



Our Health

Examining Topics from 'Our Health is in Our Hands'

Coping with a Chronic Disease: Diabetes



Photo credit: Bill Branson

COPING WITH CHRONIC DISEASE: DIABETES

Diabetes mellitus is a chronic condition characterized by the body's inability to utilize insulin effectively and therefore regulate blood sugar.¹ It results from the body's inability to produce sufficient amounts of insulin, a reduced sensitivity to insulin, or a combination of both. In adults the most prevalent type of diabetes is Type 2 which usually results from a reduced sensitivity to insulin. The body responds to this by producing more insulin. As sensitivity decreases, insulin production increases until the body can no longer keep up with the demand. Complications associated with diabetes include: increased risk of blindness, lower limb amputations, kidney disease and renal failure, cardiovascular disease, neurological problems, dental problems, stroke, pregnancy complications, and birth defects in the offspring of diabetic mothers.¹ With physical activity, proper nutrition, and appropriate medication, the risk of diabetes-related complications can be reduced. Nevertheless adherence to a treatment plan can be challenging. Some factors associated with non-cooperation are: psychosocial factors [refers to one's psychological development in and interaction with a social environment. Examples of psychosocial factors are: perceived lack of control and perceived isolation] and inadequate support.^{2,3} In this edition of Our Health, we will examine the prevalence of diabetes in Ingham County, the economic impact of the disease in Michigan and the prevalence of diabetes self-management education among diabetics.

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DIABETES IN OUR COMMUNITY

One of the Healthy People 2010 objectives (# 5-3) is to reduce the overall rate of diabetes that is clinically diagnosed to 25 cases per 1,000 persons (the equivalent of a prevalence of 2.5%).⁶ Like most communities in Michigan and nationally, Ingham County struggles with diabetes prevalence at least three times the Healthy People 2010 target. According to the Capital Area Behavioral Risk Factor & Social Capital Survey, the prevalence of diabetes in Ingham County was 10.1% between 2003 and 2005. The prevalence of diabetes is higher in the densely populated city of Lansing than in out county areas [10.6% compared to 7.3%]. North-west Lansing had the highest prevalence of

For more information about our nation's health objectives, look up Healthy People 2010 at: www.healthypeople.gov

diabetes compared to the east side and the south side of the city [15.8% compared to 9.4% and 8.4%, respectively]. Diabetes is most prevalent among middle-age and older adults, afflicting approximately one in five persons above the age of 55 years in Ingham County. The prevalence of diabetes is not equally distributed among racial/ethnic groups. Diabetes is more common among racial/ethnic minorities than among non-Hispanic White persons. This is observed in Ingham County. Non-Hispanic Black county residents have a prevalence of diabetes of 13.5% while among non-Hispanic White residents the prevalence is 9.8%.

Table 1. Diabetes prevalence overall and by select characteristics.

DIABETES		
	%	95% CI
INGHAM COUNTY	10.1%	8.0% - 12.1%
BY COUNTY AREAS		
LANSING	10.6%	8.1 - 13.1%
Remainder of Ingham County	7.3%	4.8% - 9.8%
BY LANSING NEIGHBORHOOD SERVICE AREAS		
Lansing's Eastside	9.4%	4.6% - 14.2%
Northwest Lansing	15.8%	10.0% - 21.7%
Lansing's Southside	8.4%	4.4% - 12.4%
BY AGE GROUP		
Persons 25-34 years old in Ingham County	5.8%	0.3% - 11.2%
Persons 35-44 years old in Ingham County	8.4%	3.3% - 13.5%
Persons 45-54 years old in Ingham County	13.1%	8.1% - 18.0%
Persons 55-64 years old in Ingham County	21.5%	15.3% - 27.6%
Persons 65-74 years old in Ingham County	23.8%	15.5% - 32.1%
Persons 75+ years old in Ingham County	22.4%	14.7% - 30.1%
BY RACE/ETHNICITY		
Non-Hispanic White persons	9.8%	7.4% - 12.3%
Non-Hispanic Black persons	13.5%	10.2% - 16.8%
Hispanic persons	9.1%	0% - 19.0%

ECONOMIC IMPACT

Diabetes is an expensive condition because of its chronic nature and variety of complications. In 2007, the estimated cost attributed to diabetes in Michigan was \$5.4 billion.⁴ \$3.5 billion of those cost are direct services (medical care, prescriptions related to the disease as well as its complications, and supplies) and \$1.9 billion are indirect costs (reduction and loss of productivity in the workforce, absenteeism, etc).⁴ It is projected that the costs attributed to diabetes will double within the next twenty-four years.⁵ Two methods of reducing the cost of diabetes are: 1) prevent the disease among persons without diabetes; and 2) properly manage diabetes to reduce the likelihood of serious complications.

DIABETES SELF-MANAGEMENT & EDUCATION

Diabetes self-management education (DSME) is one cost-effective method to enable diabetics to properly manage their condition and reduce the likelihood of complications is. The purpose of DSME is to assess and teach persons with diabetes the knowledge and skills necessary to make effective daily decisions to manage their condition. The national target for diabetes education, as defined by Healthy People 2010, is that 60% of diabetic persons receive formal diabetes education.⁶ In 2009 the percentage of diabetics in Michigan who had formal diabetes education was 51.9% (95%CI: 47.7%-56.1 %).⁷ A higher proportion of women received formal diabetes education than men [58.0% (95%CI: 52.5%-63.4%) compared to 45.9% (95%CI: 39.8%-52.2%)]. DSME participants have demonstrated significant improvements in exercise, symptom management, communication with physicians, and self-reported general health. They also spent fewer days in the hospital and trended toward fewer outpatient visits and hospitalizations. Chronic disease self-management programs are a promising strategy to deal with chronic diseases. DSME has been found to be a cost effective way of averting diabetes-related complications.⁸

References

1. Centers for Disease Control and Prevention. National diabetes fact sheet: general information and national estimates on diabetes in the United States, 2007. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2008.
2. Albright TL, Parchman M, Burge SK; RRNeST Investigators. Predictors of self-care behavior in adults with type 2 diabetes: an RRNeST study. *Journal of Family Medicine*. 2001 May;33 (5):354-60. PMID: 11355645
3. Lippa KD, Klein HA. Portraits of patient cognition: how patients understand diabetes self-care. *Can J Nursing Research*. 2008 Sep;40(3):80-95. PMID: 18947093
4. American Diabetes Association. Economic Costs of Diabetes in the U.S. in 2007 *Diabetes Care* March 2008 31:596-615. [http://www.diabetesarchive.net/advocacy-and-legalresources/cost-of-diabetes.jsp]
5. Huang ES, Basu A, O'Grady M, and James C. Capretta. Projecting the Future Diabetes Population Size and Related Costs for the U.S. *Diabetes Care* December 2009 32:2225-2229
6. U.S. Department of Health and Human Services. *Healthy People 2010*. 2nd ed. With Understanding and Improving Health and Objectives for Improving Health. 2 vols. Washington, DC: U.S. Government Printing Office, November 2000
7. Unpublished data. 2009 Michigan Behavioral Risk Factor Survey.
8. Boren SA, Fitzner KA, Panhalkar PS, Specker JE. Costs and benefits associated with diabetes education: a review of the literature. *Diabetes Educ*. 2009 Jan-Feb; 35(1):72-96.



Diabetes education

Personal Action Towards Health (PATH) is a chronic disease self-management program, based on the Stanford Model of Chronic Disease Self-Management. The classes provide education and support to those suffering from a variety of chronic diseases, including diabetes. Topics covered include:

- Techniques to deal with problems such as frustration, fatigue, pain and isolation
- Appropriate exercise for maintaining and improving strength, flexibility, and endurance
- Appropriate use of medications
- Communicating effectively with family, friends, and health professionals
- How to evaluate new treatments

PATH classes are offered by the Ingham County Health Department and there is no cost to attend. Contact Ashley Harding at 272-4127, for more information or to register for an upcoming class.

About *Our Health is in Our Hands*

Published in 2004, *Our Health is in Our Hands*, is a report of the health status of the residents of Ingham County. Not only does it document the traditional topics and behaviors related to health (i.e. physical activity, substance abuse, tobacco use, etc.), but it includes a review of the social determinants of health. Social determinants of health are factors in the social environment that contribute to or detract from the health of individuals and communities. Examples of social determinants of health, discussed in *Our Health is in Our Hands* are social connection, population shifts, and environmental quality. Copies of this document are available at <http://hd.ingham.org/publications.aspx>.

About the Capital Area Behavioral Risk Factor & Social Capital Survey

The Capital Area Behavioral Risk Factor & Social Capital Survey is a telephone health survey of households that collects information on health behaviors, preventive health practices, health care access, social cohesion and interactions. Modeled after the Michigan Behavioral Risk Factor Survey and the national Behavioral Risk Factor Surveillance System, information gathered from this survey is used to identify emerging health obstacles, monitor health objectives, and develop and evaluate public health policies/programs in Ingham and surrounding counties in the Capital Area.

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