Michigan Epidemiological Profile

Focusing on Abuse of Alcohol, Prescription Drugs, Tobacco, and Mental Health Indicators

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Michigan Department of Community Health
Bureau of Substance Abuse and Addiction Services
State Epidemiology Outcomes Workgroup

EXECUTIVE SUMMARY

The Michigan Epidemiological Profile describes Michigan residents' substance abuse consequences, consumption patterns, and intervening variables, as well as mental health well-being, and establishes a method for monitoring and improving outcomes. The profile is organized by four different topic areas with twenty-two different indicators. The data reported in this document are based on numbers provided by state and federal sources. The profile provides the most current information, with trend data, if available.

The findings for Michigan youth include:

- Between 2004 and 2009, alcohol-related traffic crashes involved at least one driver, aged 16-20, who had been drinking, caused an annual average of 183 deaths and serious injuries.
- In 2007, underage alcohol use cost Michigan taxpayers over $2 billion dollars.
- In 2010, 4,389 youth, 12-20 years-of-age, were admitted for alcohol-involved treatment in Michigan, accounting for 11.6% of all alcohol involved treatment admissions in the state.
- In 2009, both male and female youth in public schools that consumed alcohol, were more likely to display feelings of mental distress.
- Between 2007 and 2009, the prevalence of reported depressive feelings and lifetime illicit drug use co-occurrence slightly increased, while depressive feelings and current illicit drug use co-occurrence declined.
- In 2009, 46% of Michigan 9th through 12thth graders had tried smoking, including 52% of 11th and 12th graders and 58% of Hispanic/Latino students.
- In 2009, 16% of Michigan youth reported having seriously considered suicide, and one in every 11 (9.3%) students reported having attempted suicide one or more times.

The findings for Michigan's general/adult population include:

- Of all 2009 traffic crash fatalities, 28.8% involved at least one alcohol-impaired operator, bicyclist, or pedestrian.
- Between 2004 and 2009, alcohol-related traffic crashes that involved at least one driver, 16-25 years-of-age, who had been drinking, caused an annual average of 474 deaths and incapacitating injuries.
- During 2007 to 2009, an estimated 5.6% of individuals over 18 years-of-age were heavy drinkers and 17.6% of them were binge drinkers.
- The prescription drug overdose death rate was the highest in males 40-49 years-of-age.
- In 2010, prescription drugs totaled 5,126 treatment entrances, with the highest rates in adults 21-54 years-of-age.
- Between 2006 and 2009, the biggest increase in the number of legitimate prescriptions was noted as Opioid antagonists (Suboxone).
- In 2009, Michigan's age-adjusted suicide rate was 11.3 per 100,000 population, with the rate of death for males, four times higher than for females.
- Between 2006 and 2007, young adults 18-25 years-of-age in Michigan, had higher rates of a major depressive episode and psychological distress, compared to adults 26 years-of-age.

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INTRODUCTION

The data reported in this document are based on numbers provided by state and federal sources. The types of data examined include: magnitude (the number of people affected), prevalence (substance use rates), years of potential life lost, trends (increasing, decreasing, or stable rates over time), and comparison data (with nation, other states, per gender and age, etc.). The data are organized by substance, and then by age group. The format reflects the same organizational pattern as the state's planning tool, and the logic model. Logic models present a systematic picture of the relationships between substance use and adverse outcomes. Both use and outcomes are influenced by intervening variables, such as laws and policies reflected in the logic models. Thus, this document reflects the logic model and presents information in the following order:

- Substance (the magnitude of the problem; the drug of choice)
- Consequences (the effects of use, misuse and abuse of a substance on quality-of-life: health, mortality, crime, dependence, accidents, and potential life lost)
- Consumption Patterns (prevalence, use patterns)
- Intervening Variables (positive and negative contributing factors, such as: availability, enforcement and adjudication, promotion, social norms, laws and policies, risk/protective factors, and other mediating resources)

In addition, several mental health indicators were included in this document. Depressive disorders commonly occur together with an anxiety disorder[1] or substance use disorder (SUD). For the past decade, the high prevalence of co-morbidity of substance use disorders with mental or emotional disorders has been significantly recognized in research and treatment.[2] In addition, depression and other psychiatric illnesses are the most common risk factors of suicide. Almost all people who commit suicide have a diagnosable mental or substance abuse disorder or both, and the majority has a depressive illness.[3] Serious psychological distress is an important individual and population health issue. Depressive disorders, if untreated, become chronic and are expected, by the year 2020, to be exceeded only by heart disease in contributing to the global burden of diseases.[4, 5]

Data Sources and Selection Criteria

In 2007, the State Epidemiology Workgroup (SEW) of the Strategic Prevention Framework State Incentive Grant (SPF SIG) initially began reviewing, compiling, and evaluating data on adverse health and social outcomes that described the burden of alcohol, tobacco and other drugs on Michigan. The prioritization of these adverse outcomes was accomplished through comparing epidemiological data such as rates, number of people affected, and years of potential life loss and rate ratio. The process allowed the SEW to select several outcomes that

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1 Hirschfield, R. (2001). Comorbidity of major depression and anxiety disorders: Recognition and management in primary care. *Prim Care Companion Journal of Clinical Psychiatry*. *3(6)*: 244–254.

2 National Institute on Drug Abuse. (2010). *Comorbidity: addiction and other mental illnesses*. Retrieved from http://www.nida.nih.gov/PDF/RRComorbidity.pdf.

3 Moscicki, E. K. (2001). Epidemiology of completed and attempted suicide: toward a framework for prevention. *Clinical Neuroscience Research*, *1*, 310-323.

4 Murray, C. J. L., & Lopez, A. D. (1996). A comprehensive assessment of mortality and disability from diseases, injuries, and risk factors in 1990 and projected to 2020. A. Lopez, C. Mathers, M. Ezzati, D. Jamison, C. Murray (Eds.). *The global burden of disease, vol. 1.* Cambridge, MA: Harvard University Press.

5 Murray, C. J. L., & Lopez, A. D. (1996). Global health statistics; a compendium of incidence, prevalence, and mortality estimates for over 200 conditions. C. Murray, A. Lopez (Eds.). *The global burden of disease, vol. 2.* Cambridge, MA: Harvard University Press.

indicated a high burden on Michigan's resources, as well as those with the most severe impact on the state. Once this preliminary work of the SEW was accomplished, a second phase, knowledge-based prioritization process was implemented. This process allowed the state and the SEW to further evaluate the feasibility of addressing the preliminary problems identified with the input of numerous stakeholders, including other state-level departments, community coalitions, regional substance abuse coordinating agencies (CAs), and prevention providers. The following questions were asked: (1) How changeable and preventable is the problem; (2) Is there support, including policy and law, as well as readiness to change the problem; and (3) Does Michigan have the capacity and resources available to address the problem? Respondents were also asked to rank each of the potential indicators as a high, medium or low priority to include in the document. Based on responses, indicators to include in the document were narrowed down. This process was repeated in 2009, which resulted in a further narrowing of indicators to track in the 2010 revision of the original document. For the current (2011) Michigan Epidemiological Profile, the State Epidemiology Outcomes Workgroup (SEOW) members reaffirmed the indicators identified in the 2010 revision, as well as determined mental health indicators to include, based on the same original three questions, as well as reliability and availability of data sources.

Data Limitations and Gaps

As is the case in many states, information gaps exist in alcohol, tobacco, other drug (ATOD) and mental health data available within Michigan at the state and local level. These gaps in information may limit the ability to address a complete profiling of population needs, resources, and readiness. The SEOW has identified these information gaps through various processes, which are primarily the result of systems issues. Subsequently, these gaps may have impacted the formulation of statewide and local community indicators and need statements, and what has been included in this document.

When assessing data, the SEOW looked at measures, availability, analysis, and frequency of data collection as a first tier consideration of whether to include specific data sets. This contributed to the level of confidence in what the data appeared to be showing. Other considerations related to data gaps and limitations included:

- The lack of adequate data on specific demographic subsets of Michigan's population (e.g., Native Americans, Hispanics, Arab Americans, lesbian/gay/bisexual/transgender, etc). Since significant differences on ATOD rates and consequences often exist between racial and cultural groups, it is important to improve the collection of this data for all Michigan ATOD indicators. Although progress has been made in recent years, there is room for continued improvement.
- Limited use of available tools in communities. One example of this, identified previously, was the limited number of school districts using the Michigan Profile for Healthy Youth (MiPHY). Through efforts of the SEOW, community coalitions, CAs, the Michigan Department of Education and other stakeholders, attention has been given to community readiness and responsiveness to conducting the MiPHY, and the number of school districts now participating has increased substantially.
- Limited data being collected on specific drugs (e.g. methamphetamine, prescription and over-the-counter drugs, etc.) or specific correlations (e.g. the link between child health and maternal alcohol consumption related to fetal alcohol spectrum disorders {FASD} or potential mental health indicators, the link between substance use/abuse and child abuse and neglect cases, etc.)
- The need for substance use disorder treatment data that is not limited to publicly funded programs (and a disclaimer to be added to current data on this limitation).
- Limitations in data sources available to assess mental health issues in communities, and the link to risk and protective factors, life stressors, and other potential indicators.
- Local level risk and protective factor data related to environmental, school, community and individual domains, as well as among specific populations (e.g., college students, adjudicated youth, the elderly, etc.).

The above examples of gaps in data are acknowledged, and are important for the reader to consider when reviewing this document. Although accomplishments have been achieved in developing and accessing more data in recent years, there is still work to be done. The SEOW views this as one of its primary roles. The assistance and support of the Michigan Department of Community Health will be invaluable to this process.

AVAILABLE INDICATORS AND DATA SOURCES		
Areas of Focus	Youth Indicators and Data	Adult/General Indicators and Data
Alcohol Use	• Fatal Traffic Crashes of Alcohol Impaired Underage Drivers (Michigan Office of Highway Safety Planning {MOHSP}) • Costs of Underage Alcohol Use (Pacific Institute for Research and Evaluation) • Alcohol Use Trend (Michigan Youth Risk Behavior Survey {MiYRBS}) • Depressive Feelings and Alcohol Consumption Co-Occurrence (MiYRBS)	• Michigan Traffic Crash Facts (MOHSP) • Fatal Traffic Crashes of Alcohol Impaired Drivers Age 16-25 (MOHSP)
Prescription Drug Abuse	• Prescription Drug Consumption (MiYRBS) • Depressive Feelings and Lifetime Illicit Drug Use Co-Occurrence (MiYRBS) • Depressive Feelings and Current Illicit Drug Use Co-Occurrence (MiYRBS)	• Overdose Death Rate (vital statistics) • Legitimate Prescriptions (Michigan Automated Prescriptions Service) • Primary Drug of Choice at Admission (Treatment Episode Data {TEDS}) • Heroin Primary Drug of Choice (TEDS) • Other Opiates Primary Drug of Choice (TEDS) • Prescription Drug Involved Treatment (TEDS)
Tobacco Use	• Tobacco Use Trend (MiYRBS)	• Lung Cancer Mortality (vital statistics)
Mental Health Indicators	• Suicide Attempts (MiYRBS, national YRBS) • Depressive feelings/episode (MiYRBS, national YRBS)	• Suicide Deaths (vital statistics) • Major Depressive Episode (National Survey on Drug Use and Health {NSDUH}) • Psychological Distress (NSDUH)

Focus of the Michigan Epidemiological Profile, 2011			
Area	*Consequences*	*Consumption Patterns*	*Intervening Variables*
Alcohol Use	*Youth:* • Alcohol-Related Traffic Crash Deaths and Serious Injury (ARTCD/SI) • Underage Drinking (UAD) and Driving/Riding with Drinking Driver • Use Linked to Other Risky Behaviors and Consequences • Costs • Abuse and Addiction • Health Risks General/Adult: • ARTCD • ARTCD/SI • Abuse and Addiction • Drove Vehicle After Drinking	*Youth:* • *Current Use (last 30 days)* • *Lifetime Use* • *Early Initial Use* • *Binge Drinking* *General/Adult:* • *Current Use (last 30 days)* • *Heavy Drinking* • *Binge Drinking*	*Youth:* • *Laws & Policies* • *Law Enforcement* • *Access to Tobacco* • *Social Norms* • *Age of Onset* *General/Adult:* • *Safety Belt Use* • *Focus on ARTCD and UAD on statewide level*
Prescription Drug Abuse	*Youth:* • *Overdoses, Poisonings, etc.* • *Related Risky Behaviors and Consequences* • *Death and Serious Injury from Impaired Driving/Riding* • *Abuse and Addiction* • *Related Crime (gap in data)* *General/Adult:* • Abuse and Addiction • Traffic Deaths and Injuries • Overdoses and Related Mortality	*Youth:* • *Compared to Other States* • *Various Consumption Patterns* • *Special Population Patterns* *General/Adult:* • *National Data* • *Ranking Compared to Other States*	*Youth/General/Adult:* • *Access: Point of Access and Disposal* • *Military Considerations* • *Social Norms* • *Perception of Risk* *General:* • *Access: Prescriptions Written* • *Social Norms and Perception of Risk*
Tobacco Use	Youth: • Relationship to other Substance Abuse • Health Risks General/Adult: • Tobacco-related Morbidity and Mortality	*Youth:* • *Tobacco Lifetime Use* • *Early Initial Use* • *Current Use (last 30 days)* • Daily Use • Special Population Data General/Adult: • Smoking Rates and Trends, Compared to Other States • Cultural and Special Population Trends	*Youth:* • *Youth Access to Tobacco Prevention Activities (Synar and Block Grant Funding)* • *Laws/Policies* • *Perception of Harm* • *Tobacco Industry Innovations* *General/Adult:* • *Tax Increases* • *FDA Control Over Tobacco* • *Center for Disease Control (CDC) Funded Activities*

Area	*Suicide Prevalence and Prevention*	*Depression and Psychological Distress Prevalence and Prevention*
Mental Health Indicators	Youth: • *Attempted Suicide* General/Adult: • *Suicide*	Youth: • *Depressive Feelings* • *Co-Occurrence of Depressive Feelings and Alcohol Consumption/Illicit Drug Use* General/Adult: • *Depressive Episode and Psychological Distress*

Note Priorities are shown above in Italics.

STATE EPIDEMIOLOGICAL OUTCOMES WORKGROUP MEMBERS *As of January 10, 2011*		
Member Name	Organization	Workgroup Affiliation
Elizabeth Agius	Wayne State University	Member / SEOW Project Evaluator
Minou Carey	Michigan Department of Community Health (MDCH), Bureau of Substance Abuse and Addiction Services (BSAAS), Center for Substance Abuse Prevention (CSAP) Prevention Fellow	Staff Support
Lisa Coleman	Genesee County Community Mental Health	Member
Denise Herbert	Network 180	Member
Joel Hoepfner	Mid-South Substance Abuse Commission / Michigan Association of Substance Abuse Coordinating Agencies (MASACA) Representative	Member
Charlotte Kilvington	Michigan State Police	Member
Kim Kovalchick	Michigan Department of Education	Member
Mary Ludtke	MDCH Mental Health	Member
Dr. Corinne Miller	MDCH Bureau of Epidemiology	Member / Chairperson
Dr. Su Min Oh	MDCH BSAAS (Prevention)	Member / SEOW Epidemiologist
Larry Scott	MDCH BSAAS (Prevention)	Member / SEOW Project Director
Felix Sharpe	MDCH BSAAS	Member
Brenda Stoneburner	MDCH BSAAS (Prevention)	SEOW Staff Liaison
Jeff Wieferich	MDCH BSAAS (Treatment)	Member
Jill Worden	Bay Area Behavioral Health/Riverhaven Coordinating Agency	Member

MICHIGAN OVERVIEW

Michigan is a coastal state with picturesque lakes, a large, culturally diverse population, and a diversified economy. In 2009, it ranked as the nation's eighth largest state with an estimated 9,883,640 people.[6] Its diversity is manifested by a patchwork of racial, linguistic, geographic, gender, age and socio-economic characteristics. Approximately, 77% of the state's population is White, 14% African American, 4.4% Hispanic, 2.4% Asian/Pacific Islander, and 0.6%Native American. English is the primary language spoken at home by 91% of the residents of Michigan, followed by languages other than English 9%, and Spanish 3.4%.[7]

An estimated 47% of Michigan's population resides in Southeast Michigan (Lapeer, Livingston, Macomb, Oakland, St. Clair, Washtenaw and Wayne Counties), according to the 2010 Census. Although minority populations reside throughout the state, there are concentrated sectors as follows: About 70% of all African Americans in Michigan reside in Southeastern Michigan, primarily in Wayne and Oakland counties; 43% of Michigan's total Hispanic population resides in Southeast Michigan; and higher densities of Asian-Americans tend to be in Western and Southeast Michigan. The largest Arab American and Chaldean population in the United States primarily resides in Wayne, Oakland and Macomb counties, and combined, estimated population whose ancestry is Arab American and Chaldean totals 490,000.[8] In addition, many of the 12 federally Native American tribes live in the Northern part of Michigan.[9] (Appendix 2) Almost half the state's population is under 35 years-of-age, with 24% under 18 years-of-age. An estimated 51% of the state's population is female; 49% is male.[10]

Michigan's population whose education level is completion of high school or higher remains above U.S. estimates. Eighty-seven percent of Michigan's residents, 25 years-of-age and older, possess a high school diploma or equivalent, and 35% have attained an Associates Degree or higher. While Michigan tends to have a higher percentage of high school graduates than the U.S., the state trends for attainment of a Bachelor's degree remain lower than the national average.[11]

Michigan's socio-economic profile reflects a diverse set of industries, including agricultural, construction, manufacturing, wholesale trade, retail, transportation, financial, professional, scientific, education, health service, arts, entertainment, food service and public administration. However, within the last nine years, Michigan has lost over 500,000 jobs in the manufacturing sector, primarily due to the downturn in the auto industry.[12]

This economic downturn has had a negative effect on Michigan's unemployment rate, which in 2009 ranged from 12.8% to over 15.0%, with a preliminary annual average of 14.0%. Michigan's preliminary annual average unemployment rate in 2009 rose sharply by five and six-tenths percentage points from the 2008 annual rate of 8.4%. The national annual average unemployment rate in 2009 was 9.3%, three and a half percentage points

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6 U.S. Bureau of the Census. (2010). Data file and estimated population by state by age, race, sex, and Hispanic origin for 2000-2009. *Census, PL94-171* Retrieved from http://michigan.gov/cgi/0,1607,7-158-54534-252541--,00.html.

7 U.S. Bureau of the Census. (2007-2009). *American community survey*. Retrieved from http://factfinder.census.gov/servlet/

8 The Arab American Institute. (2011). *Demographics*. Retrieved from http://www.aaiusa.org/pages/demographics/.

9 State of Michigan. (2010). *Michigan tribal governments*. Retrieved from http://www.michigan.gov/som/0,1607,7-192-29701_41909---,00.html.

10 U.S. Bureau of the Census. (2007-2009). *American community survey*. Retrieved from http://factfinder.census.gov/servlet/.

11 U.S. Bureau of the Census. (2007-2009). Educational attainment. *American community survey*. Retrieved from http://factfinder.census.gov/servlet/DatasetMainPageServlet?_program=ACS&_submenuId=datasets_2&_lang=en.

12 American Manufacturing Trading Action Coalition. (2008). *Quick fact sheet for Michigan's worsening eight-year depression: paying the price for $1 trillion in U.S. auto-trade losses*. Retrieved from http://www.amtacdc.org/SiteCollectionDocuments/2008/09%2026%2008%20Michigan%20factsheet.pdf.

above the 2008 annual rate of 5.8%. The state's 2009 preliminary annual jobless rate was its third highest since 1976 (the current official series dates back to 1976). Only the 15.6% rate recorded in 1982 and the 14.6% rate registered in 1983 were higher.[13]

Michigan's annual average unemployment rate in 2010 declined by half a percentage point; from the 2009 final annual average rate of 13.6%. The year 2010 marked the first decrease in Michigan's annual jobless rate since 2005. From annual 2009 to 2010, the number of unemployed declined in Michigan by 33,000 or 4.9%. However, total employment levels also fell by 25,000 or 0.6%. The state's labor force dropped by 57,000 or 1.2% during 2010. Long-term unemployment rose in Michigan from 2009 to 2010. Individuals out of work for 27 weeks or more increased from 41% of the unemployed in 2009 to about 50% of the unemployed in 2010. Average weeks unemployed also increased as unemployment duration rose from an average of 30 weeks in 2009 to 40 weeks in 2010.[14]

The percentage of individuals living below the poverty line in Michigan has changed significantly over the last nine years, individual poverty rates for Michigan changed from 10.1% in 2000 to 14.4% in 2008 to 16.2% in 2009, while the U.S. individual poverty rate was 12.2% in 2000, 13.2% and 14.3% respectively. The percentage of families living below the poverty line showed a similar trend, the family poverty rate for Michigan was 7.7%, while the U.S. family poverty rate was 9.3% in 2000. In 2009, Michigan's family poverty rate was estimated as 11.6% and that of the U.S. was 10.5%.[15] As of February 2011, over 232,000 residents are eligible to receive Family Independence Payments; 1.94 million are eligible for the Food Assistance Program; 10,203 are eligible to receive State Disability Assistance; 75,288 are eligible to receive Child Care and Development services; and 1.93 million are eligible to receive Medicaid benefits.[16]

The Michigan Department of Community Health (MDCH), Bureau of Substance Abuse and Addiction Services (BSAAS), coordinates substance abuse and addiction treatment, prevention, and recovery services through sixteen CAs. These sub-state entities are responsible for administering the provision of services within their jurisdictions, which may include single or multiple counties. All of Michigan's 83 counties are served by a CA. These agencies are incorporated in various administrative entities, including local health departments, community mental health service agencies, county commissions and freestanding non-profit agencies appointed by county commissions.(Map 1)

Mental health and developmental disability services in Michigan are delivered through county-based community mental health services programs (CMHSPs). MDCH, along with 46 regional CMHSPs, contracts public funds for mental health, and developmental disability services. Medicaid funds, which are paid on a per Medicaid-eligible capitated basis, are contracted with CMHSPs, or affiliations of CMHSPs, as Prepaid Inpatient Health Plans (PIHPs). Each region is required to have an extensive array of services that allows for maximizing choice and control on the part of individuals in need of service. Individual plans of service are developed using a person-centered planning process for adults and a person-centered process and family-centered care for children. MDCH is actively promoting values of recovery and resiliency. MDCH contracts with 18 of its PIHPs to provide Medicaid Specialty Services. Limited outpatient mental health services are available through Medicaid Health Plans (MHPs).(Map 2)

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13 Michigan Department of Labor, Energy, and Economic Growth. (2010). *Michigan's 2009 preliminary annual average labor force data*. Retrieved from http://www.michigan.gov/dleg/0,1607,7-154-10573_11472-230057--,00.html.

14 Michigan Department of Labor, Energy, and Economic Growth. (2011). *Michigan's 2010 preliminary annual average labor force data*. Retrieved from http://www.michigan.gov/dleg/0,1607,7-154-10573_11472-249787--,00.html.

15 U.S. Bureau of the Census. (2009). *American community survey*. Retrieved from http://factfinder.census.gov/servlet/

16 Michigan Department of Human Services. (2011). *Green book report of key program statistics.* Retrieved from http://www.michigan.gov/documents/dhs/2011_02_GreenBook_347800_7.pdf.

ALCOHOL USE

Alcohol Consequences by Age Group

ALCOHOL CONSEQUENCES – YOUTH

ALCOHOL-RELATED TRAFFIC CRASH DEATHS AND SERIOUS INJURIES

Youth may be killed or seriously injured as an innocent victim or as an impaired driver, and they may kill or severely injure others. Alcohol-related traffic crashes involving at least one driver 16-20 years-of-age who had been drinking, caused an annual average of 183 deaths and serious injuries (KAs) in Michigan each year between 2004 and 2009. Between 2004 and 2009, Michigan averaged 31 fatalities annually in which at least one driver was 16-20 years-of-age and had been drinking with a corresponding rate of 3.1 deaths per million residents. The annual average incapacitating injuries was 152 with a corresponding rate of 15.2 serious injuries per million residents, as indicated in Table 1.

Table 1 – Fatal Traffic Crashes Attributable to Alcohol Impaired Underage Drivers 16 to 20 Years-of-Age, 2004-2009

Alcohol Impaired Average Fatalities per Year	*Alcohol Impaired Average Fatality Rate per 1,000,000 Population*	*Alcohol Impaired Average Incapacitating Injuries per Year*	*Alcohol Impaired Incapacitated Injury Average Rate per 1,000,000 Population*	*Alcohol Impaired Total Fatalities for 2004-2009*	*Alcohol Impaired Total Incapacitating Injuries for 2004-2009*
31.0	*3.1*	*152.0*	15.2	*186*	*911*

Source: Michigan Office of Highway Safety Planning, April 2011

UNDERAGE DRINKING AND DRIVING/RIDING WITH DRINKING DRIVER

Data from the 2009 MiYRBS indicated that 8.0% of 9th through 12th graders had driven while drinking, and 28.0% had ridden in a vehicle with someone who had been drinking, during the last 30 days.[17]

ALCOHOL USE LINKED TO OTHER RISKY BEHAVIORS AND CONSEQUENCES

According to the 2009 MiYRBS, 25.0% of 9th through 12th graders who had sex in the last three months reported doing so after using alcohol or drugs.[18] Binge drinking is most common in late teens and early twenties; however, it is reported as continuing well into the thirties and forties.[19] Binge drinking is defined as five or more drinks of alcohol in one occasion for youth, four or more drinks in one occasion for women, and five or more drinks in one occasion for men.[20] Binge drinking leads to several adverse outcomes for men, women and children. These adverse outcomes include: intentional and non-intentional injuries, unplanned sexual intercourse, unprotected sex, sexually transmitted diseases and unintentional pregnancy. Women with unintended pregnancies are more likely to start prenatal care later in their pregnancy and are less likely to engage in healthy behaviors such as quitting smoking during pregnancy or consuming adequate amounts of folic acid. Thus unintended pregnancies can also have adverse impacts on infants and children. No amount of

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17 Michigan Department of Education. (2009). *Michigan youth risk behavior survey 2009*. Contact Kim Kovalchick at kovalchickk@michigan.gov or (517) 241-4292. Retrieved from http://www.michigan.gov/documents/mde/09YRBSDetail_327165_7.pdf.

18 Ibid.

19 Michigan Department of Community Health. (2009). *Binge drinking in Michigan youth and adults*. Retrieved from http://www.michigan.gov/documents/mdch/Youth__Adult_Binge_Drinking_Fact_Sheet_342124_7.pdf.

20 Center for Disease Control. (2009). *Behavioral Risk Factor Surveillance System (BRFSS)*.Retrieved from http://www.cdc.gov/brfss/index.htm .

alcohol is safe for a fetus during pregnancy. Exposure to alcohol in early phases, often before a teen realizes she is pregnant, is linked to miscarriage, mental retardation, and other preventable birth defects, such as Fetal Alcohol Syndrome.[21] California researchers who compared the brains of teen drinkers to non-drinkers found that young alcohol users suffered damage to nerve tissues that could cause attention deficits among boys and faulty visual information processing among girls.[22] A multitude of research has documented the effects of alcohol on the developing brain, noting that brain development is not complete until about 25 years-of-age.

COSTS

It is estimated that underage alcohol use costs Michigan taxpayers over $2 billion per year, including the cost of youth violence, treatment, traffic crashes, property crimes and medical costs. Underage drinking (UAD) cost Michigan $2.4 billion in 2007, which translated to an annual cost of $2,275 for each youth in the state; and ranked Michigan as the 28th highest among the 50 states,[23] as indicated in Table 2. Excluding pain and suffering, the direct costs of UAD incurred through medical care and loss of work cost Michigan $742 million each year. Youth violence and traffic crashes by underage drinkers represent the largest UAD costs for the state. Among teen mothers, fetal alcohol syndrome (FAS) alone costs Michigan $32.6 million yearly.[24]

Table 2 – Cost of Underage Drinking by Problem, Michigan 2007

Problem	Total Cost (In millions)
Youth Violence	*$1,669.8*
Youth Traffic Crashes	*$253.6*
High-Risk Sex, Ages 14-20	*$129.8*
Youth Property Crime	*$100.2*
Youth Injury	*$68.2*
Poisonings and Psychoses	*$13.4*
Fetal Alcohol Syndrome among Mothers, Ages 15-20	*$32.6*
Youth Alcohol Treatment	*$84.7*
Total	*$2,352.3*

Source: 2007 Data from Underage Drinking in Michigan; The Facts, produced for the Underage Drinking Enforcement Training Center (UDETC) by the Pacific Institute for Research and Evaluation (PIRE) with funding from the Office of Juvenile Justice and Delinquency Prevention (OJJDP), November 2009, available at http://www.udetc.org/factsheets/Michigan.pdf.

ALCOHOL ABUSE AND ADDICTION

Young people who begin drinking before the age of 15 are four times more likely to develop alcohol dependence and are two and a half times more likely to become abusers of alcohol, than those who begin drinking at 21 years-of-age.[25] In 2010, 4,389 youth, 12-20 years-of-age, were admitted for alcohol-involved treatment in Michigan, accounting for 11.6% of all alcohol involved treatment admissions in the state.[26]

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21 Michigan Department of Community Health, Family and Community Health. (2005). Preconceptional binge drinking and unintentional pregnancy. *Michigan PRAMS Delivery, Vol.2*(4). Retrieved from http://www.michigan.gov/documents/April_2005_MI_PRAMS_Delivery_124472_7.pdf.

22 Join Together. (2010). Teen drinkers suffer nerve damage in brain. *Newsroom.* Retrieved from http://www.jointogether.org/news/research/summaries/2010/teen-drinkers-suffer-nerve.html.

23 Pacific Institute for Research and Evaluation. (2009). *Underage drinking in Michigan, the facts*. Funding from the Office of Juvenile Justice and Delinquency Prevention (OJJDP). Chapel Hill, N.C.

24 Ibid.

25 Grant, B. & Dawson, D. (1997). Age at onset of alcohol use and its association with DSM-IV alcohol abuse and dependence: results from the national longitudinal alcohol epidemiologic survey. *Journal of Substance Abuse, 9*(103-110).

26 Michigan Department of Community Health, Bureau of Substance Abuse and Addiction Services (n.d.). *Treatment Episode Data Set (TEDS). Lansing*, MI

ALCOHOL CONSEQUENCES – DRINKING DRIVERS 16-25 YEARS-OF-AGE

ALCOHOL-RELATED TRAFFIC CRASH DEATHS AND SERIOUS INJURIES

Alcohol-related traffic crashes involving at least one driver 16-25 years-of-age who had been drinking, caused an average of 474 deaths and incapacitating injuries (KAs) in Michigan each year from 2004 to 2009. During these years, Michigan averaged 89 fatalities annually in which at least one driver was 16-25 years-of-age and had been drinking, with a corresponding rate of 8.9 deaths per million residents. Drivers in this age group also caused 386 incapacitating injuries, or 38.4 serious injuries per million residents, [27] as indicated in Table 3.

Table 3 –Fatal Traffic Crashes Attributable to Alcohol Impaired Drivers 16 to 25 Years-of-Age, 2004-2009

Alcohol Impaired Average Fatalities per Year	*Alcohol Impaired Average Fatality Rate per 1,000,000 Population*	*Alcohol Impaired Average Incapacitating Injuries per Year*	*Alcohol Impaired Incapacitated Injury Average Rate per 1,000,000 Population*	*Alcohol Impaired Total Fatalities for 2004-2009*	*Alcohol Impaired Total Incapacitating Injuries for 2004-2009*
89.0	*8.9*	*386.0*	38.4	*513*	*2,424*

Source: Michigan Office of Highway Safety Planning, May 2009

ALCOHOL CONSEQUENCES – GENERAL/ADULT

ALCOHOL-RELATED TRAFFIC CRASH DEATHS AND SERIOUS INJURIES

Of the 9,969,727 persons living in Michigan in 2009, one out of every 11,446 was killed in a traffic crash and one out of every 141 persons was injured. The Michigan State Police Criminal Justice Information Center (CJIC) and the Office of Highway Safety Planning (OHSP), in conjunction with the University of Michigan Transportation Research Institute (UMTRI), compiles and publishes the annual Michigan Traffic Crash Facts. Of all 2009 traffic crash fatalities, 28.8% involved at least one alcohol-impaired operator, bicyclist, or pedestrian, 13.6% involved drugs but no drinking, and less than one percent involved both drinking and drugs. Overall 2000 to 2009 trend data for many indicators is available within this document, as shown in Table 4. While alcohol and/or drug related traffic crash fatalities declined from 379 in 2008 to 260 in 2009, the relative percentage of overall traffic fatalities remained constant. County-level data is available in the Michigan State Police Drunk Driving Audit.[28]

Table 4 – Michigan Traffic Crash Facts, 2000-2009

	2000	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*
Total Crashes	*424,867*	*400,813*	*395,515*	*391,486*	*373,028*	*350,838*	*315,322*	*324,174*	*316,057*	*290,978*
Total Injuries	*121,832*	*112,292*	*112,484*	*105,555*	*99,680*	*90,510*	*81,942*	*80,576*	*74,568*	*70,931*
Total Fatalities	*1,382*	*1,328*	*1,279*	*1,283*	*1,159*	*1,129*	*1,084*	*1,084*	*980*	*871*
Fatal Crashes	*1,237*	*1,206*	*1,175*	*1,172*	*1,055*	*1,030*	*1,002*	*987*	*915*	*806*
*Death Rate**	*1.5*	*1.4*	*1.3*	*1.3*	*1.2*	*1.1*	*1.1*	*1.0*	*0.9*	*0.9*
*Fatal Crash Rate***	*1.3*	*1.2*	*1.2*	*1.2*	*1.1*	*1.0*	*1.0*	*0.9*	*0.9*	*0.8*
*Restraint Use, Percent****	*48.0*	*47.4*	*51.4*	*49.8*	*51.0*	*54.7*	*54.9*	*54.4*	*49.7*	*34.4*

[27] University of Michigan Traffic Safety Institute. (2004-2009). *Michigan traffic crash facts*. Retrieved from http://www.michigantrafficcrashfacts.org/index.

[28] Michigan State Police (n.d.). *Michigan drunk driving audit*. Retrieved from http://www.michigan.gov/msp/0,1607,7-123-1645_3501_4626-27728--,00.html.

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Alcohol/Drug-Involved Fatal Crashes	457	458	421	403	385	361	397	349	357	390
Percent of Alcohol/Drug-Involved Crashes to total fatal crashes	36.9%	38.0%	35.8%	34.4%	36.5%	35.0%	39.6%	35.4%	39.0%	48.4%
Alcohol/Drug Involved Fatalities	515	504	463	442	418	408	440	381	379	418
Percent of Alcohol/Drug Involved Fatalities to total fatalities	37.3%	38.0%	36.2%	34.5%	36.1%	36.1%	40.6%	35.1%	38.7%	47.9%
OUIL Arrests (all agencies)	60,889	58,562	57,782	55,728	55,056	54,036	53,297	49,867	47,251	36,806
Registered Vehicles (Millions)	8.57	8.89	9.00	9.92	9.93	9.69	8.70	8.33	8.38	8.15
MVMT (Billions)	94.9	96.5	96.5	98.2	100.2	101.8	103.2	104	104.6	95.9
Population (Millions)	9.93	9.99	10.05	10.08	10.08	10.11	10.12	10.09	10.07	9.97

2007 Footnote: Total registered vehicles will be changed from this year forward to subtract the registered trailer plates.
**Death Rate=Persons killed per 100 million MVMT*
***Fatal Crash Rate=Fatal Crashes per 100 million MVMT*
****Restraint Use by deceased occupants of motor vehicles equipped with safety belts*
Source: Michigan Office of Highway Safety Planning, April 2011.

SUBSTANCE ABUSE AND ADDICTION

TEDS indicated that numbers for alcohol treatment, within Michigan's public service delivery system, have varied slightly between 2001 and 2010, but have maintained a decline since 2001, as indicated in Table 5.

Table 5 – Self-Reported Primary Drug of Choice Trend Data, from Treatment Episode Data, at Admission into Michigan Publicly Funded Services

Fiscal Year	Alcohol		Cocaine		Heroin		Other Opiates		Marijuana		Meth		Other Stim		All Others		Totals
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N
2001	29,492	49.3%	10,330	17.3%	7,857	13.1%	1,882	3.1%	8,528	14.3%	165	0.3%	108	0.2%	1,459	2.4%	59,821
2002	28,091	50.1%	9,558	17.1%	6,517	11.6%	1,929	3.4%	8,834	15.8%	280	0.5%	81	0.1%	759	1.4%	56,049
2003	31,710	48.4%	11,708	17.9%	7,935	12.1%	2,618	4.0%	10,262	15.6%	506	0.8%	77	0.1%	768	1.2%	65,584
2004	29,927	45.3%	11,765	17.8%	8,726	13.2%	3,246	4.9%	10,893	16.5%	689	1.0%	97	0.1%	742	1.1%	66,085
2005	30,185	43.2%	12,382	17.7%	9,601	13.8%	4,002	5.7%	11,816	16.9%	913	1.3%	92	0.1%	817	1.2%	69,808
2006	30,579	42.1%	13,290	18.3%	9,958	13.7%	4,918	6.8%	12,368	17.0%	707	1.0%	87	0.1%	712	1.0%	72,619
2007	30,488	42.1%	12,895	17.8%	9,931	13.7%	5,603	7.7%	12,264	16.9%	444	0.6%	77	0.1%	759	1.0%	72,461
2008	28,496	42.0%	9,698	14.3%	10,365	15.3%	6,154	9.1%	11,680	17.2%	500	0.7%	93	0.1%	790	1.2%	67,776
2009	28,981	41.5%	7,125	10.2%	12,522	17.9%	7,779	11.1%	11,707	16.8%	502	0.7%	124	0.2%	1,092	1.6%	69,832
2010	26,052	40.1%	6,064	9.3%	11,358	17.5%	8448	13.0%	11,275	17.3%	611	0.9%	120	0.2%	1,101	1.7%	65,029

Note: Does not include private practice data. This table may include duplicate counts of persons if they entered treatment more than one time during the year, either for the same or other substance.
Source: MDCH, BSSAS, March 2011

Data also indicated that during 2007 to 2009, 14.8% of Michigan adults had no health coverage, perhaps influencing a decline in access to care, [29] as shown in Table 6.

Table 6 – Adult Health and Safety Patterns from Michigan Behavioral Risk Factor Survey

Michigan	*N Sample Size*	*Percent*	*Table*
Heavy Drinking	*25,320*	*5.6 %*	*15*
Binge Drinking	*25,320*	*17.6 %*	*15*
Drove a vehicle after drinking alcohol [1]	*14,906*	*2.7 %*	*16*
Always wears seatbelt [1]	*14,863*	*88.3 %*	*17*
No Health Coverage	*17,187*	*14.8 %*	*9*
Cigarette Smoking Current	*26,086*	*20.3 %*	*14*
Cigarette Smoking Ever	*26,086*	*25.4 %*	*14*
POTENTIALLY RELATED TO EXPOSURE TO OR USE OF TOBACCO			
Never smoked	*26,086*	*54.2 %*	*14*
Two or more times ED visits for Asthma [2]	*1.365*	*5.9 %*	*3*
One or more times Hospital Stays for Asthma [2]	*1.365*	*3.6 %*	*3*
Stroke	*26,130*	*2.8 %*	*24*
Angina/Coronary Heart Disease	*25,877*	*4.7 %*	*23*
Heart Attack	*26,044*	*4.6 %*	*22*

Source: [1] Based on 2006-2008 Michigan BRFS, August 2009 [2] Based on 2005-2007 Michigan Asthma Call-Back Survey, July 2009

DROVE VEHICLE AFTER DRINKING

The combined 2006 to 2008 Michigan Behavioral Risk Factor Survey (MIBRFS) regional and local health department estimates indicated that 2.7% of Michigan adults drove after drinking, as shown previously in Table 6 above. Also notable is the fact that many children reside with parents and caregivers who have substance abuse issues, and are dependent upon them to provide transportation.[30]

Alcohol Consumption Patterns by Age Groups

ALCOHOL CONSUMPTION – YOUTH

The 2009 MiYRBS, for 9th through 12th graders in public schools, reported that 69% of these students had at least one alcoholic drink during their lifetime (77% of seniors). Students initiating early alcohol use, before 13 years-of-age, trended significantly downward over the last decade, reported as 19% for all in 2009, with the highest proportion reported as 24% for 9th graders. Current use is defined as consuming one or more drinks on one or more occasion within the last 30 days. Thirty-seven percent of the students reported currently drinking, which has decreased slightly over the last ten years but increased since 2007. Four percent of high school students reported drinking on school property in the last month. Binge drinking trended downward from 1997 to

[29] Michigan Department of Community Health, Bureau of Epidemiology. (2010). Regional and local health departments. *Michigan Behavioral Risk Factor Survey (BRFS).* Contact Chris Fussman at MiBRFSS@michigan.gov or 517-335-8144.

[30] University of Maryland, Center for Substance Abuse Research (2009). More than one in ten children in the U.S. live with substance-abusing or substance-dependent parent. *CESAR Fax, 18*(18). Retrieved from *http://www.cesar.umd.edu/cesar/cesarfax/vol18/18-18.pdf.*

2005 for males, with increases in 2007 and 2009 (24%). Thirty-five percent of high school seniors reported binge drinking, which is five or more drinks in a row for youth, in the last 30 days in 2009.[31] Trend data shows general decreases in alcohol use from 1997 to 2007, as indicated in Table 7.

Table 7 – Alcohol and Tobacco Trend Data from Michigan Youth Risk Behavior Survey

CB# / Q #	Indicator Description	Behavior	MI 97	MI 99	MI 01	MI 03	MI 05	MI 07	MI 09
	ALCOHOL								
39	% of students who had at least one drink of alcohol on one or more days during their life	Alcohol Ever	81.9	81.7	77.4	75.9	72.6	72.2	68.8
40			78.5-85.3	79.4-84.1	74.2-80.6	74.0-77.7	68.9-76.4	69.0-75.1	65.8-71.7
40	% of students who had their first drink of alcohol, other than a few sips, before age 13	Alcohol before age 13	34.9	32.2	26.9	26.9	22.6	21.4	18.8
41			31.7-38.1	28.9-35.5	24.6-29.2	24.7-29.1	19.2-25.9	18.7-24.4	16.7-21.1
41	% of students who had at least one drink of alcohol on one or more of the past 30 days	Recent alcohol use (30 days)	50.5	48.5	46.2	44.0	38.1	42.8	37.0
42			46.1-54.8	45.4-51.7	42.6-49.8	41.2-46.7	34.7-41.5	39.4-46.2	34.4-39.7
42	% of students who had 5 or more drinks of alcohol in a row, that is, within a couple of hours, on one or more of the past 30 days	Alcohol binge (30 days)	32.4	29.9	29.3	27.4	22.5	24.6	23.2
43			27.9-36.9	27.0-32.8	25.6-33.1	24.1-30.7	19.4-25.6	20.8-28.9	20.9-25.6
	Tobacco								
28	% of students who ever tried cigarette smoking, even one or two puffs	Cigarettes Ever	75.0	72.2	63.5	60.2	52.4	51.2	46.0
29			71.8-78.2	69.8-74.6	60.0-67.1	57.0-63.4	48.3-56.6	47.4-54.9	43.4-48.6
29	% of students who smoked a whole cigarette for the first time before age 13	Cigarettes before age 13	27.2	26.7	23.2	21.3	16.1	13.8	11.1
30			24.4-30.0	23.4-30.0	20.6-25.7	17.7-24.8	12.9-19.3	11.7-16.3	9.6-12.7
30	% of students who smoked cigarettes on one or more of the past 30 days	Cigarettes 1+ 30 days (Recent)	38.2	34.1	25.7	22.6	17.0	18.0	18.8
31			34.4-42.0	30.9-37.4	22.6-28.8	18.3-26.9	14.6-19.5	14.7-21.8	16.5-21.4
FRCIG	% of students who smoked cigarettes on 20 or more of the past 30 days	Cigarettes 20+ days 30 days (Frequent)	19.8	17.4	12.7	11.3	7.8	8.1	7.8
			16.6-23.0	14.4-20.5	10.1-15.4	6.8-15.8	6.0-9.6	6.2-10.7	6.2-9.8
31	% of students who smoked 2 or more cigarettes per day on the days they smoked during the past 30 days	Cigarettes 2+ per day 30 days (Regular)	26.9	23.0	17.7	15.9	13.6	8.7	9.7
32			23.6-30.2	20.1-25.8	15.1-20.4	11.1-20.8	9.2-17.9	6.5-11.6	7.2-13.0

Source: Michigan Department of Education, MiYRBS, 1997-2009

In October of 2006, the Pacific Institute for Research and Evaluation (PIRE) reported that in 2005 approximately 409,000 underage youth consumed 14.5% of all alcohol sold in Michigan, which provided profits of $293 million to the alcohol industry. That increased in 2007 to 15.9% of all alcohol sold in Michigan, totaling $773 million in sales. These sales were all illegal and provided profits of $379 million to the alcohol industry.[32]

The Michigan Liquor Control Commission, report of August 2008, noted an increase in the number of violations in their "controlled buy" activities for sales to minors, from 15.0% in 2007 to 17.0% in January to July 2008, with more than half of the sales occurring in spite of an ID check.[33]

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31 Michigan Department of Education. (2009). *Michigan youth risk behavior survey 2009*. Contact Kim Kovalchick at kovalchickk@michigan.gov or (517) 241-4292. Retrieved from http://www.michigan.gov/documents/mde/09YRBSDetail_327165_7.pdf.

32 Pacific Institute for Research and Evaluation. (2009). *Underage drinking in Michigan, the facts*. Funding from the Office of Juvenile Justice and Delinquency Prevention (OJJDP). Chapel Hill, N.C.

33 Michigan Liquor Control Commission. (2008). *August report*. Retrieved from http://www.michigan.gov/dleg/0,1607,7-154-10570---,00.html.

ALCOHOL CONSUMPTION – GENERAL/ADULT

According to the 2009 NSDUH report, there were 4.6 million persons aged 12 or older who had used alcohol for the first time within the past 12 months. Most of these (85.5%) were under 21 at the time of initiation and the mean age of first use in this group was 15.0 years. The 2007 to 2009 MIBRFS regional and local health department estimates, released April 2010, indicate the following consumption patterns for individuals 18 years-of-age and older: 5.6% heavy drinking and 17.6% binge drinking, as shown previously in Table 6.

Alcohol Intervening Variables by Age Groups

ALCOHOL INTERVENING VARIABLES – YOUTH

LAWS/POLICIES

Graduated licensing for first time drivers, zero tolerance, social host laws, and ignition interlock laws are in place in Michigan. Reductions in motor vehicle crashes are the result, in part, of many policy and program measures including: keeping the minimum legal drinking age to 21 years-of-age,[34] administrative revocation of licenses for drinking and driving,[35] lower legal blood alcohol limits for youth[36] and adults,[37] and higher prices through increased taxation of alcoholic beverages.[38, 39] Higher prices for alcoholic beverages also are associated with reduced frequency of drinking and driving.[40] Training programs are in place for servers and clerks, and are often used as a consequence of sales to minors in regards to license protection or reinstatement by the Michigan Liquor Control Commission (LCC). In addition, community coalition/provider programs involving multiple city departments and private citizens have reduced both driving after drinking and traffic deaths and injuries. Since 2005, the Michigan Department of Community Health has focused on UAD and ARTCD with the Strategic Prevention Framework, State Incentive Grant (SPF/SIG).[41] As of July 2009, Michigan drivers' licenses and identification cards issued by the Michigan Secretary of State to those under 18 years-of-age utilize vertical formatting with red highlights, contrasting the horizontal licenses for those 21 years-of-age and over, and making underage status much easier for clerks and servers to recognize.

LAW ENFORCEMENT

The Office of Highway Safety Planning funds Party Patrols, Public Service Announcements, and many other initiatives to the law enforcement community. Local law enforcement division partners with communities for

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34 O'Malley, P. M., & Wagenaar, A. C. (1991). Effects of minimum drinking age laws on alcohol use, related behaviors and traffic crash involvement among American youth: 1976–1987. *Journal of Studies on Alcohol*, *52*(5), 478-491. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/1943105?dopt=Abstract.

35 Zador, P. L., Lund, A.K., Fields, M., et al. (1989). *Fatal crash involvement and laws against alcohol impaired driving*. Institute for Highway Safety. Arlington, VA.

36 Hingson, R. Heeren, T., and Winter, M. (1994). Lower legal blood alcohol limits for young drivers. *Public Health Reports 109*(6) 738-744. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/7800781?dopt=Abstract.

37 Hingson, R.: Hereen, T.; and Winter, M. (1996). Lowering state legal blood alcohol limits to 0.08 percent: the effect on fatal motor vehicle crashes. *American Journal of Public Health 86*(9): 1297-1299.

38 Chalopuka, F. J.; Saffer, H.; and Grossman, M. (1993). Alcohol-control policies and motor-vehicle fatalities. *Journal of Legal Studies 22*:161-186.

39 Ruhm, C. J. (1996). Alcohol policies and highway vehicle fatalities. *Journal of Health Economics 15*:435-454. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/10164038?dopt=Abstract.

40 Zador, P. L.; Lund, A. K.; Fields, M.; et al. (1989). *Fatal crash involvement and laws against alcohol impaired driving*. Institute for Highway Safety: Arlington, VA.

41 MDCH BSAAS. (2005). *State prevention framework state incentive grant*. Retrieved from http://www.michigan.gov/mdch/0,1607,7-132-2941_4871_29888-162850--,00.html.

compliance checks and other youth access prevention initiatives. However, the recent economic struggles have forced budget cuts in law enforcement. "Making It Click" is a new initiative by the Office of Highway Safety Planning to encourage high school student seat belt use.[42]

ACCESS

Packaging for alcoholic energy drinks mimics that of the non-alcoholic energy drinks, confusing retail clerks, parents and school staff, making it easier for minors to access and drink this form of alcohol. To address public health and safety risks associated with alcohol energy drinks, On November 4, 2010, the Michigan LCC issued an administrative order that banned the sale and distribution of alcohol energy drinks in Michigan.[43] The home remains the most likely place where youth can access alcohol.[44] Internet sales are also a likely place for youth to obtain alcohol products. Although delivery services are required to obtain an adult signature upon delivery, this is not common practice.[45]

SOCIAL NORMING

Social norms are people's beliefs, attitudes, and expectations about the behaviors that are considered normal or acceptable in a certain social environment. Parental acceptance of underage drinking and the provision of alcohol to minors by family and friends remains a national issue. In Michigan, various media campaigns and evidence-based programming within communities address "It's Not a MINOR issue."[46] Popular drinking games and portrayal in media have increased. Many communities and college campuses are using social norms marketing campaigns to reduce underage and high-risk drinking. High school and college students often have inflated views of how much their peers use alcohol and other drugs. These exaggerated views may influence students to increase their own alcohol use to fit in with what they perceive is "normal." Social norms marketing campaigns use advertising techniques to correct these misperceptions, which have been associated with decreases in the perceived pressure to use alcohol. Social norms marketing messages are different from traditional prevention messages in their use of statistics and non-judgmental messages about behaviors the majority of students are engaging in, such as not using alcohol, in order to encourage that behavior in others. Social norms marketing campaigns have also been used to target parents who believe it is acceptable to host parties and provide alcohol to minors.

AGE OF ONSET

Efforts to delay age of onset are considered critical in research, noting that a need to screen and counsel adolescents about alcohol use should be coupled with policies and programs that delay alcohol consumption.[47]

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42 Office of Highway Safety Planning. (2009). *Making it click*. Retrieved from http://www.michigan.gov/documents/msp/high_school_seatbelt_program_06_296925_7.pdf.

43 Michigan Department of Energy Labor and Economic Growth. (2010) Energy Drink Ban. *Administrative Order.* Retrieved from http://www.michigan.gov/documents/dleg/Alcohol_Energy_Drink_Order_11_4_2010_337775_7.pdf.

44 Substance Abuse and Mental Health Services Administration (SAMHSA), Center for Behavioral Health Statistics and Quality. (2011). Young alcohol users often get alcohol from family or home. *Data Spotlight*. Retrieved from http://oas.samhsa.gov/spotlight/Spotlight022YouthAlcohol.pdf

45 Underage Drinking Enforcement Training Center (n.d.). *Regulatory strategies for preventing youth access to alcohol.* Retrieved from http://www.udetc.org/documents/accesslaws.pdf.

46 New York State Office of Alcoholism and Substance Abuse Services. (n.d.). *Underage drinking: not a minor problem*. Retrieved from http://www.oasas.state.ny.us/ud/OASAS_TOOLKIT/instructions.htm.

47 Hingson, R. W., Heeren, T., and Winter, M. (2006). Age at drinking onset and alcohol dependence, age at onset, duration and severity. *ARCH Pediatric Adolescent Medicine/Vol 160*. Retrieved from www.archpediatrics.com.

ALCOHOL INTERVENING VARIABLES – GENERAL/ADULT

SAFETY BELT USE

Seat belt use has dramatically increased (70% to 98%) from 1998 to 2009, making Michigan tied for the highest use rate in the nation.[48] According to Fatality Analysis Reporting System (FARS) data, during this time-period there were decreases in total traffic fatalities (1,366 to 871, respectively), unrestrained fatalities (518 to 168), alcohol-involved fatalities with .01 BAC or higher (502 to 291), and alcohol-involved fatalities with .08 BAC or higher (427 to 246).[49] Increased belt use has contributed to reducing fatalities in alcohol-involved crashes and all crashes; the official National Center for Statistics and Analysis methodology estimates fewer potential "lives saved" as total fatalities decrease but still shows about 500 Michigan lives saved by safety belts every year.[50] Safety belt use is addressed as a health and safety issue by the Michigan OHSP.

STATEWIDE FOCUS OF SPF/SIG ACTIVITIES ON ARTCD

The federal SPF/SIG has afforded dollars to build community capacity to address ARTCD during 2004 to 2010. Community-level needs assessments, capacity building, and strategic plans were completed by sub-state entities for MDCH/BSAAS. Implementation plans and evaluations are continuing. ARTCD and underage drinking remain a focus of statewide prevention planning for 2010 to 2011.

PRESCRIPTION DRUG ABUSE

Prescription Drug Abuse Consequences by Age Groups

PRESCRIPTION DRUG ABUSE CONSEQUENCES – YOUTH

Prescription drugs are considered misused if taken in amounts or in ways in which they were not prescribed and/or if they are taken by a person other than to whom they were prescribed. Drug overdoses and interactions, accidental poisonings and deaths are consequences of this behavior, as indicated in Table 8.

Table 8 – Prescription Drug Overdose Death Rates of Michigan Residents by Age and Sex

Annual Overdose rates by age and gender, Michigan, 2007-2009						
Age Category	Males			Females		
	Number	Population	Rate	Number	Population	Rate
<20	9	1,373,851	0.7	4	1,311,664	0.3
20-29	48	673,744	7.1	22	655,089	3.4
30-39	50	637,597	7.9	27	629,216	4.3
40-49	67	741,866	9.1	64	749,960	8.5
50-59	54	692,622	7.7	53	715,789	7.5
60+	18	804,249	2.2	19	1,017,775	1.9
Total	246	4,923,929	5.0	190	5,079,493	3.7

Source: MDCH, Vital Records and Health Statistics

[48] University of Michigan Traffic Safety Institute. (n.d). *Michigan traffic crash facts.* Retrieved from http://www.michigantrafficcrashfacts.org/index.htm.

[49] National Highway Safety Administration, National Center for Statistics and Analysis. (2009). Fatality analysis reporting system. *Data Resource Website*. Retrieved from http://www-fars.nhtsa.dot.gov/Main/index.aspx.

[50] National Highway Safety Administration, National Center for Statistics and Analysis. (2009). The increase in lives saved, injuries prevented, and cost savings if seat belt use rose to at least 90 percent in all states. *Traffic safety facts, research notes*. Retrieved from http://www-nrd.nhtsa.dot.gov/Pubs/811140.PDF.

This category of misuse and abuse is also known as "medication abuse." Violence and extreme risk taking may also become by-products of misuse. According to the 2009 MiYRBS, 25.0% of 9th through 12th graders who had sex in the last three months reported doing so after using alcohol or drugs.[51] Healthy pregnancy outcomes are threatened by drug use. Prescription drug abuse also leads to impaired driving and traffic crashes causing severe injury or death, as shown previously in Table 4.

The most commonly abused prescription drugs:[52]

- Opioids – for pain
  - oxycodone (OxyContin), propoxyphene (Darvon), hydrocodone (Vicodin), hydromorphone (Dilaudid), meperidine (Demerol), and diphenoxylate (Lomotil)
- Depressants – for anxiety and sleep disorders
  - barbiturates: pentobarbitol sodium (Nebutol); benzodiazapenes: diazepam (Valium), and alprazolam (Xanax)
- Stimulants – for narcolepsy, ADHD, and obesity
  - dextroamphetamine (Dexedrine), methylphenidate (Ritalin), and steroids (anabolic/androgenic)

Many prescription drugs are addictive to varying degrees and result in the need for substance abuse and addiction treatment. The Drug Enforcement Agency (DEA) evaluates drugs and other substances for the sake of regulations and classifies these drugs into five schedules according to their abuse potential, addictive nature, and whether or not they have accepted medical use for treatment.

ABUSE AND ADDICTION

In looking at Michigan publicly funded treatment sought in 2009 and 2010, where the initial treatment involved prescription drugs, as primary, secondary or tertiary drug of choice, for youth 20 years-of-age and under; treatment increased from 171 in 2009, to 234 in 2010, as indicated in Table 9. National data is readily available, but state data collection is just beginning and is fragmented. State data collection is considered a gap for the SEOW to focus on, as the problem has escalated nationally and continues to make headlines within the state.

Table 9 – Prescription Drug Involved Treatment: Initially Self-Reported as Primary, Secondary, or Tertiary Drug of Choice; Client Gender Cross Tabulation from Treatment Episode Data, for Treatment in Michigan Publicly Funded Services, 2009-2010

Age in Years	Client Gender								TOTAL COUNTS	
	Male				Female					
	Count		Percentage		Count		Percentage			
	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010
< 14	0	0	0.0%	0.0%	1	0	100.0%	0.0%	1	0
14-17	16	13	66.7%	44.8%	8	16	33.3 %	55.2%	24	29
18-20	76	112	51.7%	54.6%	71	93	48.3 %	45.4%	147	205
21-25	320	340	43.8%	40.2%	410	506	56.2 %	59.8%	730	846
26-29	346	434	43.7%	43.4%	446	566	56.3 %	56.6%	792	1,000
30-35	323	504	41.1%	45.9%	463	594	58.9 %	54.1%	786	1,098
36-44	423	406	44.3%	40.8%	532	589	55.7 %	59.2%	955	995
45-54	405	351	49.3%	47.2%	417	392	50.7 %	52.8%	822	743
55-64	103	105	52.0%	52.8%	95	94	48.0 %	47.2%	198	199

[51] Michigan Department of Education. (2009). *Michigan youth risk behavior survey 2009*. Contact Kim Kovalchick at kovalchickk@michigan.gov or 517-241-4292. Retrieved from http://www.michigan.gov/documents/mde/09YRBSDetail_3271657.pdf.

[52] U. S. Department of Health and Human Services, National Institute of Drug Abuse. (n.d.). *Research report series - prescription drugs: abuse and addiction*. Retrieved from http://www.nida.nih.gov/researchreports/prescription/prescription2.html.

Age in Years	Client Gender								TOTAL COUNTS	
	Male				Female					
	Count		Percentage		Count		Percentage			
	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010
65+	4	2	23.5%	18.2%	13	9	76.5 %	81.8%	17	11
Total	2,016	2,267	45.1%	44.2%	2,456	2,859	54.9 %	55.8%	4,472	5,126

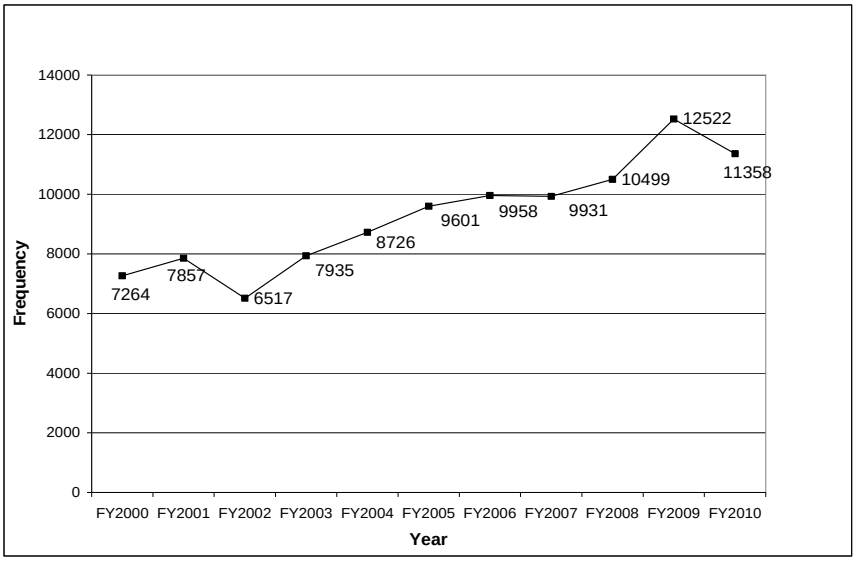
Note: Does not include private practice data. Data may include duplicate counts of persons if they entered treatment more than one time during the year, either for the same or other substance.
Source: MDCH, BSSAS, April 2011

PRESCRIPTION DRUG ABUSE CONSEQUENCES – GENERAL/ADULT

ABUSE AND ADDICTION

The percentage of treatment admissions for opiate abuse and addiction has increased four fold from 3.1% in 2001 to 13.0% in 2010, as shown in previously Table 5. Michigan publicly funded treatment involving prescription drug abuse as the primary, secondary, and tertiary drug of choice totaled 5,126 treatment entrances in 2010, with the highest rates in adults 21 to 54 years-of-age, with a sharp increase in rates from 2009 to 2010 among adults 26 to 35 years-of-age, as shown in Table 9 above. Illicit drug use has also increased as it becomes a more affordable option for a person to progress from expensive prescriptions to more affordable illicit substances,[53] as illustrated in Figures 1, 2, and 3.

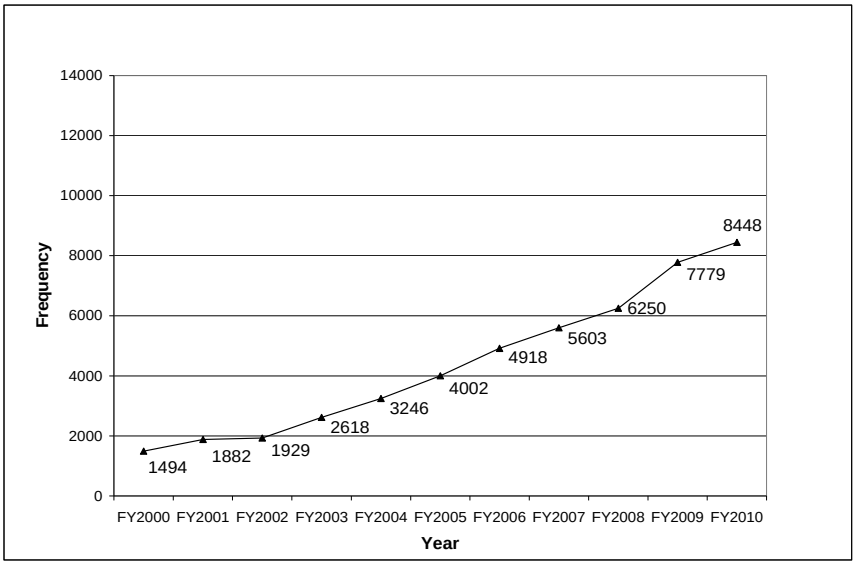
Figure 1 – Heroin Primary Drug of Choice Trend Data, as Self-Reported Primary Substance of Abuse (PSA)



Source: MDCH/BSAAS, Treatment Episode Data Set (TEDS), April 2011

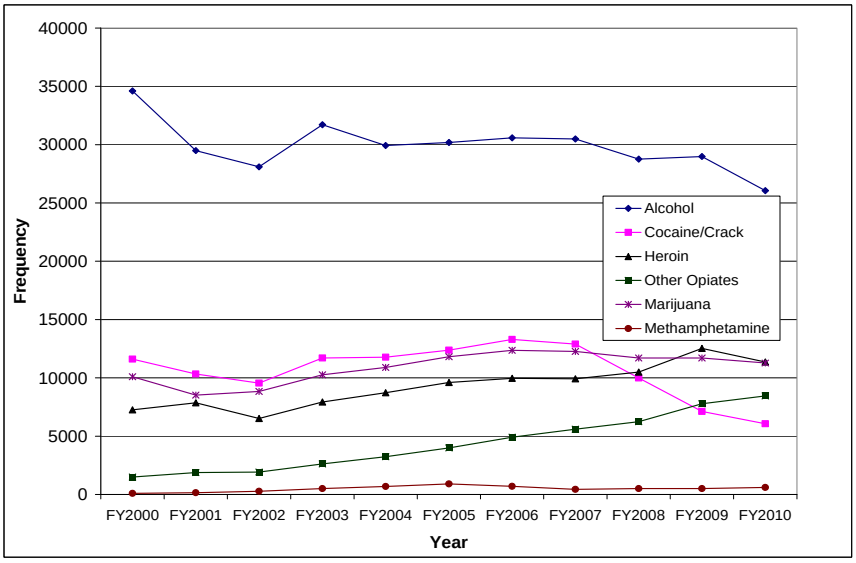
[53] Canfield, M., Keller, C., Frydrych, L., Ashrafioun, L., Purdy, C., & Blondell, R. (2010). Prescription opioid use among patients seeking treatment for opioid dependence. *Journal of Addiction Medicine. 4*(2), 108-113.

Figure 2 – Other Opiates Primary Drug of Choice Trend Data, as Self-Reported Primary Substance of Abuse (PSA)



Source: MDCH/BSAAS, Treatment Episode Data Set (TEDS), April 2011

Figure 3– Primary Drug of Choice as Self-Reported, Comparison



Source: MDCH/BSAAS, Treatment Episode Data Set (TEDS), April 2011

The number of legitimate prescription drugs had also increased dramatically from 2003 to 2006, as indicated in Table 10 and 11.

Table 10 – Increase in Legitimate Prescriptions Filled in Michigan, by Drug, 2003-2009

Drug group	2003	2004	2005	2006	% change 03 to 06	2007	2008	2009	% change 07 to 09
Schedule II									
amphetamine	514,920	624,627	698,445	800,971	55.6%	571,095	587,878	655,712	14.8%
methyphenidate	223,139	239,537	253,893	324,067	45.2%	265,142	279,373	42,461	-84.0%
methylphenidate						0	404,065	654,330	New in 07
dexmethylphenidate						11,096	11,341	10,253	-7.6%
lisdexamfetamine						0	89,791	151,863	New in 07
fentanyl	437,686	529,707	527,820	576,988	31.8%	304,312	296,375	268,697	-11.7%
morphine	173,083	204,725	219,443	244,838	41.5%	332,392	246,977	274,795	-17.3%
hydromorphine	21,393	32,942	40,540	53,233	148.8%	60,516	68,404	75,952	25.5%
oxycodone	327,525	389,107	364,248	452,145	38.0%	562,577	635,052	670,035	19.1%
methadone	79,845	110,328	133,359	163,627	104.9%	172,159	169,466	181,671	5.5%
meperidine	7,760	8,127	8,727	8,492	9.4%	7,290	6,403	5,951	-18.4%
Other-C2 Rx Not Listed						0	107,694	103,586	New in 07
Schedule III									
hydrocodone	3,174,922	3,689,073	4,061,462	4,596,486	44.8%	4,908,599	5,105,466	5,428,357	10.6%
codeine	950,532	909,285	915,277	915,578	-3.7%	856,481	787,667	739,879	-13.6%
butalbital						0	67,798	71,911	New in 07
cannabinoid	5,508	7,171	8,783	9,693	76.0%	9,491	5,220	10,517	10.8%
buprenorphene	327	12,026	26,902	51,834	15751.4%	93,189	153,813	223,037	139.3%
Other-C3 Rx Not Listed						0	437,035	317,429	New in 07
Schedule IV									
butorphanol	2,468	16,995	14,845	13,706	455.3%	11,563	10,824	9,951	-13.9%
propoxyphene	1,128,667	1,148,280	1,107,059	1,092,709	-3.2%	1,034,254	969,852	847,312	-18.1%
zolpidem	555,016	641,926	630,270	726,845	31.0%	829,859	938,787	1,040,927	25.4%
triazolam	33,824	34,853	32,213	32,007	-5.4%	31,641	29,478	27,464	-13.2%
phenobarbital	127,568	131,605	123,735	135,071	5.9%	116,647	110,152	109,259	-6.3%
eszopiclone						0	141,229	108,832	New in 07
temazepam						0	241,399	241,092	New in 07
diazepam	419,148	454,140	458,389	501,762	19.7%	513,632	515,942	535,278	4.2%
alprazolam	1,120,670	1,265,304	1,347,357	1,520,048	35.6%	1,058,757	1,144,484	1,265,466	19.5%
clonazepam	454,533	511,889	540,730	603,746	32.8%	643,668	670,525	711,744	10.6%
lorazepam	594,152	638,947	631,051	688,122	115.8%	742,296	748,397	760,630	2.5%
phentermine	88,319	111,014	163,855	170,176	92.7%	226,721	260,856	289,314	27.6%
modafinil	45,808	56,720	72,593	88,567	93.3%	98,099	94,268	82,704	-15.7%
Other-C4 Rx Not Listed						0	237,710	220,583	New in 07

Source: Michigan Automated Prescription System (MAPS), MDCH Bureau of Health Professions Health Investigation Division

Table 11 – Increase in Legitimate Prescriptions Filled in Michigan, by National Household Survey on Drug Use and Health Categories, 2003-2009

NSDUH category	2003	2004	2005	2006	% change 03 to 06	2,007	2,008	2,009	% change 07 to 09
Schedule II									
stimulant	738,059	864,164	952,338	1,125,038	52.4%	847,333	1,372,448	1,514,619	78.8%
pain reliever	1,047,292	1,274,936	1,294,137	1,499,323	43.2%	1,439,246	1,422,677	1,477,101	2.6%
Schedule III									
pain reliever	4,125,454	4,598,358	4,976,739	5,512,064	33.6%	5,765,080	5,960,931	6,240,147	8.2%
other									
Schedule IV									
pain reliever	1,131,135	1,165,275	1,121,904	1,106,415	-2.2%	1,045,817	980,676	857,263	-18.0%
sedative	716,408	808,384	786,218	893,923	24.8%	978,147	1,461,045	1,527,574	56.2%
tranquilizer	2,588,503	2,870,280	2,977,527	3,313,678	28.0%	2,958,353	3,079,348	3,273,118	10.6%
stimulant	134,127	167,734	236,448	258,743	92.9%	324,820	355,124	372,018	14.5%

Source: Michigan Automated Prescription System (MAPS), MDCH Bureau of Health Professions Health Investigation Division

TRAFFIC DEATHS AND INJURIES

Traffic deaths involving drugs jumped 43%, from 98 in 2007 to 140 in 2008. However, some of this increase can be attributed to increases in testing. The number of deaths involving drugs slightly decreased to 119 in 2009. However, the number of people injured in crashes involving alcohol and/or drugs increased from 6,248 in 2008, to 6,271 in 2009. Much of that increase involved drivers who had drugs in their system, which accounted for 83 additional injuries in 2009 compared to 2008.[54] Some of the numbers involve illicit drug use, which is often an outcome of progressive addiction to prescription drugs, as noted above.

Prescription Drug Consumption Patterns by Age Groups

PRESCRIPTION DRUG CONSUMPTION – YOUTH

Prescription drug misuse is an emerging trend. In the 2008 and 2009 NSDUH, there was an increase among youth aged 12 to 17 years in the prevalence of current nonmedical use of prescription-type drugs (from 8.5% to 9.2%), driven primarily by an increase in pain reliever misuse (from 6.7% to 7.8%). Although national data is prevalent, state data is limited. Two questions regarding prescription drug use were asked on the Michigan Profile of Healthy Youth (MiPHY) last school year (2009-10) for the first time.[55] According to the 2009 MiYRBS, illegal drugs were offered, sold, or given on school property to 30% of students within the last year. Six percent of 9th through 12th graders have taken barbiturates without a doctor's prescription in the last 30 days. This rate is significantly higher for Hispanic/Latino students (11%) and eleventh graders (8%). Ten percent of 9th through 12th graders have used barbiturates without a prescription at least once in their life, again with higher rates for Hispanic/Latino students (16%). Nine percent of 9th through 12th graders have used club drugs one or more times during their life, with higher rates for Hispanic/Latino students (16%) and eleventh (13%) and twelfth (11%) graders. Four percent of students have taken steroid pills or shots at least once, and three percent have done so in the last 30 days. The 2009 MiYRBS data also show that 14% of students have sniffed glue,

54 Michigan State Police, Criminal Justice Information Center. (2010). *Michigan annual drunk driving audit*. Retrieved from http://www.michigan.gov/documents/msp/2009_DDA_WEB_325447_7.pdf.

55 Michigan Department of Education (2009-2010). *MiPHY questions*. Retrieved from http://www.michigan.gov/miphy.

breathed the contents of aerosol spray cans, or inhaled any paint or spray to get high one or more times during their life.[56] Prescription drug misuse is prevalent in the headlines and media. "Pharming" parties are common among youth.

PRESCRIPTION DRUG CONSUMPTION – GENERAL/YOUTH

Nationally, nonmedical use of pain relievers in the past year among persons aged 12 or older did not change between the NSDUH 2002 to 2003 and 2007 to 2008 surveys (4.8% in 2002 to 2003 and 4.9% in 2007 to 2008). The prevalence in Michigan increased but not significantly over this time-period (5.2% in 2002 to 2003 and 5.4% in 2007 to 2008). Declines in nonmedical use of pain relievers were observed among youths 12 to 17 years-of-age, while increased were noted in other age groups.[57]

Prescription Drug Intervening Variables by Age Groups

PRESCRIPTION DRUG INTERVENING VARIABLES – YOUTH/GENERAL/ADULT

ACCESS

Results from the NSDUH indicate that prescription drugs are obtained most commonly free from friends or relatives.[58] Therefore, the home is a point of access for prescription drug abuse. Adults are often ill informed about how accessible their prescriptions are to their family, friends, babysitters, and visitors. Prescriptions are often discontinued before completely used and kept beyond their expiration dates. The DEA has sponsored Nationwide Prescription Drug Take-Back Days to encourage proper disposal techniques of unwanted and unused prescription drugs across communities in all 50 states.[59] Of particular interest is Hydrocodone. During 2009, there were over 5 million prescriptions for this Schedule III category drug, accounting for 30.6% of all controlled substance prescriptions. Hydrocodone is also dispensed under the names of Vicodin, Lortab, Tussionex, etc.

MILITARY CONSIDERATIONS

Wartime creates additional stress with deployments, wounds, and loss of lives, for both the veterans and their families. These stressors create a high-risk for all and often increased access. The prevalence of illicit drug use, including prescription drugs increased from 5% in 2005, to 12% in 2008. The increased prevalence was primarily attributed to the addition of questions that asked for usage of prescription medication for non-medical reasons.[60] Stigma has created apprehension about utilizing treatment within the military, with veterans often returning to civilian life with unresolved substance issues.

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56 Michigan Department of Education. (2009). *Michigan youth risk behavior survey 2009*. Contact Kim Kovalchick at kovalchickk@michigan.gov or 517-241-4292. Retrieved from http://www.michigan.gov/documents/mde/09YRBSDetail_327165_7.pdf.

57 SAMHSA (n.d.). State Estimates of Substance Use from the 2006-2007. *National surveys on drug use and health.* Retrieved from http://www.oas.samhsa.gov/2k7State/TOC.htm.

58 SAMHSA (n.d.). Results from the 2009 national survey on drug use and health: volume I. summary of national findings. *National surveys on drug use and health.* Retrieved from http://www.oas.samhsa.gov/NSDUH/2k9NSDUH/2k9Results.htm.

59 U.S. Department of Justice, Drug Enforcement Administration. (2010*). American public overwhelmingly responds to DEA prescription drug take-back effort.* Retrieved from http://www.nationaltakebackday.com/toolbox/documents/TakeBackRelease%20Update.docx.

60 Department of Defense. (2008). *Survey of health related behaviors among active duty military personnel*. Retrieved from http://www.tricare.mil/2008HealthBehaviors.pdf.

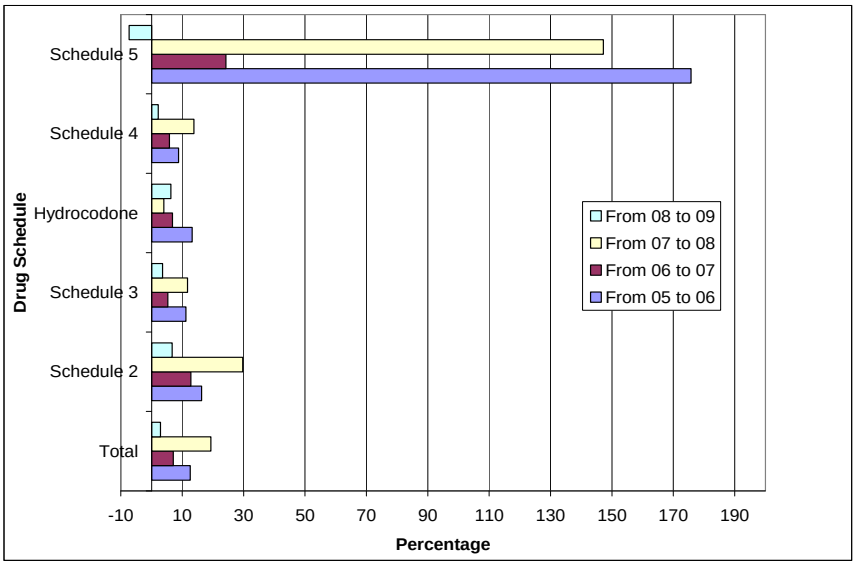
SOCIAL NORMS
Sharing prescriptions, attitudes about self-medicating for even minor complaints, advertising campaigns, and jovial acceptance in media, all contribute to misuse and abuse of prescription drugs.

PERCEPTION OF RISK
Prescription drugs are often thought safer because they are initially prescribed by a doctor.

PRESCRIPTION DRUG INTERVENING VARIABLES – GENERAL MISUSE

ACCESS
The number of legitimate prescriptions written has consistently increased, as indicated in Figure 4. The Michigan Automated Prescription Service (MAPS) reported 14,465,953 prescriptions in 2007, 17,254,281 in 2008, and 17,761,231 in 2009. Prescriptions for Hydrocodone have dramatically increased since 2005, accounting for 30.6% of all controlled substance prescriptions in 2009. Suboxone prescriptions increased 108.8% from 2005 to 2006, and again by 104.0% in 2007, and by another 78.1% in 2008.[61] Suboxone's patent expired in late 2009 and has been generically available thereafter, which usually spikes prescriptions.

Figure 4 – Increase in Legitimate Prescriptions Filled by Schedule and Hydrocodone, Michigan, 2005-2009



Note: "Legitimate" refers to the prescription written as part of thorough medical care, including blood tests, regular doctor visits, health history, etc.

Source: Michigan Automated Prescription System (MAPS), 2005-2009 Prescription Data, Bureau of Health Professions

Some highlights from the MAPS data for 2009 include frequency of prescribed controlled substance by NSDUH Use Category: pain relievers at 8.5 million, tranquilizers at 3.2 million, stimulants at 1.8 million, and sedatives at 1.5 million, as shown previously in Table 11. Almost every category of controlled drug has increased in number of prescriptions since 2003. All Schedule II (stimulants and pain relievers) drug prescriptions are increasing, with the biggest increases from 2003 to 2006 among the major drugs including: methadone (105%), amphetamines and other stimulants (56%), and hydromorphine (150%). From 2006 to 2009, the biggest

[61] Michigan Department of Community Health, Bureau of Health Professions. (2005-2009). Prescription data. *Michigan Automated Prescription System (MAPS).*

increase was noted with Opioid antagonists (Suboxone, Schedule III); the number of prescriptions increased rapidly (51,834 prescriptions in 2006 and 223,037 in 2009), as shown previously in Table 10. Numerous prescriptions decreased from 2007 to 2009 including: Ritalin 84% (Schedule II stimulant), Demerol 18.4% (Schedule II pain reliever), and Darvocet/Darvon 18.1% (Schedule IV, pain reliever). The most commonly prescribed pain relievers in 2009 were: Hydrocodone (Vicodin, etc., Schedule III) at 5.4 million prescriptions, propoxyphene (Darvocet, etc, Schedule IV) at 0.85 million, codeine (Tylenol #3 and #4, Schedule III) at 0.74 million, and oxycodone (OxyContin, etc., Schedule II) at 0.67 million.[62]

SOCIAL NORMS and PERCEPTION OF RISK
See previous section.

TOBACCO USE

Tobacco Consequences by Age Groups

TOBACCO CONSEQUENCE – YOUTH

TOBACCO USE: RELATIONSHIP TO OTHER SUBSTANCE USE
According to 2009 NSDUH, the prevalence of current illicit drug use was about 9 times higher among youths 12 to 17 years-of-age who smoked cigarettes in the past month (53.1%) than it was among youth who did not smoke (5.8%). Alcohol consumption levels are also associated with tobacco use. Heavy alcohol use among those 12 to 17 years-of-age who smoked cigarettes in the past month was found to be much higher than non-smokers (17.6% for current smokers and 0.6% for non-smokers), while 48.5% of current smokers were binge drinkers.

HEALTH RISKS
Most health risks associated with smoking tend to occur after years of use. However, asthma and leukoplakia can occur in youth. Leukoplakia is a condition of thickened, white patches on the gums, cheeks, tongue and bottom of mouth, in which a small percentage of patches show early signs of cancer; many mouth cancers form adjacent to these patches. Tobacco, either smoked or chewed, is considered the main contributing factor for leukoplakia.[63] Tobacco smoke, including second-hand smoke, can exacerbate asthma symptoms, as shown previously in Table 6. According to the 2005 to 2007 Michigan Asthma Call-back Survey, 9.5% of children 0 to 17 years-of-age visited the emergency department two or more times for their asthma in the past year, while 5.9% of adults did so. Three percent of children had to be hospitalized one or more times for their asthma as did 3.6% of adults.

Secondhand smoke remains an issue for youth exposure. Youth are often exposed to smokers in vehicles, homes, events, and, more often than adults, at the worksite. Riding in a car with a smoker can cause exposure to secondhand smoke in levels higher than in a smoke-filled bar. Researchers report that rolling down a window or turning on the air conditioning does not provide full protection. Nicotine levels in a smokers' car average 9.6 micrograms per cubic meter, higher than that detected in spaces where smoking is permitted. Nicotine concentrations in smokers' cars are doubled for every cigarette smoked.[64] Third hand smoke involves exposure to the tars and chemicals left on surrounding surfaces exposed to secondhand smoke.

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62 Ibid.

63 Mayo Clinic Staff. (n.d.). Leukoplakia. Retrieved from www.mayoclinic.com/print/leukoplakia/DS00458/DSECTION=all&METHOD=print

64 Navas-Acien, A. (2009). Secondhand tobacco smoke concentrations in motor vehicles: a pilot study. *Tobacco Control Journal.* Retrieved from http://tobaccocontrol.bmj.com/content/18/5/399.abstract.

TOBACCO CONSEQUENCE – GENERAL/ADULT

Health risks associated with tobacco exposure/use include: heart attack, lung cancers, and cancers of the mouth, lips, nasal cavity, sinus, larynx, esophagus, stomach, pancreas, kidney, bladder, uterus, cervix, and myeloid leukemia.[65] Lung cancer rates in Michigan are significantly higher than national rates over the last five years, as indicated in Table 12. Coronary Disease is often the result of smoking and exposure to secondhand smoke, as shown previously in Table 6.

Table 12 – Invasive Lung Cancer Incidence and Mortality Trends, Potentially Associated with Exposure To or Use of Tobacco, 1985-2008

Year of Diagnosis or Death	Cases Diagnosed			Deaths		
	Number	Age-Adjusted Rate	National SEER Rate	Number	Age-Adjusted Rate	National Rate
1985	5,836	69.9	64.6	4,568	55.4	54.3
1986	5,923	70.6	65.8	4,552	54.7	55.0
1987	6,020	70.8	67.9	4,832	57.0	56.2
1988	6,229	72.6	68.0	4,908	57.6	57.0
1989	6,718	77.9	67.5	4,952	57.8	57.9
1990	6,710	76.7	68.1	5,022	57.9	58.9
1991	7,245	82.1	69.2	5,260	59.7	59.0
1992	7,143	79.7	69.4	5,503	61.7	58.9
1993	7,330	80.7	67.8	5,539	61.2	59.1
1994	7,223	78.8	67.1	5,396	58.9	58.5
1995	7,253	78.2	66.8	5,570	60.2	58.4
1996	7,239	77.0	66.4	5,653	60.4	57.9
1997	7,187	75.8	66.6	5,541	58.5	57.5
1998	7,354	76.7	67.5	5,546	57.9	57.1
1999	7,301	75.5	65.8	5,425	56.1	55.4
2000	7,348	75.0	64.1	5,533	56.6	55.8
2001	7,412	74.9	64.0	5,625	56.9	55.3
2002	7,406	73.9	63.7	5,664	56.6	55.0
2003	7,995	78.7	64.2	5,679	56.1	54.2
2004	7,665	74.9	61.6	5,821	56.8	53.3
2005	7,833	75.8	62.0	5,789	55.9	52.8
2006	7,698	73.3	60.9	5,816	55.6	51.7
2007	7,712	72.4	59.3	5,910	55.5	50.7
2008	---	---	---	5,883	54.5	---

Source: Michigan Resident Cancer Incidence File, Updated with cases processed through December 30, 2009.
Division for Vital Records & Health Statistics, Michigan Department of Community Health. Last Updated: Aug 2, 2010

A 2006 Surgeon General report concluded that there are increased risks of coronary heart disease morbidity and mortality among men and women exposed to secondhand smoke. In October 2009, the CDC reported that there is about a 25% to 30% increase in the risk of coronary heart disease from exposure to secondhand smoke.[66]

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[65] American Cancer Society. (n.d.). *Cancer facts and figures*. Retrieved from http://www.cancer.org/Cancer/CancerCauses/TobaccoCancer/tobacco-related-cancer-fact-sheet.

[66] Center for Disease Control. (n.d.). *Secondhand smoke exposure and cardiovascular effects: making sense of the evidence.* Retrieved from http://www.cdc.gov/tobacco/basic_information/health_effects/heart_disease/iom_report.

Tobacco Consumption Patterns by Age Groups

TOBACCO CONSUMPTION – YOUTH

According to the 2009 MiYRBS, nearly half of 9th through 12th graders (46%) had tried smoking, with 52% of 11th and 12th graders and 58% of Hispanic/Latino students. Eleven percent had smoked a whole cigarette before the age of 13. While 19% of students reported smoking on one or more of the past 30 days, only 8% reported doing so on 20 or more of the last 30 days. Six percent had smoked on school property within the last 30 days. Thirteen percent had smoked on a daily basis; 54% indicated that they had tried to quit. Eighteen percent tried chewing tobacco, dip, or snuff in their life, and 11% had used it in the last 30 days. Fifteen percent had smoked a cigar, cigarillos, or little cigars in the past 30 days. Twenty-five percent reported using some form of tobacco in the last 30 days.[67] Trend data from 1997 to 2009 is available in Table 7, earlier in this document.

TOBACCO CONSUMPTION – GENERAL/ADULT

According to the CDC projections on BRFS data, the Michigan 2009 rates for persons 18 years-of-age and older who smoked more than 100 cigarettes during their lifetime and were currently smoking every day, or some days, was 21.5% for males and 18% for females. Michigan's overall rate of 19.8% has remained above the sates and territories median of 19%, as well as the Healthy People 2010 goal of 12%. However, smoking in Michigan has declined since 1997 when the rate was highest at 27.4%; Michigan's lowest rate was in 2009 at 19.8%.[68]

The 2007 to 2009 MiBFRS regional and local health department estimates, released on April 26, 2010, indicated in previously Table 6, that Michigan rates were 20.3% for current smoking, 25.4% for former smoking, and 54.2% for never smoked.

Tobacco use is a public health epidemic among lesbian, gay, bisexual, and transgender (LGBT) populations. The American Cancer Society estimates that over 30,000 LGBT people die each year of tobacco-related diseases nationally. Locally, preliminary survey results indicate that 37% of LGBT people in Southeastern Michigan smoke, while only 21% of all adults in Michigan smoke.[69,70] The MDCH recognizes that the LGBT population is disparately affected by tobacco.

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67 Michigan Department of Education. (2009). *Michigan youth risk behavior survey 2009*. Contact Kim Kovalchick at kovalchickk@michigan.gov or (517) 241-4292. Retrieved from http://www.michigan.gov/documents/mde/09YRBSDetail_327165_7.pdf.

68 Michigan Department of Community Health. (2009). *MiBRFS Annual Report 2009.* Retrieved from http://www.michigan.gov/documents/mdch/2009_MiBRFS_Annual_Report_12.21.10_340958_7.PDF.

69 The DC Center for the LGBT Community. (n.d.). *Smoking and the LGBT community*. Retrieved from http://www.thedccenter.org/facts_smoking.html.

70 Affirmations People Building Community. (n.d.) *Smoking survey.* Retrieved from http://www.goaffirmations.org.

Tobacco Intervening Variables by Age Groups

TOBACCO INTERVENING VARIABLES – YOUTH

ACCESS

Of those smoking, 15% of 9th through 12th graders reported buying tobacco items for themselves from a store or gas station.[71] Local communities have many evidence-based programs and campaigns implemented and provide non-Synar compliance checks and vendor education. An August 2010 review of statewide Youth Access to Tobacco plans for non-Synar activity indicated 2,532 vendor education visits and 3,623 compliance checks will be conducted in 2011, of the state's 10,964 tobacco retailer sites.[72]

LAWS/POLICIES

Policies:

Based on the 2008 Michigan School Health Profile, 50% of public schools had adopted 24/7 tobacco-free school policies, compared to 42% in 2006. Many public four-year universities and eight two-year community colleges have adopted smoke-free campus policies, based on the Michigan Smoke-Free Community Assessment Tool (MI SCAT). All of Michigan's 15 public four-year universities have adopted 100% smoke-free residence hall policies. Most two-year community colleges do not have residence halls.

State Legislation:

Michigan's Youth Tobacco Act provides limited youth access protection.[73] Youth are required to be at least eighteen years-of-age to purchase or have tobacco in their possession.

Smoke-free worksite legislation passed in Michigan in 2009, will significantly reduce the exposure of workers and patrons at worksites. In December 2009, the Michigan legislature passed and the governor signed the "Dr. Ron Davis Smoke-Free Air Law," which prohibits smoking in certain public places and places of employment to protect residents and visitors from exposure to secondhand tobacco smoke. The act became effective May 1, 2010, and required all worksites, including restaurants and bars, to be smoke-free. Smoking is also banned in enclosed areas of hotels, motels, and inns. Smoking is permitted in: 1) cigar bars that meet specific requirements, 2) tobacco specialty shops that meet specific requirements, 3) private offices where only one person is the employee, and 4) gaming floors of Detroit's casinos.[74,75]

Federal Legislation:

The summer of 2009 saw the Food and Drug Administration take control over tobacco on a national level, with the Family Smoking Prevention and Tobacco Control Act, HR1256. Implementation is just beginning at this point, as the FDA imposes limits on flavored tobacco products, marketing, and the like, some changes in retailer/manufacturing, marketing, and retailing is imminent.

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71 Michigan Department of Education. (2009). *Michigan youth risk behavior survey 2009.* Contact Kim Kovalchick at kovalchickk@michigan.gov or (517) 241-4292. Retrieved from http://www.michigan.gov/documents/mde/09YRBSDetail_327165_7.pdf

72 Michigan Department of Community Health, Bureau of Substance Abuse and Addiction Services, Prevention Section. (2010). *Interview.*

73 Michigan Legislature. (2006). *Michigan youth tobacco act 83, as amended 2006*. Retrieved from http://www.legislature.mi.gov/mileg.aspx?page=getObject&objectname=mcl-act-31-of-1915

74 Michigan Department of Community Health. (n.d.). *Michigan's smoke free air law.* Retrieved from http://www.michigan.gov/mdch/0,1607,7-132-2940_2955_2973_55026---,00.html.

75 Michigan Legislature. (2009). *Smoke free air house bill 4377*. Retrieved from http://www.michigan.gov/documents/mdch/2009-HNB-4377_304980_7.pdf.

Synar legislation continues to tie federal Substance Abuse Prevention and Treatment Block Grant dollars to a maximum sell rate to minors of 20%. The Michigan Synar rate increased from 14.1% in 2009, to 18.8% in 2010. In other words, 81.2% of retailers conformed to the Youth Tobacco Act guidelines in 2010.

PERCEPTION OF HARM

Cesar-Fax reported in 2009 that youth were more likely to believe that tobacco use is more dangerous to their health than any other drug use. Smoke free policies and social attitudes have diminished the glamour and acceptability that smokers once enjoyed.[76] Although youth may be more likely to know of consequences, they anticipate that ill health will occur only after many years of use. Quit lines and nicotine replacement products are readily available and regularly advertised.[77]

TOBACCO INDUSTRY INNOVATIONS

The tobacco industry has been introducing many new products. Many of these are targeted toward smokers in smoke-free environments, yet have small, discreet packaging that makes them attractive to youth abuse. The data on the harmful effects of these is not yet conclusive.

TOBACCO INTERVENING VARIABLES – GENERAL/ADULT

TAX INCREASES

On April 1, 2009, the single largest federal excise tax increase in history raised the cigarette tax from $.039 to $1.01. Tax increases are proven to reduce smoking rates, but also increases the illegal sales of "loosies," the sale of single cigarettes. The federal excise tax increase on cigarettes during 2009 also increased the usage of quit lines.

Michigan has run three free nicotine replacement therapy campaigns as press releases to promote quitting by creating a phone line called, *Quitline*. The first campaign was launched on August 20, 2008 and ended September 30, 2008. During this six-week period, the *Quitline* received 3,684 calls and enrolled 3,224 people. The second campaign was launched on March 11, 2009 for 30 days, received over 93,600 calls and enrolled over 2,100 people. The third campaign was launched on August 3, 2010, lasted for two weeks, and enrolled over 1,600 people.

FDA CONTROL OVER TOBACCO

See federal legislation above.

CDC FUNDED ACTIVITIES

The CDC funds a variety of tobacco use reduction initiatives in Michigan. Currently, there are efforts to increase the number of 24/7 tobacco free schools, smoke free college campuses, smoke free apartments and low income housing, youth advocacy efforts, and to reduce tobacco use and eliminate associated health disparities among populations of color, low social economic populations, and the LGBT population.

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[76] University of Maryland, Center for Substance Abuse Research (2009). Adolescents' perceptions of risk from alcohol and marijuana use, but not cigarettes, decreases with age. *CESAR Fax.* Retrieved from www.cesar.umd.edu.

[77] Michigan Department of Community Health, Tobacco Control Section. (2010). *Interview.*

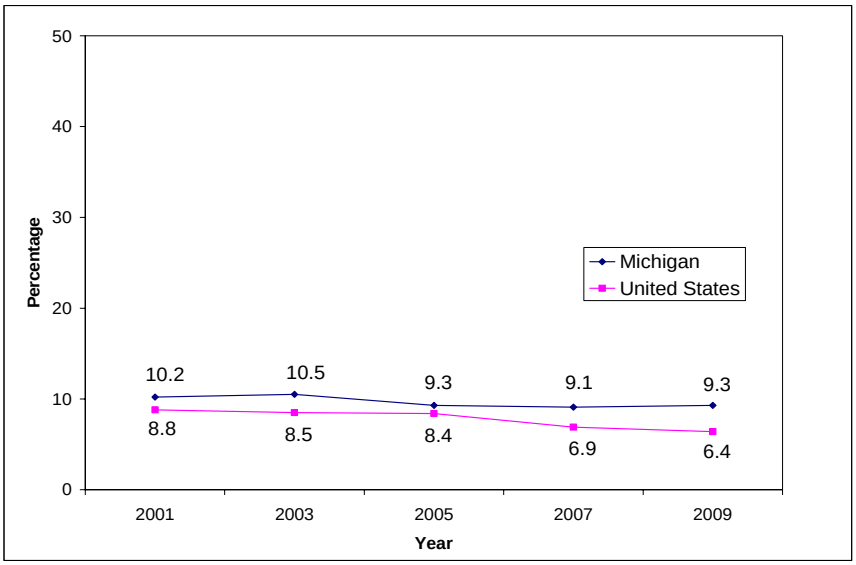
MENTAL HEALTH INDICATORS

Suicide Prevalence and Prevention

ATTEMPTED SUICIDE – YOUTH

In 2009, 16% of Michigan public high school students reported having seriously considered suicide in the past 12 months, compared to 13.8% of youth nationally. About one in every 11 Michigan public high school students (9.3%) reported having attempted suicide one or more times in the past year with three percent of respondents requiring medical attention after an attempted suicide,[78] as indicted in Figure 5.

Figure 5- Percentage of Youth Who Attempted Suicide in the Past Year in Michigan and the United States, 9th to 12th Graders



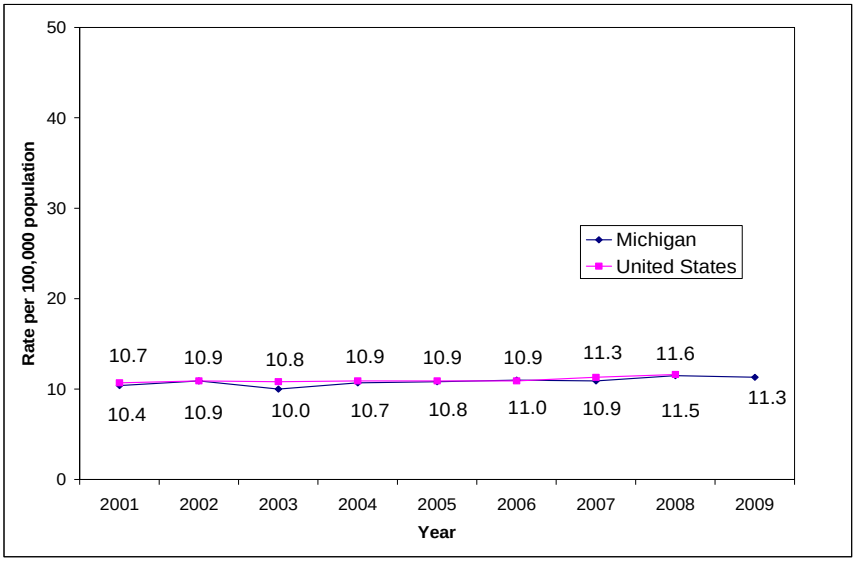
Source: MiYRBS and YRBS

SUICIDE – GENERAL/ADULT

One objective of Healthy People 2010 is to reduce the suicide rate to 5.0 suicides per 100,000 population. In 2009, Michigan's age-adjusted suicide rate was 11.3 per 100,000 population, which is two times the target and slightly lower than the national rate of 11.6 suicides per 100,000 population as illustrated in Figure 6.

[78] Michigan Department of Education. (2009). *Youth risk behavior survey.* Retrieved from http://www.emc.cmich.edu/YRBS/2009/2009_YRBS_V_S.pdf.

Figure 6 –Rate of Suicide Deaths per 100,000 Population, Age Adjusted in Michigan and the United States, All Ages



Source: MDCH, Vital Records and Health Statistics, April 2011

Since 2001, the U.S. and Michigan suicide rates were virtually equivalent. The rate of death for males in Michigan was approximately four times higher than that of females (18.6 per 100,000 for males, versus 4.7 per 100,000 for females), [79] as illustrated in Figure 7. The leading method of suicide for males was a firearm (55%), while for females it was poisoning (45%).[80]

Figure 7 –Rate of Suicide Deaths per 100,000 Population by Gender in Michigan and the United States, All Ages

Source: MDCH, Vital Records and Health Statistics, April 2011

79 Michigan Department of Community Health, Vital Records and Health Statistics Section. (2009). *Interview.*

80 Michigan Department of Community Health. (2007). *Michigan critical health indicator.* Retrieved from http://www.michigan.gov/documents/mdch/Critical_Health_Indicators_2007_198949_7.pdf.

PREVENTION OF SUICIDE

Currently, suicide is the leading cause of injury death in Michigan. In 2009, the number of deaths by suicide was 1,164, followed by 1,082 accidental poisoning and 894 motor vehicle crashes. The lifetime cost of medical cost care for persons who were dying by suicide and those hospitalized following a suicide attempt in 2009 was an estimated $51 million.[81]

In 2005, Michigan's Surgeon General released the *Suicide Prevention Plan for Michigan*, which was developed by the Michigan Suicide Prevention Coalition. Based on the national suicide prevention strategy, the plan's goals were to increase public awareness, develop and implement best clinical and prevention practices, and advance and disseminate knowledge about suicide and effective methods for prevention.

Community Mental Health Service Programs (CMHSPs), through contract with the MDCH, provide services for persons at-risk of suicide as a result of mental illness. The service array includes psychiatric inpatient care, hospital-based crisis observation care, intensive crisis residential and stabilization services, and assertive community treatment. CMHSPs also offer wrap-around services to children and youth with serious emotional disturbances or serious mental illness, and their families. The treatment and personal support services to maintain children in their homes are also provided.

Depression and Psychological Distress Prevalence and Prevention

DEPRESSIVE FEELINGS – YOUTH [82]

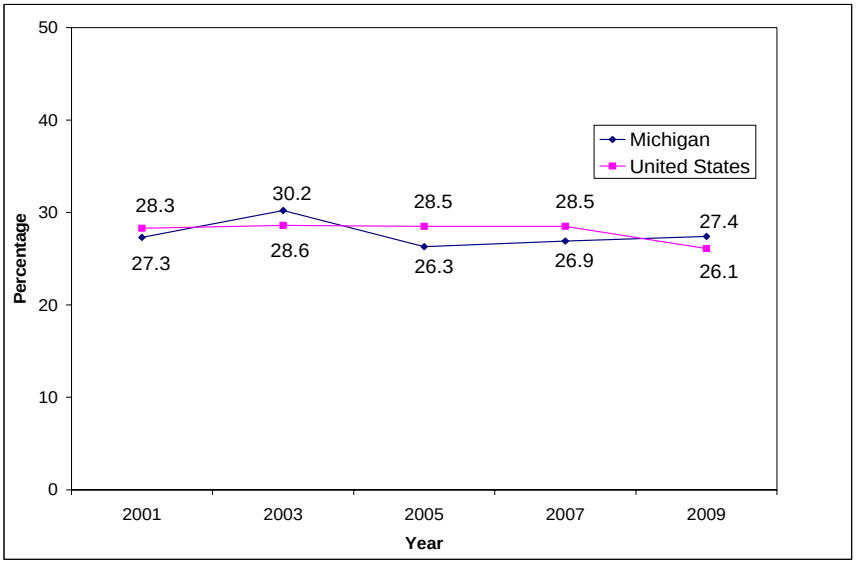
While there has been some variability, the rate of past year depressive feelings reported by 9th through 12th graders in Michigan declined from 30.2% in 2003 to 26.3% in 2005. The rate, however, as shown in Figure 8, has slightly increased from 26.9% in 2007 to 27.4% in 2009.[83] Depressive feelings was defined as feeling so sad or hopeless, almost everyday for two weeks or more in a row, that the person stopped doing some of their usual activities.

81 Michigan Department of Community Health, Bureau of Epidemiology. (2011). *Suicide factsheet.*

82 Given data source of YRBS, rather than using 'depression', the term 'depressive feelings' for youth is appropriate.

83 Michigan Department of Education. (2009). *Michigan youth risk behavior survey.* Contact Kim Kovalchick at kovalchickk@michigan.gov or 517-241-4292.

Figure 8 –Percentage of Youth Who Reported a Depressive Episode in the Past Year in Michigan and the United States, 9th to 12th Graders



Source: Michigan Youth Risk Behavior Survey, http://www.michigan.gov/mde/0,1607,7-140-28753_38684_29233_41316---,00.html and Youth Risk Behavior Surveillance System, http://www.cdc.gov/HealthyYouth/yrbs/

CO-OCCURENCE OF DEPRESSIVE FEELINGS AND ALCOHOL CONSUMPTION/ ILLICIT DRUG USE

Similar proportions of Michigan's male and female high school students reported current drinking (36% of males and 37% of females) and binge drinking (23.8% and 22.4% respectively). Past year depression was related to alcohol consumption in addition to increased risk of attempting suicide, as shown in Table 13.

Table 13 – Prevalence of Attempting Suicide and Alcohol Consumption in the Past 12 Months Among Michigan Youth, MiYRBS 2003-2009

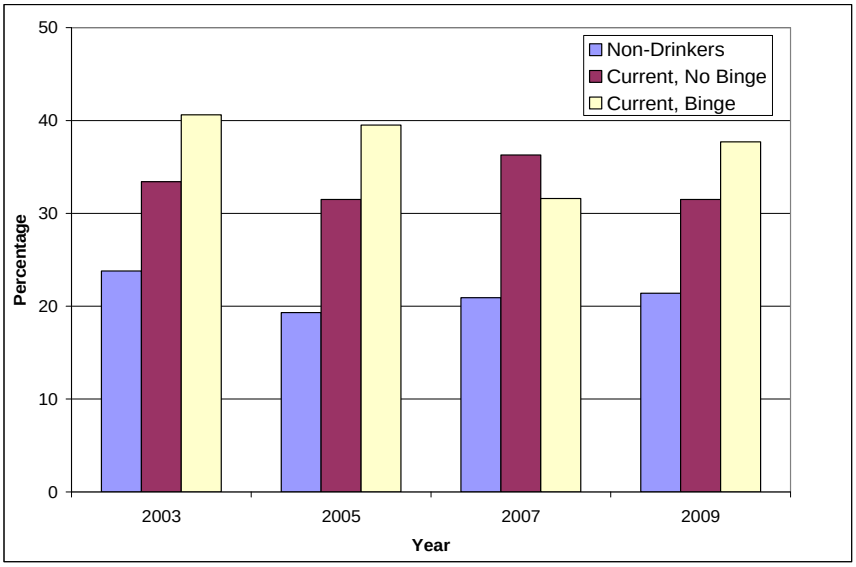
Attempted suicide one or more times during the past 12 months				
Drinking Status	2003	2005	2007	2009
Non-Drinkers	*6.3 %*	*5.9 %*	*6.1 %*	*6.4 %*
Current, Not Binge	*13.1 %*	*9.1 %*	*10.5 %*	*9.5 %*
Current, Binge	*15.9 %*	*16.7 %*	*12.4 %*	*11.7 %*

*Note: All **bolded values** indicate a significant difference of p≤.05 (χ^2 test) compared to non-drinkers*
Source: MiYRBS, 2003-2009

Compared to non-drinkers, binge and current drinkers reported a significantly higher prevalence of feeling sad or hopeless for almost every day during a two week period, which included considering suicide, and making a suicide plan during the previous 12 months,[84] as shown in Figures 9, 10, and 11.

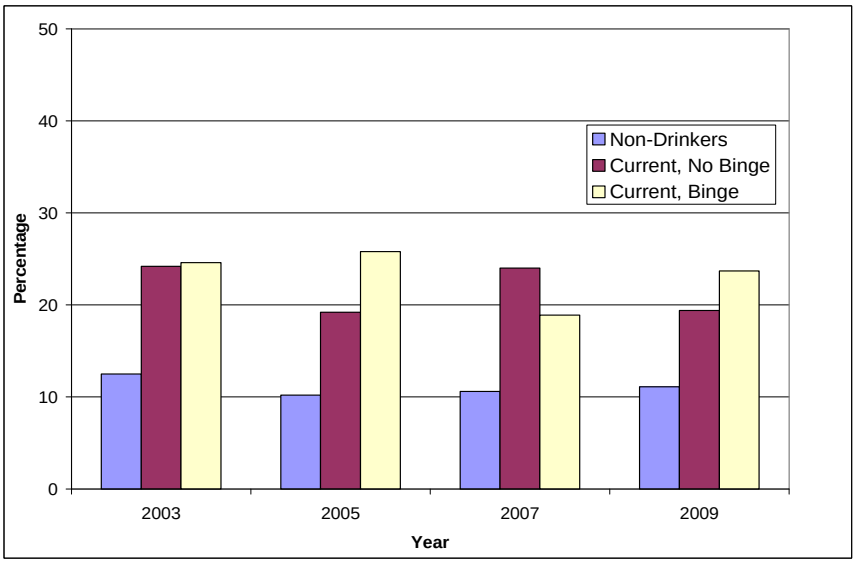
[84] Michigan Department of Community Health, Bureau of Epidemiology, and the Michigan Department of Education. (2010). Violence and mental distress in current and binge drinking mi youth. *Michigan alcohol surveillance brief. 1*(1). K. Gonzales, K. Kovalchick & L. Cameron (Eds.).

Figure 9 - Prevalence of Depressive Feelings and Alcohol Consumption Among Michigan Youth, MiYRBS 2003-2009



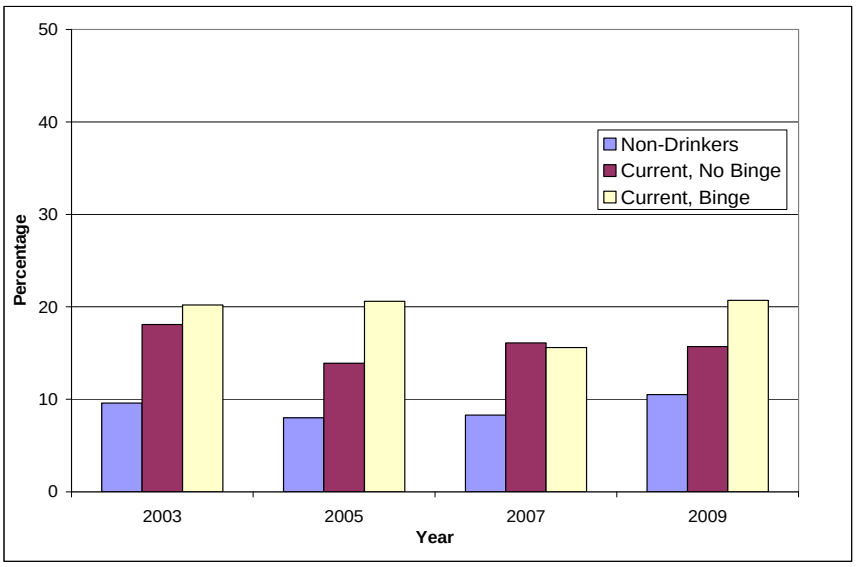
Source: MiYRBS, 2003-2009

Figure 10 - Prevalence of Students Who Seriously Considered Attempting Suicide during the Past 12 Months and Alcohol Consumption, MiYRBS 2003-2009



Source: MiYRBS, 2003-2009

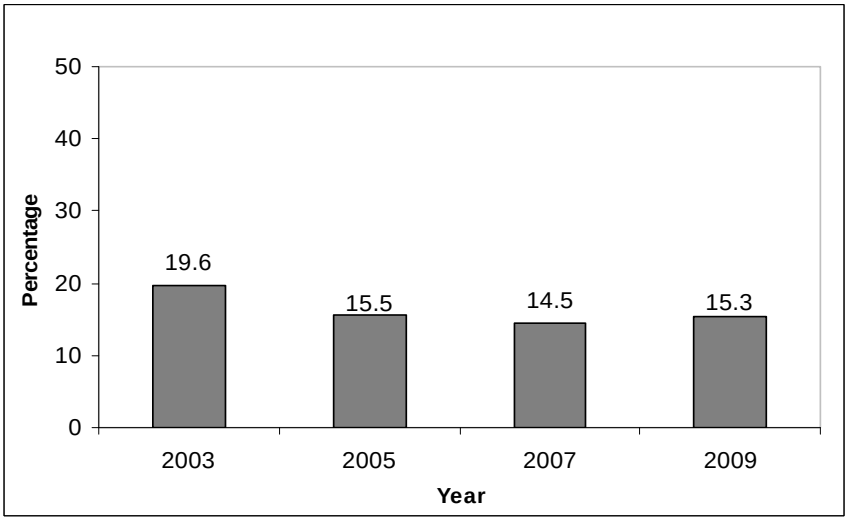
Figure 11 - Prevalence of Students Who Made a Suicide Plan in the Past 12 Months and Alcohol Consumption, MiYRBS 2003-2009



Source: MiYRBS, 2003-2009

The co-occurrence of reported drug use and depressive feelings among Michigan's youth declined during 2003 to 2007, however, the prevalence of reported depressive feelings and lifetime illicit drug use co-occurrence slightly increased from 14.5% in 2007 to 15.3%in 2009, as indicated in Figure 12.

Figure 12 - Prevalence of Past Year Depressive Feelings and Lifetime Illicit Drug Use Co-Occurrence among Michigan Youth, MiYRBS 2003-2009

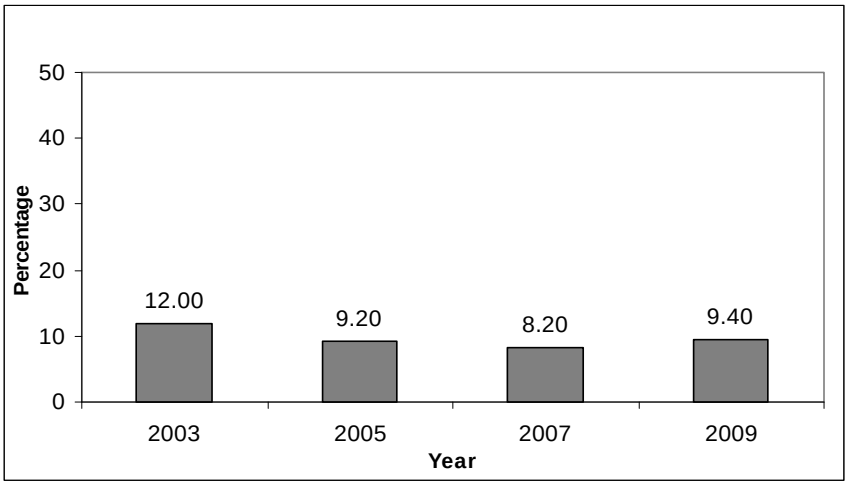


Source: MiYRBS, 2003-2009

On the other hand, the co-occurrence prevalence of reported depressive feelings and current illicit drug use declined from 12% in 2003 to 9.4% in 2009, as indicated in Figure 13. In 2009, lifetime and current illicit drug

use prevalence estimates were significantly higher among Michigan youth reported depressive feelings than those who didn't report depressive feelings.[85]

Figure 13 - Prevalence of Past Year Depressive Feelings and Current Illicit Drug Use Co-Occurrence among Michigan Youth, MiYRBS 2003-2009



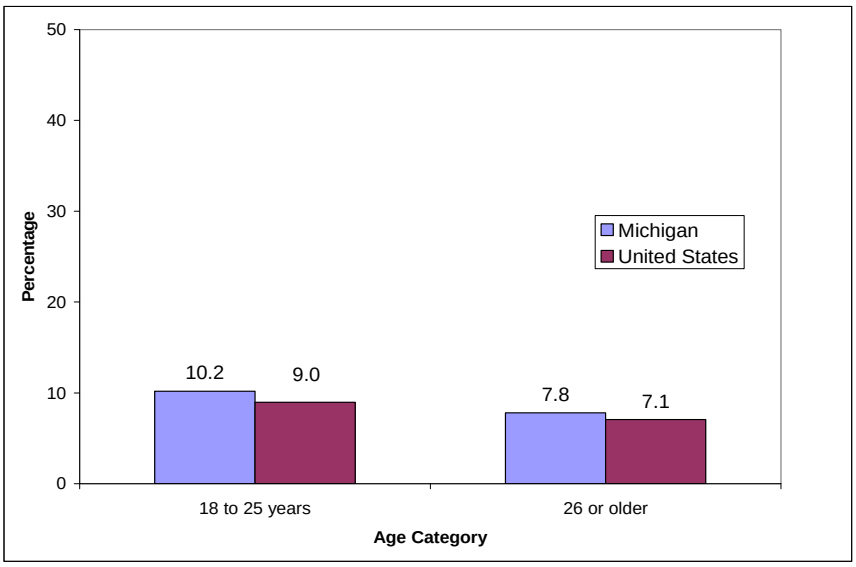
Source: MiYRBS, 2003-2009

DEPRESSIVE EPISODE AND PSYCHOLOGICAL DISTRESS – GENERAL/ADULT

According to NSDUH, young adults between 18 to 25 years-of-age in Michigan showed higher rates of a major depressive episode in the past year, compared to adults 26 or older (10.2% for 18 to 25 years-of age versus 7.8% for 26 years-of age and older) in 2006 to 2007, as indicated in Figure 14.

[85] Michigan Department of Community Health, Bureau of Epidemiology. (2011). *Evaluation of the youth risk behavior surveillance system for monitoring co-occurrence of drug use and depressive feelings among Michigan youth, 2003-2009*. K. Hekman, C. Miller & L. Cameron (Eds.).

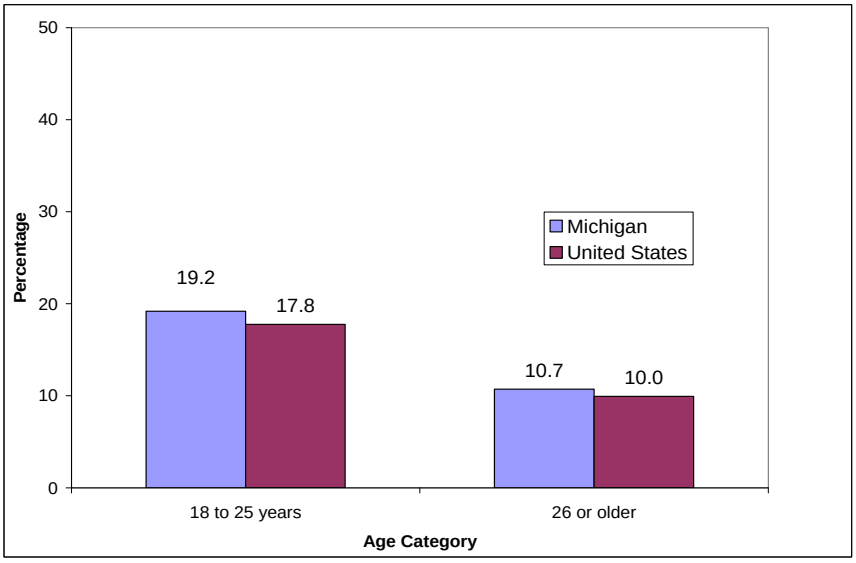
Figure 14 –Percentage of Persons Who Had a Major Depressive Episode in the Past Year in Michigan and the United States



Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2006-2007

In the DSM-IV, a major depressive episode is defined as a period, of two weeks or longer, of either a depressed mood or loss of interest or pleasure, and at least four other symptoms that reflect a change in functioning, such as problems with sleep, eating, energy, concentration, and self-image. Young adults also had higher rates of serious psychological distress compared to individuals 26 or older (19.2% for 18 to 25 years-of age versus 10.7% for 26 years-of age and older), as indicated in Figure 15. On the Kessler 6 (K6) scale, any score greater than or equal to 13 is considered serious psychological distress.[86]

Figure 15 –Percentage of Persons with Serious Psychological Distress in the Past Year in Michigan and the United States



Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2006-2007

[86] SAMHSA, Office of Applied Studies. (2006-2007). *National survey on drug use and health.* Retrieved from http://www.oas.samhsa.gov/NSDUH/2k7NSDUH/2k7results.cfm#Ch8.

PREVENTION AND CONTROL OF DEPRESSION

In 2005, a group of over 80 stakeholders developed a strategic plan to address prevention and control of depression in Michigan. Several common needs were identified: 1) public awareness campaigns to reduce the stigma associated with depression diagnosis and treatment; 2) programs to address the prevalence of mental illness in poor communities; 3) parity in health plan coverage for mental health; 4) programs to address racial and ethnic disparities in prevalence, early detection and referral efforts, and access to quality treatment; and 5) surveillance to monitor needs and evaluate outcomes. Addressing these needs is essential to achieving the plan goals, which include increased screening for depression in at-risk populations, improving the quality of management and treatment services for depression, and building a public-private infrastructure to address depression. The plan remains a framework to explore opportunities for intervention and resources.

CONCLUSION

The Substance Abuse and Mental Health Administration (SAMHSA) has identified the prevention of substance abuse and mental illness as one of its eight strategic initiatives to guide their work from 2011 through 2014. This entails creating communities where individuals, families, schools, faith-based organizations and workplaces take action to promote emotional health and reduce the likelihood of mental illness and substance abuse, include suicide and tobacco. More information on this initiative can be found at www.samhsa.gov. SAMHSA's initiative aligns with the BSAAS mission to promote wellness, strengthen communities and facilitate recovery.

In order to implement the BSAAS mission, effective prevention efforts are needed and require a thorough understanding of the community to target intervention efforts appropriately. Valuable data is critical to this step, as well as supporting an overall strategic planning framework process. Assessing and understanding contributing consumption and consequence patterns, other relevant conditions, and intervening variables, will allow the state and communities to prioritize problems effectively. This information will also assist the state and communities to choose targeted interventions, and use appropriate programs, policies and practices to address efforts related to promoting emotional health and the prevention of SUDs and mental illness.

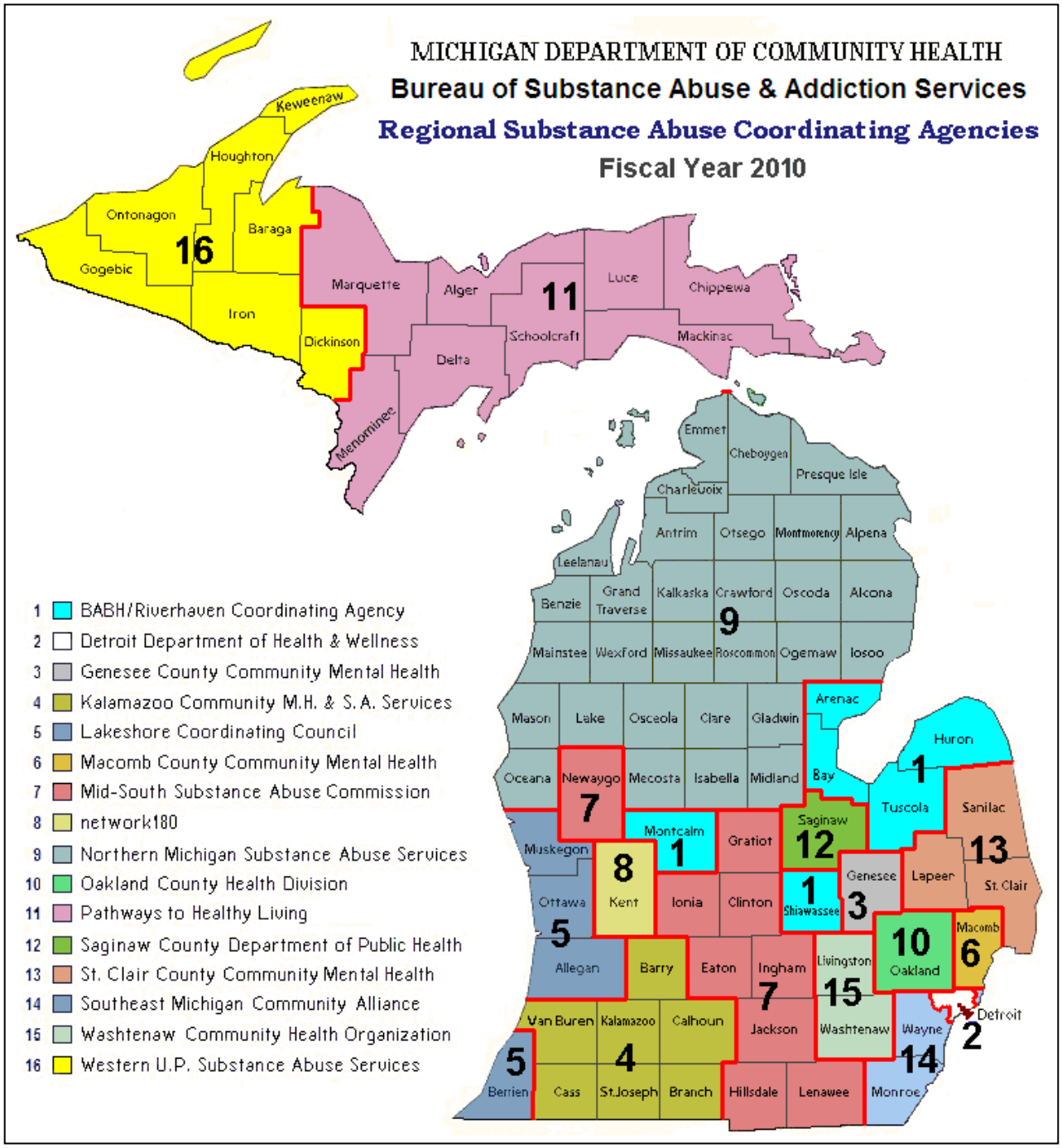
This document was created to assist in the aforementioned efforts, and to assure a data-driven process, grounded in a public health foundation, with implementation for statewide planning and decision-making. It is the intention of BSAAS to continue updates to this Michigan Epidemiology Profile on an annual basis in conjunction with the SEOW.

Key Findings:

- The use of a data-driven process is instrumental in effectively implementing prevention efforts, and data is a critical step in this process.
- Young people who begin drinking before the age of 15 are four times more likely to develop alcohol dependence, and it is estimated that underage alcohol use costs Michigan taxpayers over $2 billion per year.
- Prescription drug misuse is an emerging trend at both the national and state level. Michigan will continue to prioritize efforts to address this public health threat, and encourages communities across the state to work collaboratively with stakeholders to target interventions based on their own consumption and consequence patterns, and intervening variables.
- Most health risks associated with smoking occur after years of use, and although there have been positive changes in laws and policies since 2009 to address environmental health issues in Michigan; much work still needs to be done.
- Continuing to develop and increase data sources for suicide prevalence and prevention is imperative, and will need to be conducted in collaboration with the strategic plan to address prevention and control of depression developed by the MDCH.

Appendix 1 – Maps

Map 1 – Regional Substance Abuse Coordinating Agencies, MDCH, Bureau of Substance Abuse and Addiction Services



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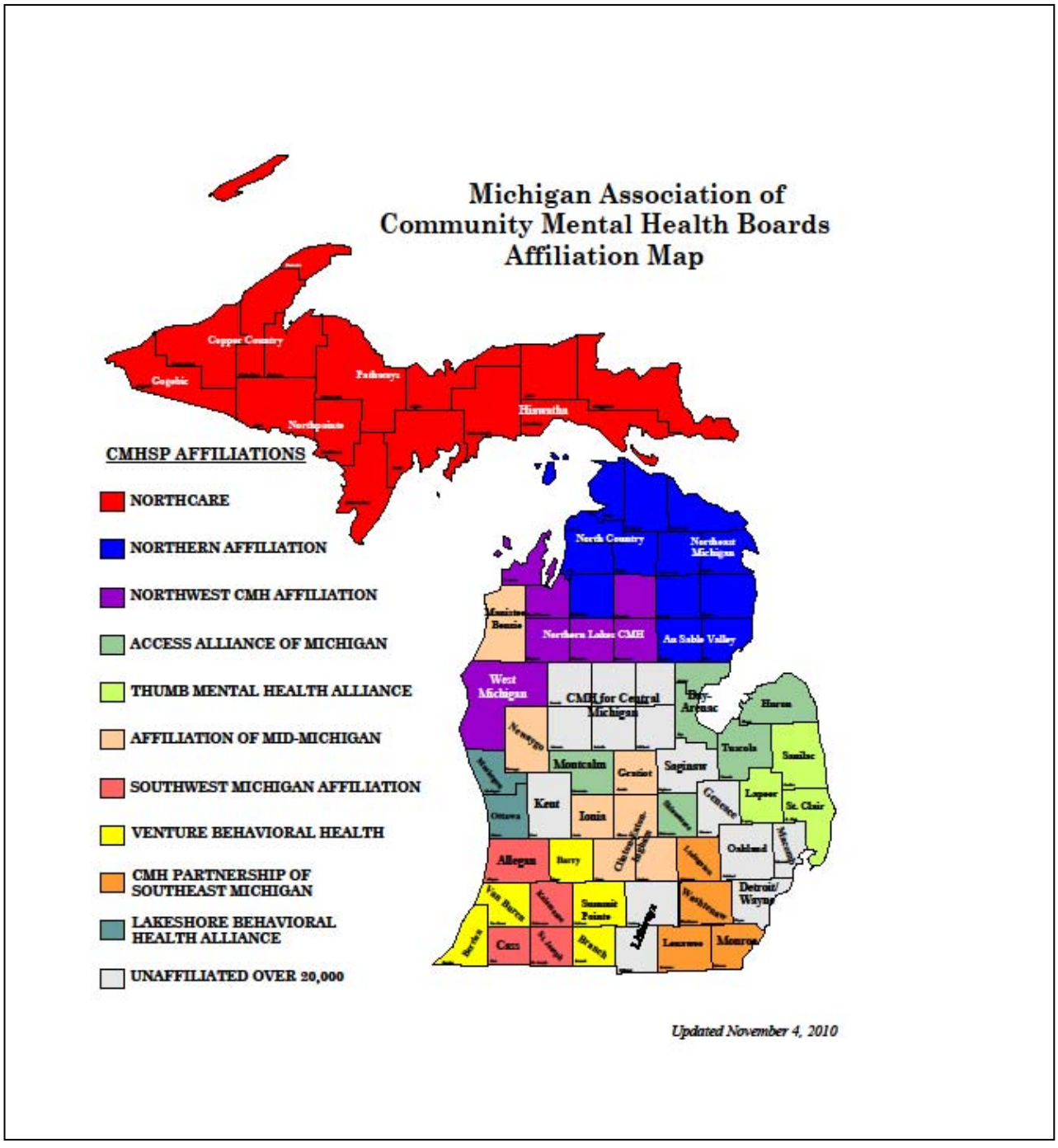
Map 2 – Community Mental Health Service Programs Affiliations, MDCH, Bureau of Community Mental Health Services



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Appendix 2 – Tribal Governments

Michigan Native American Tribal Governments

Michigan is home to a total of twelve federally-acknowledged Indian tribes that enjoy a special status under federal law and treaties. Federally acknowledged tribes are not merely organizations of citizens who happen to be of Native American descent. Rather, they are sovereign governments that exercise direct jurisdiction over their members and territory and, under some circumstances, over other citizens as well. Tribal governments provide a wide array of governmental services to their members including lawmaking, tribal police and court systems, health and education services, and many more.

The state generally does not have legal authority over tribal governments and tribal members when they are inside the tribe's territory - those lands designated as the tribe's reservation or trust lands. Instead, the state interacts with tribes on a government-to-government basis.

- Sault Ste. Marie Tribe of Chippewa Indians
- Saginaw Chippewa Indian Tribe
- Pokagon Band of Potawatomi Indians
- Match-e-be-nash-she-wish Band of Potawatomi Indians of Michigan
- Little River Band of Odawa Indians
- Bay Mills Chippewa Indian Community
- Lac Vieux Desert Band of Lake Superior Chippewa Indians
- Keweenaw Bay Indian Community
- Huron Potawatomi-Nottawaseppi Huron Band of Potawatomi
- Hannahville Potawatomi Indian Community
- Grand Traverse Bay Band of Ottawa and Chippewa Indians
- Little Traverse Bay Band of Odawa Indians

State of Michigan http://www.michigan.gov/som/0,1607,7-192-29701_41909---,00.html

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