Disease, the American Association of Diabetes Educators, the American Diabetes Association, and the Centers for Disease Control and Prevention.

Completion Indicator(s):

- Education materials on diabetes core facts reviewed, and materials identified that best convey key messages for the public, in a variety of languages.

Responsibility of:

- DPAC Training and Education Programs Workgroup
- DPAC Communication and Public Awareness Workgroup
- MODE
- MDON

B. By March 2009, review and select up to 10 core diabetes facts for the general public and, if necessary, generate a new document based on appropriate reading levels.

Completion Indicator(s):

- Core facts selected and existing materials that address these facts identified
- New documents generated, as needed

Responsibility of:

- DPAC Training and Education Programs Workgroup
- DPAC Communication and Public Awareness Workgroup

C. By April 2009, develop a communication plan that identifies five communication channels and preferred methods of distribution for each target audience.

Completion Indicator(s):

- Communication plan completed, with target audiences identified and shared with DPAC Board

Responsibility of:

- DPAC Training and Education Programs Workgroup
- DPAC Communication and Public Awareness Workgroup

D. By September 2009, disseminate the core set of facts through at least five communication channels.

Completion Indicator(s):

- Education materials disseminated according to the communication plan to all target audiences using at least five communication channels

Responsibility of:

- DPAC Training and Education Programs Workgroup
- DPAC Communication and Public Awareness Workgroup
- MODE
- MDON

E. By December 2009, identify resources that provide basic information on diabetes in other languages.

Completion Indicator(s):

- New resources identified, as needed

Responsibility of:

- DPAC Training and Education Programs Workgroup
- DPAC Communication and Public Awareness Workgroup
- MODE
- MDON

OBJECTIVE #3:
By 2010, disseminate existing educational materials on gestational diabetes, pre-conception, and pregnancy-related care to women of childbearing age.

Activities:

A. By April 2009, gather existing materials from sources such as the National Diabetes Education Program, the National Institute of Diabetes Digestive and Kidney Disease, the American Association of Diabetes Educators, the American Diabetes Association, the Centers for Disease Control and Prevention, and the Maternal and Child Health Program.

Completion Indicator(s):

- Education materials on diabetes and pregnancy reviewed to identify those that best convey key messages, in a variety of languages, for the general public

Responsibility of:

- DPAC Training and Education Programs Workgroup
- MDCH Maternal and Child Health Program
- MODE
- MDON

B. By June 2009, review and select documents available in more than one language and based on appropriate reading levels, and generate new documents if needed.

Completion Indicator(s):

- Existing materials on diabetes and pregnancy for general audiences selected
- New documents generated, as needed

Responsibility of:

- DPAC Training and Education Programs Workgroup
- MDCH Maternal and Child Health Program

C. By December 2009, distribute the materials through at least five communication channels (e.g., Women, Infants, and Children Program, Early Head Start Program, MDCH Web site, diabetes self-management education programs, local health departments, DPAC, federally qualified health centers, and Planned Parenthood).

Completion Indicator(s):

- Education materials disseminated according to the communication plan to target audiences (i.e., women of childbearing age and their health care providers) using at least five communication channels.

Responsibility of:

- DPAC Training and Education Programs Workgroup
- DPAC Communication and Public Awareness Workgroup
- MDCH Diabetes Prevention and Control Program
- MDCH Maternal and Child Health Program
- MODE
- MDON

OBJECTIVE #4:
By 2010, disseminate existing educational materials on oral health and diabetes to the general public.

Activities:

A. By April 2009, gather existing materials from sources such as the National Diabetes Education Program, the National Institute of Diabetes Digestive and Kidney Disease, the American Association of Diabetes Educators, the American Diabetes Association, the Centers for Disease Control and Prevention, the MDCH Oral Health Programs, and the American Dental Association.

Completion Indicator(s):

- Education materials on oral health and diabetes reviewed to identify those that best convey key messages, in a variety of languages, for the general public

Responsibility of:

- DPAC Training and Education Programs Workgroup
- MDCH Oral Health Programs

B. By June 2009, review and select documents that are available in more than one language and based on appropriate reading levels.

Completion Indicator(s):

- Existing materials for general audiences that address oral health and diabetes selected
- New documents generated, as needed

Responsibility of:

- DPAC Training and Education Programs Workgroup
- MDCH Oral Health Programs

C. By December 2009, distribute the materials through at least five communication channels (e.g.,MDCH website, diabetes self-management education programs, local health departments, DPAC, federally qualified health centers, the Michigan Dental Association, dentists, and oral health organization newsletters).

Completion Indicator(s):

- Education materials disseminated according to the communication plan to target audiences using at least five communication channels

Responsibility of:

- DPAC Training and Education Programs Workgroup
- DPAC Communication and Public Awareness Workgroup
- MDCH Diabetes Prevention and Control Program
- MDCH Oral Health Programs

Advocacy and PUBLIC POLICY

GOALS

- ***Enhance diabetes-related advocacy and policy efforts by fostering and coordinating activities among organizations that advocate for people with diabetes and kidney disease to address state and federal policy priorities.***
- ***Ensure that all people with diabetes have access to self-management training, supplies, and health care.***
- ***Reduce health disparities among high-risk, racial and ethnic groups and other special populations.***

IMPACT STATEMENT

Due to the wide array of issues that they must address, legislators and policymakers rely upon health care providers and

people with chronic diseases and their family members to learn about the impact of chronic diseases, the importance of prevention activities, and the value of the education and support programs provided in our communities. They also rely upon data that demonstrate the return on investment for resources and the impact on businesses, as well as expert testimony on the standards of care that should be promoted and made accessible. Finally, they rely upon consumers to provide stories of their experiences, and they review outcome data that illustrate the successes of particular programs. Thus, health care professionals, diabetes experts, and consumers and their family members are all natural advocates that can speak to the need for legislative support of high-quality, cost-effective diabetes care and support.

In 2008, funding was restored to the Healthy Michigan Fund and full funding was restored to the Michigan Department of Community Health (MDCH) Diabetes Prevention and Control Program's line due to the persistent efforts of advocates for diabetes and kidney disease programs. In order to maintain this funding, it is important to continue to communicate to legislators both the evidence of return on investment for these resources and the outcome data from the funded programs.

Also in 2008, the Diabetes Partners in Action Coalition (DPAC) Advocacy and Public Policy Workgroup created an overarching Michigan Diabetes and Kidney Disease Advocacy Plan to guide advocacy and public policy efforts in the state for 2009-2013. Advocacy is a vital part of efforts to address diabetes prevention and control at a health systems level and to ensure access to care, diabetes supplies, diabetes self-management education, and support for persons with the disease. Many of the objectives from the Michigan Diabetes and Kidney Disease Advocacy Plan also are included as part of this action plan. By successfully addressing issues such as access to health care and health disparities through coordinated advocacy and public policy efforts, advocates can make an impact at the systems level.

As outlined in the University of Kansas Community Tool Box, legislators are able to support public health efforts through:

- broad-based policies (e.g., smoking bans and laws);
- targeted laws (e.g., child safety seat laws);
- educational requirements (e.g., vaccination requirements for child care and school attendance); and
- community-wide interventions.

It is important that diabetes and kidney disease advocates maintain ongoing lines of communication and information-based relationships with legislators and policymakers throughout the year. Therefore, plans are being made to increase the number of advocates and the number of interactions that advocates have with legislators during the year. It will also be important to increase the amount and effectiveness of information distributed regarding the far-ranging impact of the MDCH Diabetes Prevention and Control Program efforts.

Prior to the spring 2008 Diabetes and Kidney Disease Advocacy Day, the DPAC Advocacy and Public Policy Workgroup hosted a Webinar on advocacy skills for more than 50 participants. All of the Webinar participants who responded to the post-Webinar survey reported an increased understanding of advocacy and the issues to be addressed with legislators. All respondents also reported an

increased confidence in their ability to talk with legislators and an enhanced understanding of the importance of sharing personal diabetes and kidney disease stories with legislators. Such training should become an annual event to enhance the knowledge base of both new and returning advocates alike. In addition, advocates' training should be supplemented on an ongoing basis to help keep them prepared to meet with their legislators and fulfill other advocacy roles, such as writing letters to the editor or meeting with their local legislators, as needed.

GOAL #1

Enhance diabetes-related advocacy and policy efforts by fostering and coordinating activities among organizations that advocate for people with diabetes and kidney disease to address state and federal policy priorities.

OBJECTIVES AND ACTIVITIES

OBJECTIVE #1:

By 2011, enhance strategic alliances and collaborate with partner organizations.

Activities:

A. Create and maintain a list of partner organizations.

Completion Indicator(s):

- Updated list of partner organizations with contact information

Responsibility of:

- DPAC Advocacy and Public Policy Workgroup

B. Promote DPAC membership to identified partner organizations.

Completion Indicator(s):

- Letters sent to all partner organizations that do not have active representation on DPAC
- DPAC information and resources shared with the Michigan Diabetes Outreach Network (MDON) advisory council and local community (at least twice annually) and new DPAC members nominated for membership

Responsibility of:

- DPAC Advocacy and Public Policy Workgroup
- MDON
- DPAC members

C. Engage identified partners in DPAC advocacy efforts by meeting with representatives from these organizations to discuss their advocacy platforms, current policy activities, and opportunities to collaborate.

Completion Indicator(s):

- Meetings held with at least five partner organizations that did not have active representation on DPAC in FY2009
- An additional five partner organizations engaged in FY2010

Responsibility of:

- DPAC Advocacy and Public Policy Workgroup

OBJECTIVE #2:

Maintain relationships with local public officials and legislators, or their designated staff, to increase their awareness of diabetes and the impact of diabetes programs.

Activities:

A. Promote Diabetes and Kidney Disease Advocacy Day annually.

Completion Indicator(s):

- % of DPAC members participating in Advocacy Day

Responsibility of:

- National Kidney Foundation of Michigan
- DPAC Advocacy and Public Policy Workgroup

- DPAC members
- ADA
- MDON
- MODE
- Michigan Optometric Association
- Juvenile Diabetes Research Foundation

B. Engage in regular in-person interactions with each of the legislators, or their designated staff, representing MDON regions (e.g., in-district meetings, visits at the Capitol, or attendance at programs).

Completion Indicator(s):

- Two in-person interactions with each of the legislators, or their designated staff, representing MDON regions (e.g. in-district meetings, visits at the Capitol, or attendance at programs) completed annually

Responsibility of:

- National Kidney Foundation of Michigan
- DPAC Advocacy and Public Policy Workgroup
- DPAC members
- American Diabetes Association
- MDON
- MODE
- Juvenile Diabetes Research Foundation
- American Diabetes Association

C. Provide ongoing distribution of information and proposed policies on diabetes, outcomes of diabetes programs, and success stories to public officials, legislators, and their key staff.

Completion Indicator(s):

- Information on diabetes and outcomes of diabetes programs distributed to public officials and legislators at least twice a year (e.g., newsletters, handouts, mailings, emails, or telephone contacts)

Responsibility of:

- DPAC Advocacy and Public Policy Workgroup
- MDON
- Statewide diabetes volunteers

D. Refer advocates to advocacy toolkit resources through the DPAC Web site.

Completion Indicator(s):

- Advocacy toolkit is posted on the Web site and tools are updated, as needed

Responsibility of:

- MDCH Diabetes Prevention and Control Program
- DPAC Advocacy and Public Policy Workgroup
- MDON

OBJECTIVE #3:
By 2011, raise public awareness of the economic burden of diabetes in Michigan and the impact of diabetes programs.

Activities:

A. Letter to the editor campaign coordinated among diabetes partners, as needed.

Completion Indicator(s):

- Guidelines for campaign submitted to diabetes partners
- # of letters submitted by diabetes partners
- # of letters printed

Responsibility of:

- DPAC Advocacy and Public Policy Workgroup
- DPAC Communications Workgroup
- DPAC Members

B. Develop and disseminate common advocacy messages via various communication channels (e.g., Web sites, list serves, newsletters).

Completion Indicator(s):

- Common advocacy messages developed and integrated into legislative handout for FY2009
- Legislative handout updated in FY2010
- Common advocacy messages shared with advocates prior to Diabetes and Kidney Disease Advocacy Day

Responsibility of:

- MDCH Diabetes Prevention and Control Program
- DPAC Advocacy and Public Policy Workgroup
- DPAC Communication and Public Awareness Workgroup
- National Kidney Foundation of Michigan

C. Develop and disseminate information about accomplishments and success in diabetes prevention and control for legislators and general public (include success stories and testimonials).

Completion Indicator(s):

- Legislative handouts created including success stories and program outcomes for FY2009
- Legislative handout updated in FY2010

Responsibility of:

- DPAC Advocacy and Public Policy Workgroup
- MDCH Diabetes Prevention and Control Program
- National Kidney Foundation of Michigan MDON

GOAL #2

Ensure that all people with diabetes have access to self-management education, supplies, and health care.

OBJECTIVES AND ACTIVITIES

OBJECTIVE #1:

By 2011, expand partnerships with organizations working with people with diabetes to increase access to self-management training, supplies, and health care.

Activities:

A. Contact organizations providing diabetes supplies to address access (e.g., durable medical equipment providers, pharmacy staff).

Completion Indicator(s):

- List of partner organizations completed (December 2008) with five organizations identified for individual meetings in FY2009 (An additional five organizations will be targeted in FY2010.)
- Mailing sent to all partner organizations to promote DPAC, the Michigan Diabetes and Kidney Disease Advocacy Plan, and policy priorities for FY2009

Responsibility of:

- DPAC Advocacy and Public Policy Workgroup

B. Contact health care providers and social service organizations (e.g., federally qualified health centers, senior centers, churches) to promote diabetes self-management education and encourage use of Center for Medicare and Medicaid Services information on benefits for people with diabetes.

Completion Indicator(s):

- Contact list developed for target organizations

- Mailing submitted to all target organizations with information on diabetes self-management education and support services

Responsibility of:

- DPAC Advocacy and Public Policy Workgroup
- DPAC Training and Education Programs Workgroup

OBJECTIVE #2:
By 2011, promote diabetes self-management education and diabetes self-management support resources available in Michigan (e.g., support groups; the Personal Action Toward Health (PATH) Program [aka the Stanford Chronic Disease Self-Management Program in Michigan]; peer mentoring; community health workers) to organizations working with people with diabetes.

Activities:

A. Gather promotional information for diabetes self-management education and support resources (e.g., the PATH Program; the Diabetes Self Management Training Program; Joining People with Diabetes Support Group Network; MDON).

Completion Indicator(s):

- Materials selected for distribution

Responsibility of:

- MDCH Diabetes Prevention and Control Program
- DPAC Training and Education Programs Workgroup

B. Disseminate promotional information to professional organizations, including posting on the DPAC Web site and inclusion in MDON resource directories.

Completion Indicator(s):

- # of diabetes partners who are sent selected materials
- Materials posted on DPAC Web site and information included in MDON resource directories

Responsibility of:

- DPAC Training and Education Programs Workgroup
- DPAC Communication and Public Awareness Workgroup

GOAL #3

Reduce health disparities among high-risk, racial and ethnic groups and other special populations.

OBJECTIVES AND ACTIVITIES

OBJECTIVE #1:
Encourage the training of diabetes lay health workers in Michigan.

Activities:

A. Promote the use of diabetes lay health workers in Michigan.

Completion Indicator(s):

- Information shared with diabetes partners on the effectiveness of the community health worker model

Responsibility of:

- DPAC Training and Education Programs Workgroup
- REACH Detroit

B. Provide guidance and technical support to organizations that are interested in developing a diabetes lay health worker program.

Completion Indicator(s):

- Training resources are posted on the DPAC Web site
- Guidance provided to all organizations seeking information on community health worker programs from experts working with the DPAC Training and Education Programs Workgroup

Responsibility of:

- DPAC Training and Education Programs Workgroup
- Michigan Diabetes Prevention and Control Program

C. Distribute information on diabetes lay health worker training opportunities on an ongoing basis.

Completion Indicator(s):

- Information shared at DPAC full membership meetings and/or through ongoing communication with DPAC members

Responsibility of:

- DPAC Training and Education Programs Workgroup

OBJECTIVE #2:
Support local, regional and statewide efforts specifically aimed at reducing health disparities.

Activities:

A. Provide information on programs specifically designed to reduce health disparities to community partners.

Completion Indicator(s):

- Information on programs addressing health disparities distributed to partners at DPAC full membership meetings including presentations on addressing health disparities and highlighting programs that are designed to reduce health disparities

Responsibility of:

- MDCH Diabetes Prevention and Control Program
- DPAC Board of Directors

B. Collaborate with the Health Promotion for People with Disabilities Program to address integration of people with disabilities into diabetes prevention and control programs and increase awareness of disability as a health disparity issue.

Completion Indicator(s):

- Education provided annually to diabetes partners on health promotion for people with disabilities and the prevalence of diabetes among people with disabilities
- Information provided annually to diabetes partners on programs designed to meet the needs of people with disabilities and education materials available in alternative formats (e.g., Enhance Fitness)

Responsibility of:

- MDCH Diabetes Prevention and Control Program
- MDCH Health Promotion for People with Disabilities Program

Data, research and EVALUATION

GOAL

Increase the knowledge of health care providers and professional organizations regarding the impact of diabetes and evidence-based programs to improve the quality of diabetes care.

IMPACT STATEMENT

Diabetes is not only one of the most common, complex and costly chronic health conditions in the United States, it is also one of the most manageable and preventable. By 2050, it is estimated that the U.S. prevalence rate for diabetes will be 7 percent; Michigan's prevalence rate, which has consistently been higher than the national rate for the last decade, is already 8.5 percent. In addition to the 648,100 Michigan adults who have been diagnosed with diabetes, another 279,100 are living with undiagnosed diabetes, meaning they have neither sought treatment nor are they likely to have begun healthy lifestyle changes.

Confronting this growing epidemic successfully depends upon the ready availability of appropriate and accessible diabetes screening, diagnosis, and care. Frequently, diabetes is not diagnosed until complications appear; for the average person with diabetes, that can be as long as 12 years after the disease begins.

American Diabetes Association guidelines recommend asymptomatic adults 45 years or older be screened for diabetes every three years, especially if they are overweight. Medicare benefits cover a screening blood sugar test to check for diabetes among those individuals who are at risk for developing diabetes (i.e., those individuals with high blood pressure, a history of abnormal cholesterol and triglyceride levels, obesity, and/or a history of high blood sugar).

Persons who are diagnosed with diabetes should receive aggressive, but appropriate, care and management to prevent the worsening of the disease and the development of related complications. For persons with type 1 or type 2 diabetes, that means height, weight, BMI, blood pressure, and cardiovascular risk assessments; comprehensive foot exams, depression screening, and dilated eye exams on a routine basis; and appropriate laboratory tests and education, counseling, and risk factor modification counseling at diagnosis and as needed afterwards. Health care providers also must ensure that people with diabetes receive self-management education and that they understand and adhere to the techniques taught in those classes, including the need to make healthy lifestyle modifications for improved health to prevent or delay complications.

When not managed successfully, the economic costs can be staggering, not only for people with diabetes and their families, but for all sectors of society. Employees and employers bear the burden of diabetes in the form of higher insurance premiums and reduced earnings as a result of loss of productivity. All members of the community bear its burden through the reduced overall quality of life for people with diabetes, as well as their families and friends; missed work or social/family events; and fear of disability or premature death.

Researchers estimate that, in 2007, diabetes cost Michigan residents $4.3 billion in direct medical costs for diabetes care and $2.2 billion in indirect costs for lost workdays, restricted activity days, mortality, and permanent disability due to diabetes. It is estimated that approximately one of every 10 health care dollars in the United States is spent on diabetes.

The burden of diabetes is growing. There is an obvious and urgent need to build the capacity of Michigan's health care system to translate evidence-based research findings into the delivery of quality, cost-effective treatment and preventive care for those individuals who are at highest risk for diabetes and those individuals who have already been diagnosed with the disease. It is imperative that information on the impact of diabetes be conveyed to all stakeholders and the general public to emphasize the importance of prevention and the promotion of effective diabetes care management strategies.

OBJECTIVES AND ACTIVITIES

Objective #1:
By 2010, develop and disseminate information on the cost and quality of diabetes prevention and care.

Activities:

A. Gather information on the cost of care for people with diabetes, prediabetes, and kidney disease, and develop fact sheets addressing potential cost-saving interventions (e.g., Diabetes Self-Management Education; Personal Action Toward Health Program [aka the Stanford Chronic Disease Self-Management Program in Michigan]; implementation of the Chronic Care Model).

Completion Indicator(s):

- Fact sheets developed to address cost-saving interventions for diabetes prevention and control

Responsibility of:

- Michigan Department of Community Health (MDCH) Diabetes Prevention and Control Program
- Diabetes Partners in Action Coalition (DPAC) Data, Research and Evaluation Workgroup

B. Develop a distribution plan for each fact sheet based on the target audience and the best opportunities to disseminate the information to that audience.

Completion Indicator(s):

- # of organizations to which the fact sheets are distributed
- % of legislators who received the fact sheets

Responsibility of:

- DPAC Data, Research and Evaluation Workgroup
- DPAC Advocacy and Public Policy Workgroup

C. Develop a plan to promote use of the national standards as the "gold standard" of diabetes prevention and care to health care providers and professional organizations.

Completion Indicator(s):

- Activities developed to promote national standards among health care providers and health care plans

Responsibility of:

- DPAC Data, Research and Evaluation Workgroup
- DPAC Communications and Public Awareness Workgroup

D. Provide input into the biannual review of Michigan Quality Improvement Consortium (MQIC) guidelines for the Adult Prevention 18-49, Adult Prevention 50+, Diabetes, and Chronic Kidney Disease programs.

Completion Indicator(s):

- Feedback forms submitted for each of the MQIC guidelines as they are reviewed

Responsibility of:

- MDCH Diabetes Prevention and Control Program
- DPAC Data, Research and Evaluation Workgroup
- National Kidney Foundation of Michigan

E. Provide input into the development of the 2010 Michigan Diabetes Fact Sheet and the 2010 Michigan Prediabetes Fact Sheet.

Completion Indicator(s):

- Fact sheets completed, distributed to partners, and posted on MDCH Diabetes Web site

Responsibility of:

- MDCH Diabetes Prevention and Control Program
- DPAC Data, Research and Evaluation Workgroup

Objective #2:
By 2010, increase the knowledge among health care providers regarding the latest diabetes and kidney disease research.

Activities:

A. Survey health care providers and professional organizations to determine topics for which they would like to review research translation briefs and annually select four topics as the highest priorities.

Completion Indicator(s):

- Survey results reported in the DPAC FY2009 Annual Report

Responsibility of:

- DPAC Data, Research and Evaluation Workgroup

B. Develop four one-page research translation briefs or fact sheets that translate diabetes research into documents that can be distributed to health care providers and professional organizations during FY2009 to inform their program development and practice. (Repeat in FY2010.)

Completion Indicator(s):

- Four translation briefs or fact sheets completed annually

Responsibility of:

- DPAC Data, Research and Evaluation Workgroup

C. Distribute these documents through DPAC during FY2009 and encourage further distribution by coalition members. (Repeat in FY2010.)

Completion Indicator(s):

- Translation briefs and fact sheets distributed to partner organizations and posted on the DPAC Web site

Responsibility of:

- DPAC Data, Research and Evaluation Workgroup

D. Monitor diabetes research and distribute critical information to DPAC members and other partners on an ongoing basis.

Completion Indicator(s):

- # of resources disseminated to partners

Responsibility of:

- MDCH Diabetes Prevention and Control Program
- DPAC Data, Research and Evaluation Workgroup

E. Complete an evaluation to determine whether the research translation pieces have been further distributed by DPAC members.

Completion Indicator(s):

- Survey results reported in the DPAC FY2009 Annual Report

Responsibility of:

- DPAC Data, Research and Evaluation Workgroup

Training and EDUCATION PROGRAMS

GOAL

Increase the level of evdence-based clinical knowledge among diabetes service providers.

IMPACT STATEMENT

U.S. diabetes prevalence has been climbing since 1990 and is expected to continue to rise in the near future, due to the increasing obesity and sedentary lifestyle of the U.S. population, the aging of our residents, the growth in racial and ethnic populations at highest risk for the disease, and a number of other contributing factors. At the same time, ad-

vances in research and technology have enabled the health care community to make significant strides in the treatment of diabetes, resulting in improved quality of life for patients who receive state-of-the-science disease management and monitoring from their providers and incorporation of proven self-management techniques into their lifestyles.

Given the rapidly changing science, it is apparent that for people with diabetes to benefit fully from research advances, health care providers must continue to stay abreast of the latest diabetes research and treatment guidelines and assimilate them into their daily practices. Emerging areas of focus include the relationship between oral health and diabetes and updated information on diabetes and pregnancy.

The Michigan Department of Community Health (MDCH) Diabetes Prevention and Control Program and its partners support a variety of initiatives that are designed to further both professional and consumer knowledge about the diagnosis, treatment and management of diabetes. Among these efforts are: independent self-study modules for nurses and dietitians covering the principles of diabetes care and emerging topics; technical assistance for individual medical practices focusing on diabetes standards of care; on-site trainings for health care providers; educational conferences; newsletters, fact sheets, and other publications; and educational Web sites.

These initiatives currently reach a limited audience of health professionals, primarily nurses. Although it is important that stakeholders continue to increase the reach of diabetes programming among the nursing and registered dietitian workforce, it is imperative that they also expand their efforts by addressing the educational and training needs of members of the broader allied health professional group and lay health workers, thereby raising the level of diabetes best-practices knowledge and practice among the larger health care community.

OBJECTIVES AND ACTIVITIES

OBJECTIVE #1:

By 2010, determine regional and state-wide needs for evidence-based continuing education programs that reach health providers and others serving people with diabetes to develop or expand such programs.

Activities:

A. Survey regional and statewide needs and develop new training material, as needed.

Completion Indicator(s):

- Gap analysis completed of education modules and education materials available to providers in Michigan

Responsibility of:

- MDCH Diabetes Prevention and Control Program
- Michigan Diabetes Outreach Network (MDON)
- Diabetes Partners in Action Coalition (DPAC) Training and Education Programs Workgroup

B. Provide statewide continuing education programs.

Completion Indicator(s):

- # of continuing education programs provided for health care professionals in Michigan
- # of participants in continuing education programs for health care professionals in Michigan

Responsibility of:

- MDON

- DPAC Training and Education Programs Workgroup

C. Develop and promote an oral health education module.

Completion Indicator(s):

- Oral health education module completed and available for continuing education units

Responsibility of:

- DPAC Training and Education Programs Workgroup
- MDCH Diabetes Prevention and Control Program
- MDCH Oral Health Program

D. Review the white paper being developed by the MDCH Maternal, Infant, and Child Health Program regarding pregnancy and diabetes and contribute to plans to distribute this document.

Completion Indicator(s):

- Diabetes and Pregnancy White Paper completed and distributed to health care professionals in Michigan

Responsibility of:

- DPAC Training and Education Programs Workgroup
- DPAC Data, Research and Evaluation Workgroup
- MDCH Diabetes Prevention and Control Program
- MDCH Maternal and Infant Health Program

E. Review other documents (e.g., white papers, education modules) created for health care providers or other professionals to ensure consistency with national standards and inclusion of research-based approaches.

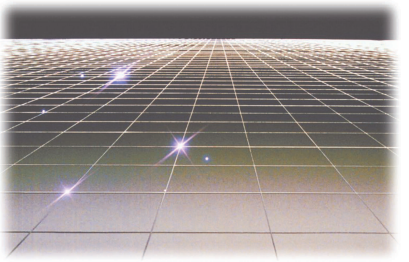
Completion Indicator(s):

- # of documents reviewed

Responsibility of:

- DPAC Training and Education Programs Workgroup
- DPAC Data, Research and Evaluation Workgroup
- MDCH Diabetes Prevention and Control Program

NEXT STEPS



In order to monitor progress toward completion of the objectives in this plan, the Diabetes Partners in Action Coalition (DPAC) will publish an annual report for FY2009 and FY2010 with support from the Michigan Department of Community Health's (MDCH) Diabetes Prevention and Control Program. The annual report will be reviewed by the DPAC Board, distributed to all DPAC members, and posted on the DPAC Web site.

Based on the recommendations in the 2003 Michigan Diabetes Strategic Plan, DPAC was reorganized into active workgroups based on goal areas. DPAC workgroup activity will be closely timed to the implementation of the Michigan Diabetes Action Plan goals and objectives. In FY2009 – FY2010, the five DPAC workgroups will each develop an annual work plan to accomplish the activities for which they are responsible; the work plans will include timelines and targets for completion and will assign individual members or organizations to complete each activity. The workgroups will collaborate with other partners, as indicated by the action plan and as opportunities arise, to complete the objectives.

Plans for the development of a new strategic plan for FY2011-FY2013 will begin in 2009. The new strategic plan will reflect the progress that has been made toward achieving the focused goals in the Michigan Diabetes Action Plan and will provide an opportunity to enhance our efforts based on a new assessment of needs, a review of gaps in access to programs and services, and data on program outcomes and cost-effectiveness. We will provide opportunities for all stakeholders to submit comment into the development of the new strategic plan through community forums and open comment periods. The new plan will be available by Oct.1, 2010.

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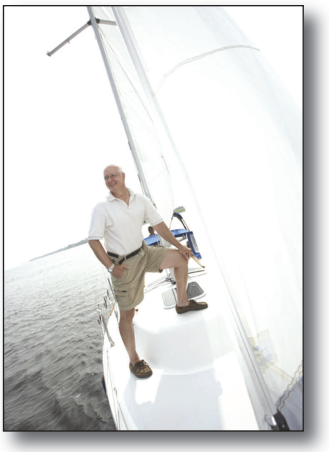

"New evidence shows that at least 57 million people in the United States have prediabetes. Coupled with the nearly 24 million who already have diabetes, this places more than 25 percent of our population at risk for further complications and suffering. Together, we can and must do more to prevent and control this growing epidemic."

— Ann Albright, PhD, RD
Director, Division of Diabetes Translation
Centers for Disease Control and Prevention

WORKING TOGETHER

The Diabetes Partners in Action Coalition (DPAC) is a partnership of like-minded individuals and organizational representatives who work to reduce the impact of diabetes in Michigan. Members of DPAC are individuals with diabetes, those with an interest in diabetes, or representatives from organizations who work closely with diabetes or a related health issue. DPAC members represent the following sectors: business and industry; labor organization/unions; civic organizations; managed care organizations; community members or consumers; occupational health organizations; environmental or environmental health organizations; physicians and other health care workers; faith-based institutions; professional public health and health care associations; foundations or philanthropic organizations; public safety and emergency response organizations; governmental agencies; schools; hospitals and health care facilities; social service providers; institutions of higher education; and transportation providers.