Community Health Data Profile: Michigan, Minnesota, and Wisconsin Tribal Communities 2010

Great Lakes Inter-Tribal Epidemiology Center

Community Health Data Profile: Michigan, Minnesota, and Wisconsin Tribal Communities 2010

Great Lakes Inter-Tribal Epidemiology Center

a division of

Great Lakes Inter-Tribal Council, Inc.

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Kristin Hill, Director
Great Lakes Inter-Tribal Epidemiology Center
Great Lakes Inter-Tribal Council, Inc
PO Box 9
Lac du Flambeau, WI 54538
(800) 472-72707
khill@glitc.org

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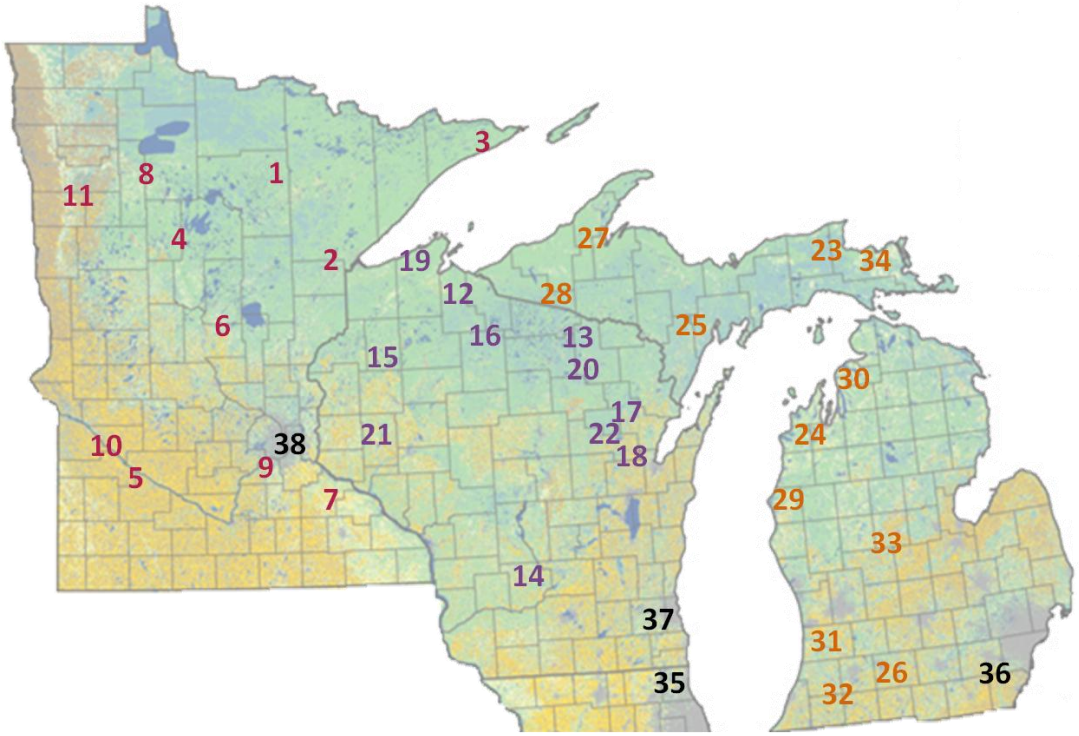
Great Lakes Inter-Tribal Epidemiology Center Mission:

To support Tribal communities in their efforts to improve health by assisting with data needs through partnership development, community based research, education and technical assistance

Great Lakes Inter-Tribal Council, Inc. Mission:

The Great Lakes Inter-Tribal Council will support member tribes in expanding sovereignty and self-determination

Bemidji Indian Health Service Area



1. Bois Forte Band
2. Fond du Lac Tribe
3. Grand Portage Band
4. Greater Leech Lake Band of Ojibwe
5. Lower Sioux Indian Community
6. Mille Lacs Band
7. Prairie Island Sioux Tribe
8. Red Lake Nation
9. Shakopee Mdewakanton Tribe
10. Upper Sioux Community
11. White Earth Tribe
12. Bad River Tribe
13. Forest County Potawatomi Community
14. Ho-Chunk Nation
15. Lac Courte Oreilles Tribe
16. Lac du Flambeau Tribe
17. Menominee Nation
18. Oneida Nation
19. Red Cliff Tribe
20. Sokaogon Chippewa Community
21. St Croix Tribe
22. Stockbridge-Munsee Community
23. Bay Mills Indian Community
24. Grand Traverse Band of Ottawa/Chippewa
25. Hannahville Indian Community
26. Huron Potawatomi (Nottawaseppi)
27. Keweenaw Bay Indian Community
28. Lac Vieux Desert Tribe
29. Little River Band of Ottawa Indians
30. Little Traverse Bay Bands of Odawa Indians
31. Match-e-be-nash-she-wish Band
32. Pokagon Band of Potawatomi Indians
33. Saginaw Chippewa Indian Community
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Introduction

The Great Lakes Inter-Tribal Epidemiology Center (GLITEC) has been producing an annual report of health measures for Tribal communities in Michigan, Minnesota, and Wisconsin for over ten years. Though there have been some changes, the report continues to provide basic measures of American Indian/Alaska Native-specific health data for each of the three states and the aggregated three-state area.

This report has three objectives:

1. To provide an accurate and comprehensive report of the health status of American Indian/Alaska Natives in the three-state area
2. To encourage use of quantitative health data to reduce and/or mitigate the effects of health disparities
3. To encourage the reporting of important health and health-related population measures at local levels

In order to protect community privacy, no individual Tribal or urban communities' data are shared; rather, all data are aggregated by state and the three-state area. However, GLITEC does provide community-specific profiles using many of the same measures. Using a community-specific and the three state profile in concert can contribute to effective community health assessments, program development, planning, evaluation, resource allocation, and support for grant applications.

Currently, data are often limited for racial and ethnic minorities. This issue is discussed in greater detail in the About This Report section.

GLITEC is proud to have the opportunity to work with American Indian/Alaska Native communities throughout the Bemidji area, and hope to contribute to improved health data and health outcomes for American Indian/Alaska Native people. We look forward to continuing to work with you in making communities healthier throughout Indian Country.

Did You Know?

What is Epidemiology?

- Epidemiology is the study of the distribution and determinants of health (who gets sick – or stays well – and why) and the application of this study to the control of health problems.
- Epidemiology can be used to answer questions like:
  - What are the most common causes of death in a certain area?
  - How well are diabetic patients managing their blood sugar levels?
  - Is the teen birth rate increasing or decreasing?
  - Does this smoking cessation program really help smokers quit?

What is the Great Lakes Inter-Tribal Epidemiology Center?

- "Tribal Epidemiology Centers are Indian Health Service, division funded organizations who serve American Indian/Alaska Native Tribal and urban communities by managing public health information systems, investigating diseases of concern, managing disease prevention and control programs, responding to public health emergencies, and coordinating these activities with other public health authorities."
- Great Lakes Inter-Tribal Epidemiology Center (GLITEC) is one of the 12 Tribal Epidemiology Centers across the United States initially authorized by the Indian Health Care Improvement Act of 1996, and permanently reauthorized by the 2009 Affordable Health Care Act.
- Since 1996, GLITEC has worked with the 34 American Indian Tribes and four urban clinics located in Michigan, Minnesota, and Wisconsin. Tribes in the Bemidji Area include: Ho-Chunk, Menominee, Mohican, Odawa, Ojibwe, Oneida, Potawatomi, and Sioux.
- GLITEC respects Tribal sovereignty, and defers to Tribal decisions. Instead of mandates, we provide guidance and suggestions. GLITEC values: confidentiality, capacity building, collaboration, community-based participatory research methods, and cultural sensitivity and awareness.

- GLITEC is committed to reducing the burden of health disparities through data accuracy, security and advocacy.

How well is the Bemidji Indian Health Service Area Funded?

- Through the cession of lands via signed treaties, the United States government assumed a trust responsibility for the health of the American Indian/Alaska Native people. The Indian Health Service (IHS) is the federal program through which the Federal government fulfills its obligation to provide healthcare to American Indians and Alaska Natives.

- In 2009 (and historically), the Bemidji Area has been the most under-funded IHS Area in the United States. The Bemidji Area was funded at only 45 percent of need in 2009. In comparison, the average funding of the IHS nationwide was only 55.2 percent of what was necessary to provide parity in healthcare.

- According to the U.S. Commission on Civil Rights, "The federal government spends less per capita on Native American health care than on any other group for which it has this responsibility, including Medicaid recipients, prisoners, veterans, and military personnel. Annually, IHS spends 60 percent less on its beneficiaries than the average per person health care expenditure nationwide." (U.S. Commission on Civil Rights, 2003)

2010 IHS Expenditures and Other Federal Health Care Expenditures, Per Capita

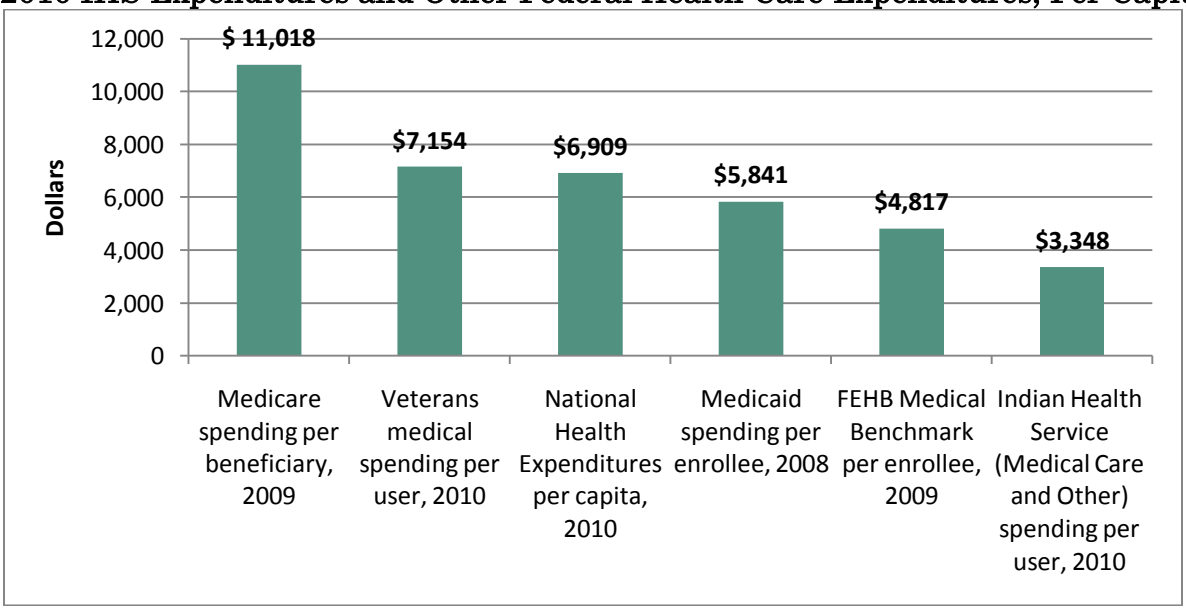


Chart reproduced, Fulfilling U.S. Treaty and Constitutional Obligations: Honoring Promises of Justice, Health, and Prosperity, U.S. Department of Health and Human Services, National Tribal Budget Recommendations for the Indian Health Service, Fiscal Year 2013 Budget

About This Report

The 2010 Community Health Profile is an aggregate report of mostly cost-free, publicly available and accessible health and disease information. Data sources include federal, state, and aggregated Indian Health Service-funded clinical databases. The Great Lakes Inter-Tribal Epidemiology Council (GLITEC) uses this data to provide a broad overview of the state of health and disease for American Indian/Alaska Native communities in Michigan, Minnesota, and Wisconsin.

Reading Notes

When reading and using this report keep the following issues in mind:

First, aside from confidence intervals in the mortality and behavioral health sections, there are no formal statistical tests of difference done within groups from year to year, or between groups. Differing rates may have happened because of chance or due to data collection errors. Often, even when differences are statistically significant, they may be accounted for by factors such as increased screening or better data management.

Second, it is difficult to obtain common source data. There is a lack of standardization between states and local and Tribal communities that makes it impossible to know whether each group is counting or measuring things the same way. Third, the all races population includes American Indian/Alaska Natives.

Finally, note that classification of people into racial groups can be faulty and inaccurate. Therefore, when comparing rates of certain indicators among American Indian/Alaska Natives and the all races population, it is best to use the information to grasp an understanding of the distribution and burden rather than direct relationships between health indicators and health outcomes.

Issues facing data quality for American Indian/Alaska Natives

When looking at American Indian/Alaska Native data in particular, there are a number of limitations that must be understood to best make use of the data.

- Racial misidentification is common. Reports vary in their estimates for the frequency this occurs. One investigation by the Indian Health Service estimated that American Indian/Alaska Natives in the Bemidji Area were undercounted by 16.1 percent, the third highest Area for misclassification;

overall misclassification was found to be 10.9 percent across the country (U.S. Department of Health and Human Services, 1996). Another estimate states that American Indians in general are undercounted by 38 percent (Sondik, 1999).

- In many data sets, small racial and ethnic populations are lumped together as "other." In others, they are excluded from analysis altogether, or are deliberately excluded during data collection.

- American Indian/Alaska Natives, like other small populations, are not commonly oversampled. Oversampling collects data from enough people in small populations so the results are statistically significant. Furthermore, it allows for that the same analyses to be done as in larger populations. Therefore, "drilling down" through the data is possible, allowing comparisons between sub groups- between men and women, or adults and adolescents, for example. Examples of major national surveys that do not routinely oversample American Indian/Alaska Natives include the National Health and Nutrition Examination Survey, Behavioral Risk Factor Surveillance System, and the Youth Risk Behavioral Surveillance System.

- A lack of continuous and reliable funding hinders the collection of quality data for American Indian/Alaska Native populations. When funding is variable from year to year, planning is difficult and it becomes more difficult to be consistent; when budgets are cut, statistically insignificant populations frequently are not prioritized.

- Many Tribal communities are interested in receiving community level data, preferring this over state-level estimates.

- It is difficult to collect data in Tribal communities for various reasons.

    - As in all smaller communities, sampling is generally more difficult than in larger communities. For statistical validity a larger proportion of population must be sampled.
    - Community members complete more surveys, leading to fatigue and disinterest.
    - Historical mistrust factors into the willingness of leaders and community members to agree to surveys. Because research projects have been done poorly in the past, community members likely are more cautious about participating. It also increases pressure to do things the right way, which can be intimidating and may deter future research or surveys originating from outside Tribal communities.

Chapter 1

Demographics

Health conditions have been linked to various demographic indicators. For example, American Indian/Alaska Native people in the United States are affected by diabetes at a much higher rate than other racial or ethnic groups like whites or Asians. Furthermore, within the population of people with diabetes, other factors such as age, gender, education, or income level may be associated with specific health outcomes.

This chapter will provide data on selected demographic indicators for American Indian/Alaska Natives living in Michigan, Minnesota, and Wisconsin. When possible, comparisons will be made with other subpopulations and the general population in these three states.

1.1 Self-Identified Race

Information from the U.S. Census Bureau was used to estimate the number of American Indian/Alaska Native people living in Michigan, Minnesota, and Wisconsin. It is important to note that these numbers are 1) approximations, 2) do not reflect official Tribal enrollment, and 3) are based on self-identified and self-reported racial background.

Table 1.1a and 1.1b present data for population size, by racial category, using 2008 population estimates. Table 1.1a displays counts of people who self-identify with a single race and those who identify as two or more races. Table 1.1b displays counts of people who identify as a single race and as a combination of races. Some individuals will be counted twice. For instance, if an individual is self-identified as African American and American Indian, he or she will be counted under "African American Alone or in Combination" and "American Indian/Alaska Native Alone or in Combination." To obtain a more accurate estimate of the percent of American Indian/Alaska Native people in the population, these numbers are divided by the actual population totals from Table 1.1a, which counts each person only once. Therefore, state percentages for combined race categories will exceed 100 percent.

As can be seen in these two tables, including individuals who self-identify as multiracial increases the number of American Indian/Alaska Natives in the three-state area. In Michigan, the American Indian/Alaska Native population more than doubles. In addition, it also serves to increase the percentage of the population that

is made of American Indian/Alaska Natives. Minnesota has the largest number and percent of American Indian/Alaska Natives of the three states included in this report.

Table 1.1a 2008 Population by Single Self-Identified Race in Michigan, Minnesota, and Wisconsin, and Three-State Area

	Michigan		Minnesota		Wisconsin		Three-State Area	
	#	%	#	%	#	%	#	%
Total	10,003,422	100.0	5,220,393	100.0	5,627,967	100.0	20,851,782	100.0
American Indian/Alaska Natives Alone	62,094	0.6	64,503	1.2	55,844	1.0	182,441	0.9
Whites Alone	8,121,119	81.2	4,648,528	89.0	5,046,806	89.7	17,816,453	85.4
African American Alone	1,424,595	14.2	238,531	4.6	341,723	6.1	2,004,849	9.6
Asian Alone	236,559	2.4	185,089	3.5	114,503	2.0	536,151	2.6
Native Hawaiian and Other Pacific Islander Alone	4,134	0.0	3,251	0.1	2,478	0.0	9,863	0.0
Two or More Races	154,921	1.5	80,491	1.5	66,613	1.2	302,025	1.4

Adapted from US Census Bureau

Table 1.1b 2008 Population by Single and In-Combination Self-Identified Race in Michigan, Minnesota, and Wisconsin, and Three-State Area

	Michigan		Minnesota		Wisconsin		Three-State Area	
	#	%	#	%	#	%	#	%
American Indian/Alaska Natives Alone or in Combination	127,056	1.3	90,459	1.7	78,901	1.4	296,416	1.4
Whites Alone or in Combination	8,260,433	82.6	4,721,225	90.4	5,107,753	90.8	18,089,411	86.8
African American Alone or in Combination	1,499,490	15.0	277,457	5.3	374,409	6.7	2,151,356	10.3
Asian Alone or in Combination	272,915	2.7	209,066	4.0	131,906	2.3	613,887	2.9
Native Hawaiian and Other Pacific Islander Alone or in Combination	9,462	0.1	7,961	0.2	5,831	0.1	23,254	0.1

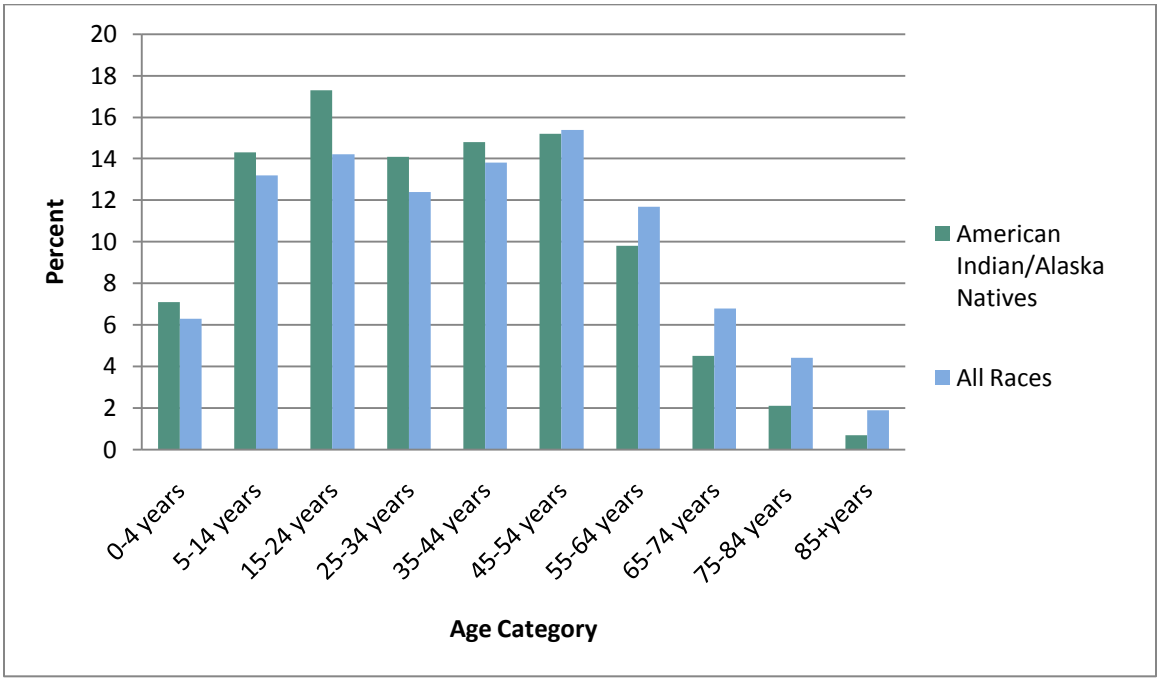
Adapted from US Census Bureau

1.2 Gender and Age

Knowing the general age distribution in any population is useful for program planning purposes. The age distribution of a population is helpful for targeted preventive health interventions that are age specific, such as increasing daily servings of fruits and vegetables in youth, or reducing falls and unintentional injuries in elders.

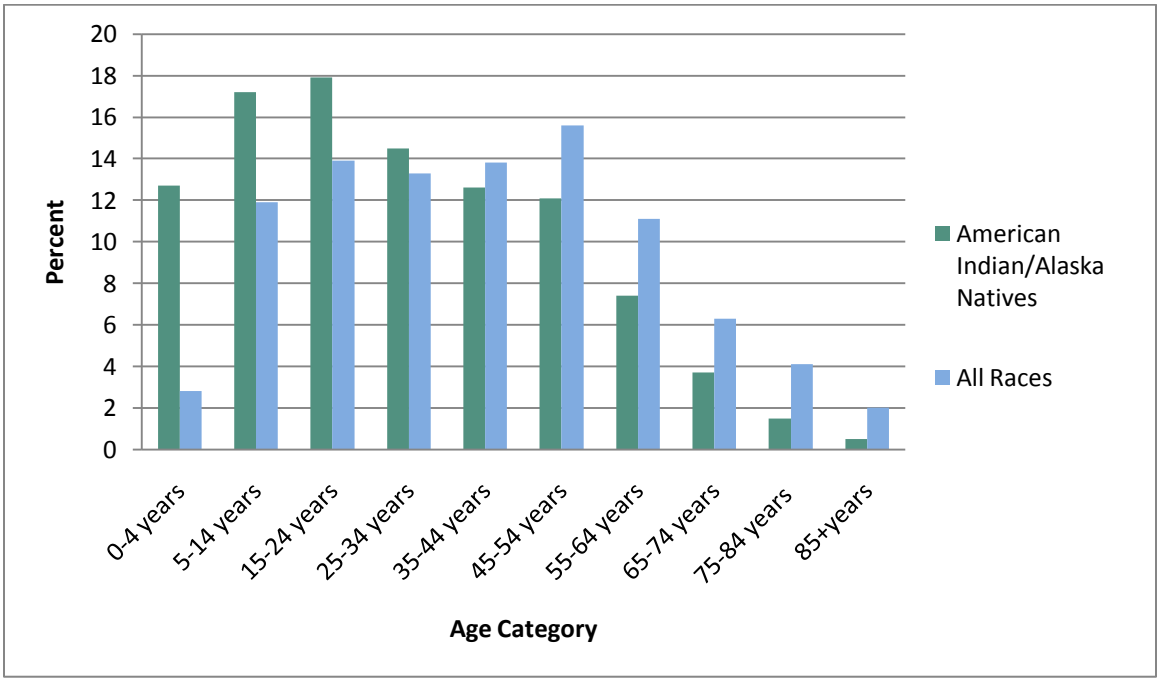
When looking at age categories, a higher percentage of the American Indian/Alaska Native population is less than or equal to 44 years of age compared to the all races population within the three-state area and within each individual state. This information is presented on the following pages in table form- examine Figures 1.2a-d for the clearest illustration of the age distributions.

Figure 1.2a Michigan American Indian/Alaska Native and All Races Population by Age Category and Percent of Respective Populations



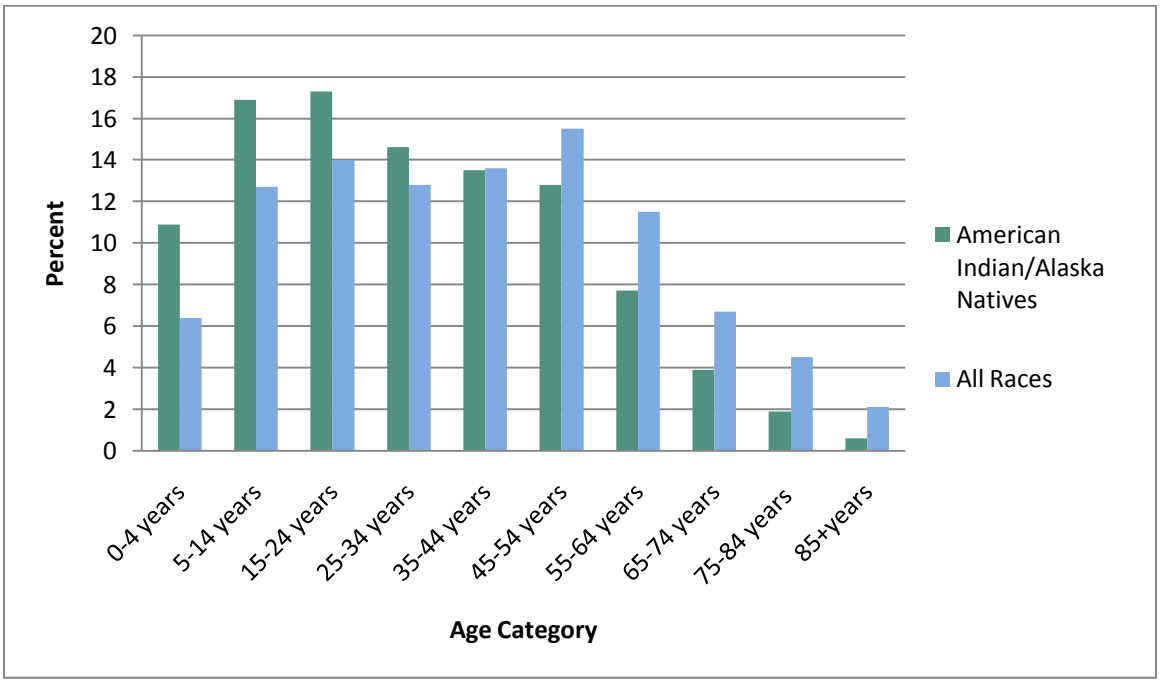
Adapted from US Census Bureau

Figure 1.2b Minnesota American Indian/Alaska Native and All Races Population by Age Category and Percent of Respective Populations



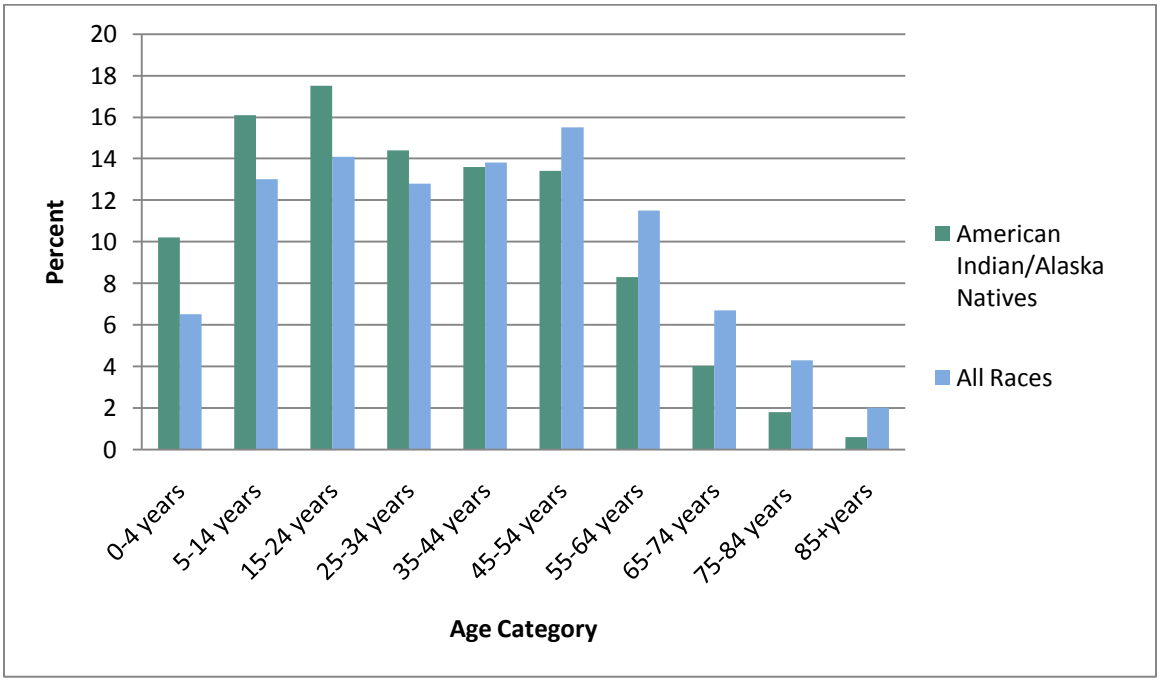
Adapted from US Census Bureau

Figure 1.2c Wisconsin American Indian/Alaska Native and All Races Population by Age Category and Percent of Respective Populations



Adapted from US Census Bureau

Figure 1.2d Three-State Area American Indian/Alaska Native and All Races Population by Age Category and Percent of Respective Populations



Adapted from US Census Bureau

Table 1.2a 2008 All Michigan American Indian/Alaska Natives and All Races by Age Category

	American Indian/Alaska Natives		All Races	
	#	%	#	%
<4 years	4,429	7.1	65,526	6.3
5-14 years	8,823	14.3	1,320,401	13.2
15-24 years	10,738	17.3	1,418,751	14.2
25-34 years	8,773	14.1	1,245,034	12.4
35-44 years	9,197	14.8	1,383,288	13.8
45-54 years	9,459	15.2	1,536,937	15.4
55-64 years	6,107	9.8	1,169,163	11.7
65-74 years	2,823	4.5	680,099	6.8
75-84 years	1,315	2.1	437,479	4.4
>85 years	430	0.7	186,744	1.9
Total	62,094	100.0	10,003,422	100.0

Adapted from US Census Bureau

Table 1.2b 2008 Female Michigan American Indian/Alaska Natives and All Races by Age Category

	American Indian/Alaska Natives		All Races	
	#	%	#	%
<4 years	2,121	6.8	305,684	6.0
5-14 years	4,340	14.0	644,537	12.7
15-24 years	5,366	17.3	695,539	13.7
25-34 years	4,181	13.5	614,589	12.1
35-44 years	4,509	14.6	692,146	13.6
45-54 years	4,812	15.5	776,818	15.3
55-64 years	3,106	10.0	599,709	11.8
65-74 years	1,478	4.8	364,480	7.2
75-84 years	734	2.4	258,252	5.1
>85 years	299	1.0	127,739	2.5
Total	30,946	100.0	5,079,493	100.0

Adapted from US Census Bureau

Table 1.2c 2008 Male Michigan American Indian/Alaska Natives and All Races by Age Category

	American Indian/Alaska Natives		All Races	
	#	%	#	%
<4 years	2,308	7.4	319,842	6.5
5-14 years	4,483	14.4	675,864	13.7
15-24 years	5,372	17.2	723,212	14.7
25-34 years	4,592	13.5	630,445	12.8
35-44 years	4,688	14.6	691,142	14.0
45-54 years	4,647	15.5	760,119	15.4
55-64 years	3,001	10.0	569,454	11.6
65-74 years	1,345	4.8	315,619	6.4
75-84 years	581	2.4	179,227	3.6
>85 years	131	1.0	59,005	1.2
Total	31,148	100.0	4,923,929	100.0

Adapted from US Census Bureau

Table 1.2d 2008 All Minnesota American Indian/Alaska Natives and All Races by Age Category

	American Indian/Alaska Natives		All Races	
	#	%	#	%
<4 years	8,167	12.7	358,471	2.8
5-14 years	11,129	17.2	677,091	11.9
15-24 years	11,516	17.9	726,371	13.9
25-34 years	9,332	14.5	696,243	13.3
35-44 years	8,125	12.6	719,820	13.8
45-54 years	7,816	12.1	812,374	15.6
55-64 years	4,745	7.4	579,504	11.1
65-74 years	2,365	3.7	330,214	6.3
75-84 years	992	1.5	213,451	4.1
>85 years	316	0.5	106,854	2.0
Total	64,503	100.0	5,220,393	100.0

Adapted from US Census Bureau

Table 1.2e 2008 Female Minnesota American Indian/Alaska Natives and All Races by Age Category

	American Indian/Alaska Natives		All Races	
	#	%	#	%
<4 years	3,977	12.3	175,261	6.7
5-14 years	5,442	16.8	330,400	12.6
15-24 years	5,615	17.4	356,885	13.6
25-34 years	4,585	14.2	336,763	12.9
35-44 years	4,061	12.6	354,829	13.5
45-54 years	4,013	12.4	402,607	15.4
55-64 years	2,513	7.8	291,777	11.1
65-74 years	1,296	4.0	174,255	6.6
75-84 years	555	1.7	124,192	4.7
>85 years	213	0.7	73,525	2.8
Total	32,270	100.0	2,620,494	100.0

Adapted from US Census Bureau

Table 1.2 f 2008 Male Minnesota American Indian/Alaska Natives and All Races by Age Category

	American Indian/Alaska Natives		All Races	
	#	%	#	%
<4 years	4,190	13.0	183,210	7.0
5-14 years	5,687	17.6	346,691	13.3
15-24 years	5,901	18.3	369,486	14.2
25-34 years	4,747	14.7	359,480	13.8
35-44 years	4,064	12.6	364,991	14.0
45-54 years	3,803	11.8	409,767	15.8
55-64 years	2,232	6.9	287,727	11.1
65-74 years	1,069	3.3	155,959	6.0
75-84 years	437	1.4	89,259	3.4
>85 years	103	0.3	33,329	1.3
Total	32,233	100.0	2,599,899	100.0

Adapted from US Census Bureau

Table 1.2g 2008 All Wisconsin American Indian/Alaska Natives and All Races by Age Category

	American Indian/Alaska Natives		All Races	
	#	%	#	%
<4 years	6,043	10.9	362,277	6.4
5-14 years	9,395	16.9	715,358	12.7
15-24 years	9,688	17.3	790,691	14.0
25-34 years	8,169	14.6	719,384	12.8
35-44 years	7,566	13.5	768,073	13.6
45-54 years	7,139	12.8	874,859	15.5
55-64 years	4,296	7.7	647,179	11.5
65-74 years	2,167	3.9	378,668	6.7
75-84 years	1,040	1.9	254,324	4.5
>85 years	341	0.6	117,154	2.1
Total	55,844	100.0	5,627,967	100.0

Adapted from US Census Bureau

Table 1.2h 2008 Female Wisconsin American Indian/Alaska Natives and All Races by Age Category

	American Indian/Alaska Natives		All Races	
	#	%	#	%
<4 years	3,020	10.8	176,964	6.3
5-14 years	4,636	16.5	350,369	12.4
15-24 years	4,576	16.4	386,113	13.6
25-34 years	4,032	14.4	347,696	12.3
35-44 years	3,815	13.6	378,984	13.4
45-54 years	3,614	12.9	436,139	15.4
55-64 years	2,255	8.1	324,607	11.5
65-74 years	1,173	4.2	200,578	7.1
75-84 years	609	2.2	148,325	5.2
>85 years	252	0.9	80,543	2.8
Total	27,982	100.0	2,830,318	100.0

Adapted from US Census Bureau

Table 1.2i 2008 Male Wisconsin American Indian/Alaska Natives and All Races by Age Category

	American Indian/Alaska Natives		All Races	
	#	%	#	%
<4 years	3,023	10.8	185,313	6.6
5-14 years	4,759	17.1	364,989	13.0
15-24 years	5,112	18.3	404,578	14.5
25-34 years	4,137	14.8	371,688	13.3
35-44 years	3,751	13.5	389,089	13.9
45-54 years	3,252	12.7	438,720	15.7
55-64 years	2,041	7.3	322,572	11.5
65-74 years	994	3.6	178,090	6.4
75-84 years	431	1.5	105,999	3.8
>85 years	89	0.3	36,611	1.3
Total	27,862	100.0	2,797,649	100.0

Adapted from US Census Bureau

Table 1.2 j 2008 Three-State Area American Indian/Alaska Natives and All Races by Age Category

	American Indian/Alaska Natives		All Races	
	#	%	#	%
<4 years	18,639	10.2	1,346,274	6.5
5-14 years	26,647	16.1	2,712,850	13.0
15-24 years	31,942	17.5	2,935,813	14.1
25-34 years	26,274	14.4	2,660,661	12.8
35-44 years	24,888	13.6	2,871,181	13.8
45-54 years	24,414	13.4	3,224,170	15.5
55-64 years	15,148	8.3	2,395,846	11.5
65-74 years	7,355	4.0	1,388,981	6.7
75-84 years	3,347	1.8	905,254	4.3
>85 years	1,087	0.6	410,752	2.0
Total	182,441	100.0	2,0851,782	100.0

Adapted from US Census Bureau

Table 1.2k 2008 Female Three-State Area American Indian/Alaska Natives and All Races by Age Category

	American Indian/Alaska Natives		All Races	
	#	%	#	%
<4 years	9,118	10.0	657,909	6.2
5-14 years	14,418	15.8	1,325,306	12.6
15-24 years	15,557	17.1	1,438,537	13.7
25-34 years	12,798	14.0	1,299,048	12.3
35-44 years	12,385	13.6	1,425,959	13.5
45-54 years	12,439	13.6	1,615,564	15.3
55-64 years	7,874	8.6	1,216,093	11.5
65-74 years	3,947	4.3	739,313	7.0
75-84 years	1,989	2.1	530,769	5.0
>85 years	764	0.8	281,807	2.7
Total	91,198	100.0	10,530,305	100.0

Adapted from US Census Bureau

Table 1.2l 2008 Male Three-State Area American Indian/Alaska Natives and All Races by Age Category

	American Indian/Alaska Natives		All Races	
	#	%	#	%
<4 years	9,521	10.4	688,365	6.7
5-14 years	14,929	16.3	1,387,544	13.4
15-24 years	16,385	18.0	1,497,276	14.5
25-34 years	13,476	14.8	1,361,613	13.2
35-44 years	12,503	13.7	1,445,222	14.0
45-54 years	11,975	13.1	1,608,606	15.6
55-64 years	7,274	8.0	1,179,753	11.4
65-74 years	3,408	3.7	649,668	6.3
75-84 years	1,449	1.6	374,485	3.6
>85 years	323	0.4	128,945	1.2
Total	91,243	100.0	10,321,477	100.0

Adapted from US Census Bureau

1.3 Socioeconomic Status

Often the most influential factors affecting morbidity and mortality are those related to socioeconomic status, such as education and income. These factors affect access to quality preventative and acute medical care, are associated with risky behaviors such as smoking commercial tobacco and having unprotected sex, as well as other aspects of health.

Though some research indicates that differences in health statuses between minority groups and non-Hispanic whites remain after adjusting for these socioeconomic variables, this only strengthens the argument that there is a critical need for information that can help health professionals better understand the myriad of other cultural, social, economic, and environmental influences that affect the health of minority populations.

Education

Education is an important predictor of health on a population-wide level. An example of the association between education and health is the link to rates for cancer screenings, such as the prostate-specific antigen (PSA) test for prostate cancer, and the Papanicalaou (PAP smear) test for cervical cell changes.

Although the percentage of American Indian/Alaska Natives who receive higher education has increased since 1990, fewer American Indian/Alaska Natives have high school diplomas and bachelor's degrees when compared to the all races population in the three-state area, as well as in all three individual states. A higher percentage of American Indian/Alaska Natives also have less than a ninth grade

education. Further information for educational attainment is summarized in Tables 1.3a-d.

This suggests that the general population in Michigan, Minnesota, and Wisconsin is more likely to go to college and have completed degrees when compared to American Indian/Alaska Natives. See Table 1.3e for an overview of these data.

Table 1.3a 2000 Educational Attainment (by Percent) for Adults 25 Years and Older for American Indian/Alaska Natives and All Races in Michigan

	American Indian/Alaska Natives	All Races
Less than 9th grade	6.63	4.66
9-12th grade, no diploma	17.01	11.93
High school diploma or GED	32.07	31.34
Some college, no degree	26.83	23.33
Associate's degree	7.13	6.98
Bachelor's degree	7.41	13.70
Graduate or professional degree	2.93	8.07

Adapted from US Census Bureau

Table 1.3b 2000 Educational Attainment (by Percent) for Adults 25 Years and Older for American Indian/Alaska Natives and All Races in Minnesota

	American Indian/Alaska Natives	All Races
Less than 9th grade	7.44	5.02
9-12th grade, no diploma	18.09	7.03
High school diploma or GED	32.17	28.84
Some college, no degree	27.23	23.99
Associate's degree	6.26	7.68
Bachelor's degree	6.10	19.13
Graduate or professional degree	2.71	8.31

Adapted from US Census Bureau

Table 1.3c 2000 Educational Attainment (by Percent) for Adults 25 Years and Older for American Indian/Alaska Natives and All Races in Wisconsin

	American Indian/Alaska Natives	All Races
Less than 9th grade	5.56	5.35
9-12th grade, no diploma	17.13	9.56
High school diploma or GED	35.97	34.58
Some college, no degree	24.02	20.56
Associate's degree	6.91	7.50
Bachelor's degree	6.94	15.26
Graduate or professional degree	3.47	7.16

Adapted from US Census Bureau

Table 1.3d 2000 Educational Attainment (by Percent) for Adults 25 Years and Older for American Indian/Alaska Natives and All Races in the 3-State Area

	American Indian/Alaska Natives	All Races
Less than 9th grade	6.54	5.01
9-12th grade, no diploma	17.41	9.51
High school diploma or GED	33.40	31.59
Some college, no degree	26.03	22.63
Associate's degree	6.77	7.39
Bachelor's degree	6.82	16.03
Graduate or professional degree	3.04	7.85

Adapted from US Census Bureau

Table 1.3e 2000 Percent of Adults 25 Years and Older with a High School Diploma or Bachelor's Degree or Higher, for American Indian/Alaska Natives and All Races in Michigan, Minnesota, Wisconsin, and the Three-State Area

		High school diploma or higher	Bachelor's degree or higher
Michigan	American Indian/ Alaska Natives	76.4	10.3
	All Races	83.4	21.8
Minnesota	American Indian/ Alaska Natives	74.5	8.8
	All Races	88.0	27.4
Wisconsin	American Indian/ Alaska Natives	77.3	10.4
	All Races	85.1	22.4
Three-State	American Indian/ Alaska Natives	76.1	9.9
	All Races	85.5	23.9

Adapted from US Census Bureau

Employment

Between 1990 and 2000 the percentage of American Indian/Alaska Natives in Michigan, Minnesota, and Wisconsin who are in the labor force but are unemployed has decreased by at least 26 percent. However, when compared to the all races population, American Indian/Alaska Natives who are in the labor force are still more likely to be unemployed. This difference is greatest in Minnesota, where 14.8 percent of American Indian/Alaska Natives are unemployed, compared to only 4.1 percent of the all races population.

Because health insurance in the United States is commonly provided through employment, having a job may be an important aspect of maintaining overall health. People who are insured usually have greater access to care and are more likely to use preventive health services when compared to those who are uninsured.

Income and Poverty Status

Along with education level and employment status, income and poverty status are other important factors contributing to socioeconomic status. Household income data from the U.S. Census Bureau show that a higher percentage of American Indian/Alaska Native households have a combined income of less than $35,000 when compared to the all races households in the three-state area and in the individual states.

In 1999 in Michigan, Minnesota, and Wisconsin, 52.9 percent, 42 percent, and 47 percent respectively, of American Indian/Alaska Native households earned more than $35,000 per year, compared to 61.2 percent, 64.1 percent, and 61.1 percent of the all races households. According to poverty status indicators and household incomes from 1999, 22 percent of American Indian/Alaska Natives live below the poverty limit compared to only 9.4 percent of the all races population in the three-state area. Again, as with employment and household income, the greatest disparity between American Indian/Alaska Natives and the all races population occurs in Minnesota. Table 1.3f on the following page gives more information about poverty status among populations in each of the three states.

Table 1.3f 1999 Poverty Status (by Percent) for American Indian/Alaska Natives and All Races Households in Michigan

		American Indian/Alaska Natives	All Races
Below Poverty level	All households	16.8	10.5
	5 years and under	22.2	15.5
	6-17 years	18.7	13.1
	18-64 years	15.3	9.6
	65 years and over	17.1	8.2
At or Above poverty level	All ages	83.2	89.5

Adapted from US Census Bureau

Table 1.3g 1999 Poverty Status (by Percent) for American Indian/Alaska Natives and All Races Households in Minnesota

		American Indian/Alaska Natives	All Races
Below Poverty level	All households	28.6	7.9
	5 years and under	38.7	10.6
	6-17 years	33.3	9.2
	18-64 years	25.1	7.2
	65 years and over	20.7	8.2
At or Above poverty level	All ages	71.4	92.1

Adapted from US Census Bureau

Table 1.3h 1999 Poverty Status (by Percent) for American Indian/Alaska Natives and All Races Households in Wisconsin

		American Indian/Alaska Natives	All Races
Below Poverty level	All households	21.7	8.7
	5 years and under	30.6	12.9
	6-17 years	25.4	10.4
	18-64 years	18.7	7.9
	65 years and over	18.2	7.4
At or Above poverty level	All ages	78.3	91.3

Adapted from US Census Bureau

Table 1.3i 1999 Poverty Status (by Percent) for American Indian/Alaska Natives and All Races Households in the Three-State Area

		American Indian/Alaska Natives	All Races
Below Poverty level	All households	22.1	9.4
	5 years and under	30.5	13.6
	6-17 years	25.9	11.4
	18-64 years	19.4	8.5
	65 years and over	18.4	8.0
At or Above poverty level	All ages	77.9	90.6

Adapted from US Census Bureau

Family Households

Often, when households consist of a single parent, resources such as time and money are lacking, and both the children and the parent's health may be at risk. For example, a single mom who has a full time job may find it difficult to take time off work for regular doctor visits for herself.

As shown in table 1.3j, from 1990 to 2000 the percentages of single female heads-of-households among American Indians and Alaska Natives in Michigan, Minnesota, and Wisconsin all decreased. However, in 2000, this number is still over two times higher among American Indian/Alaska Natives when compared to the all races population. The percentages of single male American Indian/Alaska Native heads-of-households increased in all areas from 1990 to 2000.

Table 1.3j 1990 and 2000 Single Parent Households (by Percent) for American Indian/Alaska Native and All Races Populations in Michigan, Minnesota, Wisconsin, and the 3-State Area

Household Characteristic by Area	American Indian/Alaska Natives		All Races	
	1990	2000	1990	2000
Female householder (no husband) with own children under 18 years old				
Michigan	14.7	12.1	7.7	7.3
Minnesota	25.6	20.2	5.3	5.7
Wisconsin	19.5	18.9	5.8	5.9
Three-State	19.3	16.7	6.6	6.5
Male householder (no wife) with own children under 18 years old				
Michigan	2.9	4.3	1.4	2.1
Minnesota	5.5	6.5	1.3	1.9
Wisconsin	4.4	5.2	1.3	2.0
Three-State	4.1	5.3	1.3	2.0

Chapter 2
Mortality

When obtaining a measure for the overall health status of a specific population, it is necessary to examine the causes of death for the population. Tracking the number of deaths over time provides information on how mortality rates change. It also shows whether the causes of death are different from those of other subpopulations, and can assist in examining whether or not health systems are using appropriate methods to reduce preventable deaths.

All data presented in this section came from the Michigan Department of Community Health, the Minnesota Center for Health Statistics, or the Wisconsin Bureau of Health Information. The information came from death certificates. Secondary causes of death and contributing factors of death were not taken into consideration when compiling this report. Census data, using six race groups, were used to calculate the denominators.

Racial misclassification is a notable issue regarding mortality data quality for American Indian/Alaska Natives. Racial misclassification occurs when a medical professional did not correctly identify the race of the deceased. When Indian Health Service examined this issue they found that 16 percent of American Indian deaths were misclassified (U.S. Department of Health and Human Services, 1996).

Appendix B lists the ICD-9 and ICD-10 codes used for categorizing the underlying causes of death. ICD-10 codes were used to calculate the numbers reported in this document.

2.1 Age-Adjusted All Causes Mortality

The age-adjusted all causes mortality rate from 2004-2008 for American Indian/Alaska Natives in the three-state area and all three states is higher than that for the all races population. Age-adjusted mortality rates for all causes are summarized below in Table 2.1.

Table 2.1 All Causes Age-Adjusted Mortality Rates, 2004-2008 (per 100,000)

Race and Location		Number of Deaths	Population	Age-Adjusted Mortality Rate	95% Confidence Interval
Michigan	AI/AN	2,086	308,870	1,056.4	1,011.1-1,101.7
	All Races	429,519	50,320,636	811.0	808.5-813.4
Minnesota	AI/AN	1,996	312,519	1,092.0	1,044.1-1,139.9
	All Races	186,990	25,728,791	678.9	675.8-682.0
Wisconsin	AI/AN	1,667	270,812	1,032.5	982.9-1,082.1
	All Races	230,725	27,842,960	734.5	731.5-737.5
Three-State Area	AI/AN	5,749	592,201	1,068.0	1,040.4-1,095.6
	All Races	847,234	103,892,387	760.6	759.0-762.2
All Races HP 2010 Goal		--	--	N/A	--
All Races U.S. 2006		--	--	776.5	--

Sources: 2004-2008 Mortality Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information, Wisconsin Interactive Statistics on Health (WISH); U.S. Census Bureau 6 race groups; CDC/NCHS, National Vital Statistics System; Healthy People 2010 *from Department of Health and Human Services*

2.2 Age-Adjusted Death Rates for Selected Causes

In general, American Indians across the three-state area die at higher rates for the specific causes examined for this report. In Michigan, mortality rates for American Indian/Alaska Natives due to liver disease and cirrhosis were statistically significantly lower than for the all race population; this caused the three-state rate to also be significantly lower though it was significantly higher in Wisconsin and Minnesota. Only for stroke were mortality rates not significantly higher across all three states. Refer to Table 2.2a for an overview of the conditions from which American Indian/Alaska Natives die at a higher rate.

See Tables 2.2b - 2.2l for the number of deaths, age-adjusted rates, and confidence intervals. Figures 2.2a - 2.2d display the mortality rates in a visual format. The width of each bubble represents a cause-specific age-adjusted mortality rate; the larger the bubble, the higher the mortality rate.

Table 2.2a Statistical Significances in Differences between American Indian/Alaska Natives and All Races Age-Adjusted Mortality Rates for Selected Conditions, 2004-2008

	Michigan	Minnesota	Wisconsin	Three-State area
Conditions for which American Indian/ Alaska Natives have significantly higher mortality rates	All cancer	All cancer	All cancer	All cancer
	Lung cancer	Lung cancer	Lung cancer	Lung cancer
	CLRD	Chronic liver disease & cirrhosis	Chronic liver disease & cirrhosis	CLRD
	Diabetes	CLRD	CLRD	Diabetes
	Diseases of the heart	Diabetes	Diabetes	Diseases of the heart
	Nephritis, nephrotic syndrome, and nephrosis	Diseases of the heart	Influenza & pneumonia	Influenza & pneumonia
	Unintentional injury	Nephritis, nephrotic syndrome, and nephrosis	Nephritis, nephrotic syndrome, and nephrosis	Nephritis, nephrotic syndrome, and nephrosis
	-----	Suicide	Suicide	Suicide
	-----	Unintentional injury	Unintentional injury	Unintentional injury
Conditions for which all races have significantly higher mortality rates	Chronic liver disease & cirrhosis	-----	-----	Chronic liver disease & cirrhosis
Conditions for which there is no statistical difference	Influenza & pneumonia	Influenza & pneumonia	Diseases of the heart	Stroke
	Stroke	Stroke	Stroke	-----
	Suicide	-----	-----	-----

Table 2.2b All Cancer Age-Adjusted Mortality Rates, 2004-2008 (per 100,000)

Race and Location		Number of Deaths	Population	Age-Adjusted Mortality Rate	95% Confidence Interval
Michigan	AI/AN	472	308,870	227.2	206.7-247.6
	All Races	100,001	50,320,636	188.8	187.6-190.0
Minnesota	AI/AN	358	312,519	220.2	197.4-243.0
	All Races	45,586	25,728,791	171.6	170.0-173.2
Wisconsin	AI/AN	355	270,812	235.2	210.8-259.7
	All Races	54,717	27,842,960	180.5	179.0-182.1
Three-State Area	AI/AN	1,185	592,201	227.2	214.2-240.1
	All Races	200,304	103,892,387	182.5	181.7-183.3
All Races HP 2010 Goal		--	--	159.90	--
All Races U.S. 2006		--	--	180.7	--

Sources: 2004-2008 Mortality Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information, Wisconsin Interactive Statistics on Health (WISH); U.S. Census Bureau 6 race groups; CDC/NCHS, National Vital Statistics System; Healthy People 2010 *from Department of Health and Human Services*

Table 2.2c Lung Cancer Age-Adjusted Mortality Rates, 2004-2008 (per 100,000)

Race and Location		Number of Deaths	Population	Age-Adjusted Mortality Rate	95% Confidence Interval
Michigan	AI/AN	174	308,870	83.8	71.3-96.2
	All Races	29,224	50,320,636	55.4	54.7-56.0
Minnesota	AI/AN	133	312,519	85.0	70.6-99.5
	All Races	11,834	25,728,791	45.4	44.6-46.2
Wisconsin	AI/AN	119	270,812	79.0	64.8-93.2
	All Races	14,398	27,842,960	48.1	47.3-48.9
Three-State Area	AI/AN	426	592,201	82.5	74.7-90.3
	All Races	55,456	103,892,387	50.1	50.6-51.4
All Races HP 2010 Goal		--	--	44.90	--
All Races U.S. 2006		--	--	51.5	--

Sources: 2004-2008 Mortality Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information, Wisconsin Interactive Statistics on Health (WISH); U.S. Census Bureau 6 race groups; CDC/NCHS, National Vital Statistics System; Healthy People 2010 *from Department of Health and Human Services*

Table 2.2d Chronic Liver Disease and Cirrhosis Age-Adjusted Mortality Rates, 2004-2008 (per 100,000)

Race and Location		Number of Deaths	Population	Age-Adjusted Mortality Rate	95% Confidence Interval
Michigan	AI/AN	28	308,870	11.4	7.2-15.7
	All Races	29,224	50,320,636	55.4	54.7-56.0
Minnesota	AI/AN	38	312,519	16.7	11.4-22.1
	All Races	801	25,728,791	3.0	2.8-3.2
Wisconsin	AI/AN	72	270,812	33.7	25.9-41.5
	All Races	2,291	27,842,960	7.6	7.3-7.9
Three-State Area	AI/AN	138	592,201	19.7	16.5-23.1
	All Races	32,316	103,892,387	29.7	25.4-30.0
All Races HP 2010 Goal		--	--		--
All Races U.S. 2006		--	--	8.8	--

Sources: 2004-2008 Mortality Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information, Wisconsin Interactive Statistics on Health (WISH); U.S. Census Bureau 6 race groups; CDC/NCHS, National Vital Statistics System; Healthy People 2010 *from Department of Health and Human Services*

Table 2.2e Chronic Lower Respiratory Disease Age-Adjusted Mortality Rates, 2004-2008 (per 100,000)

Race and Location		Number of Deaths	Population	Age-Adjusted Mortality Rate	95% Confidence Interval
Michigan	AI/AN	116	308,870	64.7	52.9-76.5
	All Races	22,907	50,320,636	43.7	43.2-44.3
Minnesota	AI/AN	72	312,519	49.2	37.8-60.6
	All Races	9,396	25,728,791	35.3	34.6-36.0
Wisconsin	AI/AN	89	270,812	66.8	52.9-80.7
	All Races	12,014	27,842,960	39.3	38.6-40.0
Three-State Area	AI/AN	277	592,201	60.6	53.4-67.7
	All Races	44,317	103,892,387	40.5	40.1-40.9
All Races HP 2010 Goal		--	--	N/A*	--
All Races U.S. 2006		--	--	8.8	--

Sources: 2004-2008 Mortality Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information, Wisconsin Interactive Statistics on Health (WISH); U.S. Census Bureau 6 race groups; CDC/NCHS, National Vital Statistics System; Healthy People 2010 *from Department of Health and Human Services*
**The HP 2010 goal was given for ages 45 and over and another goal was provided for asthma in younger persons. Neither are comparable to the data reported in this table.*

Table 2.2f Diabetes Age-Adjusted Mortality Rates, 2004-2008 (per 100,000)

Race and Location		Number of Deaths	Population	Age-Adjusted Mortality Rate	95% Confidence Interval
Michigan	AI/AN	124	308,870	65.4	53.9-76.9
	All Races	14,154	50,320,636	26.8	26.3-27.2
Minnesota	AI/AN	119	312,519	77.2	63.3-91.0
	All Races	5,712	25,728,791	21.0	20.5-21.6
Wisconsin	AI/AN	109	270,812	73.2	59.4-86.9
	All Races	6,073	27,842,960	19.8	19.3-20.3
Three-State Area	AI/AN	352	592,201	71.5	64.1-79.0
	All Races	25,939	103,892,387	23.5	23.2-23.7
All Races HP 2010 Goal		--	--	N/A*	--
All Races U.S. 2006		--	--	23.3	--

Sources: 2004-2008 Mortality Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information, Wisconsin Interactive Statistics on Health (WISH); U.S. Census Bureau 6 race groups; CDC/NCHS, National Vital Statistics System; Healthy People 2010 *from Department of Health and Human Services*
**The HP 2010 goal is for all diabetes-related deaths, which is not comparable to the data provided in this table*

Table 2.2g Diseases of the Heart Age-Adjusted Mortality Rates, 2004-2008 (per 100,000)

Race and Location		Number of Deaths	Population	Age-Adjusted Mortality Rate	95% Confidence Interval
Michigan	AI/AN	553	308,870	305.1	279.6-330.5
	All Races	128,611	50,320,636	240.6	239.2-241.9
Minnesota	AI/AN	346	312,519	220.5	197.3-243.7
	All Races	41,194	25,728,791	146.7	145.3-148.1
Wisconsin	AI/AN	303	270,812	211.3	157.5-235.1
	All Races	57,527	27,842,960	181.4	179.9-182.9
Three-State Area	AI/AN	1,202	592,201	251.9	237.7-266.2
	All Races	227,332	103,892,387	201.2	200.4-202.0
All Races HP 2010 Goal		--	--	166.00	--
All Races U.S. 2006		--	--	200.2	--

Sources: 2004-2008 Mortality Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information, Wisconsin Interactive Statistics on Health (WISH); U.S. Census Bureau 6 race groups; CDC/NCHS, National Vital Statistics System; Healthy People 2010 *from Department of Health and Human Services*

Table 2.2h Influenza and Pneumonia Age-Adjusted Mortality Rates, 2004-2008 (per 100,000)

Race and Location		Number of Deaths	Population	Age-Adjusted Mortality Rate	95% Confidence Interval
Michigan	AI/AN	38	308,870	24.4	16.6-32.1
	All Races	8,917	50,320,636	16.7	16.4-17.0
Minnesota	AI/AN	47	312,519	32.1	35.9-58.0
	All Races	3,571	25,728,791	12.3	39.3-40.8
Wisconsin	AI/AN	36	270,812	27.7	18.7-36.8
	All Races	5,545	27,842,960	17.0	16.5-17.4
Three-State Area	AI/AN	121	592,201	27.9	22.9-32.9
	All Races	18,033	103,892,387	15.8	15.5-16.0
All Races HP 2010 Goal		--	--	N/A	--
All Races U.S. 2006		--	--	17.8	--

Sources: 2004-2008 Mortality Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information, Wisconsin Interactive Statistics on Health (WISH); U.S. Census Bureau 6 race groups; CDC/NCHS, National Vital Statistics System; Healthy People 2010 *from Department of Health and Human Services*

Table 2.2i Nephritis, Nephrotic Syndrome, and Nephrosis Age-Adjusted Mortality Rates, 2004-2008 (per 100,000)

Race and Location		Number of Deaths	Population	Age-Adjusted Mortality Rate	95% Confidence Interval
Michigan	AI/AN	51	308,870	29.5	21.4-37.5
	All Races	7,965	50,320,636	15.0	14.7-15.4
Minnesota	AI/AN	40	312,519	29.0	20.0-38.0
	All Races	3,615	25,728,791	13.0	12.5-13.4
Wisconsin	AI/AN	47	270,812	37.8	27.0-48.7
	All Races	4,789	27,842,960	22.2	21.6-22.8
Three-State Area	AI/AN	138	592,201	32.0	26.7-37.3
	All Races	16,369	103,892,387	14.6	14.4-14.8
All Races HP 2010 Goal		--	--	--	--
All Races U.S. 2006		--	--	14.5	--

Sources: 2004-2008 Mortality Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information, Wisconsin Interactive Statistics on Health (WISH); U.S. Census Bureau 6 race groups; CDC/NCHS, National Vital Statistics System; Healthy People 2010 *from Department of Health and Human Services*

Table 2.2j Stroke Age-Adjusted Mortality Rates, 2004-2008 (per 100,000)

Race and Location		Number of Deaths	Population	Age-Adjusted Mortality Rate	95% Confidence Interval
Michigan	AI/AN	82	308,870	50.2	39.3-61.0
	All Races	24,146	50,320,636	45.4	44.8-46.0
Minnesota	AI/AN	69	312,519	47.0	35.9-58.0
	All Races	11,295	25,728,791	40.1	39.3-40.8
Wisconsin	AI/AN	62	270,812	44.1	33.1-55.1
	All Races	14,005	27,842,960	43.9	43.2-44.7
Three-State Area	AI/AN	213	592,201	47.6	41.2-54.0
	All Races	49,446	103,892,387	43.7	43.0-44.1
All Races HP 2010 Goal		--	--	48.00	--
All Races U.S. 2006		--	--	43.6	--

Sources: 2004-2008 Mortality Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information, Wisconsin Interactive Statistics on Health (WISH); U.S. Census Bureau 6 race groups; CDC/NCHS, National Vital Statistics System; Healthy People 2010 *from Department of Health and Human Services*

Table 2.2k Suicide Age-Adjusted Mortality Rates, 2004-2008 (per 100,000)

Race and Location		Number of Deaths	Population	Age-Adjusted Mortality Rate	95% Confidence Interval
Michigan	AI/AN	39	308,870	12.9	8.9-17.0
	All Races	5,621	50,320,636	11.0	10.7-11.3
Minnesota	AI/AN	76	312,519	24.7	19.2-30.3
	All Races	2,774	25,728,791	10.6	10.2-11.0
Wisconsin	AI/AN	51	270,812	20.2	14.6-25.7
	All Races	3,424	27,842,960	12.1	11.7-12.5
Three-State Area	AI/AN	166	592,201	19.1	16.2-22.0
	All Races	11,819	103,892,387	11.2	11.0-11.4
All Races HP 2010 Goal		--	--	5.0	--
All Races U.S. 2006		--	--	10.9	--

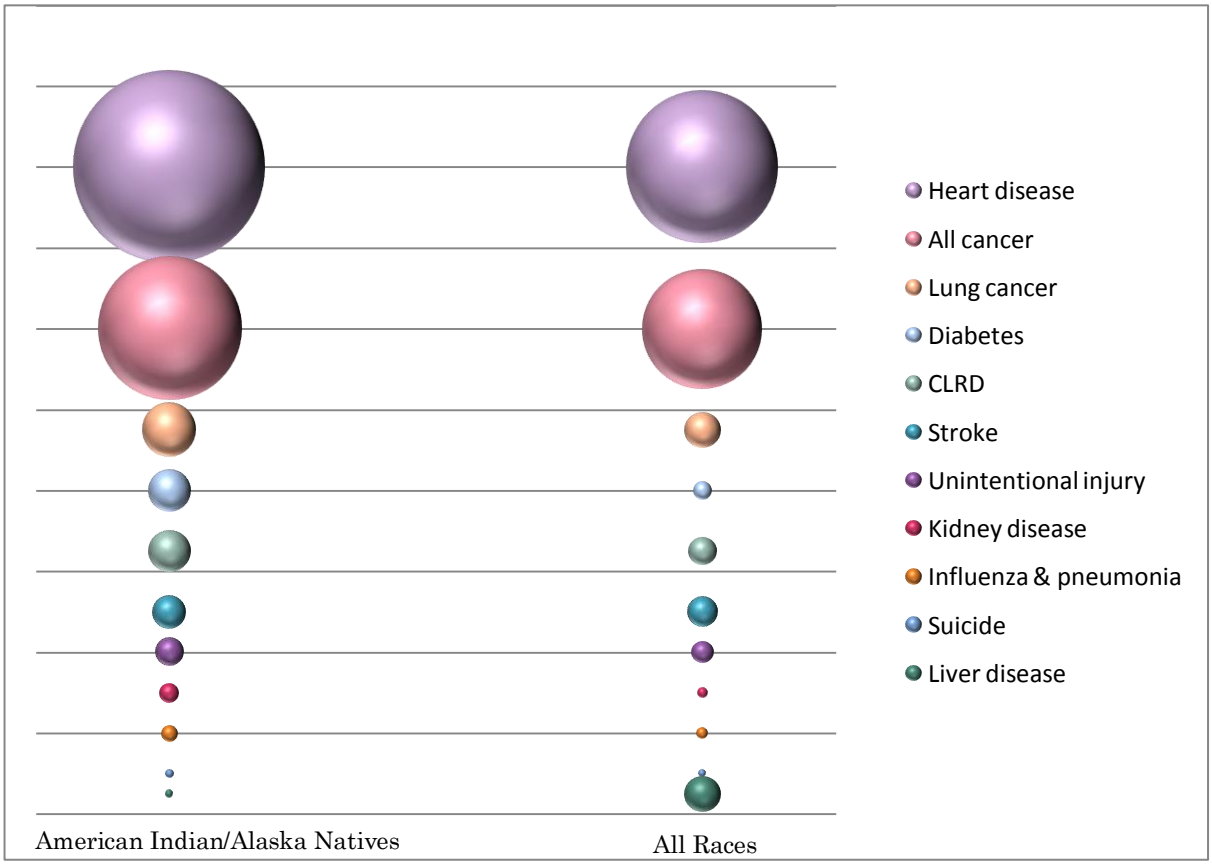
Sources: 2004-2008 Mortality Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information, Wisconsin Interactive Statistics on Health (WISH); U.S. Census Bureau 6 race groups; CDC/NCHS, National Vital Statistics System; Healthy People 2010 *from Department of Health and Human Services*

Table 2.2l Unintentional Injury Age-Adjusted Mortality Rates, 2004-2008 (per 100,000)

Race and Location		Number of Deaths	Population	Age-Adjusted Mortality Rate	95% Confidence Interval
Michigan	AI/AN	126	308,870	42.5	35.1-50.0
	All Races	17,093	50,320,636	33.2	32.7-33.7
Minnesota	AI/AN	253	312,519	89.4	78.4-100.5
	All Races	9,607	25,728,791	35.4	34.7-36.1
Wisconsin	AI/AN	171	270,812	69.4	59.0-79.8
	All Races	12,277	27,842,960	40.9	40.2-41.6
Three-State Area	AI/AN	550	592,201	66.7	61.2-72.3
	All Races	38,977	103,892,387	36.0	35.7-36.4
All Races HP 2010 Goal		--	--	17.5	--
All Races U.S. 2006		--	--	39.8	--

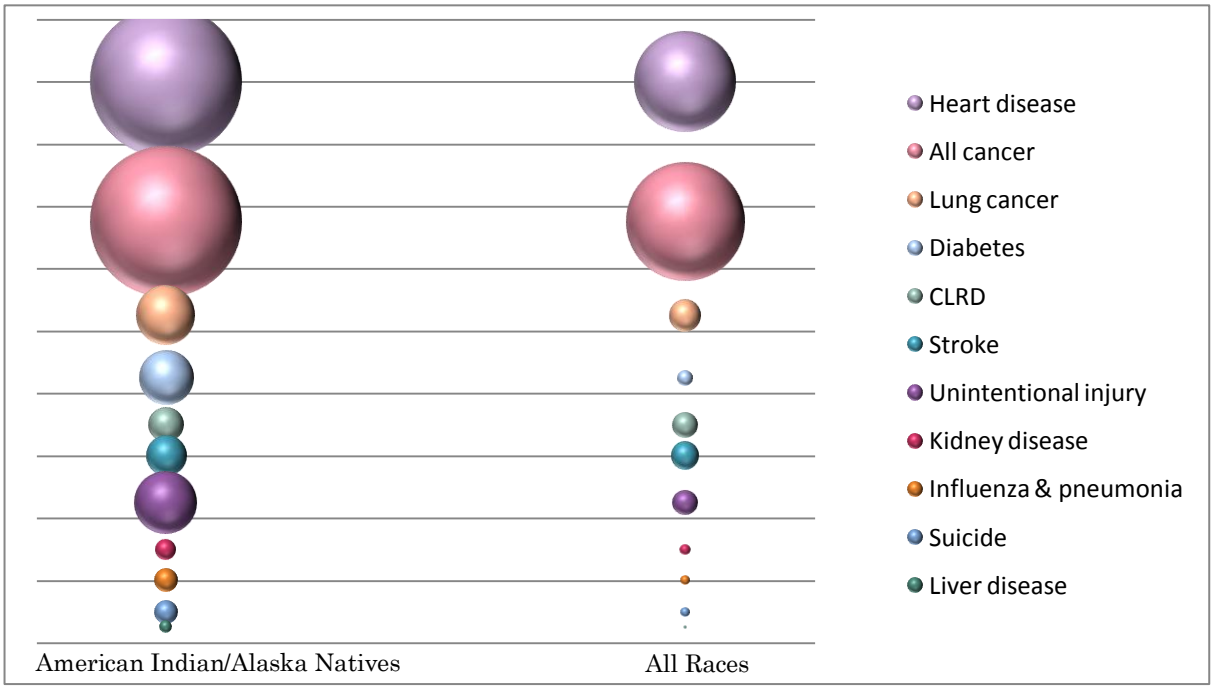
Sources: 2004-2008 Mortality Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information, Wisconsin Interactive Statistics on Health (WISH); U.S. Census Bureau 6 race groups; CDC/NCHS, National Vital Statistics System; Healthy People 2010 *from Department of Health and Human Services*

Figure 2.2a Mortality Rates per 100,000 by Cause of Death for American Indian/Alaska Natives and All Races in Michigan, 2004-2008



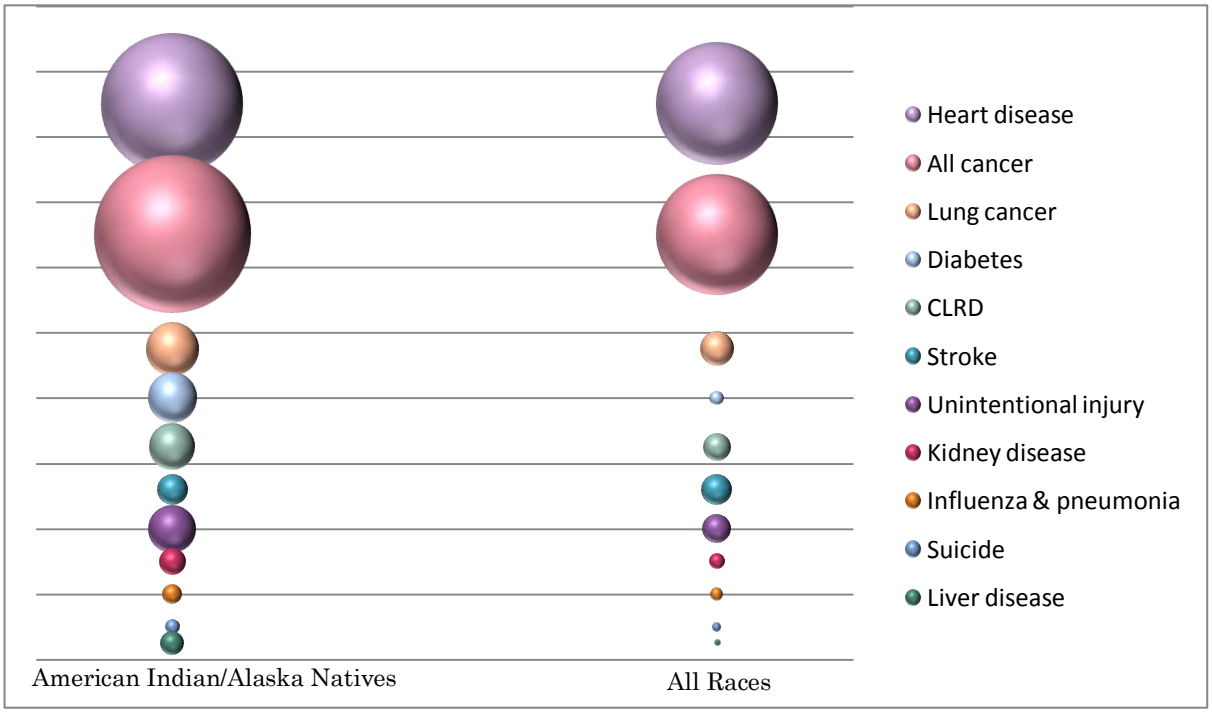
Sources: 2004-2008 Mortality Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information, Wisconsin Interactive Statistics on Health (WISH); U.S. Census Bureau

Figure 2.2b Mortality Rates per 100,000 by Cause of Death for American Indian/Alaska Natives and All Races in Minnesota, 2004-2008



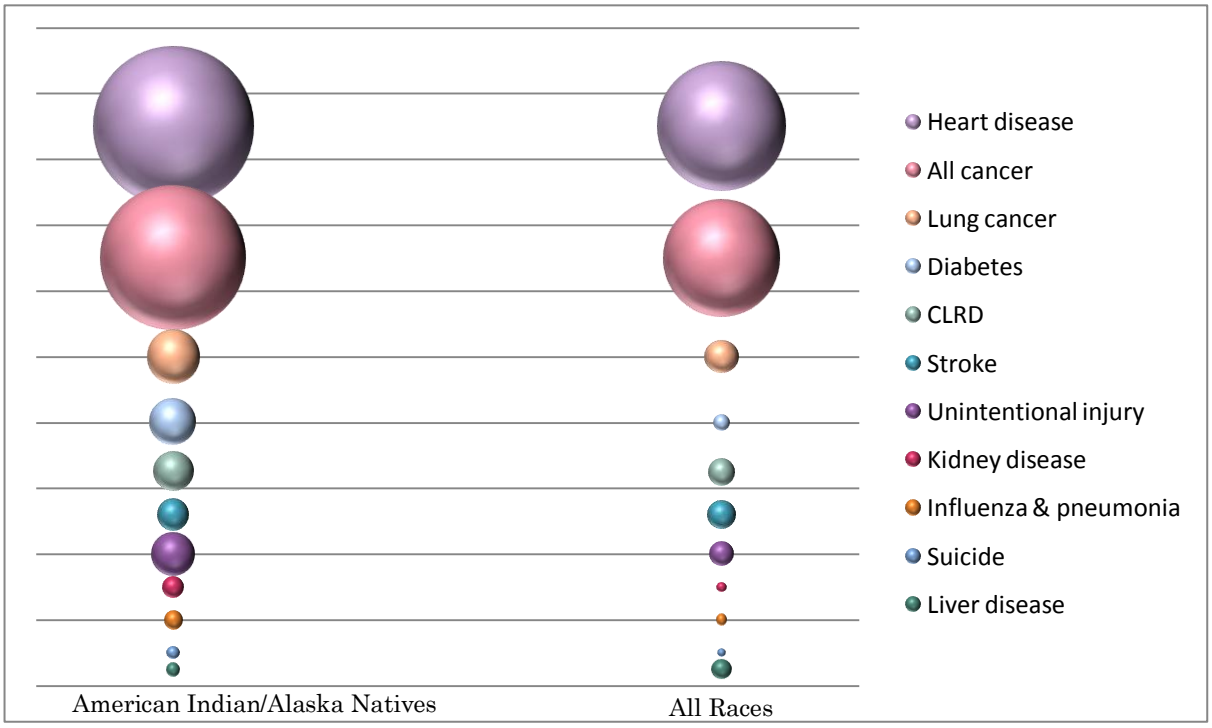
Sources: 2004-2008 Mortality Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information, Wisconsin Interactive Statistics on Health (WISH); U.S. Census Bureau

Figure 2.2c Mortality Rates per 100,000 by Cause of Death for American Indian/Alaska Natives and All Races in Wisconsin, 2004-2008



Sources: 2004-2008 Mortality Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information, Wisconsin Interactive Statistics on Health (WISH)

Figure 2.2d Mortality Rates per 100,000 by Cause of Death for American Indian/Alaska Natives and All Races in the Three-State Area, 2004-2008



Sources: 2004-2008 Mortality Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information, Wisconsin Interactive Statistics on Health (WISH)

Chapter 3
Diabetes

Diabetes remains an important and pressing health issue for American Indian/Alaska Natives everywhere. It is a leading cause of death and disability. Unfortunately, diabetes also accounts for a large percentage of health and disease related expenditures for individuals and communities.

The age-adjusted prevalence of diabetes for adults ages 20 years and over in the United States is very different for American Indian/Alaska Natives when compared to the general population; during 1994-2002, the age-adjusted prevalence of among U.S. adults, was 7.3 percent, while among American Indian/Alaska Natives adults, the age-adjusted prevalence was 15.3 percent. Throughout the surveillance period, the overall age-adjusted prevalence for American Indian/Alaska Natives was more than twice that of U.S. adults overall (MMWR, 2003).

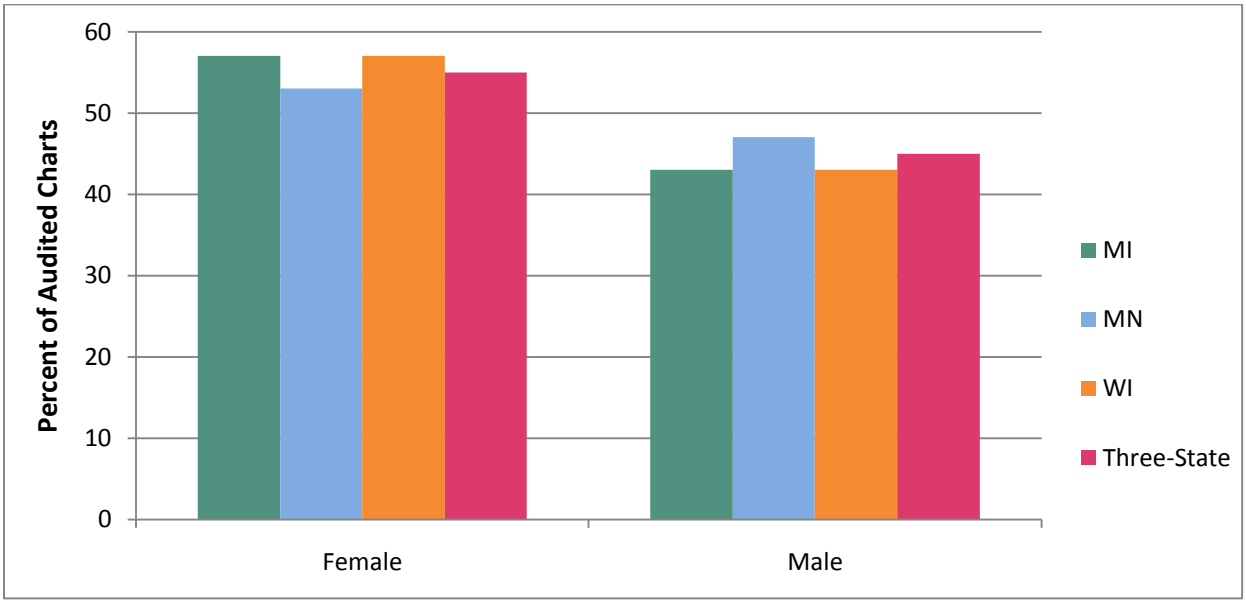
The differences between these rates have implications for funding and program planning, and better understanding of the factors related to these differences can be a good start for improved preventive services and quality care. Clinical information presented in the following sections comes from annual diabetes audits reported by most of the Tribal and urban health clinics in the Bemidji area. The 2009 diabetes audit contains data reported from 2008 solely; 3,865 individuals were included.

Because there is no information for undiagnosed individuals or for American Indian/Alaska Native individuals who do not visit an IHS facility, and there are incomplete and missing audits, the information reported is only a best-guess estimate of the actual health measures in the population. However, studies have shown that these estimates are close to other diabetes prevalence studies reporting on American Indian/Alaska Natives (Acton, 2002).

3.1 Gender and Age Distribution

A slightly higher percentage of patients with audited charts in each of the three states are female; it appears that the gender distribution of diabetic patients is similar among the three states.

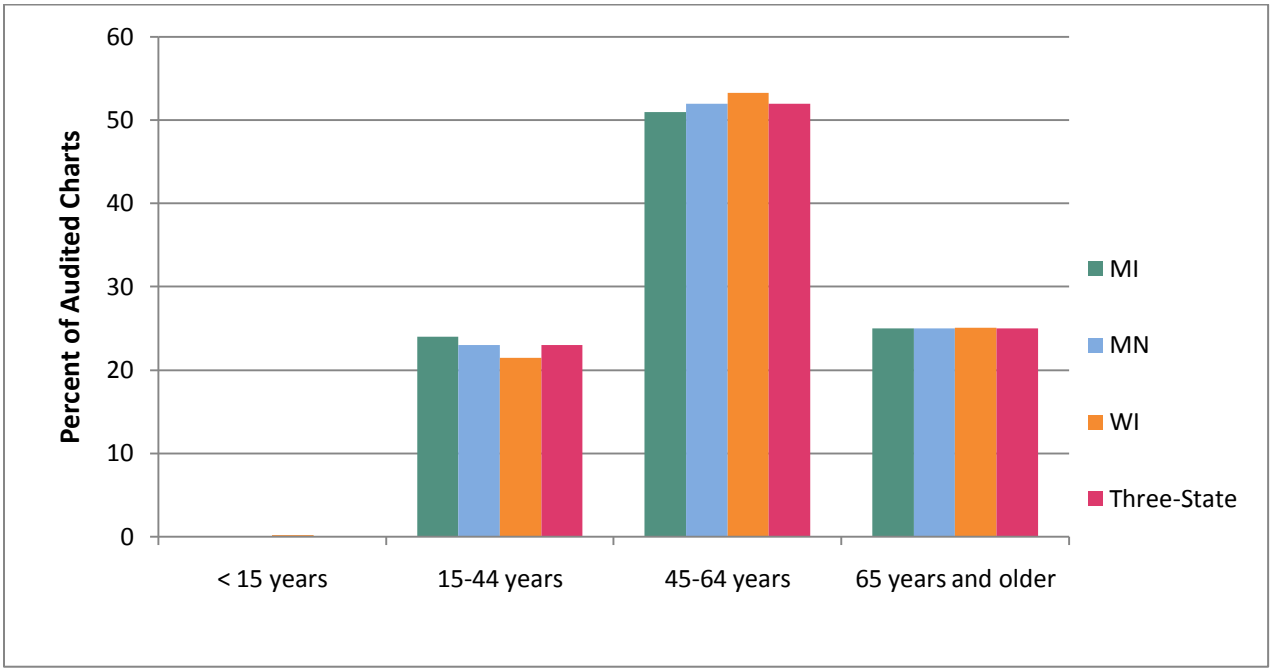
Table 3.1a Gender Distribution 2008



Adapted from the 2009 Diabetes Audit, Bemidji Area Indian Health Service Office

Roughly half of all patients with audited charts are between the ages of 45 and 64 years. There appears to be no major differences in age distribution among the three states.

Table 3.1b Age Distribution 2008

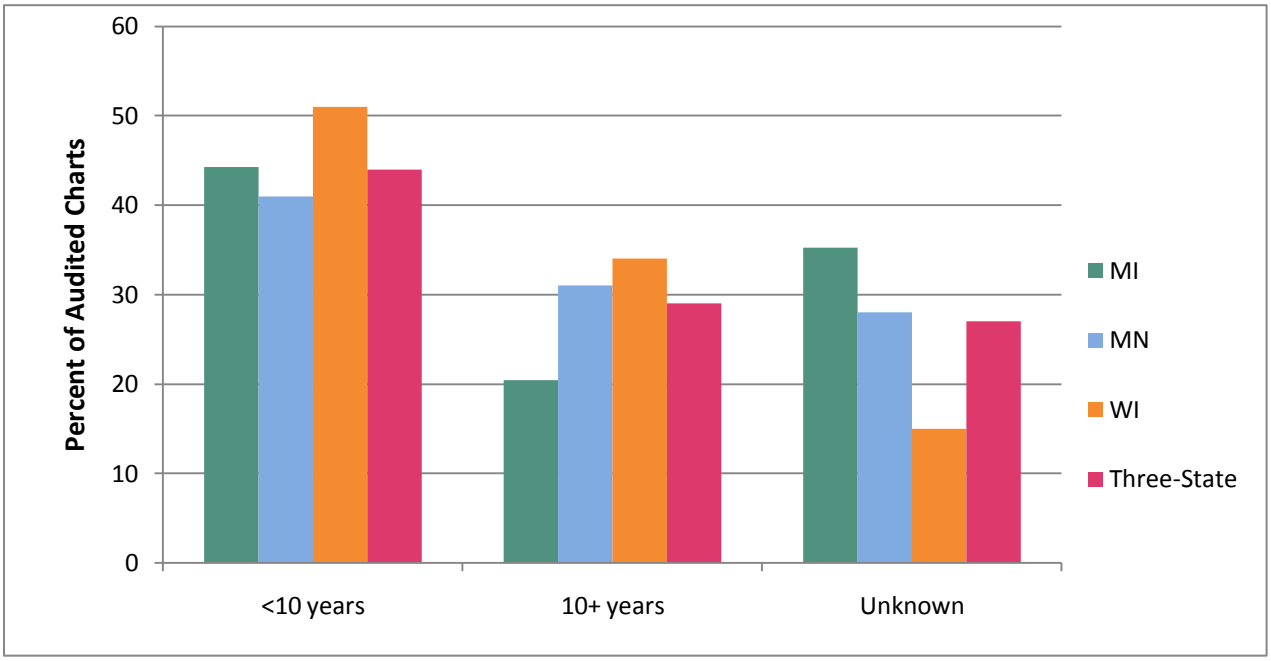


Adapted from the 2009 Diabetes Audit, Bemidji Area Indian Health Service Office

3.2 Duration of Diabetes

Wisconsin has the highest (51 percent) and Minnesota has the lowest (41 percent) percentage of patients with audited charts with a duration of diabetes of less than 10 years. Michigan has the highest percentage of patients with audited charts whose duration of diabetes is unknown (35 percent).

Figure 3.2 Duration of Diabetes 2008

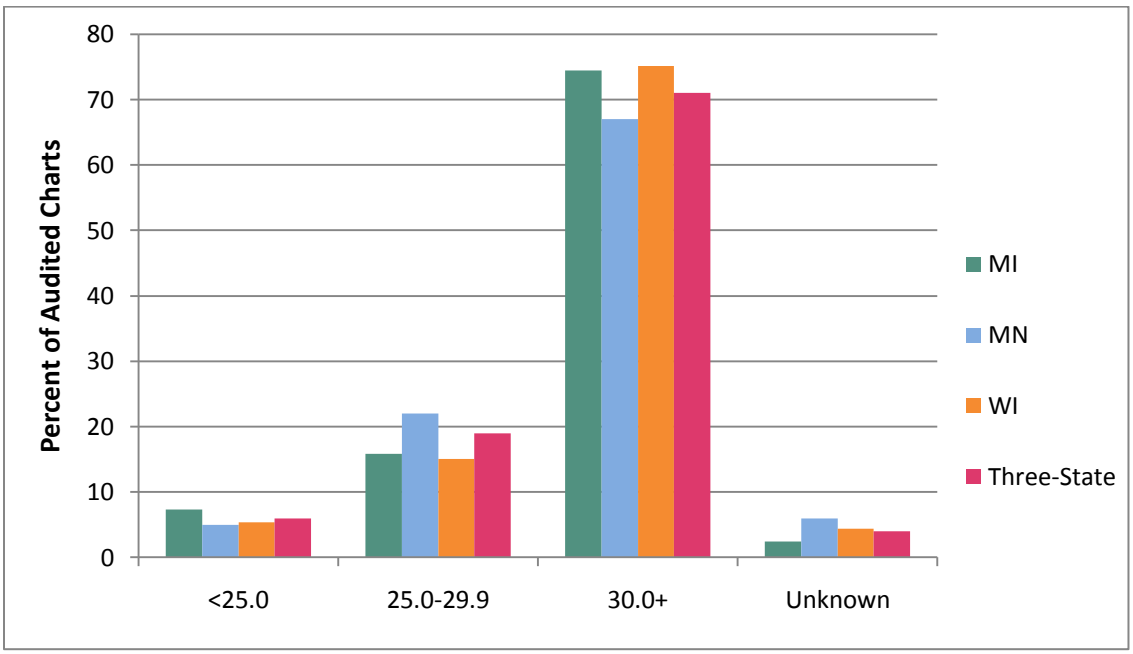


Adapted from the 2009 Diabetes Audit, Bemidji Area Indian Health Service Office

3.3 Body Mass Index (BMI)

Michigan and Wisconsin have similar percentages of patients with BMIs of 30 or above (74 percent). Minnesota has the lowest (67 percent) percentage of patients with audited charts with BMIs at 30 or above. The percentage of patients with audited charts with BMIs at 25 or below (normal weight category) is alarmingly low in all three states. Only 6 percent of diabetic patients included in the audit have a normal healthy weight as classified by using BMI. There is good documentation of these charts, because few patients with audited charts have an unknown or undetermined BMI.

Figure 3.3 BMI 2008



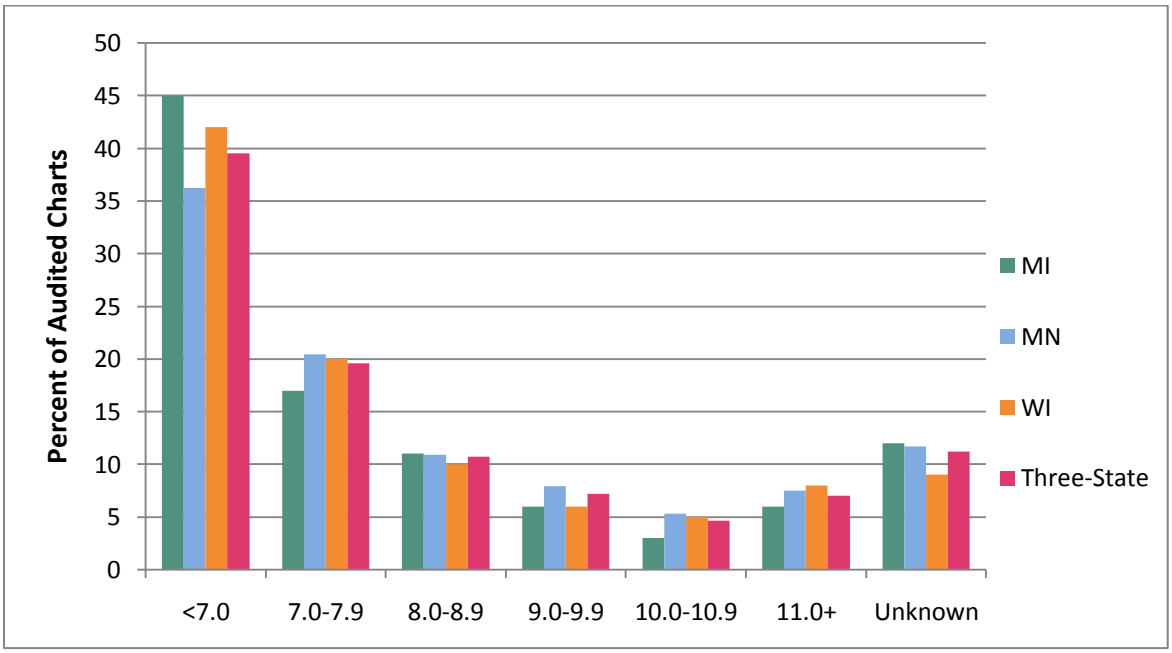
Adapted from the 2009 Diabetes Audit, Bemidji Area Indian Health Service Office

3.4 Glycemic Control

According to the IHS Standards of Care for Adults with Type II Diabetes, the HbA1c test is a "weighted measure of glycemic control over the preceding 120 days" for a patient. Blood glucose levels in the 30 days preceding the test contribute roughly 50 percent to the final results. The recommended goal for the HbA1c test is less than 7 percent.

Michigan has the highest (45 percent) and Minnesota has the lowest (36%) percentage of patients with audited charts with HbA1c levels of 7.0 percent or less. Michigan and Minnesota have 12 percent of patients with audited charts whose HbA1c levels are unknown or undetermined.

Figure 3.4 Glycemic Control 2008

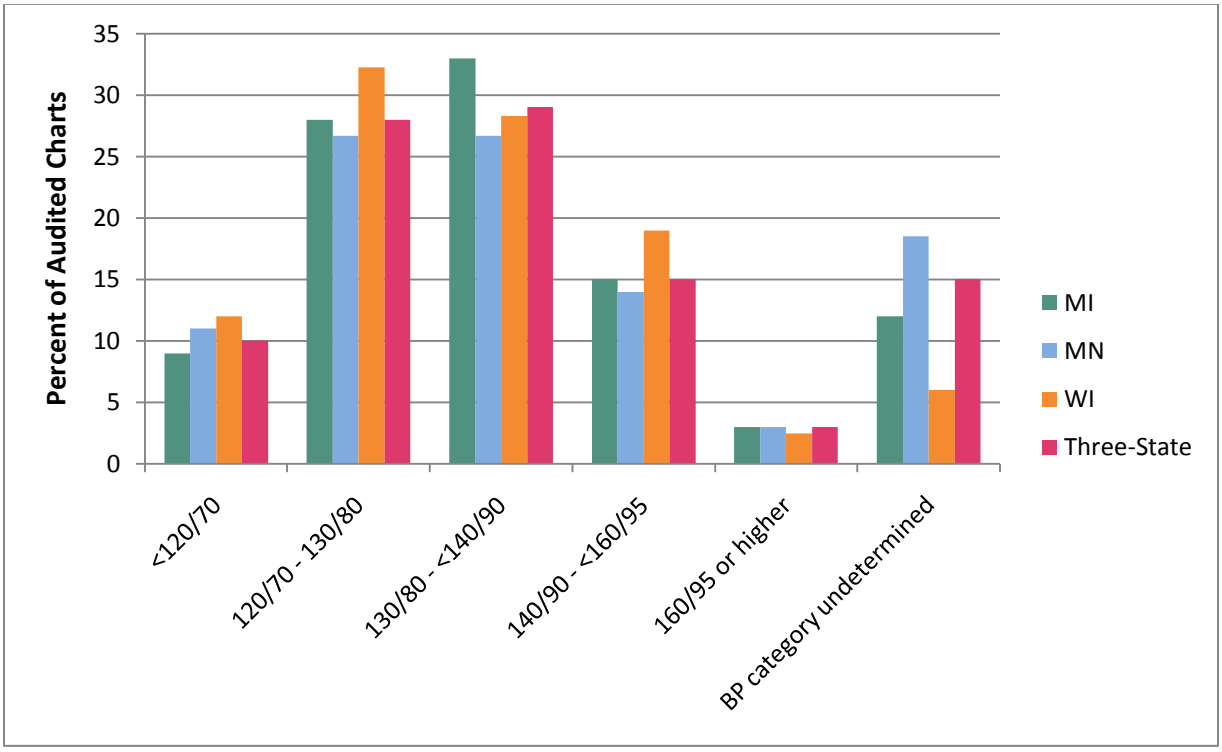


Adapted from the 2009 Diabetes Audit, Bemidji Area Indian Health Service Office

3.5 Blood Pressure

Blood pressure levels for patients with audited charts are not very different among the three states. However, Minnesota has a high rate of patients with audited charts with unknown or undetermined blood pressure (19 percent). Approximately 32 percent of all patients with audited charts in all three states have recommended blood pressure levels of less than 120/70.

Figure 3.5 Blood Pressure 2008

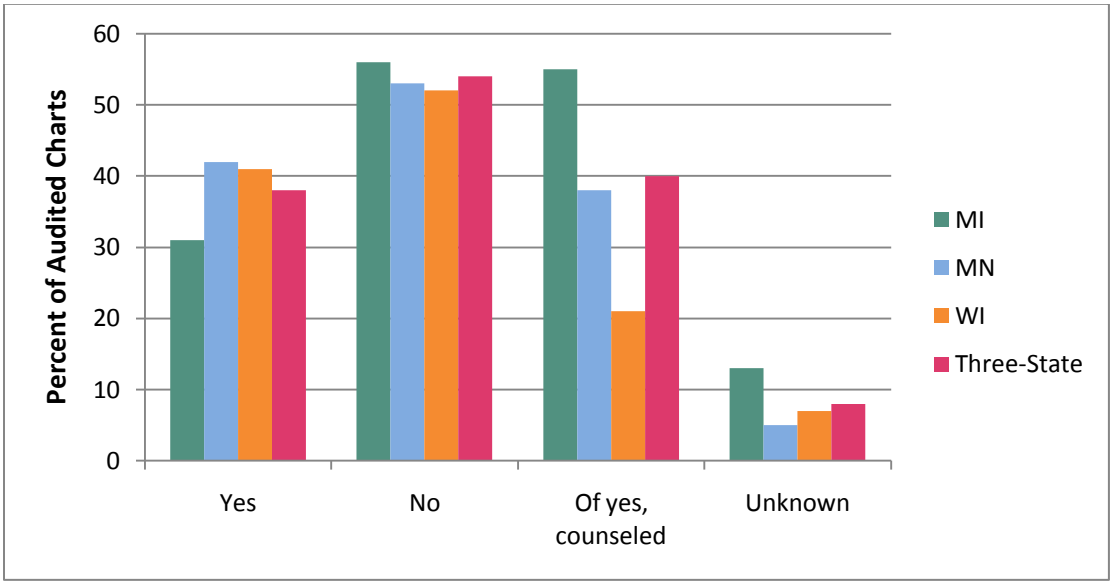


Adapted from the 2009 Diabetes Audit, Bemidji Area Indian Health Service Office

3.6 Tobacco Use

The tobacco use rate among diabetic patients with audited charts is highest among residents of Minnesota (42 percent) and lowest among residents of Michigan (31 percent). Michigan also has the highest rate of counseling for patients using tobacco (55 percent) and the highest rate of unknown or undetermined tobacco use status (13 percent).

Figure 3.6 Tobacco Use 2008



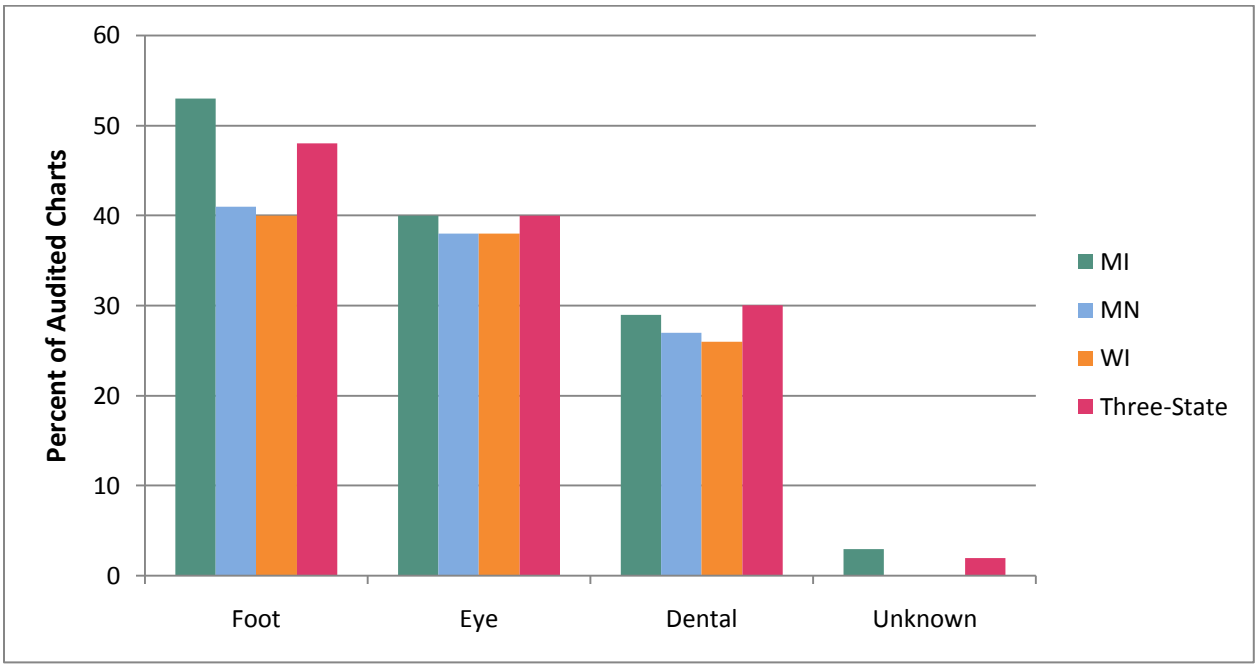
Adapted from the 2009 Diabetes Audit, Bemidji Area Indian Health Service Office

3.7 Preventative Exams

Foot and eye exams are recommended for patients with diagnosed diabetes in order to prevent complications that may lead to blindness or amputation. Indian Health Service's Best Practices and Standards of Care Guidelines state that all diabetic patients should be administered each of these preventive care exams at least once a year.

Wisconsin has the lowest number of annual foot exams (40 percent) when compared to Michigan (53 percent) and Minnesota (41 percent). The percentage of eye exams does not vary widely among the states.

Figure 3.7 Preventive Exams 2008

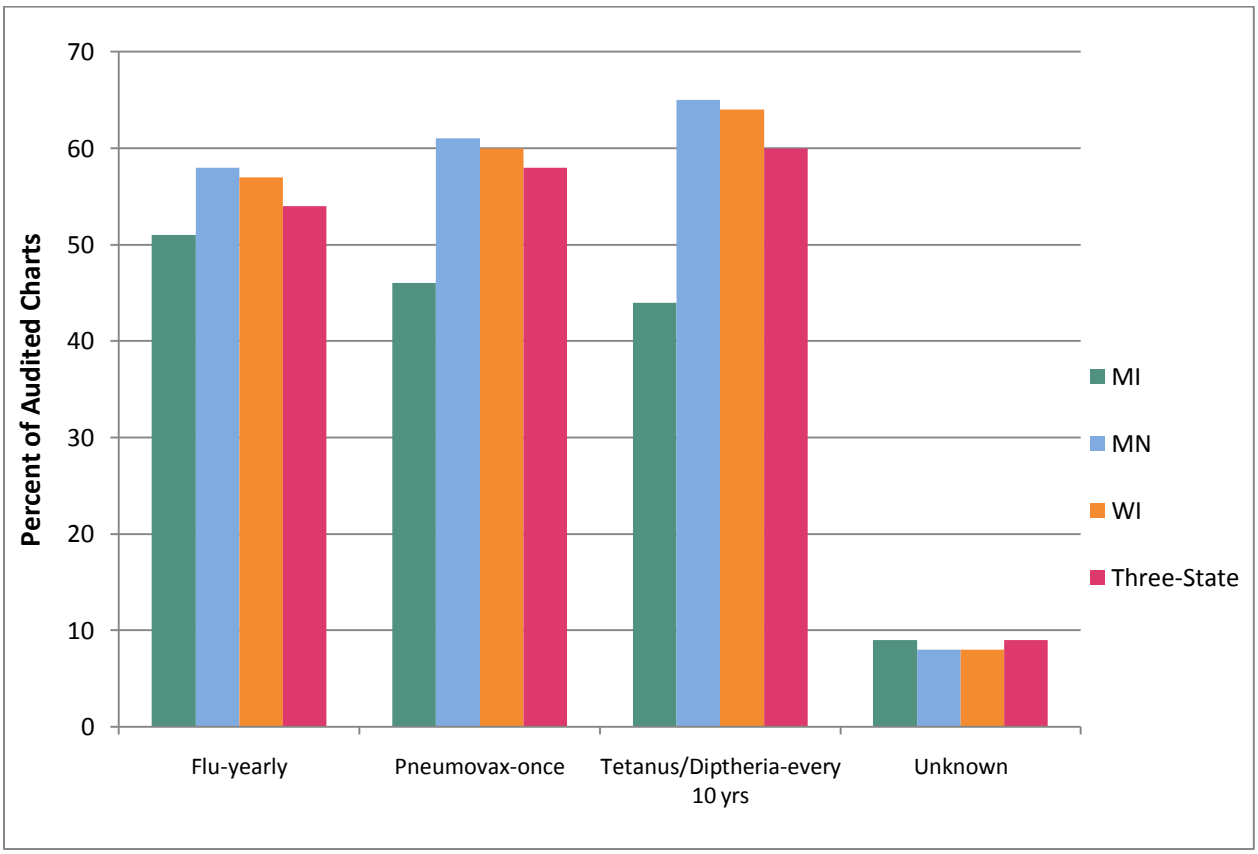


Adapted from the 2009 Diabetes Audit, Bemidji Area Indian Health Service Office

3.8 Immunizations

Diabetic patients are recommended to receive flu and pneumovax vaccines in order to prevent flu and pneumonia. These illnesses are usually not a problem for the general population, but for people who are diagnosed with diabetes, they can be very serious. Minnesota has the highest rate of yearly flu (58 percent) vaccinations given annually, one-time pneumovax (61 percent), and tetanus/diphtheria given at least once every ten years (64 percent). The annual flu vaccination is present in over half of all audited charts in Minnesota (58 percent), Michigan (51 percent), and Wisconsin (57 percent).

Figure 3.8 Immunizations 2008

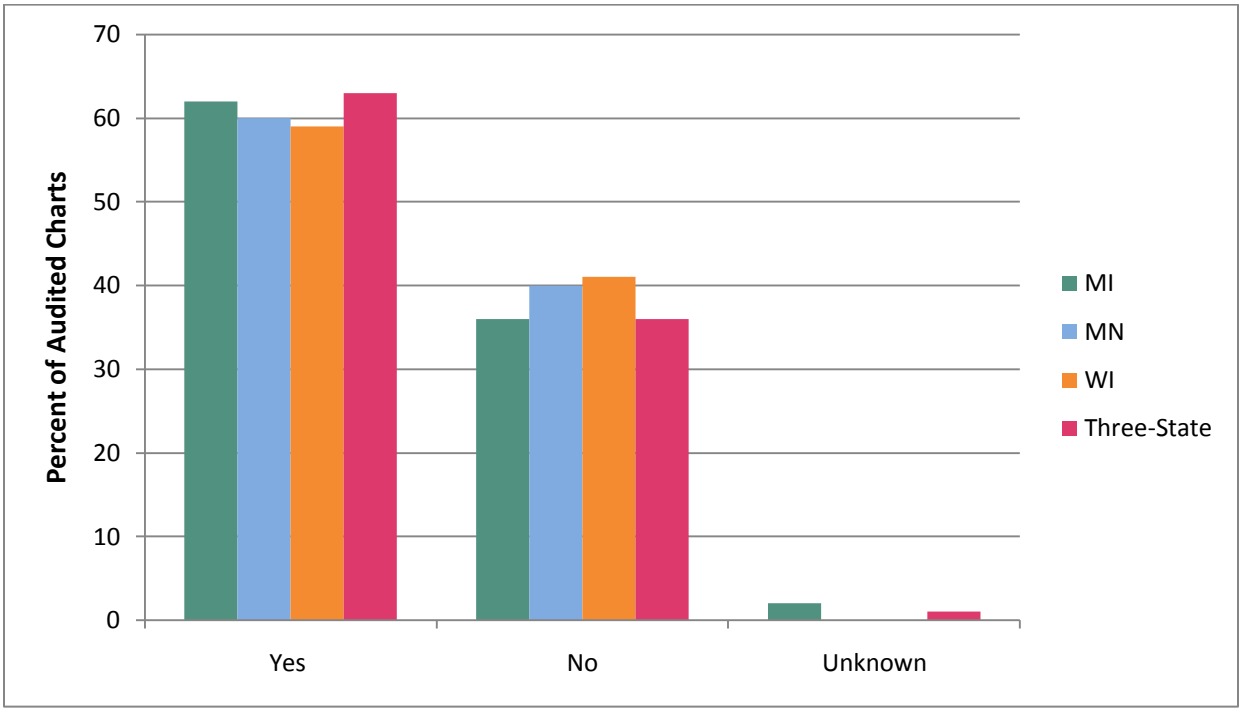


Adapted from the 2009 Diabetes Audit, Bemidji Area Indian Health Service Office

3.9 Urine Protein Testing

Urine tests assist providers in checking for diabetes-related kidney disease or damage and hyperglycemia. Testing for urine protein in 2008 is similar among the states, with over half of audited charts having documentation of testing. Types of testing performed are presented in Figure 3.9b.

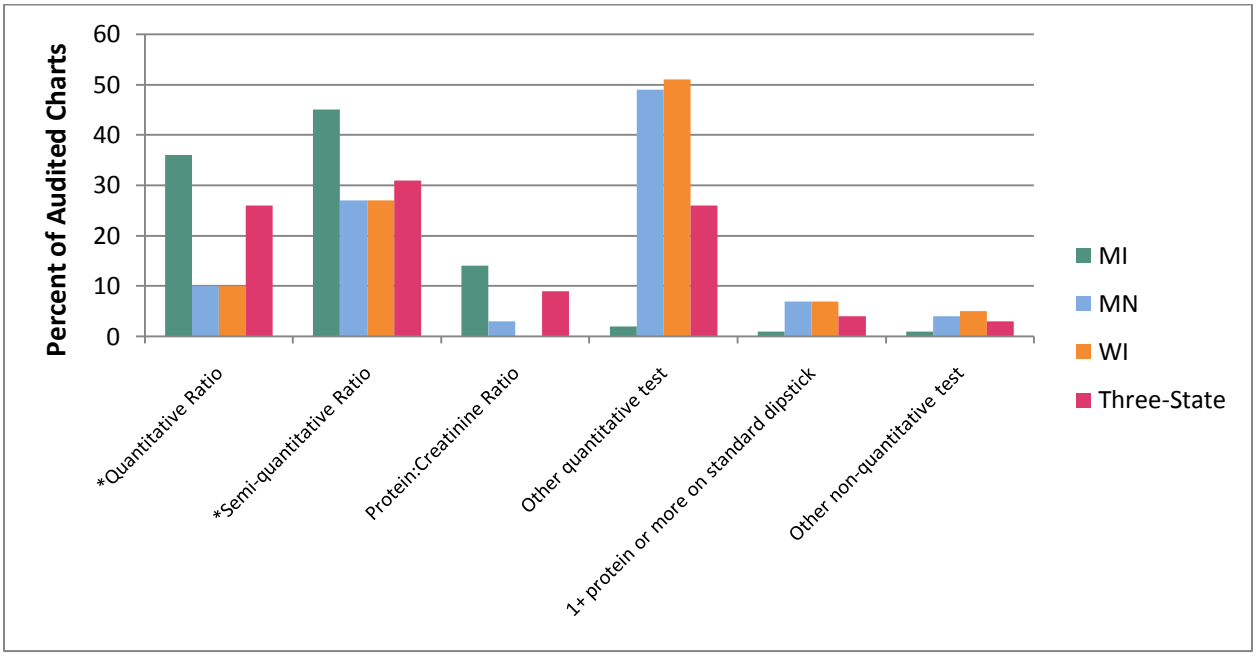
Figure 3.9a Urine Protein Testing 2008



Adapted from the 2009 Diabetes Audit, Bemidji Area Indian Health Service Office

Based on patients with audited charts, Michigan has the highest percentage of quantitative and semi-quantitative albumin: creatinine ratio testing being done (81 percent). Roughly half of Minnesota (49 percent) and Wisconsin (51 percent) audited charts have some other quantitative test being conducted.

Figure 3.9b Type of Urine Protein Testing 2008



Adapted from the 2009 Diabetes Audit, Bemidji Area Indian Health Service Office

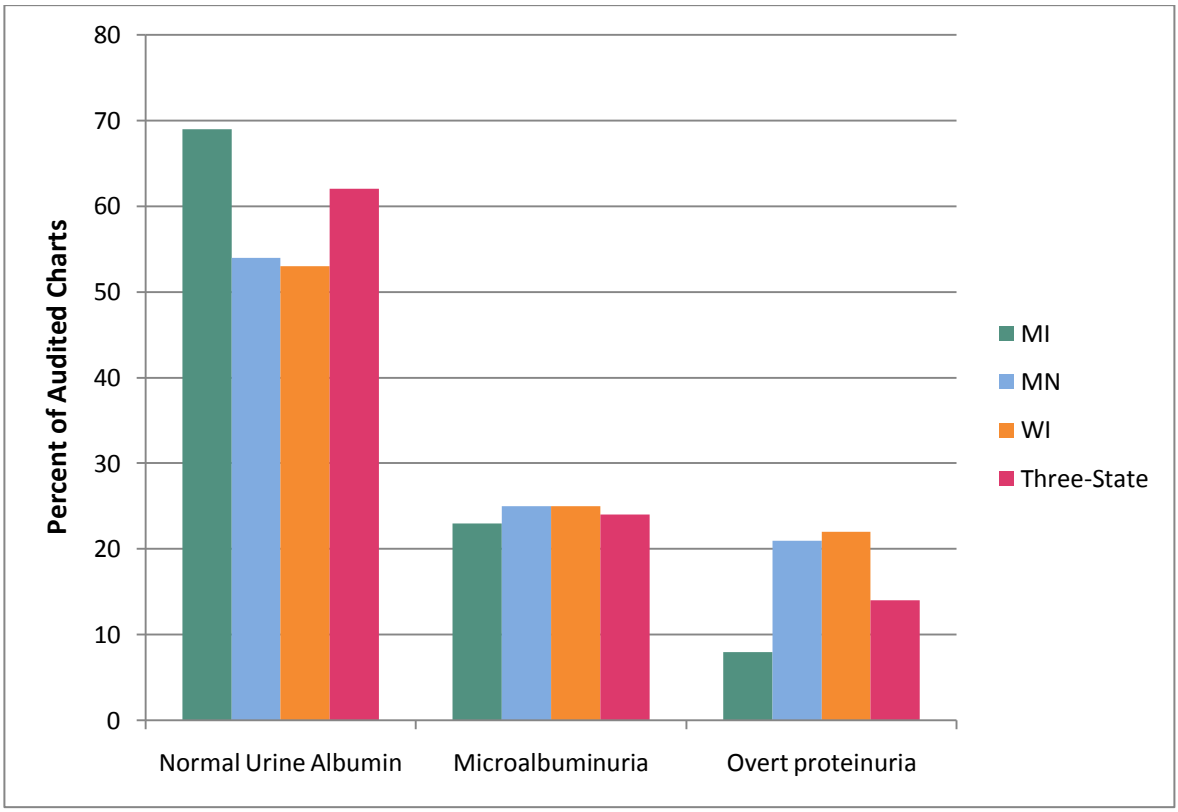
*Quantitative Albumin: Creatinine Ratio

****** Semi-quantitative Albumin: Creatinine Ratio

Albuminuria describes a condition in which urine contains an abnormal (high) amount of albumin. In people with Type 2 Diabetes, albumin is the primary protein excreted by the kidneys. Albuminuria is usually a marker of nephropathy and cardiovascular disease, for this reason urine protein testing is especially helpful.

Michigan has the highest percentage (69 percent) of normal urine albumin. Over half of audited charts in Minnesota (54 percent) and Wisconsin (53 percent) fall within the normal urine albumin range.

Figure 3.9c Urine Albumin 2008

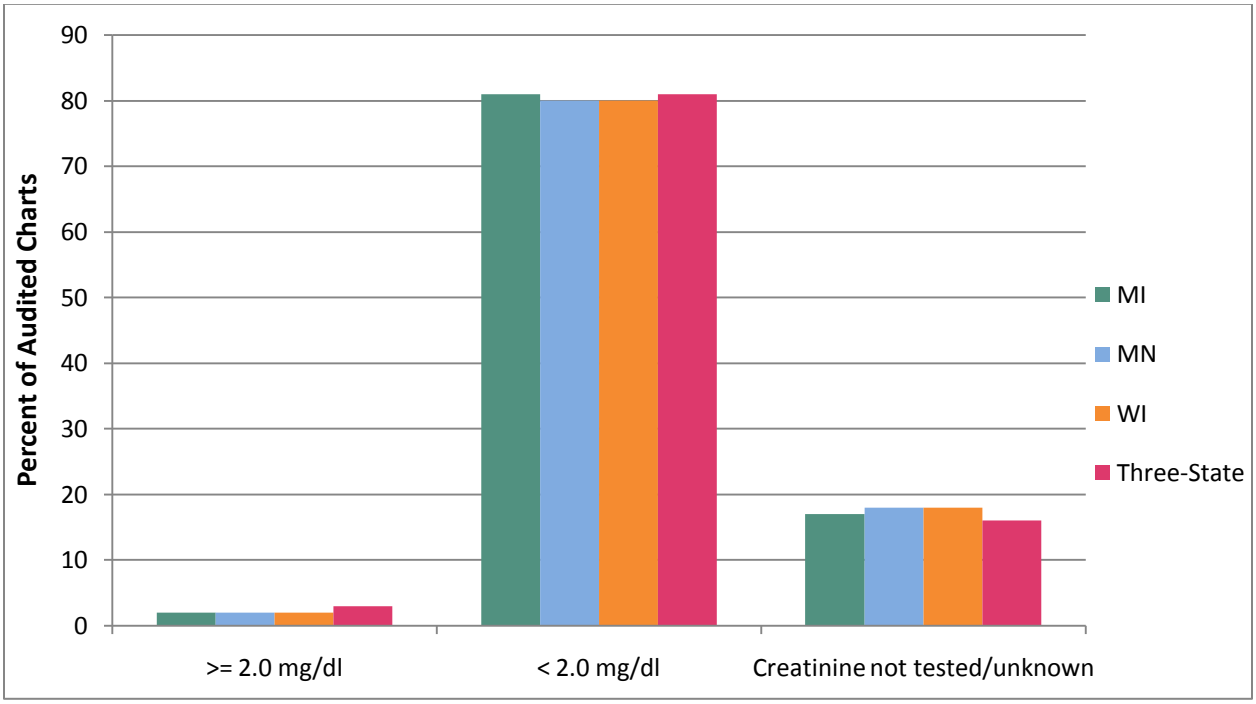


Adapted from the 2009 Diabetes Audit, Bemidji Area Indian Health Service Office

3.10 Creatinine

Creatinine is a chemical waste product produced by muscle metabolism and, to a smaller extent, by eating meat. Healthy kidneys filter creatinine and other waste products from blood. If kidneys aren't functioning properly, an increased level of creatinine may accumulate in blood. There are no major differences among the three states for creatinine levels for patients with audited charts.

Figure 3.10 Creatinine 2008

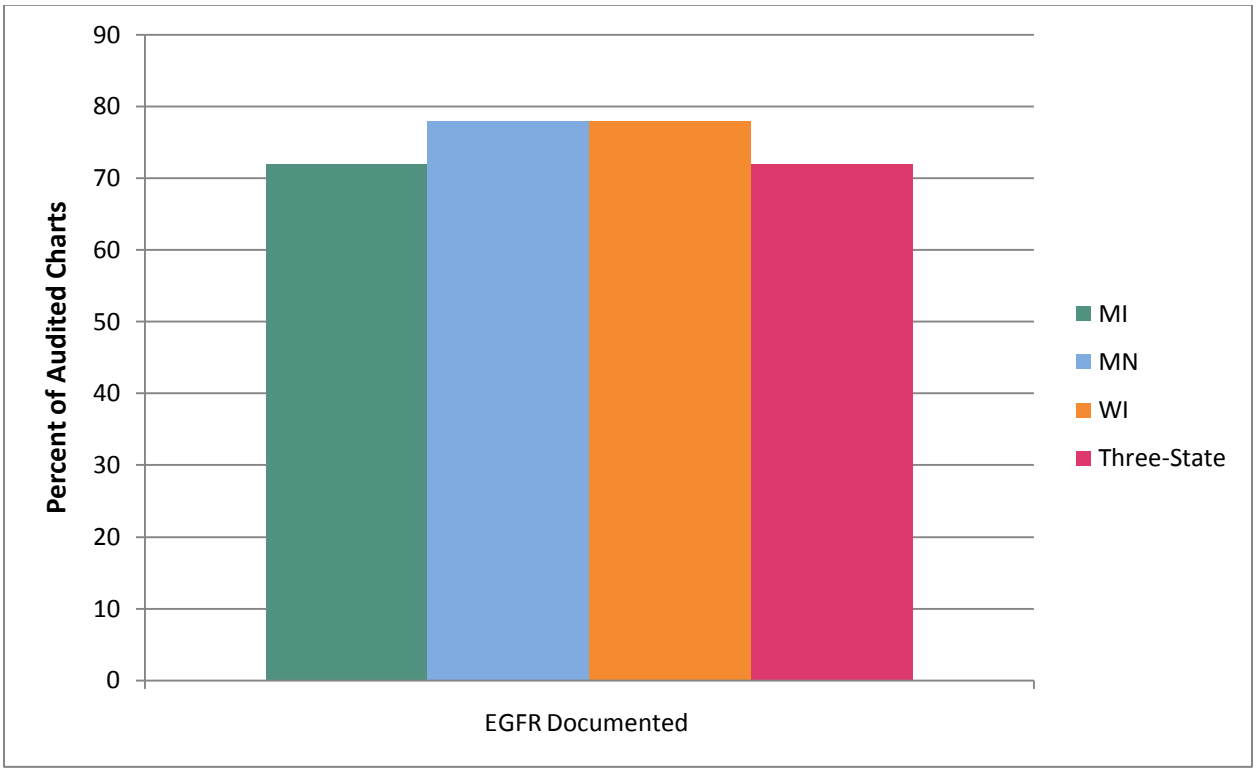


Adapted from the 2009 Diabetes Audit, Bemidji Area Indian Health Service Office

3.11 Estimated Globular Filtration Rate

The estimated glomerular filtration rate, used to assess kidney function, was a recently-added item to the diabetes audit. Documentation rates in Michigan were 72 percent while Minnesota and Wisconsin were both 78 percent of audited charts.

Figure 3.11 Estimated Glomerular Filtration Rate Documentation 2008



Adapted from the 2009 Diabetes Audit, Bemidji Area Indian Health Service Office

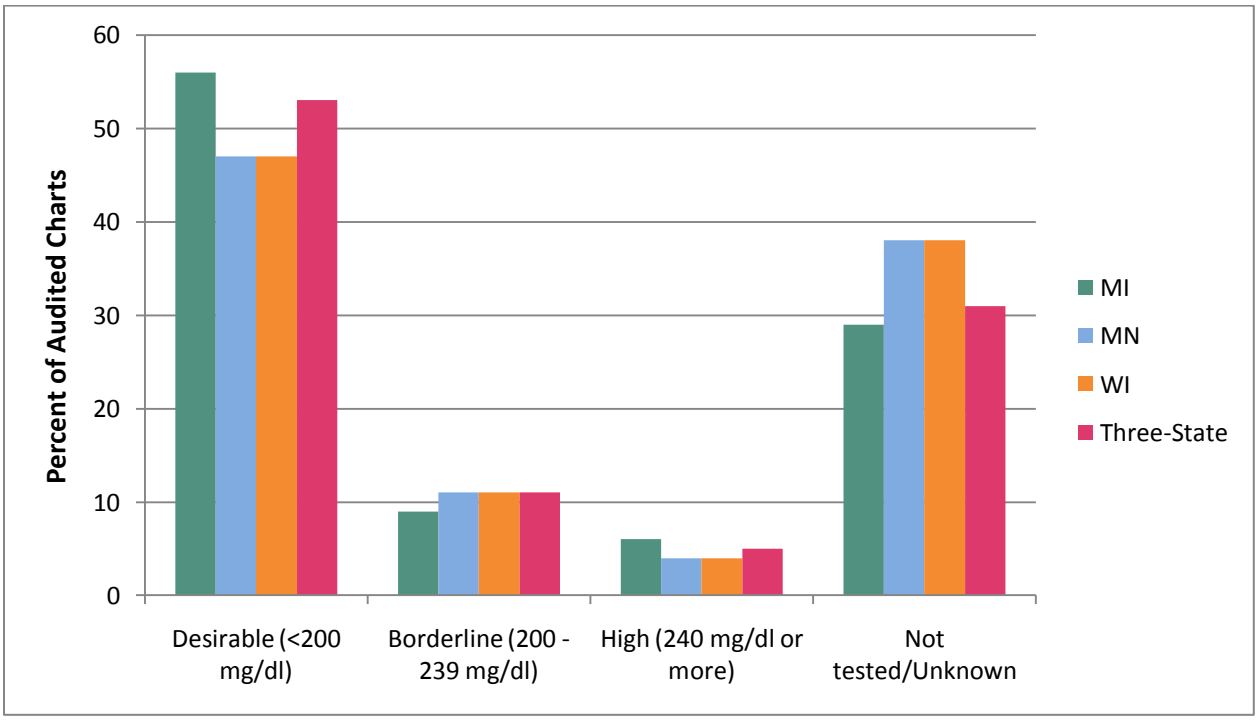
3.12 Cholesterol

Cholesterol is a fat-like substance that the body needs for essential functions. The presence of too much cholesterol can build in the walls of arteries, and can lead to heart disease and stroke. Risk factors for high cholesterol include diet, weight, physical inactivity, heredity, age, and diabetes. Diabetic patients are more likely to develop high cholesterol because the body either cannot make enough insulin, cannot make use of the insulin present in the body, or a combination of the two (NIH, 2009).

Lipoproteins carry cholesterol in the blood. Low-density lipoproteins (LDL) cholesterol, if built up in the arteries, can lead to heart disease. High-density lipoproteins (HDL) absorbs cholesterol and eventually flushes it from the body. High levels of HDL can reduce the risk of heart disease and stroke (NIH, 2009).

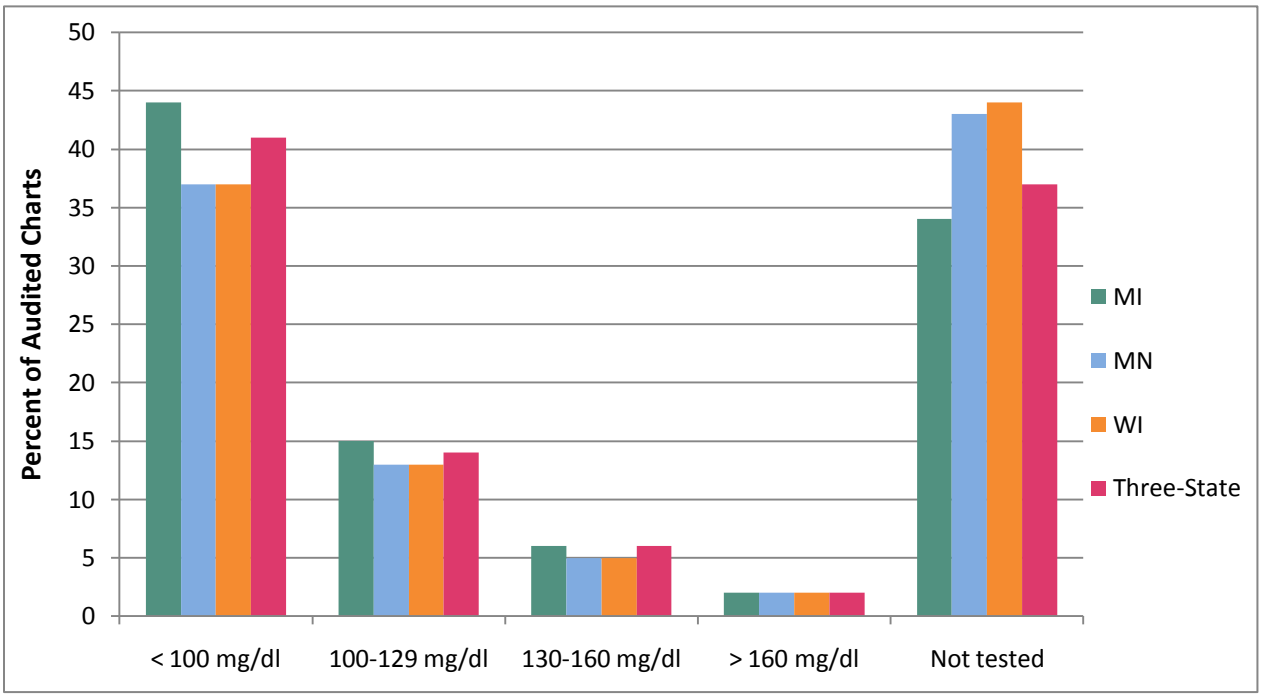
Michigan has the highest percentage of patients with audited charts having desirable total cholesterol levels (56 percent), followed by Wisconsin and Minnesota (both at 47 percent). Minnesota and Wisconsin are tied for the highest percent of patients with an unknown or undetermined total cholesterol levels.

Figure 3.12a Total Cholesterol 2008



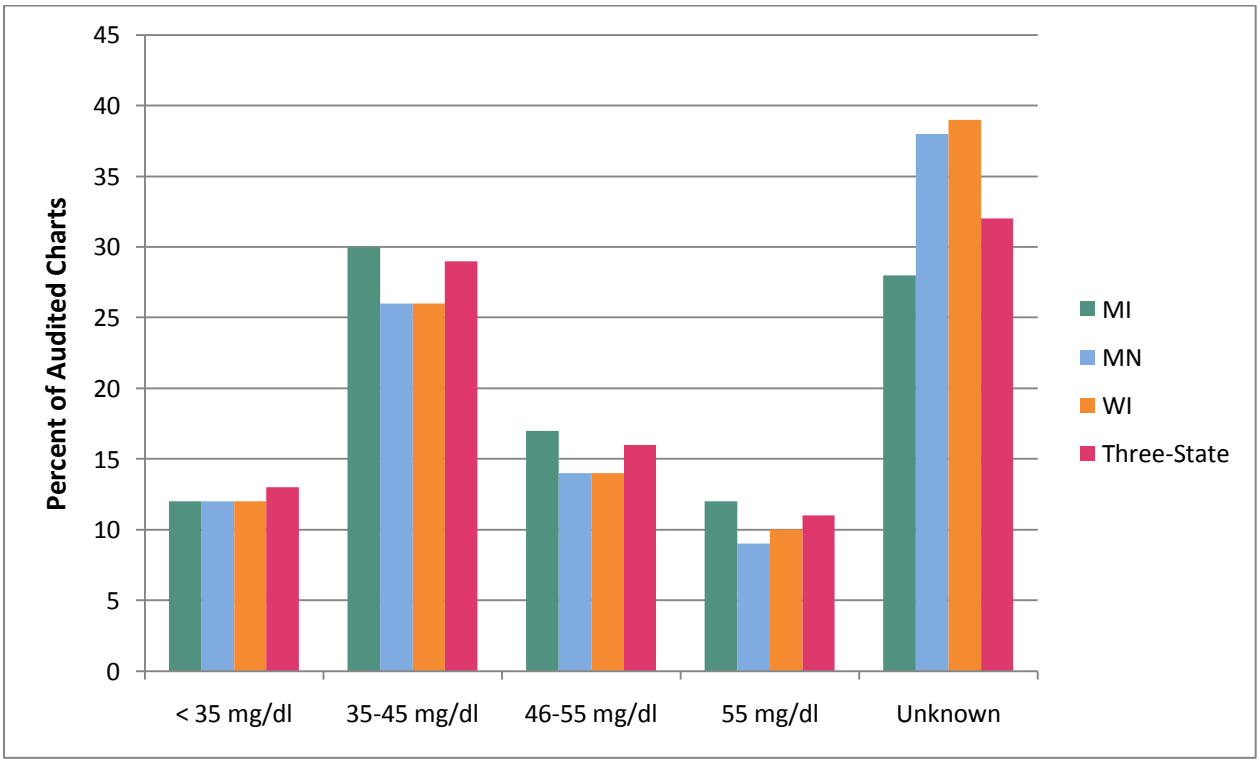
Adapted from the 2009 Diabetes Audit, Bemidji Area Indian Health Service Office

Figure 3.12b LDL Cholesterol 2008



Adapted from the 2009 Diabetes Audit, Bemidji Area Indian Health Service Office

Figure 3.12c HDL Cholesterol 2008

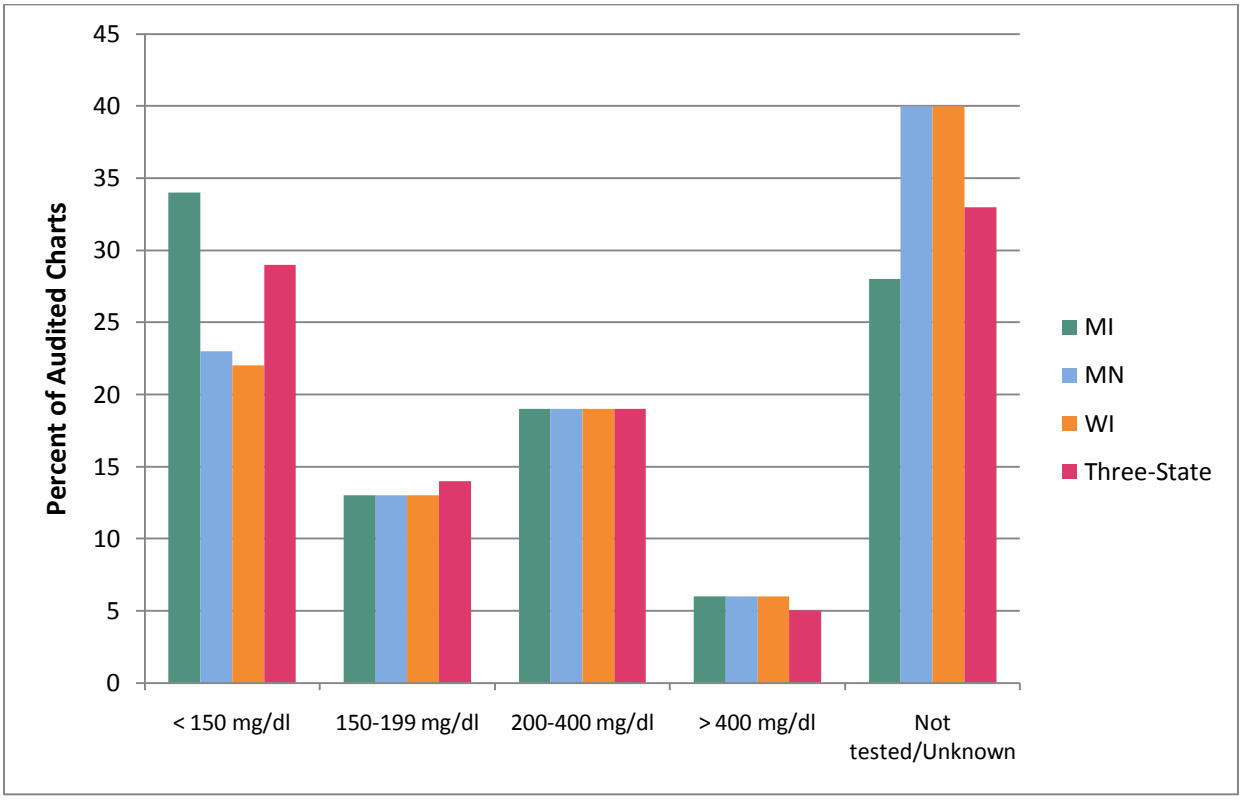


Adapted from the 2009 Diabetes Audit, Bemidji Area Indian Health Service Office

3.13 Triglycerides

Michigan has the highest percentage of patients with audited charts with desirable triglyceride levels (34 percent), followed by Minnesota (23 percent) then Wisconsin (22 percent). Again, like with other measures, Minnesota and Wisconsin are tied for the highest percentage of patients (40 percent) with unknown or undetermined triglyceride levels.

Figure 3.13 Triglycerides 2008

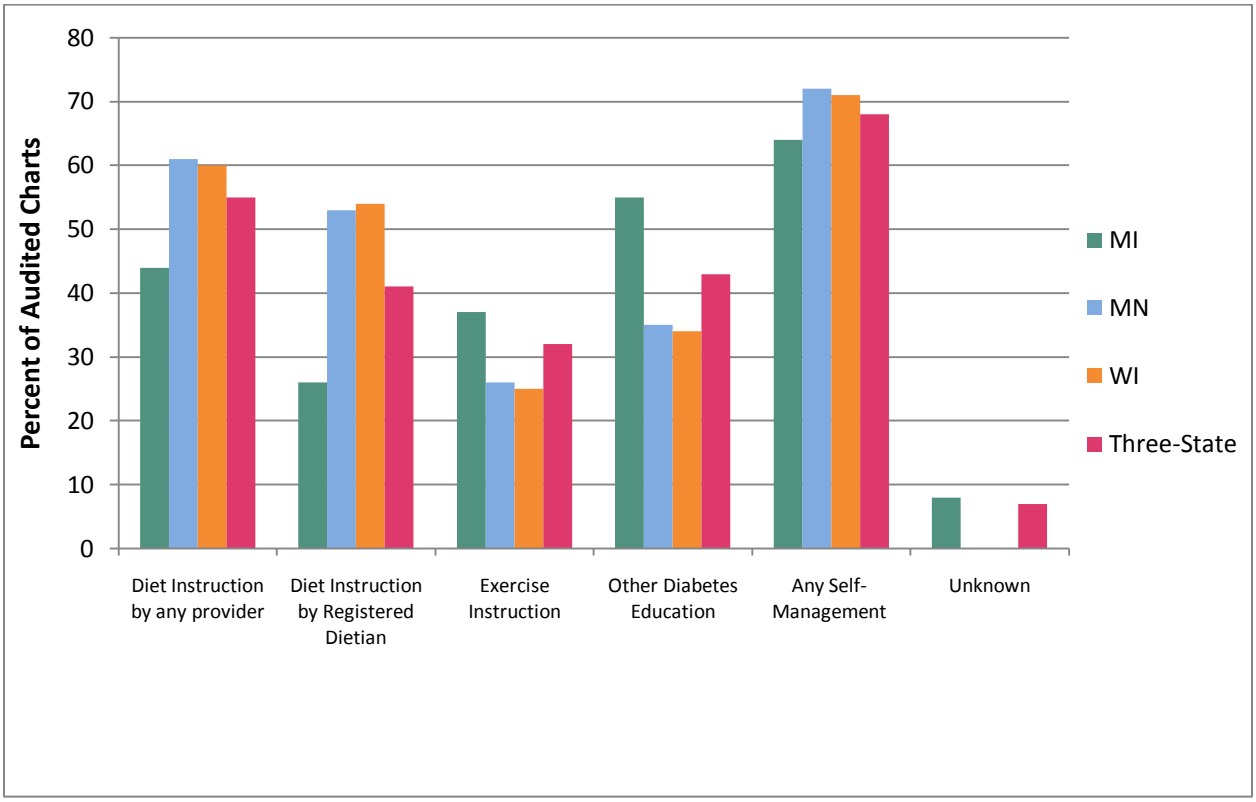


Adapted from the 2009 Diabetes Audit, Bemidji Area Indian Health Service Office

3.14 Diabetes-Related Education

Overall, Minnesota has the highest rate of patients with audited charts who received any type of diabetes-related education. There appears to be a high rate of documentation, because the rate of unknown/undocumented cases for Michigan, Minnesota, and Wisconsin is 8 percent, 7 percent, and 0 percent, respectively.

Figure 3.14 Diabetes-Related Education 2008

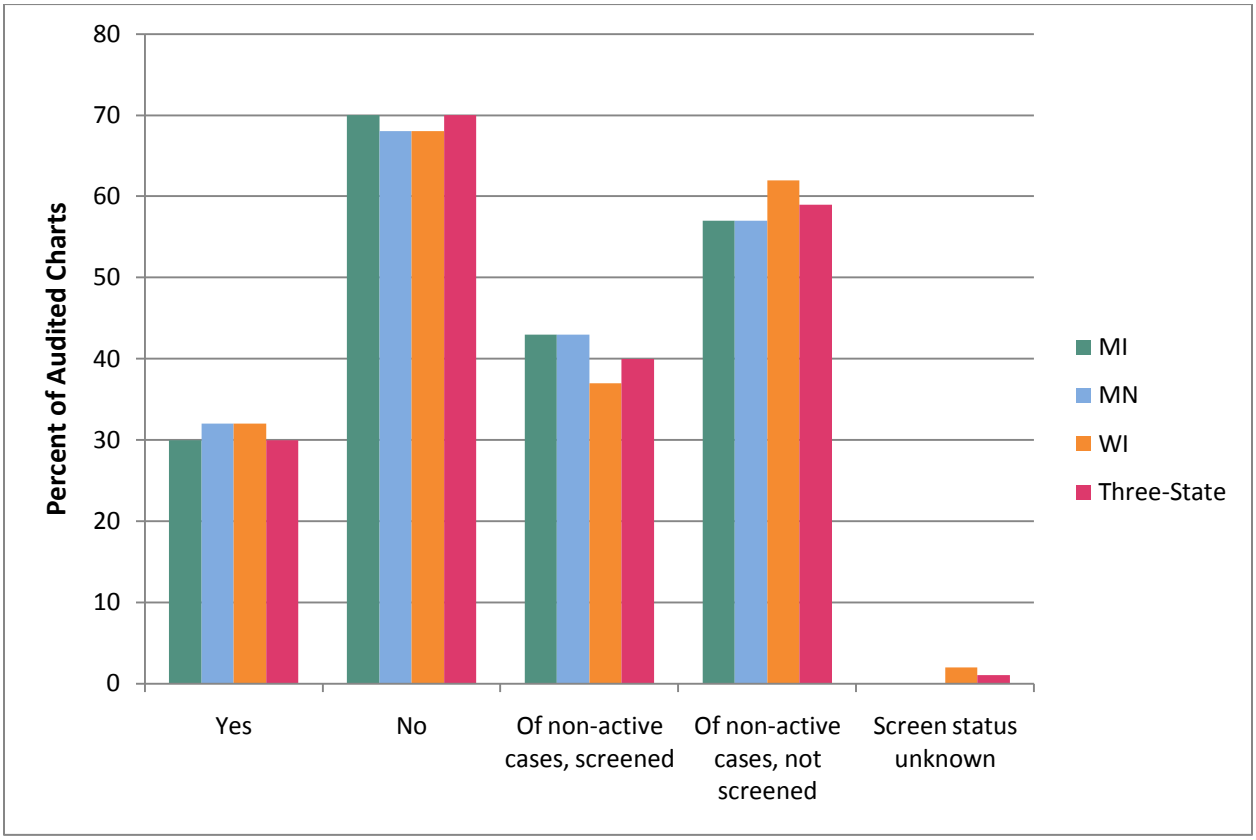


Adapted from the 2009 Diabetes Audit, Bemidji Area Indian Health Service Office

3.15 Depression

Around 30 percent of audited charts among diabetic patients in all three states indicated active depression. Of those without active depression, roughly 40 percent were screened for depression.

Figure 3.15 Depression 2008



Adapted from the 2009 Diabetes Audit, Bemidji Area Indian Health Service Office

Chapter 4
Infectious Diseases

According to the World Health Organization, "Infectious diseases are caused by pathogenic microorganisms, such as bacteria, viruses, parasites or fungi; the disease can be spread, directly or indirectly, from one person to another. Zoonotic diseases are infectious diseases of animals that can cause disease when transmitted to humans." In order to control infectious diseases (also known as communicable or contagious diseases), it is important to identify who is sick, treat the infected individuals, and prevent the spread of disease.

There is little available and reliable information about the distribution of infectious diseases within Indian Country. This is due to several contributing factors, such the stigma attached to many of them which may lead individuals not to be tested or seek treatment. Other examples of contributing factors include racial misclassification, incomplete surveillance, and lack of participation in mandatory reporting. Because the Great Lakes Inter-Tribal Epidemiology Center does not have access to patient records at individual Tribal health centers, we rely on the Michigan, Minnesota and Wisconsin health departments for most of the information presented in this section on chlamydia, gonorrhea and HIV. However, it would be of great value to have Tribal specific data that can be used to estimate the incidence and prevalence of all types of infectious diseases. Having a functional surveillance and reporting system would be beneficial to facilitate rapid response to outbreaks, document rates, and use these data not only to educate people in order prevent disease, but for grant proposals, etc.

4.1 Chlamydia and Gonorrhea

Chlamydia is the most commonly reported infectious disease in the United States. It is caused by the bacterium, *Chlamydia trachomatis* and can be transmitted during anal, oral or vaginal sex, or passed from a mother to child during labor. If left untreated chlamydia can cause infertility. The majority of infected individuals are asymptomatic; can be diagnosed with laboratory tests and treated with antibiotics. Individuals may be re-infected if they engage in risk behaviors (CDC, 2011).

In 2007, the national American Indian/Alaska Native chlamydia rate (790.1 cases per 100,000 people) was two times higher than the United States all races rate (370.2 cases per 100,000 people). In 2007, nationally American Indian females had four times the rate of chlamydia infection (1,158.2 cases per 100,000 females) in comparison with American Indian/Alaska Native males (293.8 cases per 100,000 males). However, this higher rate is likely due to increased screening of females (CDC & IHS, 2009).

Gonorrhea is the second most commonly reported infectious disease in the United States and is caused by the bacterium *Neisseria gonorrhoeae.* It can be spread by anal, oral or vaginal sex or from mother to child during childbirth. Some individuals have no symptoms, but if it is left untreated it can cause infertility. Gonorrhea can be diagnosed through laboratory tests and treated with antibiotics. Because it is a bacterial infection, individuals can be re-infected (CDC, 2011). In 2007, the national gonorrhea rate among American Indian/Alaska Natives was slightly lower than the United States all races rate, at 107.1 cases per 100,000 people compared to 118.9 cases per 100,000 people, respectively. As with chlamydia, nationally American Indian/Alaska Native females are disproportionately affected by gonorrhea at 143.4 cases per 100,000 females, compared to 69.5 cases per 100,000 males (CDC & IHS, 2009).

Information presented on the following pages gives estimates of crude rates of chlamydia, gonorrhea and HIV among American Indian/Alaska Natives and all races living in Michigan, Minnesota, and Wisconsin. It should be noted that small fluctuations in the number of cases reported is normal and many do not reflect an actual increase in the rate of disease since small numbers often lead to unstable rates. One should use caution when comparing data across the three states due to differences in methods for collecting and reporting data.

As seen in the table below, from 2005 to 2008 American Indian/Alaska Natives living in the three-state area had a higher chlamydia rate than the all races rate living in the three-state area. The opposite was true for gonorrhea, the three-state area all races gonorrhea rate was higher than the American Indian/Alaska Native gonorrhea rate.

Table 4.1a Three-State Area Chlamydia and Gonorrhea Cases and Crude Rates for American Indians and Alaska Natives and All Races (per 100,000)

	Incidence of Chlamydia				Incidence of Gonorrhea			
	American Indian/Alaska Natives		All Races		American Indian/Alaska Natives		All Races	
	#	Rate	#	Rate	#	Rate	#	Rate
2009	826	392.3	83,345	399.0	177	84.1	23,047	110.3
2008	883	422.5	81,672	391.5	154	73.7	26,983	129.3
2007	784	379.3	74,547	357.6	182	88.1	27,580	132.3
2006	816	400.3	71,169	342.1	204	100.1	26,777	128.7
2005	842	419.1	71,326	343.9	179	89.1	27,114	130.7

Adapted from: Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Department of Health and Family Services, Bureau of Communicable Disease
Population denominators for rates from US Census Bureau Bridged-Race Population Estimates

As seen in the table below, although the chlamydia and gonorrhea rates for American Indian/Alaska Natives living in Michigan were less than the Michigan all races rate, it is important to note these rates have increased each year since 2006. However, this increase may be due to changes in reporting, screening, or accurate racial/ethnic reporting.

Table 4.1b Michigan Chlamydia and Gonorrhea Cases and Crude Rates for American Indians and Alaska Natives and All Races (per 100,000)

	Incidence of Chlamydia				Incidence of Gonorrhea			
	American Indian/Alaska Natives		All Races		American Indian/Alaska Natives		All Races	
	#	Rate	#	Rate	#	Rate	#	Rate
2009	132	174.5	48,264	484.1	39	51.6	15,539	155.9
2008	118	156.5	46,555	465.4	29	38.5	17,905	179.0
2007	91	120.8	41,291	410.8	24	31.9	17,327	172.4
2006	83	110.1	38,142	378.3	24	31.8	16,591	164.6
2005	90	119.9	38,729	383.8	23	30.6	17,684	175.3

Adapted from: Michigan Department of Community Health
Population denominators for rates from US Census Bureau Bridged-Race Population Estimates
**Due to changes in Michigan's methodology, we are unable to report Chlamydia and Gonorrhea rates from 2000 to 2004.*

As seen in the table below, the 2009 chlamydia and gonorrhea rates were over 2.1 and 2.0 times higher respectively among American Indian/Alaska Natives living in Minnesota when compared to the Minnesota all races rates. The American Indian/Alaska Native crude gonorrhea rate has fluctuated from 2000 to 2009 and appears to be decreasing.

Table 4.1c Minnesota Chlamydia and Gonorrhea Cases and Crude Rates for American Indians and Alaska Natives and All Races (per 100,000)

	Incidence of Chlamydia				Incidence of Gonorrhea			
	American Indian/Alaska Natives		All Races		American Indian/Alaska Natives		All Races	
	#	Rate	#	Rate	#	Rate	#	Rate
2009	414	566.4	14,186	269.4	65	89.0	2,302	43.7
2008	465	641.9	14,350	274.3	64	88.3	3,036	58.0
2007	409	575.0	13,412	258.4	81	113.9	3,459	66.6
2006	415	597.0	12,935	251.2	104	149.6	3,303	64.2
2005	415	611.0	12,187	238.7	96	141.3	3,481	68.1
2004	396	595.0	11,601	228.4	72	108.1	2,957	58.2
2003	376	576.0	10,714	212.2	84	128.7	3,202	63.4
2002	304	473.0	10,118	201.7	72	112.0	3,051	60.8
2001	347	548.2	8,369	168.0	70	110.6	2,708	54.3
2000	316	508.5	8,147	165.1	72	115.9	3,189	64.6

Adapted from: Minnesota Center for Health Statistics
Population denominators for rates from US Census Bureau Bridged-Race Population Estimates

As seen in the table below, from 2000 to 2009, the chlamydia rate among American Indian/Alaska Natives living in Wisconsin has been higher than the all races rate in living Wisconsin. Although the crude gonorrhea rates among American Indian/Alaska Natives living in Wisconsin have fluctuated between 2000 and 2009, it is important to note that the gonorrhea rates have usually been lower for American Indian/Alaska Natives than the all races rate living in Wisconsin.

Table 4.1d Wisconsin Chlamydia and Gonorrhea Cases and Crude Rates for American Indians and Alaska Natives and All Races (per 100,000)

	Incidence of Chlamydia				Incidence of Gonorrhea			
	American Indian/Alaska Natives		All Races		American Indian/Alaska Natives		All Races	
	#	Rate	#	Rate	#	Rate	#	Rate
2009	280	453.0	20,895	369.5	73	118.1	5,206	92.1
2008	300	491.0	20,767	369.0	61	99.8	6,042	107.4
2007	284	471.3	19,844	354.3	77	127.8	6,794	121.3
2006	318	539.3	20,092	360.6	76	128.9	6,883	123.5
2005	337	582.2	20,410	368.3	60	103.7	5,949	107.4
2004	320	565.0	19,662	356.8	61	107.7	5,163	93.7
2003	256	460.2	17,780	324.6	34	61.1	5,602	102.3
2002	289	530.0	17,441	320.2	63	115.4	6,599	121.2
2001	283	530.0	16,476	304.6	45	84.2	6,070	112.2
2000	285	543.0	15,725	292.6	40	76.2	6,735	125.3

Adapted from: Wisconsin Department of Health and Family Services, Bureau of Communicable Disease
Population denominators for rates from US Census Bureau Bridged-Race Population Estimates

4.2 Human Immunodeficiency Virus

Human Immunodeficiency Virus, or HIV, cannot be cured. HIV is spread by coming into contact with infected body fluids including blood, breast milk, semen and vaginal fluid. While some individuals with HIV develop flu-like symptoms, others are asymptomatic and may feel healthy for years. Individuals infected with HIV have a chronic disease and will have to take medication for the rest of their lives. Although the medication may limit or slow down the destruction of their immune system and reduce their ability to transmit HIV, it will not cure HIV. Although HIV may lead to Acquired Immune Deficiency Syndrome (AIDS) this chapter will only discuss HIV (CDC, 2007). In 2005 the HIV/AIDS incidence rate among American Indian/Alaska Natives was 10.4 per cases 100,000 people, the third highest incidence rate in the United States. In 2005, American Indian males were disproportionately affected with HIV/AIDS and accounted for 71 percent of new diagnoses among American Indian/Alaska Natives (CDC, 2008).

When reviewing the HIV tables it is important to distinguish between the HIV incidence rate, or the number of new HIV cases per year and the HIV prevalence rate (the total number of people living with HIV each year). Also, since individuals may not have symptoms and feel fine for years, it is difficult to determine exactly when someone was infected with HIV; therefore, it is important to remember the incidence rate only represents the year individuals were diagnosed.

As seen in Table 4.2a, the incidence rate, or number of new HIV cases, in American Indian/Alaska Natives living in the three-state area ranged from 3.9 cases per 100,000 people in 2007 to 8.8 cases per 100,000 in 2006. However, the mean HIV rate for American Indian/Alaska Natives (5.82 cases per 100,000 people) was smaller than the mean three-state all races rate (7.46 cases per 100,000 people).

Table 4.2a Three-State Area HIV Cases and Crude Rates for American Indians and Alaska Natives and All Races (per 100,000)

	Incidence of HIV			
	American Indian/Alaska Natives		All Races	
	#	Rate	#	Rate
2009	13	6.2	1,635	7.8
2008	13	6.2	1,503	7.2
2007	8	3.9	1,532	7.3
2006	18	8.8	1,539	7.4
2005	8	4.0	1,570	7.6

Adapted from: Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Department of Health and Family Services, Bureau of Communicable Disease
Population denominators for rates from US Census Bureau Bridged-Race Population Estimates
**Due to changes in Wisconsin's methodology, we are unable to report HIV prevalence rates for American Indian/Alaska Natives and all races living in Wisconsin. Therefore, although we have HIV prevalence rates for American Indian/Alaska Natives living in Michigan and Minnesota, we have chosen not to include these data in the in the three-state area table.*

As seen in the table below, it appears the number of new HIV cases in American Indian/Alaska Natives living in Michigan is decreasing, and the prevalence rate or total number of American Indian/Alaska Natives living with HIV, in Michigan is increasing.

Table 4.2b Michigan HIV Cases and Crude Rates for American Indians and Alaska Natives and All Races (per 100,000)

	Incidence of HIV				Prevalence of HIV			
	American Indian/Alaska Natives		All Races		American Indian/Alaska Natives		All Races	
	#	Rate	#	Rate	#	Rate	#	Rate
2009	0	0.0	822	8.2	40	52.9	14,326	143.7
2008	2	2.7	783	7.8	40	53.0	13,655	136.5
2007	2	2.7	799	7.9	38	50.5	13,072	130.1
2006	5	6.6	812	8.1	36	47.8	12,501	124.0
2005	1	1.3	894	8.9	30	40.0	11,937	118.3

Adapted from: Michigan Department of Community Health
Population denominators for rates from US Census Bureau Bridged-Race Population Estimates
Due to changes in Michigan's methodology, we are unable to report Chlamydia and Gonorrhea rates from 2000 to 2004.

As seen in the table below, in Minnesota in 2009, the HIV incidence and prevalence rates were over 1.75 and 1.25 times higher among American Indian/Alaska Natives than the all races rates.

Table 4.2c Minnesota HIV Cases and Crude Rates for American Indians and Alaska Natives and All Races (per 100,000)

	Incidence of HIV				Prevalence of HIV			
	American Indian/Alaska Natives		All Races		American Indian/Alaska Natives		All Races	
	#	Rate	#	Rate	#	Rate	#	Rate
2009	9	12.3	370	7.0	114	156.0	6,552	124.4
2008	7	9.7	322	6.2	108	149.1	6,221	119.0
2007	6	8.4	326	6.2	103	144.8	5,950	114.6
2006	9	13.0	320	6.2	97	139.5	5,566	108.1
2005	4	5.9	302	5.9	93	137.0	5,233	102.5
2004	7	10.5	306	6.0	94	141.2	5,002	98.5
2003	9	13.8	280	5.5	98	150.1	4,895	97.0
2002	7	10.9	311	6.2	90	140.0	4,598	91.6
2001	8	12.6	281	5.6	87	137.4	4,331	86.9
2000	9	14.5	277	5.6	69	111.0	4,046	82.0

Adapted from: Minnesota Center for Health Statistics
Population denominators for rates from US Census Bureau Bridged-Race Population Estimates

As seen in the table below, the HIV incidence rate among American Indian/Alaska Natives living in Wisconsin appears to be less than the all races rate living in Wisconsin.

Table 4.4d Wisconsin HIV Cases and Crude Rates for American Indians and Alaska Natives and All Races (per 100,000)

	Incidence of HIV			
	American Indian/Alaska Natives		All Races	
	#	Rate	#	Rate
2009	4	6.5	443	7.8
2008	4	6.5	398	7.1
2007	0	0.0	407	7.3
2006	4	6.8	407	7.3
2005	3	5.1	374	6.7
2004	4	7.1	417	7.6
2003	5	9.0	364	6.6
2002	1	1.8	387	7.1
2001	2	3.7	335	6.2
2000	5	9.5	389	7.2

Adapted from: Wisconsin Department of Health and Family Services, Bureau of Communicable Disease
Population denominators for rates from US Census Bureau Bridged-Race Population Estimates
**Due to changes in Wisconsin's methodology, we are unable to report HIV prevalence rates for American Indian/Alaska Natives and all races living in Wisconsin.*

Chapter 5
Maternal and Child Health

Chapter five contains information pertaining to maternal and child health in the American Indian/Alaska Native population of the three-state area. This section also reports information about the all races populations of the three-state area and the nation as a whole.

For the purpose of this report, unless otherwise indicated, a child will be considered to be American Indian/Alaska Native if either the mother or father is American Indian/Alaska Native. Usually, most analysts assign the child the race of his or her mother. As a result, information presented in this document cannot be compared directly to most other published data. Most of these data come from birth and death certificates, though information originating in the Women, Infants, and Children (WIC) Program and the Indian Health Service are used for some measures.

Maternal and child health measures are important health indicators that not only reflect the current health status of a population, but indicate what the future health of a population will be.

In 2008, it was announced that the United States was ranked number 29 in the world with regard to infant mortality, with a rate higher than that of most other developed nations (MacDorman, 2008). In part, this is due to the great disparities that exist with regard to ethnic and racial minorities. As will be discussed in this section, these disparities extend to the American Indian/Alaska Native women, infants, and children of the three-state area.

5.1 Infant Mortality

Infant mortality rates offer a standardized approach to measure the deaths that occur to children under the age of one year. It is calculated by dividing the number of infant deaths by the total number of live births, and multiplying the result by 1,000.

For this report, the race of the mother and father was used to determine the infant's race-if either or both parents were American Indian/Alaska Native, the child was considered to be American Indian/Alaska Native. The number of births was determined using the race of the mother or father as recorded on the birth certificate. Racial misclassification is common; therefore, these numbers may not represent the true burden of infant mortality in the American Indian/Alaska Native population of individual states and the three-state area.

Since infants are very susceptible to communicable disease, the infant mortality rate is often considered an indicator of a community's health status. *As presented in Table 5.1a, American Indian/Alaska Natives in the three-state area have a greater infant mortality rate compared to all races in the region.*

Table 5.1a Infant Mortality Rates (per 1,000 Live Births), 2004-2008

AI/AN Michigan	5.4	**All Races Michigan**	7.7
AI/AN Minnesota	8.4	**All Races Minnesota**	5.3
AI/AN Wisconsin^,^^	7.6	**All Races Wisconsin^^**	6.5
AI/AN Three-State Area	7.3	**All Races Three-State Area**	6.7
IHS Total*	8.8	**All Races U.S. ****	6.8
Healthy People 2010 Goal	4.5		

Sources: 2004-2008 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information
^2004-2008 Birth Files, Wisconsin Department of Health and Human Services
^^WISH, 2004-2008
**Data from Regional Differences in Indian Health, IHS, 2002-2003 Edition (1999-2001 data)*
*** National Center for Health Statistics, 2004*

Consideration of the age at death and the cause of death can reveal important information for understanding and preventing infant mortality. Neonatal deaths, those occurring before 28 days of age, are more often due to congenital problems or infectious disease. Deaths occurring in the postneonatal period may be more likely to be related to social practices and the infant's environment. Therefore, understanding the distribution of infant death can lead to tailored interventions.

Table 5.1b below shows the percent of postneonatal deaths for the American Indian/Alaska Native population and the all race populations. *Over half (57.4 percent) of the deaths in the American Indian/Alaska Native three-state area population occurred postneonatally, compared with 31.8 percent of the all race population.*

Table 5.1b Percentage of Deaths Occurring Postneonatally (Death at 28 Days or Later), 2004-2008

AI/AN Michigan	51.5	**All Races Michigan**	29.9
AI/AN Minnesota	60.3	**All Races Minnesota**	33.8
AI/AN Wisconsin^,^^	56.7	**All Races Wisconsin^^**	34.0
AI/AN Three-State Area	57.4	**All Races Three-State Area**	31.8

Sources: 2004-2008 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information
^2004-2008 Birth Files, Wisconsin Department of Health and Human Services
^^WISH, 2004-2008

When examining cause of death, it is troubling to see that a disproportionate number of deaths occur due to Sudden Infant Death Syndrome (SIDS) in the American Indian population compared to the all races population. *As displayed in Table 5.1c, over two times as many American Indian/Alaska Native infants die from SIDS compared to the all race population.* Many risk factors for SIDS are controllable, including but not limited to reducing commercial tobacco smoking and improving sleep environments.

Table 5.1c- Percentage of Deaths Due to SIDS, 2004-2008

AI/AN Michigan	18.2	**All Races Michigan**	5.0
AI/AN Minnesota	12.8	**All Races Minnesota**	9.1
AI/AN Wisconsin^,^^	23.5	**All Races Wisconsin^^**	9.1
AI/AN Three-State Area	17.3	**All Races Three-State Area**	7.0

Sources: 2004-2008 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information
^2004-2008 Birth Files, Wisconsin Department of Health and Human Services
^^WISH, 2004-2008

5.2 Birth Weight

Birth weight is a valuable indicator of health not only for infants- it can reflect the health of the mother as well.

Low birth weight occurs for two main reasons. The baby may have been born prematurely, or something may have restricted its growth during the pregnancy. Some are born both early and with restricted growth. Low birth weight babies are at a higher risk of death within their first year. Some mothers with health problems such as high blood pressure, diabetes, or other problems sometimes give birth to infants with reduced birth weight.

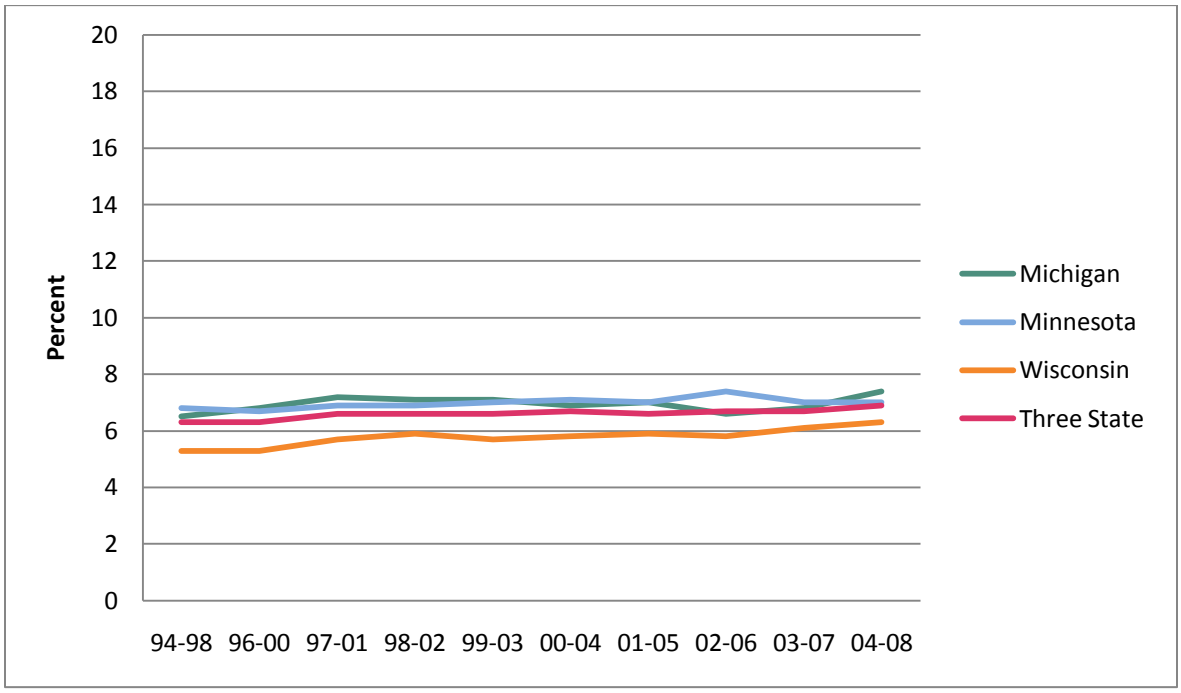
Table 5.2a below shows that the all races population of the three-state area has a slightly higher percentage of infants born at a low birth weight than American Indian/Alaska Natives (7.4 percent and 6.9 percent respectively). Trends in low birth weight are shown in Figure 5.2a. However, neither group has reached the goal set in Healthy People 2010 for no more than 5 percent of infants to be born with a low birth weight.

Table 5.2a Low Birth Weight Babies (less than 2,500 grams), by Percent, 2004-2008

AI/AN Michigan	7.4	**All Races Michigan**	7.9
AI/AN Minnesota	7.0	**All Races Minnesota**	6.8
AI/AN Wisconsin^	6.3	**All Races Wisconsin^^**	7.0
AI/AN Three-State Area	6.9	**All Races Three-State Area**	7.4
IHS Total*	6.6	**All Races U.S.****	8.3
HP 2010	5.0		

Sources: 2004-2008 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information
^2004-2008 Birth Files, Wisconsin Department of Health and Human Services
^^WISH, 2004-2008
**Data from Regional Differences in Indian Health, IHS, 2002-2003 Edition (1999-2001 data)*
*** National Center for Health Statistics, 2006*

Figure 5.2a Low Birth Weight (less than 2,500 grams) Trends for Three-state Area American Indian/Alaska Natives, 1994-2008



Sources: 1994-2008 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information

High birth weight can be a problem as well. Babies who weigh more than 4,000 grams at birth may have an increased risk of developing diabetes, obesity, or other metabolic problems later in life. Delivery may be more difficult for women with high birth weight babies; it may also be a sign that the mother has diabetes or other metabolic disorders.

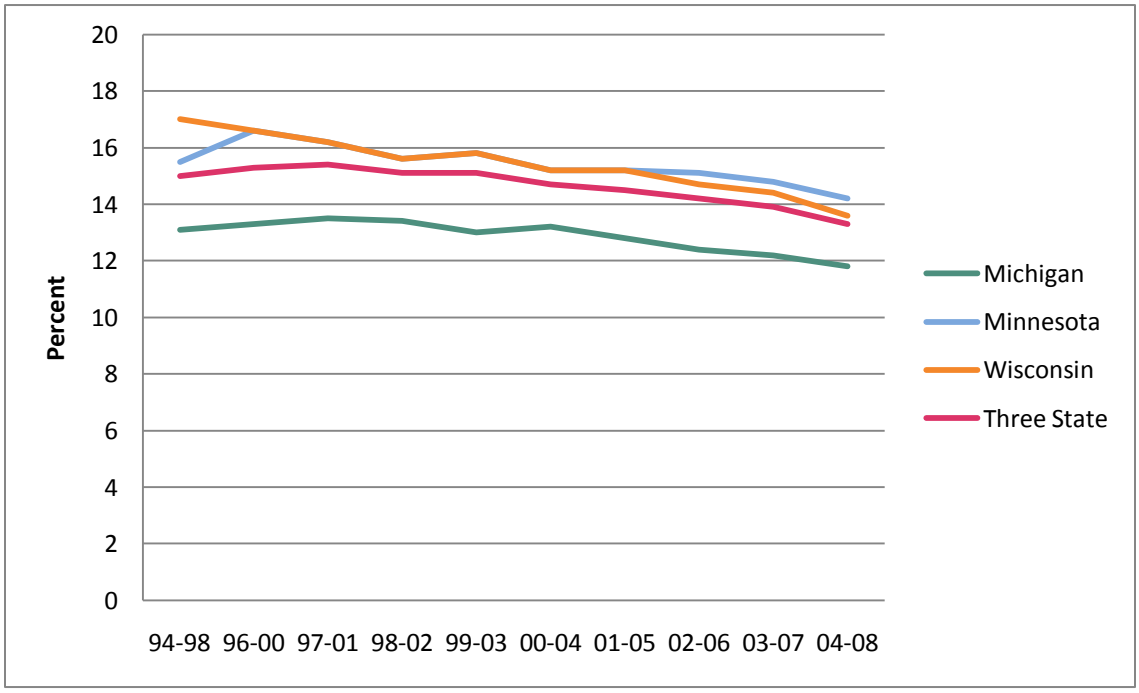
Displayed in Table 5.2b and Figure 5.2b on the following page is the percentage of high birth weight infants for different populations in the three-state area. *American Indian/Alaska Native infants in the three-state area are born at a high birth weight more often than all race infants in the same region or American Indian/Alaska Natives nationwide.*

Table 5.2b High Birth Weight Births (greater than 4,000 grams), by Percent, 2004-2008

AI/AN Michigan	11.8	**All Races Michigan**	9.3
AI/AN Minnesota	14.2	**All Races Minnesota**	11.1
AI/AN Wisconsin^	13.6	**All Races Wisconsin^^**	10.2
AI/AN Three-State Area	13.3	**All Races Three-State Area**	10.0
IHS Total*	12.2	**All Races U.S.**	-
HP 2010	-		

Sources: 2004-2008 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information
^2004-2008 Birth Files, Wisconsin Department of Health and Human Services
^^WISH, 2004-2008
**Data from Regional Differences in Indian Health, IHS, 2002-2003 Edition (1999-2001 data)*

Figure 5.2b High Birth Weight (greater than 4,000 grams) Trends for Three-State Area American Indian/Alaska Natives, 1994-2008



Sources: 1994-2008 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information

5.3 Prenatal Care

Prenatal care is important to maintain the health of the mother and her growing fetus. Women who get early prenatal care have healthier babies, are more likely to carry them to term, and are less likely to have other pregnancy health-related problems. Early care allows for education about nutrition, exercise, and basic care during pregnancy and birth for the woman and her partner.

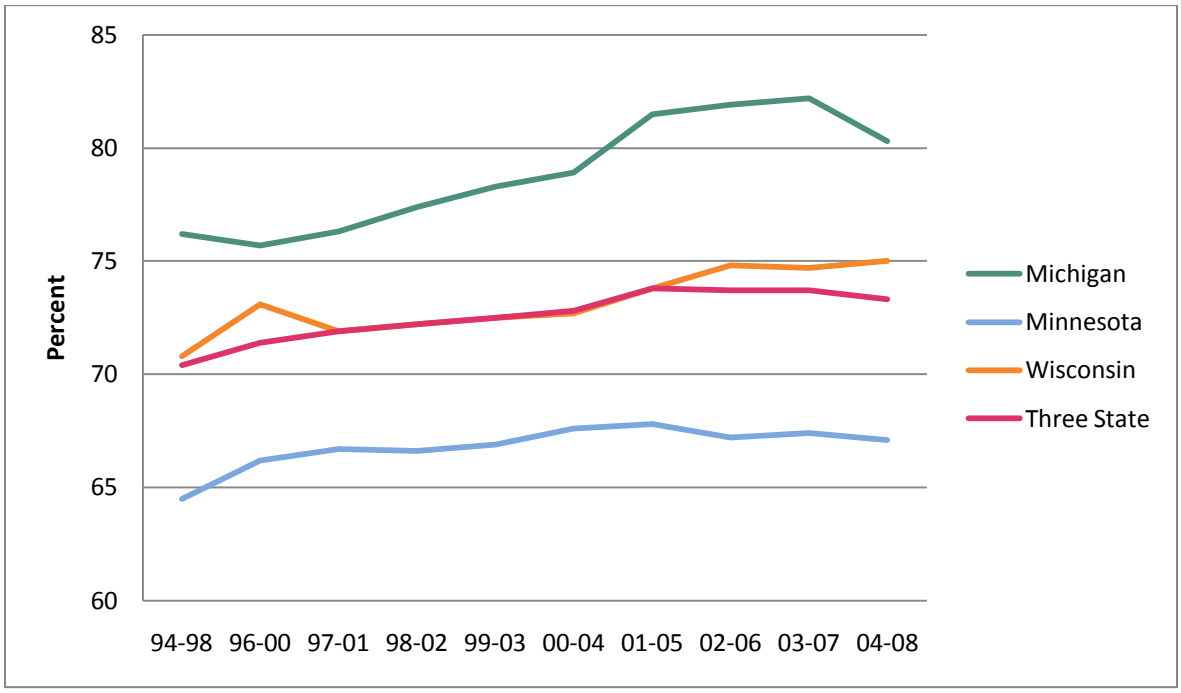
Though the Healthy People 2010 goal is for 90 percent of women to receive prenatal care during their first trimester of pregnancy, women in the three-state area do not meet this benchmark. There are differences between when American Indian/Alaska Native women and women in the all race population receive prenatal care, as seen in Table 5.3a. *Nearly three-quarters of mothers of American Indian/Alaska Native infants and 85 percent of all races women receive early prenatal care. As seen in Figure 5.3, there generally has been an increasing trend for women to begin care during this time period.*

Table 5.3a Births with Prenatal Care Beginning in the First Trimester, by Percent, 2004-2008

AI/AN Michigan	80.3	**All Races Michigan**	83.8
AI/AN Minnesota	67.1	**All Races Minnesota**	86.2
AI/AN Wisconsin^	75.0	**All Races Wisconsin^^**	84.3
AI/AN Three-State Area	73.3	**All Races Three-State Area**	84.6
IHS Total*	67.3	**All Races U.S.****	83.2
HP 2010	90.0		

Sources: 2004-2008 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information
^2004-2008 Birth Files, Wisconsin Department of Health and Human Services
^^WISH, 2004-2008
**Data from Trends in Indian Health, IHS, 2002-2003 Edition (1999-2001 data)*
*** National Center for Health Statistics, 2006, unrevised birth certificate data*

Figure 5.3 Three-State Area Trends for Births with Prenatal Care beginning in the First Trimester Among Mothers of American Indian/Alaska Natives, 1994-2008



Sources: 1994-2008 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information

In addition to determining how many women receive early prenatal care, consideration should be given to those who begin prenatal care late (in the third trimester) or not at all. *As shown in Table 5.3b, a higher percentage of mothers of American Indian babies receive late or no prenatal care.*

Table 5.3b Births with Late (Third Trimester) or No Prenatal Care, by Percent, 2004-2008

AI/AN Michigan	3.9	**All Races Michigan**	3.3
AI/AN Minnesota	8.0	**All Races Minnesota**	2.2
AI/AN Wisconsin^	6.3	**All Races Wisconsin^^**	3.1
AI/AN Three-State Area	6.1	**All Races Three-State Area**	3.7
		All Races U.S.*	3.6

Sources: 2004-2008 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information
^2004-2008 Birth Files, Wisconsin Department of Health and Human Services
^^WISH, 2004-2008
** National Center for Health Statistics, 2006, unrevised birth certificate data*

5.4 Teen Births

Births to teenage mothers include births where the mother is age 19 or younger. Age is an important consideration for a healthy pregnancy, as young mothers may not seek prenatal care as soon as older mothers, are more likely to give birth prematurely or to low birth weight infants, and may have more problems during delivery. They are also less likely to finish high school than girls who do not become pregnant during their teen years. There is a greater percentage of births to teenage mothers of American Indian/Alaska Natives (17.5 percent) than in the all races population (8.7 percent). *The teen birthrate for mothers of American Indian/Alaska Native infants is three times higher than for all races in the three-state area, and over twice as high as the national all races rate.*

Table 5.4a Births to Teen Mothers (age 19 or under), by Percent, 2004-2008

AI/AN Michigan	13.2	**All Races Michigan**	9.8
AI/AN Minnesota	21.2	**All Races Minnesota**	7.0
AI/AN Wisconsin^	16.6	**All Races Wisconsin^^**	8.7
AI/AN Three-State Area	17.5	**All Races Three-State Area**	8.7
		All Races U.S.*	6.8

Sources: 2004-2008 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information
^2004-2008 Birth Files, Wisconsin Department of Health and Human Services
^^WISH, 2004-2008
** National Center for Health Statistics, 2006, unrevised birth certificate*

Table 5.4b Teen Birth Rate per 1,000 Live Births (age 15-19), 2004-2008

AI/AN Michigan	61.6	**All Races Michigan**	33.7
AI/AN Minnesota	133.1	**All Races Minnesota**	27.4
AI/AN Wisconsin^	85.3	**All Races Wisconsin^^**	31.1
AI/AN Three-State Area	94.5	**All Races Three-State Area**	31.5
		All Races U.S.*	41.9

Sources: 2004-2008 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information
^2004-2008 Birth Files, Wisconsin Department of Health and Human Services
^^WISH, 2004-2008
** National Center for Health Statistics, 2006*

5.5 Premature Births

Premature births occur when the pregnancy lasts 36 weeks or less. A full term pregnancy is considered to be 40 weeks long. A baby who is born early has a greater risk of death in the first year (often in the first 28 days). The shorter the pregnancy, the greater the risk of complications. *American Indian/Alaska Natives are born prematurely less often than infants of all races nationwide.*

Table 5.5 Premature Births (at 36 or fewer weeks gestation), by Percent, 2004-2008

AI/AN Michigan	9.3	**All Races Michigan**	10.6
AI/AN Minnesota	10.7	**All Races Minnesota**	10.1
AI/AN Wisconsin^	12.1	**All Races Wisconsin^^**	11.1
AI/AN 3-State Area	10.6	**All Races 3-State Area**	10.6
HP 2010	7.6	**All Races U.S.***	12.8

Sources: 2004-2008 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information
^2004-2008 Birth Files, Wisconsin Department of Health and Human Services
^^WISH, 2004-2008
** National Center for Health Statistics, 2006*

5.6 Smoking During Pregnancy

Smoking during pregnancy is an important health indicator for mothers and infants. While birth certificates ask if a mother smoked during pregnancy, no distinction is made between traditional use of tobacco and commercial tobacco abuse. Women who abuse tobacco during pregnancy are at risk for tobacco-related illnesses and complications with their pregnancies. Babies born to smokers are at risk throughout their infancy and childhood for many health problems. Smoking during pregnancy has been linked to premature birth, low birth weight, asthma, and chronic ear infections. Though exposure to secondhand smoke is not reported, it should also be noted that passive smoking causes health problems for women and their infants.

Table 5.6 shows that from 2004-2008, 33.8 percent of mothers of American Indian/Alaska Native infants in the three-state area smoked during their pregnancies, compared with 13.6 percent of mothers of all races infants. However, as shown in Figure 5.6, since the 1990s there generally has been a decrease in the percent of mothers of American Indian who smoke during pregnancy. For all groups

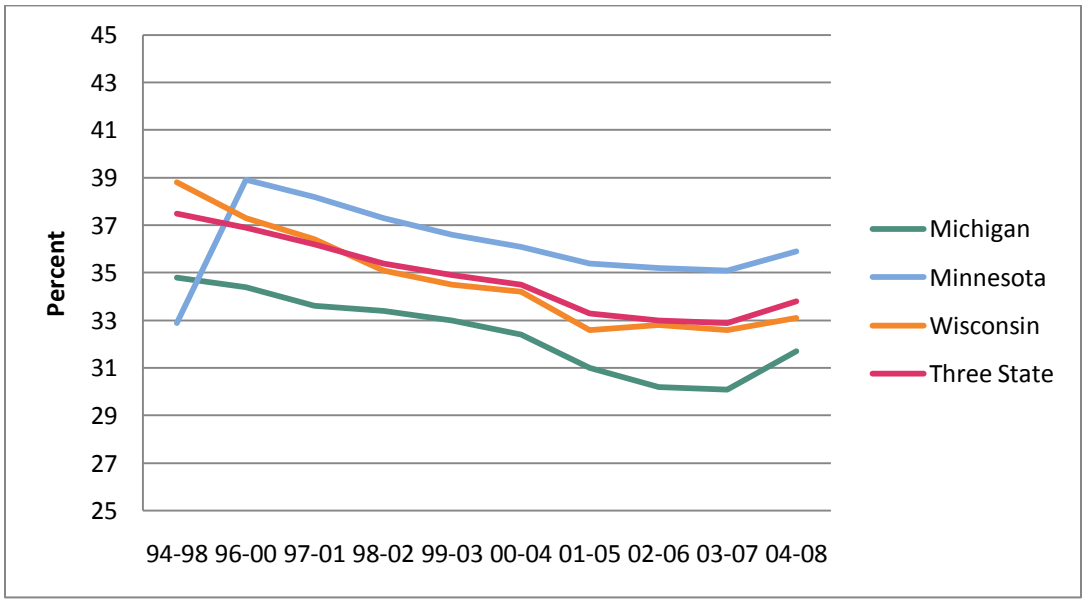
shown below, none are near the Healthy People 2010 goal for 99 percent of mothers to refrain from smoking during pregnancy.

Table 5.6 Births to Mothers who Smoked During Pregnancy, by Percent, 2004-2008

AI/AN Michigan	31.7	**All Races Michigan**	15.4
AI/AN Minnesota	35.9	**All Races Minnesota**	9.7
AI/AN Wisconsin^	33.1	**All Races Wisconsin^^**	14.3
AI/AN Three-State Area	33.8	**All Races Three-State Area**	13.6
IHS Total*	19.8	**All Races U.S.****	13.2
HP 2010	1.0		

Sources: 2004-2008 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information
^2004-2008 Birth Files, Wisconsin Department of Health and Human Services
^^WISH, 2004-2008
**Data from Trends in Indian Health, IHS, 2002-2003 Edition (1999-2001 data)*
*** National Center for Health Statistics, 2006, revised birth certificate data*

Figure 5.6 Trends in Mothers of American Indian/Alaska Natives who Smoked During Pregnancy in the Three-State Area, 1994-2008



Sources: 1994-2008 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information

5.7 Delivery Methods

Understanding delivery methods is an important aspect of maternal and child health. Delivery method data in this report vary in completeness by year and state, so caution must be taken when comparing states' delivery method rates.

Vaginal delivery is the safest and most common method of birth. *About three-quarters of births in the three-state area from 2003-2007 were vaginal deliveries.*

Table 5.7aVaginal Births (unassisted, spontaneous, forceps, vacuum, and vaginal birth after Cesarean), by Percent, 2004-2008*

AI/AN Michigan	76.2	**All Races Michigan**	82.4
AI/AN Minnesota	73.7	**All Races Minnesota**	74.6
AI/AN Wisconsin^	74.7	**All Races Wisconsin^^**	75.8
AI/AN Three State Area	74.5	**All Races Three State Area**	77.9
IHS Total	-	**All Races U.S.****	68.7
HP 2010	-		

*Note: Delivery method data not available for Michigan in 2007

Sources: 2004-2008 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information

^2004-2008 Birth Files, Wisconsin Department of Health and Human Services

^^WISH, 2004-2008

** *National Center for Health Statistics, 2006*

Cesarean delivery is an important obstetrical tool that can save lives and prevent injury for mothers and infants. However, there is concern that more infants are being born via Cesarean than are medically indicated. Risks that occur to the mother from Cesarean deliveries include complications that can result from any surgery; blood loss; infection; and anesthesia complications; as well as longer and more difficult recoveries compared to vaginal birth. Risks that occur to the infant include poor reaction to its mother's anesthesia, injuries, breathing problems, and breastfeeding difficulties. Both mother and infant are at higher risk for hospital-based infections, due to the longer stays required. Due to these risk factors, elective Cesarean delivery is not recommended. According to the World Health Organization, no more than 15 percent of births should be Cesarean. *As seen in Table 5.7b, in the three-state area, about one quarter of deliveries are Cesarean deliveries, less than in the Unites States all races population.*

Table 5.7b Cesarian Births, by Percent, 2004-2008

AI/AN Michigan	23.8	**All Races Michigan**	17.6
AI/AN Minnesota	26.3	**All Races Minnesota**	25.4
AI/AN Wisconsin^	25.3	**All Races Wisconsin^^**	24.2
AI/AN Three State Area	25.5	**All Races Three State Area**	25.8
IHS Total*	-	**All Races U.S.****	31.1
HP 2010	-		

Note: Delivery method data not available for Michigan in 2007

Sources: 2004-2008 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information

^2004-2008 Birth Files, Wisconsin Department of Health and Human Services

^^WISH, 2004-2008

** *National Center for Health Statistics, 2006*

5.8 Childhood Weights

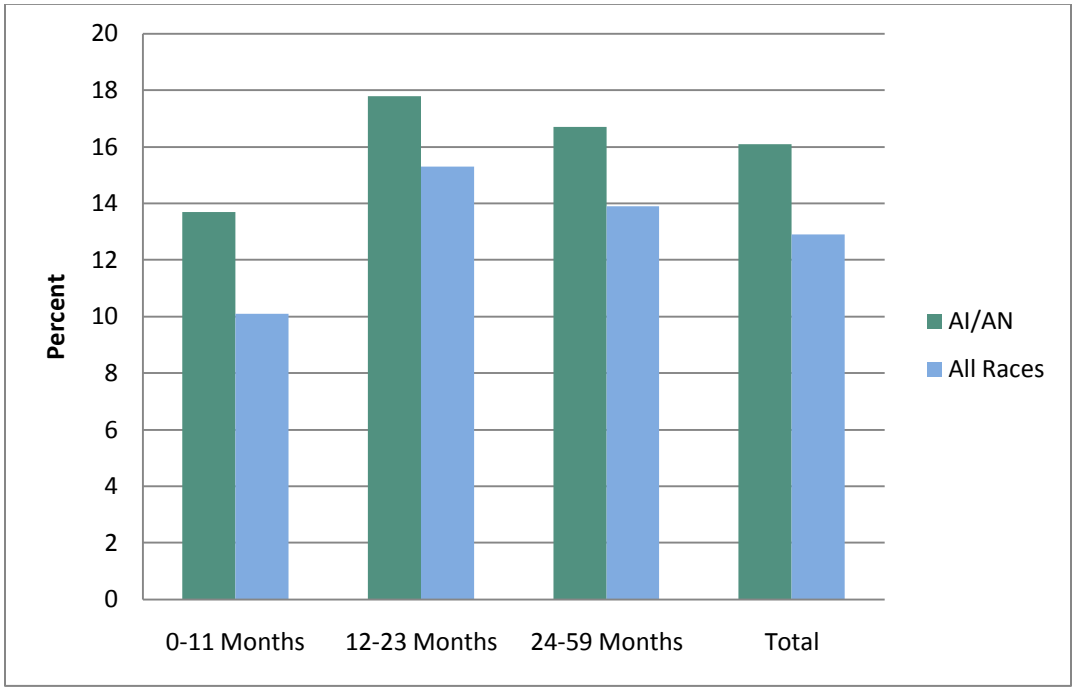
Children are considered obese when they have a weight-for-height greater than the 95th percentile of a reference population. Table 5.8 and Figures 5.8a-c display this information for WIC-enrolled children. *For all ages presented in all three states, a greater percentage of American Indian/Alaska Native children and infants are obese compared to the corresponding all races population.*

Table 5.8 Percent of WIC-Enrolled Children Who Are Obese (>95th percentile), 2008

Age	Michigan		Minnesota		Wisconsin	
	AI/AN	All Races	AI/AN	All Races	AI/AN	All Races
0-11 Months	13.7	10.1	14.5	8.6	12.3	10.5
12-23 Months	17.8	15.3	34.6	16.5	24.1	16.9
24-59 Months	16.7	13.9	26.5	13.4	24.1	13.6
Total	16.1	12.9	25.5	12.8	21.0	13.3

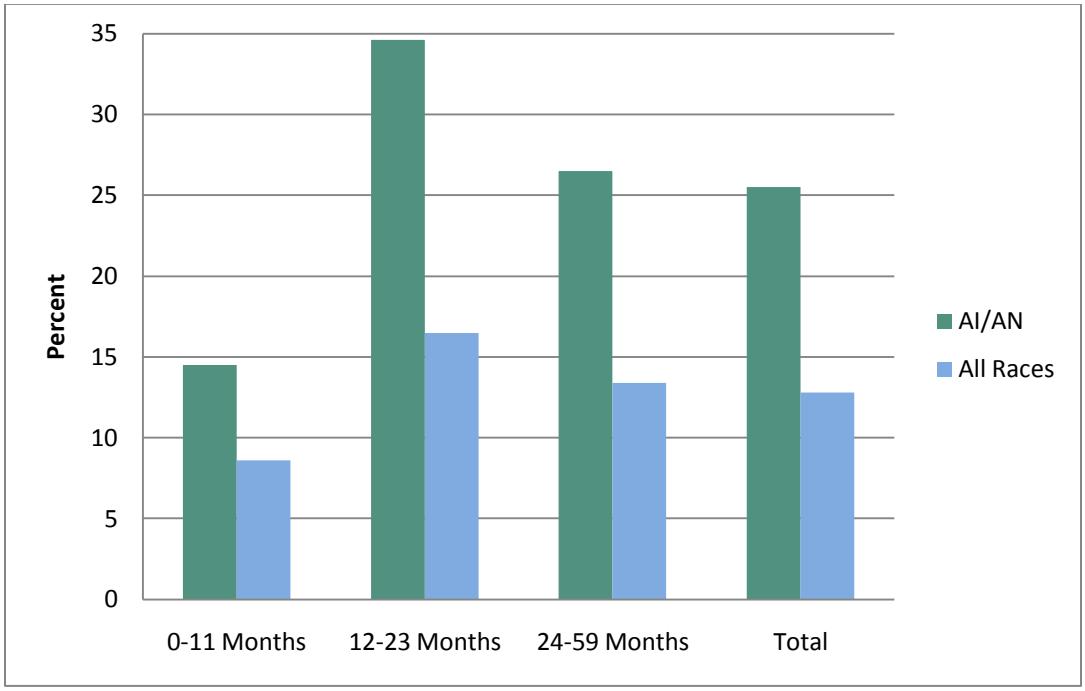
Source: CDC Pediatric Nutrition Surveillance System, Table 16C, Annual Summaries for Michigan, Minnesota, and Wisconsin

Figure 5.8a Percent of WIC-Enrolled Children in Michigan Who Are Obese, 2008



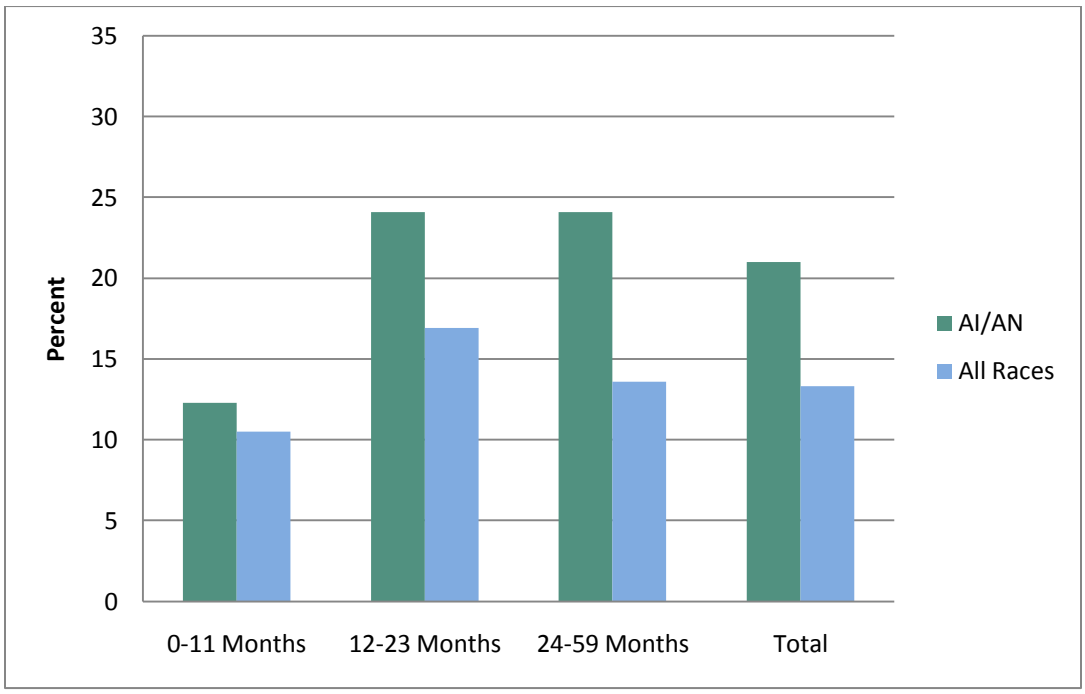
Source: CDC Pediatric Nutrition Surveillance System, Table 16C, Annual Summaries for Michigan

Figure 5.8b Percent of WIC-Enrolled Children in Minnesota Who Are Obese, 2008



Source: CDC Pediatric Nutrition Surveillance System, Table 16C, Annual Summaries for Minnesota

Figure 5.8c- Percent of WIC-Enrolled Children in Wisconsin Who Are Obese, 2008



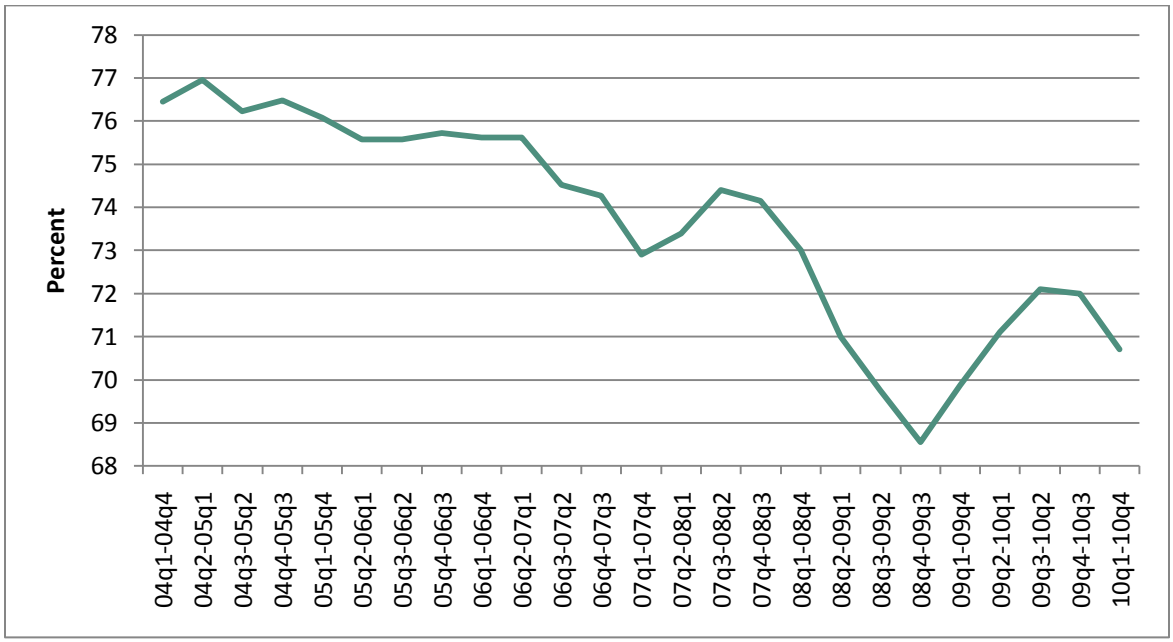
Source: CDC Pediatric Nutrition Surveillance System, Table 16C, Annual Summaries for Wisconsin

5.9 Immunizations

One of the greatest public health accomplishments in this century has been the dramatic decrease in preventable deaths and health problems by intervention with childhood vaccines. Not only do vaccines save many lives, but they are cost effective. "According to an extensive cost-benefit analysis by the CDC, every dollar spent on immunization saves $6.30 in direct medical costs, with an aggregate savings of $10.5 billion. When including indirect costs to society - a measurement of losses due to missed work, death, and disability as well as direct medical costs - the CDC notes that every dollar spent on immunization saves $18.40." The diphtheria vaccine alone prevents almost 13,000 deaths per year (Bumpers, 2004). Due to immunization program successes, cases of diseases such as measles are rare. However, it is important to remember that these diseases still exist, which is why it is vital to keep vaccination rates high.

Graph 5.9 below shows age-appropriate immunization coverage in the Bemidji Indian Health Service Area for American Indian/Alaska Native children covered by Indian Health Service clinics for three to 27 month old children. For two year olds for example, this means four Diphtheria, Tetanus, Pertussis (DTaP); three Polio (IPV); one measles, mumps, rubella (MMR); three *Haemophilus influenzae* type b (Hib); and three Hepatitis B (Hep B) doses were delivered. This series is often abbreviated as "4:3:1:3:3." *Generally, there appears to be a decrease in the percentage of American Indian/Alaska Native children who are receiving age-appropriate vaccinations over the past six years.* However, the percentage began to increase in late 2009, which may related to increased interest in vaccination due to 2009 H1-N1 influenza.

Figure 5.9 Percent of Three-state Area American Indian/Alaska Native Children 3-27 Months Completing Vaccination Requirements, FY2004 Q1-FY2010 Q4 Rolling 4 Quarter Averages *



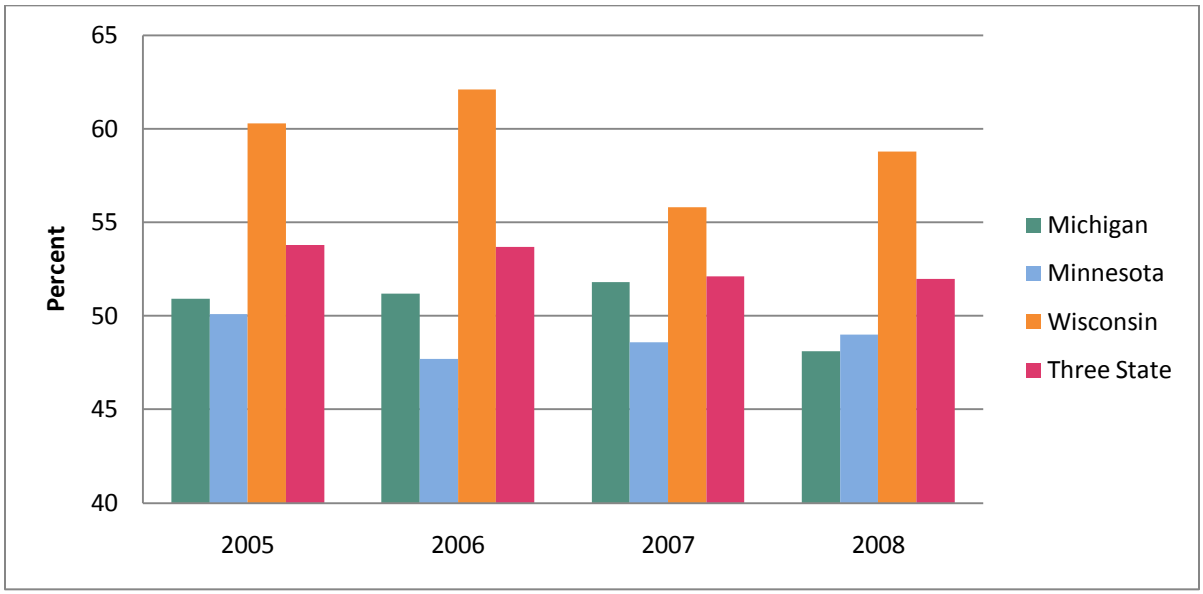
Source: http://www.ihs.gov/MedicalPrograms/epi/index.cfm?module=epi_vaccine_reports
**Excluding Hepatitis A*

5.10 Breastfeeding

The data for breastfeeding comes from American Indian/Alaska Native mothers enrolled in WIC. Breastfeeding confers a number of benefits to infants and mothers. For mothers, breastfeeding helps recovery from pregnancy. For infants, breastfeeding reduces the risk of developing asthma, allergies, obesity, infections, and SIDS. Breast milk has the right combination of nutrients for infants, and also provides antibodies that help the baby defend itself against disease.

"Breastfeeding ever" means that a woman breastfed her infant at least one time. *Over 50 percent of American Indian/Alaska Native women who used WIC in the three-state area have breastfed their infant at least once.* The Healthy People 2010 goal is for 75 percent of infants to be breastfed at least one time.

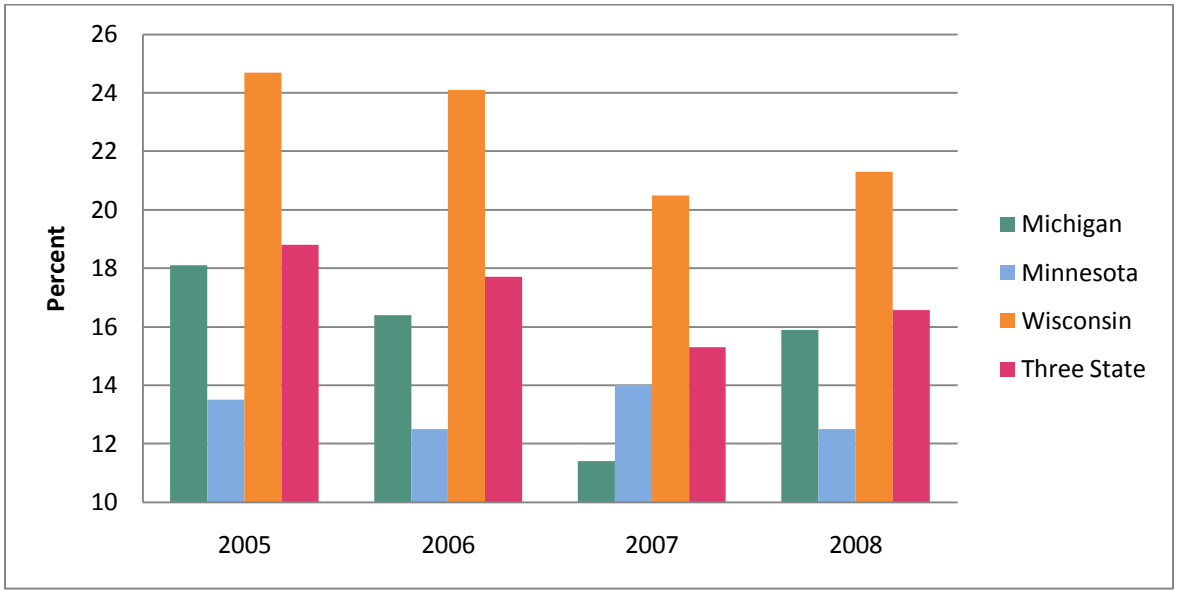
Figure 5.10a Breastfeeding Ever for American Indian/Alaska Native Women in the Three-state Area, 2005-2008



Source: CDC Pediatric Nutrition Surveillance System, Table 9C, Annual Summaries for Michigan, Minnesota, and Wisconsin

Breastfeeding at least six months means that a woman breastfed her child exclusively through six months of age. Exclusive breastfeeding means that the infant did not receive any formula, cows' milk, juice, food, or even water. The Healthy People 2010 goal is for at least 50 percent of mothers to breastfeed their infant at least six months.

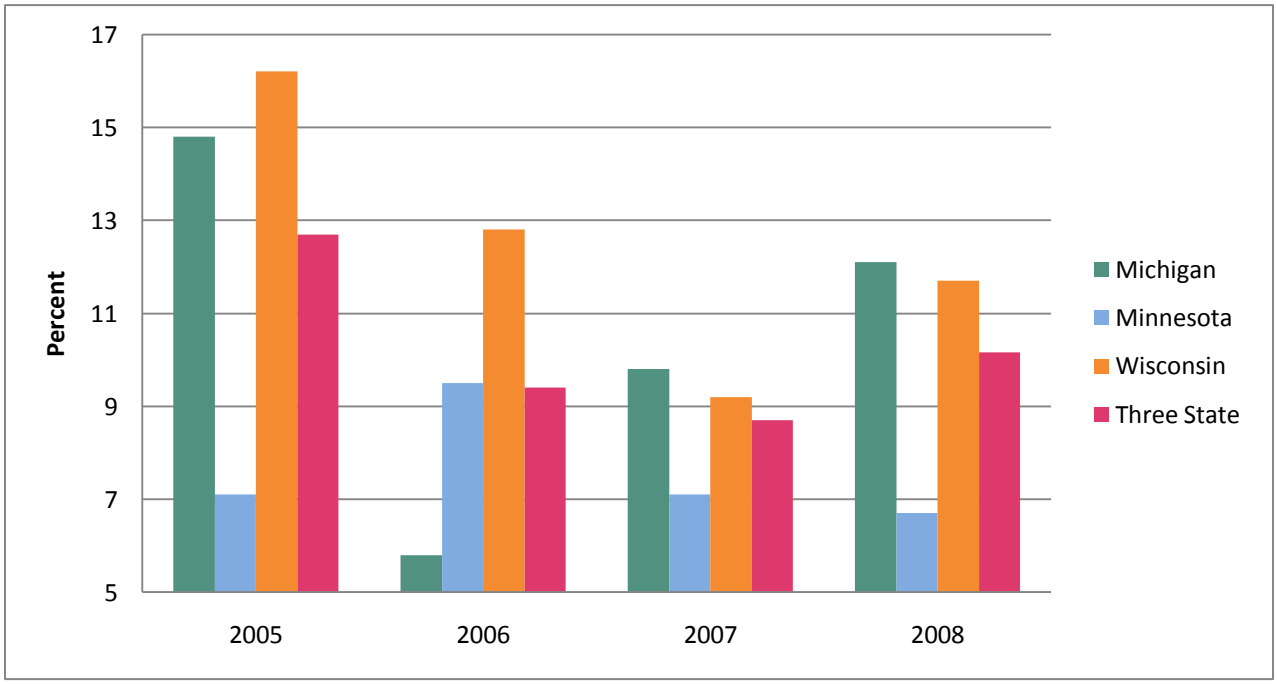
Figure 5.10b Breastfeeding at Least Six Months for American Indian/Alaska Native Women in the Three-State Area, 2005-2008



Source: CDC Pediatric Nutrition Surveillance System, Table 9C, Annual Summaries for Michigan, Minnesota, and Wisconsin

Breastfeeding at least 12 months refers to exclusive breastfeeding of an infant until the infant is at least one year of age. The Healthy People 2010 goal is for 25 percent of mothers to exclusively breastfeed this long.

Figure 5.10c Breastfeeding at Least 12 Months for American Indian/Alaska Native Women in the Three-State Area, 2005-2008



Source: CDC Pediatric Nutrition Surveillance System, Table 9C, Annual Summaries for Michigan, Minnesota, and Wisconsin

Chapter 6
Behavioral Health

This chapter explains how social interactions, individual behaviors, and the built environment affect the health of American Indian/Alaska Natives living in Michigan, Minnesota, and Wisconsin. Most behaviors are not randomly distributed in the population. Behaviors once thought to fall exclusively within the realm of individual choice often occur in a social context and can be influenced by environmental factors. According to Smedley and Syme, "It is unreasonable to expect that people will change their behavior easily when so many forces in the social, cultural, and physical environment conspire against such change" (Institute of Medicine, 2000). For example, whether or not someone eats fresh fruit and vegetables depends on whether they have easy access to a grocery store with an affordable selection of fresh produce.

The prevalence of risk behaviors associated with adverse health outcomes among American Indians/Alaskan Natives are not well documented. Few data quantitatively capture sensitive issues such as mental health, substance abuse and intimate partner/domestic violence.

Data were aggregated from the Centers for Disease Control and Prevention's (CDC) Behavioral Risk Factor Surveillance Survey (BRFSS) to illuminate risk behaviors that have adverse affects on health. The BRFSS samples a small number of American Indian and Alaska Natives annually; therefore, data from Michigan, Minnesota, and Wisconsin are combined for five years in order to increase sample size. Even with combining years and states, sample sizes remain small. Although data are weighted, they most likely do not represent the American Indian/Alaska Native population in the three-state area; therefore, use caution when interpreting this data. In this chapter, data were only included if at least 50 or more American Indian/Alaska Natives, living in the three-state area, answered each question each year.

6.1 Alcohol

Half of all the alcohol consumed by adults in the United States occurs during binge drinking. For women, binge drinking is defined as having four or more drinks on one occasion; for men it is five or more drinks on an occasion. Between 2001 and

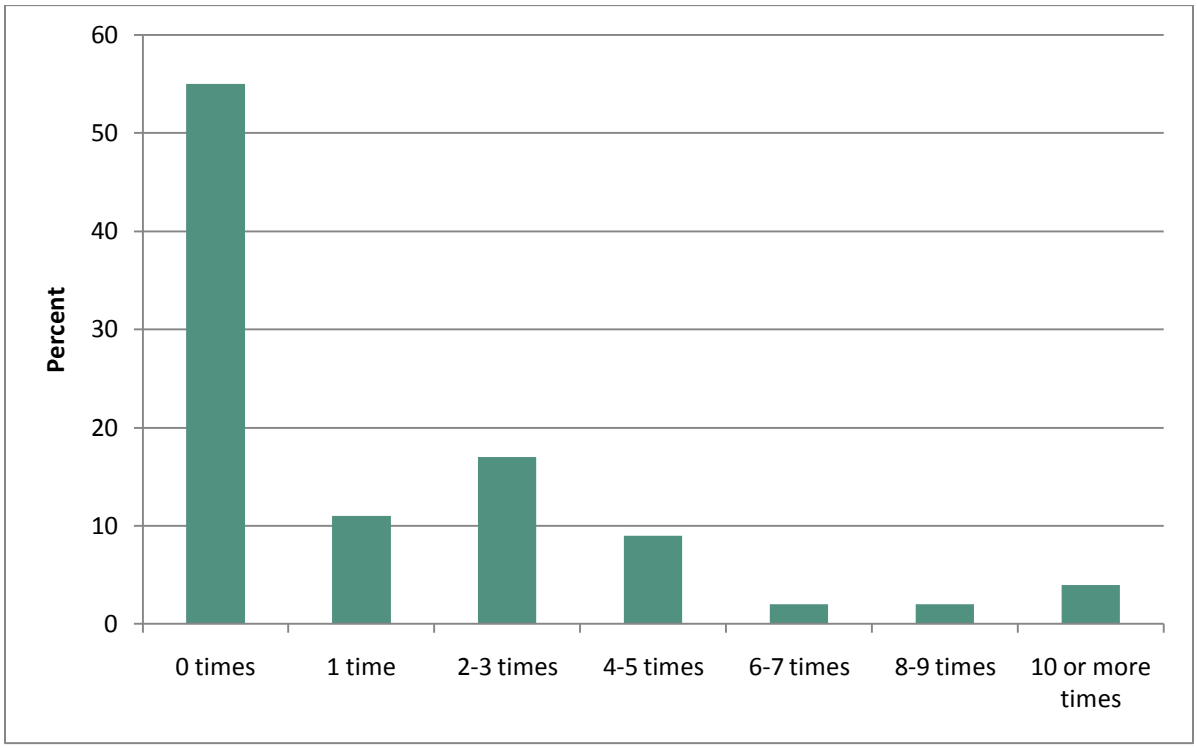
2005, binge drinking was responsible for more than half of 79,000 deaths in the United States all races adult population due to excessive alcohol use. Nationally, American Indian/Alaska Natives have the second highest age and sex-adjusted prevalence of binge drinking at 15.4 percent. Although American Indian/Alaska Natives report binge drinking at lower rates than Caucasians (17.5 percent), American Indian/Alaska Natives report drinking more drinks during binge drinking episodes than any other racial/ethnic group. On average American Indian/Alaska Natives consume 8.4 drinks per binge drinking episode (Kanny D, Liu Y, & Brewer RD, 2011).

According to the CDC in 2009, the median prevalence of binge drinking among the all races adult population living in the United States was 15.7 percent; Michigan, Minnesota, and Wisconsin all had a higher prevalence of binge drinking among the all races adult population than the national median at 17.1, 20.2, and 23.9 percent, respectively (CDC, 2010).

According to BRFSS, 45.5 percent of American Indian/Alaska Natives in the three-state area reported having an alcoholic beverage in the 30 days prior to taking the survey. This estimate was based on five years of aggregate data with an average yearly "n" of 208. The average number of alcoholic drinks American Indian/Alaska Natives in the three-state area reported drinking in the past 30 days was 3.6 drinks. This estimate was based on five-years of aggregate data with an average yearly "n" of 94.

According to BRFSS data files approximately 45.6 percent of American Indian/Alaska Natives in the three-state area reported binge drinking at least once in the past 30 days prior to taking the survey. This estimate was based on five years of aggregate data with an average yearly "n" of 92. Of those who reported binge drinking, 37.8 percent reported binge drinking two to three times in the previous month. Alcohol dependency and other issues may co-exist with other problems such as abuse, anger, cultural shame, depression, guilt, sadness, self-hate, traumatic experiences, and historical trauma.

Figure 6.1a Number of Times Adult American Indian/Alaska Natives Reported Binge Drinking, by Percent, 2005-2009



Data Source: CDC, 2005-2009, Behavioral Risk Factor Surveillance Survey (BRFSS)

6.2 Commercial Tobacco

Traditional tobacco is used as a spiritual and physical medicine. Each Tribal community varies in which way or combination of ways their people use traditional tobacco. There has been a shift in the type of tobacco used by American Indian/Alaska Natives – unfortunately, sometimes commercial tobacco is used in place of traditional tobacco. Part of this shift may have started during the time when it was illegal for American Indians to practice their spirituality as a way for them to "hide in plain sight" (American Indian Community Tobacco Project, 2006). The BRFSS does not distinguish between ceremonial tobacco use and commercial tobacco use/exposure.

From 2006 to 2008 according to the National Survey on Drug Use and Health (NSDUH) data, American Indian/Alaska Natives adults had a higher prevalence of smoking, 42.2 percent, than any other racial or ethnic group. There was a smaller difference in prevalence, by sex, in American Indians than any other racial/ethnic

group at 42.4 and 42.0 percent, respectively (Garrett, B., Dube, S., Trosclair, A., Caraballo, R., & Pechacek, T., *2011).*

According to the BRFSS data, 66.8 percent of American Indians in the three-state area reported smoking at least 100 cigarettes in their lifetime. This estimate was based on five-years of aggregate data with an average yearly "n" of 211. Among American Indian BRFSS participants, 58.0 percent reported currently smoking. This estimate was based on five-years of aggregate data with an average yearly "n" of 141.

6.3 Other Drug Use

Accurate illicit drug use data are often difficult to obtain due to the legality of illicit drug use. The National Survey on Drug Use and Health (NSDUH) estimates, like the BRFSS, are based on a small number of American Indian/Alaska Natives surveyed. According to NSDUH, 21.5 percent of American Indian/Alaska Natives have used some form of illicit drug in the past year.

Table 6.3a Illicit Drug Use Among American Indian/Alaska Natives in Michigan, Minnesota, and Wisconsin: Average of 2002-2007

Substance	Percent	95% Confidence Interval
Any illicit drug	21.5	17.1-25.9
Marijuana	15.4	11.6-19.2
Any drug other than marijuana	14.1	10.8-17.4
Cocaine	3.0	1.8-4.2
Hallucinogens	1.5	0.9-2.1
Inhalants	0.6	0.3-0.9
Psychotherapeutic	11.5	8.4-14.6
Pain Relievers	7.4	5.0-9.8
Tranquilizers	6.5	4.0-9.0
Stimulants	3.2	1.8-4.6
Methamphetamines	1.7	0.8-2.6
Sedatives	0.2	-0.3*

Data Source: SAMHSA, Office of Applied Studies, 2002 to 2007 National Surveys on Drug Use and Health
** Less than 0.1*

6.4 Mental Health

Public health programs that promote mental health and timely diagnosis and treatment of mental health issues such as anxiety, depression, etc. may help reduce morbidity and risk behaviors related to chronic diseases. Unfortunately, although a number of questions related to mental health (i.e. have you felt nervous, depressed, hopeless, etc.) were asked in the BRFSS survey, on average only six American Indian/Alaska Natives in the three-state area answered these questions each year; therefore, because of the very small sample size these questions were not included in this section.

According to the BRFSS data files, 41.2 percent of American Indian/Alaska Natives in the three-state area reported their mental health was not good on at least one day in the previous 30 days prior to participating in the BRFSS. This estimate was based on five-years of aggregate data with an average yearly "n" of 210. On average American Indian/Alaska Natives, who reported their mental health was not good, reported on average their mental health was not good on 13.1 days in the month prior to taking the survey. This estimate was based on five-years of aggregate data with an average yearly "n" of 87.

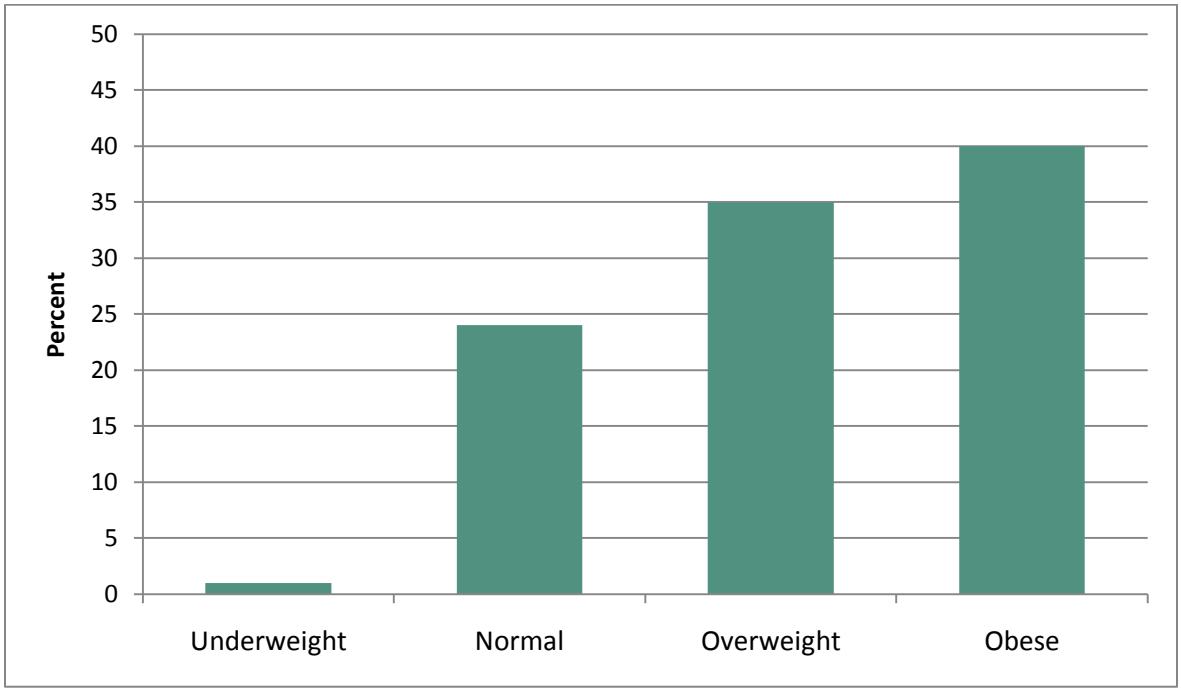
When the BRFSS asked participants how often they felt they received social and emotional support, 42.8 percent of American Indian/Alaska Natives reported always receiving social and emotional support. Only 6.4 percent of participants reported never receiving the social and emotional support they needed. This estimate was based on five-years of aggregate data with a yearly "n" of 198.

6.5 Overweight and Obesity

Overweight and obesity are associated with health conditions including Type 2 Diabetes. The commonly used measure to assess someone's weight compared to their height is Body Mass Index or BMI. BMI is appropriate for measuring adiposity in populations, but not for individuals.

As seen in Table 6.5a, according to the BRFSS data files, 24.4 percent of American Indian/Alaska Natives living in the three-state area had a BMI that was normal. This estimate was based on five-years of aggregate data with an average yearly "n" of 210.

Figure 6.5a Weight Status* for Adult American Indian/Alaska Natives Living in the Three-State Area, by Percent, 2005-2009



**Underweight = <18.5, Normal = 18.5-24.9, Overweight = 25.0 – 29.9, Obese = >30.0*

Data Source: CDC, 2005-2009, Behavioral Risk Factor Surveillance Survey (BRFSS)

6.6 Nutrition and Physical Activity

According to the CDC, "American society has been 'obesogenic,' characterized by environments that promote increased food intake, non-healthful foods, and physical inactivity. Policy and environmental change initiatives that make healthy choices in nutrition and physical activity available, affordable, and easy will likely prove most effective in combating obesity."

According to the *2010 Dietary Guidelines*, individuals should monitor their food and beverage intake, physical activity, and body weight. A helpful recommendation is that fruit and vegetables take up half a plate. And when eating out consider ordering a vegetable as a side instead of a starch. Even with a sedentary job, it is important to remember an individual's brain alone uses 20 to 40 percent of the calories consumed each day (USDA & HHS, 2010).

Regular physical activity substantially reduces the risk of physical and emotional health diseases and or conditions such as diabetes, high blood pressure,

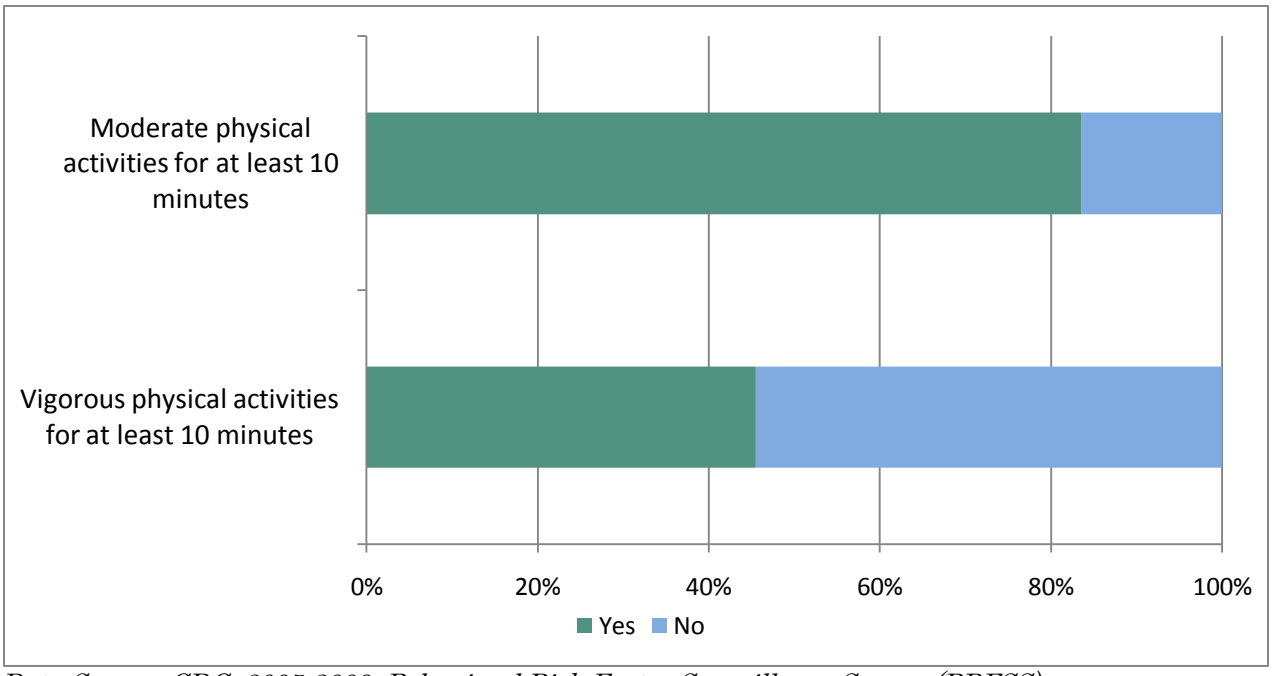
anxiety and depression. Moreover, physical activity need not be strenuous to be beneficial; people of all ages benefit from participating in regular physical activity.

The *2010 Dietary Guidelines* recommend adults participate in at least two hours and 30 minutes a week of moderate physical activity. These activities cause small increases in breathing or heart rate. Examples include walking, bicycling, vacuuming, and gardening. Vigorous physical activities such as running, aerobics, and heavy yard work cause larger increases in breathing or heart rate. It is recommended adults participate in vigorous physical activities for one hour and 15 minutes per week. In addition all adults should participate in muscle strengthening activities which target all major muscle groups on at least two days per week (USDA & HHS, 2010).

As seen in Table 6.7a, American Indian/Alaska Natives were more likely to report engaging in moderate physical activity than vigorous physical activity. According to the BRFSS data files, 83.6 percent of American Indian/Alaska Natives in the three-state area reported engaging in moderate physical activities for at least 10 minutes at a time during their average week. The average number of days American Indian/Alaska Natives reported engaging in moderate physical activities for at least ten minutes at a time was 5.0 days.

Also, according to the BRFSS data files, 45.5 percent of American Indian/Alaska Natives in the three-state area reported engaging in vigorous activities for at least ten minutes at a time. The average number of days American Indian/Alaska Natives reported engaging in vigorous physical activities for at least ten minutes at a time was 3.4 days per week. All of these estimates were based on five-years of aggregate data with an average yearly "n" of 117.

Figure 6.7a American Indian/Alaska Natives Living in the Three-State Area Who Reported Engaging in Moderate and Vigorous Physical Activities During Their Average Week, by Percent, 2005-2009



Data Source: CDC, 2005-2009, Behavioral Risk Factor Surveillance Survey (BRFSS)

Discussion and Recommendations

When examining data available for assessing the overall health of Tribal communities in Michigan, Minnesota, and Wisconsin, it becomes clear that American Indian/Alaska Natives are not receiving the same level of care as the all races population. It is also becomes clear American Indian/Alaska Natives have higher morbidity and mortality rates than the general population. While these disparities are due in part to the under-funding of the Indian Health Service (over many decades), which is funded at approximately 50 percent of the estimated need and obligated to provide services to all members of federally-recognized Tribes, there are other socio-demographic factors that contribute to these persistent disparities. It is also important to remember that although the health status of American Indians is lower than any other racial/ethnic group in the United States, there have been accomplishments in specific areas; for example, there was a 13 percent mean decrease in the blood sugar levels (HgA1c) of patients in Special Diabetes Program for Indians (SDPI) supported programs.

It is no surprise that in the United States, minority racial/ethnic groups typically are worse off when it comes to health issues than the white population; however, this does not have to be the standard. Certain factors about minority communities, including American Indians and Alaska Native communities, offer advantages which make change and progress easier. Some of these factors are small health care user populations; Tribal sovereignty; and cultural strengths, such as close extended family relationships and a respect for elders. Change and progress need to be documented in order for communities to understand which kinds of programs are effective and which are not, and for this to happen, communities need to have reliable and accurate health data.

As stated by Public Health Partners, "Health statistics are influenced by an organization's perspective and bias. These biases can affect the collection device and eventual outcomes that are reported. They also can determine what data are collected and how the data are collected." It would be ideal for American Indian and Alaska Native populations to have a more significant role in the collection, maintenance, and use of health (related) data. Barriers to achieving comprehensive and functional American Indian and Alaska Native health databases are many, and there are complex reasons for why this has been so difficult to do. Nevertheless, much has changed and the health statistics that are available relating to American Indians and Alaska Natives are more reliable and valid than ever.

The Great Lakes Inter-Tribal Epidemiology Center would like to encourage Tribes to continue to submit data-related requests. It has been observed that small requests usually lead to small projects, which lead to greater interest in health data and more staff commitment in establishing data capacity. Again, we welcome opportunities to work with Tribes and look forward to another year of collaborations and partnerships.

Appendix A

Great Lakes Inter-Tribal Epidemiology Center Staff Contacts

2932 Hwy 47 North
PO Box 9
Lac du Flambeau WI 54538
715-588-3324
800-472-7207
Fax: 715-588-3607

Kristin Hill, Director

Email: khill@glitc.org Phone: 715-588-1093

Stacy Stone, Program Assistant

Email: sstone@glitc.org Phone: 715-588-1043

Nancy Bennett, Management Information System (MIS) Analyst

Email: nbennettl@glitc.org Phone: 715-588-1029

Jacob Melson, Behavioral Health Epidemiologist

Email: jmelson@glitc.org Phone: 715-588-1044

Samantha Lucas, Chronic Disease Epidemiologist

Email: slucas@glitc.org Phone: 715-588-1032

Meghan Porter, Maternal and Child Health Epidemiologist

Email: mporter@glitc.org Phone: 612-625-7804

Appendix B

Underlying Cause of Death
ICD-9 and ICD-10 Codes

Cause of Death		ICD-9 Codes	ICD-10 Codes
Cancer (Malignant Neoplasms)	All cancer	140-208	C00-C97
	Lung (trachea, bronchus, and lung) cancers	162	C33-C34
Chronic Liver Disease		571	K70, K73-K74
Diabetes		250	E10-E14
Diseases of the Heart		390-398, 402, 404-429	I00-I09, I11, I13, I20-I51
Nephritis, Nephritic Syndrome, and Nephrosis		580-589	N00-N07, N17-N19, N25-N27
Chronic Lower Respiratory Disease		490-494, 496	J40-J47
Pneumonia and Influenza		480-487	J10-J18
Cerebrovascular Disease		430-434, 436-438	I60-I69
Suicide		E950-E959	U03, X60-X84, Y87.0
Unintentional Injury		E800-E869, E880-E929	V01-X59, Y85-Y86

Appendix C

Technical Notes

Age-Adjusting and the Standard Population

Age-adjusted rates (also called standardized rates) have been adjusted to control for distorting effects of age. This allows for a comparison of mortality risks among populations over time, no matter how different the age distribution. However, they should be viewed as relative indexes rather than actual measures of mortality. Directly standardized mortality rates are calculated by applying age-specific death rates to the U.S. standard population (See Table A).

Table A Standard U.S. Population, 2000 Projected, for Age-Adjusting Rates

Age	Population	Proportion (weights)
Under 1 year	379,4901	0.013818
1-4 years	1,5191,619	0.055316
5-14 years	39,976,619	0.145563
15-24 years	38,076,743	0.138646
25-34 years	37,233,437	0.135575
35-44 years	44,659,185	0.162614
45-54 years	37,030,152	0.134835
55-64 years	23,961,506	0.087249
65-74 years	18,135,514	0.066035
75-84 years	12,314,793	0.044841
85 years and over	4,259,173	0.015509
Total	274,633,642	1.000000

Bridge-Race Methodology

The 2000 Census allowed respondents to self-identify as more than one race. However, birth and death certificates permit only a single race category. Thus, beginning in 2000, the numerators and denominators for vital rates have incompatible race data.

The bridging methodology developed by the National Center for Health Statistics (NCHS) "bridges" the multiple race-group population counts back to four single-race categories (White, Black/African American, American Indian/Alaska Native, and Asian/Pacific Islander). Models were developed to generate probabilities using National Health Interview Survey information, since this survey has been gathering primary race and multiple-race data since 1997. The Census Bureau applied these probabilities to the Census 2000 Modified Race Data Summary File, which resulted in a bridged population count for each of the single-race categories. These bridged-race estimates are then used to calculate race-specific birth and death rates.

The following sources offer more detailed discussion:

Ingram DD, Parker JD, Schenker N, Weed JA, Hamilton B, Arias E, Madans JH. United States Census 2000 population with Bridged-race categories. National Center for Health Statistics. Vital Health Stat 2(135), 2003

Lee, Sharon. Using the new racial categories in the 2000 Census. The Annie E. Casey Foundation and the Population Reference Bureau, March 2001

National Center for Health Statistics, U.S. Census Populations with Bridged-race Categories, www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm, 2004

Schenker N, Parker JD. From single-race reporting to multiple-race reporting: Using imputation methods to bridge the transition. Statistics in Medicine 2003; 22:1571-1587

Notes on Data Sources

Census

Data from the 2000 U.S. Census was gathered from Summary File 1 (SF-1) and Summary File 3 (SF-3) using the Census Bureau's website http://www.census.gov. Annual estimates (used in the demographics, mortality, and maternal and child health sections in this report) are calculated using text files downloaded from the Census's website.

Vital Statistics

Vital statistics (natality, mortality, and linked birth-death) SAS files are obtained from Michigan, Minnesota, and Wisconsin and used to generate data presented in this report. The three states have differences in the formatting, completeness, and degree of linkage in their vital records files.

Resource and Patient Management System Diabetes Data

The various IHS standard health indicators are recorded in the annual diabetes audit (electronic or manual) and reported to the Bemidji Area Office using Resource and Patient Management System (RPMS). All IHS administered and Tribally administered clinics (service units and operating units) receiving or applying for Special Diabetes Program for Indians (SDPI) funding submit to the diabetes audit in the Bemidji Area.

Infectious Disease Data Sources

Sexually transmitted infection data were provided by the Michigan, Minnesota, and Wisconsin state health departments. Although every state is required to collect these data, each state in the Bemidji Area has a different surveillance system; therefore, one should not compare data across the states. Because the numbers of reported cases are small, fluctuations are normal and may not reflect an actual increase in rates.

Pediatric Nutrition Surveillance System (PedNSS)

The CDC's Pediatric Nutrition Surveillance System (PedNSS), is a program-based surveillance system that monitors the nutritional status of low-income infants and children in federally funded maternal and child health programs, including the Women's, Infants, and Children (WIC) Program.

Indian Health Service Immunization Program

The Indian Health Service Immunization Program, a partnership between CDC and IHS, works with Tribal and IHS immunization programs nationally. IHS, Tribal, and Urban clinics submit immunization data to the program. These data are analyzed and available nationally and by IHS Area quarterly.

Behavioral Risk Factor Surveillance System

The Centers for Disease Control and Prevention (CDC)'s Behavioral Risk Factor Surveillance Survey (BRFSS) is a cross-sectional survey that collects data on risk behaviors and health practices related to chronic and infectious disease and injury using landline and mobile telephones.

National Survey on Drug Use and Health

The Substance Abuse and Mental Health Administration (SAMHSA)'s National Survey on Drug Use and Health (NSDUH) is an in-person interview that asks participants about their tobacco, alcohol, illicit drug (including prescription drugs) use, and mental health status. Approximately 70,000 individuals are randomly selected to participate each year.

Poverty Thresholds

Table B Poverty Thresholds in 1999 by Size of Family and Number of Related Children Under 18 Years Old (in Dollars)

Size of Family Unit	Related Children Under Age 18					
	None	One	Two	Three	Four	Five
One person						
Under 65	$8,667					
Over 65	$7,990					
Two people						
Householder under 65	$11,156	$11,483				
Householder over 65	$10,070	$11,440				
Three people	$13,032	$13,410	$13,423			
Four people	$17,029	$17,465	$16,895	$16,954		
Five people	$20,127	$21,024	$20,380	$19,882	$19,578	
Six people	$22,727	$23,930	$23,436	$22,964	$22,261	$21,845
Seven people	$25,912	$27,596	$27,006	$26,595	$25,828	$24,934

Racial Misclassification

State birth and death certificates may contain racial miscoding and/or misclassification for American Indian and Alaska Native populations. Using death certificates from 1986-1988, the IHS found that the three-state area was 16 percent race inconsistent (Michigan 31.7 percent, Minnesota 9.8 percent, and Wisconsin 14.1 percent) (U.S. Department of Health and Human Services, 1996). These misclassifications decrease the number of American Indian and Alaska Native births and deaths, thereby underestimating mortality rates. Another estimate states that American Indians in general are undercounted by 38 percent (Sondik, 1999).

Appendix D

Data Sources

The following data sources may be of use for those who would like to explore health data further on their own.

Michigan

Michigan Department of Community Health - Health Statistics and Reports
http://www.michigan.gov/mdch/0,1607,7-132-2944---,00.html

Michigan Department of Community Health - Birth, Death, Marriage and Divorce Records
http://www.michigan.gov/mdch/0,1607,7-132-4645---,00.html

Minnesota

Minnesota Department of Health - Health Data and Statistics
http://www.health.state.mn.us/stats.html

Wisconsin

Wisconsin Department of Health Services - Health Statistics
http://dhs.wisconsin.gov/stats/

Wisconsin Department of Health Services - Wisconsin Interactive Statistics on Health (WISH)
http://dhs.wisconsin.gov/wish/

National

U.S. Census Bureau
http://www.census.gov/

U.S. Census Bureau - Data Access Tools
http://www.census.gov/main/www/access.html

CDC National Center for Health Statistics (NCHS)
http://www.cdc.gov/nchs/

CDC Wide-ranging Online Data for Epidemiologic Research (WONDER)
http://wonder.cdc.gov/

Behavioral Risk Factor Surveillance System (BRFSS)
http://cdc.gov/BRFSS/

Pediatric Nutrition Surveillance System (PedNSS) and Pregnancy Surveillance System (PNSS)
http://www.cdc.gov/pednss/

Appendix E

Definitions

Actual Deaths	Total deaths during defined time period among residents of defined area
Age-Adjusted Rates	Standardized rates that control for the effects of age distribution differences and allow for valid comparisons of rates. The 2000 U.S. population was used as the standard
All Races	Total population, including American Indians and Alaska Natives, in a defined area
Average Birth Weight	2,500 grams ≤ Birth weight ≤ 4,000 grams
Bemidji Area	Indian Health Services area including American Indian and Alaska Native people living in Michigan, Minnesota, and Wisconsin
Body Mass Index (BMI)	[(Weight in pounds)/(Height in inches)]^2 x 703 Used as a method of population assessment for overweight and obesity status
Contract Health Service Delivery Area (CHSDA)	A county or counties which include all or part of a reservation or share a common boundary with the reservation, unless otherwise designated. Tribal health programs deliver services to American Indians and Alaska Natives living in this area
Crude Birth Rate (CBR)	$\frac{\text{Number of resident live births in a time period}}{\text{Total resident population in the same period}} \times 1{,}000$
Crude Mortality Rate (CMR)	$\frac{\text{Number of resident deaths in a time period}}{\text{Total resident population in the same period}} \times 1{,}000$
Epidemiology	The study of the distribution and determinants of health and disease related states and/or events and the application of this study to the control of health problems, health promotion, and disease prevention
High Birth Weight	Birth weight > 4,000 grams
IHS Total	Indian Health Service total American Indian and Alaska Native population living on or near reservations

Incidence	The number of NEW cases of a disease during a given time period (typically one year) in a population at risk for developing a disease
Infant Mortality Rate (IMR)	$\frac{\text{Number of resident infant deaths in a time period}}{\text{Total resident live births in the same time period}} \times 1{,}000$
Low Birth Weight	Birth weight < 2,500 grams
N/A	Not applicable
Obesity	Body mass index (BMI) greater than 30.0 for adults or greater than the 95th percentile for persons under 20 years of age *Note: There is no distinction for obesity versus overweight for persons under 20 years of age*
Overweight	For children less than two years of age: weight-for-length greater than or equal to the 95th percentile For children two to 19 years of age: BMI-for-age greater than the 95th percentile For adults over 20 years of age: $25.0 \leq \text{BMI} \leq 29.9$
Project Area	GLITEC project service area, which includes American Indian and Alaska Native Tribes in Michigan, Minnesota, and Wisconsin
Prevalence	The number of affected people (i.e. people with diabetes) present in the population at a specific time
Rate	A specific kind of ratio, in which two measurements are related to each other. A calculated fraction.
Socioeconomic Indicators	Indicators for socioeconomic status, involving education level, income, employment, and other factors
Three-state Area	Michigan, Minnesota, and Wisconsin combined
Tobacco Abuse	The use of commercial tobacco products (*N. tobacum*) for recreational purposes. Most surveys do not distinguish between traditional use by Native people and tobacco abuse
Women, Infants, and Children (WIC) Program Participants	Those eligible for WIC services, including pregnant or postpartum women, infants, and children up to age five. They must meet income guidelines, have state residency, and determined to be at "nutritional risk" by a health professional. Income must be no more than 185% of the poverty level.

Appendix F

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