Michigan's State Health Assessment and State Health Improvement Plan

2012–2017

Michigan Department of Community Health

MDCH

Rick Snyder, Governor
Olga Dazzo, Director

Acknowledgements

Michigan's State Health Improvement Plan (SHIP) was developed through the engagement and partnership of many stakeholders. Our deepest appreciation is extended to you—the more than 1,500 individuals, organizations, partners, and stakeholders in health from across the state who contributed knowledge, expertise, perspectives, time, and resources to this effort.

Perhaps you participated in the public health system assessment via the National Public Health Performance Standards Program or the Michigan Department of Community Health (MDCH) Public Health Accreditation Board beta test. You may have been a key informant and/or contributed your time and expertise as one of 650 participants in the 8 State Health Assessment and Improvement regional meetings. Or, you may have joined more than 500 organizations and individuals who enthusiastically participated in the Obesity Summit or in the development of the *Michigan Health and Wellness 4 x 4 Plan*. Additionally, you may have conducted research, written reports, prepared presentations, and collected or supplied data to inform this ongoing process.

Whether you are a consumer; state, local, city, or tribal employee; health care professional; policy-maker; academician; or work in a corporate, non-profit, faith-based or community organization, your willingness to collaborate via ongoing large-scale community engagement has been vital. With your continued dedication in future efforts, we jointly will realize success. Together, we can implement this plan, continue to engage Michigan communities to improve health and wellness, and positively shape Michigan's health status in the months and years to come.

This State Health Improvement Plan was prepared by Public Sector Consultants for the Michigan Department of Community Health. It was developed through the collaborative efforts of the public health system and additional partners.

August 2012

Michigan Department of Community Health
Public Health Administration
201 Townsend Street
Lansing, Michigan 48913
517-335-8024
http://michigan.gov/mdch/




STATE OF MICHIGAN

DEPARTMENT OF COMMUNITY HEALTH

LANSING

RICK SNYDER
GOVERNOR

OLGA DAZZO
DIRECTOR

August 16, 2012

Dear Health Improvement Partners and Friends of Public Health,

Michigan ranks near the bottom in multiple key health status indicators. Many of these outcomes relate to conditions that Michigan residents live with every day, regardless of where we work, reside, or play. Obesity, poverty, lack of insurance, health disparities, limited access to primary care, tobacco use, high infant mortality, and other conditions or factors impede our efforts to become and remain healthy.

Based on these findings and during these economically challenging times, it is imperative for us to work together across various health systems to lead a process that improves our health—as individuals and collectively. During our state-wide health assessment meetings, you described obesity as the most pressing problem in your communities—pressing in terms of prevalence, cost to society, and quality of life. Michigan's high rate of obesity is also pressing in terms of related chronic conditions like diabetes, heart disease, cancer, sleep apnea, and many others.

To advance our mutual work in addressing these persisting health concerns, we are very pleased to share Michigan's 5-year State Health Improvement Plan (SHIP). It lays the foundation for work we can do together to improve the health of people across the lifespan and in all communities across the state.

The initial focus of this SHIP is to build upon our work in tackling Michigan's obesity crisis—a crisis that knows no race, gender, or age. Because of the prevalence of obesity, we aim to channel our collective efforts and resources to tackle this important issue. In subsequent years, with community engagement and your assistance, additional health priorities will be added to this SHIP.

I would like to sincerely thank everyone involved in this important work! It is our hope you will use this plan, in part, as the basis for your organization's strategies to improve population health. The MDCH Public Health Administration is very proud to be part of Michigan's public health community—comprising highly knowledgeable, passionate, innovative, and capable professionals working together to address obesity and other serious conditions that prevent us from living our healthiest lives.

Sincerely,

Jean Chabut

Jean Chabut, Deputy Director
Public Health Administration

Contents

EXECUTIVE SUMMARY

The public health system in Michigan comprises not only the Michigan Department of Community Health (MDCH) and the state's 45 local health departments (LHDs), but also a variety of partners and organizations that play important roles in assuring the public's health. Michigan has a long history of monitoring the health status of its residents and identifying and implementing evidence-based strategies to improve the health and wellness of the population. Health assessment and planning are integral to the operation of the state public health system.

State health priorities have consistently been identified through close examination of data and dialogue with critical partners in health. The state collaborated with several partners to create Healthy Michigan 2010, a state plan to achieve objectives laid out by the federal government in Healthy People 2010. The state has monitored its progress with an annual report comparing Healthy People goals to a series of critical health indicators identified by the state.

Michigan is one of the 5 **heaviest** states in the U.S.

Chronic health conditions that can be attributed to obesity account for nearly **$3 billion in annual medical costs** in the state.

Assessment of the state and local public health system is critical to the state's ability to ensure a public health system that is capable of identifying, planning for, and responding to the needs of the state's residents. The Michigan local public health accreditation program reviews the ability of Michigan's 45 LHDs to meet standards developed by state and local public health professionals. On a broader scale, in order to understand public health system performance, the MDCH undertook a statewide public health system assessment using the Centers for Disease Control and Prevention National Public Health Performance Standards Program (NPHPSP) state instrument in the fall of 2009. The assessment involved MDCH staff and external partners identifying the state public health system's current activities and capacities and assessing how well the system is providing essential public health services. In 2010, in order to assess its own strengths and weaknesses and identify opportunities for improvement, the MDCH began preparation for national accreditation by participating in the Public Health Accreditation Board (PHAB) beta test.

More recently, the MDCH convened partners across the state in a **state health assessment (SHA) and state health improvement planning (SHIP) process**. An advisory group made up of MDCH staff and representatives of the Michigan Association for Local Public Health (MALPH), MPRO—Michigan's quality improvement organization, and the Michigan Health and Hospital Association (MHA) was convened in the spring of 2011 to guide the planning process. The group reviewed critical health indicators and other sources of information on the health of Michigan residents to ultimately select a set of 46 reliable, comparable, and valid indicators that describe the health and well-being of Michigan residents. A series of eight regional meetings attended by nearly 650 people enabled the advisory group to broadly share the indicator data and invite community partners to identify the factors that influence the overall health of the state's residents, including challenges and successes, and also identify priority health issues. Interviews with 31 key informants across the state offered further insight into regional priorities, challenges, efforts, strategies, and leadership. These initial components of the process **led to the clear identification of obesity as the top priority for the state**.

Like many states, Michigan is facing an obesity epidemic. More than two-thirds of adults in the state and nearly one-third of children aged 10–17 are either overweight or obese. The percentage of the state's population that is overweight and/or obese has been steadily increasing over the past decade. In 2011, Michigan had the fifth highest adult obesity rate in the nation. Obesity is an important risk factor for chronic illnesses such as heart disease, diabetes, and cancer—diseases that can decrease both the quality and length of life. Given the

rising level of obesity and the strong potential for negative long-term consequences, it is no surprise that conquering this epidemic has emerged as a top priority for the state and its public and private partners.

A summit on obesity, attended by 500 diverse stakeholders from across the state, was held in the fall of 2011 to expand stakeholder engagement in the identification of strategies to address the epidemic. The summit led to the identification of five broad strategies and numerous specific actions that the state and its partners could undertake in the battle against obesity. The summit, the regional meetings, and the key informant interviews culminated in the development of the *Michigan Health and Wellness 4 x 4 Plan* (the 4 x 4 Plan), a state health improvement plan with an initial focus on addressing obesity. The plan was unveiled by MDCH Director Olga Dazzo in June 2012.

The state's governor has also helped to shape the plan. Since entering office in January 2011, Gov. Rick Snyder has adopted obesity as a key health benchmark. In his 2011 special message on health, the governor called attention to the connection between obesity and a variety of other health problems and also to the financial toll obesity takes on health care costs, noting that nearly $3 billion in annual medical costs in the state are attributed to obesity.

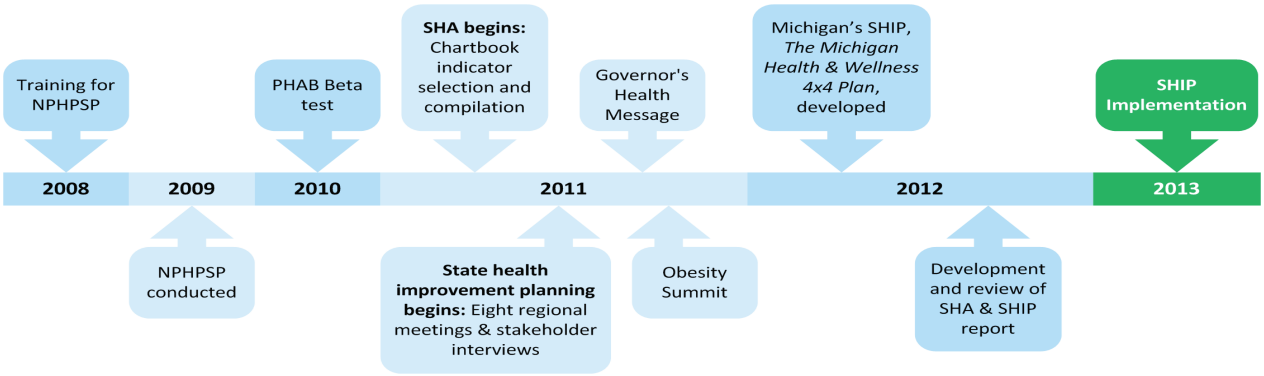
Governor Snyder's health message provided a vision and an undergirding philosophy for the state's health improvement plan, stating **"Our vision is for Michiganders to be healthy, productive individuals, living in communities that support health and wellness, with ready access to an affordable, person-centered, and community-based system of care."** With an emphasis on the need for personal responsibility, the governor promoted the idea that all Michiganders should be engaging in four healthy activities and monitoring four personal health measures—thus the 4 x 4 Plan!

A state health improvement plan (SHIP) is a long-term systematic plan to address issues identified in the state health assessment. A SHIP describes how the state health department and the communities it serves will work together to improve the health of the population.

Obesity is a multi-faceted issue. There is no single solution that will eradicate the epidemic and no single entity that can move the needle on its own. This state health improvement plan reflects the need to involve partners from all sectors—schools, workplaces, health care, and others. Through its extensive stakeholder engagement efforts, both to identify priorities and to select strategies, Michigan is marshaling the collective efforts of public and private partners to tackle what has become widely recognized as the most important public health issue of our time.

This document describes the assessment effort and the five-year state health improvement plan (SHIP) with a clear focus on obesity. As the state moves ahead with implementing the strategies outlined in this plan, it will apply similar assessment and planning efforts to other prominent health concerns.

Michigan State Health Assessment (SHA) and Improvement Planning Timeline



AN OVERVIEW OF MICHIGAN'S HEALTH STATUS

Michigan is the eighth most populous state with an estimated 9,883,640 residents (2010 Census) living in 83 counties. Nearly four out of five Michigan residents (78 percent) live in metropolitan areas. Michigan has a fairly diverse population (see Exhibit 1).

EXHIBIT 1. Demographic Characteristics of Michigan Residents, 2010

Demographic Characteristic (2010 Estimate)	Percentage of Population
Sex	
Male	49.1%
Female	50.9%
Race	
Black or African American	14.2%
American Indian or Alaska Native	0.6%
Asian	2.4%
White Alone	78.9%
Native Hawaiian or Pacific Islander	<0.1%
Two or more races	2.3%
Ethnicity	
Hispanic or Latino	4.4%
Age Groups (Years)	
<5	6.0%
<18	23.7%
18–64	62.5%
65+	13.8%

SOURCE: 2010 U.S. Census estimates, Michigan.

Several factors and indicators that contribute to improved health are moving in the correct direction. Pediatric immunizations and cholesterol screening have increased, and the jobless rate and binge drinking have gone down. Almost twice as many children in Michigan have health insurance coverage compared to the national average. High school and college graduation rates have increased. Mortality rates for cancer have decreased. The broader indicators of life expectancy and the teenage birth rate also have moved in the right direction.

A close look at Michigan's critical health indicators, however, suggests that there is significant room for improvement in the health of Michigan's population. Life expectancy in Michigan has typically trailed that of the national average. Heart disease and cancer are the leading causes of death in the state. Infant mortality rates in Michigan have been consistently higher than national rates over the past decade. The infant mortality rate for African American infants is significantly higher than that for white infants in Michigan. For a large number of health indicators, Michigan's rates are worse than the national average. While many health outcome measures are trending in the correct direction for Michigan, a greater rate of improvement is needed for Michigan to catch up to the rest of the nation. Impeding Michigan's

EXHIBIT 2. Critical Health Indicators in Michigan Compared to the United States Average

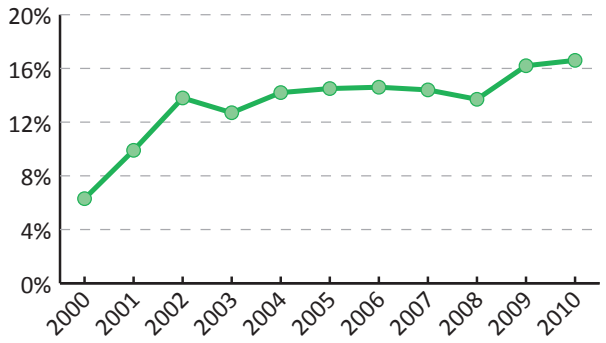
Better than U.S.	Worse than U.S.
• Binge drinking	• Cancer mortality
• Cholesterol testing	• Cardiovascular disease
• Educational attainment	• Chlamydia
• HIV infection	• Cigarette smoking
• Injury mortality	• Diabetes
• Insurance coverage	• Hypertension
• Mammogram	• Infant mortality
• Obesity (child)	• Jobless rate
• Physical activity (adult)	• Life expectancy
• Teenage birth rate	• Nutrition
	• Obesity (adult)
	• Pap Test
	• Physical activity (child)
	• Poverty (adult and child)
	• Veteran access to care

SOURCE: Michigan Critical Health Indicators 2011, Michigan Department of Community Health.

progress are environmental conditions and chronic disease health characteristics. Exhibit 2 provides an overview of how Michigan compares to the United States on a number of critical health indicators.

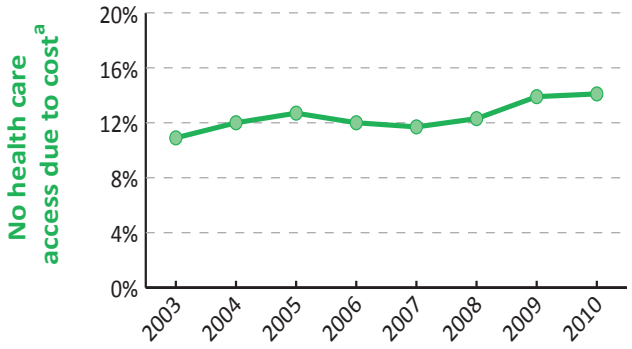
Michigan has faced severe economic challenges in recent years, reflected through increased unemployment and poverty rates. The number of adults with health insurance coverage has decreased, while unmet medical need has increased (see Exhibits 3 and 4). One-sixth of the state's non-elderly adults (aged 18–64) lacked health coverage in 2010. From 2000 to 2009, the percentage of the non-elderly population with employer-based health insurance coverage dropped from 76.7 percent to 65.1 percent. As of September 2011, more than 19 percent of Michigan's population was enrolled in Medicaid. Between 2001 and 2011, Michigan saw a 72 percent increase in the number of Medicaid recipients. The percentage of Michigan adults who did not receive or delayed receiving needed medical services due to cost was 14.1 percent in 2010, compared to 10.9 percent in 2003. Overall health care expenditures have increased as the percentage of the population experiencing chronic conditions such as diabetes and hypertension has also grown.

EXHIBIT 3. Uninsured Non-elderly Adults (Aged 18–64), Michigan, 2000–2010



SOURCE: Michigan Behavioral Risk Factor Survey, Michigan Department of Community Health, 2000–2010.

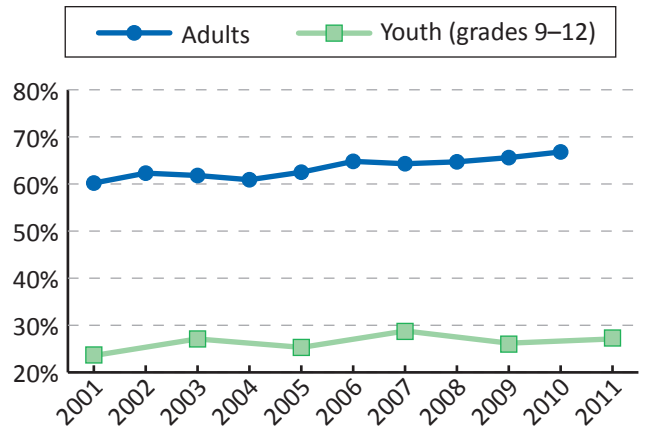
EXHIBIT 4. Unmet Need for Medical Care, Michigan, 2003–2010



SOURCE: Michigan Behavioral Risk Factor Survey, Michigan Department of Community Health, 2003–2010.
[a] The proportion of adults aged 18 and older who reported that in the past 12 months, they could not see a doctor when they needed to due to the cost.

The prevalence of overweight and obesity in Michigan has been on the rise for most of the past decade (see Exhibit 5). More than two-thirds of adults and nearly one-third of children aged 10–17 are overweight or obese. In 2011, Michigan had the fifth highest adult obesity rate in the nation at 31.3 percent.

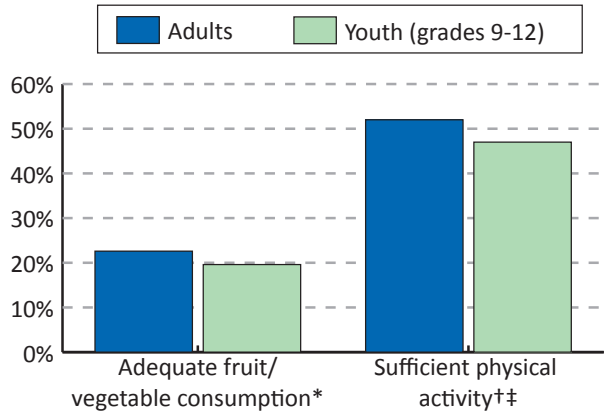
EXHIBIT 5. Overweight and Obesity among Michigan Adults and Youth in Grades 9–12



SOURCE: Behavioral Risk Factor Surveillance System, Centers for Disease Control and Prevention (CDC), 2001-2010; Youth Behavioral Risk Factor Surveillance System, CDC, 2001-2011.

Physical activity levels and dietary habits are two critical factors in the obesity epidemic (see Exhibit 6). The percentage of Michigan adults who engage in the amount of physical activity recommended by the CDC has actually increased slightly since 2003, but the percentage of high school students in the state who do so has been on the decline. Only about half of Michigan adults and just under half of high school students achieve recommended levels of physical activity. In addition, less than a quarter of adults and only about one-fifth of high school student are eating adequate amounts of fruits and vegetables.

EXHIBIT 6. Fruit and Vegetable Consumption and Physical Activity among Michigan Adults and Youth Grades 9–12

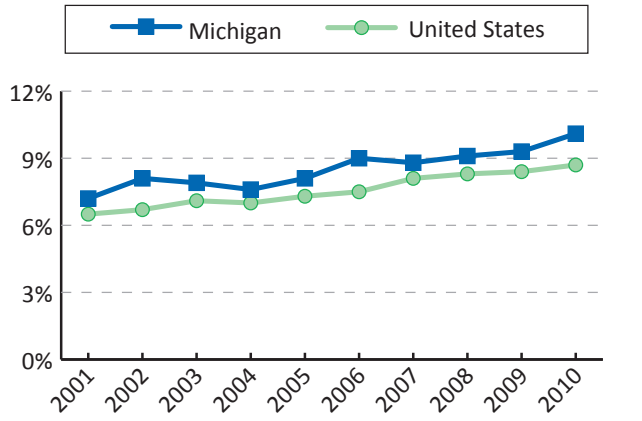


SOURCES: 2009 Michigan Behavioral Risk Factor Survey; 2009 Michigan Youth Risk Behavior Survey
*For high school students and adults, the proportion who report consuming five or more servings of fruits and vegetables daily. †For high school students, the proportion who participated in 60 minutes of physical activity per day on 5 or more days of the previous week. ‡For adults, the proportion who do moderate physical activities for 30 minutes on 5 or more days per week or vigorous physical activities for a total of at least 20 minutes on 3 or more days per week.

While the physical activity and dietary habits of the state's adult residents are generally poor, those of the state's youth are even worse. This does not bode well for the future health of Michigan's residents if something is not done to reverse these trends.

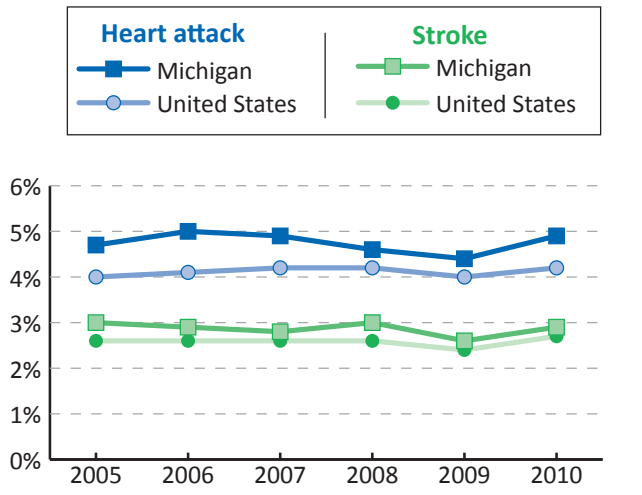
Obesity is an important risk factor for many chronic conditions, such as type 2 diabetes, heart disease, many types of cancer, sleep apnea, and others (see Exhibits 7 and 8). Heart disease is the leading cause of death in Michigan, closely followed by cancer. Diabetes is the 6th leading cause of death in the state. The age-adjusted death rate for each of these conditions is higher in Michigan than in the nation. The prevalence of heart attack, stroke, and diabetes has remained relatively stable over the past several years, but the rate in Michigan is consistently higher than the U.S. average.

EXHIBIT 7. Adult Diabetes Prevalence, Michigan and United States, 2001–2010



SOURCE: Behavioral Risk Factor Surveillance System, Centers for Disease Control and Prevention (CDC), 2001–2010.

EXHIBIT 8. Adult Cardiovascular Disease Prevalence, Michigan and United States, 2005–2010

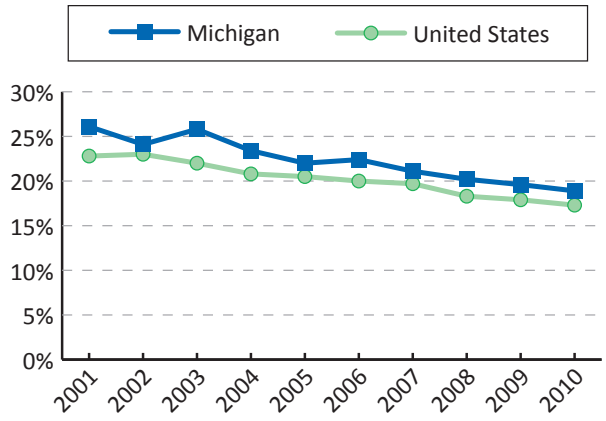


SOURCE: Behavioral Risk Factor Surveillance System, Centers for Disease Control and Prevention (CDC), 2005-2010.

Smoking contributes to the development of many kinds of chronic conditions, including cancers, respiratory diseases, and cardiovascular diseases. Risk of stroke

doubles for those who smoke as compared to those who do not. The percentage of smokers in Michigan decreased between 2001 and 2010 from 26.1 percent to 18.9 percent. Current smoking rates for the United States have followed a similar trend, but remain slightly lower than those in Michigan (see Exhibit 9).

EXHIBIT 9. Smoking in Michigan, 2001–2010



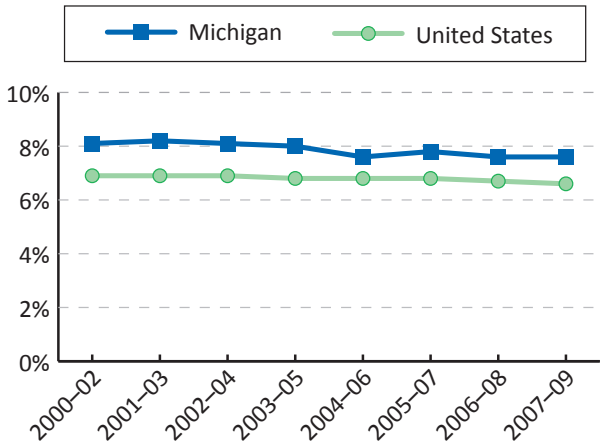
SOURCE: Michigan Critical Health Indicators 2011, Michigan Department of Community Health.

Infant death is a measure of the health and well-being of children and the overall health of a community. It reflects the status of maternal health, the accessibility and quality of primary health care, and the availability of supportive services in the community.

Infants with low birth weight or preterm delivery have a higher risk of death. The use of alcohol, tobacco, and illegal substances during pregnancy is a major risk factor for low birth weight, infant mortality, and other poor outcomes. Infant mortality rates vary substantially among racial and ethnic groups; the rate continues to be higher for African American infants than for white infants.

During the past 10 years, Michigan's infant mortality rate has fluctuated, with a decline below 8.0 per 1,000 for the first time in 2004. Michigan has had a consistently higher infant mortality rate than the United States for the past decade (see Exhibit 10).

EXHIBIT 10. Infant Mortality Rate, Michigan and United States, 2000–2009, Three-year Averages



SOURCE: Michigan Critical Health Indicators 2011, Michigan Department of Community Health.

MICHIGAN'S PUBLIC HEALTH SYSTEM

Public health in Michigan encompasses a wide variety of public, private, and community organizations and resources. The role of government in public health focuses on three core functions: assessment, policy development, and assurance.

- **Assessment** (*Learning what the most important health problems are*): Assessment information is used to develop statewide and community health priorities. Assessment data are based on birth, illness, and death statistics, available health resources, unmet health needs, and citizens' feelings about their personal health.
- **Policy development** (*Deciding what to do based on assessments*): Information gathered through assessments is used to develop state and local health policies. These policies are incorporated into community priorities and plans, public agency budgets, local ordinances and statutes, and services provided.
- **Assurance** (*Doing it well or making sure someone else does it well*): Assurance is monitoring the quality of health services and programs provided.

As shown in Exhibit 11, Michigan's public health system comprises state and local governments; tribal health departments; communities; nonprofit organizations; the health care delivery system; employers and businesses; faith-based organizations; public safety agencies; education and youth development organizations; economic and philanthropic organizations; environmental agencies; charity organizations; media; and schools, universities, and colleges, among many others. In thinking about the public health system in Michigan, it is important to consider both traditional and nontraditional partners. Both types of partners can make important contributions and play an important role in assuring the public's health.

State health department functions reside primarily within the Michigan Department of Community Health (MDCH). MDCH programs and services are planned and delivered through the following areas:

- **Public Health**—health needs assessment, health promotion, disease prevention, and access to appropriate health care for all residents

EXHIBIT 11. Public Health System

SOURCE: CDC National Public Health Performance Standards Program

- **Medicaid**—health care coverage for people with limited income
- **Behavioral Health and Developmental Disability**—services for people who have a mental illness or developmental disability, and services for people who need care for substance use
- **Services to the Aging**—promotes independence and enhancing the dignity of Michigan's older persons and their families
- **Office of Inspector General**—investigates fraud, waste, and abuse in Michigan's health services programs
- **Office of Recipient Rights**—protects the rights granted to recipients of public mental health services

Other Michigan state departments/agencies with public health responsibilities include:

- Department of Human Services
- Department of Agriculture and Rural Development
- Department of Environmental Quality
- Department of Education
- Department of Military and Veterans Affairs

In addition, a handful of departments have no direct public health responsibilities but work with the MDCH to advance goals related to the health and well-being of the state's residents. For example, the MDCH has worked closely with the Michigan Department of Transportation (MDOT) to support the state's Complete Streets initiative; the Department of Licensing and Regulatory Affairs (LARA) regulates health professionals; and the Secretary of State manages the state's organ donor registry and airs videos promoting public health messages in its waiting rooms.

Michigan has 83 counties served by 45 **local health departments** (LHDs) through a city, county, or a multi-county district health department. Each LHD is a part of local government and separate from the state health department. Although LHDs can elect to carry out many programs and services in response to identified community health needs, they typically provide:

- Immunizations
- Infectious/communicable disease control
- Care of individuals with a serious communicable disease or infection
- Control of sexually transmitted diseases (STDs)
- TB (tuberculosis) control
- Emergency management
- Prenatal care
- Family planning services for indigent women
- Health education
- Nutrition services
- HIV/AIDS services: reporting, counseling, and partner notification
- Hearing and vision screening
- Public swimming pool inspection
- Campground inspection
- Public/private sewer inspection
- Food protection
- Pregnancy testing related to informed consent to abortion
- Public/private water supply testing

Another component of the public health system is the **health care delivery system** comprising hospitals, clinics, physicians and nurses, dentists, mental health, urgent care, community health centers, pharmacists, and insurance plans, among others. Since access to health care is important in determining the health of populations and individuals, these groups are critical to the system of care. Health insurance coverage is also associated with better health outcomes for children and adults.

> Clearly, the governmental public health agency—either at the state or local level—is a major contributor in the public health system, but these agencies alone cannot provide the full spectrum of Essential Services.
>
> CDC: NPHPSP

Individuals in a community can impact public health by changing personal behavior; likewise, **communities** can influence the health of their residents by providing education on health issues, and by involvement and partnering with local health departments to identify local health issues through a community health assessment and improvement process.

Colleges and universities, especially the University of Michigan, Michigan State University, and Wayne State University, play an important role in public health. They

have the opportunity to educate and train members of the current and future public health workforce; conduct research and apply it to pertinent public health disciplines; and engage in community, public, and professional service.

Public health institutes often function as a bridge between the multiple sectors in the public health system. Michigan has a very robust public health institute—the **Michigan Public Health Institute**—which supports many of the core functions of the MDCH, including planning and assessment, program implementation and evaluation, and health services research.

Businesses and employers have wide-ranging influence on communities, employees, and society in general. They influence healthy work environments through their organizational culture, climate, and worksite wellness policies and programs.

Both the news and entertainment **media** shape public opinion and influence decision-making, with possible critical effects on population health. They have the capability to provide accurate and sufficient coverage of public health information.

The fiscal year 2012 budget for the MDCH is approximately $15 billion. This budget is supported by both state and federal funds. While the overall budget for the MDCH has increased over the past ten years, the state appropriation decreased during that same time. This means that a growing portion of the MDCH budget comes from federal funds and is, therefore, tied to specific programming and services. In addition, a greater portion of the state's resources has been shifting to cover Medicaid services as the number of people on Medicaid has grown during the economic downturn. Decreased and more restrictive funding for the MDCH limits flexibility and the ability to address new priorities.

Therefore, it is more important than ever to recognize that communities and community organizations must share responsibility for public health. The health of individuals and populations does not occur in a vacuum.

National Public Health Performance Standards Program

The MDCH undertook a state public health system assessment using the Centers for Disease Control and Prevention National Public Health Performance Standards Program (NPHPSP) state instrument in the fall of 2009. The assessment is designed to identify the state public health system's current activities and capacities and to assess how well the system is providing ten essential public health services. The assessment process

Ten Essential Public Health Services

1. *Monitor* health status to identify and solve community health problems.
2. *Diagnose and investigate* health problems and health hazards in the community.
3. *Inform, educate*, and empower people about health issues.
4. *Mobilize* community partnerships and action to identify and solve health problems.
5. *Develop policies and plans* that support individual and community health efforts.
6. *Enforce* laws and regulations that protect health and ensure safety.
7. *Link* people to needed personal health services and assure the provision of health care when otherwise unavailable.
8. *Assure* competent public and personal health care workforce.
9. *Evaluate* effectiveness, accessibility, and quality of personal and population-based health services.
10. *Research* for new insights and innovative solutions to health problems.

helped the MDCH identify strengths and weaknesses in the system with input from 150 knowledgeable stakeholders within and outside of public health.

The **Essential Public Health Services** (EPHSs) provide the fundamental framework for the NPHPSP instruments by describing the public health activities that should be undertaken in all communities[1]. The Core Public Health Functions Steering Committee developed the framework for the essential services in 1994. This steering committee included representatives from U.S. Public Health Service agencies and other major public health organizations.

The EPHSs provide a working definition of public health and a guiding framework for the responsibilities of public health systems. To carry out the NPHPSP process and better understand public health system performance, the MDCH convened ten groups of 12 to 15 people to discuss each of the EPHSs. Each group was assigned a different essential service. The MDCH identified a leader for each group and provided guidance to the leader to assist with choosing group members and carrying out a discussion with the assistance of a facilitator. Group members included people from within the MDCH as well as representatives of local health departments, hospitals, community organizations, and numerous other partner agencies. A participant list is provided in Appendix A.

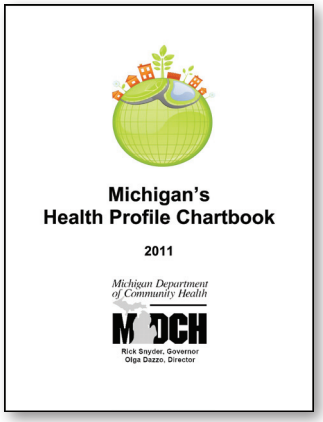
[1] The information on the Essential Public Health Services is from the Centers for Disease Control website: *www.cdc.gov/nphpsp/essentialServices.html*

The assessment found that the state public health system excels in several areas that demonstrate its capacity to lead large-scale health improvement efforts and engage stakeholders in that work. Michigan's public health system performs well in monitoring health status to identify community health problems through a state health profile and disease reporting system. It also has successfully convened collaborative planning processes to develop policies and plans that support individual and community health efforts. In the areas of informing, educating, and empowering people about health issues, including the use of health education and promotion programs and health communication programs, the system has done well. Finally, the state public health system has routinely and successfully mobilized community partnerships to identify and solve health problems through ongoing collaboration and a commitment to meeting the health needs of each and every Michigan resident.

The assessment also found that Michigan could improve its efforts to assist local public health partners in integrating statewide strategies into community health improvement plans. Examples of such assistance include providing technical assistance for local system changes needed to improve statewide initiatives, and local program planning for public health infrastructure improvements outlined in the state health improvement plans. It also identified the need for the state public health system to improve coordination of systemwide organizational efforts to maximize the use of assets and limited system resources.

STATE HEALTH ASSESSMENT AND STATE HEALTH IMPROVEMENT PLANNING

The Centers for Disease Control and Prevention awarded a grant to the Michigan Department of Community Health (MDCH) in spring 2011 for the purpose of "Strengthening Public Health Infrastructure for Improved Health Outcomes." Among the goals of this grant were to conduct a state-level community health assessment and to develop a state health improvement plan. The MDCH convened an advisory group comprising MDCH staff and critical stakeholder representatives in the state: Michigan Association for Local Public Health (MALPH), MPRO—Michigan's quality improvement organization, and the Michigan Health and Hospital Association (MHA). Public Sector Consultants, a public policy research firm based in Lansing, was hired to assist with the planning and facilitation of the assessment and health improvement planning process.



The advisory group was convened to guide the process and to begin the state health assessment by identifying and reviewing data indicators of the health and wellbeing of Michigan residents. This group directed the planning of a series of eight regional meetings that encompassed the entire state and 31 key informant interviews with knowledgeable people and health experts throughout the state.

The regional meetings and interviews, which led to the identification of obesity as a top public health priority, were followed by a summit on obesity. The summit, convened by the MDCH in fall 2011, was attended by 500 diverse stakeholders who identified and recommended multiple strategies to address the epidemic. This process culminated in the development of the *Michigan Health and Wellness 4 x 4 Plan*, a state health improvement plan with a focus on addressing obesity. More information and details regarding the state health assessment and state health improvement plan follow.

State Health Assessment and SHIP Advisory Group

All aspects of the state-level community health assessment, from the selection of indicators to include in Michigan's *Health Profile Chartbook*, to the planning of the regional meetings and identification of key informants for interviews, were led by the advisory group. This advisory group met bi-weekly beginning in June 2011. They initially identified the types of information and data indicators that should be included in a state health assessment to inform a health improvement planning process, such as data on state demographics, behavioral risk factors, and health outcomes. The group determined that core indicators common to both Mobilizing for Action through Planning and Partnerships (MAPP)[2] and the 2010 *Michigan Critical Health Indicators* report[3] would provide a basis for the development of the chartbook. The MDCH staff compiled an initial set of indicators that was subsequently reviewed and refined by the advisory committee to include additional data elements the group deemed important to the planning process.

Ultimately the advisory group selected a set of 46 reliable, comparable, and valid indicators that describe the health and well-being of Michigan residents. This data was compiled into Michigan's *Health Profile Chartbook*. The chartbook highlighted data and trends that would inform discussions in regional meetings to identify areas for improvement, contributing factors, existing assets and resources, and priority health issues.

The chartbook included information on:

- ***Demographics:*** age, gender, race/ethnicity, education, employment, income
- ***Access to care:*** primary care physician workforce, health insurance coverage
- ***Mortality trends:*** cancer, cardiovascular disease, diabetes, infant mortality, injury
- ***Disease prevalence:*** cardiovascular disease, diabetes, hypertension
- ***Risk factors:*** overweight/obesity, fruit/vegetable consumption, physical activity, smoking, alcohol

[2] http://www.naccho.org/topics/infrastructure/mapp/
[3] http://www.michigan.gov/documents/mdch/CHI2010_WebFinal-00_340345_7.pdf

use, sexually transmitted diseases, teen pregnancy, birth weight, breast feeding, blood lead levels, oral health, and mental health
- ***Clinical preventive services:*** cancer screenings and vaccines
- ***Hospitalizations:*** cardiovascular disease and asthma, hospital-induced infections

A copy of Michigan's *Health Profile Chartbook* is provided in Appendix B. In addition to this compilation of statewide data, chartbooks were created for each of eight regions, including comparisons to state and, where available, national data and goals, such as those developed for Healthy People 2020. (The eight regional chartbooks are available at the Michigan Association for Local Public Health website, *www.malph.org*.)

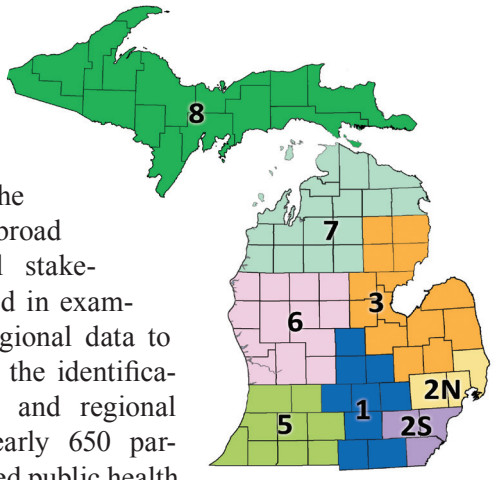
Regional Meetings and Key Informant Interviews

Once the final set of indicators had been identified, the advisory group planned a process for engaging more stakeholders around the state to review the data and identify areas for improvement, determine contributing factors, identify existing assets and resources to address the issues, and select priority health issues. The group held eight meetings in regions encompassing the entire state to ensure a broad view of the state's prominent health concerns. The advisory group also worked with local public health departments in each region to identify three key informants for interviews to offer greater insight into regional priorities, challenges, efforts, strategies, and leadership.

Statewide Regional Meetings

In July and August 2011, the advisory group held meetings engaging community members in eight regions of the state that aligned with Michigan's eight public health preparedness regions (See Exhibit 12). Local health departments in each region hosted the meetings, and a broad array of regional stakeholders participated in examining state and regional data to provide input into the identification of statewide and regional priorities. The nearly 650 participants represented public health agencies, health care providers, public safety agencies, human service and charity organizations, education and youth development organizations, recreation and arts-related agencies, economic and philanthropic organizations, and environmental agencies. A participant list is provided in Appendix C.

EXHIBIT 12. Map of Michigan's Eight Public Health Preparedness Regions



SOURCE: MDCH.

Exhibit 13 provides an overview of the number of participants and the specific counties represented in the respective regions.

EXHIBIT 13. Regional Meetings

Region	Number of participants	Counties represented in region
1	83	Clinton, Eaton, Gratiot, Hillsdale, Ingham, Jackson, Lenawee, Livingston, and Shiawassee
2 North	92	Oakland, Macomb, and St. Clair
2 South	89	City of Detroit, Monroe, Washtenaw, and Wayne
3	56	Alcona, Arenac, Bay, Genesee, Gladwin, Huron, Iosco, Lapeer, Midland, Ogemaw, Oscoda, Saginaw, Sanilac, and Tuscola
5	123	Allegan, Barry, Berrien, Branch, Cass, Calhoun, Kalamazoo, St. Joseph, and Van Buren
6	67	Clare, Ionia, Isabella, Kent, Lake, Mason, Mecosta, Montcalm, Muskegon, Newaygo, Oceana, Osceola, and Ottawa
7	60	Alpena, Antrim, Benzie, Charlevoix, Cheboygan, Crawford, Emmet, Grand Traverse, Kalkaska, Leelanau, Manistee, Missaukee, Montmorency, Otsego, Presque Isle, Roscommon, and Wexford
8	79	Alger, Baraga, Chippewa, Delta, Dickinson, Gogebic, Houghton, Iron, Keweenaw, Luce, Mackinac, Marquette, Menominee, Ontonagon, and Schoolcraft
	649	**TOTAL NUMBER OF PARTICIPANTS**

SOURCE: Michigan Department of Community Health.

Based on the data included in the chartbooks, MDCH staff prepared presentations unique to each region to provide an overview of the data during the meetings. Following the presentation on state and regional health indicators, meeting participants worked in small groups to respond to questions about their region's leading health issues. Groups were asked first to deliberate on the following questions:

- Which indicators do you think are moving in the right direction? What is contributing to the region's success in these areas?
- On which indicators do you think the region is not performing well? What are the contributing factors or underlying causes? What is working well in this region to address these issues? What is standing in the way of successfully addressing these issues?

Following discussion on these questions, small groups reported back to the full group to stimulate further thinking. The small groups were then asked to discuss and report back to the full group their answer to the following question:

- Given all of the health indicators discussed (those moving in the right direction and the problem areas), which issue(s) is the most important to work on in this region?

To gather additional input and concerns, each regional meeting concluded with an open comment period available to the general public.

Key Informant Interviews

In addition to the regional meetings, local health departments in each region identified three key informants for interviews to offer greater insight into regional priorities, challenges, efforts, strategies, and leadership. Local health departments were asked to identify key informants who are both knowledgeable and influential regarding public health issues in their region. Seven representatives of statewide organizations and agencies were also interviewed, for a total of 31 key informant interviews. Interviewees represented a broad array of sectors ranging from health care providers, community and faith-based organizations, education, business, health systems, and local public health, among others.

Regional key informants were asked to identify their region's top one or two most pressing community health issues, as well as their contributing factors, and barriers to addressing those issues in the region. They were also asked what efforts are working well in their region to address those issues, who is involved, and how those efforts can be supported or expanded. Finally, informants were asked if they were aware of other strategies to address those issues that ought to be tried in the region and who (organizations or collaboratives) should be involved in identifying and leading those efforts. Statewide informants were asked similar questions on a statewide level.

Michigan's Health Issues and Priorities

In reviewing and discussing the health assessment data, participants in regional meetings and interviews identified a number of health issues and themes. They also identified a handful of priorities, with obesity clearly rising to the top across most of the state.

Issues and Themes

Participants in the regional meetings and key informant interviews identified a number of important health issues and challenges for the state, including:

- Access to health care
- Chronic disease
- Health disparities/health equity
- Infant mortality
- Mental health
- Obesity
- Physical activity
- Substance abuse
- Smoking

The most commonly identified contributing factors for and challenges to addressing these health issues include:

- Social determinants of health—the environment in which people live and work; housing, health, and transportation systems; access to programs, services, and healthy food; environmental health policies; and the economy
- Lack of access to providers and health care services
- Limited funding for specific services and programs

During the regional meetings and in interviews, participants did, however, identify many assets and resources

that are currently making effective contributions to the public's health and addressing the issues and contributing factors noted above. These varied by region depending on the specific efforts under way, but broadly included committed, innovative leaders, partnerships and collaborative efforts; local health assessments; initiatives, programs, and services targeted at specific health issues; innovative efforts to improve access to care and services; and effective outreach to improve awareness of programs and services.

Top Priorities

Only a handful of issues were elevated to the level of a high priority in the regional meetings and interviews: obesity, access to care, social determinants of health, and infant mortality. While all of these issues were deemed important, **obesity is the public health problem that was clearly identified as a major issue across the entire state**. In six of the eight regions, obesity was identified as the most important issue. The issues identified as the highest priority in the other two regions—social determinants of health and access to care—are related to obesity, and efforts to target the obesity epidemic are likely to help address both of those issues.

Several important aspects of the obesity epidemic contributed to its identification as a top priority during the regional meetings:

- Rising rates in Michigan
- Monumental costs to society, including health care costs
- Broad impact across all Michigan residents
- Links to many other serious health problems—diabetes, cardiovascular diseases, cancers, hypertension, mental health, arthritis, renal health, and disability

Participants in key informant interviews lamented the poor dietary and physical activity habits that have become socially accepted ways of living. The overarching strategy suggested by interviewees is to change people's nutritional and leisure time habits while modifying environments to promote integrated physical activity. They suggested a shift from a one-on-one education model to policy changes at the state and local levels related to the environmental and broader social issues. Healthy choices and behaviors should be the defaults in health-promoting environments.

Summit on Obesity to Identify Actions

Since his election, Gov. Rick Snyder has adopted obesity as a key health benchmark for the state and placed it among Michigan's top health priorities. In his special message on health in 2011, Governor Snyder noted a clear correlation between obesity and chronic disease. He also noted the enormous cost associated with obesity. As mentioned previously, nearly $3 billion in annual medical costs in Michigan are attributable to obesity.

In response to the governor's focus on obesity and to broaden stakeholder participation in the identification of strategies to combat it, the MDCH convened a summit in late 2011, *Michigan's Call to Action to Reduce and Prevent Obesity*. The summit was designed to share information on obesity prevalence, disparities, and factors that contribute to obesity and unhealthy weight; highlight best practices, including those under way at the state and local community levels in Michigan; and ask participants to identify a limited number of priorities for addressing the issue with a focus on reducing disparity.

Nearly 500 summit participants were split into 20 work groups, organized by area of intervention—worksites; family, home, and community; early childhood; schools; and health care. The work groups were asked to suggest three to five top priority strategies to reduce and prevent obesity in Michigan. Summit participants were also asked to identify the priority strategies they would personally support and the specific steps they will take to help reduce and prevent obesity on a *Take Action!* commitment form. A list of obesity summit participants is provided in Appendix D.

To prepare participants for discussion, presentations on underlying issues and promising strategies were provided by experts in the field. Recommendations related to physical activity and healthy eating in the National Prevention Strategy were also shared. These provided a starting point for discussion to engage partners from across the state in identifying not only strategies but also responsibility for actions.

Work group recommendations were compiled, reviewed, and grouped based on common themes. Five recommendations emerged that spanned all, or most, of the areas of intervention. The recommendations that predominated across work groups are as follows:

- Develop a statewide healthy living campaign
- Support existing and develop new community coalitions
- Create incentives to encourage healthy choices
- Create disincentives to discourage unhealthy choices
- Provide resources for implementation

Healthy Eating and Physical Activity Strategic Plan

While recent state-level assessment and planning activities have contributed to the identification of obesity as a critical health priority for Michigan, national priorities have aligned with and supported planning activities in the state to address obesity for some time. With support and guidance from the CDC, the Michigan Nutrition, Physical Activity, and Obesity (MiNPAO) program developed the *Michigan Healthy Eating and Physical Activity Strategic Plan: 2010–2020.* The strategic planning process was completed over the course of one year (June 2009–June 2010), and is founded on six target strategies identified by the CDC:

- Increasing physical activity
- Decreasing television viewing
- Increasing the consumption of fruits and vegetables
- Decreasing the consumption of sugar-sweetened beverages
- Decreasing the consumption of highly energy dense foods
- Increasing breastfeeding initiation, duration, and exclusivity

Members of the Healthy Weight Partnership, a collaborative of approximately 50 state, local, public, and private organizations actively participated in the development of the ten-year strategic plan.

National guidance documents issued by the CDC and national plans such as Healthy People 2020 (in draft form) were taken into consideration throughout the development of the strategic plan and helped guide the development of statewide objectives. The objectives and activities included in the strategic plan have helped to inform planning during the obesity summit and the final development of the *Michigan Health and Wellness 4 x 4 Plan*.

MICHIGAN'S STATE HEALTH IMPROVEMENT PLAN

Michigan's state health assessment and state health improvement planning process identified priorities for improving health across the lifespan in Michigan. These efforts culminated in the development of *The Michigan Health and Wellness 4 x 4 Plan* (the 4 x 4 Plan), a state health improvement plan with an initial focus on addressing obesity due to its high prevalence and serious consequences in every Michigan community. It was also chosen based on compelling data and broad community input from a broad spectrum of sectors and partners in health. Priorities were influenced overall by **more than 1,500 planning participants statewide** and shaped by knowledgeable partners, stakeholders, and experts.

The 4 x 4 Plan draws from the strategies identified and supported by participants in the obesity summit and the state health assessment as well as from the goals, strategies, and measures in the Healthy Eating and Physical Activity Strategic Plan. The long- and intermediate-term impacts and the outcomes in the 4 x 4 Plan align closely with Healthy People 2020 objectives, and the plan's strategies reflect nationally promoted evidence-based and promising practices, such as those included in the National Prevention Strategy (NPS) and the Institute of Medicine's May 2012 report, *Accelerating Progress in Obesity Prevention: Solving the Weight of the Nation*.

The *Michigan Health and Wellness 4 x 4 Plan* aims to reduce obesity and overweight among Michigan residents, and to increase the percentage of children and adults who achieve recommended levels of physical activity and eat the recommended amount of fruits and vegetables. The plan includes strategies for increasing sales of healthy foods in schools, increasing worksite wellness programs, and encouraging health care providers to offer counseling to reduce obesity. Each of these strategies aligns with Healthy People 2020 objectives.

In its report, the Institute of Medicine (IOM) lays out a multi-faceted, multi-sector solution for preventing and reducing obesity. In fact, the IOM underscores the need for progress on all fronts to successfully combat the obesity epidemic. The National Prevention Strategy identifies healthy eating and active living among the nation's priorities and, for each, has suggested roles for partners outside of federal government. The *Michigan Health and Wellness 4 x 4 Plan* requires effort from all sectors in the state, not just state and local public health departments. The plan calls for the deployment of 46 community coalitions throughout the state founded on partnerships with diverse stakeholders, including employers, trade and professional organizations, the education system, and departments of state government outside of community health.

The 4 x 4 Plan is summarized below, including its strategies, outcomes, and targets. A copy of the plan is provided in Appendix E. A crosswalk between Michigan's plan and Healthy People 2020 objectives, the National Prevention Strategy recommendations, and recommendations made by the IOM in *Accelerating Progress in Obesity Prevention* is provided in Appendix F.

Summary of the Michigan Health and Wellness 4 x 4 Plan

Vision: All Michiganders will be healthy, productive individuals, living in communities that support health and wellness, with ready access to an affordable, person-centered, and community-based system of care.

Overarching Goal: Inspire every Michigander to adopt health as a personal core value through promotion of four key health behaviors—maintaining a healthy diet, engaging in regular exercise, getting an annual physical examination, and avoiding all tobacco use and exposure—and encourage personal responsibility for monitoring four key health measures.

Wallet-sized cards (pictured above) listing the 4 healthy behaviors and 4 measures will be handed out to the public to spread the message of the 4 x 4 plan and encourage its adoption.

Strategic Issue: Obesity

The *Michigan Health and Wellness 4 x 4 Plan* focuses much of its efforts on addressing obesity. This focus will help Michiganders control blood pressure and cholesterol, and blood sugar/glucose levels, leading to reductions in chronic illnesses in our population.

Strategies:

- Develop a multimedia public awareness campaign to promote a social movement to reduce obesity and encourage every Michigander to adopt health as a personal core value through the promotion of the 4 x 4 Plan
- Deploy 46 community coalitions throughout Michigan to support the implementation of the 4 x 4 Plan
- Engage partners throughout Michigan to help coalitions implement the 4 x 4 Plan
- Create at the Michigan Department of Community Health the infrastructure to support 4 x 4 Plan implementation energizing the local coalitions and partners
- Seek funding to finance the plan for a projected first year cost of $18.25 million

Long-term Impact:

- Reduce the percentage of Michigan's children and adults who are obese
- Reduce the percentage of Michigan's children and adults who are overweight

Intermediate Impact:

- Increase the percentage of Michigan's children and adults who achieve recommended amounts of physical activity
- Increase the percentage of Michigan's children and adults who eat the recommended amount of fruits and vegetables

EXHIBIT 14. 4 x 4 Plan Long-term and Intermediate Impacts and 5-Year Targets

Measures	Current	5-yr Target[Δ]
Long-term Impact		
Percentage of Michigan's population who are obese	Adults 31.7% (*‡§ ¥) High school youth 11.9% (‡§¥)	30.6% 11.3%
Percentage of Michigan's population who are overweight	Adults 35.1% (§¥) High school youth 14.2% (§¥)	33.2% 13.5%
Percentage of Michigan's adult population who are obese, by race	White, non-Hispanic 29.8% (§) Black, non-Hispanic 45.3% (§) Hispanic 36.4% (§) Other non-Hispanic 28.1% (§)	28.3% 43.0% 34.6% 26.7%
Percentage of Michigan's adult population who are overweight, by race	White, non-Hispanic 36.1% (§) Black, non-Hispanic 28.8% (§) Hispanic 31.2% (§) Other non-Hispanic 34.5% (§)	34.3% 27.4% 29.6% 32.8%
Intermediate Impact		
Percentage of Michigan's youth and adults who achieve recommended amounts of physical activity	Adults 52.0%% (‡§¥) High school youth 46.8% (§¥)	54.6% 49.1%
Percentage of Michigan's youth and adults who eat the recommended amount of fruits and vegetables	Adults 22.6%% (‡§¥) High school youth 19.6% (§¥)	23.7% 20.6%
Percentage of Michigan's schools selling healthy foods	26.7% (‡)	28.0%
Percentage of high school students who drank a can, bottle, or glass of soda or pop at least once a day	27.6% (€)	26.2%
Percentage of high school students who attended physical education classes on one or more days in an average week when they were in school	42.3% (€)	44.4%
Amount of food stamp sales at Michigan farmers markets	$705,969 (‡)	$824,624 (inflation of 2.7% per year, plus 5%, increase over 5 years)

[Δ] The 5-year target reflects a change of 5% over 5 years.

* Michigan Dashboard measure *(http://www.michigan.gov/midashboard/0,4624,7-256-58012---,00.html)*

‡ Michigan Health and Wellness Dashboard measure *(http://www.michigan.gov/midashboard/0,4624,7-256-59026---,00.html)*

§ Michigan Overweight and Obesity Dashboard measure *(Michigan Health and Wellness 4 x 4 Plan, Appendix C)*

€ CDC Prevention Status Report *(http://www.malph.org/resources-0)*

¥ Michigan Critical Health Indicator *(http://www.michigan.gov/mdch/0,1607,7-132-2944_5327-17501--,00.html)*

- Increase the percentage of schools selling healthy foods
- Decrease the percentage of high school students who drank a can, bottle, or glass of soda or pop at least once a day
- Increase the percentage of high school students who attended physical education classes on one or more days in an average week when they were in school
- Increase the amount of food stamp sales at Michigan farmers markets

Exhibit 14 summarizes long-term and intermediate impacts along with five-year targets for the strategies to address the state's top priority of obesity. The current measures in Exhibit 14 are drawn from Michigan's Behavioral Risk Factor Survey and Youth Risk Behavior Survey. The legend at the bottom of the exhibit shows where these measures are currently shared with the public to monitor progress throughout the state. Partners that have agreed to collaborate with the state in implementing the 4 x 4 Plan are identified in the full plan in Appendix E.

Exhibit 15 lays out the expected outcomes and targets for each strategy in the first year of activity. Progress toward the outcomes and targets will be monitored, in part, through semi-annual reports from community coalitions.

EXHIBIT 15. Strategy Outcomes and Targets for Year One

First Year Outcomes	Target
Outcomes for Strategy A: Multimedia campaign	
Implementation of an effective, well-designed, sustained, statewide social marketing campaign on physical activity and nutrition.	• Development of a brand and design for a statewide multi-media campaign by 2013 • Redevelopment of the Michigan Health and Wellness website by 2013 • Implementation of recognition programs by 2013 for individuals, employers, restaurants, businesses, schools, and others who adopt Michigan's 4 x 4 plan
Outcomes for Strategy B: Community coalitions	
Availability of healthy foods in Michigan communities	• New efforts to increase availability of healthy foods implemented in 5 communities by 2013
Access to physical activity opportunities in Michigan communities	• New efforts to create or enhance availability of physical activity opportunities implemented in 5 communities by 2013
Awareness of the importance of regular physical activity and healthy eating	• New local community campaigns to increase awareness of healthy behaviors implemented in 5 communities by 2013
Outcomes for Strategy C: Partnerships	
Availability of healthy foods in Michigan worksites, schools, colleges and universities, government-run locations, restaurants, and retail outlets.	• Documented increase in the number of establishments encouraging healthy food choices and promoting the 4 x 4 tool through new initiatives every six months beginning in 2013
Access to physical activity opportunities in worksites, schools, colleges and universities, and government-run locations	• Documented increase in the number of establishments encouraging regular physical activity and promoting the 4 x 4 tool through new initiatives every six months beginning in 2013
Incentives for healthy weight maintenance included in insurance plans	• Documented increase in the number of insurance plans offering new products that incentivize adoption of the 4 x 4 tool every six months beginning in 2013
Health providers' standards of practice include prevention, screening, diagnosis, and treatment of overweight and obesity, including routine measurement of BMI	• Documented increase in the number of health care providers who incorporate the 4 x 4 tool into their patient care every six months beginning in 2013
All foods and beverages in schools meet strong nutrition standards	• Documented increase in the number of school districts implementing Michigan Nutrition Standards campus wide every six months beginning in 2013
Physical activity outside of physical education includes safe routes to walk to school, classroom physical activity breaks, active recesses, and after school physical activity programming	• Development of a model policy for Comprehensive School Physical Activity Programs by 2013
Young children are active for at least one-quarter of the time they are in child care settings	• Early Childhood Standards of Quality and Michigan's Quality Improvement Rating System are revised by 2013 to reflect best practices for obesity prevention
Outcomes for Strategy D: Infrastructure	
State level infrastructure and public health workforce to support obesity prevention efforts	• MDCH staff positions funded by 2013 to support implementation of the *Michigan Health and Wellness 4 x 4 Plan* • Steering committee established by 2013 to guide implementation of the *Michigan Health and Wellness 4 x 4 Plan* • Evaluation plan developed for the *Michigan Health and Wellness 4 x 4 Plan* by 2013
Outcomes for Strategy E: Funding	
Commitment of resources to accelerate progress in obesity prevention.	• Funding secured and appropriated for plan activities by the beginning of FY2013

LOOKING AHEAD

This five-year State Health Improvement Plan (SHIP) builds upon and expands the work of many previous and existing efforts and plans. It differs from some community or state approaches with its initial singular focus—addressing obesity. The reason is straightforward. It will take the focused and collaborative work of each and every Michigan resident, employer, and organization to address what has become an epidemic that affects each and every community member in some way—a child, parent, sibling, spouse, partner, or co-worker who is impacted in terms of poor health and high costs for care. The strategies, measures, and targets offered in this SHIP aim to focus the attention and work of policymakers; state, local, and tribal government agencies; educational institutions; employers; health care organizations; faith-based organizations; nonprofit and community organizations; and many others. This five-year plan will be implemented as communities and constituencies are mobilized for decision making and action; and as new and continued networks are built and sustained.

In August 2012, local health department leaders and other state and community partners were asked to review this report and indicate how their organizations will promote or participate in implementing the SHIP. These partners indicated their intent to continue and expand existing programs, advocate for supportive policies, and increase collaboration with other organizations to address the obesity epidemic. Many said the 4 x 4 Plan would be incorporated into strategic planning efforts and messages developed for stakeholders. The MDCH recently released a request for proposals (RFP) to support the work of up to six community coalitions around the state to fight obesity; several health officers said they intend to apply for these funds. Additional coalitions will be funded by the MDCH during subsequent years of this plan. Gains will be realized as these and other resources are leveraged and each partner integrates SHIP strategies into their organization's strategic plan or in their actions and operations.

Over the span of this SHIP, additional health priorities and evidence-based strategies will be added to the initial focus on obesity reduction to incorporate emerging best practices, policy needs, and statewide community engagement, perspectives, and input. When asked to review this report and plan, local health officers and other partners agreed whole-heartedly with the initial focus on obesity and many suggested continuing in this direction with laser-like focus into the future. A handful of other future priorities were also identified, however, including increasing access to care; improving public health infrastructure; and decreasing substance abuse.

Moving forward, updates to the plan may occur as a result of changing community needs, a shift in resources, or evaluation results. The MDCH and its partners have begun to develop an annual evaluation for the plan. The evaluation will not only assess progress toward long- and short-term impacts, but will also assess the plan's strategies to determine their effectiveness and the extent to which they are achieving the plan's objectives. This will allow partners to adjust course as necessary. The state is already monitoring many indicators of long- and short-term impact for the 4 x 4 Plan through its dashboards. Reports from community coalitions will support ongoing evaluation of progress on the plan. Through collaboration and in cooperation with others, each individual and organization has much to contribute; shared leadership is key. Together we WILL improve health for all!

APPENDICES

- **APPENDIX A:** National Public Health Performance Standards Program Participant List
- **APPENDIX B:** Michigan's Health Profile Chartbook
- **APPENDIX C:** Statewide Regional Meeting Participant List
- **APPENDIX D:** Obesity Summit Participant List
- **APPENDIX E:** *The Michigan Health and Wellness 4 x 4 Plan*
- **APPENDIX F:** Crosswalk Between *The Michigan Health and Wellness 4 x 4* Plan and National Objectives and Strategies

APPENDIX A: *National Public Health Performance Standards Program Participant List*

First Name	Last Name	Organization
Rosemary	Asman	Michigan Department of Community Health
Janice	Bach	Michigan Department of Community Health
Anne	Barna	Barry-Eaton District Health Department
Lonnie	Barnett	Michigan Department of Community Health
Laura	Bauman	Washtenaw County Health Department
Laurie	Bechhofer	Michigan Department of Education
Angela	Beck	University of Michigan School of Public Health
Joel	Blostein	Michigan Department of Community Health
Bruce	Bragg	Michigan State University
Renee	Branch Canady	Ingham County Health Department
Patty	Brookover	Michigan Department of Community Health
Elgar	Brown	Michigan Department of Environmental Quality
Carol	Callaghan	Michigan Department of Community Health
Lori	Cameron	Michigan Department of Community Health
Brad	Carlson	Michigan Department of Community Health
Alethia	Carr	Michigan Department of Community Health
Jean	Chabut	Michigan Department of Community Health
Marcus	Cheatham	Ingham County Health Department
Denise	Chrysler	Michigan Department of Community Health
Patty	Clark	Michigan Department of Community Health
James	Cleland	Michigan Department of Agriculture
Marian	Clore	Michigan Public Health Institute
Glenn	Copeland	Michigan Department of Community Health
Barbara	Coy	Michigan Department of Agriculture
Jennifer	Damon	Michigan Public Health Institute
Brad	Deacon	Michigan Department of Agriculture
Ed	Dochoza	Michigan Department of Community Health
Paulette	Dobynes Dunbar	Michigan Department of Community Health
Sean	Dunleavy	Michigan Department of Agriculture
Linda	Dykema	Michigan Department of Community Health
Jeff	Ellsworth	Michigan Department of Community Health
Richard	Falardeau	Michigan Department of Environmental Quality

First Name	Last Name	Organization
Brenda	Fink	Michigan Department of Community Health
Rosemary	Franklin	Michigan Department of Community Health
Chris	Fussman	Michigan Department of Community Health
Deborah	Garcia-Luna	Michigan Department of Community Health
Robert	Glandon	Michigan Public Health Association
Violanda	Grigorescu	Michigan Department of Community Health
Laura	Groat	Michigan Department of Community Health
Brian	Hartl	Kent County Health Department
Rebecca	Head	Monroe County Health Department
Julia	Heany	Michigan Public Health Institute
Sally	Hiner	Michigan Public Health Institute
Greg	Holzman	Michigan Department of Community Health
Larry	Horvath	Michigan Department of Community Health
Kathy	Humphrys	Michigan Department of Community Health
Rochelle	Hurst	Michigan Department of Community Health
Dawn	Jackson	Michigan Department of Community Health
Cindra	James	Wayne County Health Department
Jennifer	Jimenez	Association for State and Territorial Health Officials
Doug	Kalinowski	Michigan Department of Labor and Economic Growth
Karen	Krzanowski	Michigan Department of Community Health
Rebecca	Krzyzanowski	Michigan Department of Agriculture
Mary	Kushion	Central Michigan District Health Department
Monica	Kwasnik	Michigan Department of Community Health
Laura	Landrum	Association for State and Territorial Health Officials
Geralyn	Lasher	Michigan Department of Community Health
Jeanette	Lightning	Michigan Department of Community Health
Linda	Loeffler	Michigan Department of Community Health
Kanchan	Lota	Michigan Public Health Institute
Jimena	Loveluck	HIV/AIDS Resource Center
Karen	MacMaster	Michigan Department of Community Health
Kathryn	Macomber	Michigan Department of Community Health
Lisa	McCafferty	Ionia County Health Department

First Name	Last Name	Organization
James	McEwan	Michigan Department of Environmental Quality
Harry	McGee	Michigan Department of Community Health
Jennifer	McKeever	National Network of Public Health Institutes
Corinne	Miller	Michigan Department of Community Health
Mark	Miller	Michigan Department of Community Health
Robin	Miller	Michigan State University
JoLynn	Montgomery	Michigan Center for Public Health Preparedness
Teresa	Mulford	Michigan Department of Community Health
Shelly	Murrell	Michigan Department of Community Health
Linda	Nordeen	Michigan Department of Community Health
Carol	Ogan	Michigan Department of Community Health
Janet	Olszewski	Michigan Department of Community Health
Amna	Osman	Michigan Department of Community Health
Betsy	Pash	Michigan Department of Community Health
Jim	Pearsol	Association for State and Territorial Health Officials
Nancy	Peeler	Michigan Department of Community Health
Becky	Peterson	Michigan Department of Agriculture
Kristi	Pier	Michigan Department of Community Health
Molly	Polverento	Michigan State University
Sarah	Poole	American Heart Association, MI
Joseph	Potchen	Michigan Department of Attorney General
Trina	Pyron	Centers for Disease Control & Prevention
Tom	Reichard	District Health Department #10
Matthew	Rick	Michigan Department of Community Health
Liz	Ritchie	Michigan Department of Community Health
Mikelle	Robinson	Michigan Department of Community Health
Jackie	Rosenblatt	MPRO
Anne	Rosewarne	Michigan Health Council
Linda	Scarpetta	Michigan Department of Community Health
Sharon	Sheldon	Washtenaw County Health Department
E.J.	Siegl	Michigan Department of Community Health
Kim	Singh	Mid-Michigan District Health Department
Linda	Smith-Wheelock	National Kidney Foundation of Michigan
Patricia	Somsel	Michigan Department of Community Health
Martha	Stanbury	Michigan Department of Community Health
Mary Grace	Stobierski	Michigan Department of Community Health
Brenda	Stoneburner	Michigan Department of Community Health
Steve	Tackitt	Barry-Eaton District Health Department
Jeff	Taylor	Michigan Public Health Institute
Debra	Tews	Michigan Department of Community Health
Orlando	Todd	Michigan Department of Community Health
Sheila	Vandenbush	Michigan Department of Community Health
Robin	VanDerMoere	Michigan Public Health Institute
Angela	Vanker	MPRO
David	Wade	Michigan Public Health Institute
Elizabeth	Wasilevich	Michigan Department of Community Health
Dana	Watt	Michigan Department of Community Health
Sheryl	Weir	Michigan Department of Community Health
Melinda	Wilkins	Michigan Department of Community Health
Teri	Wilson	Michigan Department of Community Health
Julie	Wirth	Michigan State University

APPENDIX B: *Michigan's Health Profile Chartbook*

Michigan's Health Profile Chartbook

2011

Michigan Department of Community Health

MDCH

Rick Snyder, Governor
Olga Dazzo, Director

Table of Contents

STATE HEALTH PROFILE

Michigan's Health Profile Chartbook 2011 is a compilation of health-related information about Michigan. The data in this profile reflects the health of Michigan residents from many different angles and highlights 46 indicators selected to describe health and wellbeing. The profile recognizes that a plethora of factors contribute to the populations' health. Factors such as age, gender, race, ethnic origin, education, unemployment, poverty, access to care, and others contribute to overall health and wellness.

PROFILE PURPOSE

The purpose of this profile is to provide a statewide health snapshot for use by state, local, and community partners in setting priorities to improve health status. Presented in chartbook form is a data framework to assist public health partners and stakeholders in focusing efforts to improve the public's health. Included are state-level data and, where practical, regional data are provided in the regional health profile chartbooks. Development and use of **"*Michigan's Health Profile Chartbook 2011"*** is an integral part of a state health assessment process that will inform, plan, and implement a state-wide public health agenda, including a state health improvement plan.

DEVELOPMENT

To serve as catalyst for discussion, provide a current description of health and wellbeing across the state, and serve as an impetus for action, **"*Michigan's Health Profile Chartbook 2011,"*** was developed during June-July 2011 by the Michigan Department of Community Health in partnership with the Michigan Health & Hospital Association, MPRO-Michigan's Quality Improvement Organization, and the Michigan Association for Local Public Health. To guide and inform development, an Advisory Group was established; the participants are listed in Appendix B. The Advisory Group, after reviewing indicators and datasets used by a variety of state and local public health departments, determined that core indicators, common to Mobilizing for Action through Planning and Partnerships (MAPP) and the 2010 Michigan Critical Health Indicators, would provide a starting basis for Chartbook development. Additional data elements were included to capture needs identified by the Advisory Group. The Chartbook was funded, in part, through a grant from the Centers for Disease Control and Prevention's, National Public Health Improvement Initiative.

STATE HEALTH ASSESSMENT

As of this writing, in tandem with Chartbook development, the Michigan Department of Community Health and partners have begun a state health assessment and improvement process.

To engage a broad array of stakeholders, eight regional meetings with opportunities for public comment and multiple key informant interviews are being held across the state. The results from these meetings and interviews will be organized into reports and become important components of the state health profile and assessment process. Locations for the eight regional meetings align with Michigan's eight public health preparedness regions. Local health departments in each region are facilitating the regional meetings by serving as host sites. Recognizing that all entities within a public health system contribute to the health and wellbeing of the community or state, over 100 participants will attend each of the eight meetings. Participants will be community members and include public health agencies, healthcare providers, public safety agencies, human service and charity organizations, education and youth development organizations, recreation and arts related agencies, economic and philanthropic organizations, and environmental agencies.

Public comment periods and key informant interviews conducted during or adjacent to regional meetings will further contribute to the state health assessment. The purpose of the regional meetings is to gather and interpret information from multiple and diverse sources in order to develop an understanding of the health priorities of communities across the state. It is a collaborative process that aims to advance community and organizational efforts to assess health needs and use results to develop strategies to improve health status — locally and state-wide.

CHARTBOOK ORIENTATION

The state-wide Chartbook contains 46 health indicators that begin to provide a health picture of Michigan from various perspectives. Each chart contains an indicator overview, a Healthy People 2020 Target (where available) and data source. Data sources for indicator overviews are located in Appendix A. Regional data are also provided for many indicators via regional health profile chartbooks.

Individual charts may refer to incidence, prevalence, or mortality, which are presented as rates; typically the number of events per 1,000, 10,000, or 100,000 population. A brief description of each follows.

Incidence refers to the frequency of development of a new illness in a population in a certain period of time, typically one year. When we say the incidence of a particular form of cancer has increased in past years, we mean that more people have developed this condition year after year (example: the incidence of thyroid cancer has been rising, with 45,000 new cases diagnosed during 2010 in the U.S.).

Prevalence refers to the current number of people living with an illness in a given year. This number includes all those who may have been diagnosed in prior years, as well as in the current year. (Example: A 20,000/year incidence of cancer with a prevalence of 80,000 means that there were 20,000 new cases diagnosed, and there are 80,000 people living in a specified area with this illness, 60,000 of whom were diagnosed in the past and are still living with the disease).

Mortality refers to a health event resulting in death. Mortality rate is a measure of the number of deaths (in general, or due to a specific cause) in some population, scaled to the size of that population, per unit of time. Mortality is typically expressed as a rate per

100,000 population (example: the cardiovascular disease mortality rate is used to describe the total number of deaths per 100,000 individuals that occur due to cardiovascular disease over a one-year period).

Most of the rates presented are *age-adjusted*, which takes into account the difference in age structures in differing populations (i.e., the given rates are those that would occur if the population of Michigan had the same age distribution as that of the United States). The age-adjusted rates include labels on the graphs which identify the rates as age-adjusted.

To help complete the health picture in Michigan, the following racial categories are used: White, Black, American Indian/Alaska Native (AIAN), Asian, Native Hawaiian and Other Pacific Islander (NHPI), Other, Multi, and Hispanic or Latino. The Hispanic or Latino category includes persons of Hispanic or Latino ethnicity regardless of their race. These categories help increase awareness about health disparities. The U.S. National Institutes of Health define health status disparities as differences in the incidence, prevalence, mortality, and burden of diseases and other adverse health conditions between specific population groups (NIH 2000). Reasons for health disparities include differences in risk factors, lack of access to health care, inadequately targeted prevention messages, and cultural differences between the health system and the populations it serves.

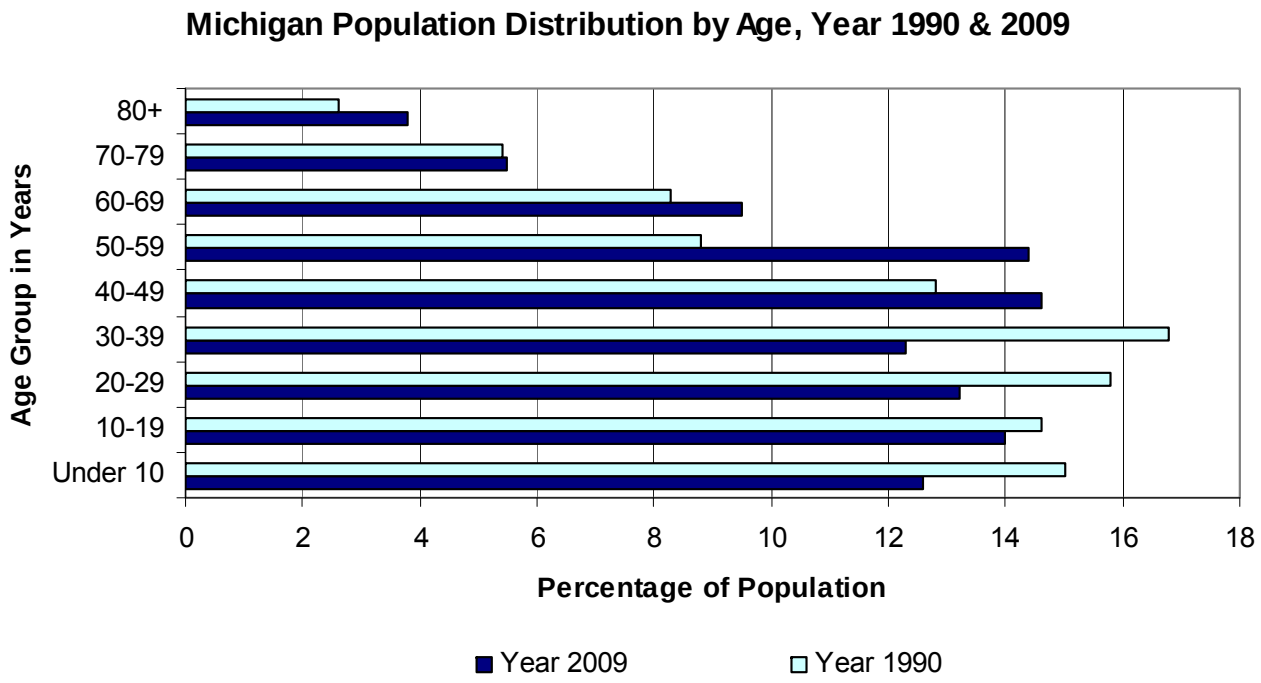
All data in this report, unless indicated otherwise, were compiled by the Michigan Department of Community Health, Health Policy and Planning Administration (Health Planning and Access to Care Division) and the Bureau of Local Health and Administrative Services, (Division of Vital Records and Health Statistics).

Population Distribution by Age

MICHIGAN

Indicator Definition/Overview:

- The average age of the population has increased from 1990 to 2009.
- In 1990, there were more people aged 20-39 than any other age group in Michigan. In 2009, there were more people aged 40-59 than any other age group in Michigan.
- The overall need for healthcare services is increasing with Michigan's aging population because the oldest age groups (which have increased in size) tend to be the greatest consumers of health care resources.



Healthy People 2020 Target:
n/a

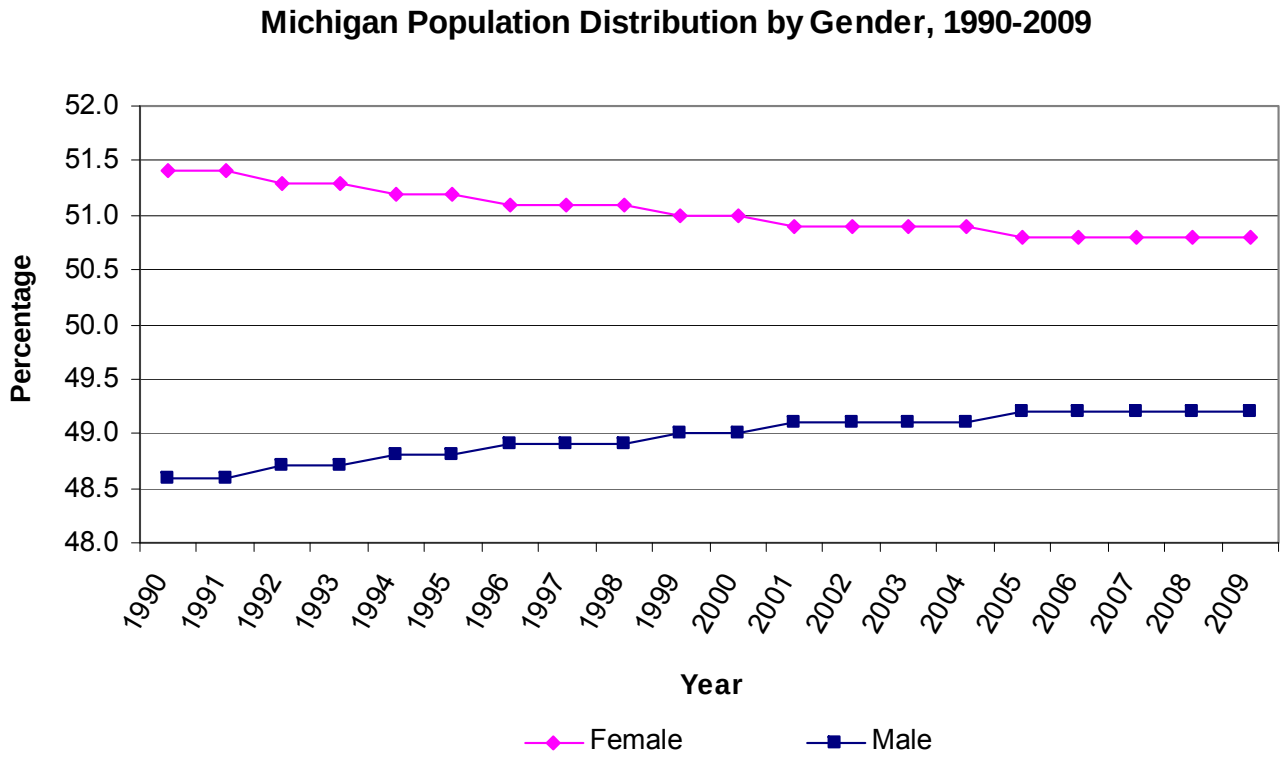
Data Source:
Michigan Department of Community Health, Division for Vital Records and Health Statistics, using Population Estimates (latest update 9/2010) released by the Centers for Disease Control and Prevention, National Center for Health Statistics (NCHS).

Population Distribution by Gender

MICHIGAN

Indicator Definition/Overview:

- From 1990 to 2009, the portion of the population that is female has steadily decreased by just over a half percent, whereas the portion of the population that is male has steadily increased just over a half percent.
- There is still a higher percentage of the population that is female than male, but the population is closer to being equally distributed in 2009 than 1990.



Healthy People 2020 Target:
n/a

Data Source:
Michigan Department of Community Health, Division for Vital Records and Health Statistics, using Population Estimates (latest update 9/2010) released by the Centers for Disease Control and Prevention, National Center for Health Statistics (NCHS).

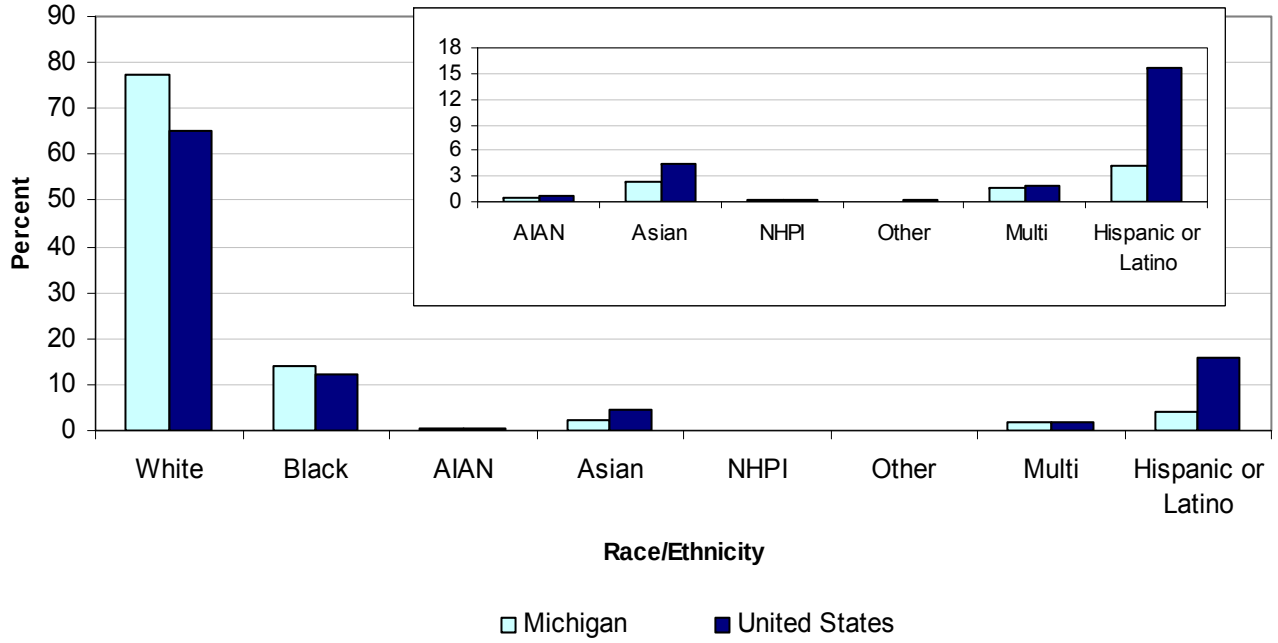
Racial and Ethnic Distribution

MICHIGAN

Indicator Definition/Overview:

- There are a greater percentage of White people in the United States and Michigan than any other race.
- There are a greater percentage of White and Black people in Michigan than the respective percentages in the United States.
- **Key:** AIAN= American Indian/Alaska Native, NHPI= Native Hawaiian and Other Pacific Islander
- Note: Hispanic is not a mutually exclusive ethnic category and could include individuals from any race category.

Percent Distribution by Race and Ethnicity, Michigan and the United States, 2009



Healthy People 2020 Target:
n/a

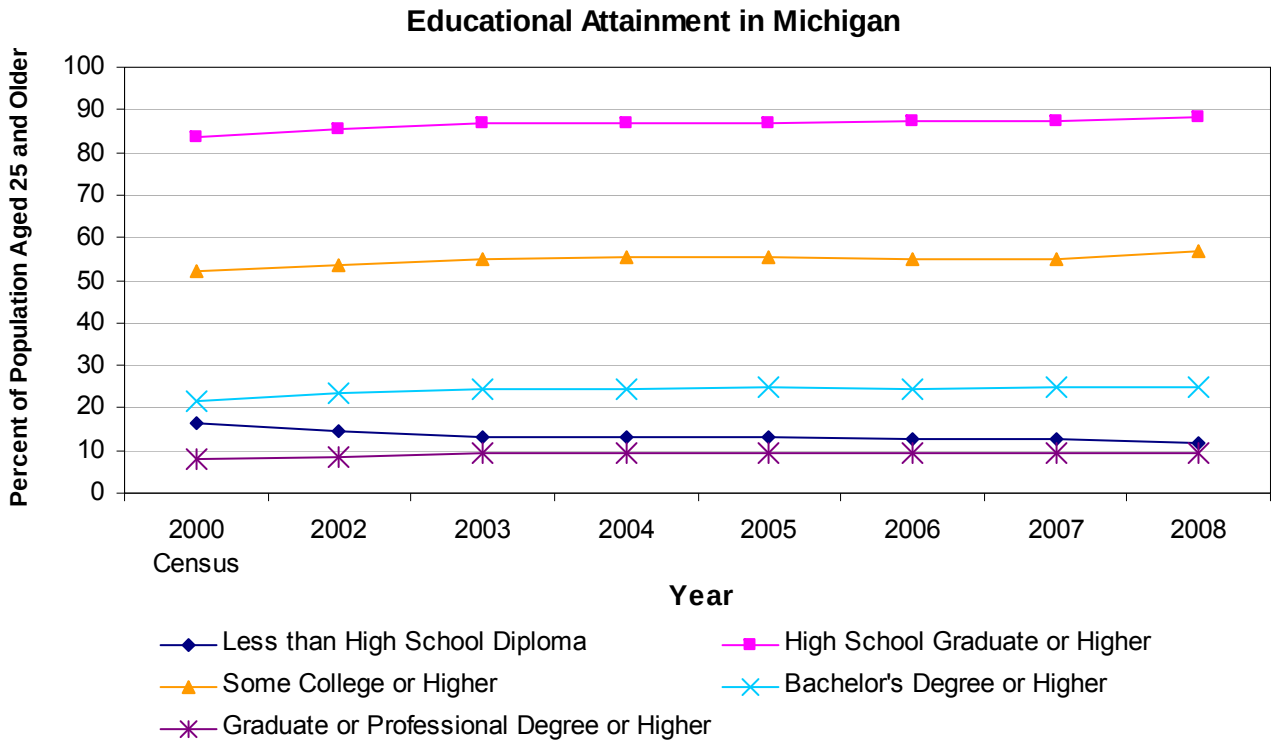
Data Source:
United States Census Bureau, 2009 American Community Survey.

Education

MICHIGAN

Indicator Definition/Overview:

- The U.S. Census Bureau collects educational attainment information annually through the American Community Survey and Current Population Survey.
- Education level is commonly associated with access to health care. Individuals with higher education levels are more likely to have high income jobs and/or employer-based health insurance coverage and, therefore, the cost of healthcare is less likely to be a barrier to access.
- Education at a level less than high school completion is commonly associated with individuals in poverty.



Healthy People 2020 Target:
Education may be included in the new Social Determinants of Health section of the Healthy People 2020 objectives. However, no target has as yet been identified.

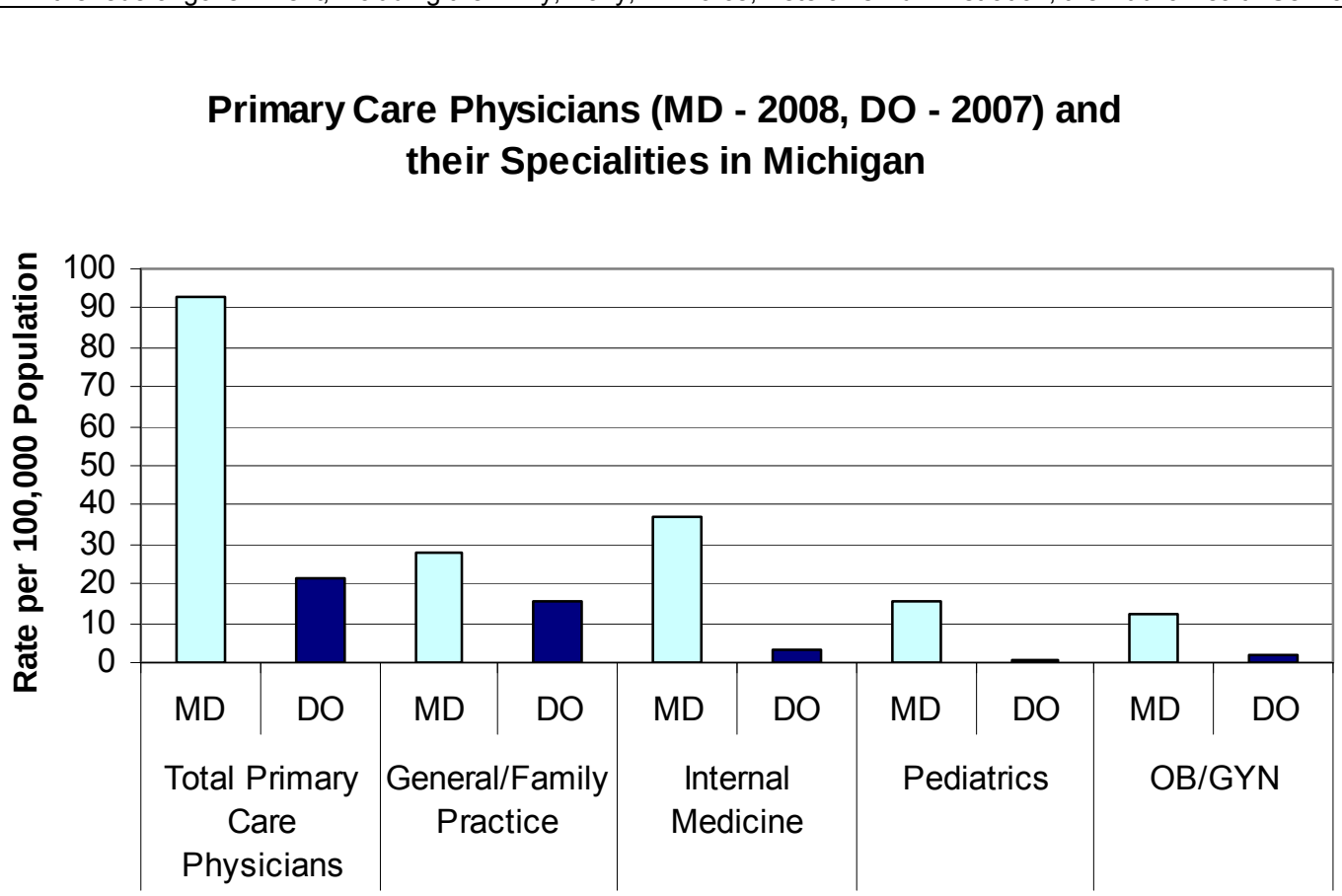
Data Source:
United States Census Bureau – Educational Attainment.

Workforce – Primary Care Physicians

MICHIGAN

Indicator Definition/Overview:

- Michigan and the U.S. will soon be presented with serious shortages of primary care physicians as an increased number of medical students are choosing non-primary care specialties as opposed to primary care, and existing primary care physicians are leaving the workforce.
- Nearly one in five Americans lacks sufficient access to primary care due to physician shortages.
- Physicians employed by the federal government are not included in the rates presented below. A federal physician is defined as full-time employment by the federal government, including the Army, Navy, Air Force, Veteran's Administration, the Public Health Service and other federally funded agencies.



Healthy People 2020 Target:
An increased primary care workforce is included in the Access to Health Services section of the Healthy People 2020 objectives. However, no target has as yet been identified.

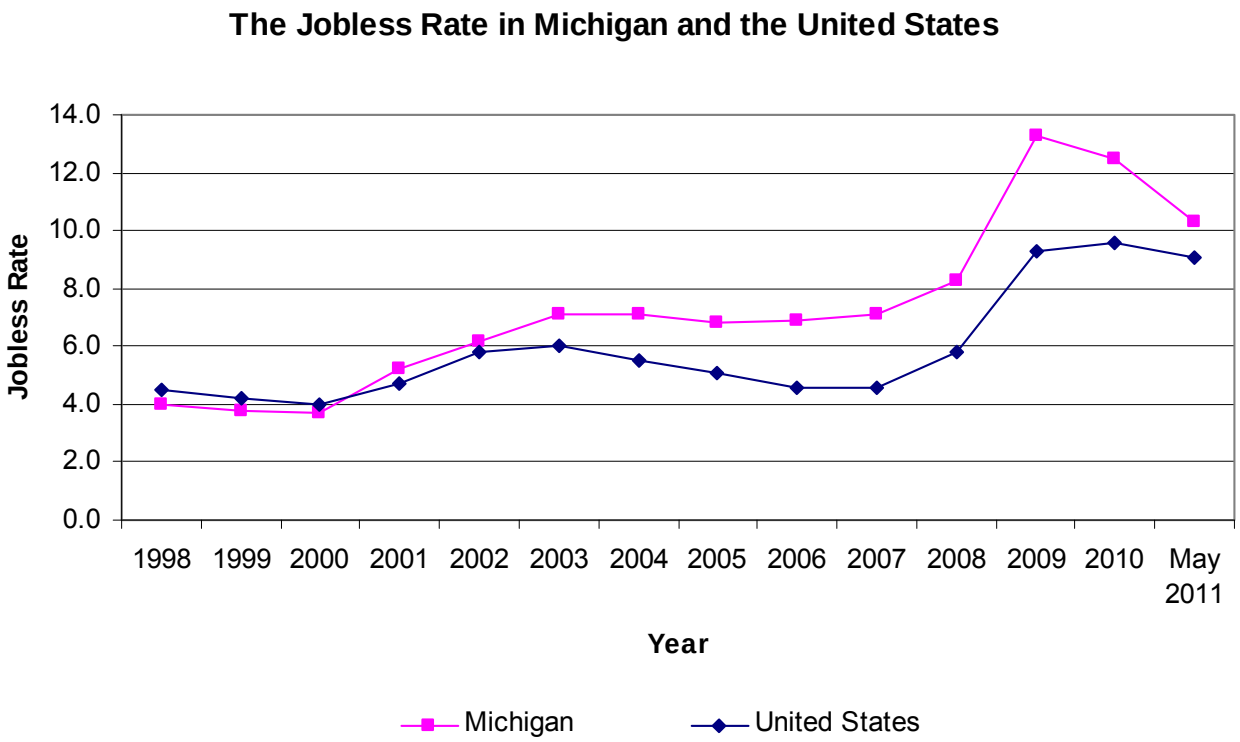
Data Source:
Area Resource File (ARF). 2009-2010. United States Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Rockville, MD.

Unemployment Rate

MICHIGAN

Indicator Definition/Overview:

- Unemployment Rate, or Jobless Rate, is an indicator of the health of the economy. With a larger percentage of people out of work, fewer may have employer based health insurance or income to be able to afford access to preventive and maintenance health services and/or prescriptions.
- Higher unemployment rates also mean a larger portion of the labor force may be seeking assistance through Medicaid.
- Unemployment data is collected through Michigan's Department of Licensing and Regulatory Affairs (LARA) and housed at the Labor Market Information (LMI) site. Nationally, the U.S. Department of Labor oversees the data.



Healthy People 2020 Target:
Access to job opportunities may be included in the new Social Determinants of Health section of the Healthy People 2020 objectives. However, no target has as yet been identified.

Data Sources:
United States Bureau of Labor Statistics.

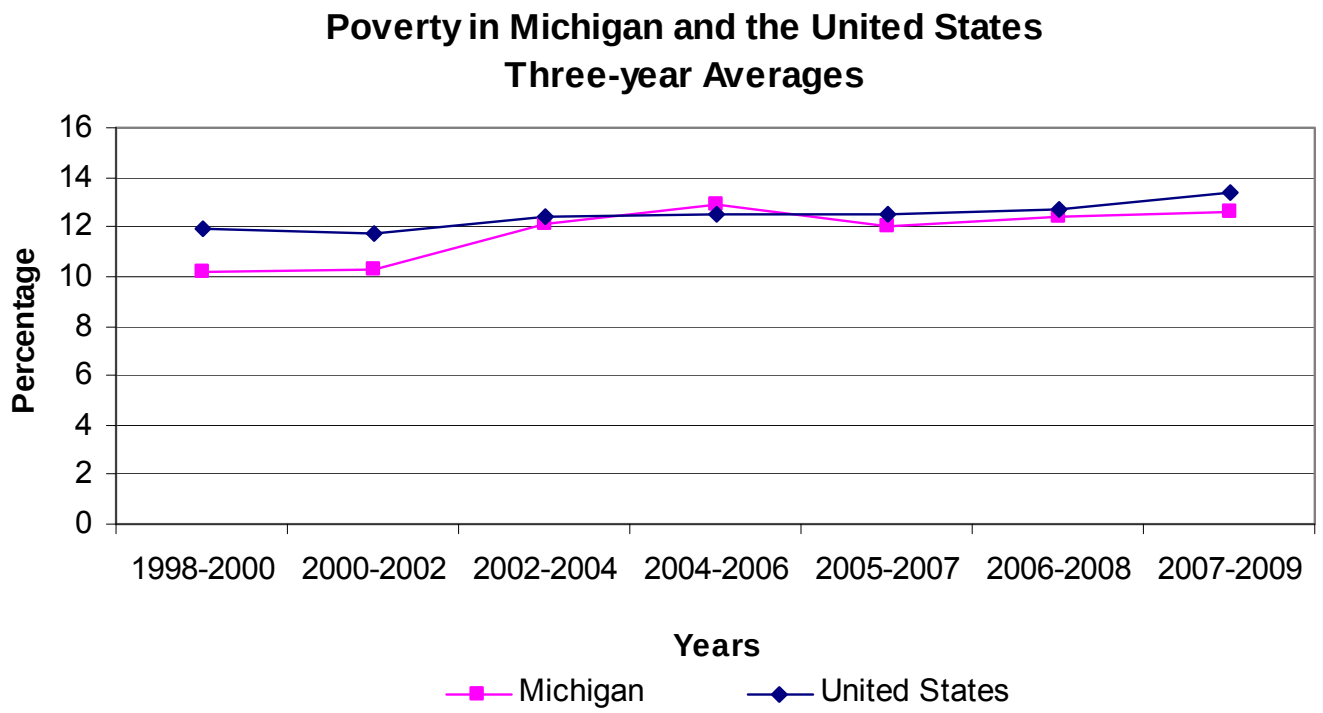
Michigan Department of Licensing and Regulatory Affairs: Labor Market Information.

Adults and Children in Poverty

MICHIGAN

Indicator Definition/Overview:

- Poverty rates are established with the ten-year Census, and percentages are then estimated annually based on the American Community Survey and/or the Annual Social and Economic Supplement to the Current Population Survey.
- The national poverty rate has remained between 11 percent and 15 percent from 1998 to 2009.
- Poverty rates can vary greatly across subpopulations.
- The poverty rate for children remains higher than the total population rate.



Healthy People 2020 Target:
Access to a living wage may be included in the new Social Determinants of Health section of the Healthy People 2020 objectives. However, no target has as yet been identified.

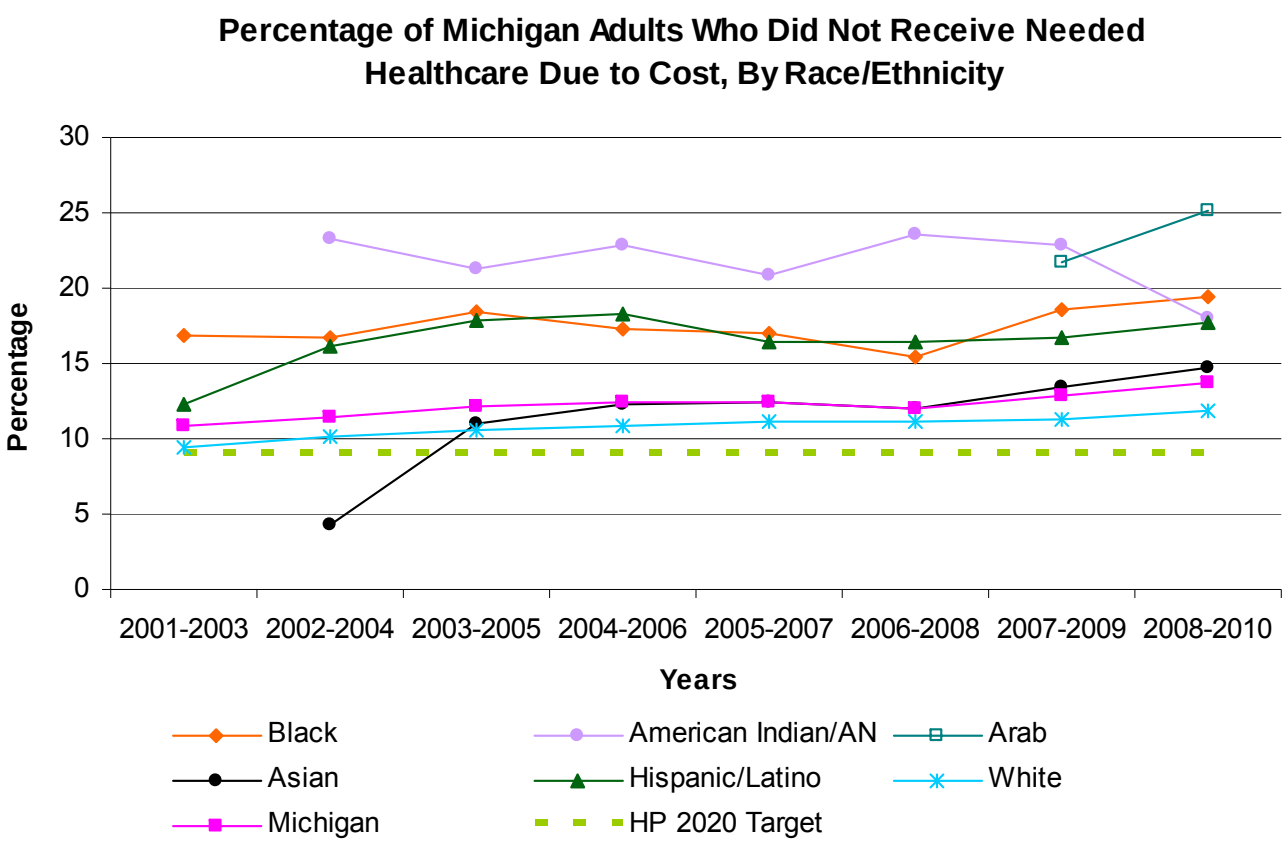
Data Source:
United States Census Bureau, Current Population Survey, Annual Social and Economic Supplement.

Access to Care

MICHIGAN

Indicator Definition/Overview:

- Unmet healthcare need is an indicator commonly used to portray problems in access to healthcare services, including lack of health insurance and limited availability of providers.
- Unmet healthcare need is also associated with greater emergency room use and disadvantaged individuals delay in seeking care for conditions that are associated with longer hospital stays and poorer health outcomes.
- Note: Hispanic is not a mutually exclusive ethnic category and could include individuals from any race category. The availability of data on those of Arabic Ancestry is limited and only available from years 2007-2009 to 2008-2010.



Healthy People 2020 Target:
The HP 2020 target for individuals who were unable to obtain or delayed in obtaining necessary medical care, dental care, or prescription medicines is 9.0 percent.

Please note that baseline data for HP 2020 targets may be derived from a different source than is used in this chartbook.

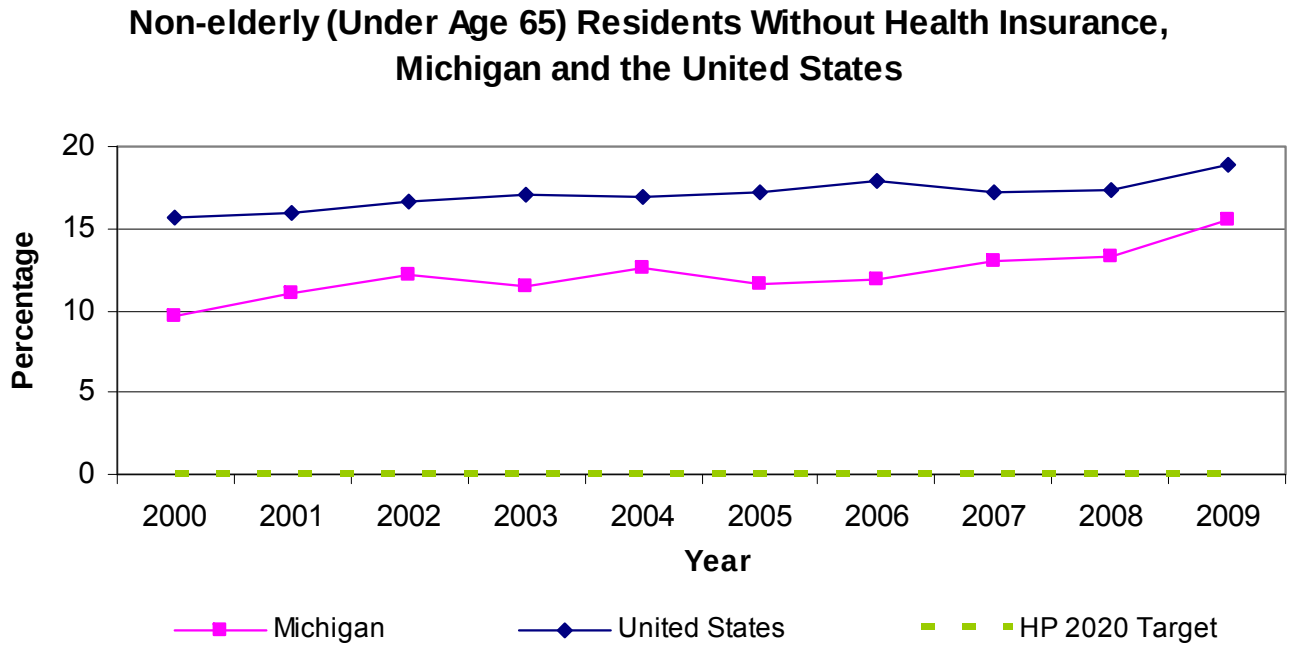
Data Source:
Michigan Department of Community Health, Michigan Behavioral Risk Factor Surveillance System, 2001 - 2010.

Uninsured

MICHIGAN

Indicator Definition/Overview:

- Approximately 50 million non-elderly individuals in the United States lacked health insurance coverage in 2009.
- Preventive and acute care alike are often unaffordable and, therefore, underutilized by the uninsured population.
- The Patient Protection and Affordable Care Act of 2010 requires that all Americans have health insurance by 2014.



Healthy People 2020 Target:
The HP 2020 target for percentage of uninsured individuals is zero percent, or total coverage.

Please note that baseline data for HP 2020 targets may be derived from a different source than is used in this chartbook.

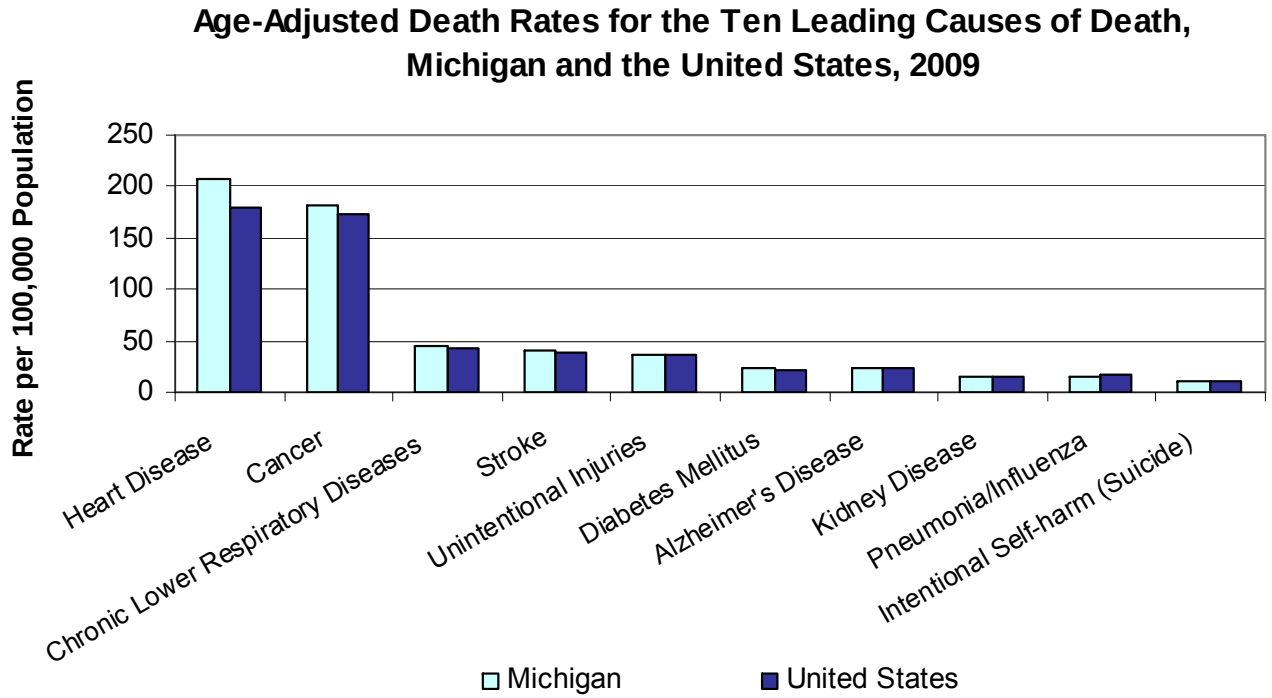
Data Source:
United States Census Bureau, Current Population Survey. Initial analysis of the CPS data was provided by the Employee Benefit Research Institute (EBRI).

Leading Causes of Death

MICHIGAN

Indicator Definition/Overview:

- Heart disease is the leading cause of death, and cancer is the second leading cause for both the United States and Michigan.
- Michigan has slightly higher age-adjusted death rates for both heart disease and cancer than the United States.
- The United States has higher age-adjusted death rates for pneumonia/influenza.



Healthy People 2020 Target:
n/a

Data Sources:
Michigan Department of Community Health, Division for Vital Records & Health Statistics, 2009 Michigan Resident Death File.

Population Estimate (latest update 9/2009), National Center for Health Statistics, U.S. Census Populations With Bridged Race Categories.

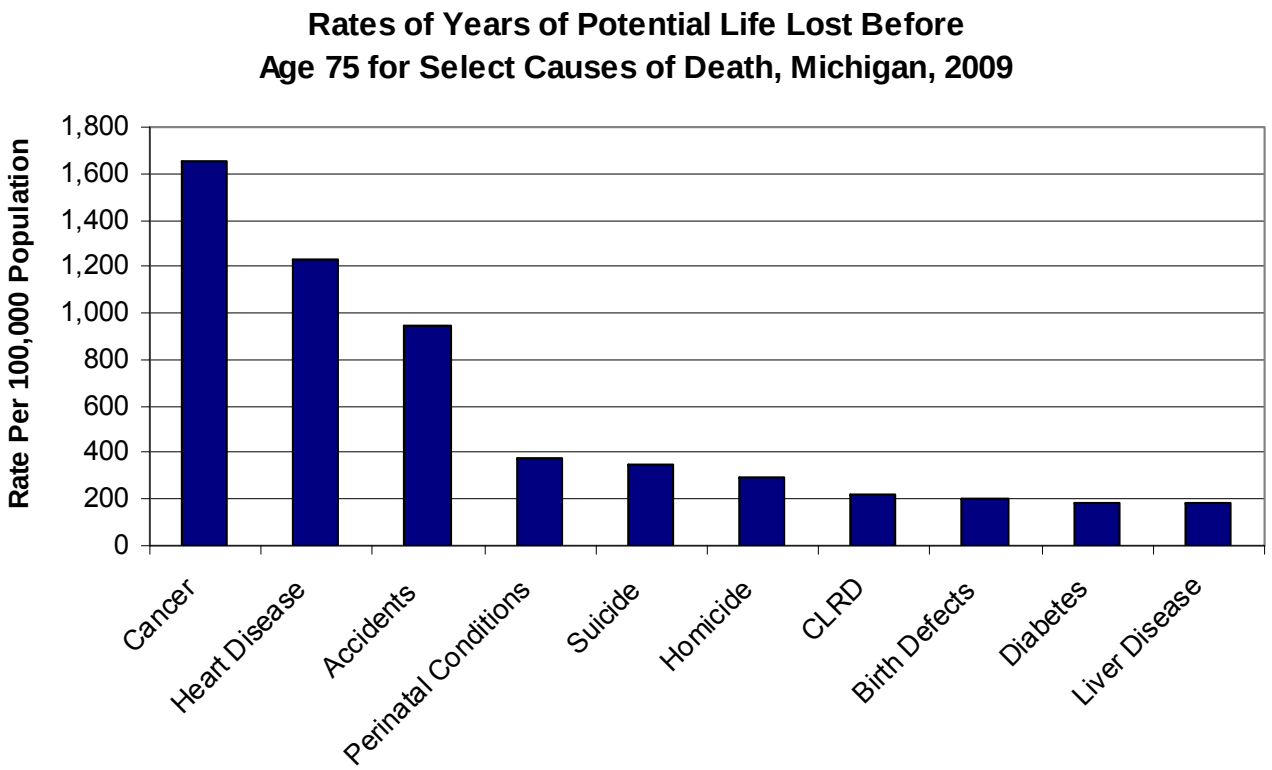
Kochanek KD, Xu JQ, Murphy SL, Miniño AM, Kung HC. Deaths: Preliminary Data for 2009. National Vital Statistics Reports; vol 59 no 4. Hyattsville, MD: National Center for Health Statistics. 2011.

Years of Potential Life Lost

MICHIGAN

Indicator Definition/Overview:

- Years of potential life lost is a measure of mortality that emphasizes the causes of death that are most prevalent among persons under age 75.
- The number of years of potential life lost is calculated as the number of years between the age at death and 75 years of age for persons dying before their 75th year.
- Cancer and heart disease are the leading conditions that have caused years of potential life lost before age 75 in Michigan.
- **Key**: CLRD = Chronic Lower Respiratory Diseases



Healthy People 2020 Target:
n/a

Data Source:
Michigan Department of Community Health, Division for Vital Records & Health Statistics, 2009 Michigan Resident Death File.

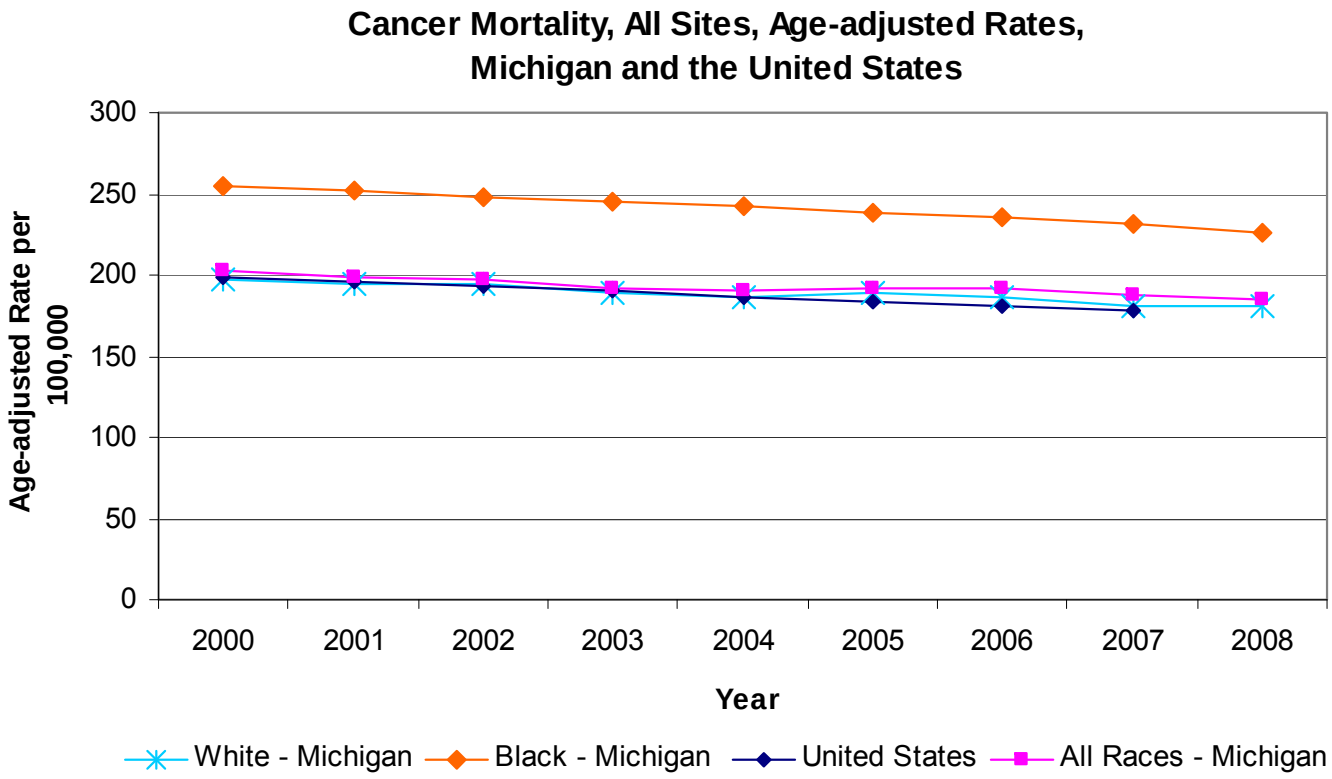
Population Estimate (latest update 9/2009), National Center for Health Statistics, U.S. Census Populations With Bridged Race Categories.

Cancer Mortality

MICHIGAN

Indicator Definition/Overview:

- Though survival rates for many types of cancer have increased recently, cancer remains the second leading cause of mortality in the United States and Michigan.
- It is estimated that cancer accounted for over a half million deaths in 2010 nationwide, with over 20,000 of those deaths occurring in Michigan.
- Preventive measures such as avoidance of tobacco, maintaining a healthy weight, and utilizing sun protection can result in fewer cancers.
- Medically underserved populations are at higher risk of being diagnosed at a later stage of cancer, thus decreasing the likelihood of survival.



Healthy People 2020 Target:
The HP 2020 target for cancer mortality is 160.6 deaths per 100,000 population.

Please note that baseline data for HP 2020 targets may be derived from a different source than is used in this chartbook.

Data Sources:
Michigan Department of Community Health, Division for Vital Records & Health Statistics, Michigan Cancer Surveillance Program. Michigan Cancer Incidence Public Use File 1985-2008.

National Cancer Institute. SEER Cancer Statistics Review, 1975-2007.

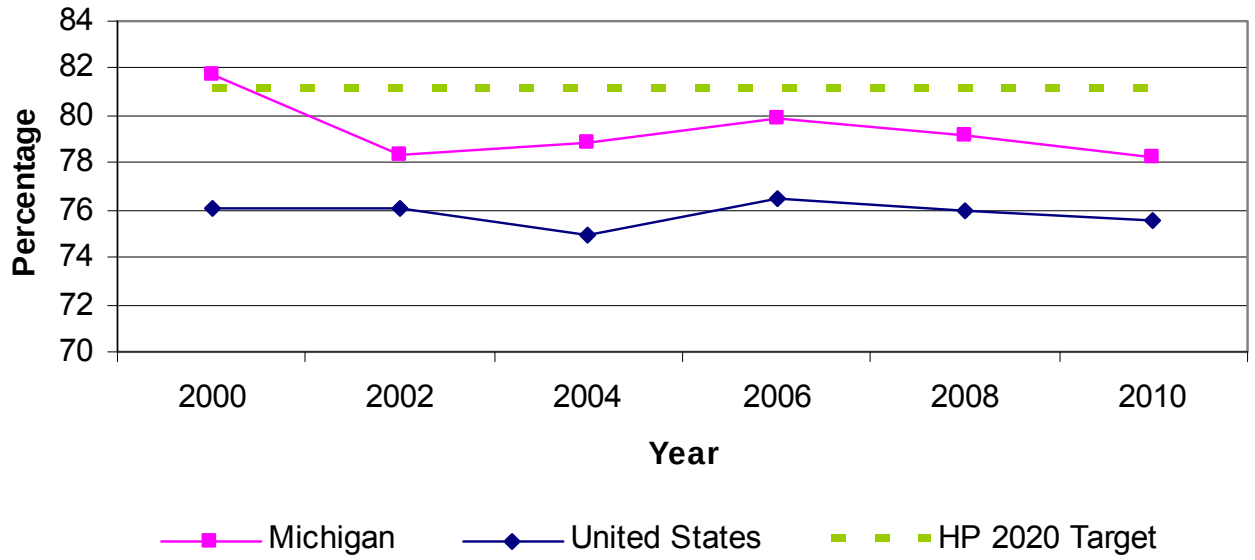
Breast Cancer Screening

MICHIGAN

Indicator Definition/Overview:

- Screening mammograms are used to periodically check for breast cancer in women who have exhibited no signs of the disease. Mammograms may also be used as a diagnostic tool after a mass has been detected or other symptoms arise.
- Current National Cancer Institute guidelines state that women over 40 should have mammograms every one to two years.

Had a Mammogram in the Past Two Years Among Women Aged 40 Years and Older, Michigan and the United States



Healthy People 2020 Target:
The HP 2020 target for individuals who receive a breast cancer screening based on the most recent guidelines is 81.1 percent.

Please note that baseline data for HP 2020 targets may be derived from a different source than is used in this chartbook.

Data Sources:
Michigan Department of Community Health, Michigan Behavioral Risk Factor Surveillance System, 2000 - 2010.

Centers for Disease Control and Prevention (CDC). Behavioral Risk Factor Surveillance System Survey Data, 2000 - 2010.

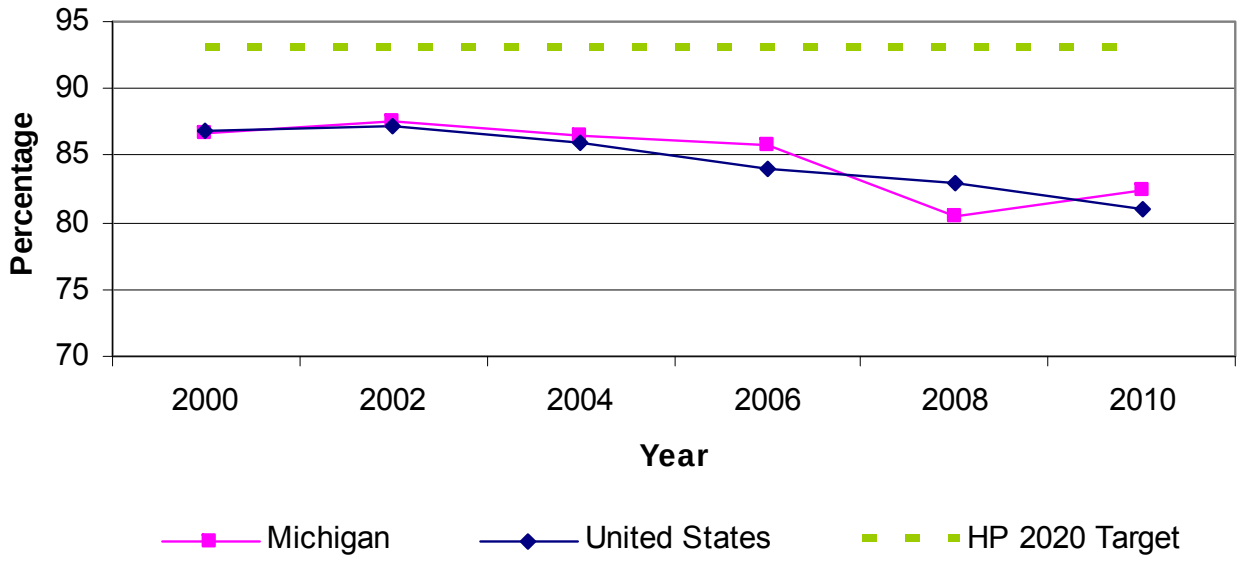
Cervical Cancer Screening

MICHIGAN

Indicator Definition/Overview:

- Pap tests detect abnormalities in cervical cells that may lead to cancer.
- Women aged 21 to 30 years should be screened for cervical cancer every two years, while women 30 years and older who have had three consecutive normal test results may be screened once every three years.

Had a Pap Test in the Past Three Years Among Women Aged 18 Years and Older, Michigan and the United States



Healthy People 2020 Target:
The HP 2020 target for individuals who receive a cervical cancer screening based on the most recent guidelines is 93 percent.

Please note that baseline data for HP 2020 targets may be derived from a different source than is used in this chartbook.

Data Sources:
Michigan Department of Community Health, Michigan Behavioral Risk Factor Surveillance System, 2000 – 2010.

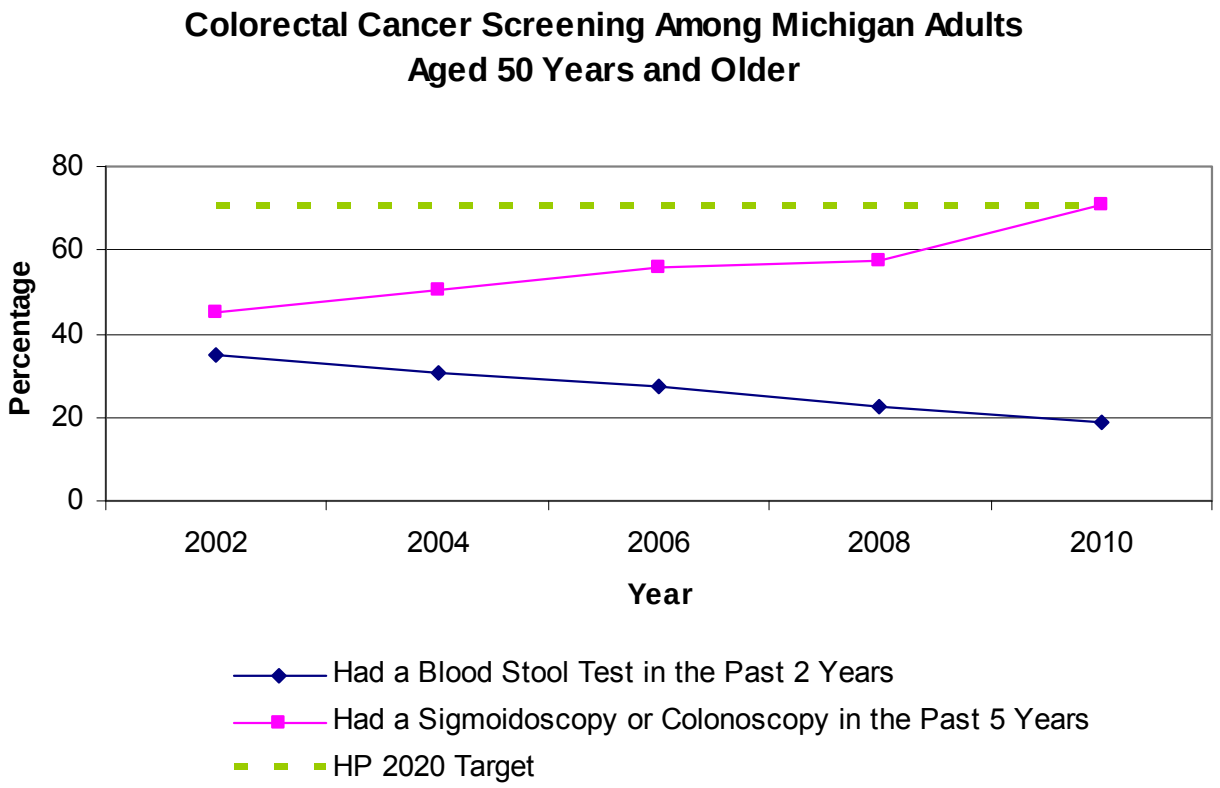
Centers for Disease Control and Prevention (CDC). Behavioral Risk Factor Surveillance System Survey Data, 2000 - 2010.

Colorectal Cancer Screening

MICHIGAN

Indicator Definition/Overview:

- Colorectal cancer is the third most common type of non-skin cancer in both men and women in the United States.
- In general, individuals should be tested for colorectal cancer beginning at age 50.
- Up to 60 percent of deaths from colorectal cancer could be prevented through regular screening.



Healthy People 2020 Target:
The HP 2020 target for individuals who receive a colorectal cancer screening based on the most recent guidelines is 70.5 percent.

Please note that baseline data for HP 2020 targets may be derived from a different source than is used in this chartbook.

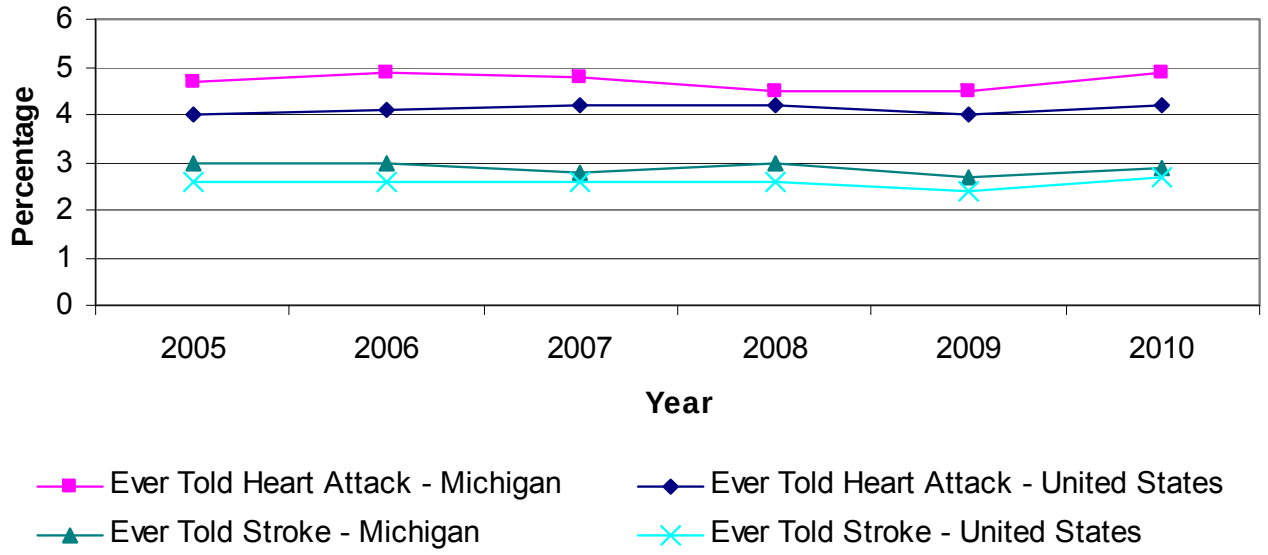
Data Source:
Michigan Department of Community Health, Michigan Behavioral Risk Factor Surveillance System, 2002 - 2010.

Cardiovascular Disease - Prevalence

MICHIGAN

Indicator Definition/Overview:

- The term “cardiovascular disease” encompasses any irregular functioning of the heart or blood vessels, most commonly manifesting as a heart attack or stroke.
- Risk factors for cardiovascular disease include obesity, smoking, and physical inactivity, among others.



Healthy People 2020 Target:
An HP 2020 target does not exist for cardiovascular disease prevalence. There are HP 2020 targets related to coronary heart disease and stroke mortality.

Data Source:
Michigan Department of Community Health, Michigan Behavioral Risk Factor Surveillance System, 2005 - 2010.

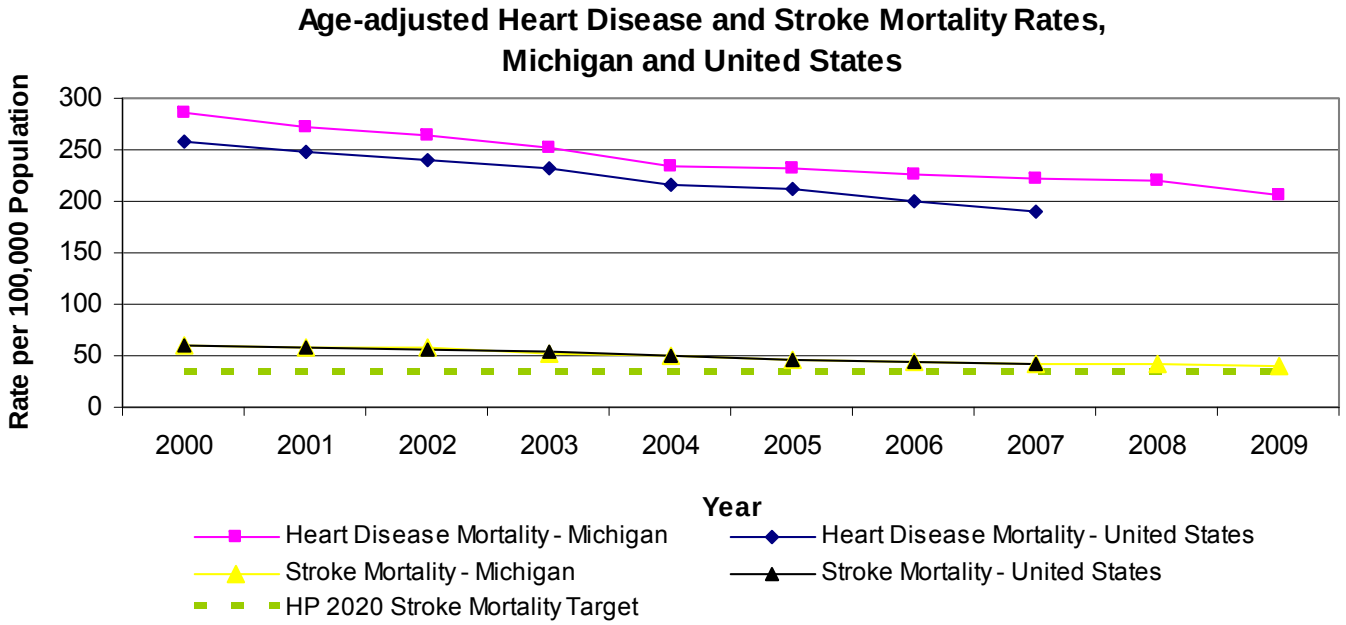
Centers for Disease Control and Prevention (CDC). Behavioral Risk Factor Surveillance System Survey Data, 2005 - 2010.

Cardiovascular Disease - Mortality

MICHIGAN

Indicator Definition/Overview:

- Cardiovascular disease accounts for over one-third of deaths in the United States, surpassing all other causes of death in terms of mortality rate.
- Stroke is the third leading cause of death for both men and women.
- Heart disease is the leading cause of death for both men and women.
- Data for 2008 and 2009 were not available for the United States.



Healthy People 2020 Target:
An HP 2020 target does not exist for overall heart disease mortality, only for coronary heart disease mortality. The HP 2020 target for stroke mortality is a rate of 33.8 per 100,000 population.

Please note that baseline data for HP 2020 targets may be derived from a different source than is used in this chartbook.

Data Sources:
Michigan Department of Community Health, Division for Vital Records and Health Statistics: Mortality.

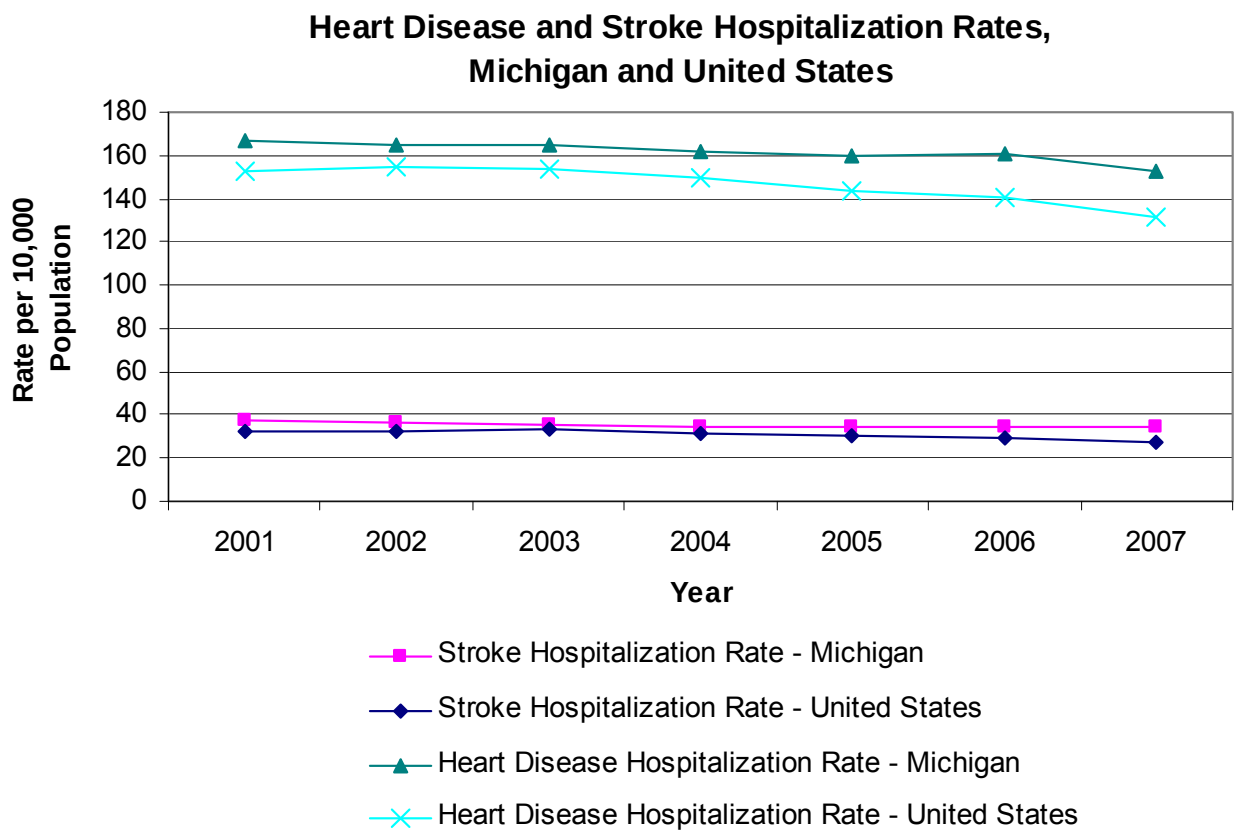
Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System.

Cardiovascular Disease - Hospitalizations

MICHIGAN

Indicator Definition/Overview:

- The cost of cardiovascular disease in the United States was estimated to be more than $503 billion in 2010, a figure that is expected to increase as the population ages.
- Hospitalization for heart disease is classified under the International Classification of Diseases 9 (ICD-9), codes 391-392, 393-398, 402, 404, 410-416, 420-429. Hospitalization for stroke is classified as codes 430-438.



Healthy People 2020 Target:
An HP 2020 target does not exist for overall heart disease hospitalization, nor for stroke hospitalization.

Data Sources:
Michigan Department of Community Health, Epidemiology Services Division, Michigan Community Health Information, Hospitalizations by Selected Diagnoses.

Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

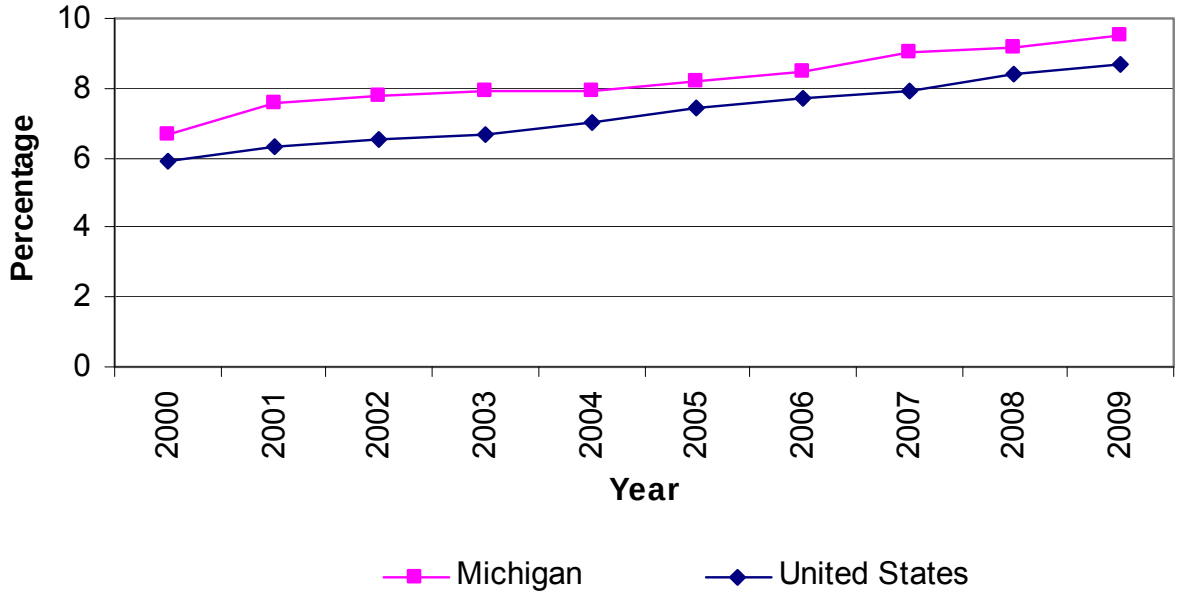
Diabetes Prevalence

MICHIGAN

Indicator Definition/Overview:

- The prevalence of diabetes in Michigan and the United States has been steadily increasing over the past ten years. In each of the past ten years, the prevalence of diabetes in Michigan has been greater than that of the nation as a whole.
- Uncontrolled diabetes can lead to heart attack or stroke.
- This indicator is measured as a non-age-adjusted, three-year moving average with the middle of the three averaged years as the reported year for each data point in the graph below.

Adult Diabetes Prevalence, Michigan and the United States



Healthy People 2020 Target:
An HP 2020 target does not exist for overall diabetes prevalence. There are HP 2020 targets related to new diabetes diagnoses only.

Data Sources:
Michigan Department of Community Health, Michigan Behavioral Risk Factor Surveillance System, 2000 – 2009.

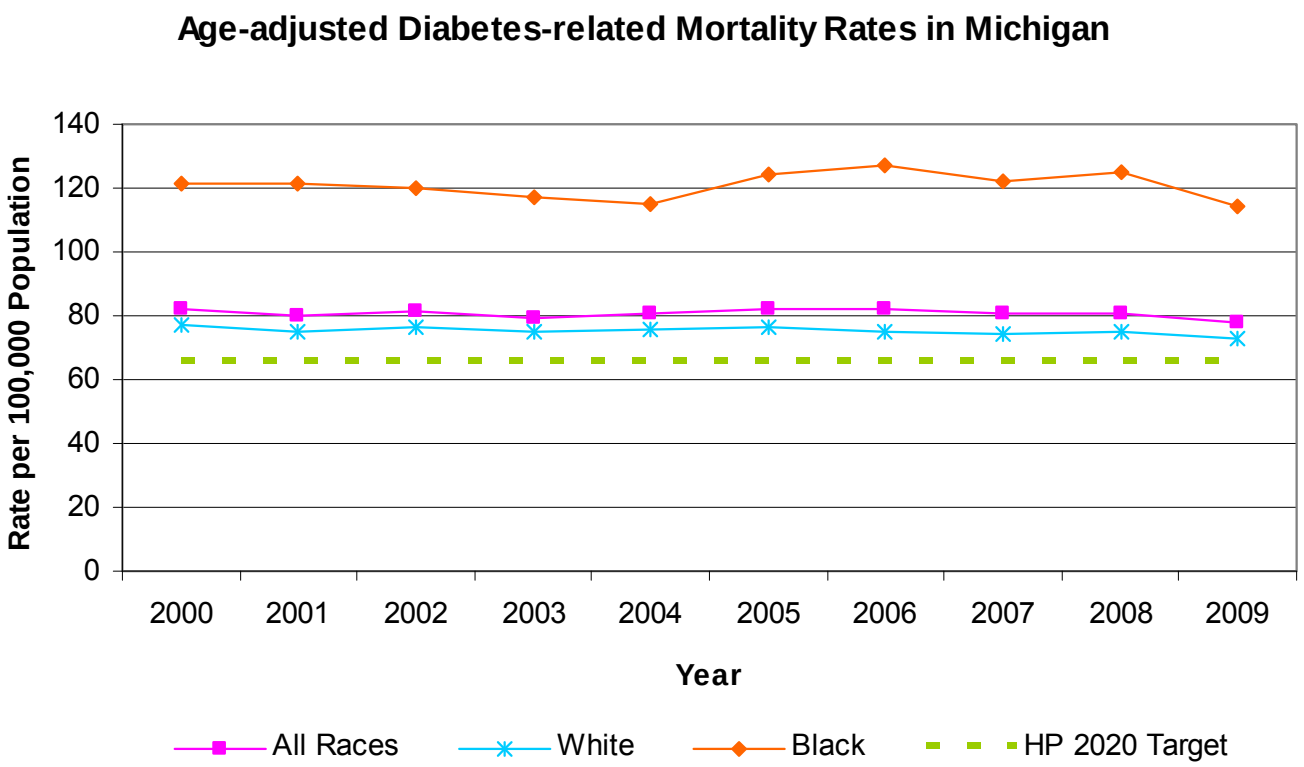
Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Diabetes Translation.

Diabetes-related Mortality

MICHIGAN

Indicator Definition/Overview:

- Diabetes is the sixth leading cause of death in Michigan.
- Rates are per 100,000 population.
- Overall, the risk for death among people with diabetes is about double that of people in the same age group who do not have diabetes.



Healthy People 2020 Target:
The HP 2020 target for diabetes-related mortality is 65.8 deaths per 100,000 population.

Please note that baseline data for HP 2020 targets may be derived from a different source than is used in this chartbook.

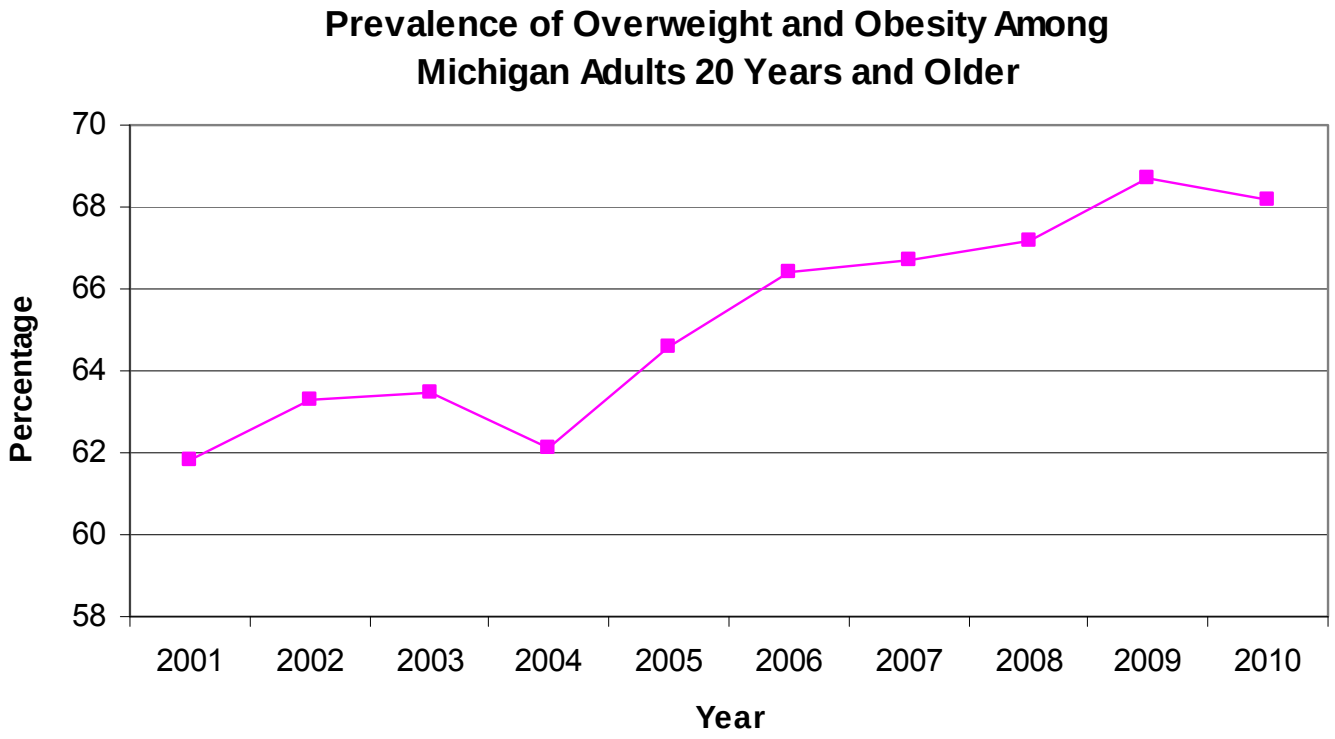
Data Source:
Michigan Department of Community Health, Division for Vital Records and Health Statistics: Mortality.

Overweight and Obesity

MICHIGAN

Indicator Definition/Overview:

- Overweight is defined as having a body mass index between 25.0 and 29.9, and obesity is defined having a body mass index of ≥ 30.
- Obesity is one of today's most pressing public health issues. The rates of obesity have risen dramatically over the past 30 years. Nationwide, obesity prevalence doubled among adults between 1980 and 2004, from 15 percent to 32.2 percent.
- Obesity has been shown to be associated with several poor health outcomes, including hypertension, osteoarthritis, dyslipidemia, type 2 diabetes, coronary heart disease, stroke, gallbladder disease, sleep apnea and respiratory problems, and some cancers (i.e., endometrial, breast, and colon).



Healthy People 2020 Target:
There is no HP 2020 target for a combined measure of overweight and obesity as displayed in this chart. However, the HP 2020 target for obesity is 30.6 percent of adults aged 20 and older.

Please note that baseline data for HP 2020 targets may be derived from a different source than is used in this chartbook.

Data Source:
Michigan Department of Community Health, Michigan Behavioral Risk Factor Surveillance System, 2001 - 2010.

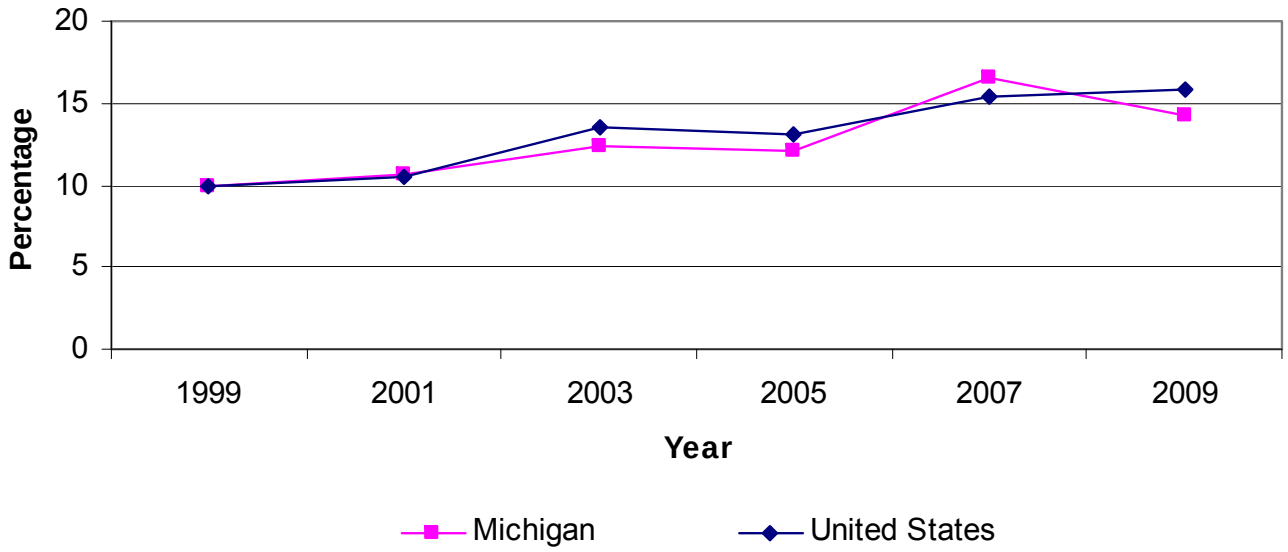
Childhood Overweight

MICHIGAN

Indicator Definition/Overview:

- The prevalence of overweight children tripled between 1980 and 2000.
- Adolescence is a particularly significant timeframe for weight maintenance, as some studies suggest that as many as 80 percent of individuals who are overweight during adolescence become obese adults.
- Overweight is associated with a number of potentially serious health conditions in children, such as depression, type 2 diabetes, and sleep apnea.

Prevalence of Overweight Among Children Grades 9-12, Michigan and the United States



Healthy People 2020 Target:
An HP 2020 target does not exist for overweight children, grades 9-12, though one does exist for obese children aged 12 to 19 years.

Data Source:
Centers for Disease Control and Prevention, Youth Risk Behavior Surveillance System, 1999 - 2009.

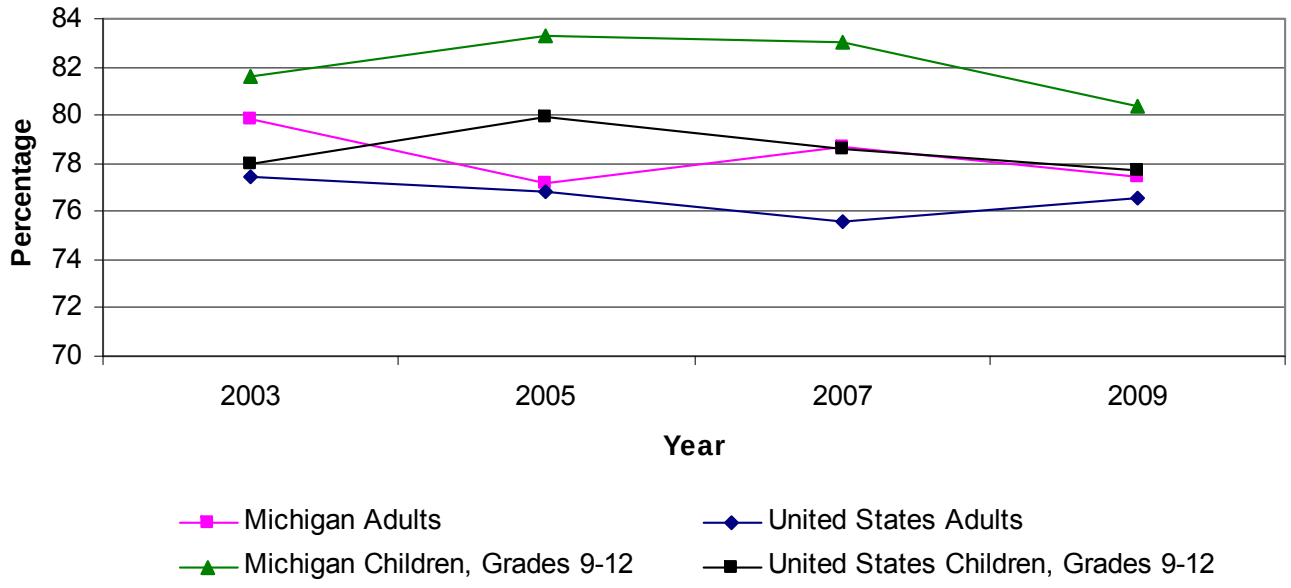
Nutrition

MICHIGAN

Indicator Definition/Overview:

- Dietary factors are associated with cardiovascular disease, stroke, cancer and diabetes, which are estimated to cost society billions of dollars each year in healthcare and lost productivity.
- Good nutrition is especially important in early childhood development.
- State-level monitoring of the nutrition status of Michigan residents includes program analysis, such as the Women, Infants and Children (WIC) Program, and evaluating statewide data from the Michigan Behavioral Risk Factor Survey (MiBRFS) focusing on fruit and vegetable consumption.
- Inadequate fruit and vegetable consumption is defined as consuming fruits and vegetables, on average, fewer than five times per day over the past seven days.

Inadequate Fruit and Vegetable Consumption Among Adults and Children Grades 9-12, Michigan and the United States



Healthy People 2020 Target:
An HP 2020 target does not exist for inadequate fruit and vegetable consumption. However, targets do exist for the proportion of fruits and vegetables in relation to total diet.

Data Sources:
Michigan Department of Community Health, Michigan Behavioral Risk Factor Surveillance System, 2003 - 2009.

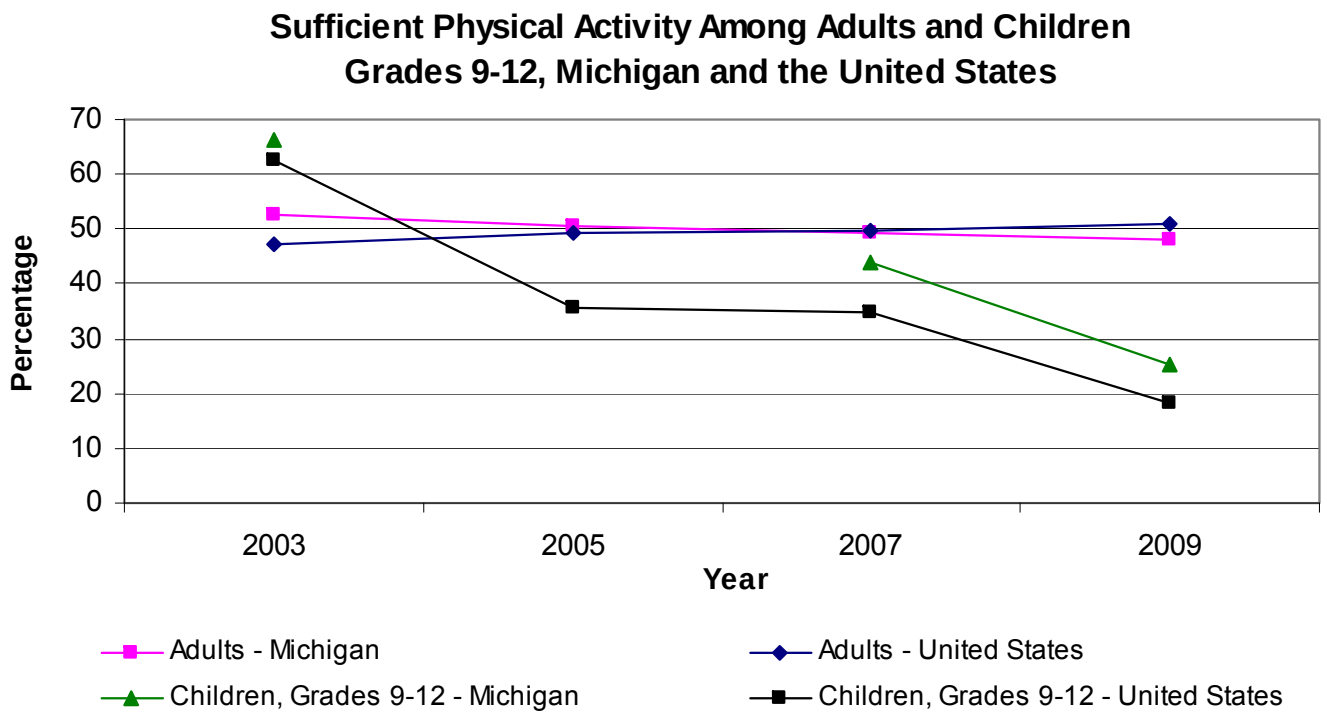
Centers for Disease Control and Prevention, Youth Risk Behavior Surveillance System, 2003 - 2009.

Physical Activity

MICHIGAN

Indicator Definition/Overview:

- Moderate to higher levels of regular physical activity lower mortality rates for both older and younger adults.
- Regular physical activity is associated with decreased risk of developing conditions such as diabetes, colon cancer, and high blood pressure.
- Regular physical activity reduces feelings of depression and anxiety; helps control weight; helps build and maintain healthy bones, muscles, and joints; helps older adults become stronger and better able to move about; and promotes psychological wellbeing.
- This indicator is measured as the percentage of adults and children grades 9-12 not meeting recommendations for physical activity as of the time of survey distribution.
- Michigan data were not available for children grades 9-12 for 2005.



Healthy People 2020 Target:
The HP 2020 target for adults meeting recommendations for aerobic and muscle strengthening activity is 20.1 percent. The HP 2020 target for adolescents meeting recommendations for aerobic activity is 20.2 percent. A target incorporating muscle strengthening activity is under development.

Please note that baseline data for HP 2020 targets may be derived from a different source than is used in this chartbook.

Data Sources:
Michigan Department of Community Health, Michigan Behavioral Risk Factor Surveillance System, 2003 - 2009.

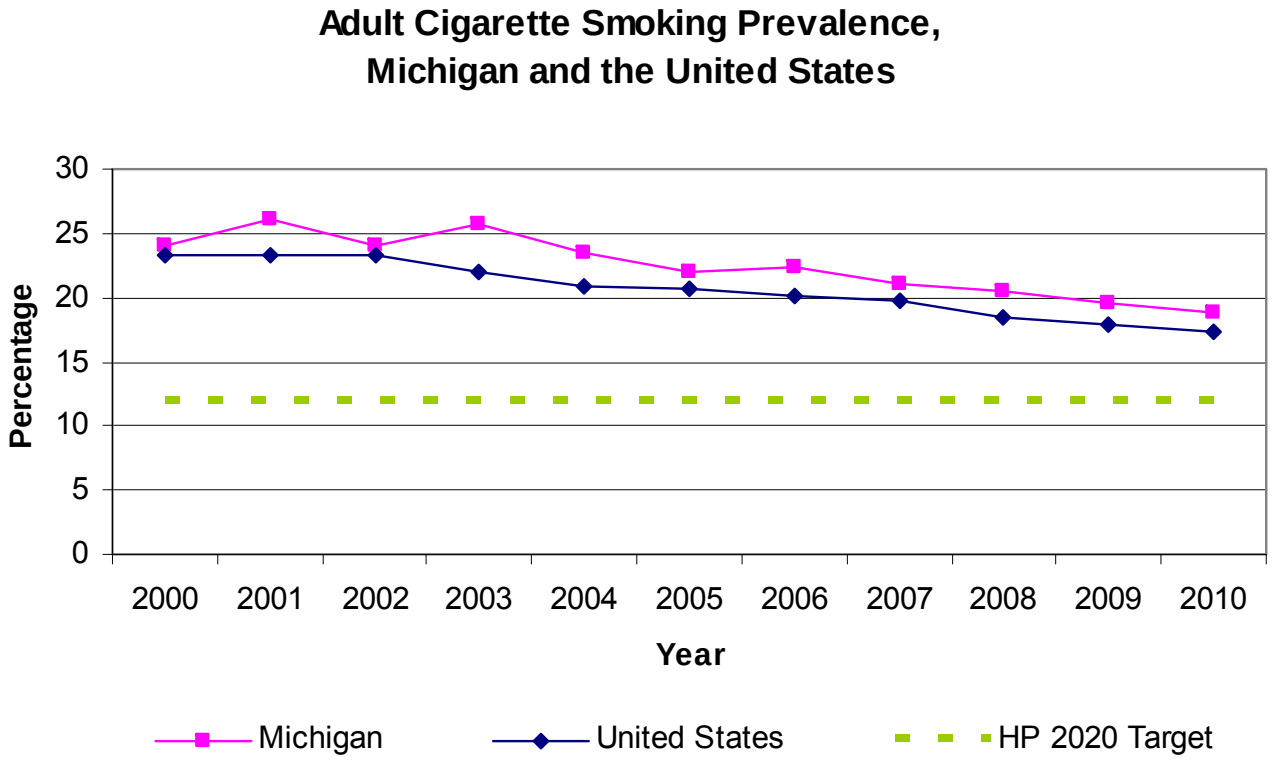
Centers for Disease Control and Prevention, Youth Risk Behavior Surveillance System, 2003 - 2009.

Smoking

MICHIGAN

Indicator Definition/Overview:

- Smoking is a leading cause of death and disability in the United States and is an important modifiable risk factor.
- Smoking contributes to the development of many kinds of chronic conditions including cancers, respiratory diseases, and cardiovascular diseases, and remains the leading preventable cause of premature death in the United States. It has been estimated that smoking costs the United States $193 billion in annual health-related economic losses and 5.1 million years of potential life lost each year.
- Smoking is also associated with cardiovascular disease. Risk of stroke doubles for those who smoke as compared to those who do not.
- The Dr. Ron Davis Smoke-Free Air Law, which went into effect on May 1, 2010, protects all Michigan residents and visitors from exposure to secondhand tobacco smoke in all restaurants, bars, and businesses.



Healthy People 2020 Target:
The HP 2020 target for cigarette smoking is 12 percent.

Please note that baseline data for HP 2020 targets may be derived from a different source than is used in this chartbook.

Data Source:
Michigan Department of Community Health, Michigan Behavioral Risk Factor Surveillance System, 2000 - 2010.

Centers for Disease Control and Prevention (CDC). Behavioral Risk Factor Surveillance System Survey Data, 2000 - 2010.

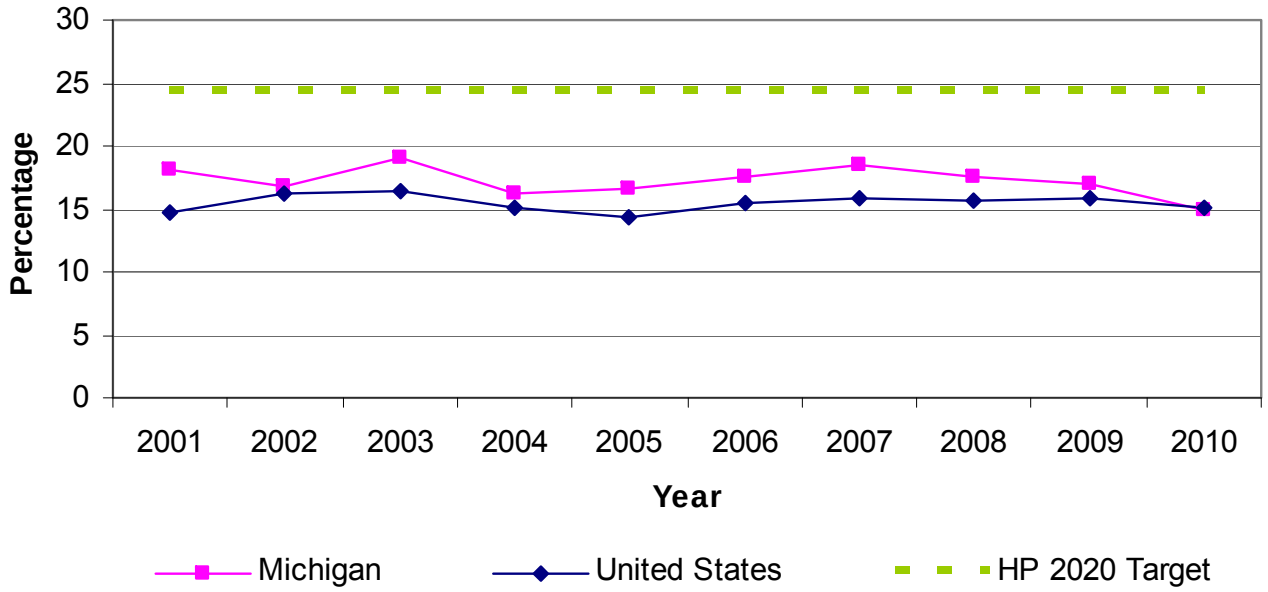
Binge Drinking

MICHIGAN

Indicator Definition/Overview:

- Approximately 79,000 people die each year in the United States as a result of excessive alcohol use, making its use the third leading behavior-related cause of death for the nation.
- Excessive alcohol consumption has both immediate consequences: miscarriage, stillbirth, birth defects, unintentional injuries, and violence; and long-term consequences: neurological problems; cardiovascular problems; psychiatric problems; social problems including family problems, lost productivity, and unemployment; cirrhosis; and worsening of liver function for persons with hepatitis C virus.
- Binge drinking is defined as the consumption of five or more drinks per occasion (for men) or four or more drinks per occasion (for women) at least once in the previous month.

Percentage of Adults Reporting Binge Drinking in Past Month, Michigan and the United States



Healthy People 2020 Target:
The HP 2020 target for binge drinking is 24.3 percent.

Please note that baseline data for HP 2020 targets may be derived from a different source than is used in this chartbook.

Data Source:
Michigan Department of Community Health, Michigan Behavioral Risk Factor Surveillance System, 2001 – 2010.

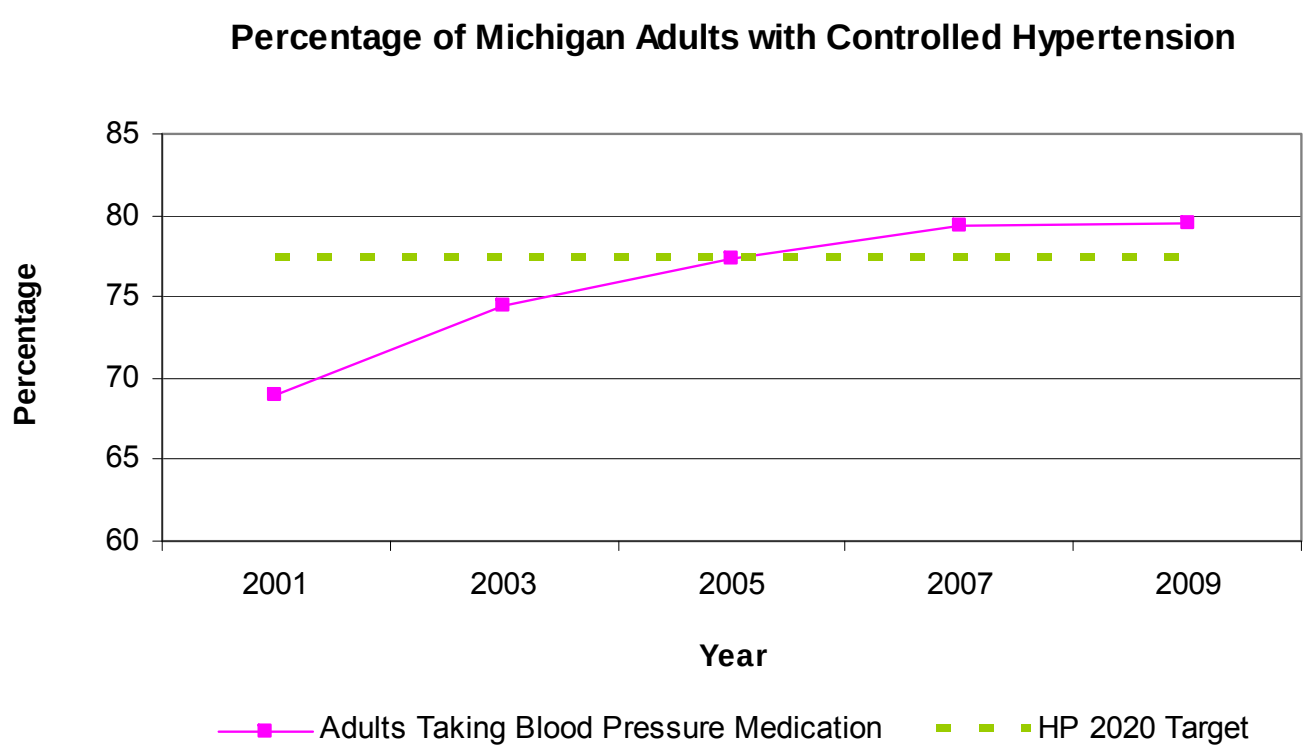
Centers for Disease Control and Prevention (CDC). Behavioral Risk Factor Surveillance System Survey Data, 2001 - 2010.

Controlled Blood Pressure

MICHIGAN

Indicator Definition/Overview:

- Approximately one of three adults in the United States has high blood pressure – also known as hypertension – which is a risk factor for heart disease and stroke.
- During the past ten years, more people with high blood pressure have become aware of the disease and received treatment.
- This indicator is measured as the percentage of adults who were ever told they had high blood pressure, and are currently taking medication to control it.



Healthy People 2020 Target:
The HP 2020 target for adults with controlled hypertension is 77.4 percent.

Please note that baseline data for HP 2020 targets may be derived from a different source than is used in this chartbook.

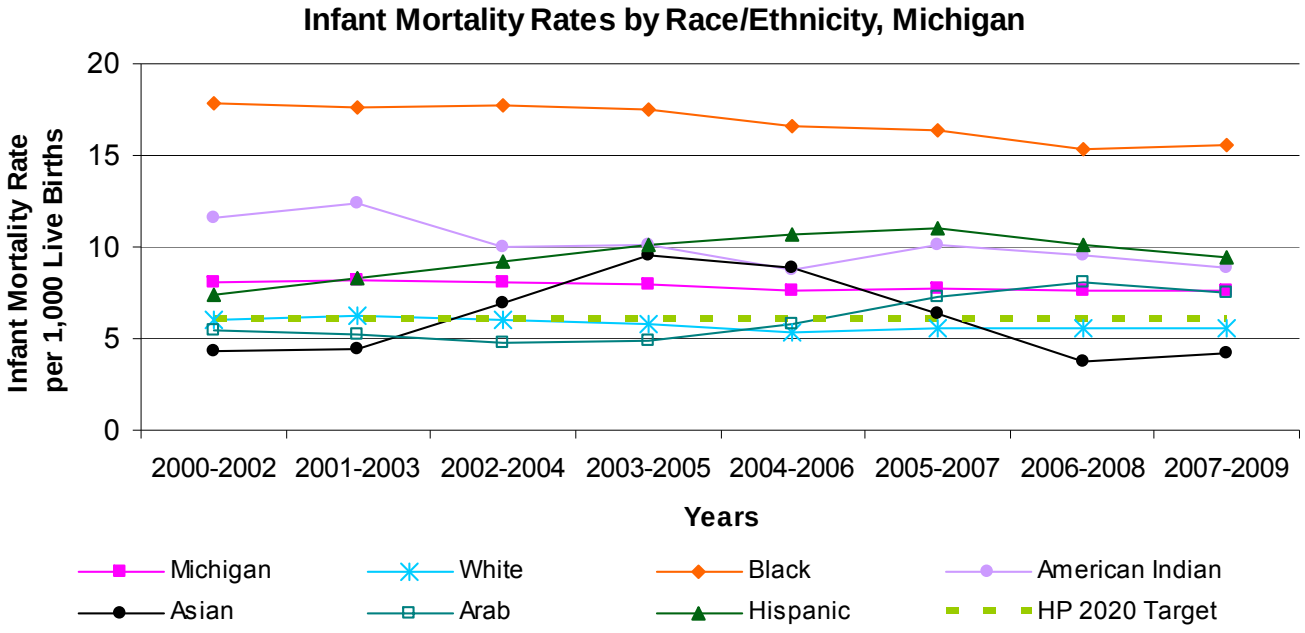
Data Source:
Michigan Department of Community Health, Michigan Behavioral Risk Factor Surveillance System, 2001 - 2009.

Infant Mortality Rate

MICHIGAN

Indicator Definition/Overview:

- Infant mortality is used as an indicator of the level of child health and overall development and is often used to identify disparities among populations within a specific county.
- Rate is calculated as number of deaths per 1,000 live births.
- Note: Hispanic is not a mutually exclusive ethnic category and could include infants from any race category.



Healthy People 2020 Target:
The HP 2020 target for infant mortality is 6.0 deaths per 1,000 live births.

Please note that baseline data for HP 2020 targets may be derived from a different source than is used in this chartbook.

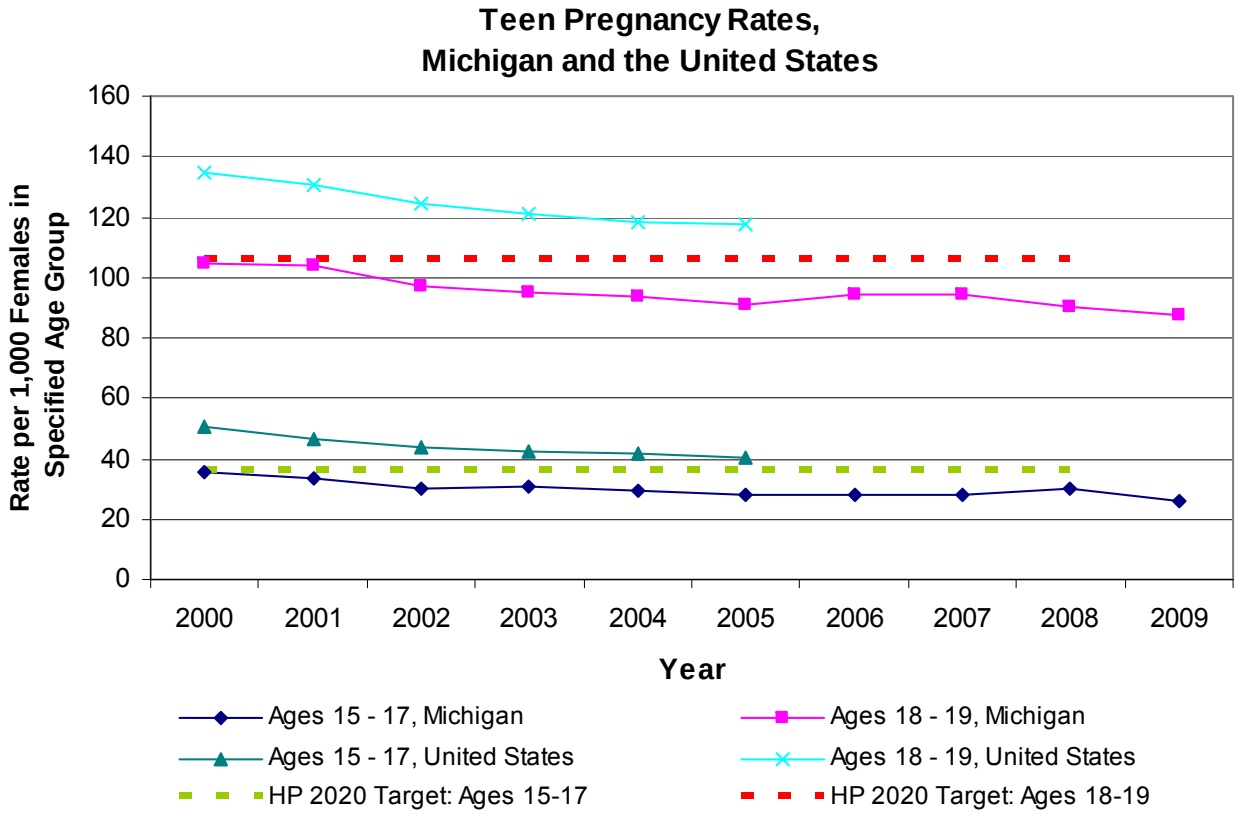
Data Source:
Michigan Department of Community Health, Division of Vital Records and Health Statistics, Michigan Resident Birth and Death Files.

Teen Pregnancy

MICHIGAN

Indicator Definition/Overview:

- Nearly two-thirds of births to women younger than age 18 are the result of unintended pregnancy.
- The children of teenage mothers are less likely to graduate from high school, more likely to suffer health problems, and more likely to encounter problems with the law.
- Only about 50 percent of teenage mothers earn a high school diploma by age 22, in contrast with nearly 90 percent of their peers who had not given birth during their teenage years.
- Data for national teen pregnancy rates were not available for 2006 – 2009.
- Teen pregnancy rates include live births, abortions, and estimated number of miscarriages.



Healthy People 2020 Target:
The HP 2020 target for teen pregnancies among 15 – 17 year olds is 36.2 per 1,000 females. The HP 2020 target for teen pregnancies among 18 – 19 year olds is 105.9 per 1,000 females.

Please note that baseline data for HP 2020 targets may be derived from a different source than is used in this chartbook.

Data Source:
Michigan Department of Community Health, Division of Vital Records and Health Statistics.

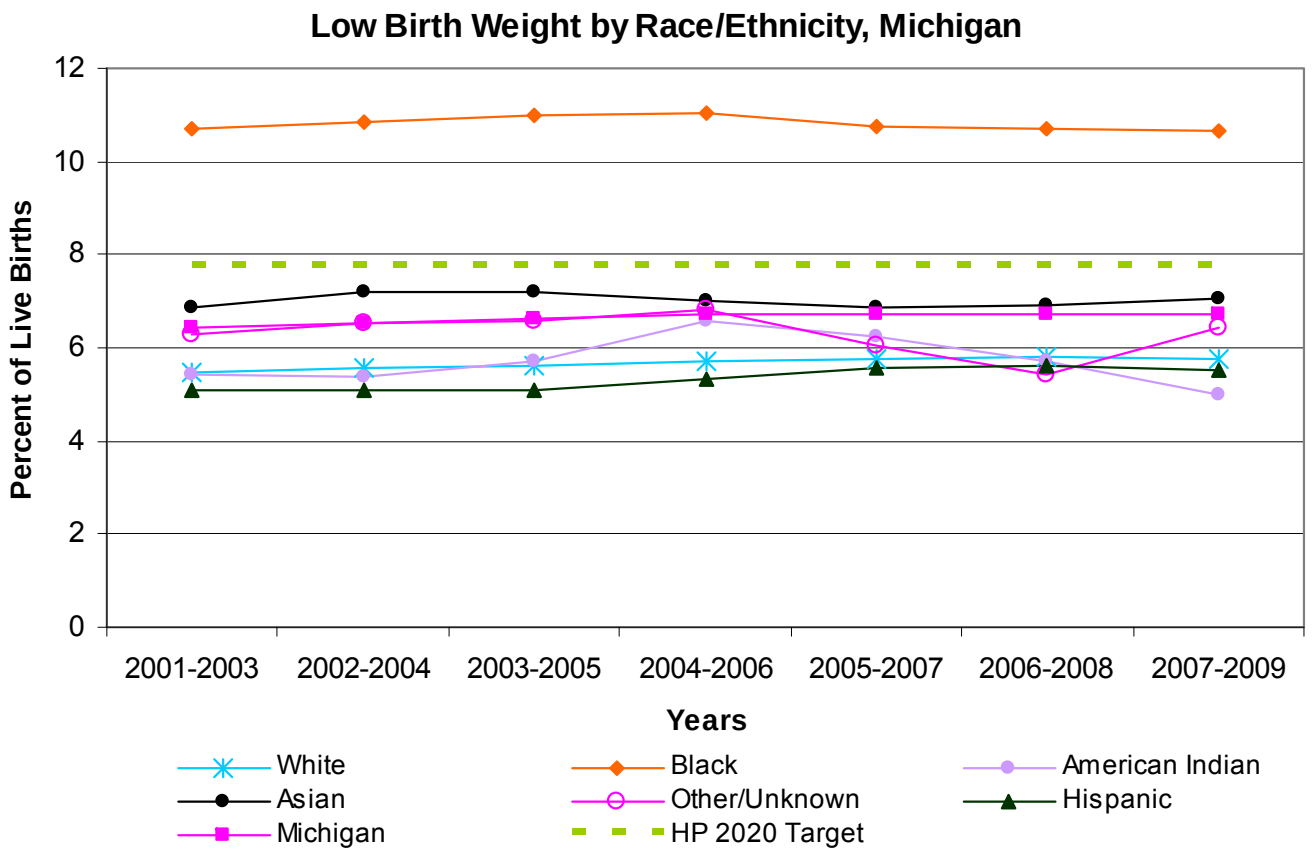
Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics Reports.

Low Birth Weight

MICHIGAN

Indicator Definition/Overview:

- Low birth weight is defined as fewer than 2,500 grams, or a maximum of approximately 5 pounds, 8 ounces.
- Low birth weight is a major cause of neonatal mortality (death before 28 days of age).
- Data are reported as three-year moving averages due to small sample sizes in some groups.
- Note: Hispanic is not a mutually exclusive ethnic category and could include individuals from any race category.



Healthy People 2020 Target:
The HP 2020 target for low birth weight is 7.8 percent of live births.

Please note that baseline data for HP 2020 targets may be derived from a different source than is used in this chartbook.

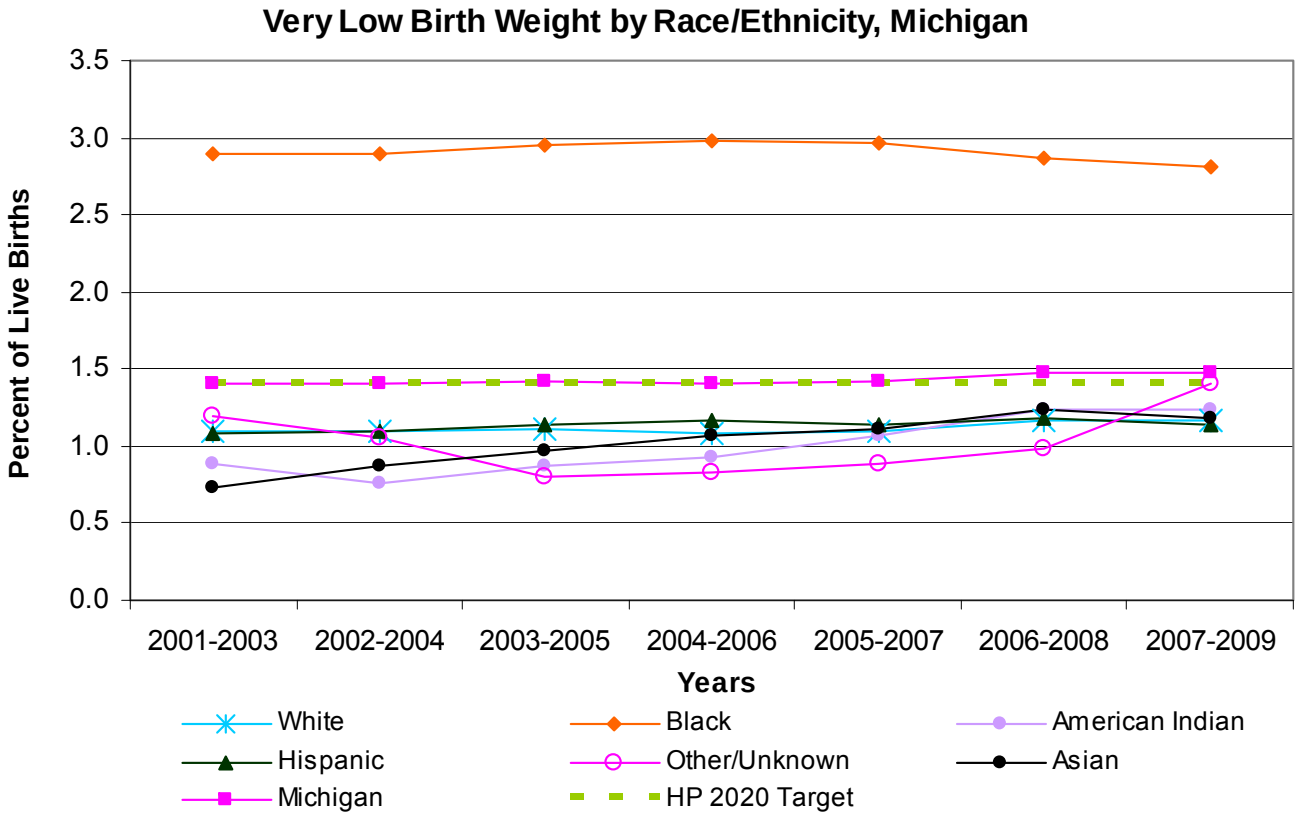
Data Source:
Michigan Department of Community Health, Division of Genomics, Perinatal Health, and Chronic Disease Epidemiology.

Very Low Birth Weight

MICHIGAN

Indicator Definition/Overview:

- Very low birth weight is defined as under 1,500 grams, or 3 pounds, 4 ounces.
- Very low birth weight infants are at a significantly increased risk of severe health problems, including physical, visual, cognitive, and developmental difficulties.
- Data are reported as three-year moving averages due to small sample sizes in some groups.
- Note: Hispanic is not a mutually exclusive ethnic category and could include individuals from any race category.



Healthy People 2020 Target:
The HP 2020 target for very low birth weight is 1.4 percent of live births.

Please note that baseline data for HP 2020 targets may be derived from a different source than is used in this chartbook.

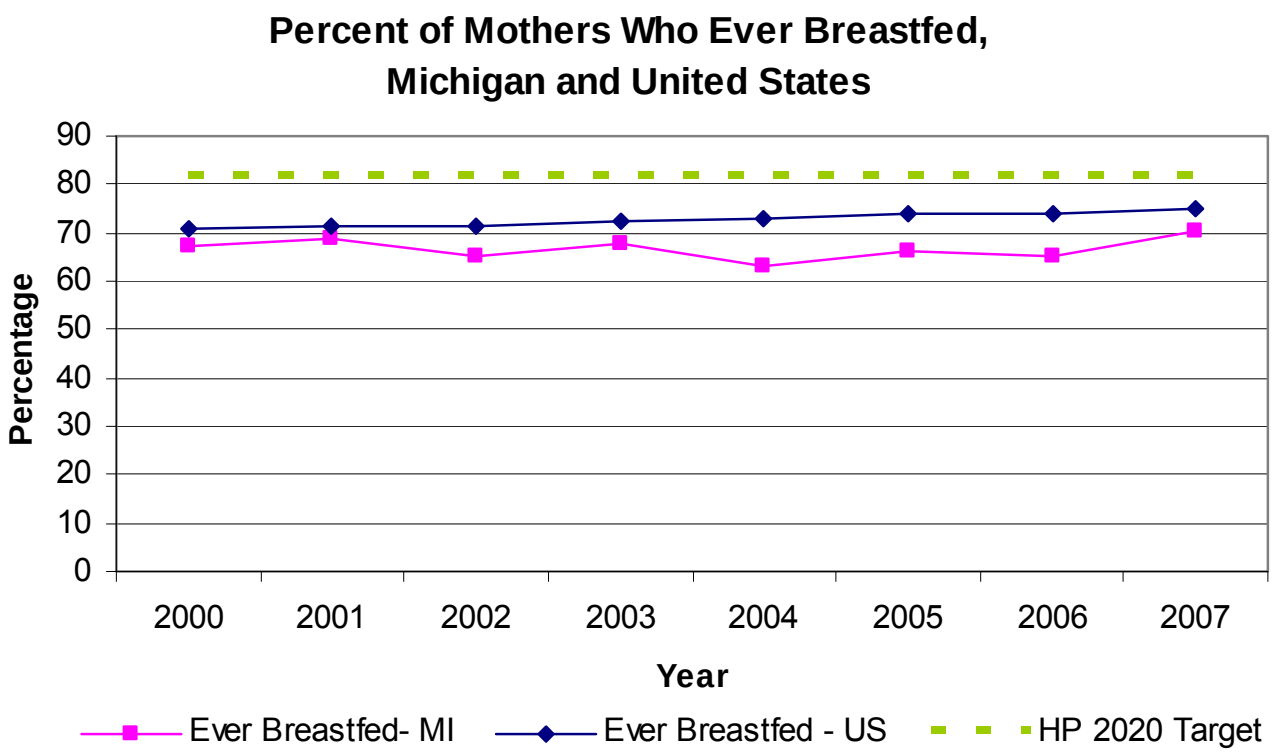
Data Source:
Michigan Department of Community Health, Division of Genomics, Perinatal Health, and Chronic Disease Epidemiology.

Breastfeeding – Ever Breastfed

MICHIGAN

Indicator Definition/Overview:

- Breast milk contains antibodies that can help protect infants from a variety of illnesses.
- Among breastfed babies, conditions such as ear infections, obesity, asthma, and diarrhea are less common.
- Mothers who have breastfed have a lower risk of developing breast and ovarian cancer, type 2 diabetes, and postpartum depression.



Healthy People 2020 Target:
The HP 2020 target for ever breastfeeding is 81.9 percent.

Please note that baseline data for HP 2020 targets may be derived from a different source than is used in this chartbook.

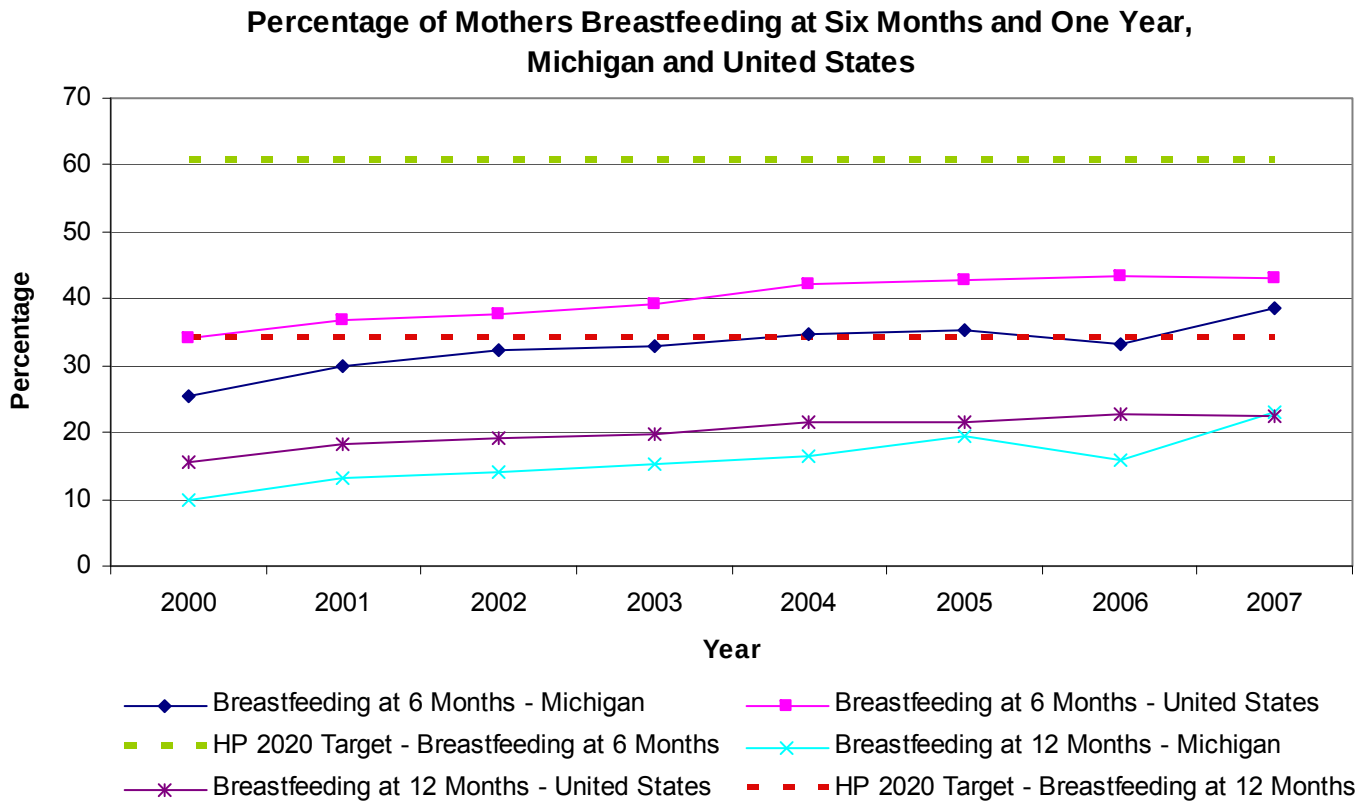
Data Source:
Centers for Disease Control and Prevention, National Center for Health Statistics, National Immunization Survey.

Breastfeeding – Duration

MICHIGAN

Indicator Definition/Overview:

- The American Academy of Pediatrics (AAP) recommends that infants are breastfed for at least 12 months.
- If 90 percent of mothers breastfed exclusively for six months, over 900 deaths among infants could be prevented yearly.



Healthy People 2020 Target:
The HP 2020 target for breastfeeding at 6 months is 60.6 percent and at 12 months is 34.1 percent.

Please note that baseline data for HP 2020 targets may be derived from a different source than is used in this chartbook.

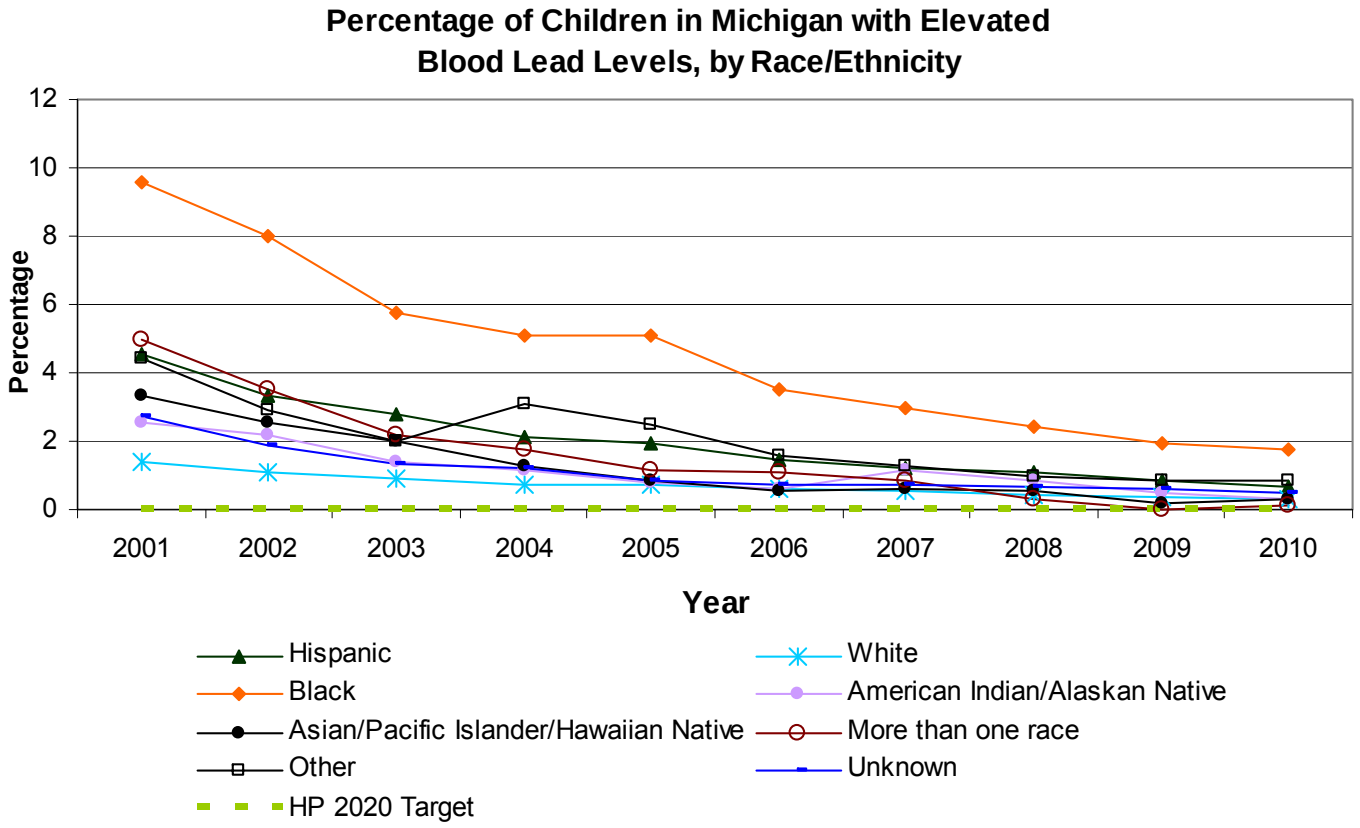
Data Source:
Centers for Disease Control and Prevention, National Center for Health Statistics, National Immunization Survey.

Children's Blood Lead Levels

MICHIGAN

Indicator Definition/Overview:

- Michigan's childhood lead poisoning prevention program was created in response to the federal Lead Contamination Control Act of 1988 and subsequent grant funding from the Centers for Disease Control and Prevention. The program was later written into state law in 1998. Goals of the program include increasing testing of young children for elevated blood lead levels (EBLL), assurance of medical and environmental follow-up for children identified with EBLL, surveillance of childhood lead poisoning to determine the extent of the problem, and education of the public and healthcare providers about childhood lead poisoning.
- If not detected early, lead that accumulates in a child's body and brain may cause anemia, hearing loss, hyperactivity, aggressive behavior, liver and kidney damage, developmental delay, and difficulty with learning due to loss of IQ.
- Note: Hispanic is not a mutually exclusive ethnic category and could include individuals from any race category.



Healthy People 2020 Target:
The HP 2020 target is to eliminate elevated blood lead levels in children.

Please note that baseline data for HP 2020 targets may be derived from a different source than is used in this chartbook.

Data Source:
Michigan Department of Community Health Data Warehouse.

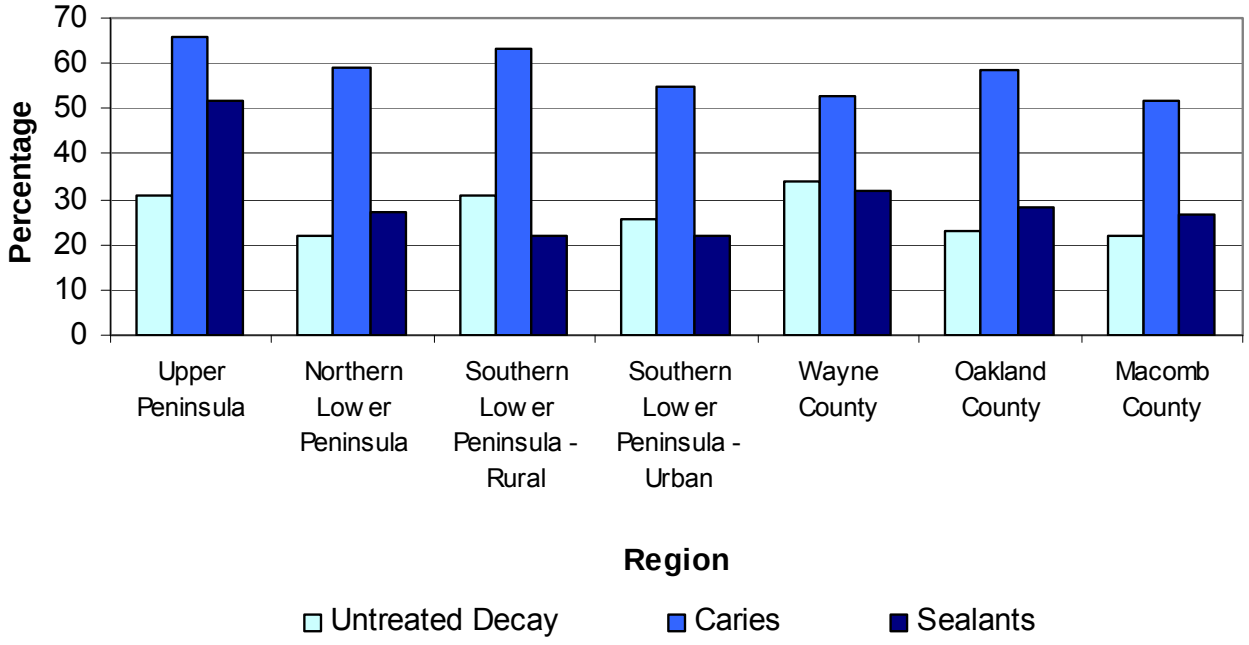
Oral Health

MICHIGAN

Indicator Definition/Overview:

- Tooth decay affects children in the United States more than any other chronic infectious disease.
- Tooth decay is preventable in children through a combination of dental sealants and fluoride.
- In Michigan, the Upper Peninsula has the highest percentage of children who have received sealants.

Percentage of Michigan Third Grade Children with Dental Decay, Caries, and Sealants, 2009-2010



Healthy People 2020 Target:
Healthy People has identified three different targets for three age groups of children. The objective is to reduce the proportion of young children with untreated dental decay in their primary teeth. The targets are to reduce the proportion of children age three to five years to 21.4 percent with untreated decay, age six to nine to 25.9 percent, and age 13-15 to 15.3 percent.

Please note that baseline data for HP 2020 targets may be derived from a different source than is used in this chartbook.

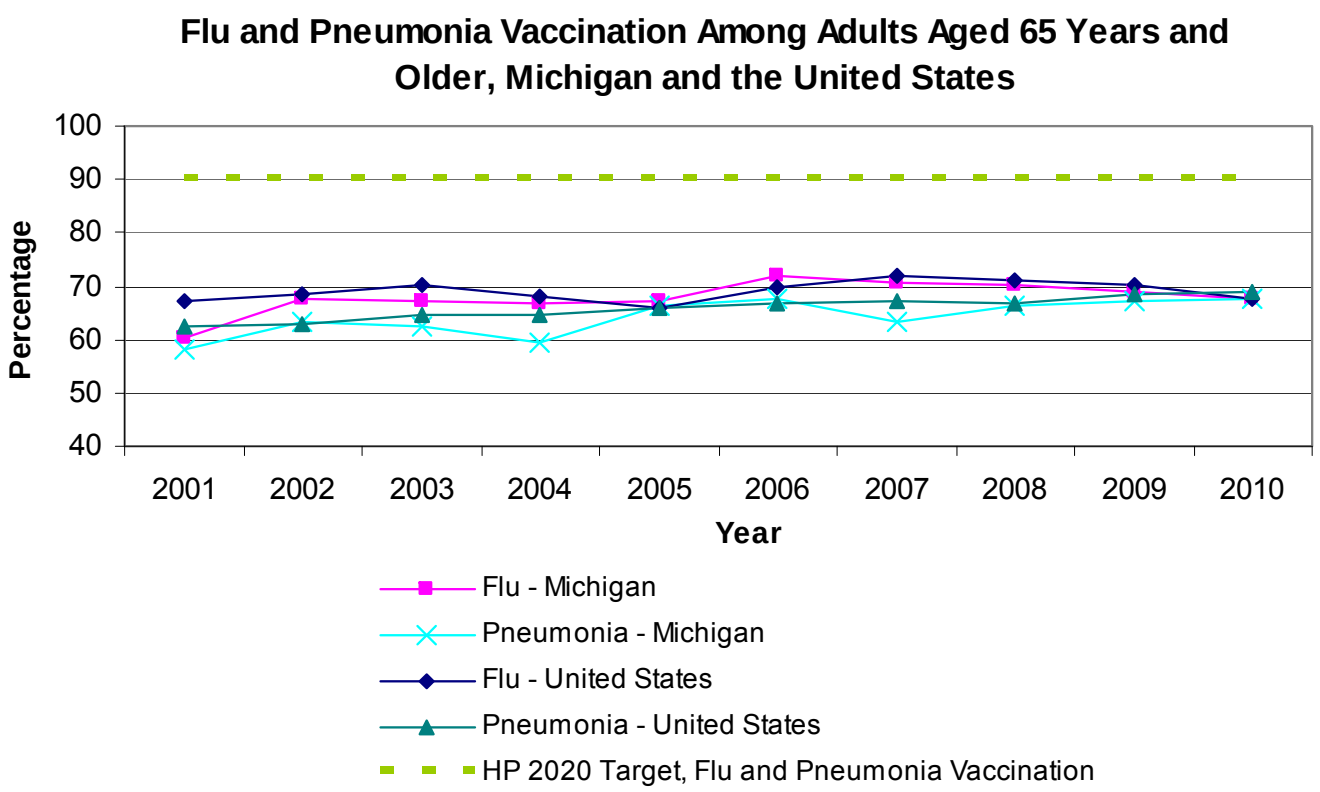
Data Source:
Michigan Department of Community Health, Maternal and Child Health Epidemiology, Oral Health Epidemiology.

Adult Immunizations

MICHIGAN

Indicator Definition/Overview:

- Rates of severe illness and death from the influenza virus are highest among children less than two years old, people aged 65 years and older and those with chronic medical conditions.
- Pneumococcal disease can result in chronic problems, such as brain damage, hearing loss, limb loss, or death.
- This indicator is measured as the percentage of adults, age 65 years and older, who have had a flu vaccine in the past year and a pneumonia vaccine ever, respectively.



Healthy People 2020 Target:
The HP 2020 target for both pneumococcal and flu vaccines in the adult population ages 65 and above is 90 percent.

Please note that baseline data for HP 2020 targets may be derived from a different source than is used in this chartbook.

Data Source:
Michigan Department of Community Health, Michigan Behavioral Risk Factor Surveillance System, 2001 – 2010.

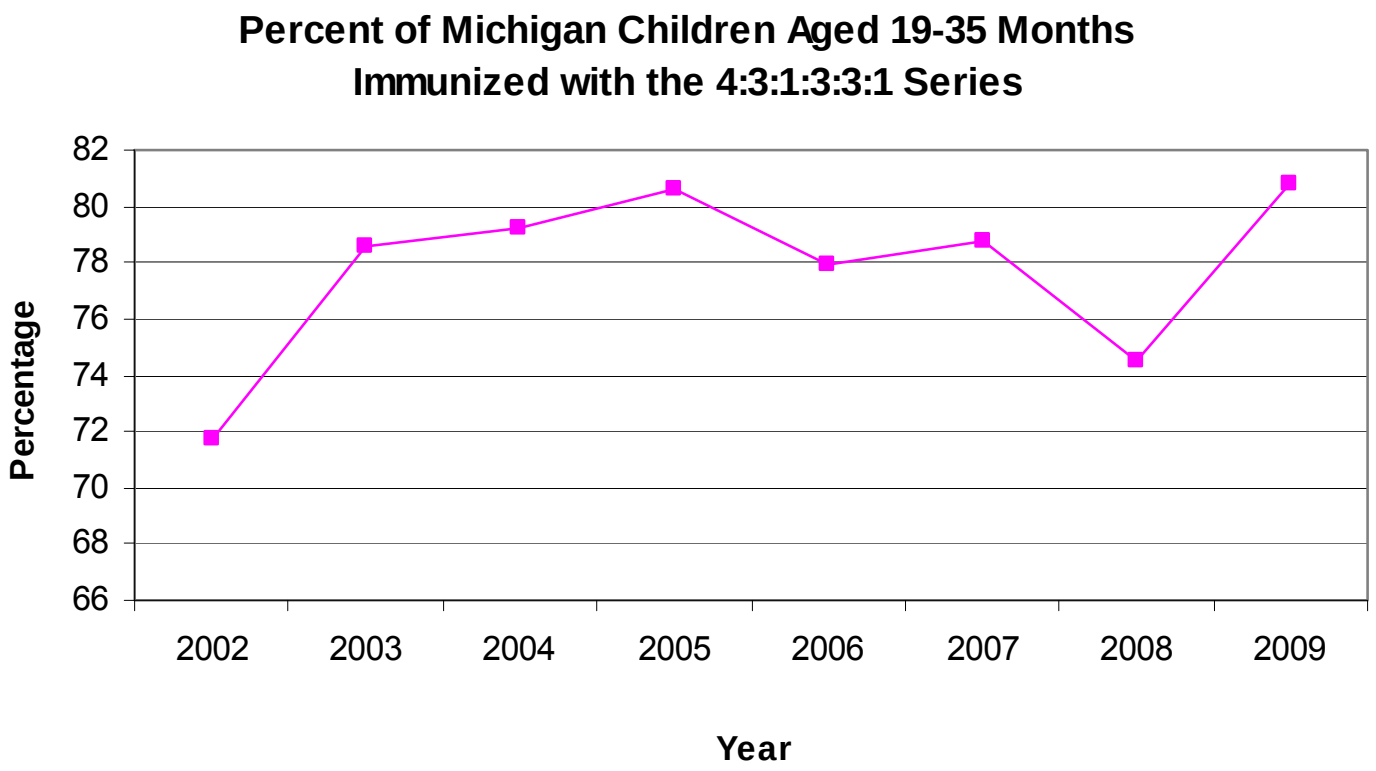
Centers for Disease Control and Prevention (CDC). Behavioral Risk Factor Surveillance System Survey Data, 2001 - 2010.

Pediatric Immunizations

MICHIGAN

Indicator Definition/Overview:

- The development of vaccines has resulted in a significant drop in incidence for many infectious diseases. Analyzing vaccination levels among young children is an indicator of how well all age groups are protected from many vaccine-preventable diseases. High rates of childhood immunization are important to protect not only individual children, but also outbreaks of disease among communities.
- Data are obtained from the National Immunization Survey, which counts doses administered, whether valid and administered according to schedule.
- The 4:3:1:3:3:1 series stands for 4 doses of DTaP, 3 polio, 1MMR, 3 Hib, 3 hepatitis B, and 1 varicella.



Healthy People 2020 Target:
A HP 2020 target does not exist for the 4:3:1:3:3:1 series.

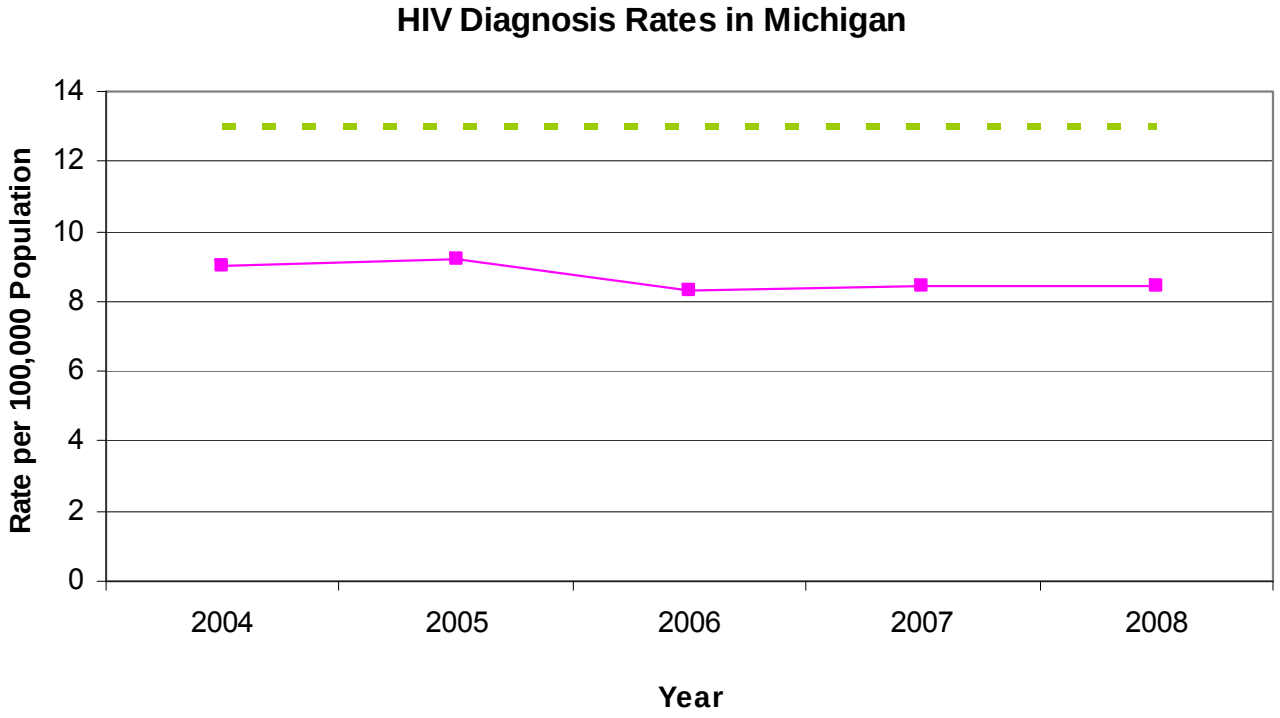
Data Source:
Michigan Department of Community Health, Division of Immunization, National Immunization Survey.

HIV/AIDS – New Diagnoses, Overall

MICHIGAN

Indicator Definition/Overview:

- MDCH estimates that 18,800 people are living with HIV infection in Michigan.
- The higher rate of diagnosis in 2005 is likely due to the implementation of mandatory laboratory reporting, instead of reflecting a true increase in the number of new diagnoses that year.
- These numbers include persons diagnosed with HIV, non-AIDS and those who learned of their HIV infection status after developing symptoms of AIDS.



Healthy People 2020 Target:
The HP 2020 target for new HIV diagnoses is 13 cases per 100,000 population.

Please note that baseline data for HP 2020 targets may be derived from a different source than is used in this chartbook.

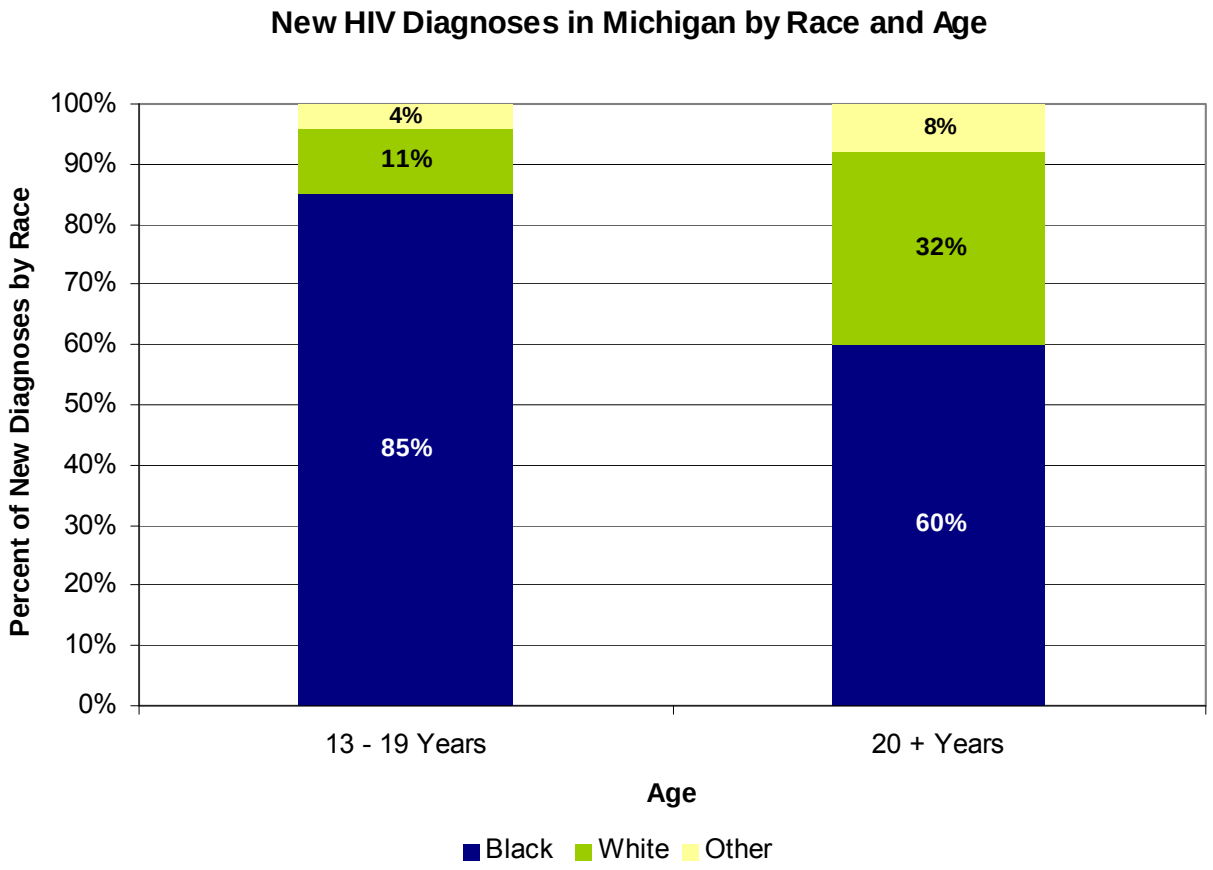
Data Source:
Michigan Department of Community Health, HIV/STD/VH/TB Epidemiology Section, Annual Review of HIV Trends in Michigan (2004-2008).

HIV – New Diagnoses, by Race and Age

MICHIGAN

Indicator Definition/Overview:

- Over half of all people living with HIV in the United States at the end of 2006 were men who have sex with men (MSM) or men who have sex with men with a history of injection drug use (MSM-IDU).
- Eighty-five percent of newly diagnosed teenagers in Michigan were black, compared to 60 percent of those aged 20+. Black MSM accounted for 62 percent of these newly diagnosed teenagers.
- Twenty-one percent of newly diagnosed white individuals in Michigan ages 20 and above were MSM, compared with only 5 percent MSM among whites in the 13-19 age group.



Healthy People 2020 Target:
HP 2020 targets exist for pure numbers of men who have sex with men and injection drug users. These numbers are national and are not reflected for Michigan on this chart.

Please note that baseline data for HP 2020 targets may be derived from a different source than is used in this chartbook.

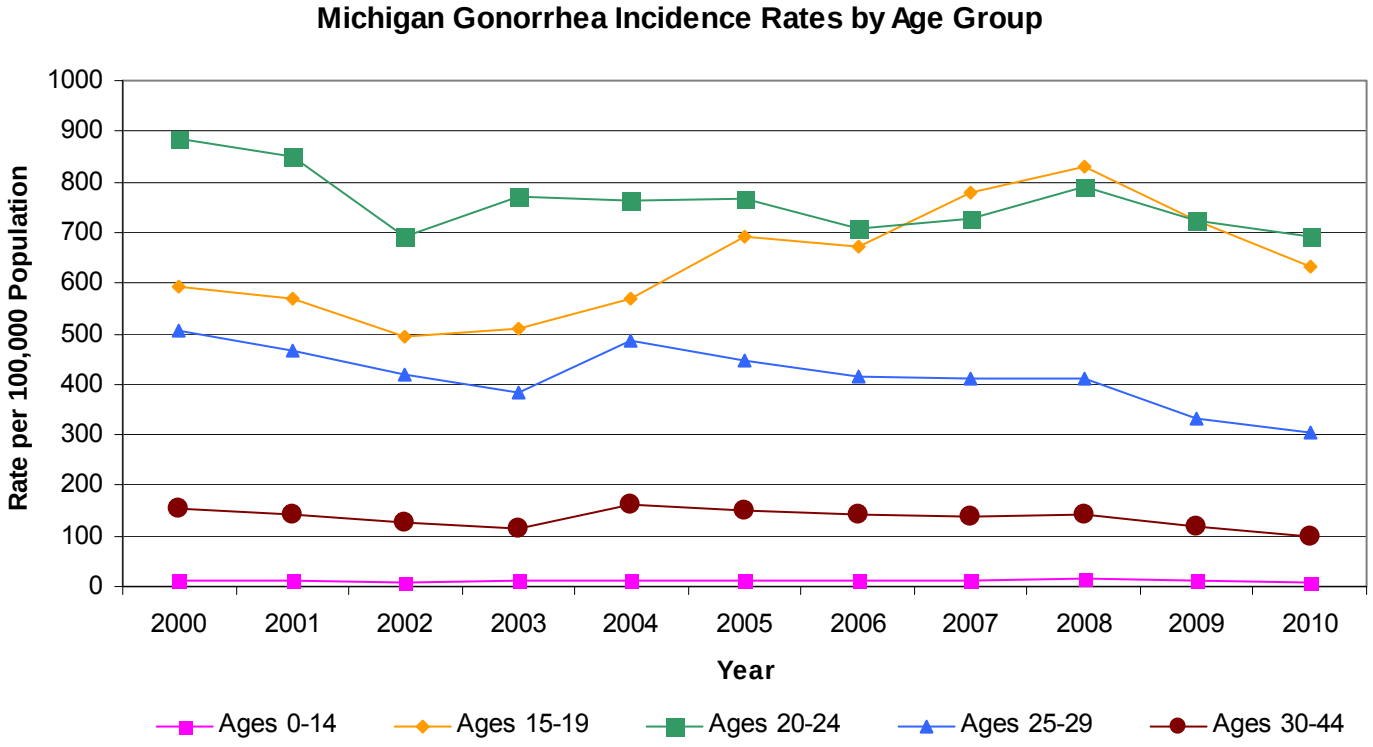
Data Source:
Michigan Department of Community Health, HIV/STD/VH/TB Epidemiology Section, Annual Review of HIV Trends in Michigan (2004-2008).

Gonorrhea

MICHIGAN

Indicator Definition/Overview:

- The CDC estimates that less than half of incident gonorrheal infections are reported to them.
- In the United States, sexually active teenagers, young adults, and African Americans report the highest rate of infections.
- Left untreated, gonorrhea increases the chance of having an ectopic pregnancy.



Healthy People 2020 Target:
The HP 2020 target for females is no more than 257 incident cases per 100,000 population aged 15-44 years be reported per year. The HP 2020 target for males is no more than 198 incident cases per 100,000 population aged 15-44 years be reported per year.

Please note that baseline data for HP 2020 targets may be derived from a different source than is used in this chartbook.

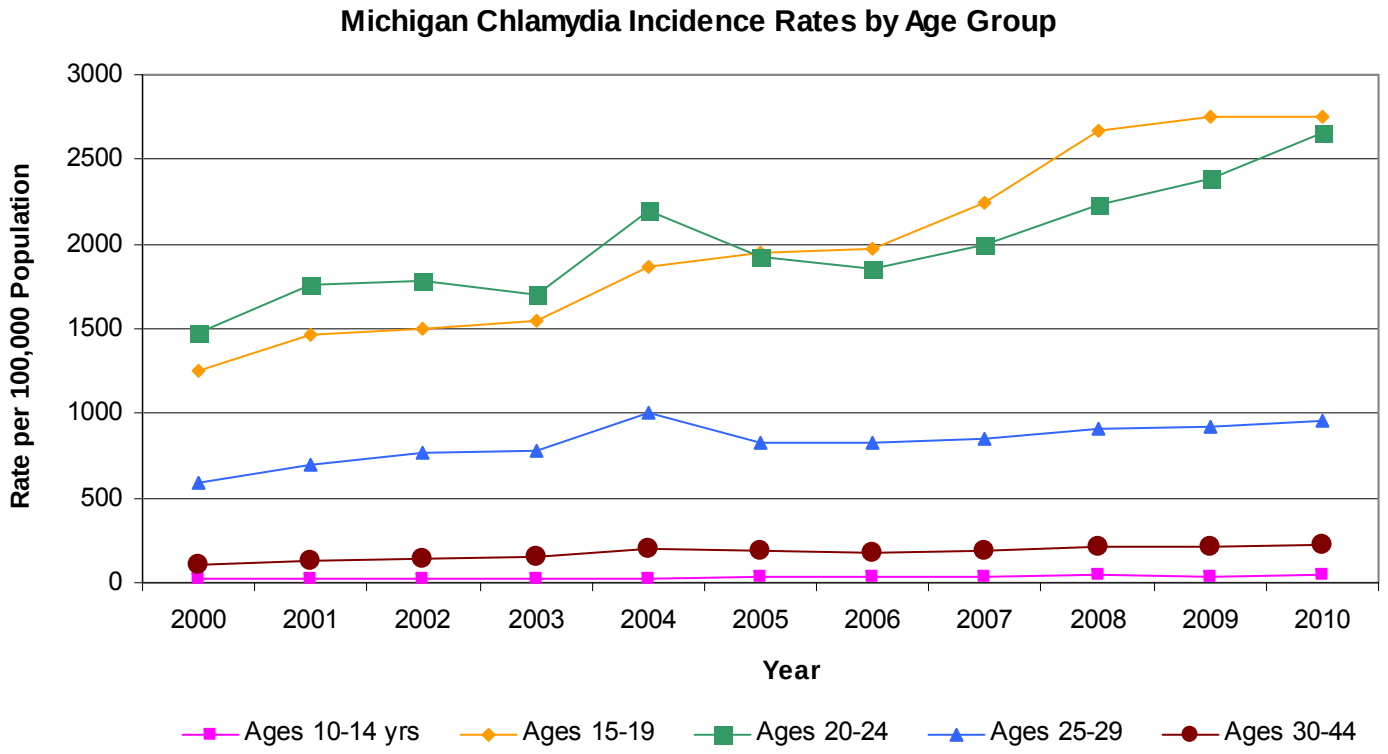
Data Source:
Michigan Department of Community Health, HIV/STD/VH/TB Epidemiology Section.

Chlamydia

MICHIGAN

Indicator Definition/Overview:

- Chlamydia is the most commonly reported bacterial sexually transmitted disease in the United States.
- Many people with Chlamydia are not aware of their infection, which means that the true incidence is higher than reported.
- Left untreated, Chlamydia can negatively impact a woman's ability to have children.



Healthy People 2020 Target:
The HP 2020 target for females is no more than 11.5 percent of the population aged 24 years and under who are enrolled in the National Job Training Network in the last 12 months test positive per year. The HP 2020 target for males is no more than 6.3 percent of the population aged 24 years and under who are enrolled in the National Job Training Network in the last 12 months test positive per year.

Please note that baseline data for HP 2020 targets may be derived from a different source than is used in this chartbook.

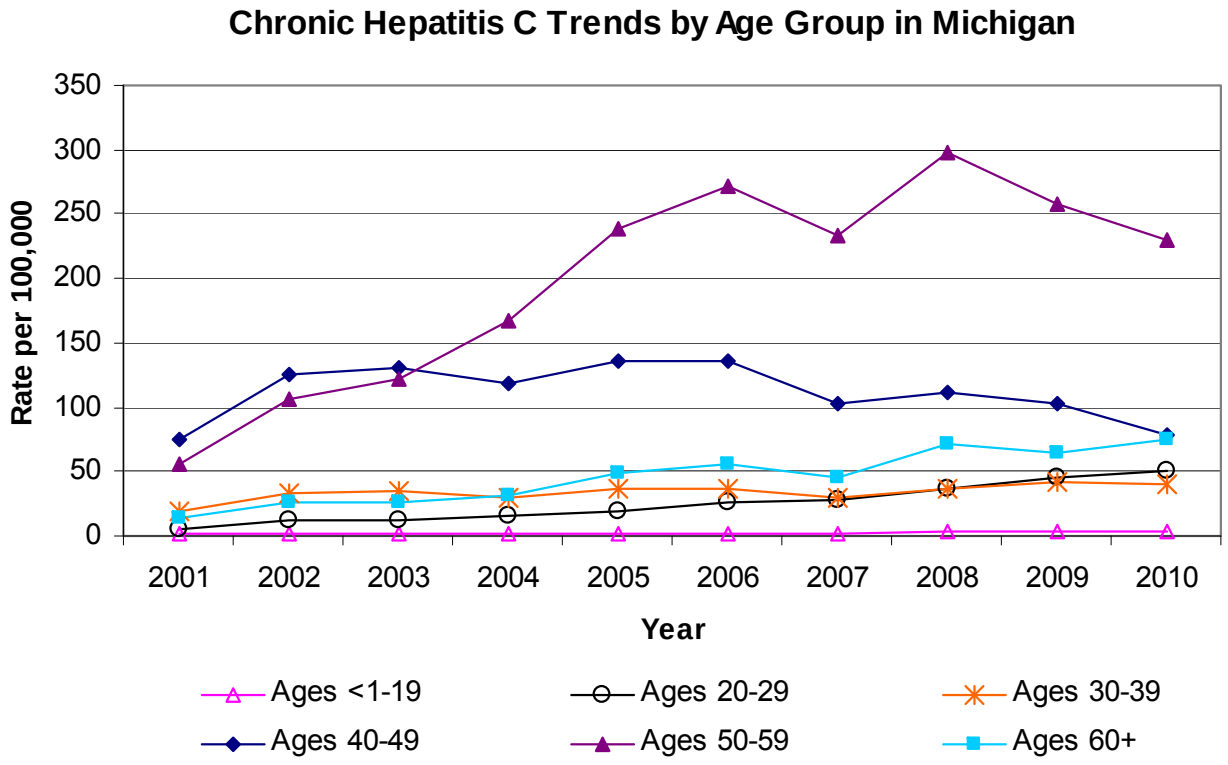
Data Source:
Michigan Department of Community Health, HIV/STD/VH/TB Epidemiology Section.

Chronic Hepatitis C

MICHIGAN

Indicator Definition/Overview:

- Hepatitis C is a disease of the liver caused by infection with the hepatitis C virus, in which the majority of infected people will develop chronic, long-term infection. Hepatitis C is the leading indicator for liver transplantation.
- Hepatitis C is primarily transmitted through the sharing of needles, syringes, and other drug paraphernalia during injection drug use. Hepatitis C can also be transmitted during sexual contact, from mother to child during birth, and via occupational exposure to blood. Historically, the virus was transmitted through blood transfusions prior to 1992 and during receipt of blood products developed before 1987.
- An estimated 60 to 70 percent of those currently chronically infected with hepatitis C are unaware of their infection, so the actual disease burden is much higher than the number of cases reported to MDCH. MDCH estimates that approximately 130,000 Michigan residents are chronically infected with hepatitis C. Reported cases of chronic hepatitis C will continue to increase over time as the hepatitis C-infected population ages, becomes symptomatic, and is tested for hepatitis C. Health care costs associated with care for hepatitis C-infected patients are expected to increase substantially in upcoming years.



Healthy People 2020 Target:
An HP 2020 target does not exist for overall Hepatitis C prevalence. There are HP 2020 targets related to new Hepatitis C diagnoses and the proportion of people who are aware they have the disease.

Data Source:
Michigan Department of Community Health, Michigan Disease Surveillance System.

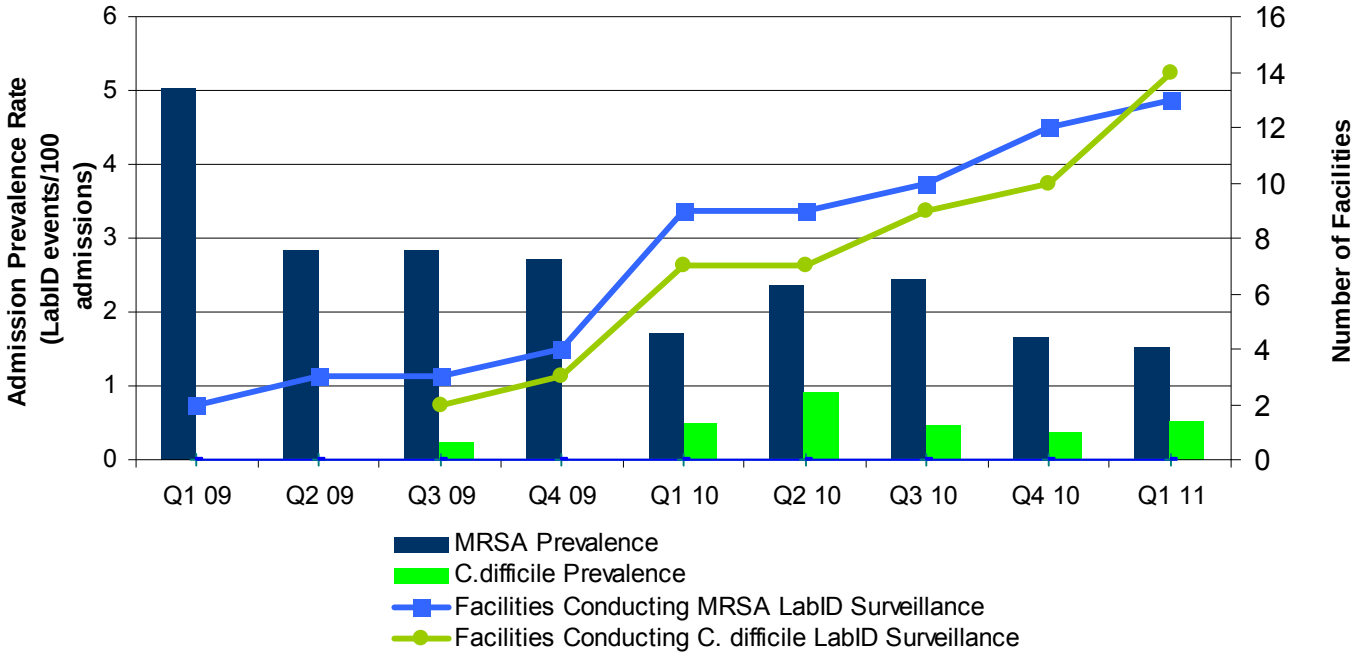
Healthcare-Associated Infections

MICHIGAN

Indicator Definition/Overview:

- National estimates indicate that approximately one out of every 20 hospitalized patients will contract a Healthcare-Associated Infection (HAI), an infection acquired during the course of medical treatment for other conditions.
- Methicillin-resistant *Staphylococcus aureus* (MRSA) is a bacterial infection that is resistant to certain types of antibiotics. Skin is the most common site for MRSA infections. Lungs, bloodstream, and joints may also be infected. *Clostridium difficile* (C. difficile) is a bacterial infection that may cause diarrhea, colitis, sepsis, or even death.
- The CDC estimates that HAIs, as of 2007, generate between $35.7 billion and $45 billion in medical costs per year.
- This chart represents data from a sample of Michigan hospitals. Hospitals voluntarily share data with the MDCH Surveillance for Healthcare-Associated & Resistant Pathogens (SHARP) Unit. The data represent the number of positive laboratory tests, not the number of infections. The data do not distinguish between infection and situations where an organism is present but not causing illness.

Methicillin-resistant *Staphylococcus arueus* (MRSA) and *Clostridium difficile* (*C. difficile*) Laboratory-Identified Admission Prevalence Rate



Healthy People 2020 Target:
The HP 2020 target for Methicillin-resistant *Staphylococcus Aureus* (MRSA) is 6.56 infections per 100,000 persons.

Please note that baseline data for HP 2020 targets may be derived from a different source than is used in this chartbook.

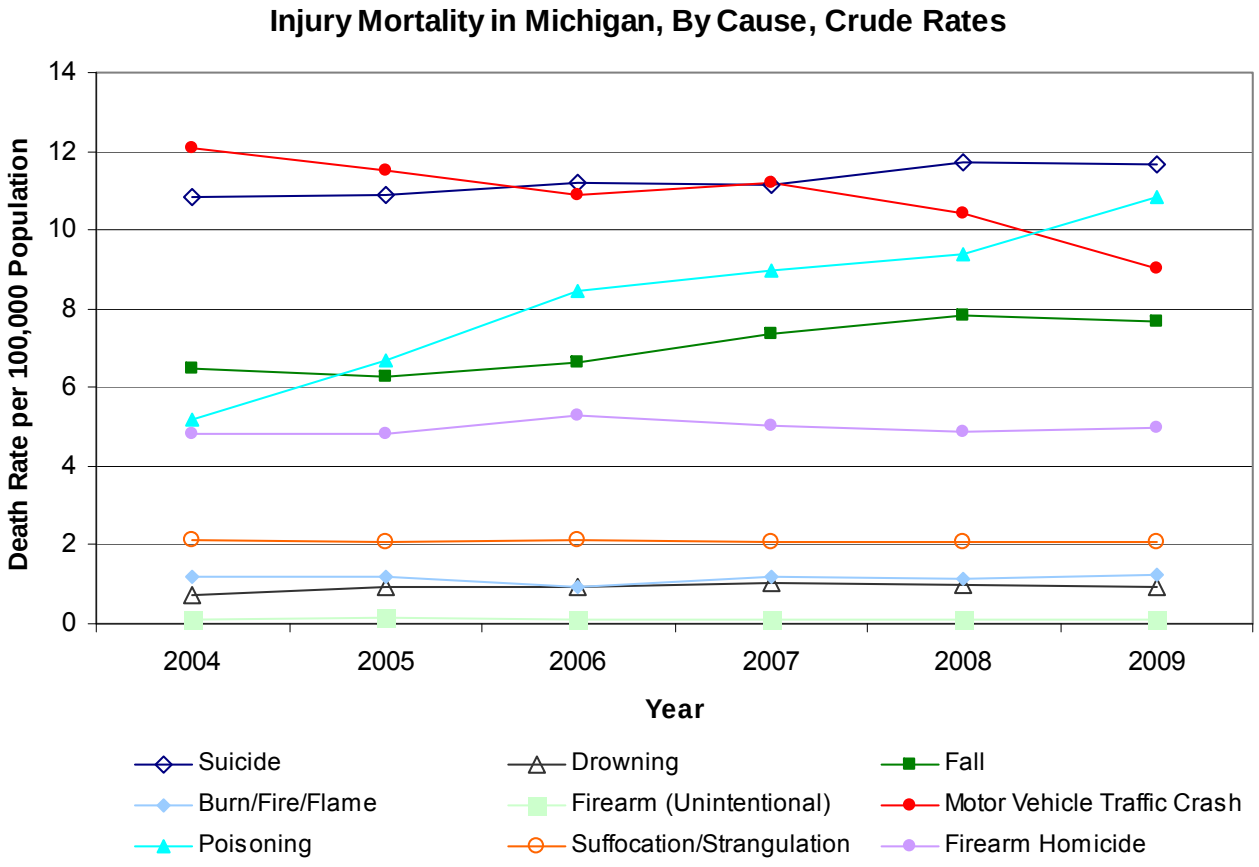
Data Source:
Michigan Department of Community Health, Surveillance of Healthcare-Associated and Resistant Pathogens (SHARP) Unit.

Injury Mortality

MICHIGAN

Indicator Definition/Overview:

- Injuries are a major cause of death and disability in the United States and Michigan.
- Injury death and disability create a large economic burden. The estimated cost of injuries – including medical care and lost productivity – was $406 billion in 2005.
- Like diseases, injuries and violence are preventable – they do not occur at random. The same scientific methods used to prevent disease are also successfully applied to prevent injuries and violence.



Healthy People 2020 Target:
HP 2020 targets for fatal injuries are as follows:

- Suicide = 10.2 per 100,000
- Poisoning = 13.1 per 100,000
- Falls = 7 per 100,000
- Suffocation = 1.7 per 100,000
- Drowning = 1.1 per 100,000
- Motor Vehicle Traffic Crash-Related = 12.4 per 100,000

The HP 2020 target for deaths related to residential fires is .86 per 100,000. This chartbook measures all burn/fire/flame as one indicator. The HP 2020 target for firearm-related deaths is 9.2 per 100,000 and does not break deaths into intentional and unintentional.

Please note that baseline data for HP 2020 targets may be derived from a different source than is used in this chartbook.

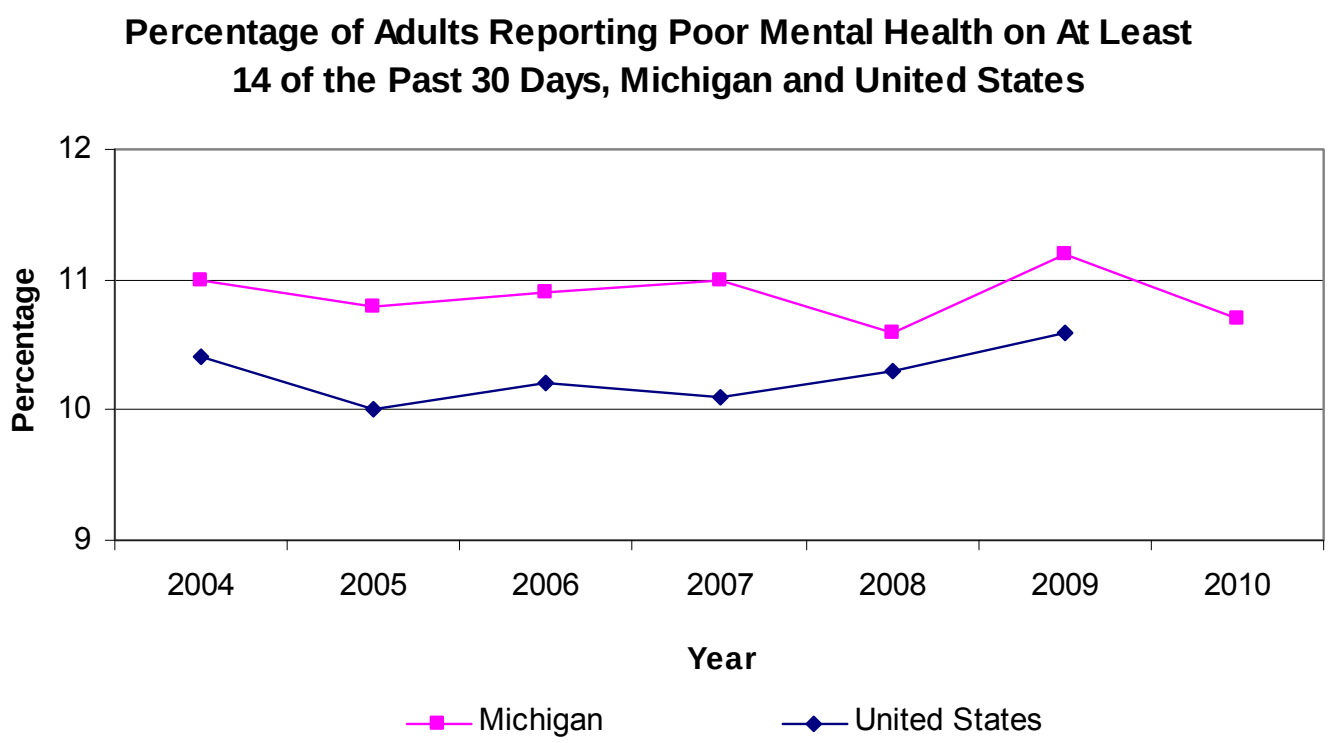
Data Source:
Michigan Department of Community Health, Leading Causes of Fatal Injuries.

Mental Health

MICHIGAN

Indicator Definition/Overview:

- Forty percent of the top ten leading causes of disability in the United States are mental disorders.
- The National Institute of Mental Health estimates that 25 percent of adults endure a mental health disorder in a given year.
- The cost of untreated mental illness exceeds100 billion dollars per year in the United States.
- Data were not available for 2010 for the United States.



Healthy People 2020 Target:
An HP 2020 target does not exist for adults reporting poor mental health.

Data Source:
Michigan Department of Community Health, Michigan Behavioral Risk Factor Surveillance System, 2004 - 2009.

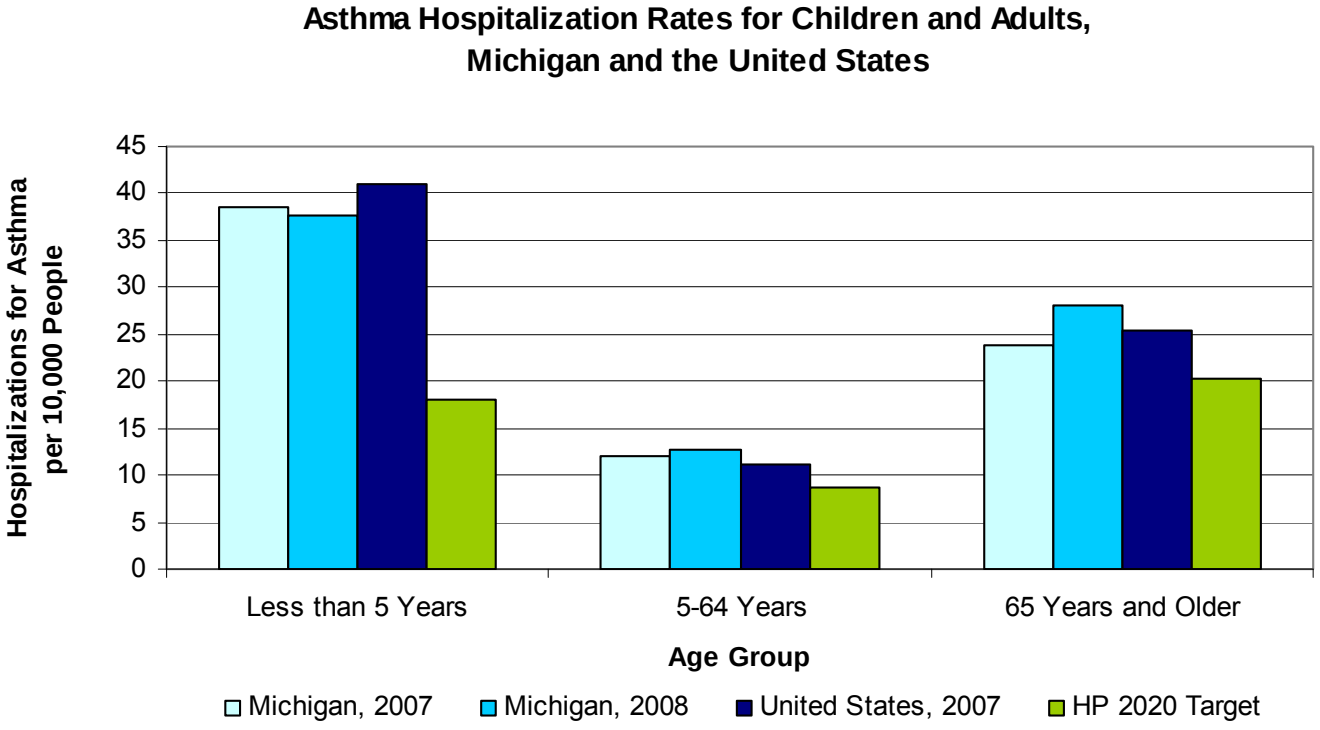
Centers for Disease Control and Prevention (CDC), Behavioral Risk Factor Surveillance System Survey Data, 2004 - 2009.

Asthma

MICHIGAN

Indicator Definition/Overview:

- Asthma is one of the most common long-term diseases of children.
- Asthma causes episodes of wheezing, breathlessness, chest tightness, and nighttime or early morning coughing.
- Asthma attacks (or episodes) are caused by triggers, such as house dust mites and tobacco smoke among others.



Healthy People 2020 Target:
The HP 2020 target is to reduce hospitalizations for asthma for:

- Children under 5 to 18.1 hospitalizations per 10,000 people
- Children and adults aged 5 to 64 to 8.6 hospitalizations per 10,000 people
- Adults aged 65 and older to 20.3 hospitalizations per 10,000 people

Please note that baseline data for HP 2020 targets may be derived from a different source than is used in this chartbook.

Data Source:
Michigan Department of Community Health, Division of Environmental Health.

Appendix A: Sources for Indicator Overview/Definition

Education	U.S. Census Bureau – Educational Attainment: http://www.census.gov/hhes/socdemo/education/
Primary Care	American Academy of Family Physicians, 2011. http://www.aafp.org/online/en/home/policy/policies/p/primarycare.html Piggott, Kevin, Ann Batdorf-Barnes, Dana Watt, and Dennis Paradis. "Primary Care Is in Crisis." *Michigan Primary Care Consortium*. http://www.mipcc.org/sites/mipcc.org/files/u4/crisis_part1_web.pdf National Association of Community Health Centers, 2009. http://www.nachc.com/client/documents/pressreleases/PrimaryCareAccessRPT.pdf
Unemployment Rate	U.S. Bureau of Labor Statistics: http://www.bls.gov/bls/unemployment.htm LARA: Labor Market Information: http://www.milmi.org/
Adults and Children in Poverty	University of Michigan National Poverty Center. http://www.npc.umich.edu/
Access to Care	Institute of Medicine, *State of the USA Report*, 2009.
Uninsured	Kaiser Health News, 2010. http://www.kaiserhealthnews.org/Stories/ 2010/September/16/census-uninsured-rate-soars.aspx
Leading Causes of Death	Centers for Disease Control and Prevention, 2011. http://www.cdc.gov/nchs/fastats/lcod.htm
Years of Potential Life Lost	Gardner, J. W., and J. S. Sanborn. "Years of Potential Life Lost (YPLL)--what Does It Measure?" *Epidemiology* 1.4 (1990): 322-29.
All Cancer Sites	Centers for Disease Control and Prevention, 2007. http://www.cdc.gov/nchs/fastats/lcod.htm American Cancer Society, Cancer Facts and Figures, 2010. http://www.cancer.org/acs/groups/content/@epidemiologysurveilance/documents/document/acspc-026238.pdf National Cancer Institute, 2008. http://www.cancer.gov/cancertopics/factsheet/disparities/cancer-health-disparities
Mammogram	National Cancer Institute, 2010. http://www.cancer.gov/cancertopics/factsheet/detection/mammograms

Pap Test	National Cancer Institute, 2010. http://www.cancer.gov/cancertopics/factsheet/detection/Pap-test
Colorectal Cancer Screening	National Cancer Institute, 2008. http://www.cancer.gov/cancertopics/factsheet/detection/colorectal-screening Centers for Disease Control and Prevention, 2011. http://www.cdc.gov/cancer/colorectal/statistics/screening_rates.htm
Cardiovascular Disease	Centers for Disease Control and Prevention, 2007. http://www.cdc.gov/nchs/fastats/lcod.htm Centers for Disease Control and Prevention, 2010. http://www.cdc.gov/chronicdisease/resources/publications/AAG/dhdsp.htm
Diabetes	Centers for Disease Control and Prevention, 2011. http://www.cdc.gov/diabetes/
Obesity	Institute of Medicine, *State of the USA Report*, 2009.
Childhood Overweight	Daniels, S. R., Arnett, D. K., Eckel, R. H., Gidding, S. S., Hayman, L. L., Kumanyika, S., …Williams, C. L. (2005). Overweight in children and adolescents: Pathophysiology, consequences, prevention, and treatment. *Circulation, 111*, 1999-2012.
Nutrition	Institute of Medicine, *State of the USA Report*, 2009.
Physical Activity	Institute of Medicine, *State of the USA Report*, 2009.
Smoking	Institute of Medicine, *State of the USA Report*, 2009.
Binge Drinking	Institute of Medicine, *State of the USA Report*, 2009.
Controlled Blood Pressure	Centers for Disease Control and Prevention, 2011. http://www.cdc.gov/bloodpressure/
Infant Mortality	Institute of Medicine, *State of the USA Report*, 2009.
Teen Pregnancy	Centers for Disease Control and Prevention, 2011. http://www.cdc.gov/TeenPregnancy/AboutTeenPreg.htm
Low Birth Weight and Very Low Birth Weight	Health Resources and Services Administration, 2009. http://mchb.hrsa.gov/chusa08/hstat/hsi/pages/202lbw.html Health Resources and Services Administration, 2009. http://mchb.hrsa.gov/chusa08/hstat/hsi/pages/203vlbw.html

Breastfeeding	La Leche League, 2011. http://www.llli.org/nb/nbbenefits.html American Academy of Family Physicians, 2011. http://www.aafp.org/online/en/home/policy/policies/b/breastfeedingpolicy.html Bartick, M. & Reinhold, A. (2010). The burden of suboptimal breastfeeding in the United States: A pediatric cost analysis. *Pediatrics, 125*(5). http://pediatrics.aappublications.org/content/early/2010/04/05/peds.2009-1616
Lead	Michigan's Childhood Lead Poisoning Prevention Program. http://www.michigan.gov/mdch/0,1607,7-132-2942_4911_4913---,00.html American Academy of Family Physicians, 2000. http://www.aafp.org/afp/20000801/559ph.html Centers for Disease Control and Prevention, 2009. http://www.cdc.gov/nceh/lead/tips.htm
Oral Health	Michigan Department of Community Health, Maternal and Child Health Epidemiology, Oral Health Epidemiology. http://www.michigan.gov/mdch/0,1607,7-132-2942_4911_4912_6226---,00.html
Immunizations	Institute of Medicine, *State of the USA Report*, 2009.
HIV/AIDS	Michigan Department of Community Health, Bureau of Epidemiology, HIV/STD/VH/TB Epidemiology Section, 2010. http://www.michigan.gov/documents/mdch/MIReport10_Final_325200_7.pdf Centers for Disease Control and Prevention, 2010. http://www.cdc.gov/hiv/topics/msm/index.htm
Gonorrhea	Centers for Disease Control and Prevention, 2011. http://www.cdc.gov/std/Gonorrhea/
Chlamydia	Centers for Disease Control and Prevention, 2011. http://www.cdc.gov/std/chlamydia
Chronic Hepatitis C	Michigan Department of Community Health, Bureau of Epidemiology, HIV/STD/VH/TB Epidemiology Section, 2010. http://michigan.gov/mdch/0,1607,7-132-2940_2955_2976-13105--,00.html
Healthcare-associated Infections	Centers for Disease Control and Prevention, 2011. http://www.cdc.gov/hai/
Injury Mortality	Institute of Medicine, State of the USA Report, 2009. Finkelstein, E.A., Corso, P.S., & Miller, T.R. (2006). *Incidence and economic burden of injuries in the United States*. New York, NY: Oxford University Press.
Mental Health	National Alliance on Mental Illness, 2011. http://www.nami.org/template.cfm?section=about_mental_illness

Asthma	Centers for Disease Control and Prevention, 2009. http://www.cdc.gov/asthma/faqs.htm

Appendix B

State Health Assessment Advisory Group Members
2011

Chairperson:

Jean C. Chabut, BSN, MPH
Deputy Director for Public Health
Michigan Department of Community Health
201 Townsend St., 6th Floor
Lansing, MI 48913
Phone: (517) 335-8024
Email: chabutj@michigan.gov

Members:

Christine A. Ameen, Ed.D
Ameen Consulting & Associates
7025 Noffke Drive
Caledonia, MI 49316
Phone: (616) 481-3957
Email: ameenca@ameenconsulting.com

Jessica J. E. Austin, MPA
Health Policy Analyst
Policy and Planning Administration
Michigan Department of Community Health
201 Townsend St., 7th Floor
Lansing, MI 48913
Phone: (517) 335-6731
Email: austinj4@michigan.gov

Lonnie David Barnett
Health Planning and Access to Care Manager
Policy and Planning Administration
Michigan Department of Community Health
201 Townsend St., 7th Floor
Lansing, MI 48913
Phone: (517) 241-2963
Email: barnettl@michigan.gov

Denise Cyzman, MS, RD
Cyzman Consulting, LLC
6619 White Clover Drive
East Lansing, MI 48823
Phone: (517) 339-0662
Cell: (517) 230-6552
Email: cyzmanconsulting@gmail.com

Lynda Horsley, BHA
Performance Improvement Coordinator
Michigan Association for Local Public Health
P.O. Box 13276
Lansing, MI 48901
Phone: (517) 485-0660
Email: lhorsley@malph.org

Steven J. Korzeniewski, PhD, MS, MA,
Director
Dept. of Applied Epidemiology & Evaluation
Chief Science Officer
MPRO-Michigan's Quality Improvement Org.
22670 Haggerty Rd, Ste. 100
Farmington Hills, MI 48335
Phone: (248) 465-7365
Email: skorzeniewski@mpro.org

Brenda Lawson, RN, JD
Public Health Legal Advisor
Michigan Department of Community Health
201 Townsend St., 6th Floor
Lansing, MI 48913
Phone: (517) 335-9249
Email: lawsonb1@michigan.gov

Jim Lee
Vice President Data Policy and Development
Michigan Health and Hospital Association
6215 W. St. Joseph Hwy
Lansing, MI 48917
Phone: (517) 323-3443
Fax: (517) 323-04501
Email: jlee@mha.org

Amanda Menzies
Senior Consultant
Public Sector Consultants
600 W. Saint Joseph St., Suite 10
Lansing, MI 48933
Phone: (517) 484-4954
Email: amenzies@pscinc.com

Mark Miller, MBA
Director, Local Health Services
Public Health Administration
Michigan Department of Community Health
201 Townsend St., 6th Floor
Lansing, MI 48913
Phone: (517) 335-8032
Email: millerm1@michigan.gov

Amber Myers, MPH
Health Planning and Data Analyst
Policy and Planning Administration
Michigan Department of Community Health
201 Townsend St., 7th Floor
Lansing, MI 48913
Phone: (517) 241-2659
Email: myersa1@michigan.gov

Betsy Pash
Director
Bureau of Local Health and Administrative Services
Public Health Administration
Michigan Department of Community Health
201 Townsend St., Office 605
Lansing, MI 48913
Phone: (517) 335-8701
Email: pashe@michigan.gov

Jane Powers
Vice-President
Public Sector Consultants
600 W. Saint Joseph St., Suite 10
Lansing, MI 48933
Phone: (517) 484-4954
Email: jpowers@pscinc.com

Peter Pratt
President
Public Sector Consultants
600 W. Saint Joseph St., Suite 10
Lansing, MI 48933
Phone: (517) 484-4954
Email: ppratt@pscinc.com

Mikelle Robinson
Tobacco Section Manager
Public Health Administration
Michigan Department of Community Health
109 W. Michigan Avenue, 8th Floor
Phone: (517) 335-8381
Email: robinsonmik@michigan.gov

Debra Scamarcia-Tews, MA
Accreditation and Quality Improvement Manager
Public Health Administration
Michigan Department of Community Health
201 Townsend St., 6th Floor
Lansing, MI 48913
Phone: (517) 335-9982
Email: tewsd@michigan.gov

Mary Grace Stobierski, DVM, MPH, DipACVPM
State Public Health Veterinarian & Manager
Public Health Administration
Michigan Department of Community Health
201 Townsend St., 5th Floor
Lansing, MI 48913
Phone: (517) 335-8165
Email: stobierskim@michigan.gov

Sam R. Watson, MSA
Senior Vice President Patient Safety and Quality
Michigan Health & Hospital Association
Keystone Center for Patient Safety & Quality
6215 W. St. Joseph Hwy
Lansing, MI 48917
Phone: (517) 886-8362
Email: swatson@mha.org

APPENDIX C: *Statewide Regional Meeting Participant List*

The nearly 650 participants in the statewide regional meetings represented public health agencies, health care providers, public safety agencies, human service and charity organizations, education and youth development organizations, recreation and arts-related agencies, economic and philanthropic organizations, and environmental agencies.

Region 1

Sara Aikman
Peggy Albrecth
Alicia Armstrong
Robin Baker
Andy Baker-White
Rochelle Bassage
Karen Batterham
Lindsay Beaudry
Randy Bell
Patsy Bourgeois
Carol Boyce
Bruce Bragg
Laurie Brandes
Carolyn Brown
George Brown
Elaine Brown
Shelly Bullinger
Renée Canady
Dan Carley
Marcus Cheatham
Theresa Christner
Denise Chrysler
Richard Coelho
Harriett Dean
Susan Deming
Marianne Dodd
Diane Donham
Anita Fassia
Jay Fiedler
Denae Friedheim
Valerie Glesnes-Anderson
Lisa Gorman
Jason Harder
Judi Harris
Kelsey Haynes
Nancy Hayward
Tiffany Henderson
Olga Hernandez
Joel Hoepfner
Amanda Huff
Abed Janoudi
Karen Jennings
Fran Jozefowicz
Sandy Keener
Debby Kloosterman
Cassie Larrieux
Jennifer Lavelle
Jim Lee
Eldon Liggon
Christian McDaniel
Lynn Merrell
Melissa Moorehead
Stacy Morris
Michelle Nicholson
Adrienne Nickles
Malisa Pearson
George Pichette
Ross Pope
Othelia Pryor
Maurice Reizen
Robin Reynolds
Peggy Roberts
John Robertson
Nino Rodriguez
Nancy Rosso
Rhonda Rudolph
Dale Sanders
Heather Sanders
Dean Sienko
Janine Sinno
Beth Spyke
Cathy Stevenson
Andrea Taber
Steve Todd
Orlando Todd
Peggy Vaughn Payne
Ted Westmeier
Mich Whitney
Joann Wilczynski
Maria Zavala

Region 2N

Salma Ajo
Sue Amato
Megan Aubin
Lindsay Bacon
Karen Beger
Suzy Berschback
Mindy Biglin
Jerry Blair
Aimee Bond
Abdallah Boumediene
Marie Bristau
Mary Ellen Cassady
Janice Chang
Karen Cipriani
Karol Clason
Linda Crane
Robin Danto
Sean DeFour
Rick Drummer
Maureen Elliott
William Epling
Dave Every
Janet Flanegin
Donna Folland
Kathy Forzley
Steve Gold
Rita Goldman
Shari Goldman
Andrea Goodwin
Mary Griffiths
Brenda Hascall
Denise Henderson
Elizabeth Holguin
Sally Joy
Amy Kaherl
Henard Kaplan
Jeff Kapuscinski
Rick Kelly
Grace Keng
Valarie Lane
Dianne Larson
Rhonda Leitch
Ann Marie Lesniak
Nancy Lindman
Anne Mancour
Carla Marten
Lisa McKay-Chaisson
Sharon McRae
Annette Mercatante
Jennifer Michaluk
Elizabeth Milton
Heather Molson
Quentin Moore
Doris Neumeyer
Laura Newsome
Cindy Nicholson
Janet Novara
Randy O'Brien
Shane Pat
Karen Peterson
Lori Podsiadlik
Amanda Popiela
Michaeline Raczka
Claudia Rivera
Tawanna Robinson
Cynthia Roush
Terri Rowe
Contessa Rudolph
Carla Schwartz
John Siller
Rosita Singh
Nancy Smith
Lorie Spear
Dennis Spens
Monique Stanton
Edward Stein
Cynthia Taueg
Carol Trewartha
Nicole Urban
Linda VanMeter
Karen VanNess
Joan Vogelei
Pamela Voss-Page
Shelly Wagner
Lynn Weimeister
Sue Wells
Gary White
Jasmin White
Deborah Whiting
Sharon Wilson
Pam Wong
Helaine Zack

Region 2S

Sharifa Alcendor
Christopher Allen
Chip Amoe
Linda Atkins
Deborah Bach
Ulrich Baker
John Barden
Paul Barry
Mike Bekheet
Audrey Brian
Linda Brooks
Debra Buchanan
J. Douglas Clark
Reiley Curran
Talat Danish
Loretta Davis
Janette Davis
Mary Dekker
Mary Dereski
Carol Eddy
Konrad Edwards
Avery Eenigenburg
Lynn Evans
Kristin Finton
Janice Fitzhugh
Kit Frohardt-Lane
Paul Giblin
Trudy Hall
Christina Hall
Shirley Hankerson
Elizabeth Hughes
Tatyana Ivanova
Grace Johnson
Ruth Kaleniecki
Rose Khalifa
Susan Kheder
Carolyn Kimbrough
Anthony King
Sandra King
Kristie King
Keven Koehler
Annette Kusluski
Joyce Lai
Karen Love
Wendy Lukianoff
Dawn Lukomski
Anntinette McCain
Katrina McCue
Rich Miller
Gaylotta Murray
Susan Nicholas
Danielle North
Catherine Oliver
Gary Petroni
Renee Pitter
Paul Propson
Mishael Raiford
Carolyn Rakotz
Erminia Ramirez
Tawana Robinson
Nancy Rolston
Lisa Rutledge
Manal Said
John Sczomak
Elizabeth Shane
Terrill Shaw
Thea Simmons
Maureen Smith
Debbie Stellini
Angela Stevenson
Charles Stokes
Judy Street
Deborah Strong
Shaun Taft
Veerinder Taneja
Harolyn Tarr
Danielle Terry
Peggy Trewn
Elizabeth Venettis
Sandy Waddell
Roberta Walker
Andreanne Waller
Margret Watson
Theresa Webster
Lindsey West
Jasmine Williams
Elizabeth Wurth
Susan Wyman
Sandra Yu

Region 3

Laurie Anderson
Lynnette Benjamin
Cathy Bodnar
Tim Bolen
Russell Bush
Jennifer Carroll
Trisha Charbonneau-Ivey
Kim Cereske
Gail DeBusk
Rebecca Dockett
Kathy Dropski
Becky Egan
Angie Emge
Ann Filmore
David Friday
Alice Gerard
Darcy Garnik-Laurin
Chris Girard
Kari Halvorsen
Linda Hamacher
Christina Harrington
Kirk Herrick
Diane Hillaker
Eileen Hiser
Annette Jeske
Mitzi Koroleski
Michael Krecek
Mary Kushion
Marilyn Laurus
Stephanie Leibfritz
Barbara MacGregor
Melissa Maillette
John McKellar
Jim McLoskey
Tracy Metcalfe
Tina Middaugh
Melissa Neering
Becky Reeniau
Joshua Salander
Cherrie Sammis
Dianna Schafer
Michael Schultz
Elizabeth Schnettler
Elizabeth Shephard
Stephanie Simmons
David Solis
Ellen Talbott
Gretchen Tenbusch
Bruce Trevithick
Mark Valack
Michelle Vouaux
Starr Watley
Sam Watson
Goldie Wood
Jill Worden
Fred Yanoski

Region 5

Terri Albers
Rod Auton
La'Tonya Baidy
Sandy Ball
Anne Barna
Sarah Barnhart
Stephanie Bell
Don Black
Karla Black
John Bolton
Amy Brauer
Margaret Brown
Diana Buist
Rebecca Burns
Elizabeth Burns
Catherine Burton Snell
Bradley Casemore
Jane Chappell
Eileen Chiang
Theresa Christner
Julie Clark
Margaret Clayborn
Scott Corbin
Denise Crawford
Regina Crooks
Keith Crowell
Randy DeGroot
Barbara DeLong
Susan Deming
Connie Downs
Jeff Elliot
Melissa Essig
Jennifer Frank
Kathy Freberg
Mimi Gabriel
Carl Gibson
Adrienne Glover
Pamela Goodcare
Carrie Goode
Melinda Graham
Linda Grap
James Greene
Linda Grey
Gale Hackworth
Janet Hahn
Kathryn Hamm
Kimberlee Hancox
Jamie Helsen
Bonnie Hildreth
Amy Hill
William Hodges
Doug Homnick
Marianne Huff
Marti Hughes
Jules Isenberg-Wedel
Hal Jenson
Rick Johansen
Janet Jones
Angelique Joynes

Region 5 (cont.)

Teresa Klan
Blaine Koops
Judy Lammers
Kathy Lentz
Oemeeka Liggins
Gary Lindquist
Vicki Loll
Bob MacKenzie
Victoria Martin
Kristy Mattern
Ann Mazure
Sue McCormick
Julie McGowen
Marc Meulman
Mary Middleton
Susan Molenaar
Elizabeth O'Dell
Margaret Patton
Charlotte Pavilanis
Samantha Pearl
Ron Peterson
James Phillips
Kanika Phillips
Jim Picking
Wayne Price
Judy Rayman
Jan Reed
Victoria Reese
Chris Reinart
Tyson Richmond
Sharon Ritchie
Natasha Robinson
Kristin Roux
Terri Rushlow
Karensa Schascheck
Joseph Schmitt
Melissa Schultz
Cherie Seitz
John Senkowicz
Michelle Serbenski
Yas Kulski Sharron
Judy Sivak
Garrie Smith
Tonia Smith
Steve Springsdorf
Kevin Steely
Lisa Striegle
Andrea Sunderman
Lori Thompson
Steve Todd
Richard Tooker
Sherry Torres
Michelle Truax
Linda S. Vail
Kathleen Valdes
Louise Van Zanselaar
Denise Van Dyken
Dan Wedge
Paula White
Amanda Williamson
Dave Wingard
Robert Withee
Kathy Yonkers-Wright
Anne Zemlick

Region 6

John Barker
Jeremy Beebe
Cheryl Blair
Sandra Burns
Julie Coon
Donna Cornwell
Merrill Dawson
Susan Deming
Deanna Demory
Margaret Gingrich
LouAnn Gregory
Barb Hawkins Palmer
Denise Herbert
Tom Hogenson
Chastity Holmquist
Rex Hoyt
Linda Huyck
Mary Ann Hyde
Joseph (Chip) Johnston
Jill Keast
Karlene Ketola
Shila Kiander
Arlene Kolbe
Ken Kraus
Mary Kushion
Pam Lewis
Shannon Lindquist
Kim Livingston
Judy Lochman
Cindy Macens
Danielle Martin
Bruce Miller
Jennie Mills
Kathy Moore
Minnie Morey
Allison Murphy
Susan North
Carrie O'Connor
Tom Osborn
Greg Paffhouse
Kim Peterson
Lisa Pope
Dayna Porter
Cathy Raevsky
Theresa Raglin
Bruce Rendon
Peter Sartorius
Frances Schuleit
Shelly Shafer
Jan Shangle
Carrie Sharps
Chris Shea
Kim Singh
Eric Smith
Kathy South
Shawn Sredersas
Lisa Stefanovsky
Maria Suchowski
Deb Thalison
Cheryl Thelen
Susan Vander Pol
Chris Vennix
Shawn Washington
Mary Welsh
Sharon Wing
Sharon Zajac
Gregory Zimmerman

Region 7

Phil Alexander
Tracy Andrews
Lynette Benjamin
Lynda Bockstahler
Darcia Brewer
John Bruning
Gayle Bruski
Diane Butler
Eugene Clawson
Bill Crawford
David Dennison
Patricia Ezdebski
Bob Felt
John Ferguson
Pat Fralick
Christine Gebhard
Gregory Heintschel
Mary Ann Hinzmann
Kevin Hughes
Bill Jackson
Fred Keeslar
Scott Kendzierski
Lorelei King
Christina Korson
Martha Lancaster
Laura Laisure
Nicole Lindwall
Lorraine Manary
Cathy Maxwell
Ranaé McCauley
Jack Messer
Joshua Meyerson
Kit Mikovitz
Jenifer Murray
Mary Ouellette
Christine Perdue
Mandy Peterson
Denise Plakmeyer
Julie Puroll
Cynthia Pushman
Roger Racine
Andrew Sahara
Beth Schelske
Dave Schneider
Miriam Schulingkamp
Sarah Shimek
Ellen Smith
Ruth Sommerfeldt
Nancy Spencer
Augusta Stratz
Larry Sullivan
Jane Sundmacher
Cynthia Swise
Dale Terryberry
Sara Ward
Jody Werner
Judy Williams
Sue Winter
Heidi Yaple
Linda Yaroch

Region 8

Cookie Aho
Ruth Almen
Bridget Bartol
Fred Benzie
Rachel Berglung
Mary Lou Blomquist
Jim Bogan
David Boyd
Jennifer Boyer Dewitt
Don Britton
Carena Bublitz
Lisa Coombs Gerou
Lindsay Demske
Nick Derusha
Sara Drury
Eric Erickson
Tom Feldhusen
Chuck Flood
Jill Fries
Carol Fulsher
Diane Gadomski
Nicole Gearheart
Natasha Gill
Carol Grafford
Melissa Hall
Shanna Hammond
Victor Harrington
Mike Hauswirth
Sandra Hebert
Al Hendra
Carolyn Hilden
Dawn Hoffman
Melissa Holmquist
Joyce Iwinski
Lisa Johnson
Donna Kitrick
Marjorie Klein
Lynn Krahn
Robert Kulisheek
Lee Leong
Dotty Lewis
Betsy Little
Christine Lundquist
Angela Luskin
Taryn Mack
Steve Markham
David Martin
Nancy Matthews
Katie Maxon
Helen McCormick
Lynn McDonnell
Julie Moberg
Dale Moilanen
Laura Murawski
Paul Olson
Kevin Piggott
Nancy Ponozzo
Rick Potes
Al Reynolds
Katie Ritzenhein
Pam Roose
Mary Kaye Ruegg
Scott Schreiber
George Sedlacek
Karen Senkus
Ray Sharp
Donald Simila
Pam Sorensen
Linda St. Arnauld
Karen Thekan
Jim Thomas
Jennifer Thum
Beth Waitrovich
Harvey Wallace
Sam Watson
Benjamin Wood
Casey Young
Joyce Ziegler
Penni Zoller

APPENDIX D: *Obesity Summit Participant List*

First Name	Last Name	Organization
Mike	Acosta	Wexford-Missaukee Area Great Start Coalition
Karen	Aldridge-Eason	Office of Foundation Liaison
Lynn	Alexander	Your Aging Well Advisor
Susan	Amato	St. Clair County Health Department
Todd	Anderson	Blue Cross Blue Shield of Michigan
Bill	Anstey	Kent County Health Department
Auday	Arabo	Associated Food & Petroleum Dealers
Sheryl	Archibald	Livonia Public Schools
Ann	Arnold	Michigan State University Extension
Mary	Ausich	Jackson County WIC
Janice	Bach	Michigan Department of Community Health
Lindsay	Bacon	National Kidney Foundation of Michigan
William	Baldry	Michigan Department of Education
Anne	Barna	Barry-Eaton District Health Department
Lavora	Barnes	Blue Cross Blue Shield of Michigan
Lonnie	Barnett	Children's Special Health Care Services Division
Hollie	Barth	Midland County Health Department
Craig	Bass	Molina Healthcare of Michigan
Joan	Bauer	Michigan House of Representatives
Nancy	Baum	Center for Healthcare Research & Transformation
Don	Beam	Blue Cross Blue Shield of Michigan
Karen	Beger	St. John Providence Health System
Christopher	Bendekgey	Kent County Health Department
Lynnette	Benjamin	District Health Department #2
Leonard	Bennett	Novo Nordisk
Phillip	Bergquist	Michigan Primary Care Association
John	Billi	University of Michigan Medical School
Rebecca	Blades	Borgess Medical Center
Cheryl	Blair	Kent Intermediate School District
Rebecca	Blake	Michigan State Medical Society
Scott	Blakeney	Michigan Department of Community Health
Marshall	Blondy	American Academy of Pediatrics—Michigan Chapter
Barbara	Blum	Henry Ford Health System, Generation With Promise
Melissa	Boguslawski	Beaumont Health Systems
Carissa	Bonner	MidMichigan Community Health Services
Penny	Born	Kalamazoo County Health Department
Lisa	Boulding	Kalamazoo Public Schools
Sandy	Boven	Ottawa County Health Department
Vicky	Bowman	Reed City Area Public Schools
Jessica	Brady	Michigan Department of Education
Rebecca	Braun	Blue Cross Blue Shield of Michigan
Melanie	Brim	Michigan Department of Community Health
Sue	Britton	Marquette General Hospital
Kathryn	Brogan	Wayne State University School of Medicine
Apryl	Brown	Detroit Medical Corps
Margaret	Brown	Allegan General Hospital
Lisa	Brown-Taylor	Michigan Department of Education
Melanie	Brummeler	Michigan Department of Education
Michelle	Bullinger	Jackson County Health Department
Louis	Burgess	Michigan Department of Education
Suzette	Burkitt-Wesolek	Institute for Health Care Studies
Diane	Butler	Munson Medical Center
Jill	Byelich	Michigan Department of Education
Deborah	Cain	Genesee County Health Department
Carol	Callaghan	Michigan Department of Community Health
Michelle	Camarata	Michigan State University College of Nursing
Cynthia	Cameron	Michigan Public Health Institute
Renee	Canady	Ingham County Health Department
Alethia	Carr	Michigan Department of Community Health
Diane	Carr	Ann Arbor YMCA
Connie	Castro	Meijer
Jean	Chabut	Michigan Department of Community Health
Julie	Chamberlain	Bay County Health Department
Janice	Chang	Macomb County Health Department
Cheryl	Chase	Lansing Parks and Recreation
Chris	Childers	Allegan General Hospital
Theresa	Christner	Branch Hillsdale St. Joseph Community Health Agency
Mary	Clark	Michigan House of Representatives
Angela	Clock	Michigan Chapter American Academy of Pediatrics
Larry	Cobler	Altarum Institute
Gerald	Cohen	St. John Hospital
Kathryn	Colasanti	Michigan State University
Kenneth	Coleman	St. John Providence
Kim	Comerzan	Monroe County Health Department
Paul	Condino	Associated Food and Petroleum Dealers
Erin	Conklin	Genesys Health System
Kathleen	Conway	University of Michigan
Bill	Corser	Michigan State Institute for Health Care Studies
Regina	Crooks	Calhoun County Public Health Department
Suzanne	Cupal	Genesee County Health Department

First Name	Last Name	Organization
Tony	Cuttitta	Greater Flint Health Coalition
Becky	Dahlke	Memorial Healthcare
Kathy	Daly-Koziel	Michigan Department of Community Health
Robin	Danto	Oakland County MSUE
Debra	Darling	Institute for Health Care Studies
Lauren	Darmanin	Oakland County Health Division
Ellyn	Davidson	Brogan & Partners
Elle	Davis	Michigan State University College of Nursing
Glenna	DeJong	Michigan Fitness Foundation
Kim	Delafuente	Spectrum Health Healthier Communities
Nicholas	Derusha	LMAS District Health Department
Ken	Dettloff	YMCA of Greater Kalamazoo
Maura	Dewan	Office of Foundation Liaison
Nicholas	Dewyer	University of Michigan Medical School
Rajita	Dnyate	Michigan Department of Community Health
Linda Jo	Doctor	W.K. Kellogg Foundation
Taggert	Doll	Michigan Department of Community Health
Sarah	Dominguez	Monroe County Health Department
Nick	Drzal	Michigan Department of Education
Debra	Dudewicz	Saginaw County Department of Public Health
Stacey	Duncan-Jackson	Institute for Health Care Studies
Jean	DuRussel-Weston	University of Michigan Health System
Scott	Dzurka	Michigan Association of United Ways
Sara	Eckert	Kent County Health Department
Mark	Ecklesdafer	Get Healthy West Michigan
Brett	Edelson	United Healthcare
Jonathan	Ehrman	Henry Ford Medical Group
Pau	Ehrmann	St. John Providence
Jeffery	Elliott	Vanburen Cass District Health Deptartment
Jack	Enderle	Mid-Michigan District Health Department
Wayne	English	Michigan Bariatric Society
Norma	Eppinger	State Center - Head Start Training and Technical Assistance
Carolyn	Epplett	Health Delivery
Naomi	Ervin	Eastern Michigan University
Dale	Espich	Live Healthy Coalition
Terri	Eudy	Grand Valley Health Plan
Loren	Evola	Michigan State University College of Nursing
Dawn	Ewald	Mercy Hospital
Mona	Farroukh	ACCESS Community Health & Research Center
Kimberly	Fiero	Ingham County Health Department
Carol	Finkelstein	Matthew Weiner, MD, PLLC
Karen	Flowerday	Ottawa County Health Department
Deborah	Fogg	Michigan Civil Service Commission
Colin	Ford	Michigan State Medical Society
James	Forshee	Molina Healthcare of Michigan
Kathleen	Forzley	Oakland County Health Division
Arthur	Franke	National Kidney Foundation of Michigan
Teresa	Frankovich	Western Upper Peninsula Health Department
Deborah	Garcia	Michigan Department of Community Health
Lori	Garfinkel	Not Available
Todd	Geerlings	Mona Shores Campbell Elementary
Connie	Geers	MidMichigan Community Health Services School-based Clinic
Carl	Gibson	Calhoun County Senior Services
Valerie	Glesnes-Anderson	Capital Area Health Alliance
Linda	Gobler	Michigan Grocers Association
Jonathan	Gold	Michigan State University
Joyce	Gooder	Michigan Department of Education
Martha	Gottlieb	Expressions of Health
Kyleen	Gray	Venture Behavioral Health
Theresa	Green	Berrien County Health Department
Kris	Griffin	Reed City Area Public Schools
Julia	Griffith	Physicians Health Plan
Kyle	Guerrant	Michigan Department of Education
Laurie	Gustafson	National Kidney Foundation of Michigan
Anne	Guyer	United Dairy Industry of Michigan
Linda	Hailey	Bendle Family Health Services
Gail	Haines	Michigan House of Representatives
Andrea	Hall	Community Mental Health Central Michigan
Christina	Hall	Monroe County Health Department
Jonnie	Hamilton	St John Providence Community Health
Michael	Hamm	Michigan State University
Adnan	Hammad	ACCESS
Lisa-Aline	Hanes	Health Plan of Michigan
Holly	Haney	Health Plan of Michigan
Kristen	Hanulcik	State of Michigan
Susan	Harrington	Michigan Public Health Association
Paige	Hathaway	Michigan Health & Hospital Association
Nancy	Hayward	Lansing Community College
Brandon	Hemmings	Center for Healthcare Research & Transformation
Courtney	Herrick	Shiawassee County Health Department
Debra	Hess	Van Buren Community Mental Health
Amy	Heydlauff	Chelsea-Area Wellness Foundation
Ted	Hilleary	Center For Family Health
Brittany	Hiner	Michigan Department of Community Health
Susanne	Hoekzema	Ingham County Health Department
Joann	Hoganson	Kent County Health Department
Lauren	Holaly	Crim Fitness Foundation
Deborah J.	Hollis	MDCH Bureau of Substance Abuse & Addiction Services

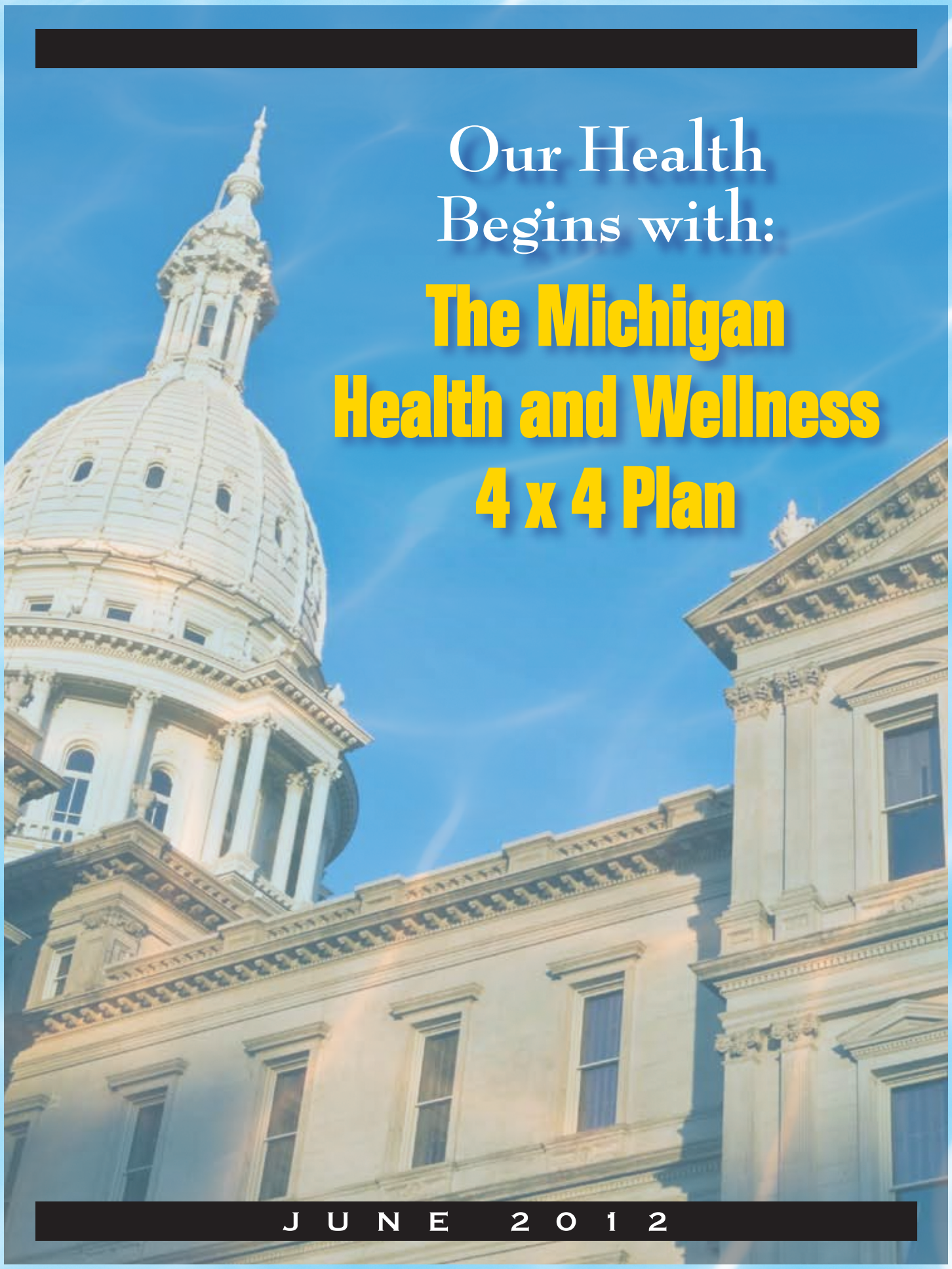
First Name	Last Name	Organization
Denise	Holmes	MSU Institute for Health Care Studies
Mark	Holoweiko	Stony Point Communications Inc.
Genine	Hopkins	Clare County Cleaver
Trisha	Hopkins	Joy Southfield Community Development Corp.
Stefanie	Horning	Jackson County WIC
Millie	Horodynski	Michigan State University
Lynda	Horsley	Michigan Association for Local Public Health
Katie	Hubbard	Sparrow Weight Management
Trish	Hubbell	Blue Cross Blue Shield of Michigan
Amanda	Huff	MidMichigan Medical Center-Gratiot
Elizabeth	Hughes	Arab Community Center for Economic & Social Services
Kevin	Hughes	District Health Department #10
Chris	Hull	Sparrow Michigan Athletic Club
Kelly	Hyer	Independence Township Parks & Recreation
Roger	Jackson	Michigan Association for Health, Physical Education, Recreation and Dance
Donna	Jacobs	Midland County Health Department
Roop	Jayaraman	Central Michigan University
Rosie	Jeffrey	Michigan Parent Teacher Association
Cathy	Jen	Wayne State University
Rick	Johansen, MD	Berrien County Health Department
Camille	Johnson	University of Michigan Medical School
Chris	Johnson	On Target Living
Gary	Johnson	Genesee County Health Department
Matt	Johnson	On Target Living
Rhonda	Jones	Michigan Education Special Services Association
Sally	Joy	National Kidney Foundation of Michigan
Angelique	Joynes	Allegan County Health Department
Lee	June	Michigan State University
Kathy	Kacynski	Ingham County Health Department
Ruth	Kaleniecki	National Kidney Foundation of Michigan
Saroj	Kapur	Michigan State University
Emalie	Karp	Michigan Fitness Foundation
Jill	Keast	Public Health Management Corporation
Suzanne	Keep	University of Detroit Mercy
Polly	Kent	Michigan Department of Transportation
Karlene	Ketola	Michigan Oral Health Coalition
Margaret	Keys-Howard	Wayne County Human Services
John	Kilbourne	Grand Valley State University
Edith	Killins	Wayne County Health and Human Services
Lorelei	King	Mercy Hospital Grayling
Sherri	King	Michigan Office of Services to the Aging
Jennifer	Kluge	Michigan Business & Professional Assoc.
Gennie	Knapp	Reed City Area Public Schools
Katherine	Knoll	American Heart Association
Evelyn	Koble	District Health Department #10
Kerry	Kole	St John Weight Loss
Megan	Koops-Fisher	Allegan County Great Start Collaborative
Tiffany	Kostelec	Michigan Department of Community Health
Ann	Kostin-McGill	Michigan Recreation and Park Assoication
Karen	Krabill Yoder	Michigan Department of Community Health
Andy	Kruse	Genesys Regional Medical Center
Noel	Kulik	Wayne State University Center for School Health
Mary	Kushion	Central Michigan District Health Department
Jay	LaBine	Priority Health
Stacey	Ladrig	Michigan State University College of Nursing
Laura	Laisure	Munson Medical Center
Phebe	Lam	Wayne State University
Kathleen	LaRaia	St. John Providence Health System
Cristin	Larder	Michigan Department of Community Health
Cassandre	Larrieux	Ingham County Health Department
Margaret	LaShore	Michigan State University Extension
Jennifer	Lavelle	Livingston County Department of Public Health
Karen	Lewis	Priority Health
Marilyn	Lieber	Michigan Fitness Foundation
Eldon	Liggon	Greater Lansing African American Health Initiative
Jametta	Lilly	Wayne Children's Healthcare Access Program, WCHAP
Justin	Lippe	Michigan Recreation & Park Association
Ashleigh	Lipsey	Michigan Department of Community Health
Robert	Lipton	University of Michigan
David	Livingston	United Healthcare Great Lakes Health Plan
Kim	Lombard	Reed City Area Public Schools/ Spectrum Health RC
Elizabeth	Longley	Detroit Wayne County Health Authority
Viki	Lorraine	MDCH Cancer Prevention and Control Section
Cindi	Lowary	Kent County Health Department
Dawn	Lukomski	University of Michigan School of Public Health
Angela	Luskin	Portage Health
Lisa	MacDonald	Reed City Area Public Schools
Kelly	Machesky	St. John Providence Hospital
Teresa	Mager	Upper Peninsula Health Plan

First Name	Last Name	Organization
Mike	Maisner	Michigan Fitness Foundation
Caryl	Markzon	Michigan State Medical Society
Lisa	McCafferty	Ionia County Health Department
Nate	McCaughtry	Wayne State University Center for School Health
Jevon	McFadden	Michigan Department of Community Health
Kevin	McFatridge	Michigan Osteopathic Association
Joyce	McGarry	Michigan State University Extension
Marianne	McGuire	State Board of Education
Lisa	McKay-Chiasson	Oakland County Health Division
John	McKellar	Saginaw County Department of Public Health
Margaret	McKeough	Henry Ford Health System
Katie	McKinley	Ingham County Health Department
Lynda	Meade	Michigan Primary Care Association
Tracy	Metcalfe	Bay County Health Department
Joshua	Meyerson	Health Department of Northwest Michigan
Jennifer	Michaluk	St. Clair County Health Department
Lundberg	Michele	Molina Healthcare of Michigan
Kit	Mikovitz	Grand Traverse County Health Department
Corinne	Miller	Michigan Department of Community Health
Courtney	Miller	Ionia County Health Department
Jane	Miller	Registered Nurses Association in Michigan
Kathleen	Miller	East Lansing Department of Parks, Recreation & Arts
Anne	Minard	Representative Gail Haines
Judi	Momber	Kent County Health Department
Greg	Monroe	Blue Cross Blue Shield Healthy Schools
Tony	Moreno	Eastern Michigan University
Christine	Morse	Physicians Health Plan
Michael	Mortimore	Berrien County Health Department
Keven	Mosley-Koehler	Washtenaw County Public Health
Richard	Murdock	Michigan Association of Health Plans
Annie	Murphy	Wayne State University
Megan	Murphy	First Steps/FitKids360
Jenifer	Murray	Benzie - Leelanau District Health Department
Jill	Myer	Kent County Health Department
David	Nathan	Michigan House of Representatives
Karen	Navis	Grand Valley Health Plan
Rory	Neuner	Transportation for Michigan
Bruce	Niebylski	Health Plan of Michigan
Michele	Nikolai	Sparrow Health System
Irene	Norwood	Veterans Administration Medical Center
Nancy	Nyquist	Michigan Department of Agriculture & Rural Development
Elsie	Onuoha	Michigan Civil Service Commission
Amna	Osman	Michigan Department of Community Health
LaVaughn	Palma-Davis	University of Michigan
Karla	Palmer	St. Johns Public Schools
Sarah	Panken	Michigan Fitness Foundation
Matthew	Parker	Institute for Black Family Development
Betsy	Pash	Michigan Department of Community Health
Joan	Patrick-Morris	Total Health Care Inc.
Roberta	Peacock	Kent County Health Department
Jessica	Pellegrino	Wayne County
Sandra	Peppers	Wayne County Health and Human Services
Karen E.	Peterson	University of Michigan School of Public Health
Nicole	Peterson	Michigan Health & Hospital Association
Tom	Peterson	Helen DeVos Children's Hospital
Megan	Petzko-Sweet	Blue Cross Blue Shield of Michigan
George	Pichette	Shiawassee County Health Department
Tricia	Piechowski	University of Michigan
Christopher	Pohlod	Michigan State University College of Medicine
Molly	Polverento	Michigan State University
Cathy	Raevsky	Kent County Health Department
Jeremy	Reuter	Head Start Collaboration Office
Diane	Revitte	Michigan Public Health Association Board
Tina	Reynolds	Michigan Environmental Council
Tom	Rich	American Cancer Society, Great Lakes Division
Trinia	Richardson	Michigan Department of Human Services, Faith Based Initiative
William	Ridella	City of Detroit Department of Health and Wellness Promotion
Brendan	Ringlever	Michigan Soft Drink Association
Lorraine	Robbins	Michigan State University College of Nursing
Saturnino	Rodriguez	Adelante/Forward
Pam	Roose	Marquette General Hospital
Joe	Ross	Communications & Research, Inc.
Kristin	Roux	Calhoun County Public Health Department
Contessa	Rudolph	Oakland County Health Division
Rhonda	Rudolph	Jackson County Health Department
Danis	Russell	Genesee County Community Mental Health
Ray	Rustem	Michigan of Department of Natural Resources
James	Rutherford	Calhoun County Public Health Department
Ola	Saad	ACCESS
George	Sabarras	Sparrow Michigan Athletic Club
Jenny	Salesa	Early Childhood Investment Corporation
Judy	Samelson	Early Childhood Investment Corporation
Olga J.	Santiago	Michigan State University Extension

First Name	Last Name	Organization
Kevin	Sarb	Michigan Dept. of Education
Marie	Sarchet	Early Childhood Investment Corporation
Pat	Sargent	Michigan Department of Education, Early Childhood Office
Ninah	Sasy	Michigan Department of Community Health
Dianna	Schafer	Sanilac County Health Department
Andrew	Schepers	Michigan State Medical Society
Cheryl	Schubel	Michigan Department of Education
Amy	Schultz	Allegiance Health
Marci	Scott	Michigan Fitness Foundation
Taylor	Scott	Michigan State University College of Medicine
George	Sedlacek	Marquette County Health Department
Amy	Seese	Weight Watchers
Jana	Serbenski	Van Buren ISD-Lawton Schools
Kathryn	Shallow	Matthew Weiner, MD, PLLC
Sharon	Sheldon	Washtenaw County Public Health Department
Sarah	Shimek	Grand Traverse County Health Department
Monal	Shroff	University of Michigan
Dean	Sienko	Ingham County Health Department
Dawn	Siggett	UnitedHealthcare Community Plan
Amanda	Silva	University of Michigan Health System
Kimberly	Singh	Mid-Michigan District Health Department
Ryan	Sledge	Oakwood Healthcare System
Denise	Sloan	Michigan Chapter American Academy of Pediatrics
Caitlin	Smith	Ingham County Health Department
Kirk	Smith	Greater Flint Health Coalition
Linda	Smith-Wheelock	National Kidney Foundation of Michigan
Dan	Spencer	Michigan Chiropractors Association
Tom	Spring	Beaumont Health System
Steve	Springsdorf	YMCA of Greater Kalamazoo
Beth	Spyke	Sparrow Health System
Anna	Staperfenne	Michigan Senate
Gregg	Stefanek	Healthy Children's Initiative
Lisa	Stefanovsky	Ottawa County Health Department
Danielle	Stegenga	Michigan State University College of Nursing
Linda	Stemen	Michigan State University Extension
Maia	Stephens	Department of Natural Resources
Emily	Stevens	City of Novi
Angela	Stevenson	Wayne County Department of Public Health
Catherine	Stevenson	Memorial Healthcare
Judy	Stewart	American Cancer Society, Great Lakes Division
Amy	Stoakes	Lansing Community College
Shannon	Stotenbur-Wing	Michigan Public Health Institute
Blake	Strack	Priority Health
Michele	Strasz	School Community Health Alliance of MI
Kathleen	Straus	State Board of Education
Vic	Strecher	University of Michigan
Pamela	Street	Total Health Care
Linda	Stull	Michigan Department of Education
Karen	Surdenik	Sparrow
Aarti	Surti	Not Available
Daniel	Sutherby	Neinas Elementary School
Mary	Sutton	Michigan After-School Partnership
Meghan	Swain	Michigan Association for Local Public Health
Fran	Talsma	Michigan State Alliance of YMCAs
Clare	Tanner	Michigan Public Health Institute
Carrie	Tarry	Michigan Department of Community Health
Cynthia	Taueg	St. John Providence Health System
Jeffrey	Taylor	Michigan Public Health Institute
Mary	Teachout	Michigan Department of Education
Debra	Thalison	Ionia County Health Department
Kimberly	Thalison	Barry-Eaton District Health Department
Amanda	Therrian	Blue Cross Blue Shield of Michigan
Maria	Thomas	University of Michigan C. S. Mott Children's Hospital
Marianne	Thomas-Brown	Molina Healthcare of Michigan
Tracy	Thompson	MSU Institute for Health Care Studies
Christi	Tipsword	Northern Michigan Diabetes Initiative
Steve	Todd	Branch Hiilsdale St. Joseph Community Health Agency
Richard	Tooker	Allegan County Health Department
Ulrike	Torfeh	Mott Children's Health Center
Sharon	Toth	United Dairy Industry of Michigan
Don	Trap	Shiawassee Regional Education Service District
Kristin	Traskie	Mid Michigan Medical Center - Midland
Rashmi	Travis	Allegan County Health Department
Jane	Turner	Michigan State University
Deidre	Tyler	FinCor Solutions
Lisa	Uganski	Ottawa County Health Department
Virginia	Uhley	University of Michigan
Linda	Vail	Kalamazoo County Health and Community Services
Diane	Valade	Blue Cross Blue Shield of Michigan
John	Valenti	Sanofi US
Glen	Van Andel	Get Healthy West Michigan
Whitney	Vance	Michigan Department of Education
Linda	VanGills	District Health Department #10
Ellen	Ventimiglia	Not Available
Marcie	Ver Beek	Ottawa County
Marie	Waalkes	Ottawa County
Daniel	Wallace	Grand Valley Health Plan
Nancy	Wanchik	Blue Cross Blue Shield of Michigan
Matthew	Weiner MD	Matthew Weiner MD, PLLC

First Name	Last Name	Organization
Sheryl	Weir	Michigan Department of Community Health
Julie	Weisbrod	Jackson County Health Department
Eden	Wells	University of Michigan School of Public Health
Susan	Wells	Michigan Recreation & Parks Association
Jenny	Werner	Michigan Business & Professional Assoc.
Lindsey	West	Oakwood Healthcare System
Jane	Whitacre	Michigan Food Policy Council
Linda	White	Michigan Primary Care Consortium
Don	Whiting	Total Losers LLC
Victoria	Whiting	Total Losers LLC
Joann	Wilczynski	Branch Hillsdale St. Joseph Community Health Agency
Mary	Wisinski	Kent County Health Department
Stacey	Withers	Generation With Promise
Melissa	Withrow	Blue Cross Blue Shield of Michigan
Tim	Wittstock	OmniCare Health Plan
Wayne	Wood	Michigan Farm Bureau
Susan	Woolford	University of Michigan
Pam	Yager	Blue Cross Blue Shield of Michigan
Linda	Yaroch	Health Department of Northwest Michigan
Kathy	Yonkers-Wright	Allegan County Health Department
Amy	Zaagman	Michigan Council for Maternal and Child Health
Gloria	Zunker	Michigan Department of Education

APPENDIX E: *The Michigan Health & Wellness 4 x 4 Plan*



Our Health Begins with:

The Michigan Health and Wellness 4 x 4 Plan

JUNE 2012

STATE OF MICHIGAN
DEPARTMENT OF COMMUNITY HEALTH
LANSING

RICK SNYDER
GOVERNOR

OLGA DAZZO
DIRECTOR

June 2012

Dear Colleagues and Partners:

It is my pleasure to introduce the *Michigan Health and Wellness 4 x 4 Plan*, which contains Michigan's priorities for obesity prevention over the next five years.

The burden of obesity continues to take its toll on Michigan residents through chronic diseases and rising healthcare costs. Governor Rick Snyder has identified the prevention and control of obesity as a top health priority that we need to pursue if we are to become a healthier state that is economically competitive.

The Michigan Department of Community Health worked with university researchers, health professionals, business and community leaders, and other stakeholders who volunteered their time and expertise to help craft this plan. We are grateful for their passion and commitment to advance this important issue and to help Michigan residents achieve a healthier lifestyle. The strategies in this plan build on partnerships, current program efforts, and existing resources to lay a foundation for change.

As we move forward, we must utilize best practices, leverage public and private partnerships, and embrace new and innovative approaches. Change isn't easy, but it is achievable. This plan outlines actions all segments of our population can take to reduce obesity – and it will take all of us working together.

We invite you to consider how you and your organization can contribute to the success of this plan. We look forward to your involvement as we work collaboratively to accomplish our vision of a healthier Michigan.

Sincerely,

Olga Dazzo
Director

CAPITOL VIEW BUILDING • 201 TOWNSEND STREET • LANSING, MICHIGAN 48913
www.michigan.gov • (517) 373-3740

Table of Contents

Introduction

Governor Rick Snyder helped shape the State's vision during his Health and Wellness Message on September 14, 2011.

Our vision is for Michiganders to be healthy, productive individuals, living in communities that support health and wellness, with ready access to an affordable, person-centered, and community-based system of care.

Governor Snyder made reducing obesity a priority, which he has placed on the Michigan Dashboard. In his 2011 and 2012 State of the State addresses, the Governor reiterated the importance of personal responsibility in our quest for healthier individuals and communities. The Michigan 4 x 4 concept, which he unveiled in his Health and Wellness message this past fall, is one tool people can use to attain health. Governor Snyder believes in the power of prevention and the impact wellness initiatives can have on our health as individuals, communities, businesses, and as a state.

The goal of the Michigan Health and Wellness 4 x 4 Plan is for every Michigander to adopt health as a personal core value. The plan describes the approach that the State of Michigan will undertake in addressing wellness and obesity. Central to the plan is the 4 x 4 tool which can be used to maintain and/or attain health. The 4 x 4 tool recommends the practice of four healthy behaviors and keeping four health measures in control. The four healthy behaviors are: maintain a healthy diet, engage in regular exercise, get an annual physical exam, and avoid all tobacco use. The four measures are body mass index (BMI), blood pressure, cholesterol level, and blood sugar/glucose level.

The facts point to Michigan having a public health crisis when it comes to obesity and chronic illnesses. Thirty-two percent of adults are obese (BMI greater than 30) and 17 percent of youth are obese. Obesity is the root cause of most chronic illnesses. Therefore, the Michigan Health and Wellness 4 x 4 Plan focuses much of its efforts on addressing obesity. Addressing obesity will help Michiganders control blood pressure, cholesterol and blood sugar/glucose levels which altogether will greatly reduce chronic illnesses in our population.

Implementation of this plan will require a collaborative approach among state, tribal and local governments; businesses, industry and other private sector partners; schools and community organizations; and individuals and families. Through these partnerships we can improve health by creating healthy communities, expanding prevention activities and empowering people to make healthy choices and adopt health as a personal core value.

The plan uses principles from the social ecological model where interventions for individuals and the environment are used. Strategies in the plan include: a multimedia campaign, deployment of coalitions, and external partnerships to help the coalitions implement the plan.

Acknowledgements

Over the past several months, we have worked with a group of experts from the University of Michigan, Michigan State University, and Wayne State University, as well as an Obesity Steering Committee comprised of experts to identify strategies to address this issue. In September 2011, the Michigan Department of Community Health (MDCH) held an Obesity Summit attended by nearly 500 participants from around the state to identify key priority strategies that we should implement in Michigan.

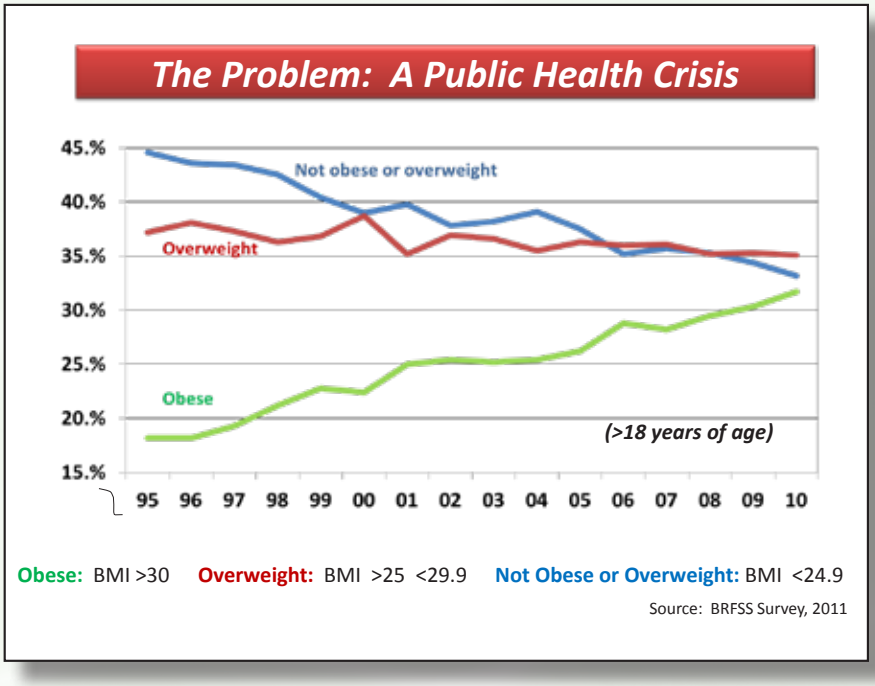
This plan was developed with the input and guidance of numerous community, healthcare, business, education, and academic experts across the state. Special recognition goes to these experts, as well as staff from MDCH for sharing their knowledge, time and experience to develop a plan that, if adopted, will result in the reduction of obesity and a healthier Michigan.

We are grateful for everyone's passion and commitment to advance this important issue, and to help Michigan residents achieve a healthier lifestyle.

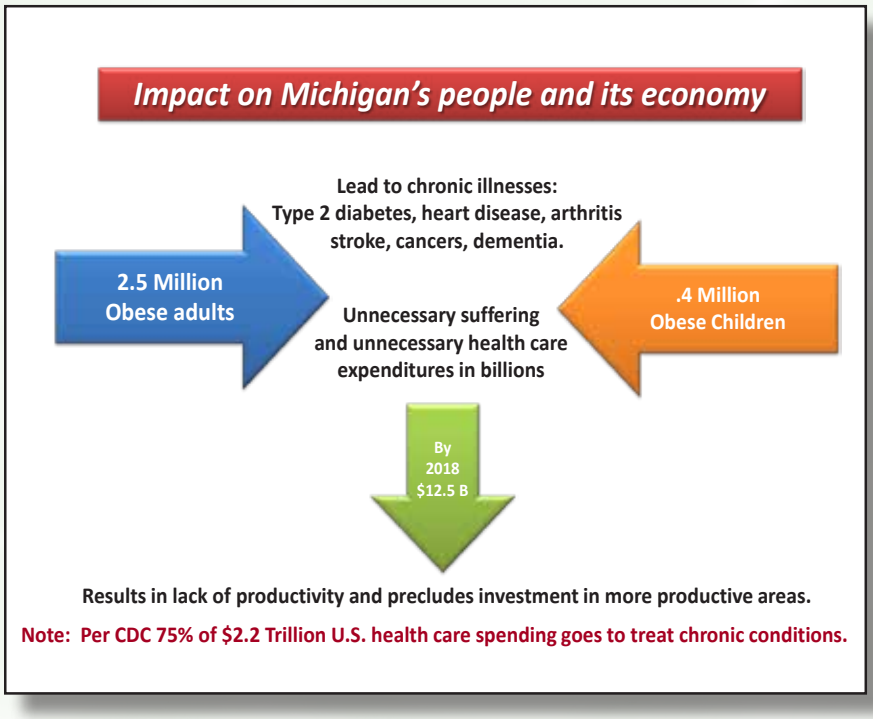
Public Health Crisis - A Call to Action

Michigan has a public health crisis. In 1995, 18% of the adult population was obese. By 2010, the obesity prevalence in our population had increased to 32%. If the tide is not changed, the percent of obesity in our population will reach 50% by 2030.

Obesity is a root cause of most chronic illnesses. Therefore, it is the role and obligation of Public Health to inform and educate Michiganders about this threat to their health just as it does when there is a threat of pandemics and epidemics.



The consequences of obesity are Type 2 diabetes, heart disease, arthritis, stroke, and dementia. Currently in Michigan, 2.5 million adults and 400,000 children are obese, many of whom already show signs of chronic illnesses. Unnecessary suffering is being caused by obesity, which is mainly driven by sedentary lifestyles and unhealthy eating habits.



According to the CDC, 75% of total health care expenditures are associated with treating chronic diseases. If Michiganders reduce their BMI rates to lower levels and achieve an improved status of health, the state could save over $13 billion annually in unnecessary health care costs.

Components of the 4 x 4 Tool

Preventing or managing chronic diseases is the top health challenge of the 21st century. Seven out of 10 deaths each year are from chronic diseases. More than 75% of healthcare spending (in Michigan and the U.S.) is for people with chronic diseases including heart disease, stroke, cancer, diabetes, kidney disease, and dementia. Leading a healthy lifestyle can greatly reduce the risk of developing chronic diseases. Two-thirds of premature deaths in the U.S. are due to poor nutrition, lack of physical activity, and tobacco use. Prevention measures such as appropriate screening and control of risk factors are important steps to save lives, reduce disability, and lower healthcare costs.

PRACTICE FOUR KEY HEALTHY BEHAVIORS

1. **Maintain a Healthy Diet**
   Research shows that healthy eating contributes greatly to one's overall health, as well as maintaining a healthy body weight. As described in the Dietary Guidelines for Americans, eating healthy means consuming a variety of nutritious foods and beverages. The guidelines include vegetables, fruits, low- and fat-free dairy products and whole grains. The guidelines also include limiting intake of saturated fats, added sugars, and sodium; keeping trans-fat intake as low as possible; and balancing caloric intake with calories burned to manage body weight.

2. **Engage in Regular Exercise**
   Reduction of sedentary lifestyle and increased regular physical activity are important contributors to health. Regular physical activity helps to achieve and maintain a healthy weight while contributing to the health of bones, joints, and muscles. It can also reduce feelings of anxiety and depression. Even though the benefits of physical activity are apparent, less than half of adults in Michigan engage in physical activity regularly – at least 150 minutes (2.5 hours) of moderate intensity physical activity a week, such as brisk walking, biking or swimming. Children and adolescents should get 60 minutes of physical activity per day. The American Academy of Pediatrics also recommends less than 2 hours of media time per day (television, computer, movies, and video games).

3. **Get an Annual Physical Examination**
   Receiving an annual physical is a good way to remain proactive about one's health and wellness. There are many benefits to having an annual physical exam, including earlier diagnosis and treatment of existing health issues and prevention of future problems. Regular physical exams also provide a variety of screenings dependent on age, health and family history and lifestyle choices. By getting the right health services, screenings, and treatments, Michiganders increase their chances for living longer and healthier lives.

   Individuals also should discuss with their health professional the status of their four health measures (BMI, cholesterol, blood sugar, blood pressure) and develop goals for maintaining or attaining desired levels for each measure.

4. **Avoid All Tobacco Use and Exposure**
   Tobacco use is the leading cause of premature and preventable death in the United States. Avoiding all tobacco use, which includes cigarettes, cigars, smokeless tobacco, pipes and hookahs, and eliminating exposure to secondhand smoke, can greatly reduce the risk of developing heart disease, cancers, pulmonary disease, periodontal disease, asthma and other diseases. While Michigan has decreased smoking in the population over the last 50 years from 46% to 18%, we still have 15,000 annual deaths related to smoking.

KNOW YOUR FOUR KEY HEALTH MEASURES

1. **Body Mass Index (BMI)**
   BMI, or Body Mass Index, is a measure of body fat based on height and weight. A healthy adult BMI falls within a range of 18.5 -24.9. A BMI between 25 and 29.9 is considered overweight. Those with a BMI of 30 or greater are classified as obese. Maintaining a BMI within the healthy range can reduce blood pressure, cholesterol, blood glucose and lower your risk for heart disease, stroke, cancer, diabetes and kidney disease. BMI values for children are expressed in percentiles to control for differences in body sizes due to gender and age. The percentile indicates the relative position of the child's BMI number among children of the same gender and age. A child with a BMI percentile between 5% and 84% is considered to be at a healthy weight; 85% - 94% is considered overweight and above the 95th percentile is considered obese.

   Lowering BMI can have dramatic health benefits including reducing risk of developing Type 2 diabetes by more than 50% and substantially reducing the risk of heart disease and cancer if moderate reduction of BMI (5 to 10%) is achieved.

2. **Blood Pressure**
   Healthy blood pressure is a key to heart health. Uncontrolled high blood pressure increases your risk of heart attack, stroke and kidney disease. A blood pressure of less than 120/80 is considered healthy or normal. A blood pressure between 120-139/80-89 is considered "pre-hypertension"; and a blood pressure of 140/90 or above is considered hypertension.

3. **Cholesterol Level**
   High cholesterol is a direct contributor to cardiovascular disease, which can lead to stroke and heart attacks. To decrease risk for cardiovascular disease total blood cholesterol should be kept below 200. A blood cholesterol level of 200-239 is considered mildly high, while a blood cholesterol level of 240 or greater is considered high.

4. **Blood Glucose Level**
   Blood glucose levels measure the amount of a type of glucose in your blood. It is important to know this measure because increased blood glucose levels can be a predictor of diabetes. Fasting blood glucose levels should be below 100mg/dl.

STRATEGIES AND GOALS 2012 - 2017

Each of the strategies listed below will incorporate information for individuals and organizations on adoption of the 4 x 4 plan as part of their activities.

- Maintain a Healthy Diet
- Engage in Regular Exercise
- Get an Annual Physical Examination
- Avoid All Tobacco Use and Exposure
- Body Mass Index (BMI)
- Blood Pressure
- Cholesterol Level
- Blood Sugar/Glucose Level

A. Develop multimedia public awareness campaign to reduce obesity and promote a social movement encouraging every Michigander to adopt health as a personal core value through promotion of the 4 x 4 Plan.

B. Deploy 46 community coalitions throughout Michigan to support implementation of the 4 x 4 Plan.

C. Engage partners throughout Michigan to help coalitions implement the 4 x 4 Plan.

- Employers
- Trade and other professional organizations
- Education system
- Departments of state government

D. Within the Michigan Department of Community Health create the infrastructure to support 4 x 4 Plan implementation energizing the local coalitions, and partners.

E. Seek funding to finance the plan for a projected first-year cost of $18.25 million.

STRATEGIES AND GOALS 2012 - 2017

A. Develop multimedia public awareness campaign to promote a social movement to reduce obesity and encourage every Michigander to adopt health as a personal core value through promotion of the 4 x 4 Plan.

1. Alert Michiganders of obesity crisis that will result in chronic diseases, unaffordable costs, and losses in productivity and vitality.
2. Conduct Consumer Perception Survey to guide development of the multimedia campaign.
3. Provide a marketing umbrella for the campaign with broad public recognition. Design campaign utilizing TV, radio, print, website and social media.
4. Develop messages appropriate for population at large and culturally sensitive messages related to race and ethnicity.
5. Redevelop the existing Michigan Health and Wellness state website to continue personal goal tracking and risk assessment, and access to evidence-based tools and resources for adoption of the 4 x 4 Plan.
6. Promote free, low-cost, self-management tools, such as electronic calorie counters, pedometers, health tracking tools, combined with smart technology.
7. Post to wellness website a referral bank of Michigan-based worksite wellness experts and companies for use by employers.
8. Post to wellness website a referral bank of Michigan-based worksite wellness experts and companies for individuals to use.
9. Create section in wellness website for Michiganders to self-report preferred techniques for weight loss and wellness; use tracking system for following and rewarding most followed practices.
10. Document stories about persons who lose significant weight or significantly improve health measures; reward them as 4 x 4 Champions.
11. Include small measurable steps that individuals can take to improve healthy eating and physical activity.
12. Develop Governor's Awards for "Best Practices" and recognition programs for individuals, employers, state restaurants, businesses, schools, state departments, and other organizations that adopt the 4 x 4 health and wellness philosophy.

B. Deploy 46 community coalitions throughout Michigan to support implementation of the 4 x 4 Plan.

1. Develop guidelines to support coalitions and set expectations with pay for performance system.
2. Establish coalitions of sufficient size and leadership structure to have significant impact in communities.

3. Enter into contractual agreements with local health departments, Tribes and/or other suitable agencies to lead coalitions in the adoption of the 4 x 4 Plan, including creating environments that support healthy behaviors.
4. Implement community assessments and develop action plans that support healthy behaviors (see Appendix A for suggested evidence-based coalition strategies).
5. Develop roles for legislators to work with coalitions in their respective communities.
6. Engage leadership of community coalitions with statewide professional and trade organizations (e.g., Michigan Health & Hospital Association, Michigan Osteopathic Association, Michigan State Medical Society, restaurant and grocer associations, business associations) and departments of state government.

C. Engage partners throughout Michigan to help coalitions implement the 4 x 4 Plan.

1. Employers

a. Encourage employers to assess their worksites by using the Designing Health Environments at Work assessment tool and develop action plan consistent with findings (www.michigan.gov/healthymichigan ...click on Businesses).
b. Provide guidance for the development of worksite environments that encourage and support healthy eating, physical activity and the adoption of the 4 x 4 Plan. (See Appendix B for suggested content of worksite wellness programs.)
c. Develop referral process for Michigan-based companies that provide worksite wellness programs for employers seeking this assistance.
d. Work with employers and health plans to encourage adoption of health insurance products that incentivize adoption of the 4 x 4 Plan.
e. Develop recognition and award system for employers that successfully implement the 4 x 4 Plan.

2. Trade and Professional Organizations

a. Hospital, medical associations, health clinics (MHA, MSMS, MOA, Michigan Primary Care Consortium, Michigan Primary Care Association, Michigan Chapter of American Academy of Pediatrics):

1. Encourage local hospitals and all health care providers to provide every patient with his/her 4 health measures, plus offer discussion about the 4 healthy behaviors, if desired by patient.
2. Encourage healthcare professionals to provide education, counseling and referrals to community resources to help individuals with their 4 healthy behaviors and 4 health measures.
3. Incorporate the 4 x 4 Plan into their electronic health record system for health management and ease of distribution to patients.
4. Promote the recording of BMI into Michigan Care Improvement Registry (MCIR) for children.

b. Health Insurers (Blue Cross Blue Shield of Michigan, Michigan Association of Health Plans, other carriers, third party administrators):

1. Offer products to health care purchasers that include incentives to practice the 4 healthy behaviors and 4 health measures.
2. Offer products to health care purchasers that provide value-based purchasing.
3. Promote in health plan's wellness programs the adoption of health as a personal core value, and the adoption of the 4 x 4 tool.

c. Wholesale and retail food companies (Associated Food and Petroleum Dealers, Michigan Grocers Association), food producers:
   1. Promote program's adoption of consistent messaging, prominently displayed, about the 4 x 4 Plan.
   2. Promote foods with less salt, sugar, unhealthy fats.

d. Restaurant Associations (Michigan Restaurant Association, Michigan Association of Food Producers):
   1. Encourage Michigan restaurants to post menus online along with nutritional content and information.
   2. Encourage restaurants to include calorie information on their menus as well as social media coding whenever possible to assist customers with smart tools to obtain other nutrition information.
   3. Encourage restaurants to offer bite-size desserts.
   4. Include references to the 4 x 4 Plan on menus.
   5. Work with university researchers to offer appropriate content of sugar, sodium, and healthy fat levels in foods.

e. Business Associations (Small Business Association of Michigan, Michigan Chamber of Commerce):
   1. Encourage small and large businesses to offer worksite wellness programs for their employees.
   2. Encourage business associations to develop and encourage implementation of worksite wellness program for its members in collaboration with worksite wellness expert.

f. Parent-Teacher Associations and Principal Associations:
   1. Provide materials for parents, teachers and school children about the 4 x 4 Plan and strategies that can lead to adoption of healthy behaviors.
   2. Honor schools that promote the 4 x 4 Plan in effective ways.
   3. Work with school system and Michigan Department of Education to promote healthy eating and physical activity practices.

g. Weight Management Programs (Weight Watchers, Medical Weight Loss Clinic, hospital based clinics, On Target Living, other national weight loss Michigan-based franchises):
   1. Promote the 4 x 4 Plan in promotional materials including prominent signage on site in exchange for promotion on wellness website.

h. Physical Activity Programs (YMCA):
   1. Establish a statewide 4 x 4 health and wellness program affordable for everyone, including low-income individuals.
   2. Review Michigan's playgrounds and establish collaborative for development.

i. Work with Michigan's universities and colleges, trade associations and professional sports teams so that sports teams (males and females) adopt and promote the 4 x 4 Plan.
    1. Promote 4 x 4 Plan with community colleges, colleges, universities, and professional sports teams to engage players to be role models for general student population and community.
    2. Engage community colleges, colleges and universities to encourage students to adopt healthy behaviors.

3. Education System

a. Encourage all school systems to adopt healthy food offerings, healthy behaviors, physical activity programs, and discuss with students the meaning of health as a personal core value.
b. State Departments of Education and Community Health will continue to work with schools on initiatives listed on pages 10 and 12.

4. Departments of State Government

a. The Office of the State Employer:
    1. Encourage each state department to encourage employees to achieve the goals of the 4 x 4 Plan.
    2. Engage in collective bargaining for health insurance products for state employees that incentivize their adoption of the 4 x 4 Plan.
    3. Develop policies for use by state departments and agencies that provide appropriate space and break time for breastfeeding employees. Communicate those policies as well as the availability of any support programs and/or educational materials to employees.
    4. Encourage adoption of standards for healthy food and beverages where offered onsite and at meetings.
    5. Establish Governor's Michigan Health and Wellness 4 x 4 Awards for state agencies that achieve excellence criteria.
    6. Provide guidance to state departments and agencies on scheduling alternatives, uses for state-owned or leased facilities, and appropriate employee group activities related to the 4 x 4 goals and objectives.

b. The Michigan Department of Education:
    1. Implement Michigan Nutrition Standards in school districts, campus wide, where food is offered or sold.
    2. Continue to work with MDCH to develop resources as research emerges and as districts identify specific needs to supplement the Michigan Nutrition Standards Toolkit that was released in November 2011.
    3. Develop a State Board of Education model policy for Comprehensive School Physical Activity Programs that include physical education as the cornerstone and physical activity during the school day, before school and after school.
    4. Revise indicators to reflect obesity "best practices" in the Early Childhood Standards of Quality and Michigan's Quality Improvement Rating System and implement evidence-based facility level interventions.
    5. Create a Governor's Award for schools that attain excellence in health and wellness practices.
    6. Collaborate to jointly administer the Michigan Model for Health program with MDCH to implement and evaluate effective K-12 health education curriculum.

7. Continue to jointly administer the Child and Adolescent Health Center (CAHC) Program with MDCH to implement obesity prevention and treatment strategies in a clinical setting.

c. The Department of Agriculture and Rural Development:
   1. Strengthen the farm-to-school network.
   2. Collaborate on Pure Michigan FIT (Feeding Infants and Toddlers, 0-5). Beginning in 2012, state agencies (MDCH, Departments of Human Services and Education) will collaborate with state and local partners to pilot a nutrition education program, aimed at teaching parents and caregivers of babies, toddlers and preschoolers the information they need to raise healthy, happy children and tackle childhood obesity in our state. Other partners include: Michigan Grocers Association, Michigan Fitness Foundation, and Michigan Health and Hospital Association.
   3. Work on establishing Food Hubs:
      a. Link agriculture and consumers
      b. Increase access
      c. Allow for nutrition training
      d. Request for Proposal for 5 pilot sites
      e. Establish best practices

d. The Department of Transportation:
   1. Continue to promote the Michigan "Safe Routes to School" Program, an effort designed to increase safety and encourage more students to walk and bike to school daily.
   2. Work with the Complete Streets Advisory Council and the State Transportation Commission to develop and communicate a "complete streets" policy for Michigan. Complete streets are roadways planned, designed and constructed to provide appropriate access to all legal users in a manner that promotes safe and efficient movement of people and goods whether by car, truck, transit, assistive device, foot or bicycle.
   3. Work with the Complete Streets Advisory Council and the State Transportation Commission to identify model local policies for complete streets. Michigan currently leads the nation in the number of communities that have adopted complete streets policies.
   4. Continue to use a "context sensitive" approach to project development, working with communities and stakeholders to develop complete streets where appropriate, cost effective and in keeping with the context and function of the roadway.
   5. Give consideration to communities that have passed "Complete Streets" policies in rewarding federal Transportation Enhancement program grants.

e. The Department of Human Services:
   1. Develop nutrition standards, physical activity requirements and screen-time limits to the Licensing Rules for Family and Group Child Care Homes.

2. Expand the Double Up Food Bucks program.
3. Implement nutrition education through SNAP-ED program.

f. The Department of Natural Resources:
   1. Work with schools to provide educators the tools, training, and resources they need to bring the environment into their classrooms – and their students into the environment.
   2. Promote Project WILD, part of the "No Child Left Inside" initiative, as a preschool through 12th grade environmental and conservation education program, emphasizing awareness, appreciation and understanding of wildlife and natural resources and the importance of being active outdoors.
   3. Promote physical fitness and healthy outdoor lifestyles as part of DNR's Recreation 101 programs at state parks and other locations.

g. Michigan Economic Development Corporation:
   1. Consider promoting the statewide campaign as a PureMichigan campaign to promote wellness associated with the 4 x 4 Plan.
   2. Establish promotional opportunities with trade organizations and restaurants that adopt the 4 x 4 Plan.

h. Encourage each state department to assess their eating and physical activity environments and policies and to implement appropriate changes.

D. Within the Michigan Department of Community Health create the infrastructure to support 4 x 4 Plan implementation, energizing the local coalitions, and partners.

1. Establish administrative and programmatic infrastructure at MDCH to coordinate plan and support implementation by all public and private stakeholders of the Michigan 4 x 4 Plan.
2. Assist other state agencies to support and implement the 4 x 4 Plan.
3. Enhance Medicaid services to incorporate 4 x 4 Plan activities for enrollees.
4. Establish a Steering Committee consisting of leaders from stakeholder groups and state agencies to guide and monitor implementation and identify state policy priorities.
5. Manage local coalitions, including provision of technical assistance and trainings.
6. Create public awareness and public relations campaign (Strategy A).
7. Develop toolkits and enhance resources for schools, childcare settings, worksites, healthcare facilities and communities that include priority strategies and interventions.
8. Continue to implement programs that focus on improving healthy eating and increasing physical activity in childcare, schools, communities and faith-based organizations.
9. Collaborate with the Infant Mortality state plan on strategies that relate to healthy lifestyle and obesity reduction.
10. Develop valid methods to estimate weight of community residents at baseline and at end of each year of the five-year obesity plan.

11. Expand student-led approach to empower youth to improve their own health by implementing positive changes in schools in partnership with United Dairy Industry of Michigan and the Fuel Up to Play 60 program.
12. Monitor, evaluate and report the success of coalition strategies.
13. Aggressively pursue grant funding to support implementation of the 4 x 4 Plan.
14. Expand MICR's capabilities and promote its adoption among the healthcare community.
    a. Provide access to the MCIR BMI Growth Module for children 0 to 18 years that includes clinical decision support tools to empower physicians to provide quality care reflected in national guidelines.
    b. Build an interface from MCIR to Electronic Health Records.
    c. Expand MCIR to include a BMI Health Module for adults.
15. Work with Commission for the Blind to offer healthy options in their concessions at all state buildings.

E. Seek funding to finance the plan for a projected first year cost of $18.25 million.

Our ability to implement these strategies will depend upon the availability of resources.

PARTNERING ORGANIZATIONS

American Cancer Society	MI Department of Transportation
American Heart Association	MI Economic Development Corporation
Associated Food & Petroleum Dealers	MI Environmental Council
Blue Cross Blue Shield of Michigan	MI Fitness Foundation
CHASS Center, Inc.	MI Food Policy Council
Children's Health Initiative Program	MI Food Processors Association
Coalition of MI Organizations of Nursing	MI Governor's Office
Communications & Research, Inc.	MI Grocers Association
Comprehensive School Health Coordinator's Association of MI	MI Health & Hospital Association
Consulate of Mexico	MI Health Policy Forum
Danialle Karmanos' Work It Out	MI Osteopathic Association
Diabetes Partners in Action Coalition	MI Office of the State Employer
Early Childhood Investment Corporation	MI Parent Teacher Association
Greater Detroit Area Health Council	MI Peer Review Organization
Greater Flint Health Coalition	MI Primary Care Association
Greater Lansing African American Health Institute	MI Public Health Institute
Health and Wellness Foundation	MI Restaurant Association
HealthMedia, Inc.	MI Soft Drink Association
Healthy Kids, Healthy Michigan	MI State Medical Society
Henry Ford Health System	Michigan State University
Institute for Black Family Development	MI Townships Association
Inter-Tribal Council of Michigan	MI Wellness Council
Lansing Latino Health Alliance	myNutratek
M.O.O.V.E. Detroit	National Kidney Foundation of MI
MI Academy of Family Physicians	On Target Living
MI Association of Broadcasters	Public Sector Consultants
MI Association of Food Producers	School – Community Health Alliance of MI
MI Association of Health Plans	Small Business Association of MI
MI Association of Local Public Health	Sparrow Health System
MI Business and Professional Association	Spectrum Health
MI Chamber of Commerce	State Alliance of MI YMCAs
MI Chapter American Academy of Pediatrics	United Dairy Industry of MI
MI Association of Chiropractors	UnitedHealthcare Community Plan
MI Department of Agriculture & Rural Development	University of Michigan
MI Department of Community Health	W.K. Kellogg Foundation
MI Department of Education	Wayne State University
MI Department of Human Services	Weight Watchers
MI Department of Natural Resources	

Appendix A

Suggested Coalition Strategies to Increase the Availability of Healthy Foods and to Improve Access to Physical Activity Opportunities

1. Encourage coalitions to implement strategies to increase the availability of healthy foods (mainly fruits and vegetables) in communities (www.michigan.gov/healthymichigan and click on Communities):
    a. Assess local community needs and expand programs such as community gardens and farmers' markets that bring healthy foods (especially Michigan-grown fruits and vegetables) to schools, businesses and communities.
    b. Work with existing food outlets such as convenience stores and fringe stores to improve the selection of fresh fruits and vegetables available for purchase, especially in low-income communities.
    c. Work with government agencies to assist farmers' markets and stands to accept government assistance program payment (Michigan Bridge Card, EBT Stands, Project Fresh vouchers, etc.)
    d. Work with local businesses to encourage ready access to fruits, vegetables and other healthy foods through the adoption of food procurement policies, farm-to-work programs, and worksite foodservice including food offered at meetings and events.
2. Encourage coalitions to implement strategies to increase access to physical activity opportunity (www.michigan.gov/healthymichigan and click on Communities):
    a. Work with transportation projects to implement non-motorized infrastructure to support residents to walk, bike and use public transportation where appropriate.
    b. Facilitate safe neighborhoods that encourage physical activity where appropriate (e.g., sidewalks, bike lanes, adequate lighting, multi-use trails, walkways, parks, and playgrounds).
    c. Work with community, non-profit and faith-based organizations to offer low or no-cost physical activity programs (sports, walking clubs).
    d. Engage professional and trade organizations and departments from state government to help coalitions implement the 4 x 4 Plan.
3. Encourage coalitions to increase awareness of the importance of healthy behaviors through local community-wide campaigns.

Appendix B

Suggested Content of Worksite Wellness Programs

1. Implement initiatives to increase the number of employees who are physically active during the work day. Consider feasibility of scheduling alternatives as well as structural additions such as bicycle racks, walking paths, changing facilities and showers.

2. Establish policies that provide appropriate space and break time for breastfeeding employees even where not required by law. Communicate those policies as well as the availability of any support programs and/or education materials to employees.

3. Develop recommendations for healthy food and beverages offered at employers' meetings, parties, and snacks.

4. Promote the adoption of health insurance products that incentivize the adoption of the 4 x 4 Plan.

5. Work with employees or employee representatives where applicable, to develop incentives for those who set and achieve the goals of the 4 x 4 Plan.

Appendix C

Appendix C

Overweight and Obesity Dashboard

U.S vs. Michigan Adults[Current-2010]

Percentage	U.S.	MI	Rank
Obesity (Adults)	27.5	31.7	6
Overweight (Adults)	36.2	35.1	n/a

U.S vs. Michigan Youth[Current-2009]

Percentage	U.S.	MI
Obesity (High School)	12.0	11.9
Overweight (High School)	15.8	14.2

YRBS is conducted only odd years, thus the most recent year is 2009

Michigan Overall (Obesity in Adults)

	Prior (2009)	Current (2010)	Progress*
Obesity	30.3	31.7	
White, non-Hispanic	28.7	29.8	
Black, non-Hispanic	41.6	45.3	
Hispanic	42.6	36.4	
Other Non-Hispanic	30.2	28.1	

Michigan Overall (Overweight in Adults)

	Prior (2009)	Current (2010)	Progress*
Overweight	35.7	35.1	
White, non-Hispanic	36.7	36.1	
Black, non-Hispanic	34.0	28.8	
Hispanic	32.0	31.2	
Other Non-Hispanic	24.7	34.5	

* Note that the progress does not necessarily mean that there is a statistical significance in the difference noted.

Health Behaviors in Adults and Youth

	Prior (2007)	Current (2009)	Progress*
Sufficient Adult Physical Activity	50.7	52	
Adequate daily consumption of fruits and vegetables among adults	21.3	22.6	
Sufficient Youth Physical Activity (High School)	44	46.8	
Adequate daily consumption of fruits and vegetables among youth (High School)	17	19.6	

Performance Key

Performance Improving = Performance staying about the same Performance Declining

CDC HEALTHY COMMUNITIES: *Recommendations To Reduce And Prevent Obesity*

Root Causes	Problem	CDC Recommended Strategies	CDC Recommended Actions	Existing Strategies that the Plan will Build On
Food/Nutrition				
Dietary Behavior	• Increased consumption of sugar sweetened beverages • Low consumption of fruits & vegetables • Inappropriate consumption of processed and prepared foods, and convenience foods • Lack of knowledge related to overweight and healthy eating	• Improve dietary quality	• Increase consumption of fruits and vegetables • Decrease consumption of sugar sweetened beverages • Decrease consumption of high energy dense, nutrient poor foods • Raise consumer awareness about reasonable food and beverage portion sizes • Expand efforts to encourage healthy eating patterns, consistent with the Dietary Guidelines for Americans	• 543210 Go! Campaign (children) • Health Risk Assessment and personal plans via Healthy Michigan website (adults) • Community-based nutrition education programs • MQIC guidelines for childhood and adult obesity for physicians and other health professionals
Food Environment	• Increased number of fast food stores • Lack of access to full service grocery stores selling affordable healthful foods • Unhealthy food/beverage advertising aimed at children	• Promote the availability of affordable healthy food and beverages • Improve the nutritional quality of the food supply	• Increase availability of healthier food and beverage choices in public service venues • Improve availability of affordable healthier food and beverage choices in public service venues • Improve geographic availability of supermarkets in underserved areas • Provide incentives to food retailers to locate in and/or offer healthier food and beverage choices in underserved areas. • Improve availability of mechanisms for purchasing foods from farms • Provide incentives of the productions, distribution, and procurement of foods from local farms • Support local and regional farm-to-table efforts	• Nutrition standards for the school campus • Access to healthy food through healthy food retail • Access to healthy food through community and school gardens • PA 231-provides tax incentives to food retailers to locate in underserved areas • School breakfast expansion • Project Fresh • Farmer markets and other retail outlets with fresh food • State Board of Education passed Michigan Nutrition Standards in October 2010. (voluntary) • Licensed childcare nutrition regulations • Faith-based mini markets • Healthy Communities grants to local health departments to implement policies and environmental changes that support healthy eating

Appendix D

CDC HEALTHY COMMUNITIES: *Recommendations To Reduce And Prevent Obesity*

Root Causes	Problem	CDC Recommended Strategies	CDC Recommended Actions	Existing Strategies that the Plan will Build On
Food/Nutrition				
Food Environment		• Support healthy food and beverage choices	• Restrict availability of less healthy foods and beverages in public services venues • Institute smaller portion size options in public service venues • Limit advertisements of less healthy foods and beverages • Discourage consumption of sugar-sweetened beverages • Implement nutrition standards and policies in institutions and state supported programs	• Healthy Communities grants to local health departments to implement policies and environmental changes that support healthy eating • Michigan Nutrition Network • MI Hospital's STAR Program
Infant Feeding Practices	• Low breastfeeding rates	• Encourage breastfeeding initiation, duration and exclusivity	• Increase support for breastfeeding	• Breastfeeding Peer Support • Breastfeeding media campaign
Physical Inactivity	• Decrease in the recommended amount of physical activity • Decrease in active transportation • Increase in TV viewing and screen time • Lack of knowledge related to overweight and physical activity	• Encourage physical activity or limit sedentary activity among children and youth • Increase physical activity where people live, work, learn and play	• Increase physical activity • Require Physical Education in schools • Increase the amount of physical activity in schools • Increase opportunities for extracurricular physical activity • Reduce screen time in public service venues • Encourage the use of school facilities for physical activity programs offered by the school and/or community-based organizations outside of school hours	• Michigan Model for Health in schools (health ed. curriculum) • Exemplary Physical Education Curriculum in schools (EPEC) • Shaping Positive Lifestyles and Attitudes through School Health (SPLASH) in low-income schools • Licensed childcare physical activity and screen time regulations • Community-based physical activity programs

Appendix D

CDC HEALTHY COMMUNITIES: *Recommendations To Reduce And Prevent Obesity*

Root Causes	Problem	CDC Recommended Strategies	CDC Recommended Actions	Existing Strategies that the Plan will Build On
Food/Nutrition				
Community Design & Built Environment	• Lack of infrastructure: sidewalks, bike facilities • Lack of access to safe places to play and be active • Lack of access to public transit • Limited mixed use & transit oriented developments	• Create safe communities that support physical activity • Facilitate access to safe, accessible and affordable places for physical activity	• Improve access to outdoor recreational facilities • Enhance infrastructure supporting bicycling • Enhance infrastructure supporting walking • Support locating schools in residential neighborhoods • Improve access to transportation • Zone for mixed-use development • Enhance personal safety where people are or could be physically active • Enhance traffic safety in areas where persons are or could be physically active • Promote Safe Routes to School	• Improved parks, playgrounds, walking and biking trails • Complete streets and safe routes to school. 2010 House Bills 6151 and 6152 passed to increase number of roadways designed with all users in mind • Healthy Communities grants to local health departments to create policies and environmental changes that support physical activity • Safe Routes to School Program
		Settings: Home and Family, Schools and Childcare, Community, Worksites, Healthcare		
		Partners: Food and beverage industry, agriculture, education, media, government, public health systems, healthcare industry, business and workers, land use and transportation, leisure and recreation.		

[Excerpts from CDC Healthy Communities: What Local Governments Can do to Reduce and Prevent Obesity, CDC's Winnable Battles, and National Prevention Strategy]

Appendix E

NATIONAL HIGHLIGHTS

WEIGHT OF THE NATION

The Weight of the Nation is a presentation of HBO and the Institute of Medicine, in association with the Centers for Disease Control and the National Institutes of Health. It is one of the most far-reaching health campaigns on this epidemic to date. Comprising four documentary films; a two-part HBO family series; a robust website and social media campaign; a book; and a nationwide outreach campaign to more than 40,000 community organizations. This campaign aims to mobilize action to slow, arrest, and eventually reverse the prevalence of obesity and bring the nation to a healthier weight (www.hbo.com/theweightofthenation).

USDA IMPROVEMENTS IN SCHOOL MEALS

USDA released new standards for school meals that will result in healthier meals starting in school year 2012-2013. Changes include:

- Ensuring students are offered both fruits and vegetables every day of the week; and increasing offerings of whole grain-rich foods.
- Offering only fat-free or low-fat milk.
- Limiting calories based on the age of children being served to ensure proper nutrition.
- Reducing the amounts of saturated fat, trans-fats and sodium.

BRIGHT HORIZONS CHILD CARE COMMITMENT TO PREVENT CHILDHOOD OBESITY

Bright Horizons is committing to continue advancing their nutritional, physical activity and long-standing screen time policies and practices with the goal of having their nearly 600 U.S. child care centers and schools pass a public evaluation of their commitment to healthy practices. The standards Bright Horizons will meet are taken in large part from the Early Childhood Settings guidelines developed last year in conjunction with the American Academy of Pediatrics, the American Public Health Association and the U.S. Department of Health and Human Services.

Head Start joined Bright Horizons in making a pledge to implement policies to help end childhood obesity in their child care centers.

LET'S MOVE! CAMPAIGN

Let's move! is a comprehensive initiative dedicated to solving the problem of obesity within a generation. Let's Move! has sparked national awareness and attention among all sectors of the nation. This past year, groundbreaking legislation ensuring all children have healthier food in school was passed; Walmart announced a Nutrition Charter to bring healthier and more affordable foods to their stores; national sports leagues are operating clinics across the nation to encourage children to be physically active for 60 minutes a day; and Let's Move! has also released new public service announcements to help parents make healthier food choices and be more physically active with their families. More than 500 communities across the nation have signed up to be a Let's Move! city or town committed to improving the health of their residents.

AMERICA'S GREAT OUTDOORS

America's Great Outdoors promotes efforts to conserve outdoor spaces and to reconnect Americans to the outdoors. It supports local efforts which promote active living by supporting efficient transportation networks that connect people in both urban and rural communities to parks and other outdoor recreation venues.

FLAVORED MILK IN SCHOOLS

Milk companies across the U.S. are reformulating flavored milk to lower total calories, and decrease added sugars and fats, while preserving its nutritional value and taste appeal.

Flavored milks in school cafeterias this fall are projected to have:

- 134 calories on average, and nearly all flavored milk will have fewer than 150 calories.
- Only 31 calories more than the white milk in school.
- 38% less added sugar than just five years ago (from 16.7 grams to 10.4 grams).

Work continues to get school milk to 150 calories or less and fewer than 22 grams of total sugar 9or 10 grams of added sugar) per 8-ounce serving. Already, the most common flavored milk this fall will beat the goal—fat-free chocolate milk with 140 calories and only 10 grams of added sugars.

Two-thirds of milk processors (66%) throughout the country have reformulated new flavored milks for back-to-school.

PARTNERSHIP FOR A HEALTHIER AMERICA

DARDEN'S PLEDGE TO IMPROVE MENUS IN THEIR RESTAURANTS

Guarantee a fruit or vegetable will be the default side for every kid's menu item at those restaurants offering a default side on the children's menu: Bahama Breeze, LongHorn Steakhouse and Red Lobster.

One percent milk will be the default beverage, provided automatically if no alternate beverage is requested. Milk will be prominently promoted on the menu and made available with free refills.

Improve the nutritional content of one or more children's menu items to provide equal or less than 600 calories, 30 percent of total calories from fat, 10 percent of total calories from saturated fat, and 600 mg of sodium.

Appendix F

COMBATING OBESITY IN THE STATE OF MICHIGAN

University Perspective on Root Causes, Review of Current Interventions, and Discussion of Gaps and Opportunities

Michael W. Hamm, Ph.D.
C.S. Mott Professor of Sustainable Agriculture
Department of Food Science & Human Nutrition
Michigan State University

K-L. Catherine Jen, Ph.D.
Professor and Chair
Department of Nutrition and Food Science
Wayne State University

Karen E. Peterson, D.Sc.
Professor of Environmental Health Sciences
Director, Human Nutrition Program
School of Public Health
University of Michigan

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FRAMEWORKS FOR UNDERSTANDING THE ROOT CAUSES OF OBESITY

Recent discussion among Michigan policymakers, researchers and practitioners has focused on identifying the 'root causes of obesity.' If we were to take the simplest path to a root cause, we need look no further than the energy balance equation:

energy intake – energy expenditure = weight status

On average, people today consume more calories than they expend, resulting in weight gain. Thus, efforts to prevent and control obesity are aimed at rebalancing this equation with respect to individuals. The optimal balance depends on an individual's current weight status and age. For example, adults with healthy weights should aim to maintain energy balance, while overweight and obese adults should try to achieve negative energy balance to decrease their weight status. In order to support healthy growth and development, a staged approach is recommended to slow the pace of weight gain, depending on children's weight status [1, 2].

Obesity is a term used to identify weight ranges that are above the weight that is considered healthy for a given height. Body mass index (BMI), a ratio of weight and height [wt (kg)/ht (m)2] is used to define obesity ranges because a high BMI correlates with the amount of body fat in most people. Different BMI cutoffs define obesity in adults and youth. Weight status ranges for children account for physical growth and the differences in body fat at various ages in boys and girls. Therefore, CDC reference growth curves are used to determine percentiles of BMI-for-age and sex for children aged 2-19 years [3].

	OVERWEIGHT	OBESITY
Adults [4]	BMI = 25.0-29.9	BMI > 30.0
Children 2-19 years [5]	BMI > 85% tile and < 95% for age and sex	BMI > 95% tile for age and sex

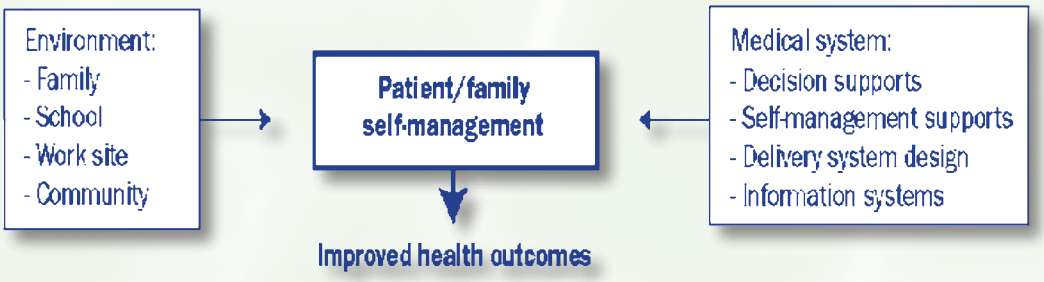
Obesity trends in adults and children defy simple solutions. Over the last decade, frameworks for understanding causes and designing interventions to reduce obesity in population-based settings have emphasized that health behaviors related to energy balance—such as, diet, physical activity and television viewing—are influenced at multiple levels. Rather than viewing obesity as an acute disorder that could be treated over a few months, both clinical and public health perspectives shifted dramatically—to portray obesity as a complex chronic condition or set of conditions [6, 7].

In 2000, the World Health Organization (WHO) set the stage by advocating a new taxonomy that marked a change from traditional classification of primary, secondary, and tertiary obesity prevention based in clinical outcomes [8]. Instead, the WHO proposed an alternative classification appropriate to chronic, multi-factorial conditions based on level of intervention:

- **Targeted prevention:** Management protocols for individuals
- **Selective prevention:** Programs & policies in organizational settings
- **Universal/public health:** Socio-cultural & physical environment

The chronic care model [9] adapted by the Centers for Disease Control and Prevention (CDC) to frame health plans' role in preventing and controlling pediatric obesity [10], recognizes that 'self management' by the family depends not only on support from health care providers, but also on 'complementary changes in schools and communities to support evidence-based strategies.' An expert committee composed of the American Medical Association, HHS's Health Resources and Services Administration, and CDC members similarly concluded that in order to effectively address obesity prevention, health care providers and systems will need to change their organizational approach. The committee concluded that integrating community resources, health care, and patient and family self-management would make care more comprehensive and useful for individuals and their families [1].

Figure 1: The Obesity Care Model [9, 10]



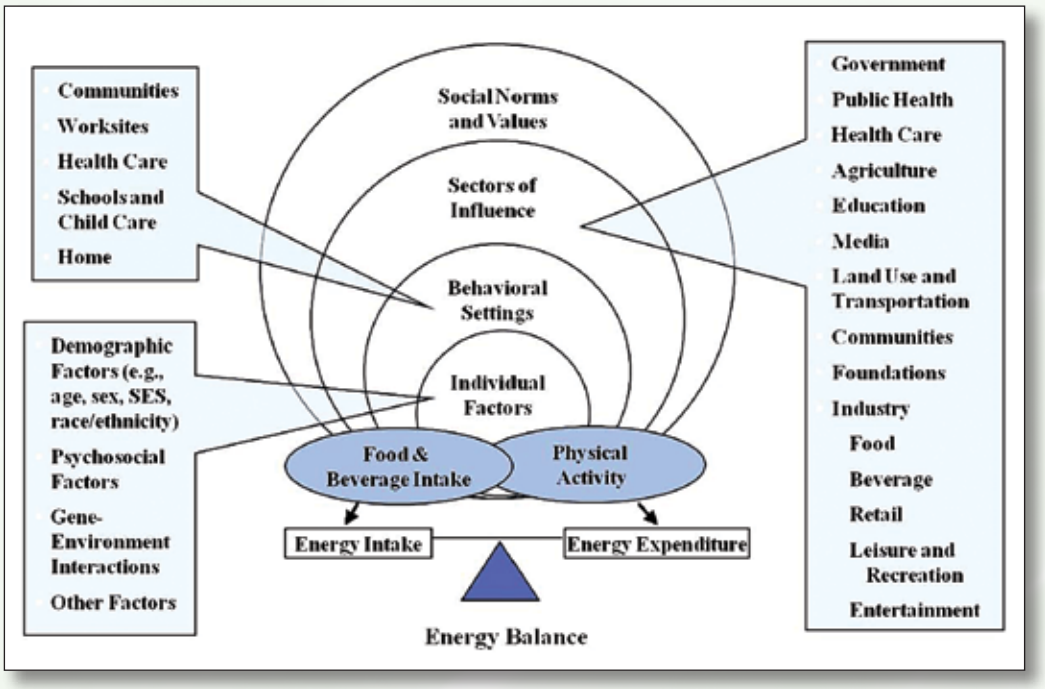
This model suggests that providing a continuum of care from prevention through control and management will likely be most effective in reducing obesity in individuals and across the population. The role of the medical system in the Obesity Care Model is to provide access to resources that will help patients and their families address their health issues [10]. In this model, health care providers realize the beneficial impact that a supportive environment can have on a patient's health and encourage patients to utilize health and weight management resources available in their home, school, work site, and community settings [10].

In the public health arena, researchers and practitioners responding to a 2005 'call to action' by an Expert Committee convened by the Institute of Medicine (IOM) [11] mounted myriad interventions to reduce child obesity. These efforts predominantly have been guided by the social ecologic model [12]. The framework portrays an individual's health behaviors and status as the result of influences at the individual, interpersonal (home, family, peers), organizational (school, worksite, health clinic), neighborhood/community, and societal levels.

Among adults, the social contextual model for promotion of health behaviors to reduce risk of chronic disease also emphasizes interactions across levels of influence and highlights the importance of factors such as culture, race/ethnicity, and socioeconomic status that must be addressed to reduce health disparities [13]. The International Obesity Task Force goes a step further, describing a framework and process for linking research on root causes of obesity to actions—programs and policies to prevent and control obesity—based on evidence for intervention effectiveness [14].

In 2007, the IOM reframed 'root causes' of obesity according to key arenas for action, shown in Figure 2 [15]. While management of obesity in the past may have focused on individuals' dietary and physical activity behaviors affecting 'energy balance', the IOM framework tackles determinants by highlighting behavioral settings, sectors of influence and social norms and values. It has become increasingly clear that obesity prevention efforts need to target systems change rather than rely primarily on promotion of individual behavior change [11, 16, 17]. That is, for individuals to adopt recommended eating and physical activity, the environments in which they spend time and the people that care for them in these settings must promote and support healthy lifestyles.

Figure 2. IOM Framework for Preventing and Addressing [15]



EFFECTIVENESS OF CURRENT INTERVENTIONS

Current obesity prevention and treatment interventions are often aimed at behavioral settings where individuals spend much of their time. This approach directs efforts to alter the person's immediate environment in an attempt to facilitate a healthy weight and lifestyles. Evidence for the effectiveness of obesity interventions in children and adults will be arranged by behavioral settings as outlined by the 2007 IOM report including: the home, schools and child care centers, worksites, health care, and communities [15].

Home Interventions

Despite evidence that parents and caregivers play an essential role in preventing childhood obesity [18, 19], limited research considers home-based interventions for childhood obesity prevention. Only four of the 147 studies in a comprehensive intervention review occurred in the home. All of the home interventions included a small number of participants and lasted for fewer than 15 weeks [20].

- One study provided televisions (TVs) contingent upon use of a stationary exercise bicycle to the homes of 10 obese children. After 10 weeks, children who had to pedal the bike to watch TV had significant reductions in percent total body fat (-1.2%) and percent leg fat (-1.6%) [21].
- An eight-week home internet intervention following a four-week summer camp for African American girls with a BMI >50th percentile. At the end of the 12-week intervention, there was no difference in BMI between children in the control and intervention groups. However, children in the intervention group consumed fewer calories, a lower percent of calories from fat, more water and fewer sweetened beverages than the control group [22].
- Peer educators met with overweight mothers of 1-3 year olds in their homes for 16 weeks to provide lessons on obesity prevention in the children. Children of mothers receiving parenting support from the peer educator consumed fewer calories and had greater decreases in weight-for-height z-scores over the 16-week intervention; these indices increased among children of mothers in the control group [23].

- Providing non-sweetened beverages, such as bottled water or diet soft drinks, iced tea or lemonade, for an adolescent and her family members weekly for 25 weeks decreased consumption of sugar-sweetened beverages (SSB) by 82% and resulted in a non-significantly smaller increase in BMI over time for adolescents in the intervention group. However, adolescents in the highest third of all BMIs at baseline had a significantly greater decrease in BMI than adolescents not receiving non-caloric beverages [24].

Among adults, home interventions also may impact spouses' weight status. Spouses of intensive lifestyle intervention participants lost more weight than spouses of control participants [25]. In another study, wives were given information on how to alter the home food and activity environment and were told to monitor their husbands' behaviors and health. The study showed that wives participating in this lifestyle intervention on their husbands' behalf led to significant weight loss in the husband [26].

Child-Care Interventions

Although 62% of children less than six years of age now attend child care outside of the home, [27], relatively few studies have evaluated interventions in this behavioral setting. A review of 42 studies on the role of child care in preventing childhood obesity suggests that child care settings provide an opportunity to improve young children's health through nutritious food, physical activity, promotion of healthy behaviors by child care providers, and the use of health education resources [28]. Nevertheless, only two of the 42 intervention studies (summarized below) influenced child weight status and both interventions included multiple components targeting dietary, physical activity, and sedentary behaviors [29, 30].

Hip Hop for Health Jr., a health-promotion program incorporating brief lessons and physical activity three times per week for all African American and Latino children in selected Chicago-area Head Start programs, found smaller increases in BMI for African American children in the intervention group (0.06 kg/m2) compared to controls (0.59 kg/m2) after one year and two years (0.54 vs 1.08 kg/m2) [29]. The same program had no effect on BMI of Latino preschoolers after one or two years [31].

A 14-week dietary and physical activity intervention was evaluated 54 preschool age children in Israel, 20-23%were overweight or obese. Among children in the intervention group, the following positive changes were observed: a 3.8 decrease in BMI percentile, a decrease in percent total body fat mass, and an improvement in fitness endurance time [30].

Due to the importance of preventing childhood obesity at increasingly younger ages, many organizations recently have reviewed the evidence and made recommendations to guide on obesity prevention efforts in child care. An expert committee convened in 2011 by the IOM recommended that child care providers be required: 1) to provide physical activity, decrease sedentary time, and provide safe drinking water and nutritious food consistent with the USDA-funded Child and Adult Care Food Program, 2) to demonstrate responsive feeding practices for the children and 3) to promote age-appropriate sleep durations [32]. The Academy of Nutrition and Dietetics released benchmarks for nutrition in child care to improve children's nutritional status and instill healthy behaviors at an early age [33]. These recommendations include providing food that meets the current Dietary Guidelines for Americans for children [34], having child care providers model healthy eating behaviors, and offering nutrition education for child care providers, children, and families at the child care center [33].

General limitations of studies in the area of child care-based obesity prevention interventions include:

- Data from Head Start, a federally-funded preschool program for low income families, suggest that children in some ethnic groups, specifically Mexican (29.0%) and Middle Eastern (19.0%), have a greater proportion of overweight children than Caucasian preschoolers (11.3%). In addition, data show that preschoolers who speak English as a second language are 75 times as likely to be overweight than those who speak English as their primary language. The disproportionate prevalence of overweight and obesity among children of some racial/ethnic groups supports the need for culturally tailored prevention and intervention programs [35].
- Head Start monitors students' height and weight, but has no centralized reporting system or database for this information [36, 37]. Federal studies of the Head Start program do not include anthropometric data [38, 39], so programs must evaluate their regional obesity rates and compare them to national averages for children of the same age [40, 41].
- Childcare and home care-giving practices both impact a child's attitudes and behaviors towards food, activity and health and it may be difficult to determine effects attributable solely to the childcare interventions.
- Due to the limited number of studies conducted in child care settings, no reviews or meta-analyses are available; therefore results of individual reports were used for this document.

School Based-Interventions

Schools are logical places to implement weight control programs since children spend a significant portion of their time at school. Schools also have the potential to positively impact children's health behaviors through health and nutrition education, inclusion of regular physical activity, and provision of healthy food for breakfast, lunch, and after-school snacks.

- Interventions, aimed at children in late elementary school or early middle school, appear to be more effective than those aimed at adolescents [42].
- Treatment effects are usually greater for heavier children compared to lean children participating in the same intervention [42].
- Some studies suggest multi-component interventions are related to larger reductions in weight than single component interventions [42], but others find no difference between the two program methods [43]. Multi-component interventions consist of interacting components such as: school environment, food service, physical education classes, social support services, health instruction, school-site health promotion for school faculty and staff, integrated family and community health promotion efforts [42].
- Interventions addressing both nutrition and physical activity have greater weight loss effects than those focusing on diet or activity alone [44].
- Physical activity appears to have a strong gender-specific effect with activity interventions reducing weight in overweight girls while having no effect on boys [43-46].

School-based intervention components that are suggestive of improved outcomes include:

- Parental involvement [42, 44].
- Classroom/afterschool instruction on improving dietary intake or increasing physical activity, participatory/hands-on skill building, provision of print materials, teacher training for program

implementation, student competitions, improvements to school cafeteria, implementation of physical activity programs, modifications of frequency or intensity of existing physical education, use of non-competitive physical activity, training in behavioral techniques/coping skills, and program tailoring for cultural relevance [42].

General limitations of studies in the area of school-based obesity prevention interventions include:

- Most programs target children who are already overweight to promote weight loss; few programs are designed as prevalence interventions for promotion and maintenance of a healthy weight among all students [42].
- Most studies use multi-component interventions, so it is difficult to distinguish whether some or all intervention components are responsible for the weight and health outcomes [42, 47].
- Follow up time for many of the studies is short, often six months or less, so it is impossible to know if the observed changes remain over time [42].
- Outcome measures between studies differ, making it difficult to compare results [42, 45].

Worksite Interventions

Worksite wellness programs have become increasingly popular over the past decade as employers realize the potential benefits and cost-savings of healthy employees. Since many adults spend a substantial portion of their waking hours at work, this approach has the potential to greatly impact adults' health behaviors. Similar to the school environment for children, worksites are often a source of food during the day, and can potentially serve as a location for physical activity. Cost-effectiveness estimates for worksite interventions range from $1.44 to $4.16 per pound of body weight lost, in comparison to the estimated $3,116-$7,504 lifetime savings in medical expenses per obese adult who loses 10% of their body weight [48]. After 6-12 months of participation, adults in worksite wellness interventions average a 2.8 lb weight loss [48].

- The following interventions have shown success in terms of employee weight loss: enhanced access to physical activity opportunities in conjunction with health education (median effect size of weight change -3.24%), exercise prescriptions alone (median effect -4.84 lbs), weight loss competitions with incentives (median effect -6.51 lbs, -1.58% change in body fat), behavioral practices with incentives (median effect -6.24 lbs), behavioral practices without incentives (median effect -5.81 lbs) [49].
- Randomized-controlled trials of worksite weight reduction programs show those that include both diet and physical activity have a larger impact on weight (-3.81lbs) (mean weight loss of 4.4-26.4 lbs in other meta-analysis, [49]), than diet (-1.71lbs) or exercise (-2.24lbs) alone [48].
- In general, multiple-component programs lead to greater weight loss than single-component interventions [48, 50, 51]. However, greater weight loss is observed among certain types of employees: older participants, women, those with higher baseline motivation and confidence in their ability to make behavioral changes, and those with a higher baseline BMI [51].
- Structured programs that consist of individual or group lessons for behavioral skill development or physical activity have greater weight loss benefits than self-directed programs [48].
- Interventions that follow information-giving or educational approaches to lifestyle changes are less effective than interventions that incorporate behavioral counseling [48].

- There is no difference in the effectiveness of the intervention conducted by a professional compared to a lay group leader [48], nor is there a difference in weight loss success for interventions conducted in-person compared to online [52].
- Cultural tailoring of worksite interventions may lead to greater weight loss, as observed in a small study of African American women who had greater weight loss and decreases in waist circumference and a significant improvement in quality of life after a 22-week tailored intervention, compared to women in a non-tailored intervention [53].
- Worksite interventions may have positive impacts on spousal weight, similar to home-based interventions for adults. A two-year weight loss program for men in Israel found that men whose wives attended some of the group meetings lost more weight at six months. Change in weight, between husbands and wives, was significantly correlated [54].

General limitations of studies in the area of worksite obesity prevention interventions include:

- There are few primary prevention interventions. Most programs target adults who are already overweight to promote weight loss; few programs are designed as general education for all employees for the promotion and maintenance of a healthy weight [45, 48].
- Weight regain is common after an intervention finishes, so it is important to reassess intervention participants' weight status 6-12 months after the program completes [49].

Health Care Interventions

Clinicians may need training on how to discuss the implications and prevention strategies of obesity while avoiding stigmatization of the patient [55, 56]. Health Care interventions include three major types of interventions: behavioral, pharmaceutical, and surgical.

Behavioral Health Care Interventions

- In children, low-intensity, short-term (6-12 months) behavioral interventions have shown minimal weight loss at best, with the majority of obese children remaining at or above the 95th percentile of reference growth curves after the interventions [57, 58]. Other interventions show no change in weight in overweight children after one year [59].
- Moderate- to high-intensity behavioral interventions in children show significant difference in mean BMI change (7-9%) between treatment and control groups [60, 61].
- Studies in health care settings aimed at preventing excessive weight gain in children have mixed results, with some studies demonstrating BMI maintenance at 12 months after the intervention [60, 62] while another study showed no sustained benefit of the intervention on weight status [63].
- Adolescents who participated in a four-month behavioral weight control program that integrated a baseline clinic visit with computer and bi-weekly telephone follow-up had greater change in BMI z-score than adolescents who only had one clinic visit with a health care provider [64].
- Adults who are told to lose weight by a health professional but are given no support from a weight management program and those participating in interventions involving exercise alone have minimal weight loss at one year [65].
- Adult interventions addressing diet alone and diet and exercise combined show benefits at six months (-4.9 and -7.9kg, respectively) but weight loss often plateaus after six months. Weight regain is common with an average of only 3-4kg total weight loss from baseline after four years [65].

- Non-African-American patients in programs with more than 12 annual clinic sessions [66], programs lasting more than two years [66, 67] or programs that include energy restriction or increased physical activity [67] have greater weight loss. However, total weight loss is still relatively minimal (2-7kg) in these programs [66].

- Very low energy diets (800-1000kcals per day) have the most drastic effect on short-term, non-surgical weight loss with an average of 17.9kg lost at six months. However, weight regain is common and rapid with patients regaining an average of 12kg by 36 months [65].

Pharmaceutical Health Care Interventions

- Weight outcomes from Orlistat trials among children are mixed; a 12-month study found a decrease in BMI [68], but a smaller, six-month trial found no difference in BMI between intervention and control children [69].

- Although weight loss plateaus are observed in adults on Orlistat after six months, the average weight loss maintained at the plateau (7.7kg) is greater that weight maintenance after behavioral interventions (3-4kg) [65]. Weight outcomes were not reported for any trials after Orlistat therapy was ended [66].

Surgical Health Care Interventions

- Children who undergo Laparascopic Adjustable Gastric Banding (LAGB) have significant weight loss at six (5.0-8.1kg) and 12 months (9.4-10.2kg) post-operatively [70-72]. Many children retain some weight loss two to three years after surgery [70, 71, 73, 74].

- The more radical, Roux-en-Y Gastric Bypass (RYGB) surgery yields greater weight loss in children with 15-20 kg losses one year post-operatively. However, some children (~7%) regain as much as 50% of the lost weight [75, 76].

- RYGB surgery produces the largest weight loss of any intervention in adults also. Surgical management of adult obesity is more costly that non-surgical weight management but produces greater weight loss and a greater decrease in co-morbidities [77].

Consequences of tertiary treatment for obese children and adults may include the side effects of weight loss pharmaceuticals and surgical complications.

- Mild-to-moderate gastrointestinal side effects were reported in both Orlistat trials [66, 68, 69, 78]. A 12-month study of adolescents reported one instance of asymptomatic cholelithiasis, but 32 cases of serious liver injury in adults have been reported [78]. The FDA has requested that stronger warnings be put on the Orlistat and Alli (non-prescription version of Orlistat) labels for potential adverse health effects. Orlistat interferes with absorption of fat-soluable vitamins, so levels need to be checked [66, 78].

- Abbott Laboratories voluntarily removed Sibutramine, a second pharmaceutical agent that was used for clinically induced weight loss, from the U.S. market in October 2010 due to serious cardiovascular side effects [79].

- LAGB side effects include: wound infection, band slippage, repositioning, removal, nutritional deficiencies, hiatal hernia, gastroesophageal reflux disease [70, 80].

Web-based Interventions

Obesity interventions aimed at individuals have traditionally been directed by physicians and other health care professionals in individual patient care visits. Due to the relative omnipresence of the internet, web-based interventions for health behavior change, health education, and counseling have increased in popularity over the past decade. In many cases, health care professionals are still facilitating the information exchange. Web-based interventions be an efficient and cost-effective mechanism for dispersing health promotion materials and resources to a greater number of individuals [81].

- Enrollment into web-based programs seems to be greater among adults who receive a personal letter from a health professional than among adults who receive a general newsletter with the information [81].
- A tailored, web-based intervention, developed by the Center for Health Communications Research, University of Michigan, containing motivational interviewing-based counseling via email, effectively increased fruit and vegetable consumption over 12 months. The intervention was administered to patients of five health plans in different geographic regions of the U.S. with web content tailored for participants by study staff and email counseling provided by trained study counselors from the University of Michigan [82].
- The content and mode of presentation of information also impact success in health outcome achievement; study participants prefer tailored messages and had greater weight loss after six months compared to participants just receiving general health information [83, 84].

Web-based interventions have the potential to reach a large proportion of the U.S. population. Future intervention development will need to consider how to target and effectively enroll individuals who do not regularly receive health care [85] since web-based interventions may be a primary source of health information for these populations [81, 85, 86]. More research is needed to determine how to improve participation from more socioeconomically and racial/ethnically diverse populations [86]. Participants in web-based interventions are more likely to be women with higher education and higher income with a majority of white respondents [83, 86]. However, one study found equal or greater participation in a web-based intervention among participants who were older, heavier, diagnosed with cardiovascular disease or type 2 diabetes, or were members of a racial/ethnic minority group [81]. Program adherence and motivating continued participation over an extended time period are current challenges of web-based interventions [81, 83, 85, 86]. A recent study of 51, obese adults found that adding a technology component to weekly weight loss meetings provided similar if not greater weight loss and changes in physical activity over six months, compared to the standard weekly meetings alone. This supports the efficacy of using technology as a clinical alternative for individual weight loss interventions [87].

Community-based Interventions

The community in which an individual lives, can serve as a foundation of resources to support a healthy lifestyle. In the IOM framework (Figure 5), communities may be viewed as both a behavioral setting and a sector of influence. Community infrastructure and interventions impacting socioeconomic status and the built environment reflect a Sectors of Influence [11]. Whereas many behavioral settings, such as the schools, workplaces, places of worship, recreational and entertainment centers, and restaurants may promote common health behaviors in a community [11]. Programs and resources within a community that impact motivation, remove barriers, address local cultural influences and support healthy lifestyles can be considered part of an individual's Behavioral Setting.

- Integration of interventions in multiple behavioral settings within a community are effective at promoting healthy behaviors and preventing excess weight gain in preschool and elementary children [88].
- Shape Up Somerville, a three-year community-based intervention, including a community advisory council, local 'champions', City Employee wellness campaign, farmers market initiative, monthly newspaper column, restaurant approval ratings, physician trainings, and community health events, decreased BMI z-score of elementary school students, compared with children in control schools [89].
- Interventions provided through faith and community based organizations have greater weight loss results and higher participant retention rates than traditional, clinically based interventions in adults from minority populations [90].
- Reducing the price of fruits, vegetables, and healthier snacks in cafeterias and vending machines results in increased purchasing of healthier foods. Subsidizing the price of healthy foods in vending machines on a college campus increased the amount of healthy foods purchased by 16% [91], 400% fruit and 200% vegetables in school cafeterias. [92-94].
- Providing coupons and incentives for purchasing healthier foods are linked to increased purchase and consumption of healthier foods in many populations, including: college students, recipients of the Supplemental Nutrition Program for Women, Infants, and Children (WIC), and low-income seniors [95-97]. For example, Double Value Coupon incentive programs increased use of SNAP and WIC checks at the markets by 300% in the first year [98].

Lessons from Current Interventions

Behavioral settings [15] remain an important arena for action to reduce obesity across the lifespan. Across different settings, a number of interventions have shown promise in improving health behaviors that influence energy balance, reflected in weight status in children and adults. Recent slowing of obesity trends [99, 100] suggests efforts may be having a combined impact. A comprehensive public health approach must ensure the continuum of care needed to both prevent and control this complex and chronic condition with lifelong consequences [10]. The World Health Organization's paradigm from 2000 highlights the central role of behavioral settings, ranging from health care, schools and worksites, in managing obesity at different levels of intervention [8]. **Targeted** management protocols for individual children who are overweight and obese and their families, **Selective** programs and policies aimed at reducing obesity incidence and prevalence in organizational settings; and **Universal** strategies that optimize the socio-cultural & physical environment are all necessary to tackling obesity trends.

Programs implemented in behavioral settings in some sense consider all individuals an organization serves to be 'at risk', given the high prevalence of obesity and rising incidence with age. 'Setting-specific' approaches can complement targeted clinical management protocols by providing programming, incentives and organizational environments to promote healthy eating and physical activity opportunities for overweight and obese individuals, while preventing those with normal weight status from becoming obese. Nevertheless, community-level mechanisms to foster interconnections across settings are needed. The need to develop new and support existing community coalitions was strongly recommended by state-wide obesity experts at the September 2011 Michigan Obesity Summit and echoed in Governor Snyder's 2012 State of the State address with the unveiling of the Pure Michigan Fit pilot program, continued support of the Economic Vitality Incentive Program, and recognition of a continuing need for infrastructure support across the state.

Public health practitioners, clinicians and researchers can take additional steps to improve the modest effectiveness of obesity prevention and control in behavioral settings.

1) Consider mechanisms to screen and refer those who are already overweight and obese to providers offering targeted clinical management. Although somewhat controversial, BMI screening in behavioral settings, e.g., primary health care [101], schools [102, 103] and worksites may offer the potential for early identification and facilitate individuals' access to health care and treatment of severe obesity and co-morbities.

2) Recognize one size may not fit all and create or adapt interventions that target those most at risk of obesity and who are most likely to respond. Interventions implemented in key transitions across life course, tailored to socio-cultural preferences and use novel technologies may amplify organizations' effectiveness not only in changing behaviors but also impact obesity and related metabolic conditions.

3) Evaluate not only whether programs are effective in reducing obesity, but also document how and why they work [104]. Few evaluations have incorporated an operational research component, essential to understanding the processes and infrastructure required for implementation in different organizational and community contexts [105-108]. Qualitative research and process implementation evaluations conducted through collaborations with public health partners can ensure the effectiveness of programs when they are brought to scale.

4) Advocate broader systems level change by implementing programs and policies in behavioral settings that are consistent with public health guidelines at state and national levels, e.g., Healthy Kids Healthy Michigan, school wellness policies, Dietary Guidelines.

EMERGING RESEARCH

Obesity remains a public health crisis, demanding ongoing research into causative factors and health impacts that may guide future recommendations for the prevention and treatment of obesity.

Causative Factors

Diet and physical activity are the two main behaviors commonly identified for their proximal impact on weight status and therefore obesity development. However, other factors impact an individual's susceptibility to develop obesity more subtly and earlier in life [109, 110]. Increasing evidence suggests that the fetal and infant environments may have a great impact on individuals' growth, development, and disease risk via gene regulation throughout the lifespan [109-113].

Low Birth Weight (LBW)

Low birth weight has been implicated as a potential factor that contributes to obesity later in life [114-117]. Prenatal stress and the lack of prenatal care are identified as contributing factors to LBW. The national average of low birth weight was 8.9% in 2009 [118]. While the rate of LBW in Michigan (9.4%) is similar to the national average, there is a significant racial disparity in Michigan with 7.0% incidence of LBW among whites but 13.9% LBW of all births for African-Americans [119]. This high rate of LBW in African Americans may precipitate the higher percentage of obesity in black adolescents and adults. Therefore, improving prenatal care to reduce the undue stress and improve nutritional status in pregnant woman will impact both state health dashboard priorities: infant mortality and obesity.

Developmental Origins of Adult Disease

At specific periods throughout the life-course, environmental exposures appear to have in increased impact on a person's health. These susceptible periods coincide with times of rapid growth: prenatal period, infancy, adiposity rebound in early childhood and adolescence [116]. The evolving field of epigenetics is investigating mechanisms to explain this phenomenon, elucidating evidence that environmental exposures may impact genetic expression [109-113]. Many man-made chemicals (phthalates, BPA, DDT, DDE, PCBs, dioxins) have been identified as endocrine disrupting chemicals, substances that influence and/or interfere with the body's natural chemical signaling network [120-122]. Exposure to these chemicals especially during the prenatal and infant periods of development appears to promote the accumulation of visceral and central subcutaneous fat [120-122]. National exposure data found that many of these man-made chemicals are ubiquitous, with detectable levels in over 90% of US adults tested [123]. Epigenetic changes caused by environmental exposure to EDCs can be passed from mother and/or father to child so that the child may never have been exposed, but if a parent was, the child's risk of obesity and other health issues may be similarly increased [124-126].

Obesity and Cognitive Functioning

Growing evidence suggests a connection between abdominal obesity in middle age and development of dementia [127-130]. Chronic inflammation is common in obese individuals and affects the functional capacity of the body's blood vessels; blood vessels of the brain are likely also negatively impacted by this inflammation [131-133]. However, overall obesity appears to be protective against dementia in old age (>65yo), potentially due to the significant weight loss commonly observed in patients with dementia [134]. A recent study of elderly adults found lower brain volumes in overweight and obese individuals than in normal weight counterparts [135].

Very few studies have investigated the cognitive impact of excessive weight in children and adolescents, so the following results need to be corroborated with additional research prior to use for specific recommendations. One pilot study found cognitive impairment in attention and executive function of 25 extremely obese adolescents (> 99th percentile for age and gender) [136]. Another study found signs of central neural impairment in obese, insulin-resistant children [137]. Gender differences in cognitive impairment were observed in a third study of children four to nine years old, with obese boys having greater impairment of gross motor skills and obese girls showing a greater deficit in their ability to focus attention [138]. There is a potential for early intervention with obese children to reverse these effects, but no research has been conducted on this topic yet.

SECTORS OF INFLUENCE

Obesity trends continue to rise despite more than a decade of experience in obesity interventions focused on behavioral settings. A new systems perspective is needed in order to address the complex issues of child and adult obesity [17]. Policy interventions have the potential to alter the food supply and marketing and the built environment, which lay the foundation for individual's choices and values within their community and environment. Therefore, these policy interventions could function as widespread obesity prevention measures, simultaneously impacting the greatest number of individuals within the population and ensuring the continued success of health promotion in behavioral settings and individualized health for obese individuals. Decreasing health disparities in obesity prevalence between population subgroups should be a goal incorporated into obesity prevention across sectors of influence. Community and systemic interventions have a promising potential to address health disparities gaps through the creation of economic stability, social capital development, access to affordable healthy food and physical activity resources via after school programs and other community resources [11, 139].

Studies relating sectors of influence to improved physical activity, diet, and weight status are reviewed below. While interventions may occur within individual communities, state and/or national government support, e.g., legislation and appropriated funding, could have a significant impact on intervention implementation [140-143].

Environmental influences on food and nutrition

- Current television advertising and food product marketing influences the diets and risk of obesity in children under age 12. [139, 144, 145] None of the ads children saw in one study were for fruits or vegetables, but more than one-third marketed candy and snacks [34].
- Children's food preferences are influenced by brand recognition [146] and the use of popular licensed characters [147]; 50% of children will choose a vegetable over a chocolate bar if the vegetable has a character sticker on it, compared to only 22% of children who chose the vegetable over chocolate without the sticker [147].
- Access to supermarkets or other retail outlets that sell healthy food is associated with greater fruit and vegetable consumption and lower BMI in adolescents [148, 149], while the availability of convenience stores is linked to higher adolescent BMI [148].
- People buy more healthy food if the prices for these foods are reduced and purchases of less healthy food decreases as their prices rise [92, 150, 151].
- Adding a tax to sugar sweetened beverages and 'junk food' results in a percent change in consumption that is usually smaller than the percent change in price [152-154], suggesting a higher tax rate may be necessary to significantly impact purchasing.

Environmental influences on physical activity

- Community-scale urban design and land use has been shown to increase physical activity levels, via increased walking and cycling [155-158] from residences to schools, workplaces, recreation areas, stores [159, 160]. Odds of obesity declined with mixed land use zoning in Atlanta, GA [155].
- Areas of low density development and urban sprawl have higher rates of adult obesity [161].
- Living in a neighborhood without access to sidewalks, walking paths, parks/playgrounds, recreation/community centers were 20-45% more likely to become overweight or obese compared to kids with access to these amenities [162].
- Access to outdoor recreational facilities with informational outreach and health education increases physical activity of child and adult community members [163-165], the perception of safety of these recreational areas increases the reported physical activity of area adults [166].
- Improving biking infrastructure, such as creating bike lanes and providing bike racks, is associated with increased frequency of bicycling [167-171].
- Increased access to parks is linked to greater physical activity in children [172] and adolescents [173]. Children's physical activity level increases when they participate in environmental education programs, which promote outdoor activities [174].
- Safety of public spaces for recreational activity is not well studied, but improving street lighting in London led to reduced crime, less fear of crime, and increased pedestrian use of the street [175].
- Increased traffic safety laws/regulations in areas of recreational activity also increase physical activity [166].

- Children who live in unsafe neighborhoods are 30-60% more likely to be overweight or obese than children living in better conditions [162].

THE NEED FOR A BROADER FOOD SYSTEMS PERSPECTIVE

The challenge in Michigan and across the U.S. today is identifying strategies for public health improvement that simultaneously address other needs. Given the reduction in public resources over the last decade this is both necessary and challenging. However, it is clear that there is a distinct opportunity in public health to link obesity reduction and prevention to economic development, environmental stewardship, agricultural production, and youth development [176, 177]. This provides a context, through the 'food intake' component of the energy balance equation, to link activities of MDCH with MDARD, DELEG, MEDC, DHS, MDE and DEQ at a minimum. The aegis for this currently is around the notion of regional food system development.

The development of robust regional food systems across the U.S. should be seen as a strategy to address the national security issues inherent to a country's food supply. The 2011 Japanese earthquake has given us a wake-up call on the risks inherent to limited supply points for key items in manufacturing -- in this case, computer chips for consumer electronics. Companies are quickly rethinking their supply chain strategies as a result and considering a move to more source points. Similarly, with our food supply (and considering only fruits and vegetables for this purpose), we are becoming more dependent on offshore sources and domestically are dependent on California for 50% of our production. In a period of rapid population growth, constraints on traditional energy sources, fresh water shortages, and projected climate change impacts, it is short sighted to rely on these ever-more-distant and narrow points of supply for critical components of our food supply. And yet, that is exactly what we are doing.

The emergence and development of regional food systems embedded in a national and global trading system offers the opportunity to decentralize production points and thus improve our national resilience as we proceed through an uncertain future. Distributing production across the country has a number of inherent advantages when viewed through a national food security lens. In addition, data demonstrates the inherent business and job development opportunities in this approach [178]. Linking obesity prevention and activities of MDCH as well as the private sector predominantly concerned with health to other state agencies and other private sectors is an opportunity to develop a myriad of businesses connected to healthy food production, processing, distribution, storage, marketing and preparation.

A broader, systems approach to obesity may benefit US populations whom are currently underserved by the health care system. These underserved populations include individuals of low socioeconomic status, low educational attainment, and diverse racial/ethnic groups [179]. Changes in infrastructure, the built environment, and cultural norms therefore have the greatest potential for positive impact in these populations who also have the greatest burden of obesity. For example, altering urban planning and rezoning land for safe recreational areas and grocery stores with healthy food options, the social default may change from driving and picking up fast food to walking or biking and buying produce.

Changing the background environment from obesogenic to healthful will not occur overnight; novel collaborations and new priorities must form. The individual struggling with her weight should not be ignored while these long-term systemic changes are taking place. The role of individual counseling will continue to be a crucial part of the fight against obesity, but as the increasing incidence of obesity over the past three decades has illustrated, this model of individual responsibility for obesity is not enough to change the tide. As the background environment becomes healthier through implementation of systemic changes, the individual clinician's voice against

obesogenic exposures and behaviors will continue to be important but it will be supported by an environment that makes their recommendations for a healthy lifestyle more realistic for the patient. The benefit of creating healthy defaults is that people commonly choose the option that is easiest and most accepted by their social network; if the option leads to lower risk of obesity and associated chronic disease the state will benefit with greater health, quality of life and lower economic costs.

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Appendix G

Michigan Call to Action to Reduce and Prevent Obesity

Obesity Summit: Work Group Recommendations

In September 2011, the Michigan Department of Community Health (MDCH) engaged stakeholders from across the state to create Michigan's Call to Action to Reduce and Prevent Obesity. The MDCH hosted a summit[1] to share information on obesity prevalence, disparities, and factors that contribute to obesity and unhealthy weight; highlight best practices, including those under way at the state and local community levels in Michigan; and ask participants to identify a limited number of priorities for addressing the issue with a focus on reducing disparity. It is the state's goal to engage and mobilize partners across multiple sectors and communities in efforts to reduce obesity. Nearly 500 summit participants were split into 20 work groups, organized by area of intervention—worksites (W); family, home, and community (F); early childhood (E); schools (S); and healthcare (H). The work groups were asked to suggest 3 to 5 top priority strategies to reduce and prevent obesity in Michigan. Summit participants were also asked to identify the priority strategies they would personally support and the specific steps they will take to help reduce and prevent obesity on a *Take Action!* commitment form.

Public Sector Consultants (PSC) compiled, reviewed, and grouped work groups' recommendations based on common themes. Five recommendations emerged that spanned all, or most, of the areas of intervention. Additional recommendations were identified specific to particular areas of intervention. Following is a synthesis of the priority strategies recommended by work groups. The five overarching recommendations are described first. Recommendations specific to the areas of intervention (e.g., worksites) are described in more detail later in this report.

OVERARCHING RECOMMENDATIONS

As work group representatives shared the recommendations from their groups, they recognized the overlap and interconnectedness of ideas, not only between work groups discussing the same area of intervention, but also across areas of intervention. For example, work groups discussing strategies for worksites offered similar recommendations as work groups discussing strategies for family, home, and community. The recommendations that predominated across work groups are as follows:

- Develop a statewide healthy living campaign (W, F, E, S, H)
- Support existing and develop new community coalitions (W, F, H)
- Create incentives to encourage healthy choices (W, F, H)
- Create disincentives to discourage unhealthy choices (W, F, H)
- Provide resources for implementation (F, S, H)

The areas of intervention from which these overarching recommendations emerged are noted above in parentheses. Each of the overarching recommendations is described below, along with suggestions for implementation that were shared by various work groups.

DEVELOP A STATEWIDE HEALTHY LIVING CAMPAIGN

At least one work group, and in some cases more than one work group, within each of the areas of intervention recommended the development of a comprehensive statewide campaign stressing

[1]The summit was sponsored by Blue Cross Blue Shield of Michigan, the W.K. Kellogg Foundation, United HealthCare Great Lakes Health Plan, and the Michigan Department of Community Health Women, Infants & Children Division.

healthy eating and physical activity. The purpose of the campaign would be to convey the urgency of addressing obesity, engage the public and partners in multiple sectors, and create synergy among all state and local efforts. The following ideas for implementation are drawn from suggestions made by one or more of the various work groups:

- **Develop a brand:** Create a healthy Michigan brand to be used in marketing and social media campaigns. The *Pure Michigan* brand was suggested by many work groups as a model, perhaps with a new component focused on healthy living.
- **Establish a state-level team of decision makers:** Convene a group of leaders, such as a Blue Ribbon Commission, to provide guidance for messaging and to create "synergy" among departments and policies.
- **Create clear and consistent messages about healthy eating and physical activity:** Create messages that include small, measurable steps individuals can take to be healthy and increase physical activity, encourage personal responsibility, promote a cultural shift from unhealthy eating and inactivity to healthy eating habits and higher levels of physical activity, reflect evidence-based standards of care, and are coordinated on a statewide basis. To support healthy messages, two work groups recommended that the state enact legislation which would limit advertising of junk food, fast food, and sugar-sweetened beverages to children.
- **Promote breastfeeding:** As part of the campaign, promote breastfeeding based on best practices, and provide leadership for the coordination of state-level policies supporting breastfeeding. Some work groups specifically recommended that the state provide coverage for portable breast pumps for Medicaid beneficiaries; shape policy to create breastfeeding friendly hospitals and worksites and promote the rights of women to breastfeed in any location; and develop insurance incentives for women who breastfeed.
- **Collect data:** Monitor and track progress by collecting appropriate data. For example, using electronic data transfer, integrate WIC and Head Start data systems to support and populate the new body mass index (BMI) module in the Michigan Care Improvement Registry (MCIR); add an adult BMI module to the MCIR; and share health indicators and evaluation strategies with partners.

Out of 218 participants who completed the *Take Action!* personal commitment form, 74 expressed support for development of a statewide healthy living campaign. Fifty individuals indicated specific steps they or their organization would be willing to take to help implement this strategy.

Support Community Coalitions

Several work groups recommended that the state utilize existing community coalitions and build new coalitions where needed to help move the new healthy living campaign forward. Community coalitions are effective because they bring together various stakeholders (e.g., businesses, schools, healthcare, government, foundations, faith-based organizations, residents) who know their community and understand the best ways to address issues locally while maximizing resources. As one work group put it, "change must happen at the local level." Coalitions can identify barriers, develop and implement plans, and provide education. Specific suggestions related to community coalitions and approaches to implementation that emerged from some of the work groups are as follows:

- **Engage community stakeholders:** Encourage various stakeholders (e.g., businesses, schools, healthcare, government, foundations, faith-based organizations, residents) to work together to develop a wellness plan, which would include identification of barriers, resources, and steps to implement change. To prevent and reduce obesity, one work group suggested developing a

"Coordinated Community Health Program" using the eight elements of the Coordinated School Health Program, as recommended by the Centers for Disease Control and Prevention (CDC), as a model.[2]

- **Create a statewide clearinghouse of evidence-based practices:** Conduct a statewide inventory of existing resources, policies, and best practices to share with coalitions across the state.
- **Engage businesses in the implementation of best practices:** Motivate stores and restaurants to provide healthy food and drink choices, help standardize information about healthy foods in eating establishments, and encourage provision of appropriate-sized portions. Work groups also recommend creating nutrition standards and encouraging public and private facilities (e.g., stadiums, parks, local businesses) to provide healthy food and less expensive alternatives to bottled water.
- **Develop toolkits:** Create toolkits that coalitions can use to support healthy living initiatives and provide consistent messages in the community. Toolkits can be designed for use by the community as a whole or tailored for restaurants, convenience stores, employers, schools, and healthcare providers. A toolkit for the community might include, for example, information on proper meal size; simple, low-cost recipes; and information to connect individuals or families to free or low-cost healthy living events. Toolkits created for worksites could include a health risk assessment tool; options for cultivating a healthy workplace (such as flex time to allow for physical activity and healthy food choices for meetings or cafeterias); information about family support systems such as mental health services; and a template for an online newsletter.
- **Monitor and reward progress:** Require coalitions to share reports and metrics on the progress they have made. Establish a system of recognition for accomplishments and exemplary programs or organizations that are promoting healthy living, such as a governor's stamp of approval.

Out of 218 participants who completed the *Take Action!* personal commitment form, 89 expressed support for development of community coalitions. Sixty-four individuals indicated specific steps they or their organization would be willing to take to help implement this strategy.

CREATE INCENTIVES TO ENCOURAGE HEALTHY CHOICES

Some work groups recommended creating incentives to encourage healthy choices on an individual as well as an organizational level. The various suggestions made by work groups are as follows:

- **Create business incentives:** Provide incentives to employers (e.g., tax breaks) to offer wellness programs (following CDC recommendations) in the workplace. Suggestions for employers include providing access to and time for physical activity and providing healthy food options for employees in cafeterias and during meetings.
- **Develop individual incentives:** Introduce a healthy behavior tax credit to provide an incentive for individual behavior change. Work with healthcare providers to determine the best criteria to measure individual progress.
- **Create community incentives:** Provide economic incentives for communities to make proactive public health choices (e.g., community master planning, development of a wellness plan).

[2] The eight elements of a Coordinated School Health Program are family and community involvement, comprehensive health education, physical education that stresses lifelong habits that promote physical activity, health services access (e.g., nurses in schools), nutrition services promoting healthy eating habits, counseling and mental health services, healthy environments (e.g., complete streets), and health promotion for team members.

- **Develop healthcare incentives:** Encourage health plans and providers to develop incentive and disincentive programs to improve population health. One example would be tying provider reimbursement to improved health outcomes for prevention of obesity. Health plans could be asked to develop their own set of incentives.

CREATE DISINCENTIVES TO DISCOURAGE UNHEALTHY CHOICES

In addition to incentives, the development of a tax on unhealthy foods and beverages was another recommendation that emerged from a number of work groups. Specific approaches suggested for introducing a "junk food tax" or "soda tax" were as follows:

- **Review best practices:** Examine what other states are doing and review existing models, such as the tobacco and liquor taxes, to develop a tax on unhealthy foods and beverages. Refer to nutritional standards to define which foods and beverages are "unhealthy" and are to be taxed.
- **Garner support:** Obtain support for disincentives from the food and beverage industry and enlist consumer support through grassroots campaigns.
- **Pilot disincentives:** Start by targeting a specific item such as sugar-sweetened beverages. Identify opportunities to pilot disincentives to encourage healthy eating (e.g., taxing retailers through city ordinances or implementing campus-wide vending machine restrictions). Evaluate the effectiveness of these pilots before expanding them statewide.

PROVIDE RESOURCES

Although work group participants acknowledge that the state has limited resources, they believe that the state needs to demonstrate its commitment to addressing the obesity crisis by devoting resources for implementation. Some work groups suggested the following ways to provide resources:

- **Maximize capacity of local communities:** Participants believe that momentum to reduce and prevent obesity is already present in many communities. Work groups recommended the state reduce duplication of effort by providing resources to build the capacity of community coalitions.
- **Reinvest revenue from taxes:** Sustain programs that support the reduction and prevention of obesity by reinvesting new revenue created by a "junk food tax" into local infrastructures, school health programs, and public health departments.
- **Create a dedicated fund:** Establish a Healthy Community Fund, similar to the federal Community Development Block Grant, and direct existing funds and new revenue to local health departments for establishment of programs at the local level.
- **Seek foundation support:** Pursue grant funds for development of a statewide healthy living campaign.
- **Obtain federal grants:** Increase state funds in order to leverage and maximize federal funding.

RECOMMENDATIONS SPECIFIC TO AREAS OF INTERVENTION

In addition to the overarching recommendations, many strategies specific to an area of intervention (i.e., worksites; family, home, and community; early childhood; schools; and healthcare) were recommended by work groups. These recommendations and ideas for implementation, organized by area of intervention, are described in detail below.

WORKSITES

- **Engage business leaders:** Convene a statewide group of business leaders to develop guiding principles and a wellness model for businesses to adopt. Communicate the stakes involved for businesses and the actions they can take. Provide incentives for businesses, such as a stipend to employers for developing an internal wellness coordinator or wellness council. Provide training and guidance for wellness coordinators on best practices.

- **Provide toolkits for worksites:** Develop comprehensive toolkits using language and images that will motivate businesses. Identify and engage experts to identify best practices and craft worksite wellness messages. Develop a brand for worksite wellness programs. (Note: This could be part of the new statewide healthy living campaign described earlier.)
- **Develop nutrition standards for worksites:** Create a "default choice" for healthy foods within workplaces across the state by creating nutrition guidelines and disseminating information on healthy food choices at meetings and in cafeterias. Encourage employers to remove or decrease availability of unhealthy food options. Educate vending machine suppliers and their customers on healthier food options to be made available for purchase. Create links between employers and local growers to increase the amount of local fruits and vegetables served in cafeterias.
- **Encourage worksite policies to increase physical activity:** Encourage employers to implement evidence-based policies, as recommended by the CDC, to create opportunities for employees to be more physically active, such as through flexible schedules.
- **Monitor progress:** Identify a method of accountability and assessment to monitor the progress of worksite wellness activities. Reward employers that are making progress, and help employers improve efforts. Conduct continuous evaluation and improvement with employers across the state.

FAMILY, HOME, AND COMMUNITY

- **Create a healthy living campaign:** Provide guidance (e.g., "where to start") that makes the goal of a healthy lifestyle obtainable. Develop clear messaging for small measurable steps that individuals and families can take to be healthy (e.g., the governor's 4x4 message). Have all state agencies use one message and brand it to make it specific to Michigan. Develop a strong social marketing campaign to support healthy living. (Note: This could be part of the new statewide healthy living campaign.)
- **Support and develop local coalitions:** Build coalitions at the local level and engage various stakeholders (e.g., businesses, schools, healthcare, faith-based organizations, foundations, residents, government) to provide local communities with consistent educational messages, identify barriers, maximize resources, and implement change. Provide funding and support to local coalitions for initiatives related to reducing and preventing obesity. (Note: This is part of the overarching recommendation for supporting community coalitions.)
- **Create incentives:** Provide financial incentives for individual behavior change by creating a healthy behavior tax credit for individuals and families. Work with healthcare providers to determine appropriate criteria.
- **Develop disincentives:** Increase disincentives by establishing a tax on unhealthy food and beverages and reinvest the revenue in local infrastructures and public health. Utilize standards for nutrition to define unhealthy foods. Address the consumption of sugar-sweetened beverages by restricting advertising and examine what other states are doing to address this issue. Gain the support of the Michigan food and beverage industry.
- **Develop community master planning standards:** Develop a "gold standard" for community master planning to include active transportation, complete streets (e.g., sidewalks, bike facilities), green space (e.g., parks), access to healthy foods and stores, zoning for community and school gardens and hoop houses, and public transportation. Assist community coalitions in providing best practice information to city planning committees to encourage use of non-sedentary options (e.g., safe streets, accessible stairs).
- **Develop nutrition standards for public facilities:** Review best practices and develop nutrition standards to encourage facilities open to the public (e.g., stadiums, parks, recreation areas) to provide healthy food options and less expensive alternatives to bottled water. Provide education on policies that promote breastfeeding in these venues.

- **Increase the availability of locally grown food:** Support state-level policies and agricultural incentives to disperse more food grown in Michigan into communities (e.g., farmers markets, corner stores, homes). Examples include increasing incentives for growing fruits and vegetables, providing forgiveness loans for hoop houses to increase year-round growing, and maximizing incentives at farmers markets (e.g., EBTs). Work with the agricultural sector to improve Good Agricultural Practices (GAP) certification to improve food safety.
- **Monitor progress:** Ensure there is an emphasis on data collection to monitor progress. Share indicators and evaluation strategies.

EARLY CHILDHOOD

- **Improve access to healthy foods for individuals and families:** Using the WIC program as a model, revise the food assistance program by creating a list of acceptable (e.g., fresh fruits and vegetables) and unacceptable (e.g., junk food, soda) foods for purchase, and provide nutrition education to individuals who receive food assistance. Subsidize the price of fruits and vegetables to increase purchase of fruits and vegetables and create incentives for increased production of Michigan fruits and vegetables.
- **Expand Michigan Nutrition Standards:** Require updated nutrition standards for all early learning and care programs by expanding Michigan Nutrition Standards to include children aged 0–5. Modernize the Child and Adult Care Food Program's (CACFP) payment program modeling WIC's success using electronic benefit transfer (EBT).
- **Reform Michigan's Supplemental Nutrition Assistance Program (SNAP):** Regulate how SNAP benefits are used and advocate for the state to continue to match federal funding.
- **Update licensing rules:** Strengthen child care licensing rules to require early childhood care providers to participate in physical activity and nutrition education as part of licensing requirements. Clarify regulations and strengthen monitoring of all childcare settings to ensure implementation of nutrition and physical activity requirements.
- **Promote breastfeeding:** Develop an education and marketing campaign on the evidence-based link between bottle feeding and obesity. (Note: This could be part of the new statewide healthy living campaign.) Eliminate formula-based gift bags in maternity units in hospitals and provide Medicaid (or other insurance) coverage of portable breast pumps.
- **Create a social marketing campaign:** Hire a social marketing firm to develop an obesity prevention campaign targeting early childhood using Facebook, Twitter, and other media. (Note: This could be part of the new statewide healthy living campaign.)
- **Consistent message:** Develop a consistent, evidence-based, standardized message for parents, healthcare providers, and the larger community. Educate providers about existing resources and connect them through existing networks. Train providers in motivational messaging to equip parents with nutrition and physical activity strategies. (Note: This could be part of the new statewide healthy living campaign.)
- **Develop a quality rating improvement system:** Work with the Early Childhood Investment Corporation (ECIC) to determine evidence-based interventions, such as those included in the Nutrition and Physical Activity Self-Assessment for Child Care (NAP SACC) program, to include in a quality rating improvement system to increase effectiveness of obesity prevention interventions.

SCHOOLS

- **Implement the Michigan Nutrition Standards statewide:** Mandate the use of the Michigan Nutrition Standards in all schools across the state, including implementing campus-wide policies in all school venues at all times. Work groups also recommended incorporating nutrition into the

curriculum, encouraging fundraising with healthy options, limiting snacks and availability of junk food in schools, cooking with fresh foods and produce in school cafeterias, and posting nutritional information and facts.

- **Improve physical education, and nutrition and health education in schools:** Adopt the Comprehensive School Physical Activity Program (CSPAP) which includes: quality physical education, physical activity during school (e.g., recess, classroom breaks), physical activity before and after school, promoting staff participation, and community involvement. Rebrand and enhance the image of physical education and nutrition and health education, and strengthen requirements to make them more comprehensive. Restructure the school day (or year) to allow for more emphasis on physical and health education.
- **Hold schools accountable following implementation of new standards:** Assess implementation by including questions on the MEAP related to health and physical education.
- **Develop and implement school health teams:** Broaden the focus and composition of school health improvement teams by including obesity prevention in their mission. Encourage school health councils to provide consistent health and education messages, pool resources, assess local needs, and develop outcome-based work plans.
- **Create school-based wellness coaches or coordinators:** Develop a position description for a dedicated health and wellness coordinator within each school to ensure and monitor adherence to nutrition and physical activity guidelines and to connect schools to wellness and physical activities in the community.
- **Increase funding for school health programs:** Tax unhealthy foods and beverages and direct new revenue toward improving school health programs.

HEALTHCARE

- **Promote coordination of services for comprehensive care for obesity prevention and treatment:** Implement policies that promote integrated care (e.g., integrating physical and mental health) to address chronic illness related to obesity. One method suggested for coordinating care is to incorporate obesity prevention and treatment into the Patient Centered Medical Home pilots running across the state. Recommendations include offering incentives to providers for achieving patient health outcomes, monitoring BMI, and implementing obesity interventions.
- **Implement complementary population management approaches:** To facilitate access to obesity-related services and encourage the implementation of evidenced-based interventions, expand the health information technology infrastructure for clinical and claims data and include adult BMI measures on the Michigan Care Improvement Registry (MCIR).
- **Restructure insurance coverage to include services for obesity prevention and treatment:** Provide incentives (e.g., pay for performance) to deliver services for obesity prevention and treatment. Provide insurance coverage for all weight-related healthcare issues across a continuum, starting with prevention. Include benefits not traditionally covered (e.g., transportation, counseling, nutrition education, breastfeeding support, home-based programs). Include coverage for specialists (e.g., exercise physiologists, bariatric surgeons, nutritionists) and over-the-counter medication for weight loss. Reimburse ongoing dietary nutritional counseling for people who are identified as at risk (e.g., pre-diabetes, high BMI, high cholesterol) before the disease process begins. Develop Centers of Excellence programs to implement best practices focused on obesity management.

- **Improve physician and other provider knowledge of obesity prevention:** Build provider capacity to initiate and conduct nutrition and physical activity counseling (including what a patient can do with BMI information). Require that continuing medical education (CME) include obesity-related issues, and provide ongoing training on motivational interviewing. Encourage medical and nursing schools and allied health education programs to build nutrition, physical activity, wellness, and self-management practices into their curriculums.
- **Ensure consistent messages from providers:** Make sure that all practitioners have the same nutrition information to share with patients and are using a similar message that complements what is happening in the community. Encourage stakeholders to agree on a message and develop a toolkit to share with doctors and other practitioners, similar to what the Michigan State Medical Society and the Michigan Chapter of the American Academy of Pediatrics are developing. Identify "champions in practice" to help others effectively use the message and detect challenges or barriers.
- **Promote breastfeeding:** Use culturally appropriate messages to promote the advantages of breastfeeding and increase women's freedom to breastfeed in public.
- **Engage the healthcare community:** Encourage community coalitions to choose strategies that include healthcare entities as partners. Identify key providers and connect them to existing coalitions.
- **Create a statewide campaign:** Create an alignment between policy and funding to support the full continuum of obesity prevention and treatment for the entire community, including the uninsured (e.g., children from pre-birth through adolescence to teenagers to adults). One work group recommends providing a consistent message to increase physical activity of youth.
- **Create a "sin tax":** Modeling the cigarette tax, create a consumer tax on the purchase of unhealthy foods and beverages. Use an educational grassroots campaign and social marketing to garner consumer support.

NEXT STEPS

Work group recommendations will be considered by the Michigan Department of Community Health as it works to develop a draft Michigan Action Plan to Prevent and Reduce Obesity. The MDCH Obesity Steering Committee will review and help finalize the action plan. Meanwhile, all summit participants are encouraged to consider the steps they or their organization can take now to help prevent and reduce obesity in Michigan.

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APPENDIX F: *Crosswalk between the Michigan Health and Wellness 4 x 4 Plan and National Objectives and Strategies*

Measures	Healthy People 2020[1]	IOM—Accelerating Progress on Obesity[2]	National Prevention Strategy[3]
Long-term Impact			
Percentage of Michigan's population who are obese	NWS–8 NWS–9 NWS–10		
Percentage of Michigan's population who are overweight	NWS–8 NWS–9 NWS–10		
Percentage of Michigan's adult population by race who are obese	NWS–8 NWS–9 NWS–10		
Percentage of Michigan's adult population by race who are overweight	NWS–8 NWS–9 NWS–10		
Intermediate Impact			
Percentage of Michigan's children and adults who achieve recommended amounts of physical activity	PA–2 PA–3		
Percentage of Michigan's children and adults who eat the recommended amount of fruits and vegetables	NWS–14 NWS–15		
Percentage of Michigan's schools selling healthy foods	NWS–2	Strategy 5-2	HE– Recommendation 2
Percentage of high school students who drank a can, bottle, or glass of soda or pop at least once a day	NWS–17.2	Strategy 5-2	
Percentage of high school students who attended physical education classes on one or more days in an average week when they were in school		Strategy 5-1	AL–Recommendation 2
Amount of food stamp sales at Michigan's farmers markets			HE–Recommendation 1

[1] *www.healthypeople.gov*
[2] *http://www.iom.edu/~/media/Files/Report%20Files/2012/APOP/APOP_insert.pdf*
[3] *http://www.healthcare.gov/prevention/nphpphc/strategy/report.pdf*
KEY: NWS=Nutrition and Weight Status; PA=Physical Activity; HE=Healthy Eating; AL=Active Living

First Year Outcomes	Healthy People 2020[1]	IOM—Accelerating Progress on Obesity[2]	National Prevention Strategy[3]
Outcomes for Strategy A: Multimedia campaign			
Implementation of an effective, well-designed, sustained, statewide social marketing campaign on physical activity and nutrition		Strategy 3-1	
Outcomes for Strategy B: Community coalitions			
Availability of healthy foods in Michigan communities	NWD–4	Strategy 2-2 Strategy 2-3	HE– Recommendation 1
Access to physical activity opportunities in Michigan communities	PA–10 PA–12 PA–15	Strategy 1-1 Strategy 1-2	AL– Recommendation 1 AL– Recommendation 3
Awareness of the importance of regular physical activity and healthy eating		Strategy 3-1	HE– Recommendation 4
Outcomes for Strategy C: Partnerships			
Availability of healthy foods in Michigan worksites, schools, colleges and universities, government-run locations, restaurants, and retail outlets	NWS–2 NWD–4 NWS–7	Strategy 2-1 Strategy 2-2 Strategy 2-3 Strategy 2-4 Strategy 4-3	HE– Recommendation 1 HE– Recommendation 2 HE– Recommendation 3
Access to physical activity opportunities in worksites, schools, colleges and universities, and government-run locations	PA–4 PA–5 PA–12	Strategy 1-2 Strategy 4-3 Strategy 5-1	AL– Recommendation 2 AL– Recommendation 4
Incentives for healthy weight maintenance included in insurance plans		Strategy 4-2	
Health providers' standards of practice include prevention, screening, diagnosis, and treatment of overweight and obesity, including routine measurement of BMI	NWS–5 NWS–6 PA–11	Strategy 4-1	AL– Recommendation 5
All foods and beverages in schools meet strong nutrition standards	NWS–2	Strategy 5-2	HE– Recommendation 2
Physical activity outside of physical education includes safe routes to walk to school, classroom physical activity breaks, active recesses, and after school physical activity programming	PA–6 PA–7 PA–10	Strategy 1-2	AL– Recommendation 3
Young children are active for at least one-quarter of the time they are in child care settings	PA-9	Strategy 1-3	AL– Recommendation 2
Outcomes for Strategy D: Infrastructure			
State level infrastructure and public health workforce to support obesity prevention efforts			
Outcomes for Strategy E: Funding			
Commitment of resources to "accelerate progress in obesity prevention."			

[1] *www.healthypeople.gov*
[2] *http://www.iom.edu/~/media/Files/Report%20Files/2012/APOP/APOP_insert.pdf*
[3] *http://www.healthcare.gov/prevention/nphpphc/strategy/report.pdf*
KEY: NWS=Nutrition and Weight Status; PA=Physical Activity; HE=Healthy Eating; AL=Active Living

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Rick Snyder, Governor
Olga Dazzo, Director