Community Health Data Profile: Minnesota, Wisconsin, and Michigan Tribal Communities 2008

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Great Lakes Inter-Tribal Epidemiology Center: Project Mission and Service Areas

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

Bois Forte Band	Prairie Island Sioux Tribe
Fond du Lac Tribe	Red Lake Nation
Grand Portage Band	Shakopee Mdewakanton Tribe
Greater Leech Lake Band of Ojibwe	Upper Sioux Community
Lower Sioux Indian Community	White Earth Tribe
Mille Lacs Band	

Bad River Tribe	Oneida Nation
Forest County Potawatomi	Red Cliff Tribe
Ho-Chunk Nation	Sokaogon Chippewa Tribe
Lac Courte Oreilles Tribe	St Croix Tribe
Lac du Flambeau Tribe	Stockbridge-Munsee Tribe
Menominee Nation	

Bay Mills Indian Community	Little River Band of Ottawa Indians
Grand Traverse Band of Ottawa/Chippewa	Little Traverse Bay Bands of Odawa Indians
Hannahville Indian Community	Match-e-be-nash-she-wish Band
Huron Potawatomi (Nottawaseppi)	Pokagon Band of Potawatomi Indians
Keweenaw Bay Indian Community	Saginaw Chippewa Indian Community
Lac Vieux Desert Tribe	Sault Ste Marie Tribe

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Introduction

The Great Lakes Inter-Tribal Epidemiology Center (Epi Center) has been producing this annual report of health and health-related population measures for Tribal communities in Minnesota, Wisconsin, and Michigan for over ten years. During this time, both external forces and internal organizational changes have made it challenging for us to further develop the report and tailor it to meet the specific needs of your community and other communities we serve. However, our main mission remains the same: to support Tribal communities in their efforts to improve health and well-being by assisting with data needs through partnership development, community-based research, education, and technical assistance.

Because we recognize that resources such as time and staff availability may hinder the formation of sustained collaborations between Tribes and the Epi Center, we try to achieve some of our goals regarding data and data needs by providing this annual report. The specific objectives of the three-state community health profile are: 1) to provide an accurate and comprehensive report of the health status of American Indians in the three-state area, 2) to encourage use of quantitative health data to reduce and/or mitigate the effects of health disparities, and 3) to encourage reporting of important health and health-related population measures at local levels.

Data needs vary from Tribe to Tribe and can depend on multiple factors, including funding, government relationships, or perceived health risks. It is difficult to meet these needs with a single report; therefore, the Epi Center, per request of Tribal Health Directors or other Tribal leaders, also produces Tribe-specific community health profiles. Together, the three-state and Tribe-specific community health profiles will provide information necessary for community health assessments, program development, planning, and evaluation, resource allocation, and as supporting evidence for grant applications.

The Great Lakes Inter-Tribal Epidemiology Center takes great pride in having the opportunity to work with Tribes in Minnesota, Wisconsin, and Michigan, and we hope our work can contribute to the development of high quality, effective, and efficient local health care delivery systems. We recognize the challenges created when working with limited and temporary resources, but are confident in our ability to overcome these challenges in order to make lasting changes through the promotion of self-determination and our attention and dedication toward capacity building.

The Epi Center welcomes and encourages feedback regarding the type of information you would like to see in future reports, and any formatting issues that might make it easier for you to use the report. Please complete and return the evaluation form at the end of this report. Additionally, if you have questions about any part of the report, please feel free to call one of our staff members directly. All contact information is available in Appendix A. We look forward to working with you and making communities healthier throughout Indian country.

Sincerely - Great Lakes Inter-Tribal Epidemiology Center Staff

Did You Know….

That Great Lakes Inter-Tribal Epidemiology Center (GLITEC) is one of 12 Tribal Epidemiology Centers nation-wide who are authorized through the Indian Health Care Improvement Act of 1996 to provide data collection, analysis and reporting services to Tribal health programs in each of the identified Indian Health Service Areas;

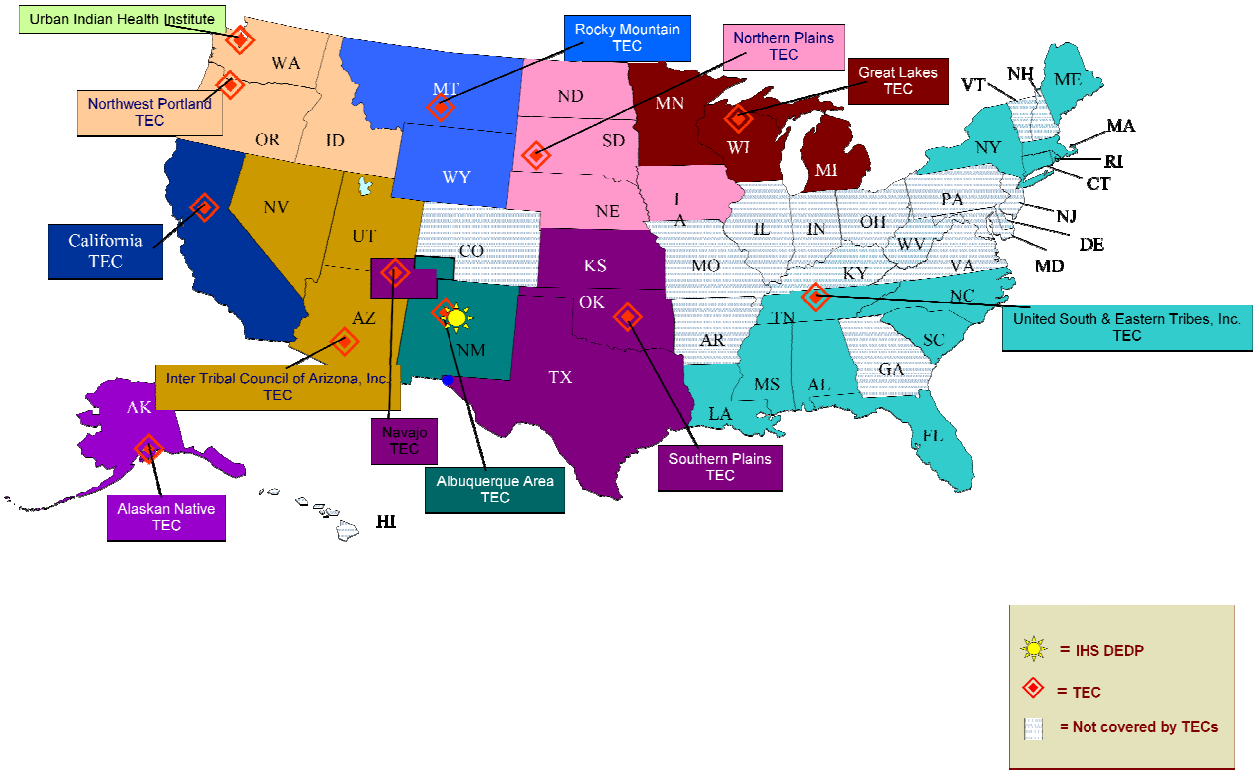
That GLITEC was one of the first Tribal Epidemiology Centers to be established;

That Tribal Epidemiology Centers are asked to help build Tribal capacity to improve data quality and use data in health care program decisions;

That GLITEC is funded to support activities with Bemidji Area Tribes, Service Units and Urban Programs to reduce the cost to the Tribes for data improvement;

That GLITEC is committed to reducing the burden of health disparities experienced by American Indian/Alaska Native communities through data accuracy, security and advocacy; and

That GLITEC is ready to hear from *you* to provide feedback and ideas in order to better serve our Native communities.



About this Report

The Community Health Data Profile is an aggregate report of mostly cost free, publicly available and accessible health and disease information. The Epi Center uses this data and data from other sources, such as state health departments and Indian Health Service, in order to provide a broad overview of the state of health and disease for Tribal communities in Minnesota, Wisconsin, and Michigan. We hope that by tracking trends for important indicators of health and disease, we can also track trends for progress and improvement, thereby helping communities focus on specific health goals.

There are some important issues to keep in mind while reading and using the report. First, the classification of people into racial groups can be faulty and inaccurate. Therefore, when comparing rates of certain indicators among American Indians and Alaska Natives and the general all races population, one should use the information to grasp an overall understanding of distribution and burden instead of direct relationships between health indicators and health outcomes. Second, it is difficult to obtain common-source data. That is, there is a lack of standardization throughout Tribal communities and even local and state governments that makes it impossible to decide whether or not each group is counting or measuring the same thing (for example, deaths due to cancer). Lastly, aside from confidence intervals provided in the mortality and behavioral health sections, there is no formal statistical test of difference done within groups from year to year and between groups. Thus, though rates may be different, this could have happened by chance, or because of data collection errors. Additionally, even when differences are statistically significant, they can be accounted for by things such as increased screening or better data management.

Please note that the document, “Bemidji Area Trends in Indian Health,” from the Indian Health Service, only includes American Indian/Alaska Native people living within an Indian Health Service Contract Health Service Delivery Area (IHS CHSDA). The numbers cited in this report include all American Indian and Alaska Native people with county of residence within the boundaries of Michigan, Minnesota, and Wisconsin regardless of that county being in an IHS CHSDA. Therefore, direct comparisons between these two documents are not possible, but could be used together for the most complete information.

Definitions

Actual Deaths	Total deaths during defined time period among residents of defined area
Age-Adjusted Rates	Standardized death rates 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 and 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 2 years of age: weight-for-length greater than or equal to the 95th percentile For children 2 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.

Chapter 1

Demographics

Historically, general health status of a defined group has been linked to various demographic indicators. These indicators help health professionals identify groups of people, or subpopulations, for targeted health interventions to promote health and prevent disease. For example, American Indian/Alaska Native people in the United States are affected with diabetes at a much higher rate than other groups (Asians, White/Caucasians). 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 Indians/Alaska Natives living in Minnesota, Wisconsin, and Michigan. 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 Minnesota, Wisconsin, and Michigan. 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 on the following page displays counts of people who identify themselves as a single race and those who identify themselves as two or more races. *While Michigan has the highest number of people who are American Indian/Alaska Native, Minnesota has the highest percent of people who are American Indian/Alaska Native.*

Table 1.1b on the following page displays counts of people who identify themselves as a single race and those who identify themselves as a combination of races. Therefore, some people are counted twice. For example, 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. Thus state percentages for combined race categories will exceed 100%.

Table 1.1a- 2006 Population by Single Self-Identified Race

Area	Total	American Indian/Alaska Native Alone		White Alone		African American Alone		Asian Alone		Native Hawaiian and Other Pacific Islander Alone		Two or More Races	
		#	%	#	%	#	%	#	%	#	%	#	%
Michigan	10,095,643	60,820	.60	8,198,927	81.21	1,444,451	14.31	237,389	2.35	3,757	.04	150,299	1.49
Minnesota	5,167,101	60,491	1.17	4,615,613	89.33	231,053	4.47	181,065	3.50	2,766	.05	76,113	1.47
Wisconsin	5,556,506	51,937	.93	4,999,679	89.98	332,296	5.98	111,057	2.00	2,128	.04	59,409	1.07
Three-state Area	20,819,250	173,248	.83	17,814,219	85.57	2,007,800	9.64	529,511	2.54	8,651	.04	285,821	1.37

Adapted from: U.S. Census Bureau, Population Division, July 1, 2006 Estimates

Table 1.1b- 2006 Population by Single and in Combination Self-Identified Race

Area	American Indian/Alaska Native Alone or In Combination		White Alone or in Combination		African American Alone or in Combination		Asian Alone or in Combination		Native Hawaiian and Other Pacific Islander Alone or in Combination	
	#	%*	#	%*	#	%*	#	%*	#	%*
Michigan	122,254	1.21	8,334,225	82.55	1,518,332	15.04	271,840	2.69	8,438	.08
Minnesota	83,947	1.62	4,684,534	90.66	268,943	5.20	203,028	3.93	6,722	.13
Wisconsin	72,351	1.30	5,054,009	90.96	361,640	6.51	126,135	2.27	4,876	.09
Three-state Area	278,552	1.34	18,072,768	86.81	2,148,915	10.32	601,003	2.89	20,036	.10

Adapted from: U.S. Census Bureau, Population Division, July 1, 2006 Estimates
**Percentages are calculated using population totals from Table 1.1a and will exceed 100%*

1.2 Gender and Age

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 general all races population within the three-state area and within each individual state. The largest difference in percentages occurs in the 5-14 years age group and the 15-24 years age group. This information is presented in Tables 1.2a-d and illustrated in Figures 1.2a-d on pages 28 through 35.

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

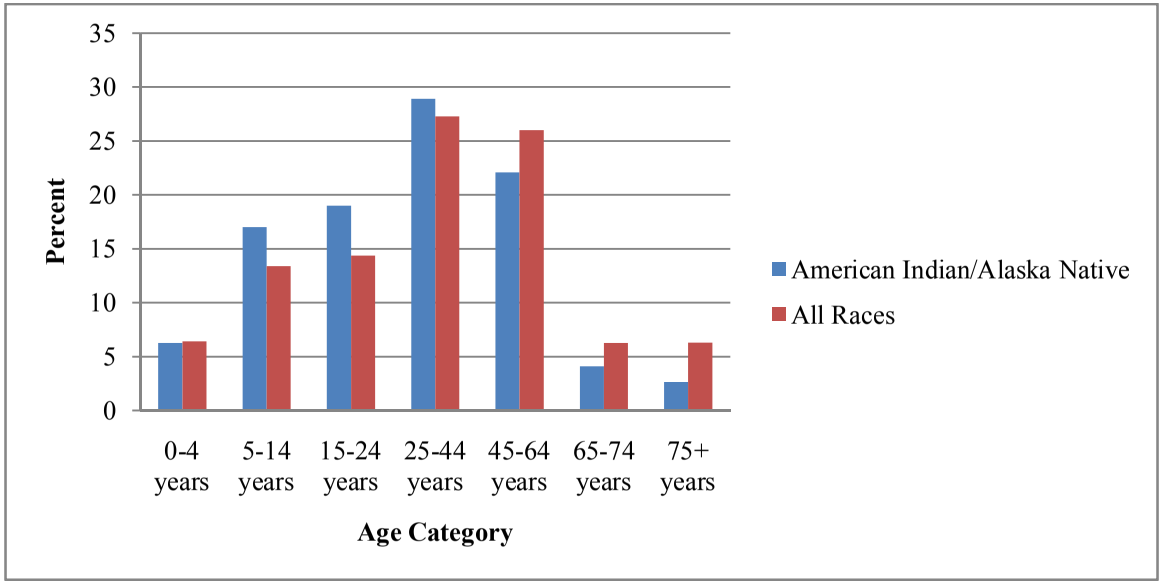
Although the difference between age curves in the American Indian/Alaska Native and all races population was not tested for statistical significance, it is most pronounced in Minnesota (see Figure 1.2c on page 32). One implication of this may be increasing the percentage of funds reserved for programs for teens and young adults in the American Indian/Alaska Native population.

Table 1.2a- 2006 Three-state Area American Indian/Alaska Native and All Race Population by Gender and Age Category

	American Indian/Alaska Native Alone or in Combination*						All Races					
	Males		Females		Total		Males		Females		Total	
Age Group	#	%	#	%	#	%	#	%	#	%	#	%
0-4 years	8,822	6.40	8,604	6.10	17,426	6.25	681,477	6.62	650,732	6.19	1,332,209	6.40
5-14 years	24,000	17.40	23,439	16.63	47,439	17.01	1,426,337	13.85	1,360,197	12.93	2,786,534	13.40
15-24 years	27,006	19.58	25,981	18.43	52,987	19.00	1,532,613	14.88	1,460,287	13.88	2,992,900	14.38
25-44 years	40,524	29.38	40,088	28.44	80,612	28.90	2,874,485	27.91	2,804,822	26.66	5,679,307	27.28
45-64 years	29,508	21.39	32,136	22.79	61,644	22.10	2,680,118	26.02	2,735,890	26.01	5,416,008	26.01
65-74 years	5,239	3.80	6,202	4.40	11,441	4.10	608,148	5.90	697,690	6.63	1,305,838	6.27
75+ years	2,829	2.05	4,529	3.21	7,358	2.64	496,325	4.82	810,129	7.70	1,306,454	6.28
All ages	137,928	100	140,979	100	278,907	100	10,299,503	100	10,519,747	100	20,819,250	100

Adapted from: U.S. Census Bureau, Population Division, July 1, 2006 Estimates
**All ages total does not match total in Table 1.1b because different estimation methods were used*

Figure 1.2a- 2006 Three-state Area American Indian/Alaska Native and All Race Population by Age Category and Percent of Respective Populations



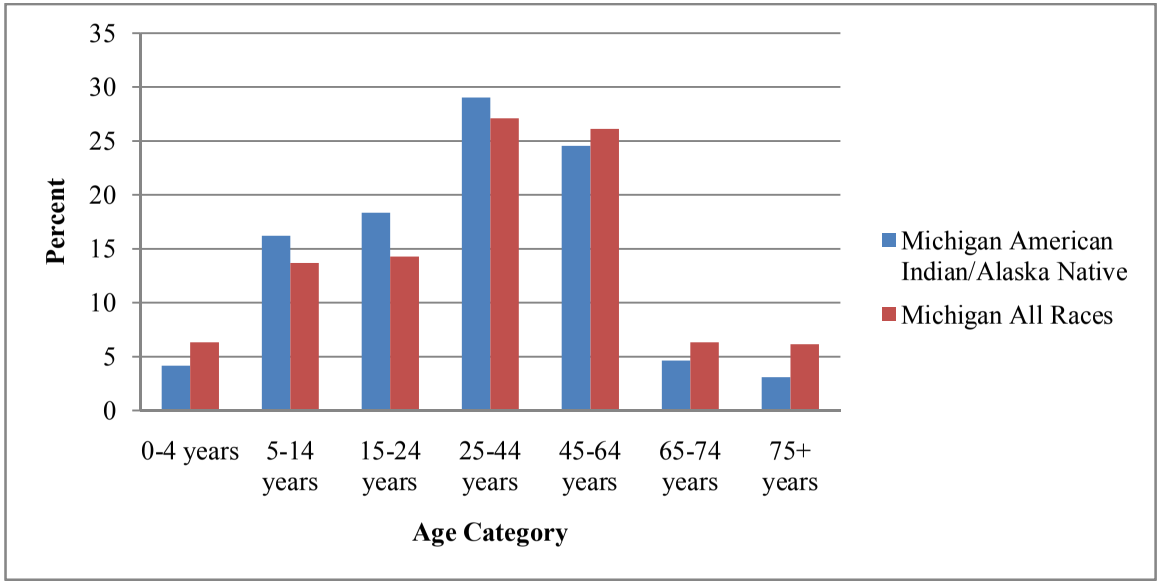
Adapted from: U.S. Census Bureau, Population Division, July 1, 2006 Estimates

Table 1.2b- 2006 Michigan American Indian/Alaska Native and All Race Population by Gender and Age Category

		American Indian/Alaska Native Alone or in Combination						All Races					
		Males		Females		Total		Males		Females		Total	
Area	Age Group	#	%	#	%	#	%	#	%	#	%	#	%
Michigan	0-4 years	2,588	4.29	2,511	4.04	5,099	4.16	327,030	6.58	311,165	6.07	638,195	6.32
	5-14 years	9,948	16.50	9,889	15.90	19,837	16.20	706,956	14.23	674,516	13.16	1,381,472	13.68
	15-24 years	11,384	18.89	11,093	17.84	22,477	18.35	738,181	14.85	703,331	13.72	1,441,512	14.28
	25-44 years	17,939	29.76	17,602	28.30	35,541	29.02	1,373,690	27.64	1,361,421	26.56	2,735,111	27.09
	45-64 years	14,344	23.80	15,731	25.29	30,075	24.56	1,293,085	26.02	1,345,404	26.25	2,638,489	26.13
	65-74 years	2,612	4.33	3,068	4.93	5,680	4.64	294,836	5.93	344,671	6.72	639,507	6.33
	75+ years	1,465	2.43	2,302	3.70	3,767	3.08	235,914	4.75	385,443	7.52	621,357	6.15
	All ages	60,280	100	62,196	100	122,476	100	4,969,692	100	5,125,951	100	10,095,643	100

Adapted from: U.S. Census Bureau, Population Division, July 1, 2006 Estimates
**All ages total does not match total in Table 1.1b because different estimation methods were used*

Figure 1.2b- 2006 Michigan American Indian/Alaska Native and All Race Population by Age Category and Percent of Respective Populations



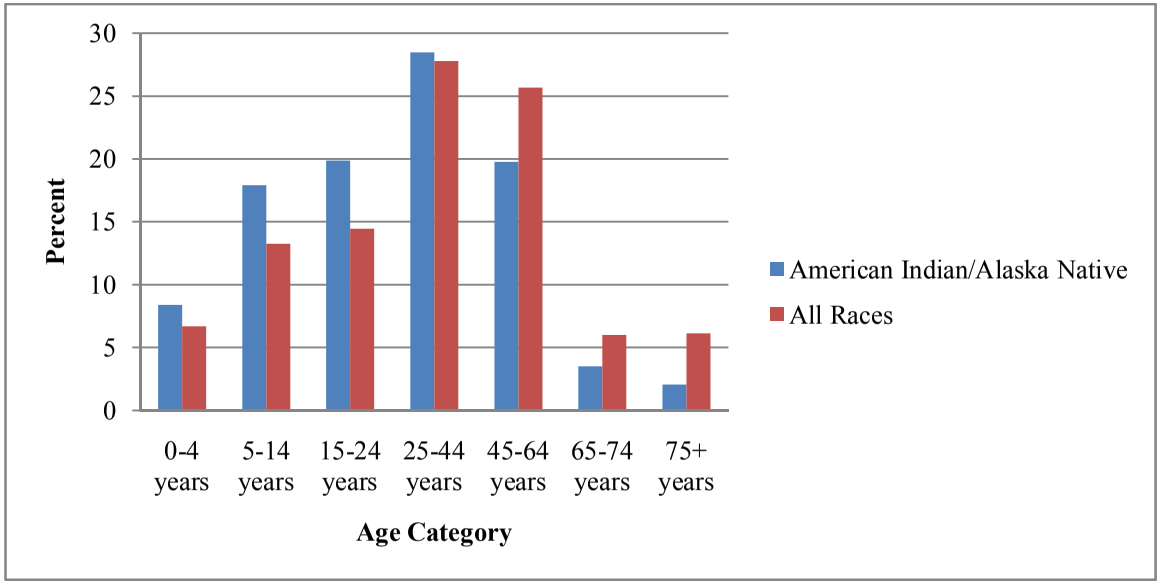
Adapted from: U.S. Census Bureau, Population Division, July 1, 2006 Estimates

Table 1.2c- 2006 Minnesota American Indian/Alaska Native and All Race Population by Gender and Age Category

		American Indian/Alaska Native Alone or in Combination						All Races					
		Males		Females		Total		Males		Females		Total	
Area	Age Group	#	%	#	%	#	%	#	%	#	%	#	%
Minnesota	0-4 years	3,575	8.64	3,455	8.17	7,030	8.40	176,160	6.86	169,090	6.51	345,250	6.68
	5-14 years	7,619	18.41	7,375	17.45	14,994	17.92	351,131	13.67	333,973	12.85	685,104	13.26
	15-24 years	8,370	20.22	8,259	19.54	16,629	19.88	380,771	14.82	365,883	14.08	746,654	14.45
	25-44 years	11,942	28.85	11,877	28.10	23,819	28.47	730,727	28.45	704,994	27.13	1,435,721	27.78
	45-64 years	7,881	19.04	8,658	20.48	16,539	19.77	663,163	25.82	663,815	25.55	1,326,978	25.68
	65-74 years	1,324	3.20	1,603	3.79	2,927	3.50	146,147	5.69	163,784	6.30	309,931	6.00
	75+ years	682	1.65	1,047	2.47	1,729	2.07	120,770	4.70	196,693	7.57	317,463	6.14
	All ages	41,393	100	42,274	100	83,667	100	2,568,869	100	2,598,232	100	5,167,101	100

Adapted from: U.S. Census Bureau, Population Division, July 1, 2006 Estimates
**All ages total does not match total in Table 1.1b because different estimation methods were used*

Figure 1.2c- 2006 Minnesota American Indian/Alaska Native and All Race Population by Age Category and Percent of Respective Populations



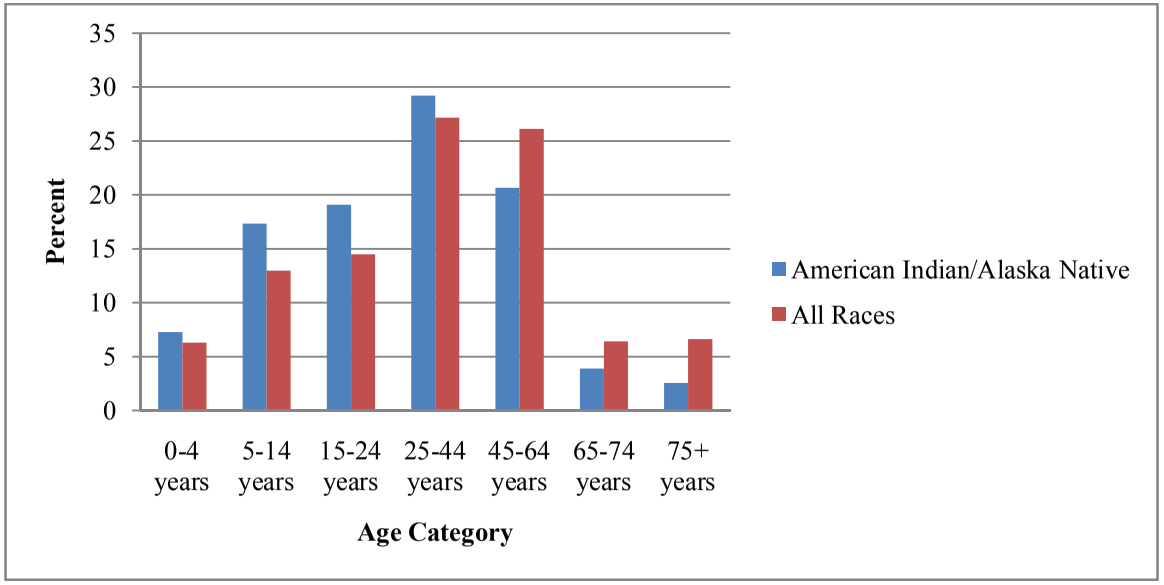
Adapted from: U.S. Census Bureau, Population Division, July 1, 2006 Estimates

Table 1.2d- 2006 Wisconsin American Indian/Alaska Native and All Race Population by Gender and Age Category

		American Indian/Alaska Native Alone or in Combination						All Races					
		Males		Females		Total		Males		Females		Total	
Area	Age Group	#	%	#	%	#	%	#	%	#	%	#	%
Wisconsin	0-4 years	2,659	7.33	2,638	7.23	5,297	7.28	178,287	6.46	170,477	6.10	348,764	6.28
	5-14 years	6,433	17.74	6,175	16.91	12,608	17.33	368,250	13.34	351,708	12.59	719,958	12.96
	15-24 years	7,252	20.00	6,629	18.16	13,881	19.08	413,661	14.98	391,073	13.99	804,734	14.48
	25-44 years	10,643	29.36	10,609	29.06	21,252	29.21	770,068	27.89	738,407	26.41	1,508,475	27.15
	45-64 years	7,283	20.09	7,747	21.22	15,030	20.66	723,870	26.22	726,671	25.99	1,450,541	26.11
	65-74 years	1,303	3.60	1,531	4.19	2,834	3.89	167,165	6.05	189,235	6.77	356,400	6.41
	75+ years	682	1.88	1,180	3.23	1,862	2.56	139,641	5.06	227,993	8.16	367,643	6.61
	All ages	36,255	100	36,509	100	72,764	100	2,760,942	100	2,795,564	100	5,556,506	100

Adapted from: U.S. Census Bureau, Population Division, July 1, 2006 Estimates
**All ages total does not match total in Table 1.1b because different estimation methods were used*

Figure 1.2d- 2006 Wisconsin American Indian/Alaska Native and All Race Population by Age Category and Percent of Respective Populations



Adapted from: U.S. Census Bureau, Population Division, July 1, 2006 Estimates

1.3 Socioeconomic Status

Often, the most influential factors associated with morbidity and mortality in a population can be those related to socioeconomic status, such as education level and income. This is true because these factors affect access to quality preventive and acute medical care, and are associated with risky health behaviors (such as smoking and unprotected sex), along with other aspects of overall health.

Although some research indicates that differences in health status between minority groups and non-Hispanic Whites remain after adjusting for these variables, this only strengthens the argument that there is a crucial 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, specifically American Indians/Alaska Natives.

Education

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

This suggests that the general population in Michigan, Minnesota, and Wisconsin is more likely to go to college and have complete degrees thereafter when compared to American Indians/Alaska Natives. Education level has been linked to rates for cancer screenings, such as the prostate-specific antigen (PSA) test for prostate cancer, and the Papanicalaou (PAP smear) test for cervical cancer. Further information for educational attainment is summarized in Table 1.3a on page 38.

Employment

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

Because health insurance in the United States is commonly provided through employment (U.S. Census Bureau), having a job may be an important aspect of maintaining overall health. People who are insured usually have more 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 shows that a higher percentage of American Indian/Alaska Native households, in the three-state area and in individual states, have a combined income that is less than $35,000, when compared to the all races households.

In 1999 in Michigan, Minnesota, and Wisconsin, 52.9%, 42%, and 47% respectively, of American Indian/Alaska Native households earn more than $35,000 per year, compared to 61.2%, 64.1%, and 61.1% of the all races households. According to poverty status indicators and household incomes from 1999, 22% of American Indians/Alaska Natives live below the poverty limit compared to only 9.4% of the all races population in the three-state area. Again, like with employment and household income, the greatest disparity between American Indians/Alaska Natives and the all races population occurs in Minnesota. Table 1.3b on page 39 gives more information about poverty status among populations in each of the three-states.

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.

Census information shows that 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 Indians and Alaska Natives when compared to the all races population. The percentages of single male American Indian and Alaska Native heads-of-households increased in all areas from 1990 to 2000. This information is summarized in table 1.3c on page 40.

Table 1.3a- 2000 Educational Attainment (by Percent) for Adults 25 Years and Older for American Indian/Alaska Native and All Races Population in the Three-state Area, Michigan, Minnesota, and Wisconsin

	Three-state Area		Michigan		Minnesota		Wisconsin	
Educational Attainment	**American Indian/ Alaska Native**	**All Races**	**American Indian/ Alaska Native**	**All Races**	**American Indian/ Alaska Native**	**All Races**	**American Indian/ Alaska Native**	**All Races**
Less than 9th grade	6.54	5.01	6.63	4.66	7.44	5.02	5.56	5.35
9th -12th grade, no diploma	17.41	9.51	17.01	11.93	18.09	7.03	17.13	9.56
High school diploma or GED	33.40	31.59	32.07	31.34	32.17	28.84	35.97	34.58
Some college, no degree	26.03	22.63	26.83	23.33	27.23	23.99	24.02	20.56
Associate degree	6.77	7.39	7.13	6.98	6.26	7.68	6.91	7.50
Bachelor's degree	6.82	16.03	7.41	13.70	6.10	19.13	6.94	15.26
Graduate or professional degree	3.04	7.85	2.93	8.07	2.71	8.31	3.47	7.16
High School diploma or higher	76.06	85.49	76.36	83.41	74.47	87.95	77.31	85.09
Bachelor's degree or higher	9.86	23.88	10.34	21.77	8.81	27.44	10.41	22.42

Adapted from: U.S. Census Bureau, 2000 Summary File 3 (SF-3)

Table 1.3b- 1999 Poverty Status (by Percent) for American Indian/Alaska Native and All Races Households in the Three-state Area, Michigan, Minnesota, and Wisconsin

		Three-state Area		Michigan		Minnesota		Wisconsin	
Poverty Status	**Age Group**	**American Indian/Alaska Native**	**All Races**	**American Indian/Alaska Native**	**All Races**	**American Indian/Alaska Native**	**All Races**	**American Indian/Alaska Native**	**All Races**
Below Poverty		22.1	9.4	16.8	10.5	28.6	7.9	21.7	8.7
	5 years and under	30.5	13.6	22.2	15.5	38.7	10.6	30.6	12.9
	6-17 years	25.9	11.4	18.7	13.1	33.3	9.2	25.4	10.4
	18-64 years	19.4	8.5	15.3	9.6	25.1	7.2	18.7	7.9
	65 years and over	18.4	8.0	17.1	8.2	20.7	8.2	18.2	7.4
At or Above Poverty		77.9	90.6	83.2	89.5	71.4	92.1	78.3	91.3

Adapted from: U.S. Census Bureau, 2000 Summary File 3 (SF-3)

Table 1.3c- 1990-2000 Single Parent-Headed Households for American Indian/Alaska Native and All Race Population

Household Characteristics by Area	American Indian/Alaska Native		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 Area	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 Area	4.1	5.3	1.3	2.0

Adapted from: U.S. Census Bureau, 1990 and 2000 Summary File 3 (SF-3)

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 due to a certain disease, such as heart disease, AIDS, or cancer, provides information about how mortality rates change over time. It also shows whether they are different from other subpopulations, and whether or not health systems are using appropriate methods to reduce preventable deaths.

All data presented in this section come from the Michigan Department of Community Health, the Minnesota Center for Health Statistics, and the Wisconsin Bureau of Health Information. Information comes from death certificates. Underlying causes of death, secondary causes of death, and contributing factors of death are not taken into consideration when compiling this report. There is one notable issue regarding mortality data for American Indians/Alaska Natives. Racial misclassification occurs when a medical professional did not correctly identify the race of the deceased. When IHS examined this issue they found that 16% of American Indian deaths were misclassified. These reasons, and others not mentioned, justify the need for data collection at local levels. This will eliminate some of the errors that occur in the translation of information multiple times, by different people, in different work settings.

Appendix B on page 88 lists the ICD-9 and ICD-10 codes used for categorizing the underlying causes of death.

2.1 Crude Death Rates for Selected Causes

Similar to the general U.S. population, the top two causes of death for American Indians/Alaska Natives in the three-state area are heart disease and cancer. Unintentional injury, diabetes, chronic lower respiratory disease, heart disease and cancer make up the five top causes of deaths for American Indians/Alaska Natives, which account for almost 60% of all deaths. This number has fluctuated only slightly throughout the years, but changes may be due to a number of factors, including those related to data collection. Therefore, changes in the information reported may not always be due to inherent changes in the population itself.

Table 2.1- 2006 Selected Causes of Death for American Indians/Alaska Natives in Michigan, Minnesota, Wisconsin, and Three-state Area

		Three-state Area		Michigan		Minnesota		Wisconsin	
Cause of Death		#	%	#	%	#	%	#	%
Heart Disease		260	22.3	127	26.9	74	18.6	59	19.7
	Ischemic Heart Disease	163	14.0	92	19.5	57	14.4	14	4.7
Cancer		233	19.9	101	21.4	65	16.4	67	22.4
	Lung Cancer	74	6.3	33	7.0	24	6.0	17	5.7
Unintentional Injury		124	10.6	25	5.3	60	15.1	39	13.0
	Motor Vehicle Accidents	48	4.1	8	1.7	21	5.3	19	6.4
Diabetes		73	6.3	32	6.8	24	6.0	17	5.7
Chronic Lower Respiratory Disease		50	4.3	27	5.7	9	2.3	14	4.7
Sub-total		740	63.4	312	66.1	232	58.4	254	84.9
Total Deaths (All Causes)		1,168	100.0	472	100.0	397	100.0	299	100.0

Sources: 2002-2006 Mortality Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information

2.2 Age-Adjusted All Causes Mortality

American Indians and Alaska Natives living in the three-state area die at a disproportionately higher rate when compared to the all races population. Again, like with other indicators of health in the population, Minnesota has the most pronounced disparity. The table on the next page summarizes age-adjusted all cause mortality rates for Minnesota, Wisconsin, and Michigan. In all three states, the rate for the all races population is either lower or only slightly higher than the all races U.S. population, while the American Indian and Alaska Native rate is a lot higher than the all races U.S. population.

Table 2.2- All Causes Age-Adjusted Mortality Rates, 2002-2006 (per 100,000)

Race and Location	Number of Deaths	Population	Age-Adjusted Mortality Rate	95% Confidence Interval
AI/AN Michigan	2,112	364,495	989.30	947.11, 1031.49
All Races Michigan	428,530	5,0431,936	849.72	830.14, 835.03
AI/AN Minnesota	1,928	320,106	1095.68	1046.78, 1144.59
All Races Minnesota	187,513	2,5427,157	703.45	700.26, 706.63
AI/AN Wisconsin	1,544	272,626	989.90	940.52, 1039.27
All Races Wisconsin	231,016	27,543,714	766.79	763.66, 769.92
AI/AN Three-state Area	5,584	957,227	1023.42	996.58, 1050.27
All Races Three-state Area	847,059	103,402,807	783.71	782.04, 785.38
All Races HP 2010 Goal			N/A	
All Races U.S. 2005			825.9	

Sources: 2002-2006 Mortality Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information; National Data from National Center for Health Statistics; Healthy People 2010 *from Department of Health and Human Services*

2.3 Age-Adjusted Death Rates for Selected Causes

The tables in this section present information about the age-adjusted death rates for selected causes for American Indians and Alaska Natives and the all races population in each of the three states and the three-state area. *For all the major causes of death, American Indians and Alaska Natives die at a higher rate. American Indians and Alaska Natives in Minnesota die from unintentional injury at a rate that is almost three times higher than that for the all races population. Additionally, Minnesota is consistently the state with the highest disparity; that is, the difference between age-adjusted rates for American Indians/Alaska Natives and the all races population is the largest.*

Table 2.3a- All Heart Disease Age-Adjusted Mortality Rates, 2002-2006 (per 100,000)

Race and Location	Number of Deaths	Population	Age-Adjusted Mortality Rate	95% Confidence Interval
AI/AN Michigan	524	364,495	267.01	244.15, 289.87
All Races Michigan	125,043	5,0431,936	241.83	240.49, 243.17
AI/AN Minnesota	330	320,106	219.14	195.49, 242.78
All Races Minnesota	40,058	2,5427,157	147.78	146.33, 149.22
AI/AN Wisconsin	300	272,626	217.85	193.20, 242.50
All Races Wisconsin	60,425	27,543,714	197.04	195.47, 198.61
AI/AN Three-state Area	1,154	957,227	239.46	225.64, 253.28
All Races Three-state Area	225,526	103,402,807	206.46	205.61, 207.31
All Races HP 2010 Goal	--	--	N/A	--
All Races U.S. 2004			222.2	

Sources: 2002-2006 Mortality Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information; National Data from National Center for Health Statistics; Healthy People 2010 from Department of Health and Human Services

Table 2.3b- Ischemic Heart Disease Age-Adjusted Mortality Rates, 2002-2006 (per 100,000)

Race and Location	Number of Deaths	Population	Age-Adjusted Mortality Rate	95% Confidence Interval
AI/AN Michigan	397	364,495	205.16	184.98, 225.34
All Races Michigan	88,556	5,0431,936	171.23	170.11, 172.36
AI/AN Minnesota	225	320,106	150.75	131.05, 170.45
All Races Minnesota	24,788	2,5427,157	92.32	91.17, 93.47
AI/AN Wisconsin	215	272,626	155.97	135.13, 176.82
All Races Wisconsin	18,101	27,543,714	129.01	127.13, 130.89
AI/AN Three-state Area	837	957,227	175.69	163.79, 187.59
All Races Three-state Area	131,445	103,402,807	140.18	139.42, 140.93
All Races HP 2010 Goal	--	--	166.00	--
All Races U.S. 2004			153.7	

Sources: 2002-2006 Mortality Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information; National Data from National Center for Health Statistics; Healthy People 2010 from Department of Health and Human Services

Table 2.3c- Stroke Age-Adjusted Mortality Rates, 2002-2006 (per 100,000)

Race and Location	Number of Deaths	Population	Age-Adjusted Mortality Rate	95% Confidence Interval
AI/AN Michigan	92	364,495	51.97	41.35, 62.59
All Races Michigan	25,986	5,0431,936	50.41	49.80, 51.03
AI/AN Minnesota	77	320,106	61.38	47.67, 75.09
All Races Minnesota	12,374	2,5427,157	45.36	44.56, 46.16
AI/AN Wisconsin	61	272,626	46.89	35.13, 58.66
All Races Wisconsin	15,508	27,543,714	50.18	49.39, 50.97
AI/AN Three-state Area	230	957,227	53.21	46.34, 60.09
All Races Three-state Area	53,868	103,402,807	49.16	48.74, 49.57
All Races HP 2010 Goal	--	--	48.00	--
All Races U.S. 2004			51.1	

Sources: 2002-2006 Mortality Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information; National Data from National Center for Health Statistics; Healthy People 2010 from Department of Health and Human Services

Table 2.3d- All Cancer Age-Adjusted Mortality Rates, 2002-2006 (per 100,000)

Race and Location	Number of Deaths	Population	Age-Adjusted Mortality Rate	95% Confidence Interval
AI/AN Michigan	478	364,495	217.22	197.75, 236.69
All Races Michigan	70,411	5,0431,936	136.38	135.37, 137.39
AI/AN Minnesota	336	320,106	212.80	190.04, 235.55
All Races Minnesota	45,367	2,5427,157	176.45	174.82, 178.07
AI/AN Wisconsin	300	272,626	202.78	179.83, 225.72
All Races Wisconsin	54,069	27,543,714	183.80	182.25, 185.35
AI/AN Three-state Area	1,114	957,227	211.62	199.19, 224.04
All Races Three-state Area	169,847	103,402,807	159.03	158.27, 159.78
All Races HP 2010 Goal	--	--	159.90	--
All Races U.S. 2003			188.6	

Sources: 2002-2006 Mortality Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information; National Data from National Center for Health Statistics; Healthy People 2010 from Department of Health and Human Services

Table 2.3e- Lung Cancer Age-Adjusted Mortality Rates, 2002-2006 (per 100,000)

Race and Location	Number of Deaths	Population	Age-Adjusted Mortality Rate	95% Confidence Interval
AI/AN Michigan	172	364,495	79.00	67.20, 90.81
All Races Michigan	28,773	5,0431,936	55.93	55.28, 56.58
AI/AN Minnesota	116	320,106	74.40	60.86, 87.94
All Races Minnesota	11,606	2,5427,157	45.99	45.16, 46.83
AI/AN Wisconsin	91	272,626	61.65	48.98, 74.32
All Races Wisconsin	14,107	27,543,714	48.48	47.68, 49.28
AI/AN Three-state Area	379	957,227	72.61	65.30, 79.92
All Races Three-state Area	54,486	103,402,807	51.53	51.09, 51.96
All Races HP 2010 Goal	--	--	44.90	--
All Races U.S. 2003			53.8	

Sources: 2002-2006 Mortality Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information; National Data from National Center for Health Statistics; Healthy People 2010 *from Department of Health and Human Services*

Table 2.3f- All Unintentional Injury Age-Adjusted Mortality Rates, 2002-2006 (per 100,000)

Race and Location	Number of Deaths	Population	Age-Adjusted Mortality Rate	95% Confidence Interval
AI/AN Michigan	143	364,495	42.18	35.26, 49.09
All Races Michigan	20,104	5,0431,936	39.66	39.12, 40.21
AI/AN Minnesota	320	320,106	109.37	97.39, 121.35
All Races Minnesota	10,152	2,5427,157	38.44	37.70, 39.19
AI/AN Wisconsin	159	272,626	64.34	54.34, 74.35
All Races Wisconsin	11,798	27,543,714	40.64	39.90, 41.37
AI/AN Three-state Area	622	957,227	70.01	64.51, 75.51
All Races Three-state Area	42,054	103,402,807	39.73	39.35, 40.11
All Races HP 2010 Goal	--	--	17.50	--
All Races U.S. 2003			38.1	

Sources: 2002-2006 Mortality Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information; National Data from National Center for Health Statistics; Healthy People 2010 from Department of Health and Human Services

Table 2.3g- All Motor Vehicle Accidents Age-Adjusted Mortality Rates, 2002-2006 (per 100,000)

Race and Location	Number of Deaths	Population	Age-Adjusted Mortality Rate	95% Confidence Interval
AI/AN Michigan	73	364,495	20.44	15.75, 25.13
All Races Michigan	6,952	5,0431,936	13.70	13.38, 14.03
AI/AN Minnesota	117	320,106	38.78	31.76, 45.81
All Races Minnesota	3,387	2,5427,157	13.17	12.72, 13.61
AI/AN Wisconsin	86	272,626	28.93	22.81, 35.04
All Races Wisconsin	4,110	27,543,714	14.65	14.21, 15.10
AI/AN Three-state Area	276	957,227	28.72	25.33, 32.10
All Races Three-state Area	14,449	103,402,807	13.82	13.60, 14.05
All Races HP 2010 Goal	--	--	9.20	--
All Races U.S. 2003			15.3	

Sources: 2002-2006 Mortality Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information; National Data from National Center for Health Statistics; Healthy People 2010 from Department of Health and Human Services

Table 2.3h- Chronic Lower Respiratory Disease Age-Adjusted Mortality Rates, 2002-2006 (per 100,000)

Race and Location	Number of Deaths	Population	Age-Adjusted Mortality Rate	95% Confidence Interval
AI/AN Michigan	129	364,495	67.66	55.99, 79.34
All Races Michigan	21,940	5,0431,936	43.00	42.43, 43.57
AI/AN Minnesota	60	320,106	44.92	33.55, 56.29
All Races Minnesota	9,369	2,5427,157	36.13	35.40, 36.87
AI/AN Wisconsin	72	272,626	55.17	42.43, 67.92
All Races Wisconsin	11,718	27,543,714	39.39	38.68, 40.11
AI/AN Three-state Area	261	957,227	57.33	50.38, 64.29
All Races Three-state Area	43,027	103,402,807	40.37	39.99, 40.75
All Races HP 2010 Goal	--	--	N/A*	--
All Races U.S. 2004			41.5	

Sources: 2002-2006 Mortality Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information; National Data from National Center for Health Statistics; 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 would be comparable to the data reported in this table.*

Table 2.3i- Diabetes Age-Adjusted Mortality Rates, 2002-2006 (per 100,000)

Race and Location	Number of Deaths	Population	Age-Adjusted Mortality Rate	95% Confidence Interval
AI/AN Michigan	130	364,495	62.51	51.77, 73.26
All Races Michigan	13,954	5,0431,936	27.12	26.67, 27.57
AI/AN Minnesota	130	320,106	90.35	74.82, 105.88
All Races Minnesota	6,135	2,5427,157	23.38	22.79, 23.96
AI/AN Wisconsin	99	272,626	66.94	53.75, 80.13
All Races Wisconsin	6,467	27,543,714	21.68	21.15, 22.20
AI/AN Three-state Area	359	957,227	71.74	64.32, 79.16
All Races Three-state Area	26,556	103,402,807	24.74	24.45, 25.04
All Races HP 2010 Goal	--	--	N/A*	--
All Races U.S. 2003			24.9	

Sources: 2002-2006 Mortality Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information; National Data from National Center for Health Statistics; Healthy People 2010 from Department of Health and Human Services

**The HP 2010 goal is for all diabetes-related deaths, which would not be comparable to the data provided in this table*

Chapter 3

Diabetes

Diabetes remains an important and pressing health issue for American Indians/Alaska Natives everywhere. It is a leading cause of death and 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 Indians/Alaska Natives when compared to the general population; the prevalence rate for American Indians/Alaska Natives from 1994 to 2002 increased from just under 12% to just under 16%, while the prevalence rate for the general population during the same time period was consistently under 8%. Information from 2006 shows that the Bemidji area has the fifth-highest rate when compared to the other 12 IHS service regions. In Tribal areas in Minnesota, Wisconsin, and Michigan in 2007, diabetes prevalence rates ranged from 2% of the IHS user population to 17% of the IHS user population, with central Wisconsin as the geographic area with the highest prevalence estimate.

The differences between these rates have implications for funding and program planning issues. 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 health clinics in the three-state area. *1,172 (2000), 1,213 (2001), 556 (2002), 1,307 (2003), 1,696 (2004), 2,000 (2005), 4,395 (2006), and 4,898 (2007) individuals were included in the Bemidji area audit files from 2000 to 2007, respectively.* Because there is no information for undiagnosed individuals or for American Indian/Alaska Native individuals who do not visit an IHS or Tribal facility, and there are incomplete and missing audits, the information reported is only a best-guess estimate of the actual measures in the population. However, studies have shown that these estimates are close to other diabetes prevalence studies reporting on American Indians/Alaska Natives.

3.1 Age

For the three-state area, the age group with the highest prevalence of diabetes was individuals ages 45 to 64 years. From 2000 to 2007, this number was relatively stable at around 50%. For the 15 to 44 years and the 65 years and older age groups, the estimated diabetes prevalence for those individuals included in the audits was around 25%.

Again, there was no change from year to year. When looking at Tribes in individual states, the age distribution for diagnosed diabetics remains very similar to that of the three-state

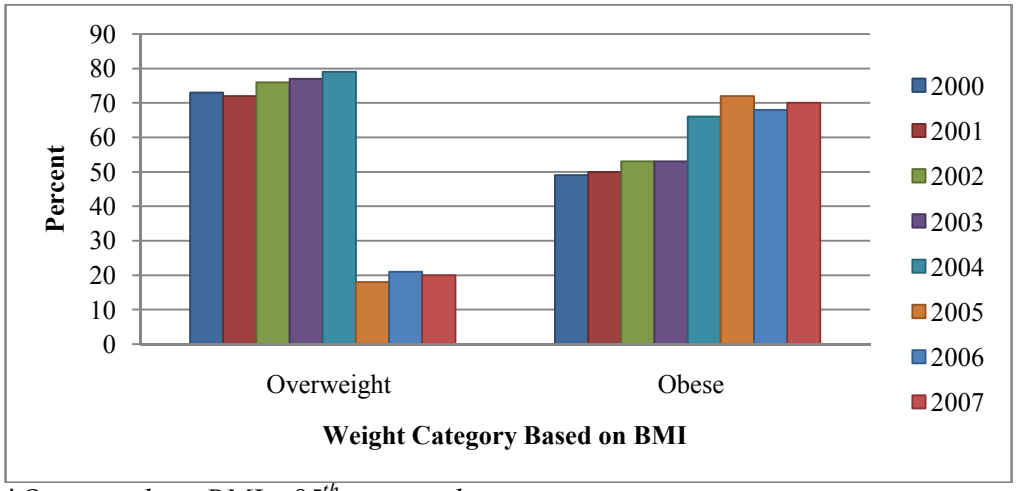
area. Although it has been noted that many Tribal health centers are diagnosing diabetes in children at younger ages, information submitted from charts that were audited does not support this claim, at least not at the state level.

3.2 Overweight and Obesity

Researchers agree that weight loss can reduce people's risk for developing non-fatal but costly and debilitating health problems like respiratory issues; chronic diseases such as diabetes, cardiovascular disease, or arthritis; and even some cancers. Both healthy weight management programs for adults and prevention programs targeting obesity in children are important for communities to be able to slow the rise of obesity within the population as a whole.

The percent of patients in Minnesota, Wisconsin, and Michigan in the diabetes audits who were overweight or obese in 2007 remains alarmingly high. Though there was a change in the BMI cut off and definitions for overweight versus obese people that might have affected the documented percent of overweight and obese people, the fact that there are relatively small percentages of people with normal or underweight BMIs is undisputable. As high as 90% of all the charts audited were for patients who were classified as overweight or obese, and this is true for individual states as well as the three-state area. Table 3.2 below presents the percentages for the three-state area.

Figure 3.2- 2000-2007 Overweight and Obesity in the Three-state Area



**Overweight is BMI >85th percentile*
**Obese is BMI >95% percentile*

3.3 Metabolic 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% to the final results. The recommended goal for the HbA1c test is less than 7%.

From 2000 to 2007, the percent of audited patient records with an HbA1c value less than 7% increased in all three states, while the percent of audited patient records with an HbA1c value greater than 9% decreased in Wisconsin only. This information suggests that although there is a trend toward having more of the patient population with recommended HbA1c levels, a lot of them are still testing at over 7%. Figures 3.3a - 3.3d below and on the following page presents the information discussed above.

Figure 3.3a- Three-state Area 2000-2007 Glycemic Control Measures

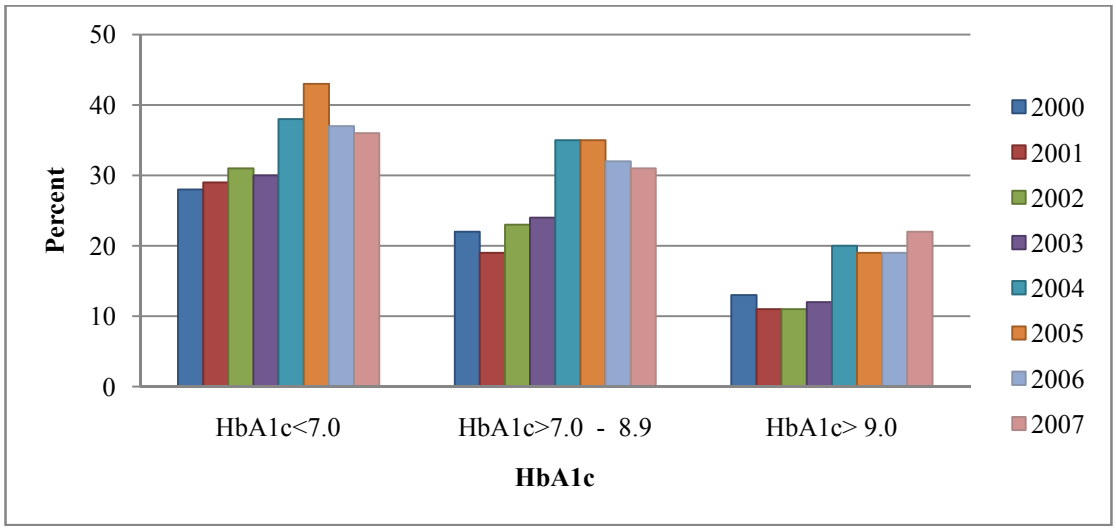


Figure 3.3b- Michigan 2000-2007 Glycemic Control Measures

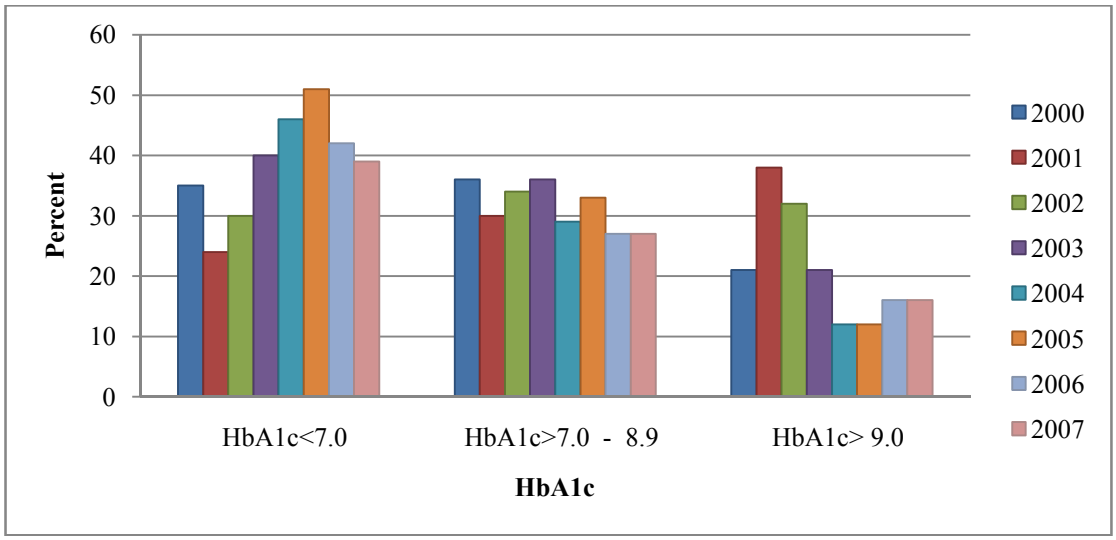


Figure 3.3c- Minnesota 2000-2007 Glycemic Control Measures

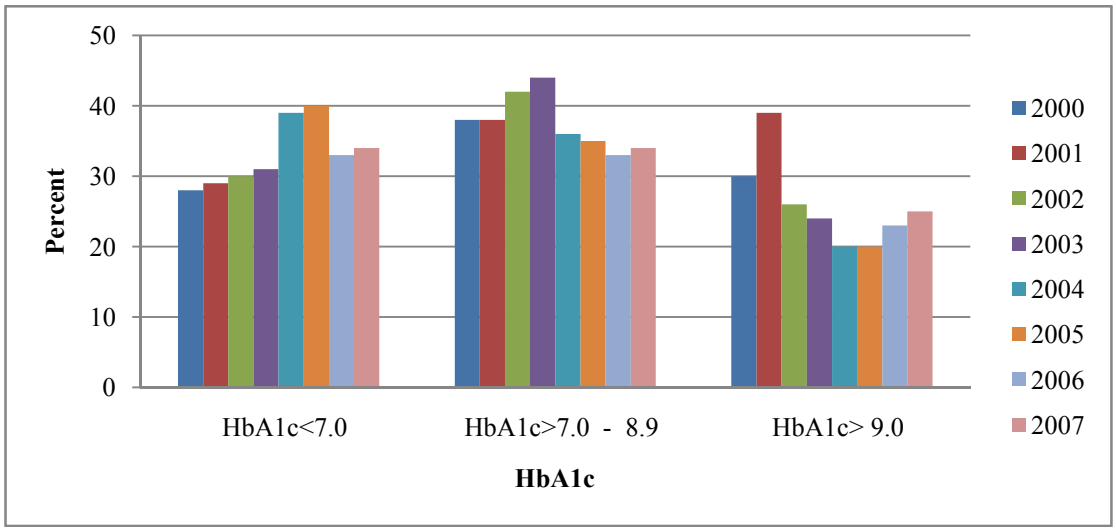
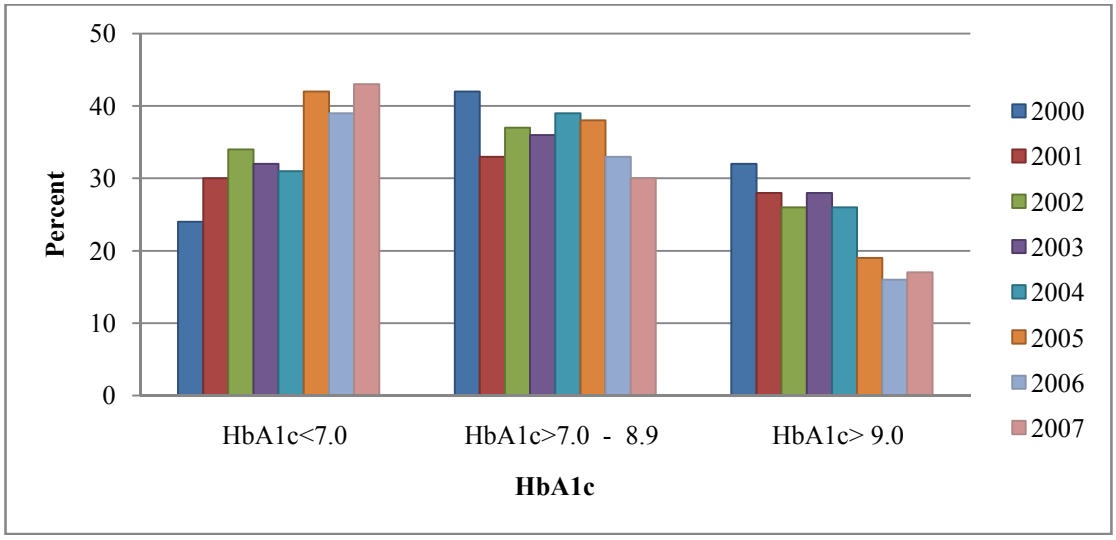


Figure 3.3d- Wisconsin 2000-2007 Glycemic Control Measures



3.4 Preventive Care

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 are administered each of these preventive care exams at least once a year.

Both foot and eye exam rates are relatively stable from 2000 to 2007 for the three-state area, with foot exam rates averaging around 55% and eye exam rates averaging around 45%. Although it is good that rates are not declining, they are still lower than the Healthy People 2010 goal of having 75% of patients report that they received these exams. All three states have very similar exam rates overall during the eight year period and also specifically from year to year.

3.5 Immunizations

Diabetic patients are also recommended to have flu and pneumovax vaccines in 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. *There seems to be increasing rates for each vaccine for each state, but there are higher rates for the pneumovax vaccine.* These trends are presented in Figures 3.5a - 3.5d below and on the following pages.

Figure 3.5a- Three-state Area 2000-2007 Immunizations

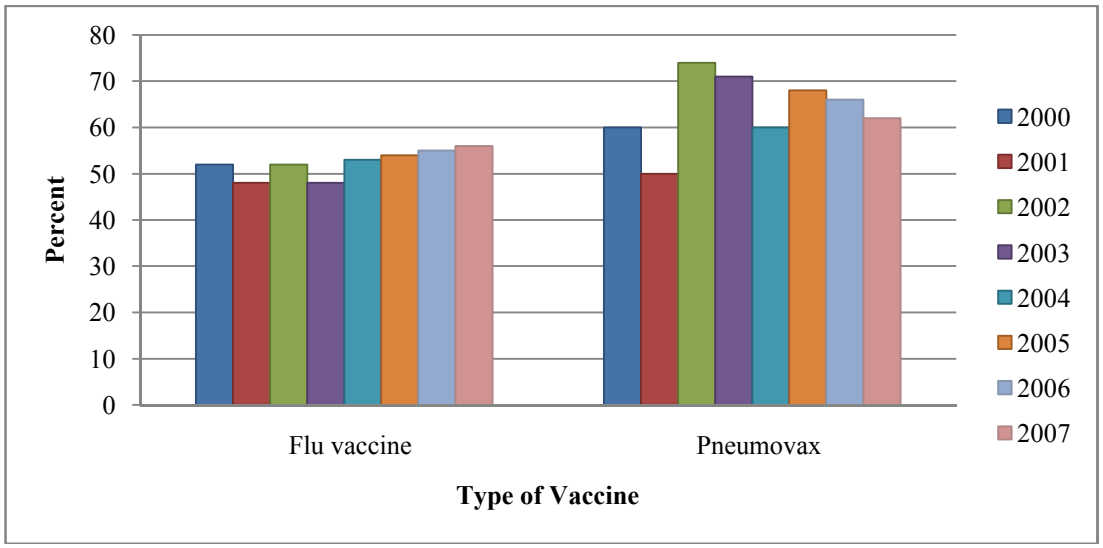


Figure 3.5b- Michigan 2000-2007 Immunizations

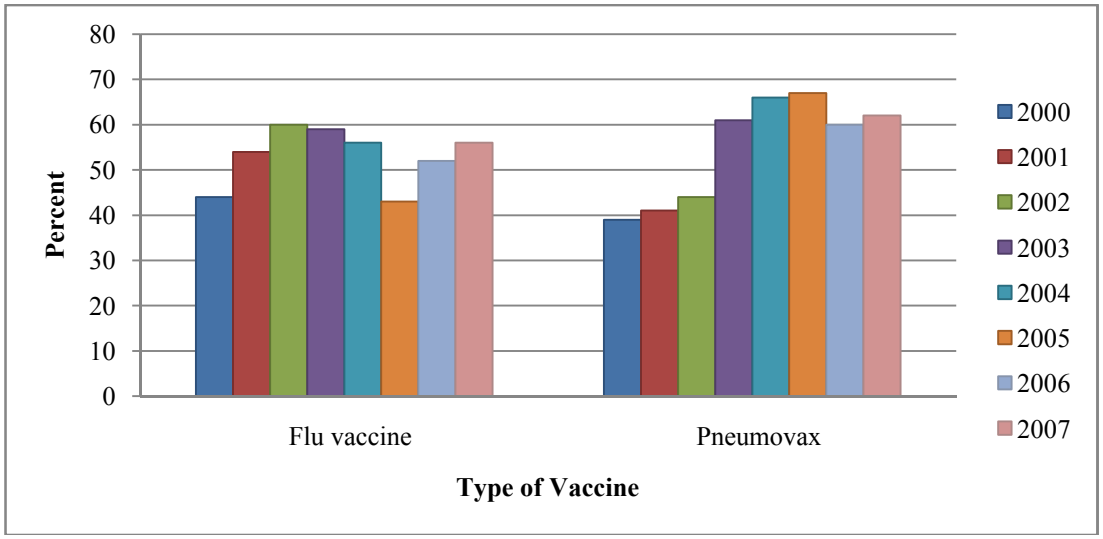


Figure 3.5c- Minnesota 2000-2007 Immunizations

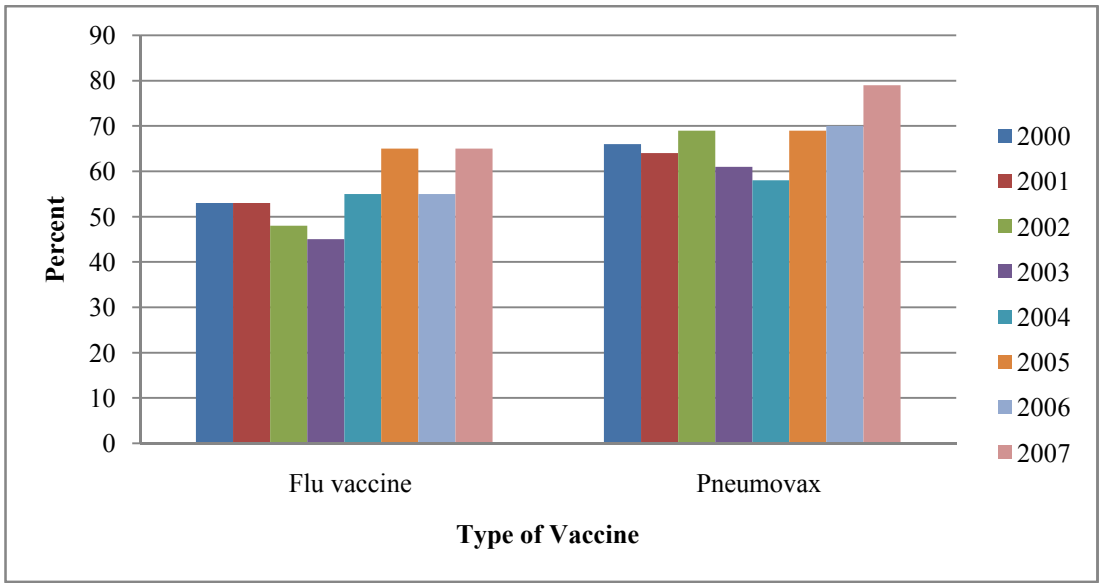
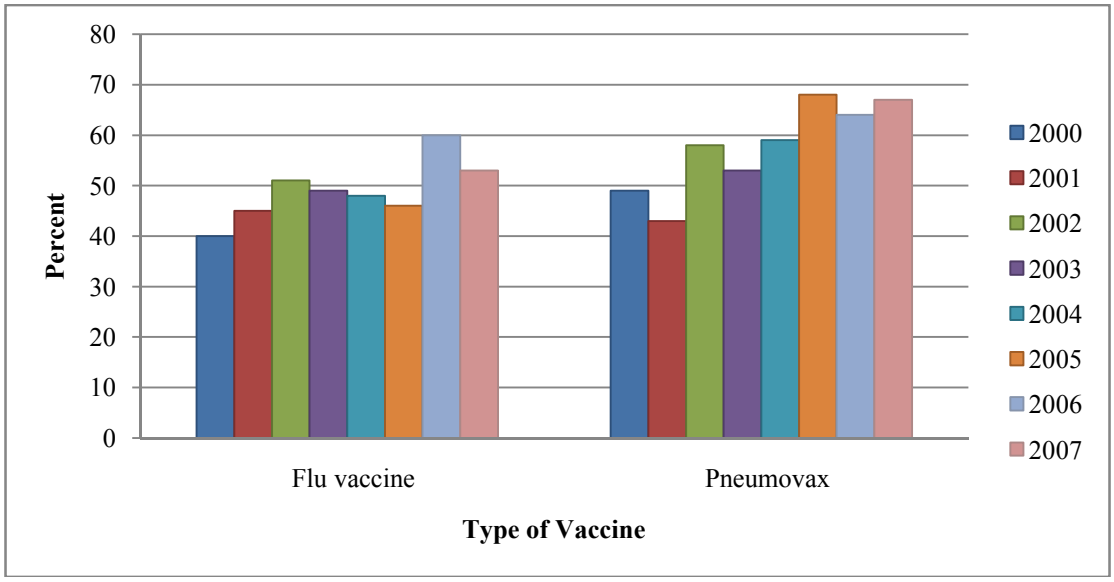


Figure 3.5d- Wisconsin 2000-2007 Immunizations



3.6 Diabetes Education

One of the most influential ways to prevent complications from diabetes is to educate patients about self care and disease management. Education programs cover topics such as diet, nutrition, and exercise, including interventions that may reduce weight. *Rates for diet and or nutrition instruction and exercise instruction are variable in Michigan, Minnesota, and Wisconsin. However, rates for diet and or nutrition instruction tend to be higher in each area.* Figures 3.6a - 3.6d show information recorded from the diabetes audits from 2000 to 2007 for the three-state area and each state.

Figure 3.6a- Three-state Area 2000-2007 Diabetes Education

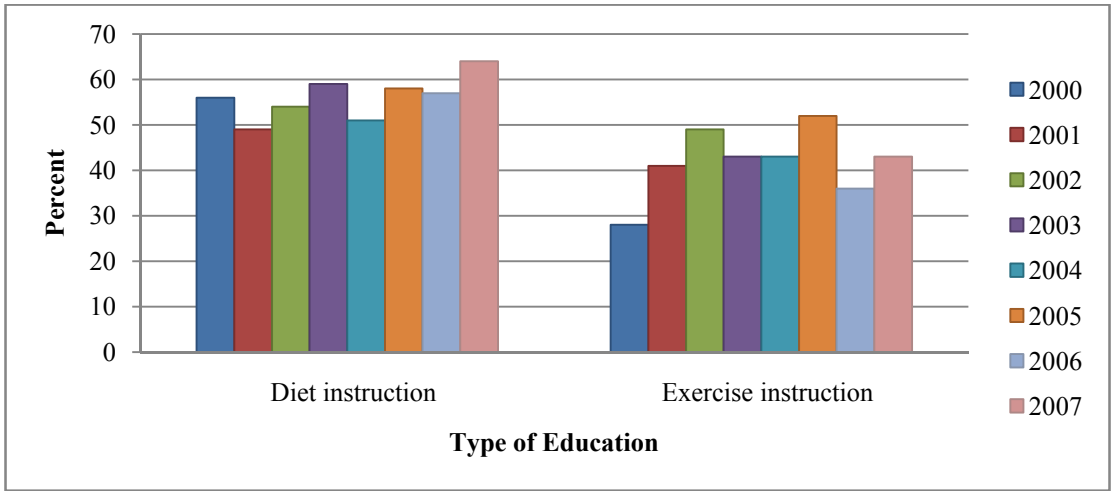


Figure 3.6b- Michigan 2000-2007 Diabetes Education

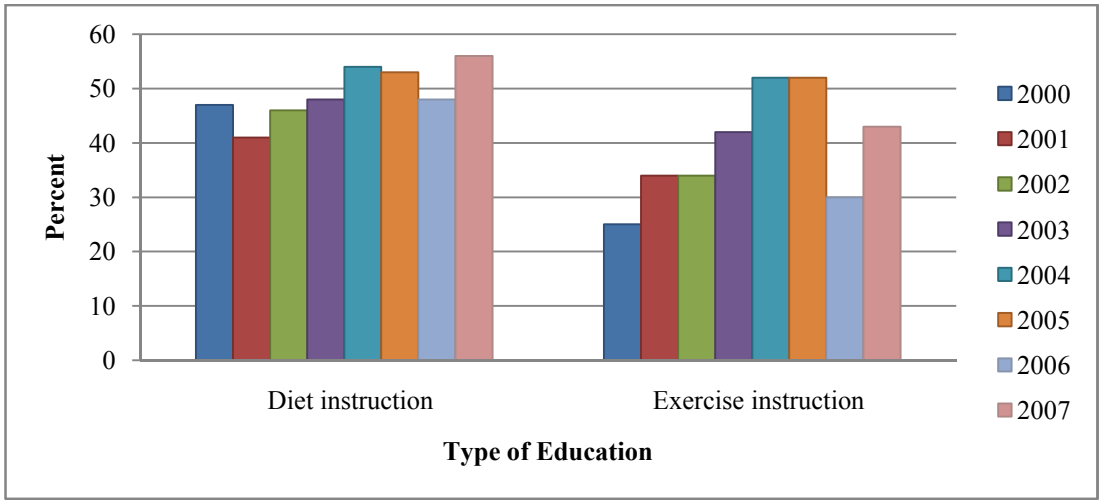


Figure 3.6c- Minnesota 2000-2007 Diabetes Education

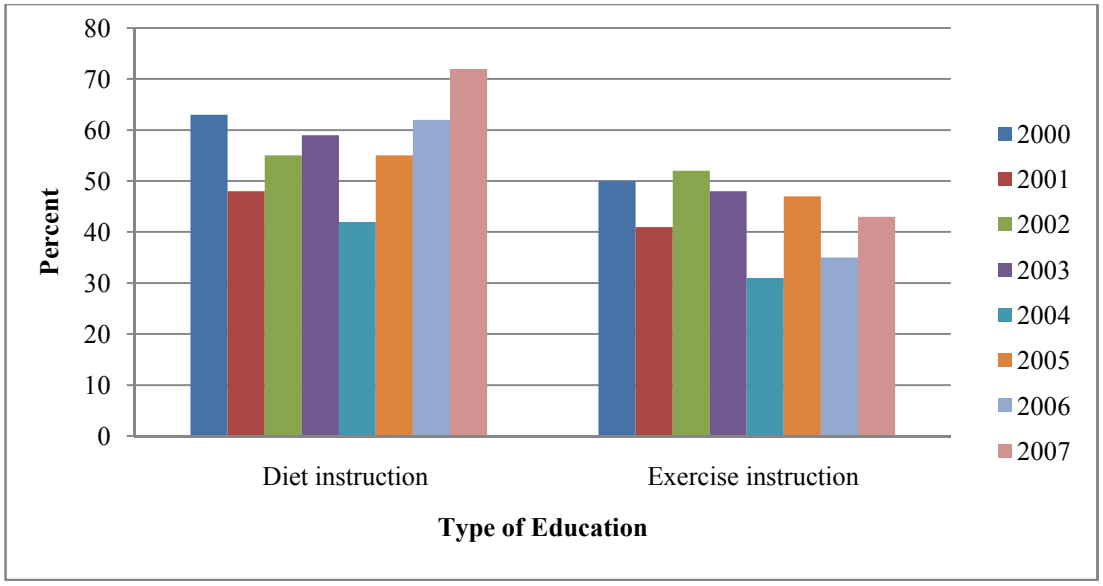
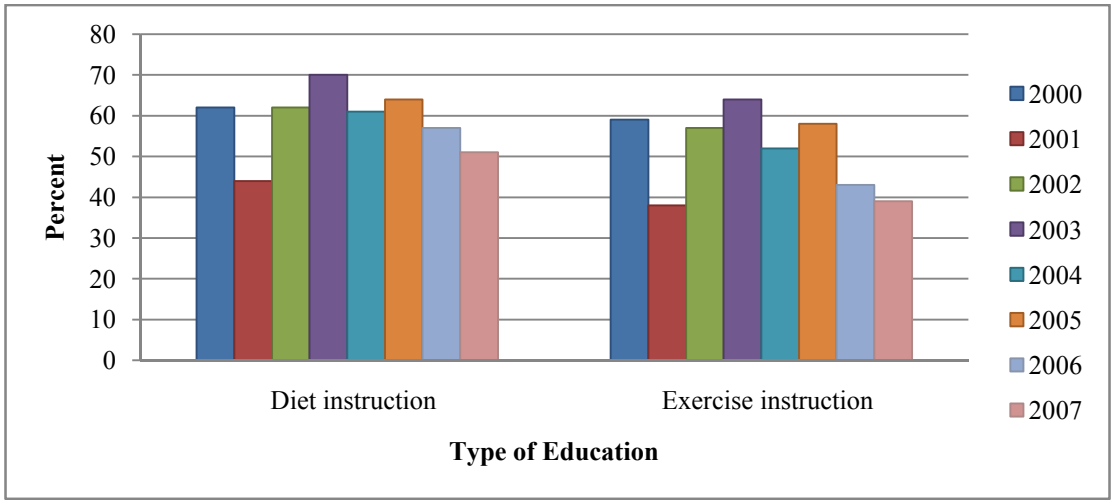


Figure 3.6d- Wisconsin 2000-2007 Diabetes Education



3.7 Assessment for Nephropathy

Screening for nephropathy (a progressive kidney disease) in diabetic patients in Tribal clinics includes a urinalysis (an examination of a sample of urine), and urine-creatinine ratio test (a more specific test to determine levels of protein in the urine). These measures should be obtained yearly; they help with early detection of kidney disease, therefore also preventing dialysis and other complications and controlling costs of management of diabetes.

For the three-state area, screening rates seem to be stable, but there are slightly higher percentages of patients being tested with the urine-creatinine ratio test than the general urinalysis. There is little difference in rates between states and there is no evidence of declining rate. Overall, tribal assessment for nephropathy is at an optimal level. This information is summarized in Figures 3.7a - 3.7d on the following pages.

Figure 3.7a- Three-state 2000-2007 Nephropathy Assessment

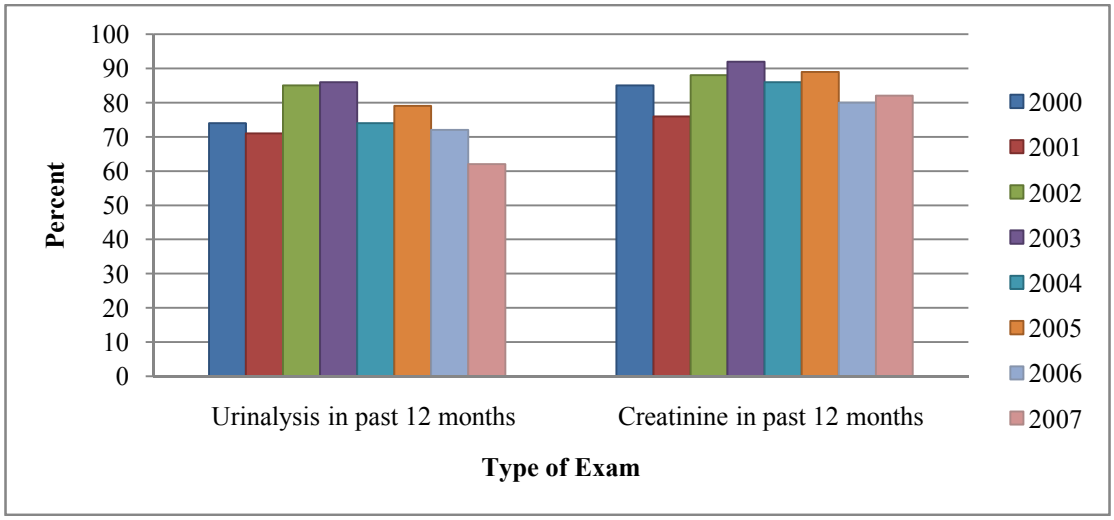


Figure 3.7b- Michigan 2000-2007 Nephropathy Assessment

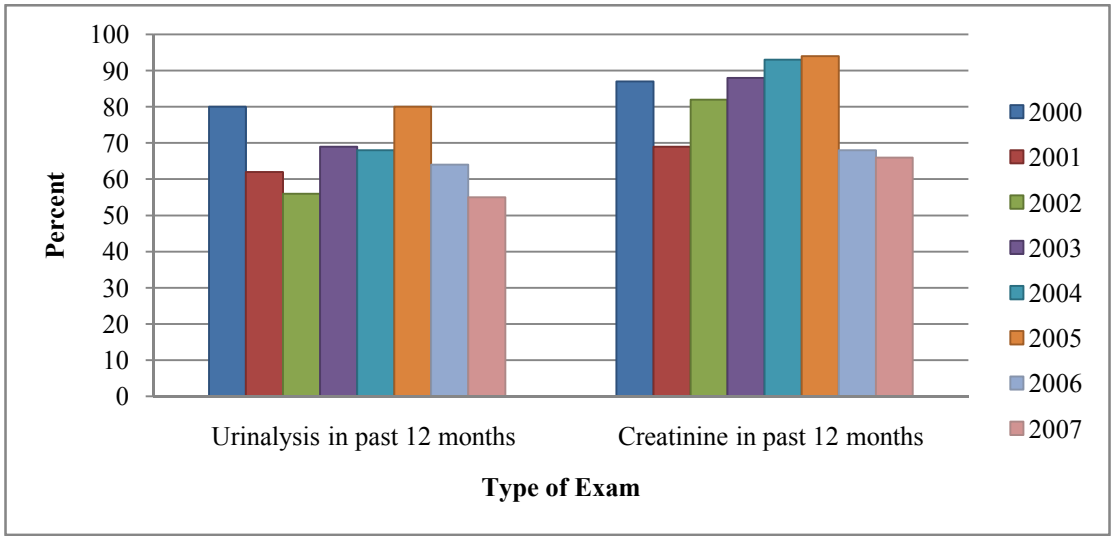


Figure 3.7c- Minnesota 2000-2007 Nephropathy Assessment

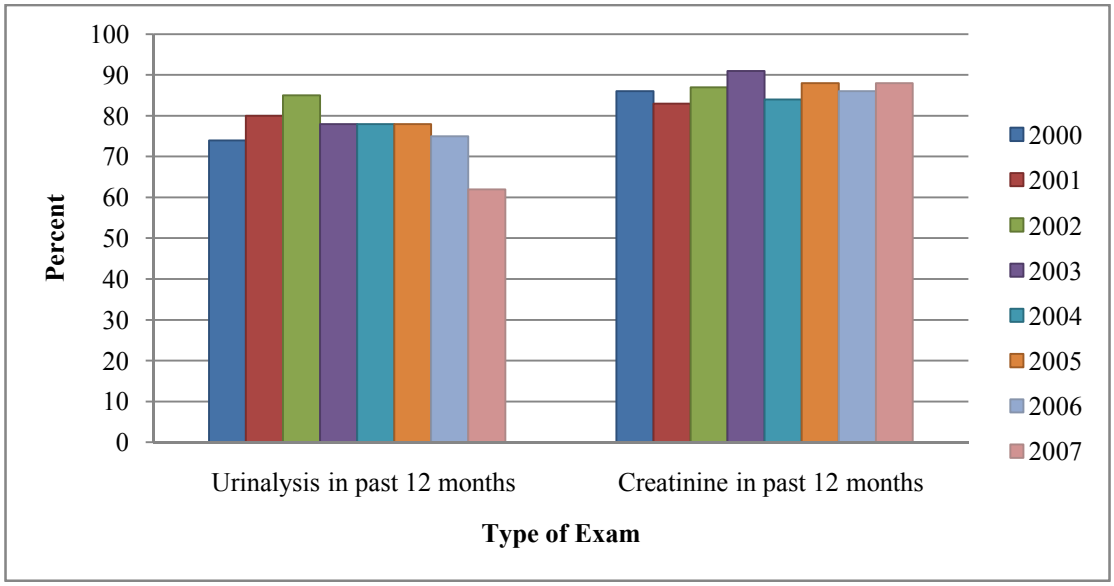
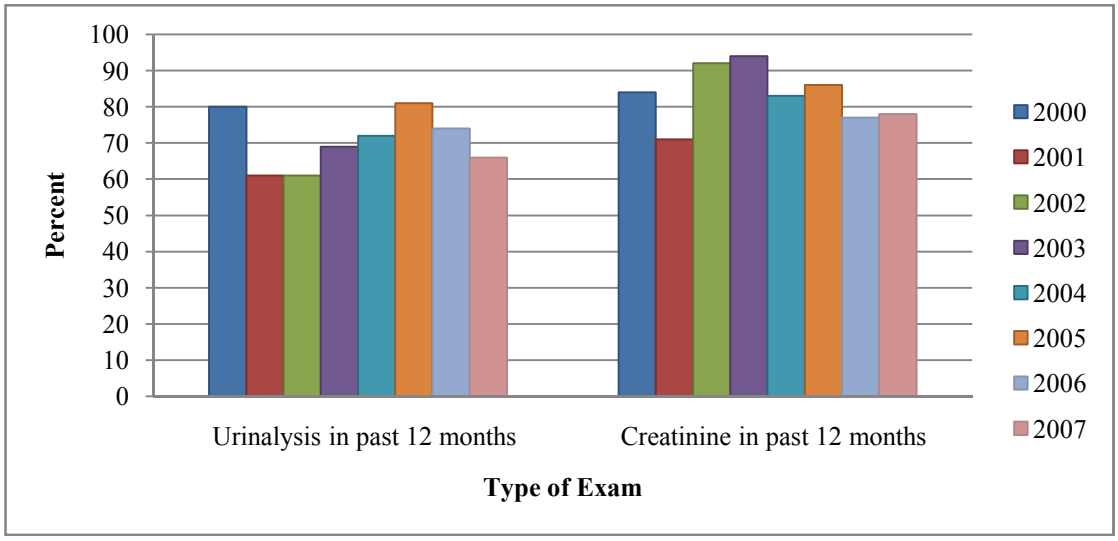


Figure 3.7d- Wisconsin 2000-2007 Nephropathy Assessment



3.8 Lipid Screening

As with other screening tests, lipid screening for diabetic patients is to be done at least once a year. Having a lipid level profile can help identify individuals at higher risk for cardiovascular disease, among other serious complications of diabetes. The standard lipid profile screening, or lipid panel, consists of a test for levels of total cholesterol, LDL cholesterol, HDL cholesterol, and triglycerides.

The percentage of diabetic patients included in the annual diabetes audit who received a lipid panel has been increasing steadily for all three states. Though there are slight differences between the proportions of patients receiving each kind of test, this disparity may be due to inconsistencies in recording patient information. State trends for lipid screenings are detailed below and on the following pages in Figures 3.8a - 3.8d.

Figure 3.8a- Three-state 2000-2007 Lipid Screening

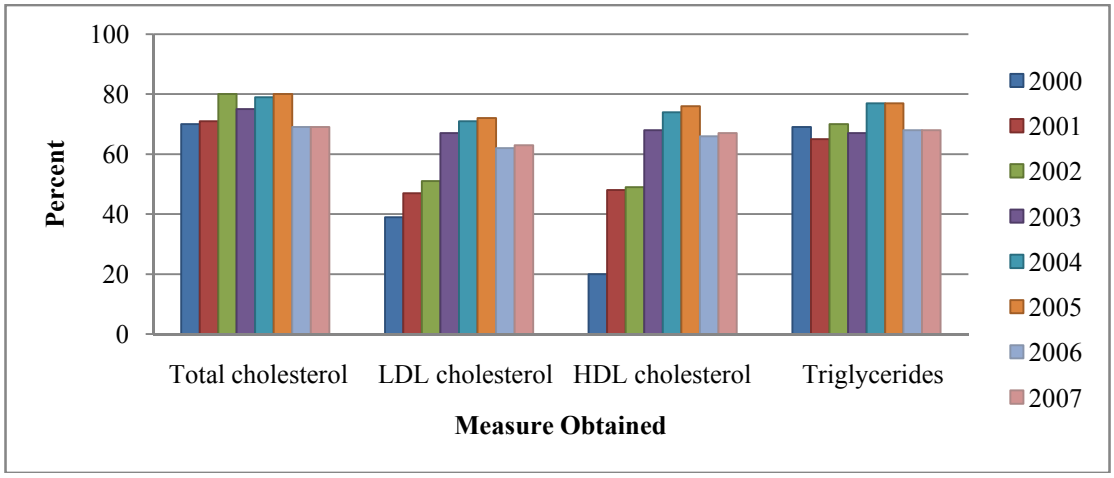


Figure 3.8b- Michigan 2000-2007 Lipid Screening

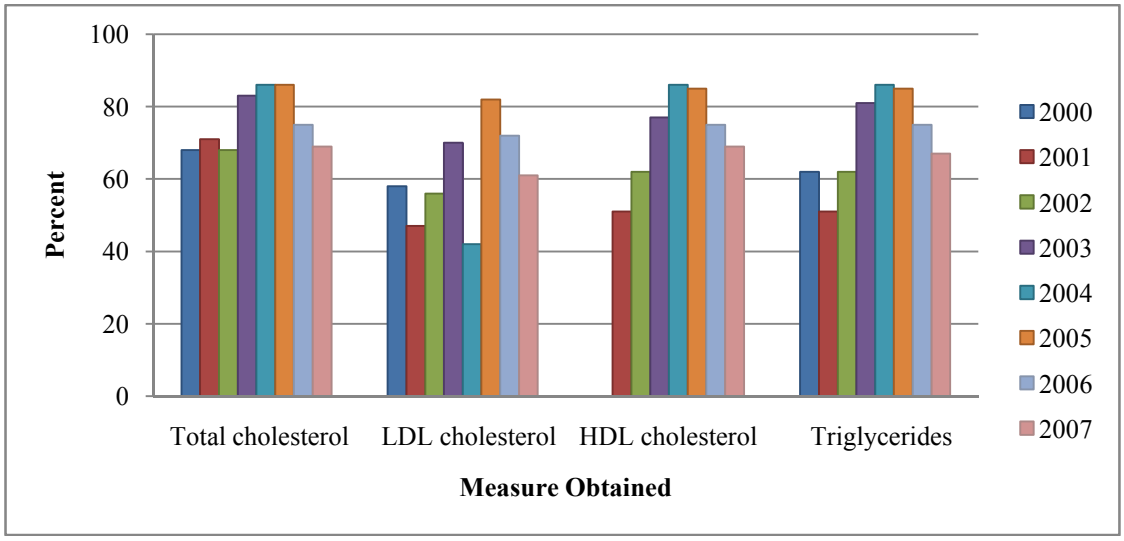


Figure 3.8c- Minnesota 2000-2007 Lipid Screening

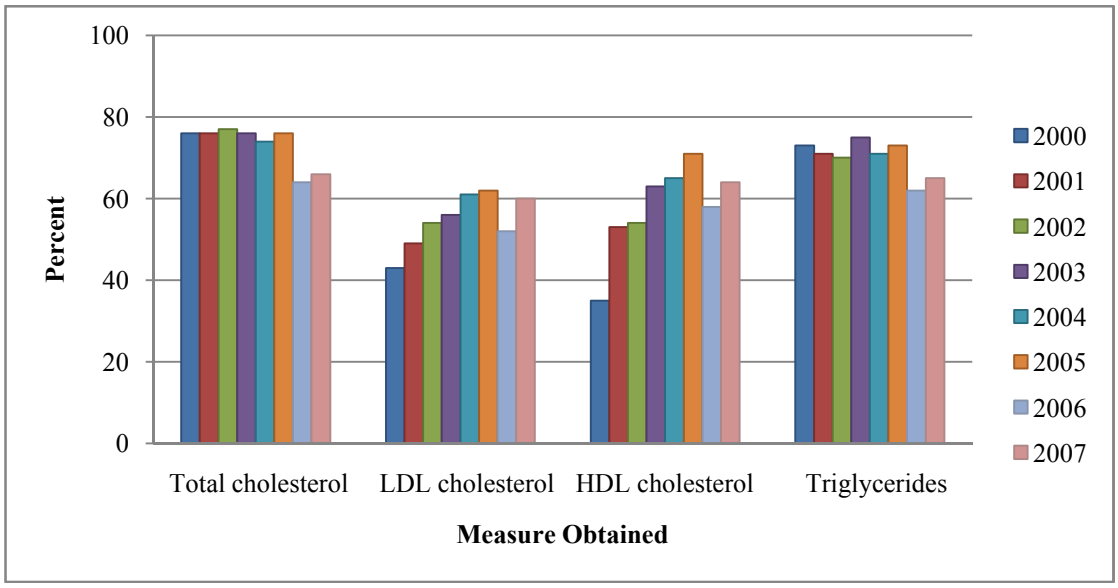
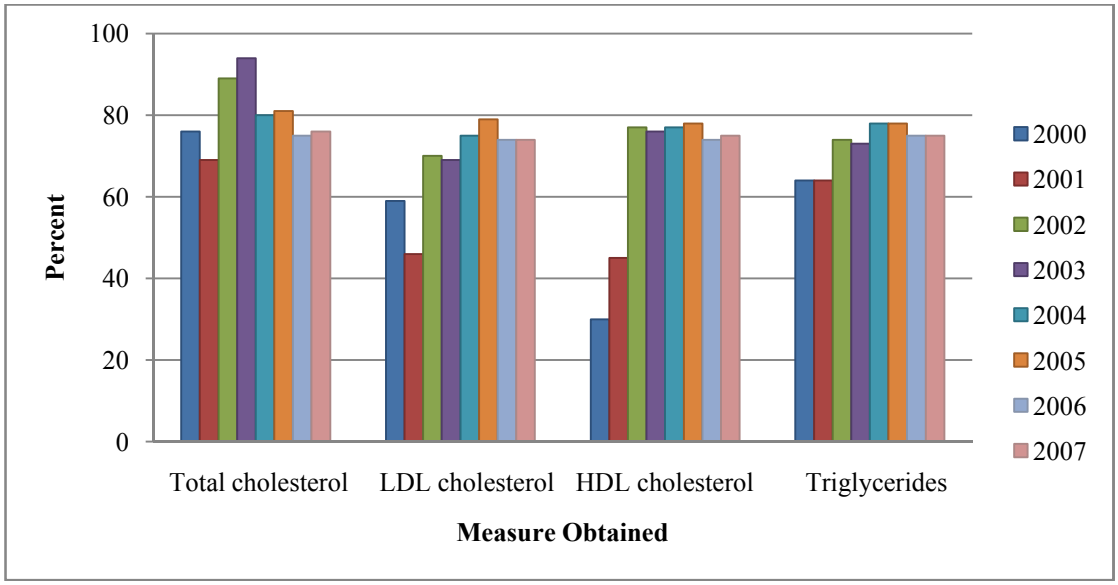


Figure 3.8d- Wisconsin 2000-2007 Lipid Screening



3.9 LDL Cholesterol

High levels of LDL cholesterol may put an individual at greater risk for heart disease; therefore, maintaining optimal levels may reduce this risk. For the general population, normal levels of LDL cholesterol are those below 130 mg/dL. However, for diabetics, who are already at higher risk for heart disease, LDL cholesterol levels over 100 mg/dL are considered high.

In Michigan, Minnesota, and Wisconsin, the percentage of patients with optimal LDL cholesterol levels are increasing, and the amount of patients with LDL cholesterol levels above 100 mg/dL are decreasing in each category. This means Tribal clinics are doing a great job with lipid screening and following up with appropriate interventions to help people obtain optimal LDL cholesterol levels. Figures 3.9a - 3.9d below and on the following pages provide information on the proportion of audited patient charts in certain LDL cholesterol level categories.

Figure 3.9a- Three-state 2000-2007 LDL Cholesterol

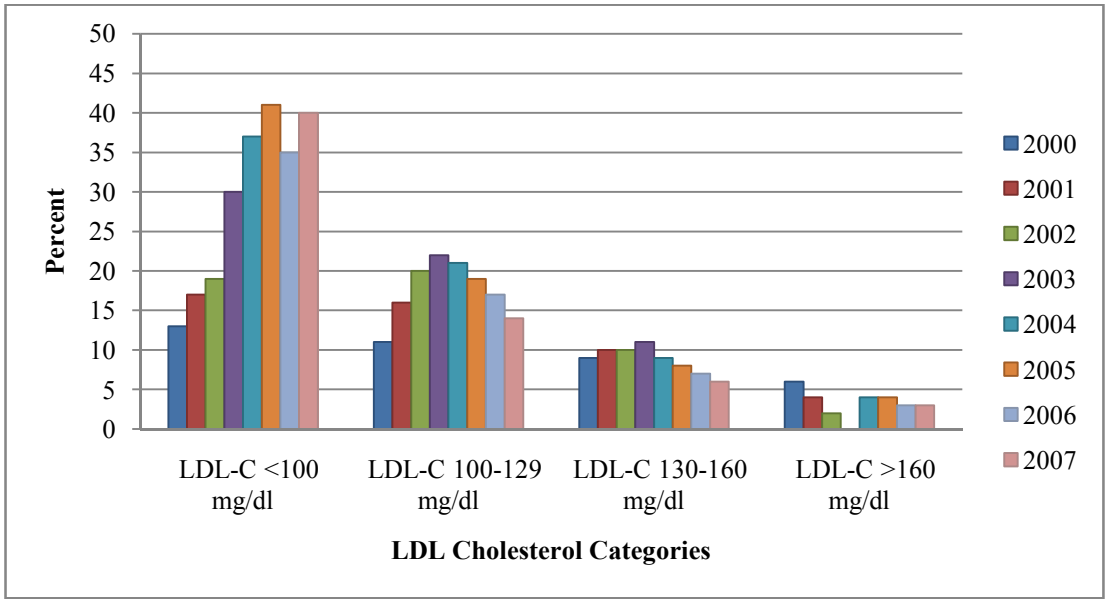


Figure 3.9b- Michigan 2000-2007 LDL Cholesterol

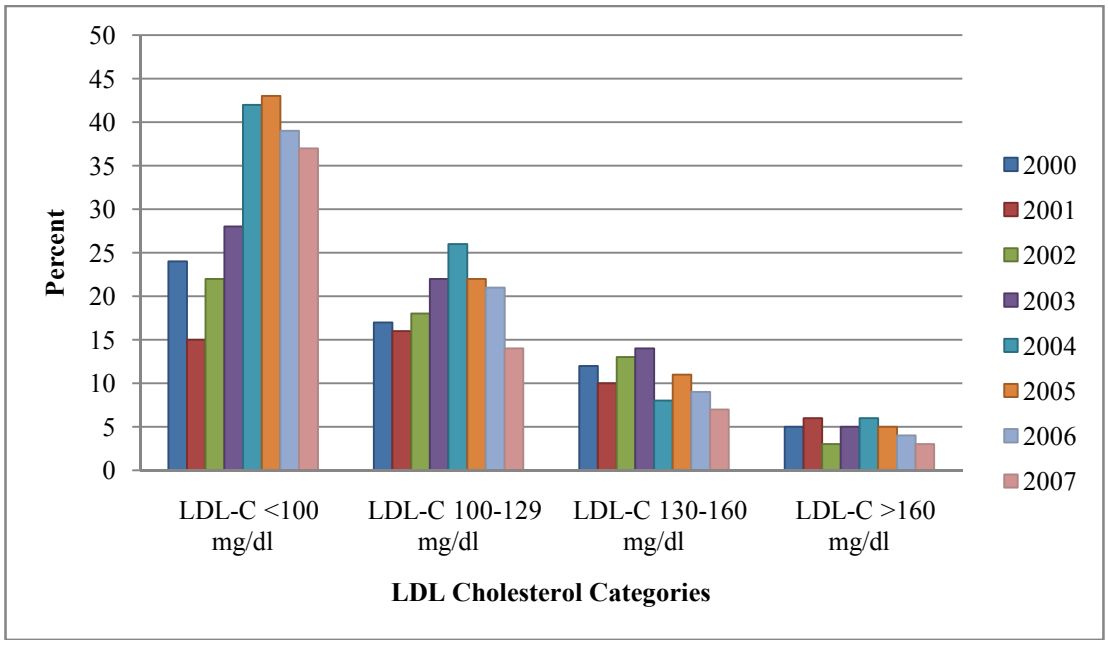


Figure 3.9c- Minnesota 2000-2007 LDL Cholesterol

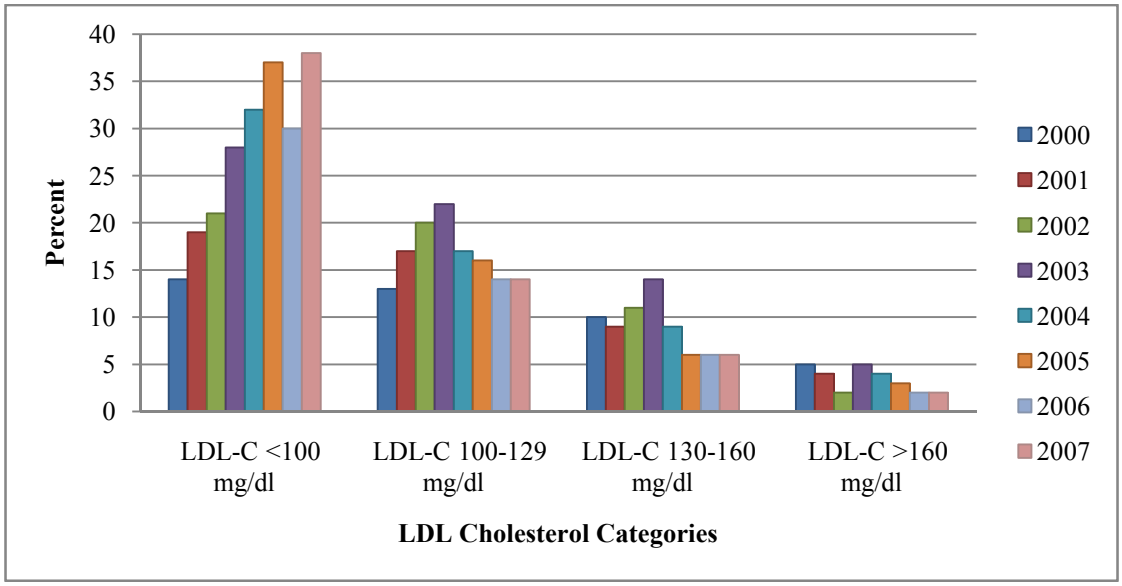
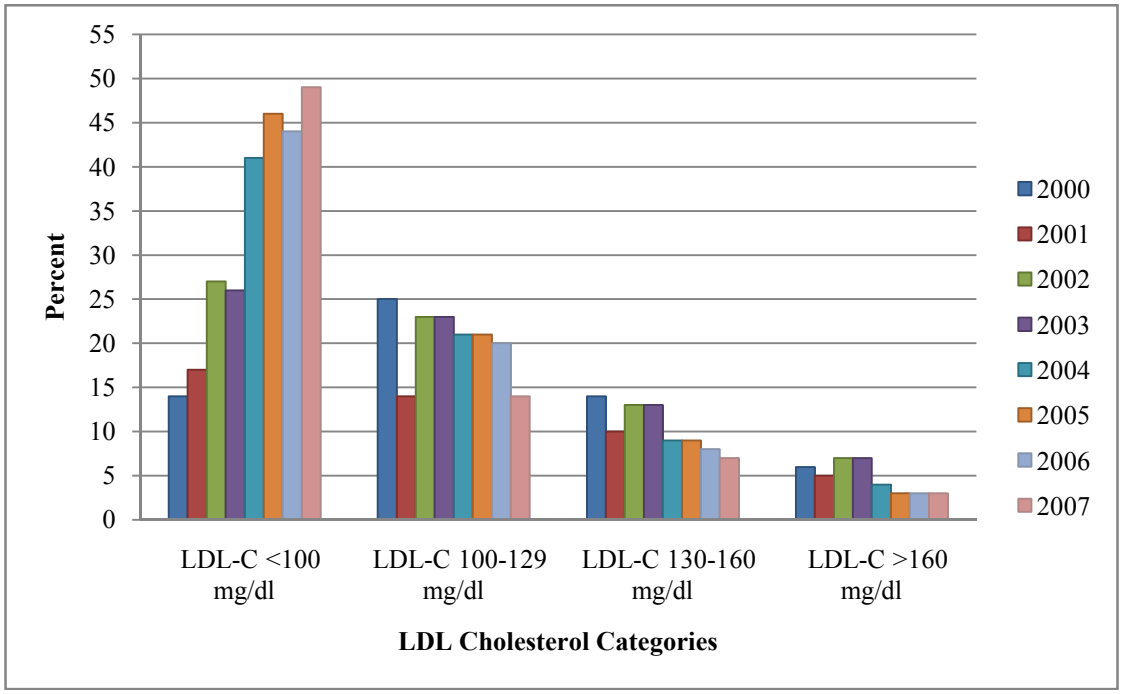


Figure 3.9d- Wisconsin 2000-2007 LDL Cholesterol



Chapter 4

Communicable Diseases

There is little available and reliable information about the distribution of communicable diseases within Indian country. This is due to several contributing factors, such as the stigma attached to many communicable diseases, incomplete surveillance, racial misclassification, 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 state reporting for most of the information presented in this report, specifically this section. However, it would be of great value to have data that can be used to estimate the incidence and prevalence of communicable diseases such as tuberculosis, or HIV at Tribal-specific levels. In an age when pathogens which traditionally affect animals can adapt and affect humans, as in the case of West Nile virus and bird flu, and when political borders do not protect people from the spread of disease, a functional surveillance and reporting system for communicable diseases is extremely important, even among small service populations.

Information presented on the following pages gives estimates of rates of chlamydia and gonorrhea, two of the most common sexually transmitted infections (STIs) in Minnesota, Wisconsin, Michigan, and the three-state area. There is an overall increase in rates of chlamydia and gonorrhea during the period between 1998 and 2007 in all three-states, but it should be noted that small fluctuations in the number of cases reported is normal and many not reflect an actual increase in the rate of disease within a population.

Table 4.1a- Three-state Area Chlamydia and Gonorrhea Cases and Crude Rates for American Indians and Alaska Natives and All Races

	Chlamydia				Gonorrhea			
	American Indians/Alaska Natives		All Races		American Indians/Alaska Natives		All Races	
	#	Rate	#	Rate	#	Rate	#	Rate
1998	487	274.76	42,990	215.39	92	51.90	25,242	126.47
1999	611	335.71	45,344	225.56	129	70.88	25,556	127.12
2000	623	334.32	50,760	250.49	113	60.64	28,385	140.08
2001	664	353.67	56,032	274.67	121	64.45	25,958	127.25
2002	636	336.52	59,448	289.86	143	75.66	24,181	117.90
2003	678	356.53	61,067	296.40	128	67.31	22,760	110.47
2004	775	404.92	72,510	350.31	148	77.33	25,496	123.18
2005	836	433.80	71,326	343.54	178	92.36	27,114	130.59
2006	810	417.64	71,169	341.67	202	104.15	26,777	128.55
2007	779	399.42	74,547	357.18	177	90.75	26,330	126.16

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

Table 4.1b- Michigan Chlamydia and Gonorrhea Cases and Crude Rates for American Indians and Alaska Natives and All Races

	Chlamydia				Gonorrhea			
	American Indians/Alaska Natives		All Races		American Indians/Alaska Natives		All Races	
	#	Rate	#	Rate	#	Rate	#	Rate
1998	12	17.24	22,001	223.41	8	11.49	16,319	165.71
1999	34	47.54	23,107	233.47	8	11.19	15,907	160.72
2000	39	53.85	26,237	263.55	10	13.73	18,182	182.63
2001	40	54.85	31,090	310.68	10	13.71	17,121	171.09
2002	48	65.77	32,272	321.31	7	9.59	14,770	147.06
2003	49	67.10	32,590	323.47	6	8.22	13,965	138.61
2004	59	80.84	41,247	408.28	15	20.55	17,376	171.99
2005	84	115.42	38,729	383.15	22	30.23	17,684	174.95
2006	77	105.88	38,142	377.56	22	30.25	16,591	164.23
2007	86	118.57	41,291	409.97	19	26.20	16,077	159.62

Adapted from: Michigan Department of Community Health
Population denominators for rates from US Census Bureau Bridged-Race Population Estimates

Table 4.1c- Minnesota Chlamydia and Gonorrhea Cases and Crude Rates for American Indians and Alaska Natives and All Races

	Chlamydia				Gonorrhea			
	American Indians/Alaska Natives		All Races		American Indians/Alaska Natives		All Races	
	#	Rate	#	Rate	#	Rate	#	Rate
1998	269	459.18	6,997	145.36	46	78.52	2,716	56.43
1999	350	583.77	7,460	153.07	82	136.77	2,830	58.07
2000	316	514.22	8,147	165.11	72	117.16	3,189	64.63
2001	347	557.97	8,369	167.91	70	112.56	2,708	54.33
2002	304	484.63	10,118	201.53	72	114.78	3,051	60.77
2003	376	593.99	10,714	212.05	84	132.70	3,202	63.37
2004	396	618.79	11,601	228.11	72	112.51	2,957	58.14
2005	415	641.50	12,187	238.31	96	148.40	3,481	68.07
2006	415	634.66	12,935	250.94	104	159.05	3,303	64.08
2007	409	619.73	13,412	258.04	81	122.73	3,459	66.55

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

Table 4.1d- Wisconsin Chlamydia and Gonorrhea Cases and Crude Rates for American Indians and Alaska Natives and All Races

	Chlamydia				Gonorrhea			
	American Indians/Alaska Natives		All Races		American Indians/Alaska Natives		All Races	
	#	Rate	#	Rate	#	Rate	#	Rate
1998	206	420.06	13,992	264.12	38	77.49	6,207	117.16
1999	227	449.18	14,777	277.10	39	77.17	6,819	127.87
2000	268	514.77	16,376	304.70	31	59.54	7,014	130.51
2001	277	526.30	16,573	306.42	41	77.90	6,129	113.32
2002	284	532.99	17,058	313.27	64	120.11	6,360	116.80
2003	253	469.89	17,763	324.42	38	70.58	5,593	102.15
2004	320	588.09	19,662	356.83	61	112.11	5,163	93.70
2005	337	609.95	20,410	368.38	60	108.60	5,949	107.37
2006	318	569.51	20,092	360.55	76	136.11	6,883	123.51
2007	284	502.62	19,844	354.25	77	136.27	6,794	121.29

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

Chapter 5

Maternal and Child Health

Chapter 5 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 race 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. Usually, most data assign the child the race of his or her mother. As a result, information presented in this document cannot be compared directly with most other published data. Most of these data come from birth certificates, though information originating in the Women, Infants, and Children (WIC) Program is used for some indicators.

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

In 2008 it was announced that the United States is ranked number 29 in the world with regard to infant mortality, with a rate higher than most other developed nations. 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 amount of 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 measure, only the race recorded on the death certificate was used to determine the infant's race. Racial misclassification is common on death certificates. The number of births is determined using the more inclusive methodology of considering the race of mother or father. Therefore, these numbers may not represent the true burden of infant mortality in the American Indian/Alaska Native population of 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 lower infant mortality rate compared to all IHS Areas.*

Table 5.1a- Infant Mortality Rates (per 1,000 Live Births), 2002-2006

AI/AN Michigan	6.0	**All Races Michigan**	7.9
AI/AN Minnesota	7.8	**All Races Minnesota**	5.0
AI/AN Wisconsin^	5.8	**All Races Wisconsin^^**	6.5
AI/AN 3-State Area	6.7	**All Races 3-State Area**	6.8
IHS Total*	8.8	**All Races U.S. ****	6.8
Healthy People 2010 Goal	4.5		

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

Considering 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 often due more to congenital problems or infectious disease. Deaths occurring in the post neonatal 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 post neonatal deaths for the American Indian/Alaska Native population and the all race populations. *About half (54.6%) of the deaths in the American Indian/Alaska Native three-state area population occurred post neonatally, compared with 33.5% of the all race population.*

Table 5.1b- Percentage of Deaths Occurring Post Neonatally (Death at 28 Days or Later), 2002-2006

AI/AN Michigan	43.0	**All Races Michigan**	30.0
AI/AN Minnesota	60.3	**All Races Minnesota**	34.2
AI/AN Wisconsin^	55.0	**All Races Wisconsin^^**	32.0
AI/AN 3-State Area	54.6	**All Races 3-State Area**	33.5

Sources: 2002-2006 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information
^2002-2006 Birth Files, Wisconsin Department of Health and Human Services
^^WISH, 2002-2006

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 race population. *As exhibited in Table 5.1c on the next page, about three times as many American Indian/Alaska Native infants die from SIDS compared to the all race population. SIDS is the top cause of infant death in the three-state area American Indian/Alaska Native population.* Many risk factors for SIDS are controllable, by reducing commercial tobacco smoking and improving sleep environments among other steps.

Table 5.1c- Percentage of Deaths Due to SIDS, 2002-2006

AI/AN Michigan	20.0	**All Races Michigan**	6.0
AI/AN Minnesota	17.7	**All Races Minnesota**	9.1
AI/AN Wisconsin^	32.0	**All Races Wisconsin^^**	9.0
AI/AN 3-State Area	22.0	**All Races 3-State Area**	7.5

Sources: 2002-2006 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information
^2002-2006 Birth Files, Wisconsin Department of Health and Human Services
^^WISH, 2002-2006

5.2 Birth Weight

Birth weight is a valuable indicator of health not only for infants, but 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.

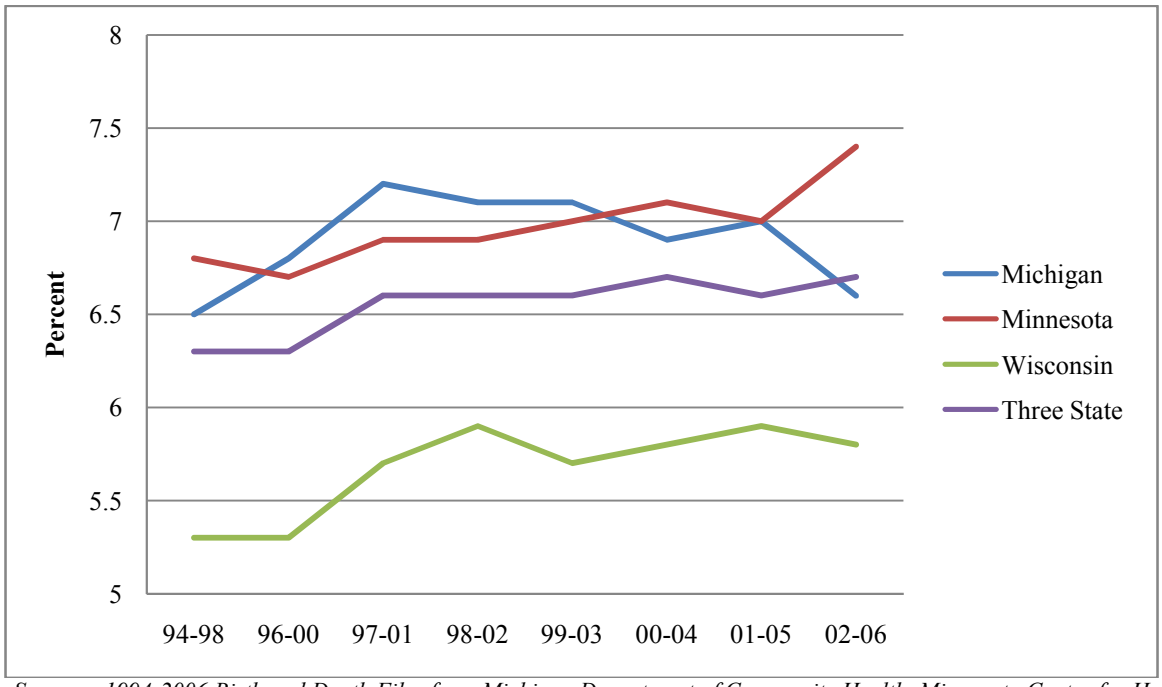
Table 5.2a below shows that the all races population of the three-state area has a slightly higher percentage of infants born at a low birth weight than American Indian/Alaska Natives (6.9% and 6.7% respectively). Trends in low birth weight are shown in Figure 5.2a. However, neither group has reached the goal set in Healthy People 2010 for no more than 5% of infants to be born with a low birth weight.

Table 5.2a- Low Birth Weight Babies (less than 2,500 grams), by Percent, 2002-2006

AI/AN Michigan	6.6	**All Races Michigan**	7.4
AI/AN Minnesota	7.4	**All Races Minnesota**	6.8
AI/AN Wisconsin^	5.8	**All Races Wisconsin^^**	6.9
AI/AN 3-State Area	6.7	**All Races 3-State Area**	6.9
IHS Total*	6.6	**All Races U.S.****	8.2
HP 2010	5.0		

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

Figure 5.2a- Low Birth Weight (less than 2,500 grams) Trends for Three-state Area American Indian/Alaska Natives, 1994-2005



Sources: 1994-2006 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.

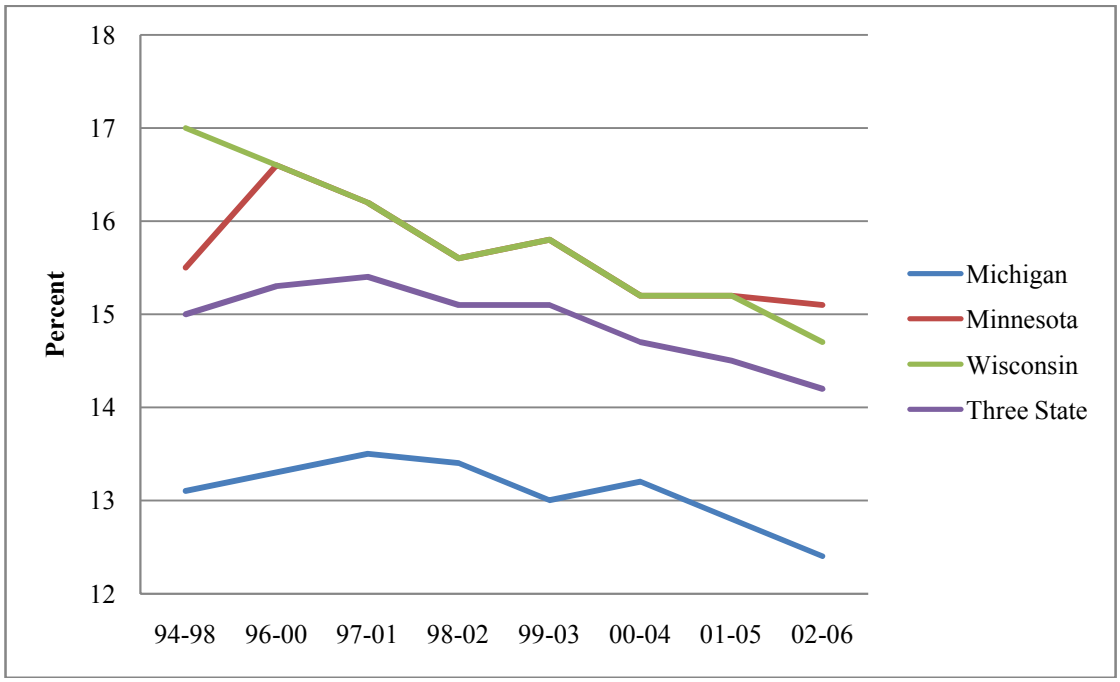
Displayed in Table 5.2b below and Figure 5.2b on the following page is the percentage of high birth weight infants for different populations in the three-state area. *American Indian/Alaska Native infants in the three-state area are born at a high birth weight more often than all race infants in the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

Table 5.2b- High Birth Weight Births (greater than 4,000 grams), by Percent, 2002-2006

AI/AN Michigan	12.4	**All Races Michigan**	12.3
AI/AN Minnesota	15.1	**All Races Minnesota**	12.1
AI/AN Wisconsin^	14.7	**All Races Wisconsin^^**	10.8
AI/AN 3-State Area	14.2	**All Races 3-State Area**	10.8
IHS Total*	12.2	**All Races U.S.**	-
HP 2010	-		

Sources: 2002-2006 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information
^2002-2006 Birth Files, Wisconsin Department of Health and Human Services
^^WISH, 2002-2006
**Data from Trends 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, 1994-2006



Sources: 1994-2006 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.

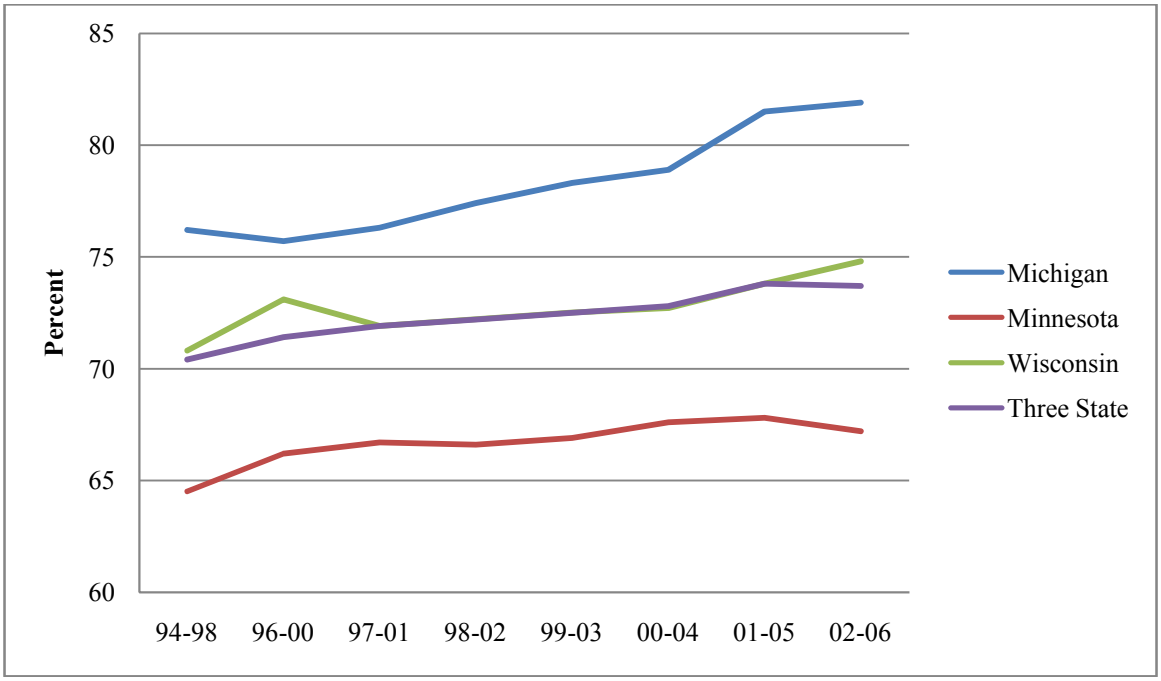
Though the Healthy People 2010 goal is for 90% of women to receive prenatal care during their first trimester of pregnancy, women in the three-state area do not meet this benchmark. There are differences between when American Indian/Alaska Native women and women in the all race population receive prenatal care, as seen in Table 5.3a on the next page. *73.7% of American Indian/Alaska Native women and 85.7% of all races receive early prenatal care. As seen in Figure 5.3, there is 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, 2002-2006

AI/AN Michigan	81.9	**All Races Michigan**	85.9
AI/AN Minnesota	67.2	**All Races Minnesota**	86.3
AI/AN Wisconsin^	74.8	**All Races Wisconsin^^**	84.8
AI/AN 3-State Area	73.7	**All Races 3-State Area**	85.7
IHS Total*	67.3	**All Races U.S.****	83.9
HP 2010	90.0		

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

Figure 5.3- Three-state Area American Indian/Alaska Native Trends for Births with Prenatal Care beginning in the First Trimester, 1994-2006



Sources: 1994-2006 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, another consideration is those who begin prenatal care late (in the third trimester) or not at all. *As shown on the following page in Table 5.3b, mothers of American Indian babies are more likely to receive late or no prenatal care.*

Table 5.3b- Births with Late (3rd Trimester) or No Prenatal Care, by Percent, 2002-2006

AI/AN Michigan	3.9	**All Races Michigan**	3.2
AI/AN Minnesota	7.9	**All Races Minnesota**	2.2
AI/AN Wisconsin^	6.2	**All Races Wisconsin^^**	3.0
AI/AN 3-State Area	5.9	**All Races 3-State Area**	3.9

Sources: 2002-2006 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information
^2002-2006 Birth Files, Wisconsin Department of Health and Human Services
^^WISH, 2002-2006

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 among American Indians (17.6%) than in the all race population (8.7%).*

Table 5.4- Births to Teen Mothers (age 19 or less), by Percent, 2002-2006

AI/AN Michigan	13.5	**All Races Michigan**	9.5
AI/AN Minnesota	21.5	**All Races Minnesota**	7.1
AI/AN Wisconsin^	14.8	**All Races Wisconsin^^**	8.9
AI/AN 3-State Area	17.6	**All Races 3-State Area**	8.7

Sources: 2002-2006 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information
^2002-2006 Birth Files, Wisconsin Department of Health and Human Services
^^WISH, 2002-2006

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 in either the three-state area or nationwide.*

Table 5.5- Premature Births (at 36 or fewer weeks gestation), by Percent, 2002-2006

AI/AN Michigan	8.5	**All Races Michigan**	9.5
AI/AN Minnesota	10.5	**All Races Minnesota**	10.1
AI/AN Wisconsin^	11.2	**All Races Wisconsin^^**	11.1
AI/AN 3-State Area	9.7	**All Races 3-State Area**	10.1
HP 2010	7.6	**All Races U.S.***	12.7

Sources: 2002-2006 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information
^2002-2006 Birth Files, Wisconsin Department of Health and Human Services
^^WISH, 2002-2006
** National Center for Health Statistics, 2004*

5.6 Smoking During Pregnancy

Smoking during pregnancy is an important health indicator for mothers and infants. While birth certificates state if a mother smoked during pregnancy, no distinction is made between traditional use of tobacco and tobacco abuse. Women who abuse tobacco during pregnancy are at risk for tobacco-related illnesses and complications with their pregnancies. Their babies are at risk as infants and children 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.

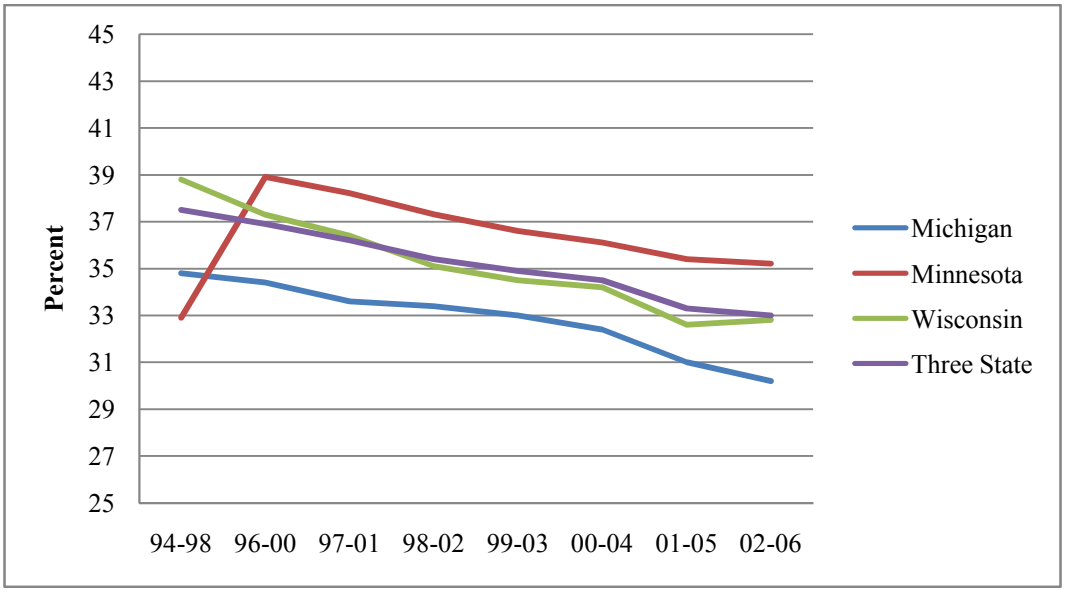
Table 5.6 shows that from 2002-2006, 19.8% of American Indian mothers in the three-state area smoked during their pregnancies, compared with 10.7% of mothers of all races. However, as shown in Figure 5.6, there has been a decrease in the percent of American Indian women who smoke during pregnancy. For all groups shown below, none are near the Healthy People 2010 goal for 99% of mothers to refrain from smoking during pregnancy.

Table 5.6- Births to Mothers who Smoked During Pregnancy, by Percent, 2002-2006

AI/AN Michigan	30.2	**All Races Michigan**	14.3
AI/AN Minnesota	35.2	**All Races Minnesota**	9.8
AI/AN Wisconsin^	32.8	**All Races Wisconsin^^**	14.2
AI/AN 3-State Area	33.0	**All Races 3-State Area**	13.1
IHS Total*	19.8	**All Races U.S.****	10.7
HP 2010	1.0		

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

Figure 5.6- Trends in Births to Mothers who smoked During Pregnancy for American Indian/Alaska Natives in the Three-state Area, 1994-2006



Sources: 1994-2006 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information

5.7 Childhood Weights

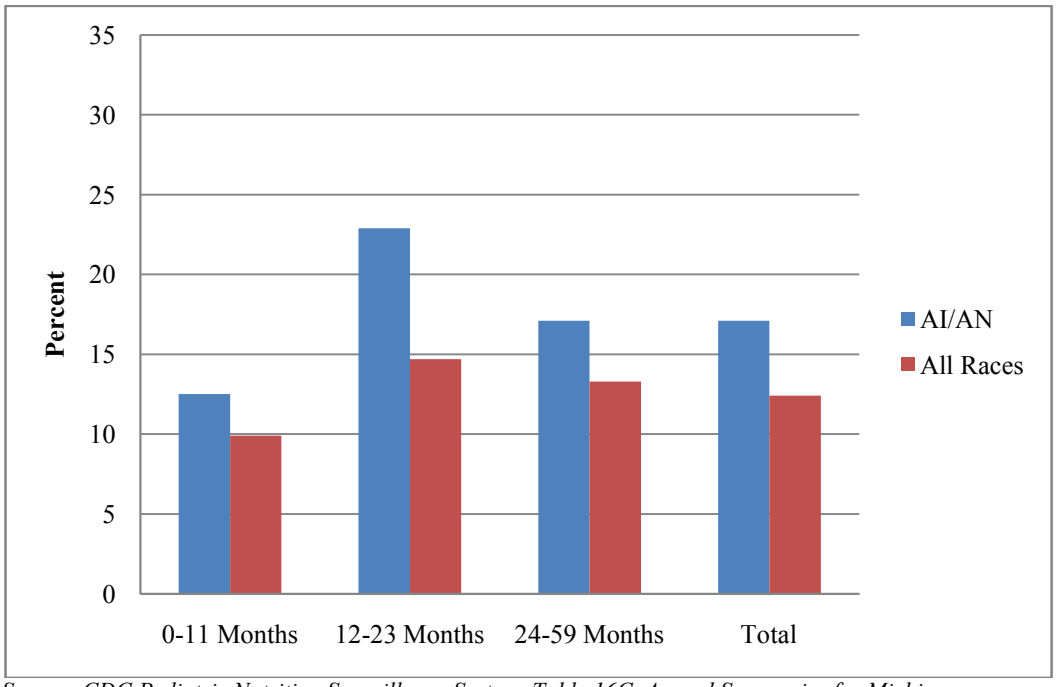
Children are considered overweight when they have a weight-for-height greater than the 95th percentile of a reference population. Table 5.7 and Figures 5.7 a-c display this information for WIC-enrolled children. *For all ages presented in all three states, a greater percentage of American Indian/Alaska Native children and infants are overweight compared to the corresponding all races population.*

Table 5.7- Percent of WIC-Enrolled Children Who Are Overweight, 2006

Age	Michigan		Minnesota		Wisconsin	
	AI/AN	All Races	AI/AN	All Races	AI/AN	All Races
0-11 Months	12.5	9.9	8.7	7.4	14.6	9.7
12-23 Months	22.9	14.7	33.5	15.7	25.9	15.5
24-59 Months	17.2	13.3	25.0	13.1	21.0	13.0
Total	17.1	12.4	23.1	12.1	20.1	12.4

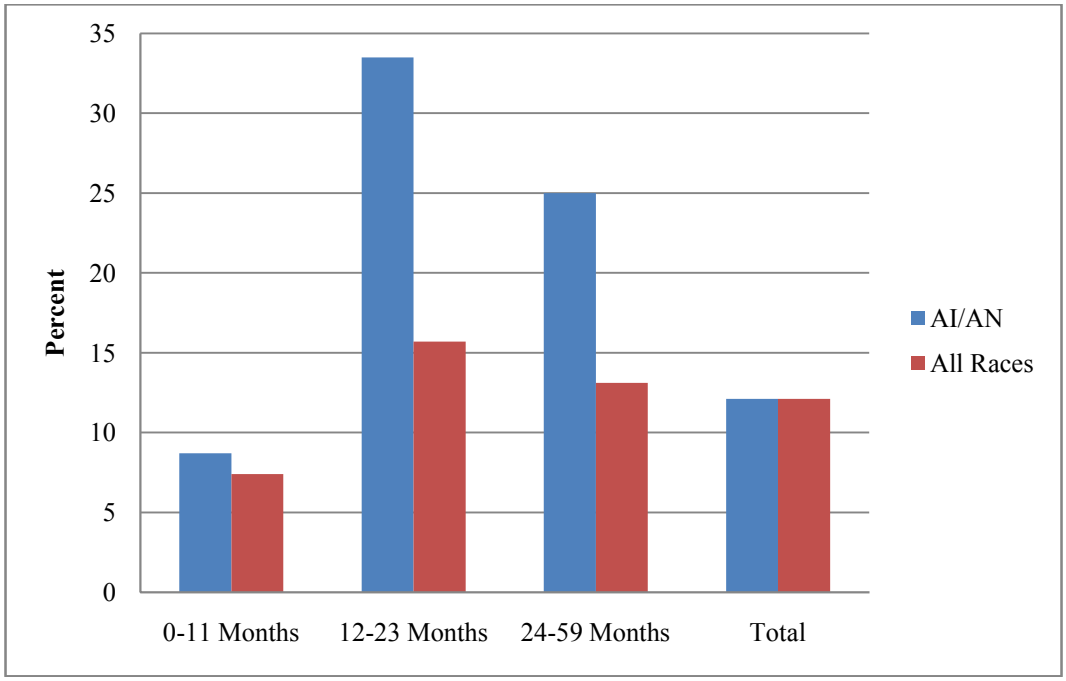
Source: CDC Pediatric Nutrition Surveillance System, Table 16C, Annual Summaries for Michigan, Minnesota, and Wisconsin

Figure 5.7a Percent of WIC-Enrolled Children in Michigan Who Are Overweight, 2006



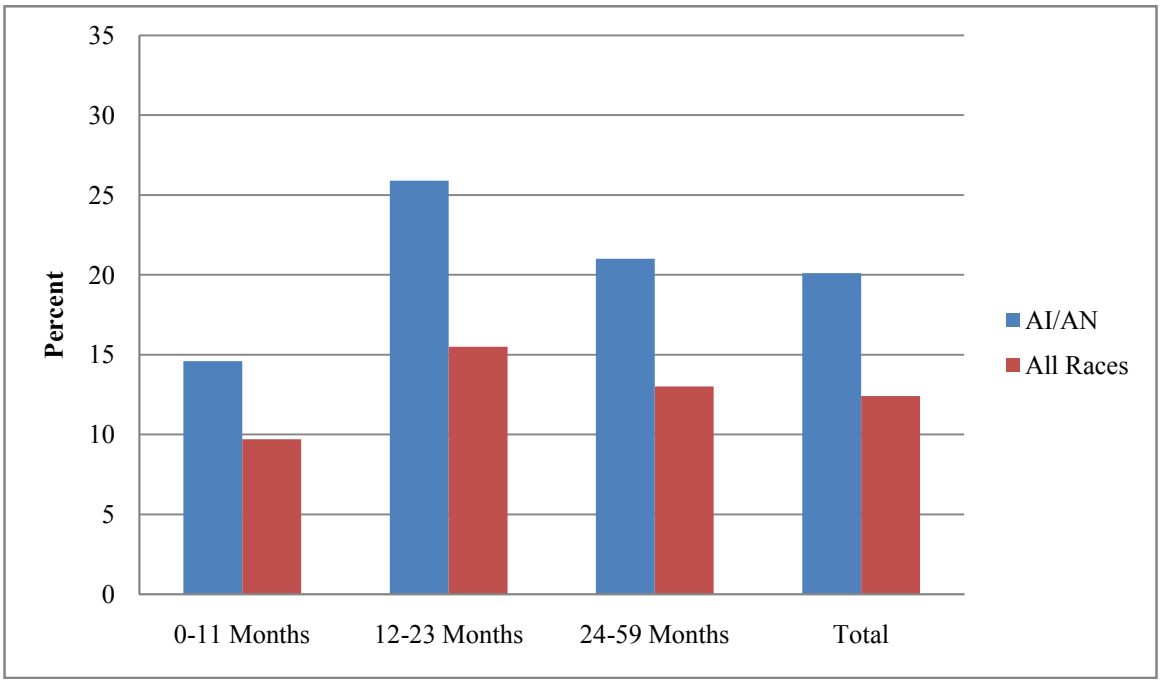
Source: CDC Pediatric Nutrition Surveillance System, Table 16C, Annual Summaries for Michigan

Figure 5.7b Percent of WIC-Enrolled Children in Minnesota Who Are Overweight, 2006



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

Figure 5.7c- Percent of WIC-Enrolled Children in Wisconsin Who Are Overweight, 2006



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

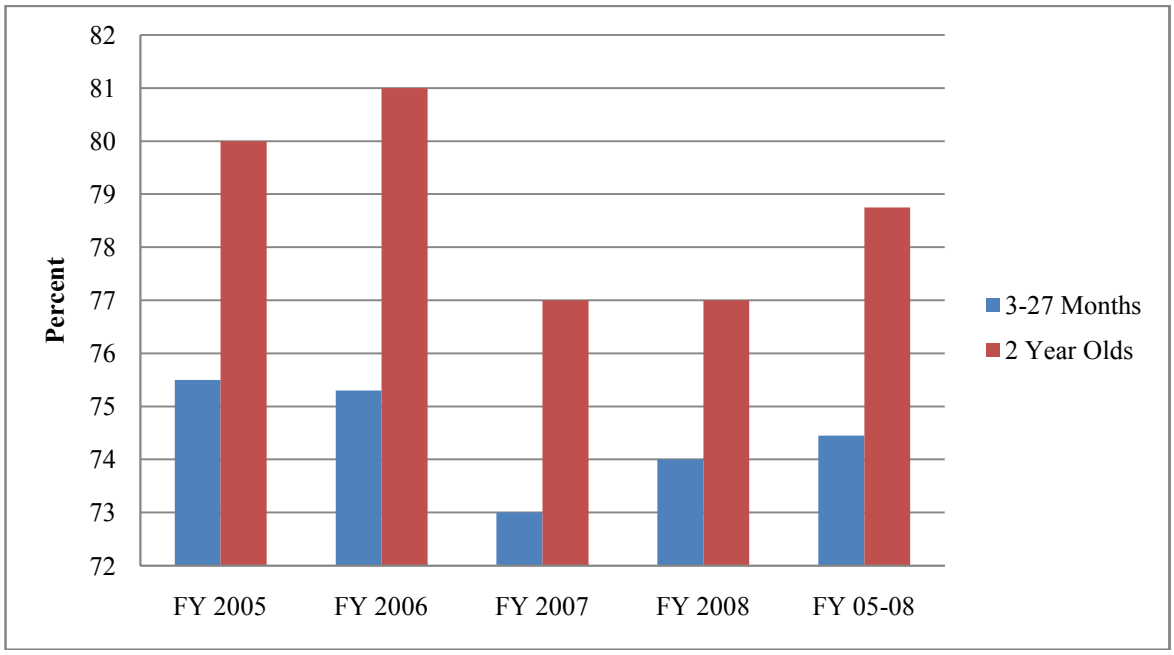
5.8 Immunizations

One of the greatest public health accomplishments in this century has been the dramatic decrease in preventable deaths and health problems by intervening 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 (http://www.ecbt.org/advocates/economicvaluevaccines.cfm, accessed 12/28/07). Due to immunization program successes, seeing cases of diseases such as measles is rare. However, it is important to remember that these diseases still exist, which is why it is vital to keep vaccination rates high.

Graph 5.8 below shows rates in the three-state area for American Indian children covered by Indian Health Service clinics for 3-27 month old children and two year old children who meet the age-appropriate immunization guidelines. For two year olds, this means 4 Diphtheria, Tetanus, Pertussis (DTaP); 3 Polio (IPV); 1 measles, mumps, rubella (MMR); 3 *Haemophilus influenzae* type b (Hib); and 3 Hepatitus B (Hep B) doses were delivered. This series is often abbreviated as "4:3:1:3:3."

According to the CDC, in 2007 80.1% of two year old children nationwide received these immunizations. For American Indian children in the three-state area, it was 77% that year. *Additionally, there appears to be a decrease in the number of American Indian children who are receiving all their vaccinations by this age when compared to previous years, when 80% or more received them on schedule.*

Figure 5.8- Percentage of American Indian/Alaska Native Children in the Three-state Area Meeting Immunization Recommendations by Age Group by Fiscal Year, 2005-2008

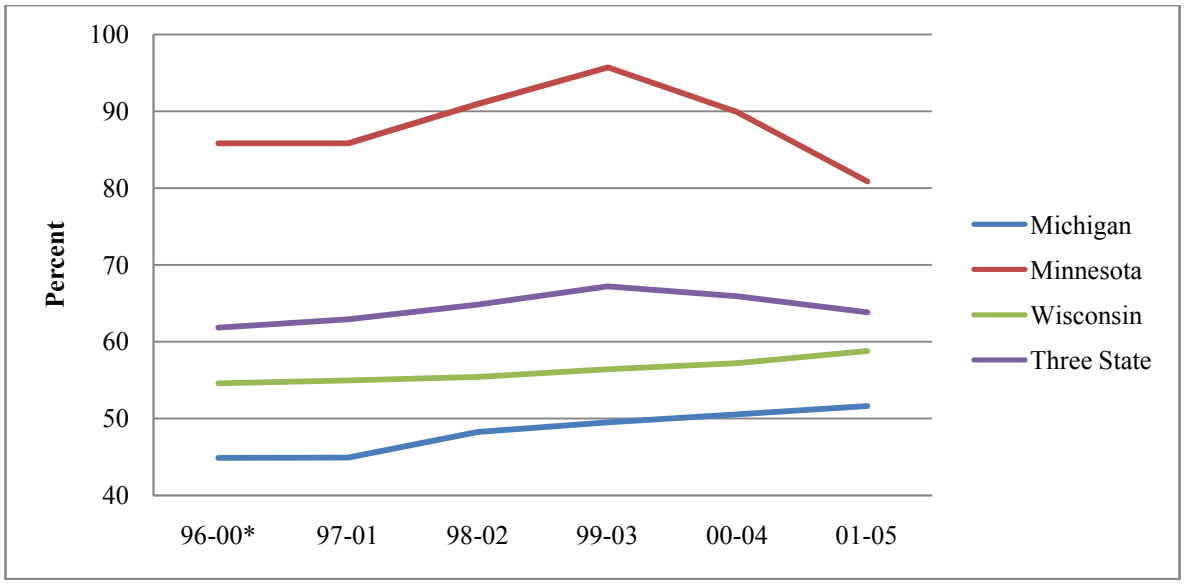


5.9 Breastfeeding

The data for breastfeeding comes from American Indian 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 60% of American Indian women in the three-state area have breastfed their infant at least once. The Healthy People 2010 goal is for 75% of infants to be breastfed at least one time.

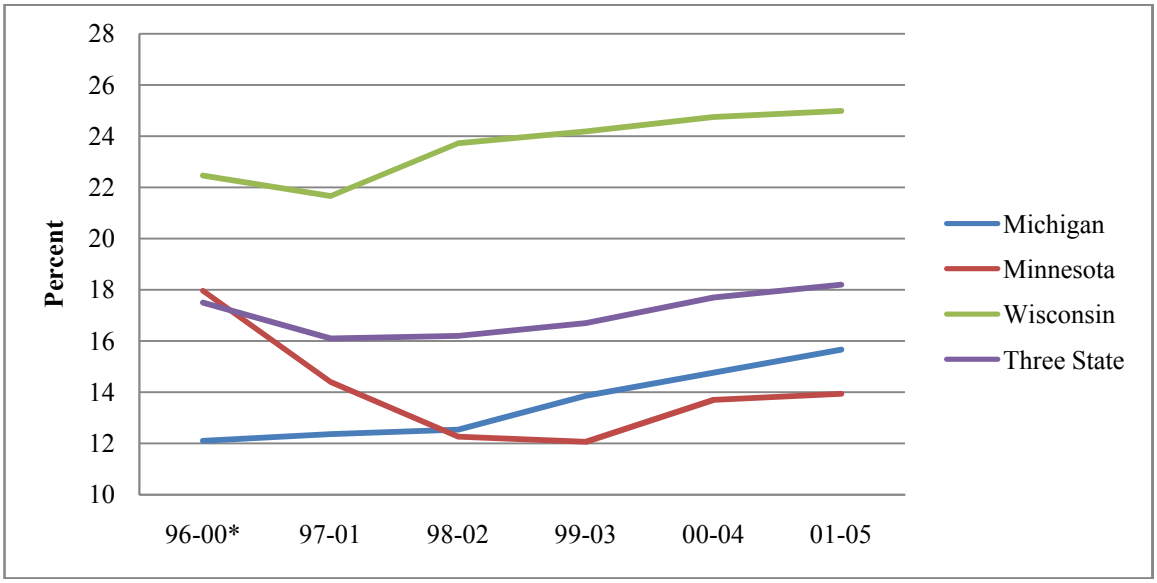
Figure 5.9a- Breastfeeding Ever Trends for American Indian/Alaska Native Women in the Three-state State Area, 1996-2005



Source: CDC Pediatric Nutrition Surveillance System, Table 9C, Annual Summaries for Michigan, Minnesota, and Wisconsin
**Four year average 1997-2000 for Michigan*

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. *There has been a slight increasing trend for American Indian women to have breastfed at least six months in the three-state area.* The Healthy People 2010 goal is for at least 50% of mothers to breastfeed their infant at least six months.

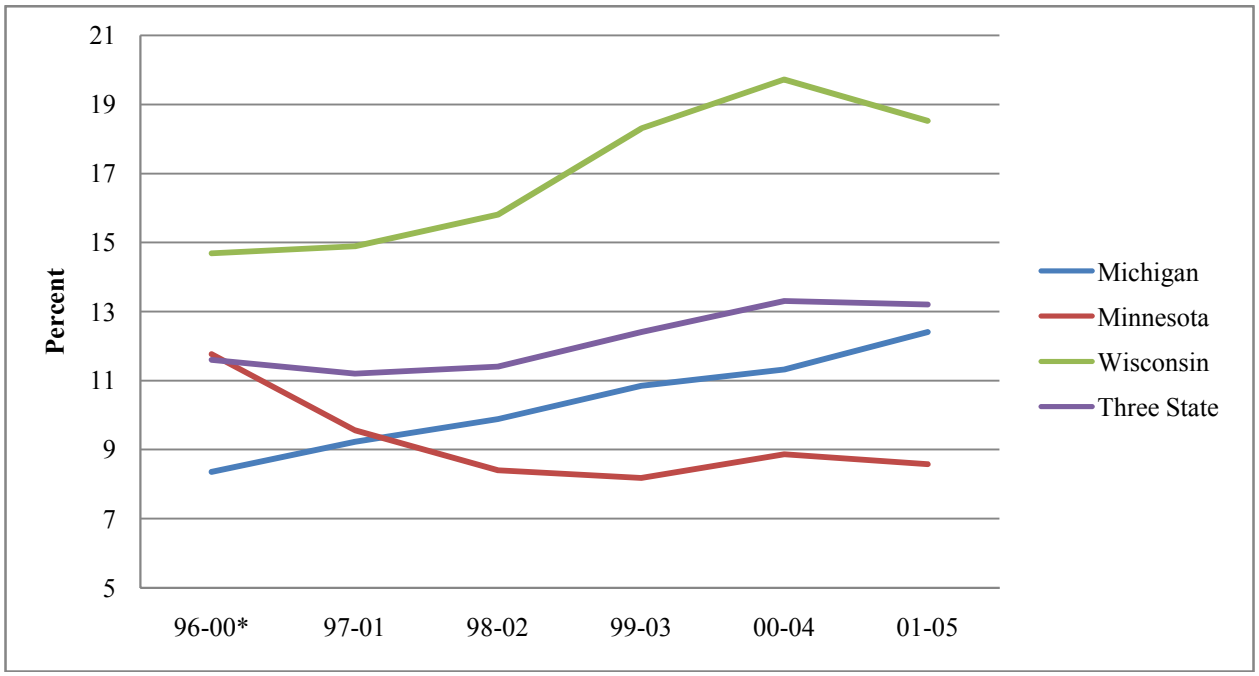
Figure 5.9b- Breastfeeding at Least six Months Trends for American Indian/Alaska Native Women in the Three-state Area, 1996-2005



Source: CDC Pediatric Nutrition Surveillance System, Table 9C, Annual Summaries for Michigan, Minnesota, and Wisconsin
**Four year average 1997-2000 for Michigan*

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% of mothers to exclusively breastfeed this long.

Figure 5.9c- Breastfeeding at Least 12 Months Trends for American Indian/Alaska Native Women in the Three-state Area, 1996-2005



Source: CDC Pediatric Nutrition Surveillance System, Table 9C, Annual Summaries for Michigan, Minnesota, and Wisconsin
**Four year average 1997-2000 for Michigan*

Chapter 6

Social and Behavioral Health

This section of the community health profile attempts to help explain how social interactions and individual behaviors affect the health of Native Americans living in the three-state area. Most behaviors are not randomly distributed in the population. Rather, they are socially patterned and often cluster with one another. Specific behaviors once thought of as falling exclusively within the realm of individual choice often occur in a social context and can be influenced by environmental factors. For example, whether or not someone exercises on a regular basis can depend heavily on whether or not they have access to safe green spaces. Likewise, whether or not someone eats fresh vegetables can depend on whether or not they have easy access to a grocery store. The prevalence of risk behaviors associated with disproportionate adverse health outcomes among American Indians/Alaskan Natives are not well documented. This lack of data is sometimes due to selection bias and poor sampling of American Indian communities.

There are very little data that quantitatively capture sensitive issues such as mental health, substance abuse, and intimate partner/domestic violence. Most data available to the public consist of large mutually exclusive race/ethnicity groups - Anglos (non-Hispanic Whites), Blacks (non-Hispanic Blacks), Hispanics (of all races), and an "Other" category which consists of non-Hispanic persons from all other racial categories, with a majority of this group consisting of Asians and American Indian/Alaskan Natives. This categorization results in a lack of detailed data for American Indian/Alaskan Natives. Occasionally individual tribes collect health behavior data, and although the data might be used internally, often they are not published or disseminated.

We have attempted to gather aggregate data from the National Behavioral Risk Factor Surveillance Survey (BRFSS) in order to illuminate risk behaviors that have adverse affects on health. The BRFSS includes a relatively small number of American Indian and Alaskan Natives annually. To increase the precision of estimates, we combine data over five years (five year rolling average), 2002–2006, and aggregate data from the three-states we serve (Michigan, Minnesota, and Wisconsin). Unfortunately, sample sizes are small and the data most likely do not represent the Native American population in the three-state area. The BRFSS survey excludes households without telephones and does not attempt to contact institutionalized people at all, which might result in selection bias due to underrepresentation of certain segments of the population. In the case of behavioral health, we are faced with the question of reporting the data we have or not reporting data at all. In our quest for transparency, we have included the data we have, and hope that, although limited, this report provides a point from which we can move forward and improve the quality of data for future reporting.

We were able to get some data from the National Survey on Drug Use and Health (NSDUH). Although these estimates are based on a small number of American Indians surveyed, the survey is done in person and therefore eliminates the telephone selection bias. These results should also be used with caution and the standard error is given to assist with understanding the validity of the number calculated.

6.1 Tobacco

Traditional tobacco (*Nicotiana rustica*) is used as a spiritual and physical medicine. It is used in prayer as an offering to the Creator or other divine being(s). Its smoke is believed to be a medium of communication, carrying prayers to the Creator. Its smoke is used to cleanse, purify or bless almost anything from people to possessions. It is believed to be a great spiritual commodity that can be used as a gift or to honor someone. It can be burned (not inhaled), smoked (inhaled), laid on the ground, placed into water, and put into a piece of cloth as a tobacco tie. Each tribe varies in which way or combination of ways their people use tobacco.

Since the commercialization of tobacco began, there has been a shift in the type of tobacco used by Native people. Many Natives substitute commercial tobacco (*Nicotiana tobacum),* the tobacco found in cigarettes, spit/chew tobacco and store bought pipe tobacco, for the original *N. rustica*. This shift may be partly caused by the ease of access to commercial tobacco and lack of availability of traditional tobacco. Part of this shift may also 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).

While mainly used for non-traditional, recreational use, commercial tobacco is sometimes used in a traditional (spiritual) manner when Traditional tobacco (N. rustica) is unavailable (American Indian Community Tobacco Project). Unfortunately, the BRFSS does not distinguish between ceremonial tobacco use and tobacco abuse which dishonors the unique and complex relationship American Indians have with tobacco.

Current Smokers

The Great Lakes Inter-Tribal Epidemiology Center estimates that roughly 41.9% of American Indians in the three-state area currently smoke. This estimation is based on a five year rolling average using the BRFSS data with an average yearly "n" of 271 (2002-2006 BRFSS data files). The 95% confidence interval for this estimate is between 37.0% and 46.9%.

Currently, the Great Lakes Inter-Tribal Epidemiology Center is in the process of conducting a Native Youth Tobacco Survey in one of the states we serve. This will be the first comprehensive, statewide, Native Youth Tobacco Survey which will include samples from every reservation in that state. This survey does differentiate between tobacco use and tobacco abuse. Please look for that report to come out in the spring of 2009.

6.2 Alcohol

In Indian communities, alcoholism is a multi-generational phenomenon. Currently, alcohol dependence is negatively affecting multiple generations and will most certainly affect future generations if no effective change or intervention is put into place.

Alcoholism in Indian communities is like the tip of an iceberg. That is to say, alcohol dependence sits on top of a huge mass of other underlying problems. Alcohol dependency frequently co-exists in Indian communities with other problems such as stress-related acting out, cultural shame, depression, abuse, generational trauma, and self-hate. In a study of Native Americans being treated for substance abuse, ninety-four percent reported experiencing one or more post traumatic stress disorders (PTSD) traumatic experiences. 38.5% met criteria for current PTSD and 51.9% for lifetime PTSD (Reynolds, 2005).

Past 30 day alcohol use

According to the BRFSS data files about 51.4% of American Indians in the three-state area have had an alcoholic beverage in the past 30 days. This estimate is based on a five year rolling average using the BRFSS data with an average yearly "n" of 195 (2002-2006 BRFSS data files). The 95% confidence interval for this estimate is between 44.2% and 58.7%. It is important to note that the BRFSS surveys are conducted throughout the year and that during particular times of the year (New Year, July Fourth, etc.) alcohol consumption increases.

Past 30 day binge drinking

In the realm of public health "binge drinking" is typically defined for women as consuming four or more drinks on a single occasion and for men as consuming five or more drinks on a single occasion. Binge drinking can lead to serious health and safety issues including but not limited to liver failure, temperature related deaths, accidents, and automobile injuries/fatalities. *According to the BRFSS data files about 33.7% of American Indians in the three-state area have binge drank in the past 30 days. This estimate is based on a five year rolling average using the BRFSS data with an average yearly "n" of 167(2002-2006) BRFSS data files). The 95% confidence interval for this estimate is between 28.6% and 38.9%.*

6.3 Other drug use

Accurate data regarding illicit drug use are often difficult to obtain due to the legality of illicit drug use. However, this data is important. We were able to get some data from the National Survey on Drug Use and Health (NSDUH). Although these estimates are based on a small number of American Indians surveyed, the survey is done in person and therefore eliminates the telephone selection bias. The estimates were obtained by combining surveys from 2002-2007. These results should also be used with caution and the standard error is given to assist with understanding the validity of the number calculated. *According to NSDUH 21.5% of American*

Indians and Alaskan Natives have used some form of illicit drug in the past year. Table 6.3 displays these use estimates and further breaks down the substances used.

Table 6.3- Past Year Illicit Drug Use Among American Indians and Alaska Natives Aged 12 or Older 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 Nutrition

Eating plenty of fruits and vegetables can help ward off heart disease and stroke; control blood pressure and cholesterol; prevent some types of cancer; avoid a painful intestinal ailment called diverticulitis; and guard against cataract and macular degeneration, two common causes of vision loss. The latest dietary guidelines call for five to thirteen servings of fruits and vegetables a day, depending on one's caloric intake (Dietary Guidelines for Americans 2005). For a person who needs 2,000 calories a day to maintain weight and health, this translates into nine servings, or 4½ cups per day.

The three-state area has a short growing season, limiting the ability to grow produce year round. Commercial fruit and vegetable availability is inadequate because most reservations are rural and do not have full service markets with adequate or fresh supplies of fruits and vegetables. Produce accessibility for many is restricted and does not lend itself to following the latest dietary guidelines. In an era when subsistence farming and hunting are less common, traditional patterns of diet and exercise have been superseded by commercial and commodity foods with high fat, carbohydrates, sugar, and salt levels, as well as a less active lifestyle. In the future, when Great Lakes Inter-Tribal Epidemiology Center has better data in this area, we would

like to list things like nutrition consumption as well as access to fresh fruits and vegetables. If you have other ideas for surveillance measures, please let us know.

6.5 Physical Activity

Regular physical activity substantially reduces the risk of dying of coronary heart disease, the nation's leading cause of death, and decreases the risk for stroke, colon cancer, diabetes, and high blood pressure. It also helps to control weight; contributes to healthy bones, muscles, and joints; reduces falls among older adults; helps to relieve the pain of arthritis; reduces symptoms of anxiety and depression; and is associated with fewer hospitalizations, physician visits, and medications. Moreover, physical activity need not be strenuous to be beneficial; people of all ages benefit from participating in regular, moderate-intensity physical activity, such as 30 minutes of brisk walking five or more times a week:

- Adults should engage in moderate-intensity (some increase in breathing or heart rate) physical activities for at least 30 minutes on five or more days of the week.
  - Centers for Disease Control and Prevention/American College of Sports Medicine

OR

- Adults should engage in vigorous-intensity (large increase in breathing or heart rate, conversation is difficult or "broken") physical activity three or more days per week for 20 or more minutes per occasion
  – *Healthy People 2010*

Despite the proven benefits of physical activity, more than 50% of American adults do not get enough physical activity to provide health benefits. 25% of adults are not active at all in their leisure time. Activity decreases with age and is less common among women than men and among those with lower income and less education.

The built environment can facilitate or constrain physical activity. The built environment can be structured in ways that give people more or fewer opportunities and choices to be physically active. The relationship between the built environment and physical activity is complex and operates through many mediating factors, such as socio demographic characteristics, personal and cultural variables, safety and security, and time allocation. Properties of the built environment should be taken into consideration when looking at changing behaviors.

-*www.national-academies.org*

Exercise within the past 30 days

According to the BRFSS data files about 71.0% of American Indians in the three-state area have exercised within the past 30 days. This estimate is based on a two year average using the BRFSS data with an average yearly "n" of 173 (2006-2007 BRFSS data files). The 95%

confidence interval for this estimate is between 60.4% and 81.6%. In the future we would like to use a five year rolling average to increase accuracy.

When Great Lakes Inter-Tribal Epidemiology Center has better data in this area, we would like to list things like days of physical activity and access to safe green space. If you have other ideas for surveillance measures, please let us know.

Mental Health

Several studies have indicated that a variety of social relationships are important predictors of morbidity and mortality. Chronic disease has been associated with depression, which, in the absence of intervention, also can assume a chronic course (Chapman, 2005). Public health programs that promote mental health and timely diagnosis and treatment of depression might also help reduce morbidity and risk behaviors related to chronic diseases. This data may be deceiving as cultural taboos may discourage some American Indians from honestly sharing emotional information.

Receiving emotional support

According to the BRFSS data files about 83.4% of American Indians in the three-state area always or usually get the emotional support they need. This estimate is based on a five year rolling average using the BRFSS data with an average yearly "n" of 218 (2002-2006 BRFSS data files). The 95% confidence interval for this estimate is between 72.3% and 94.5%.

Satisfaction with life

According to the BRFSS data files about 90.9% of American Indians in the three-state area feel satisfied or very satisfied with life. This estimate is based on a five year rolling average using the BRFSS data with an average yearly "n" of 208 (2002-2006 BRFSS data files). The 95% confidence interval for this estimate is between 78.5% and 100%.

Days of poor mental health

According to the BRFSS data files about 25.4% of American Indians in the three-state area have had 14 or more days poor mental in the past 30 days . This estimate is based on a five year rolling average using the BRFSS data with an average yearly "n" of 216 (2002-2006 BRFSS data files). The 95% confidence interval for this estimate is between 22.0% and 28.8%.

HIV and AIDS

(Human Immunodeficiency Virus and Acquired Immunodeficiency Syndrome)

The numbers of American Indians living with HIV/AIDS represent less than 1% of total number of HIV/AIDS cases. However, this is deceiving. Once you take into account the population of American Indians you find that American Indians rank third compared to other races in rates of HIV/AIDS diagnosis. (CDC, 2008)

Since there is no cure for HIV, testing and prevention are very important. There are several risk factors and barriers to prevention faced by American Indians including: substance abuse, cultural factors, socioeconomic issues, incomplete surveillance data, racial misclassification, and HIV testing issues. Access to HIV testing resources and fears regarding confidentiality are two important barriers to testing. (CDC, 2008)

HIV testing

According to the BRFSS data files about 40.4% of American Indians in the three-state area have been tested for HIV at some point. This estimate is based on a two year average using the BRFSS data with an average yearly "n" of 135 (2006-2007 BRFSS data files). The 95% confidence interval for this estimate is between 33.6% and 47.2%. In the future we would like to use a five year rolling average to increase accuracy. When Great Lakes Inter-Tribal Epidemiology Center has better data in this area, we would like to list rates of HIV/AIDS, and access to testing resources.

References Cited

Behavioral Risk Factor Survey (BRFS) – www.cdc.gov/brfss

Centers for Disease Control (CDC). HIV/AIDS among American Indians and Alaska Natives. HIV/AIDS Fact Sheets. http://www.cdc.gov/hiv/resources/Factsheets/aian.htm 2008.

Chapman DP, Perry G, Strine TW. The vital link between depression and chronic disease. Prev Chronic Dis 2005;2:A14.

Dietary Guidelines for Americans 2005. Center for Nutrition Policy and Promotion, U.S. Department of Agriculture.

J. L. Reynolds. Post-traumatic stress disorder CMAJ 1997; 156: 831-835

Tobacco: Telling Our Story, American Indian Community Tobacco Project, 2006

Discussion and Recommendations

When considering all the data available for assessing the overall health of Tribal communities in Minnesota, Wisconsin, and Michigan, it becomes clear that Native children and adults are not receiving the same level of care as the all races population. Though there have been accomplishments in specific areas, such as achieving diabetes care guidelines, broader measures still show that American Indians and Alaska Natives are disproportionately affected by higher mortality, are more overweight and obese, and are burdened with certain socio-demographic factors which can make it difficult to have comprehensive health care, among other health indicators.

It is no surprise that in the United States, minority racial/ethnic groups typically are worse off when it comes to health issues compared to the White population; however, this does not have to be the standard. There are certain factors about minority communities, including American Indians and Alaska Natives, that 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.

"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 (Public Health Partners)." For these reasons and others, it would be most ideal for American Indian and Alaska Native populations to have a more significant role in the collection, maintenance, and use of health data. Barriers to achieving a comprehensive and functional American Indian and Alaska Native health database are many, and there are very complex reasons for why this has been so difficult to do. Nevertheless, a lot 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.

Sincerely - Great Lakes Inter-Tribal Epidemiology Center Staff

Appendix A

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Appendix B

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

Cause of Death		ICD-9 Codes	ICD-10 Codes
Cancer (Malignant Neoplasms)		140-208	C00-C97
	Colon/Rectal/Anal	153-154	C18-C21
	Lung	162	C33-C34
	Breast	174	C50
	Prostate	185	C61
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
	Hypertensive	401-405	I11
	Ischemic	410-414	I20-I25
Homicide		E960-E969	X85-Y09, Y87.1
Kidney Disease		580-589	N00-N07, N17-N19, N25-N27
Respiratory Diseases		460-519	J00-J99
	Chronic Lower Respiratory Disease	490-494, 496	J40-J47
	Pneumonia and Influenza	480-487	J10-J18
Cerebrovascular Diseases (Stroke)		430-434, 436-438	I60-I69
Suicide		E950-E959	X60-X84, Y87.0
Unintentional Injury		E800-E869, E880-E929	V01-X59, Y85-Y86
	Motor Vehicle Accidents	E810-E825	V02-V04, V09.0, V09.2, V12-V14, V19.0-V119.2, V19.4-V19.6, V20-V79, V80.3-V80.5, V81.0-V81.1, V82.0-V82.1, V83-V86, V87.0-V87.8, V88.0-V88.8, V89.0, V89.2

Appendix C

Technical Notes

Age-Adjusting and 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 1).

Table 1 – Standard U.S. Population, 2000 Projected, for Age-Adjusting Rates

Age	Population	Proportions (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

Beginning with the 1999 data year, a new population standard, based on the projected year 2000 population of the United States, was adopted by the National Center for Health Statistics for use in age-adjusting death rates. The new population standard may affect levels of mortality, trends, and group comparisons. Effects on American Indian and Alaska Native mortality comparisons are of particular interest. The following sources offer more detailed discussion:

Anderson RN and Rosenberg HM. Age Standardization of Death Rates: Implementation of the Year 2000 Standard. National Vital Statistics Reports; Vol. 47, No. 3. Hyattsville, Maryland: National Center for Health Statistics, 1998.

Arias E, Anderson RN, Hsiang-Ching K, Murphy SL, Kochanek KD. Deaths: Final Data for 2001. National Vital Statistics Reports; Vol. 52, No. 3. Hyattsville, Maryland: National Center for Health Statistics, 2003

Bridged-Race Population 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

Data Sources

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.

Chapter Four, reporting sexually transmitted infections, includes data for the American Indian and Alaska Native and all races population across years to show changes over time, not necessarily to compare with each other. In addition, when compiling this data, the race categories employed may vary from state to state.

Data included in Chapter Five, the maternal and child health section, are from vital records and the respective states' Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). This data are collected at the clinic level, aggregated at the state level, and submitted to the Centers for Disease Control and Prevention (CDC) for analysis.

Pediatric Nutrition Surveillance System (PedNSS)

WIC data is included in the CDC's Pediatric Nutrition Surveillance System (PedNSS), which is a child-based public health surveillance system that monitors the nutritional status of low-income children in federally funded maternal and child health programs.

Healthy People 2010

Healthy People 2010 (HP 2010) target objectives are from *Healthy People 2010: Understanding and Improving Health,* 2nd ed., U.S. Department of Health and Human Services.

Infant Mortality

Infant mortality rates are the most commonly used index for measuring the risk of dying during the first year of life. The rates presented are calculated by dividing the number of infant deaths (under one year of age) in the calendar year by the number of live births registered for the same period and then presented as rates per 1,000.

Poverty Thresholds

Table 2 - 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 18 Years					
	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	23436	22,964	22,261	21,845
Seven people	25,912	27,596	27,006	26,595	25,828	24,934

Source: U.S. Census Bureau

Racial Misclassification

State birth and death certificates may contain racial miscoding/misclassification for American Indian and Alaska Native populations. Using death certificates from 1986-1988, the

IHS found that the three-state area was 16% race inconsistent (Michigan 31.7%, Minnesota 9.8%, and Wisconsin 14.1%). These misclassifications decrease the number of American Indian and Alaska Native births and deaths, thereby underestimating mortality rates.

IHS, Division of Program Statistics. *Adjusting for Miscoding of Indian Race on State Death Certificates*. November 1996

U.S. Department of Health and Human Services, Indian Health Service. *Trends in Indian Health,* 2000-2001

Appendix D

Data Sources

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/