

Community Health Profile: Minnesota, Wisconsin, & Michigan Tribal Communities 2006

This report is produced by:
The Great Lakes EpiCenter

If you would like to reproduce any of the information contained in this report, please use the following citation:

Community Health Profile: Minnesota, Wisconsin, & Michigan Tribal Communities, 2006. Great Lakes EpiCenter. Great Lakes Inter-Tribal Council, Inc. 2006.

For additional copies, please contact:
Kristin Hill, EpiCenter Director
Great Lakes EpiCenter
Great Lakes Inter-Tribal Council, Inc.
P.O. Box 9
Lac du Flambeau, WI 54538
(800) 472-7207
Email: khill@glitc.org

TABLE OF CONTENTS

ABOUT THIS REPORT	7
DEFINITIONS	9
SECTION 1: Demographic and Social Indicators	11
SECTION 2: Mortality	25
SECTION 3: Diabetes	33
SECTION 4: Communicable Diseases	51
SECTION 5: Maternal and Child Health	53
CONCLUSION	61
APPENDIX A: Age group patterns of morbidity and mortality	63
APPENDIX B: Underlying cause of death (ICD-9 and ICD-10 groupings)	65
APPENDIX C: Technical Notes	67
APPENDIX D: Resources	71

ABOUT THIS REPORT

This community report is intended to provide a snapshot of the health of American Indian/Alaska Native people in the Indian Health Service Bemidji Area. This document includes indicators on demographics, mortality, diabetes, communicable diseases, and maternal & child health. The items chosen to report are not meant to be an exhaustive list, but serve as a starting point. By tracking these indicators over time, a community can measure its progress regarding various health issues. The information presented may be useful in health program planning, resource allocation, and supporting evidence for grant proposals.

This report comes to you from the Great Lakes Inter-Tribal Council's Epidemiology Center (EpiCenter), which is a project funded through a grant from the Indian Health Service. The purpose of the project is to assist Bemidji Area Tribes (Wisconsin, Michigan, and Minnesota) in the collection, interpretation, and analysis of health data. The EpiCenter offers further assistance for Tribal health personnel interested in using this profile to support assessment, planning, and evaluation activities.

Data sources for this Community Health Profile include: U.S. Census Bureau, Michigan Department of Community Health, Minnesota Department of Health, Wisconsin Department of Health & Family Services, State Women, Infants and Children (WIC) Programs, Centers for Disease Control & Prevention (CDC), Tribal Health Centers, Indian Health Service (IHS), National Center for Health Statistics, and U.S. Department of Health & Human Services. Specific data sources are documented after all tables and graphs.

The population data included in this report define American Indian/Alaska Native people as those self-identifying as American Indian/Alaska Natives. Inclusion in the American Indian/Alaska Native population does not reflect Tribal affiliation. People may self-identify as American Indian/Alaska Native and not be enrolled in a Tribe; however, they would still be included as American Indian/Alaska Native in this report.

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/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 to 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.
AI/AN	Race self-identified as American Indian/ Alaska Native; does not reflect Tribal affiliation
All Races	Total population, including American Indians, in a defined area
Average Birth Weight	Birth weight between 2,500 grams and 4,000 grams
Bemidji Area	Indian Health Service area including American Indian/Alaska Native people living in Indiana, Michigan, Minnesota, and Wisconsin
Body Mass Index (BMI)	$(\text{Weight in pounds}) / (\text{Height in inches})^2 \times 703$. Used as a method of population assessment for overweight and obesity status
Contract Health Service Delivery Area (CHSDA)	County or counties which includes all or part of a reservation and any county or counties which have a common boundary with the reservation, unless otherwise designated. Tribal health programs deliver services to AI/AN living in this area.
Crude Birth Rate (CBR)	$\frac{\text{Number of resident live births in a time period} \times 1,000}{\text{Total resident population in the same period}}$
Crude Mortality Rate	$\frac{\text{Number of resident deaths in a time period} \times 100,000}{\text{Total number of residents in the same time period}}$
Epidemiology	The study of the distribution and determinants of disease frequency in the human population
High Birth Weight	Birth weight greater than 4,000 grams (~9 pounds)
IHS Total	Indian Health Service total American Indian/Alaska Native population living on or near reservations

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	Weight less than 2,500 grams (5.5 pounds)
N/A	Data not available or not applicable
Obesity	Body Mass Index (BMI) greater than 30.0 for adults or greater than the 95 th percentile 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 95 th percentile For children 2 to 19 years of age: BMI-for-Age greater than the 95 th percentile For adults over 20: BMI between 25.0 and 29.9
Project Area	EpiCenter project service area, which includes AI/AN Tribes in Michigan, Minnesota, and Wisconsin.
Socioeconomic Indicators	Involving both social and economic factors, such as race, education, employment, income, and household characteristics
Women, Infants, & 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.

SECTION 1

DEMOGRAPHIC AND SOCIAL INDICATORS

Demographic and social indicators are important for understanding the health status of a community. These indicators can be used to identify population groups that may be at a higher risk for morbidity and mortality. They can also assist in identifying causal or contributing factors to a health condition. Race, gender, age, education, employment, income levels, poverty status, and single parent-headed households are also included in this section. Comparisons are made between Michigan, Minnesota, Wisconsin, the IHS Bemidji Area, and the United States. Where appropriate, numbers and percentages are listed by American Indian/Alaska Native (AI/AN) and All Races (which includes AI/AN). U.S. Census data from 1990 and 2000 are the primary sources of data for this section.

Race

Racial and ethnic differences in health status are often related more to differences in social and economic status than race. However, knowledge of the racial distributions in the population of a community is essential in interpreting gaps in health status, for identifying structural or cultural barriers for access to care among populations, and in developing strategies to address these problems.

Beginning with the 2000 Census, respondents were allowed to self-identify as more than one race. However, state birth and death certificates record only one race. The 2004 populations reported in Tables 1.1a-d are based on a statistical technique that generates estimates for the four races used when calculating vital statistics. (See Appendix C: Technical Notes for more explanation and references). It is important to remember that racial information reported by the U.S. Census Bureau is based on self-reported responses and does not reflect official tribal enrollment numbers. Tables 1.1a-d show that in the Bemidji Area the proportion of AI/AN as a percent of the total population has remained fairly stable from 1990 to 2004, ranging between 0.8% and 0.9%. Please note that due to rounding, some columns in Tables throughout this report, may not total exactly 100.00%.

TABLE 1.1a - Race Distribution for Bemidji Area, 1990, 2000, & 2004 Estimate

Race	1990		2000		2004 Estimate*	
	#	%	#	%	#	%
White	16,433,951	88.4	17,136,192	84.7	17,920,420	86.5
African American	1,628,261	8.8	1,888,933	9.3	2,071,871	10.0
AI/AN	148,568	0.8	160,674	0.8	195,264	0.9
Asian	233,813	1.3	407,241	2.0	535,049	2.6
Other	147,572	0.8	286,505	1.4	-	-
2+Races			342,053	1.7	-	-
Total	18,592,165	100.0	20,221,598	100.0	20,722,604	100.0

Sources: U.S. Census Bureau 1990 (Summary Tape File 1), 2000 (Summary File 1), & National Center for Health Statistics

*Bridged-race Population Estimates (Vintage 2004), United States

TABLE 1.1b - Race Distribution for Michigan, 1990, 2000, & 2004 Estimate

Race	1990		2000		2004 Estimate*	
	#	%	#	%	#	%
White	7,789,241	83.5	7,966,053	80.2	8,305,419	82.1
African American	1,289,012	13.8	1,412,742	14.2	1,495,996	14.8
AI/AN	58,934	0.6	58,479	0.6	73,295	0.7
Asian	102,869	1.1	176,510	1.8	237,910	2.4
Other	85,241	0.9	132,244	1.3	-	-
2+Races			192,416	1.9	-	-
Total	9,325,297	100.0	9,938,444	100.0	10,112,620	100

Sources: U.S. Census Bureau 1990 (Summary Tape File 1), 2000 (Summary File 1), & National Center for Health Statistics

*Bridged-race Population Estimates (Vintage 2004), United States

TABLE 1.1c - Race Distribution for Minnesota, 1990, 2000, & 2004 Estimate

Race	1990		2000		2004 Estimate*	
	#	%	#	%	#	%
White	4,130,395	94.4	4,400,282	89.5	4,619,391	90.6
African American	94,944	2.2	171,731	3.5	231,791	4.5
AI/AN	49,909	1.1	54,967	1.1	65,782	1.3
Asian	77,886	1.8	141,968	2.9	183,994	3.6
Other	21,965	0.5	67,789	1.4	-	-
2+Races			82,742	1.7	-	-
Total	4,375,099	100.0	4,919,479	100.0	5,100,958	100.0

Sources: U.S. Census Bureau 1990 (Summary Tape File 1), 2000 (Summary File 1), & National Center for Health Statistics

*Bridged-race Population Estimates (Vintage 2004), United States

TABLE 1.1d - Race Distribution for Wisconsin, 1990, 2000, & 2004 Estimate

Race	1990		2000		2004 Estimate*	
	#	%	#	%	#	%
White	451,4315	92.3	4,769,857	88.9	4,995,610	90.7
African American	244,305	5.0	304,460	5.7	344,084	6.2
AI/AN	39,725	0.8	47,228	0.9	56,187	1.0
Asian	53,058	1.1	88,763	1.7	113,145	2.1
Other	40,366	0.8	86,472	1.6	-	-
2+Races			66,895	1.2	-	-
Total	4,891,769	100.0	5,363,675	100.0	5,509,026	100.0

Sources: U.S. Census Bureau 1990 (Summary Tape File 1), 2000 (Summary File 1), & National Center for Health Statistics

*Bridged-race Population Estimates (Vintage 2004), United States

Age and Gender

Both age and gender influence patterns of morbidity, mortality, and utilization of health services. Therefore, the analysis of the age-gender distribution of the population is important in assessing the health of a community. It also plays an important role in public health planning because age is a significant indicator of specific disease prevalence and the overall health of a community. See Appendix A for a listing of the most prevalent health problems associated with particular age groups. Current age distribution can be used as a planning tool in anticipation of future age-related population health burdens. Gender also plays an important role in the health of a

community. For select diseases, males and females have different morbidity and mortality rates. Disease conditions or injuries can affect one gender more dramatically than the other or can affect one gender exclusively. Average life expectancy also differs by gender.

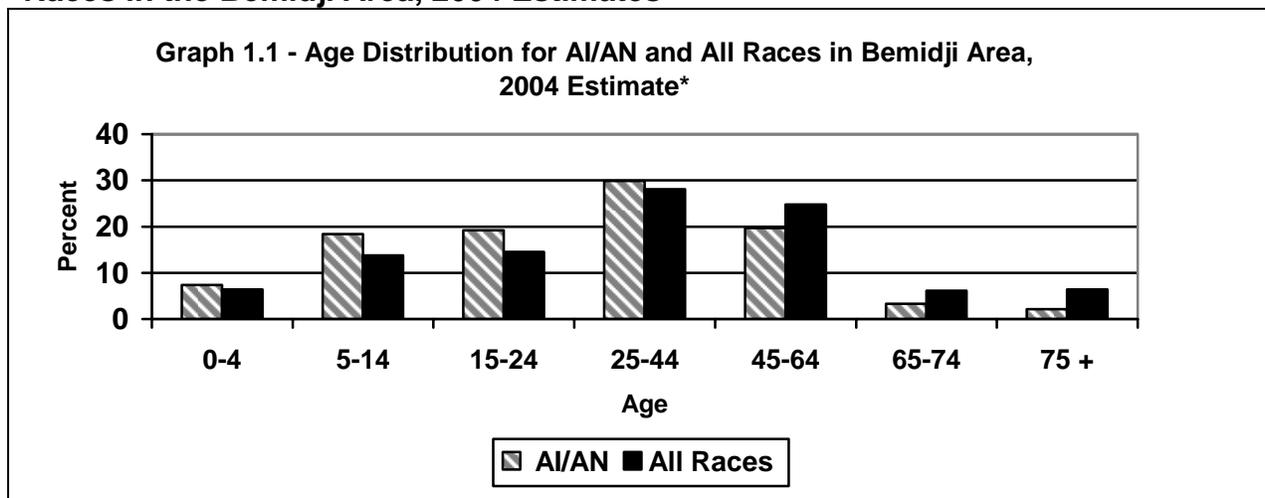
Tables 1.2a-d display the age and gender distribution for the Bemidji Area and for each of the three states. The AI/AN population in the Bemidji Area is much younger than that of All Races in the Bemidji Area. Table 1.2a estimates that almost half of the Bemidji Area AI/AN population (45.0%) are under 25 years of age compared to All Races in the Bemidji Area (34.7%). In addition, there is a large difference between AI/AN and All Races aged 65 and above (5.4% and 12.5% respectively). This information is important for program planning since the younger AI/AN population will encounter different health issues than the older, general population. For example, injuries and infectious diseases may affect the health of the younger groups as opposed to chronic diseases, which will primarily affect older age groups.

TABLE 1.2a - Age and Gender Distribution for American Indian/Alaska Natives and All Races in Bemidji Area, 2004 Estimates*

Age	AI/AN						All Races					
	Males		Females		Total		Males		Females		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
0-4	7,400	3.8%	7,070	3.6%	14,470	7.4%	677,036	3.3%	643,140	3.1%	1,320,176	6.4%
5-14	18,225	9.3%	17,761	9.1%	35,986	18.4%	1,461,881	7.1%	1,391,594	6.7%	2,853,475	13.8%
15-24	18,993	9.7%	18,427	9.4%	37,420	19.2%	1,537,347	7.4%	1,473,176	7.1%	3,010,523	14.5%
25-44	29,296	15.0%	29,069	14.9%	58,365	29.9%	2,936,554	14.2%	2,889,971	13.9%	5,826,525	28.1%
45-64	18,566	9.5%	19,912	10.2%	38,478	19.7%	2,539,017	12.3%	2,595,546	12.5%	5,134,563	24.8%
65-74	2,921	1.5%	3,570	1.8%	6,491	3.3%	577,660	2.8%	683,204	3.3%	1,260,864	6.1%
75 +	1,560	0.8%	2,494	1.3%	4,054	2.1%	498,078	2.4%	818,400	3.9%	1,316,478	6.4%
Total	96,961	49.7%	98,303	50.3%	195,264	100.0%	10,227,573	49.4%	10,495,031	50.6%	20,722,604	100.0%

* NCHS Bridged-race Population Estimates (Vintage 2004), United States

Graph 1.1 illustrates the differences in age distribution between AI/AN and All Races in the Bemidji Area, 2004 Estimates*



* NCHS Bridged-race Population Estimates (Vintage 2004), United States

TABLE 1.2b - Age and Gender Distribution for American Indian/Alaska Natives and All Races in Michigan, 2004 Estimates*

Age	AI/AN						All Races					
	Males		Females		Total		Males		Females		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
0-4	1,747	2.4%	1,653	2.3%	3,400	4.6%	332,952	3.3%	316,890	3.1%	649,842	6.4%
5-14	6,623	9.0%	6,524	8.9%	13,147	17.9%	737,268	7.3%	701,768	6.9%	1,439,036	14.2%
15-24	6,930	9.5%	6,715	9.2%	13,645	18.6%	735,586	7.3%	705,546	7.0%	1,441,132	14.3%
25-44	11,423	15.6%	11,041	15.1%	22,464	30.6%	1,413,428	14.0%	1,406,470	13.9%	2,819,898	27.9%
45-64	7,806	10.7%	8,378	11.4%	16,184	22.1%	1,233,722	12.2%	1,282,395	12.7%	2,516,117	24.9%
65-74	1,180	1.6%	1,435	2.0%	2,615	3.6%	275,495	2.7%	336,365	3.3%	611,860	6.1%
75 +	716	1.0%	1,124	1.5%	1,840	2.5%	240,212	2.4%	394,523	3.9%	634,735	6.3%
Total	36,425	49.7%	36,870	50.3%	73,295	100.0%	4,968,663	49.1%	5,143,957	50.9%	10,112,620	100.0%

*NCHS Bridged-race Population Estimates (Vintage 2004), United States

TABLE 1.2c – Age and Gender Distribution for American Indian/Alaska Natives and All Races in Minnesota, 2004 Estimates*

Age	AI/AN						All Races					
	Males		Females		Total		Males		Females		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
0-4	3,131	4.8%	3,073	4.7%	6,204	9.4%	170,444	3.3%	161,580	3.2%	332,024	6.5%
5-14	6,348	9.7%	6,230	9.5%	12,578	19.1%	351,508	6.9%	333,803	6.5%	685,311	13.4%
15-24	6,628	10.1%	6,358	9.7%	12,986	19.7%	385,072	7.5%	368,870	7.2%	753,942	14.8%
25-44	9,507	14.5%	9,701	14.7%	19,208	29.2%	745,436	14.6%	726,148	14.2%	1,471,584	28.8%
45-64	5,726	8.7%	6,122	9.3%	11,848	18.0%	619,618	12.1%	623,300	12.2%	1,242,918	24.4%
65-74	877	1.3%	1,061	1.6%	1,938	2.9%	140,215	2.7%	159,900	3.1%	300,115	5.9%
75 +	401	0.6%	619	0.9%	1,020	1.6%	119,625	2.3%	195,439	3.8%	315,064	6.2%
Total	32,618	49.6%	33,164	50.4%	65,782	100.0%	2,531,918	49.6%	2,569,040	50.4%	5,100,958	100.0%

*NCHS Bridged-race Population Estimates (Vintage 2004), United States

TABLE 1.2d – Age and Gender Distribution for American Indian/Alaska Natives and All Races in Wisconsin, 2004 Estimates*

Age	AI/AN						All Races					
	Males		Females		Total		Males		Females		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
0-4	2,522	4.5%	2,344	4.2%	4,866	8.7%	173,640	3.2%	164,670	3.0%	338,310	6.1%
5-14	5,254	9.4%	5,007	8.9%	10,261	18.3%	373,105	6.8%	356,023	6.5%	729,128	13.2%
15-24	5,435	9.7%	5,354	9.5%	10,789	19.2%	416,689	7.6%	398,760	7.2%	815,449	14.8%
25-44	8,366	14.9%	8,327	14.8%	16,693	29.7%	777,690	14.1%	757,353	13.7%	1,535,043	27.9%
45-64	5,034	9.0%	5,412	9.6%	10,446	18.6%	685,677	12.4%	689,851	12.5%	1,375,528	25.0%
65-74	864	1.5%	1,074	1.9%	1,938	3.4%	161,950	2.9%	186,939	3.4%	348,889	6.3%
75 +	443	0.8%	751	1.3%	1,194	2.1%	138,241	2.5%	228,438	4.1%	366,679	6.7%
Total	27,918	49.7%	28,269	50.3%	56,187	100.0%	2,726,992	49.5%	2,782,034	50.5%	5,509,026	100.0%

*NCHS Bridged-race Population Estimates (Vintage 2004), United States

Socioeconomic Status

Differences in socioeconomic status can account for many patterns of morbidity and mortality. Low socioeconomic status is related to social stressors such as poor access to health care, unhealthy or unsafe living conditions, and low education levels. Because of the relationship between socioeconomic status and race, racial differences are often interpreted as explanations for patterns that are actually associated with socioeconomic position. Since there tends to be a disproportionately high number of minorities at the lower socioeconomic levels, minority populations seem to be affected with more health problems than the general population.

Education

Education has been shown to positively correlate with health status. Low levels of education are risk factors for a number of diseases because of the corresponding association with tobacco use, poor diet, lack of physical activity, and less appropriate medical care.

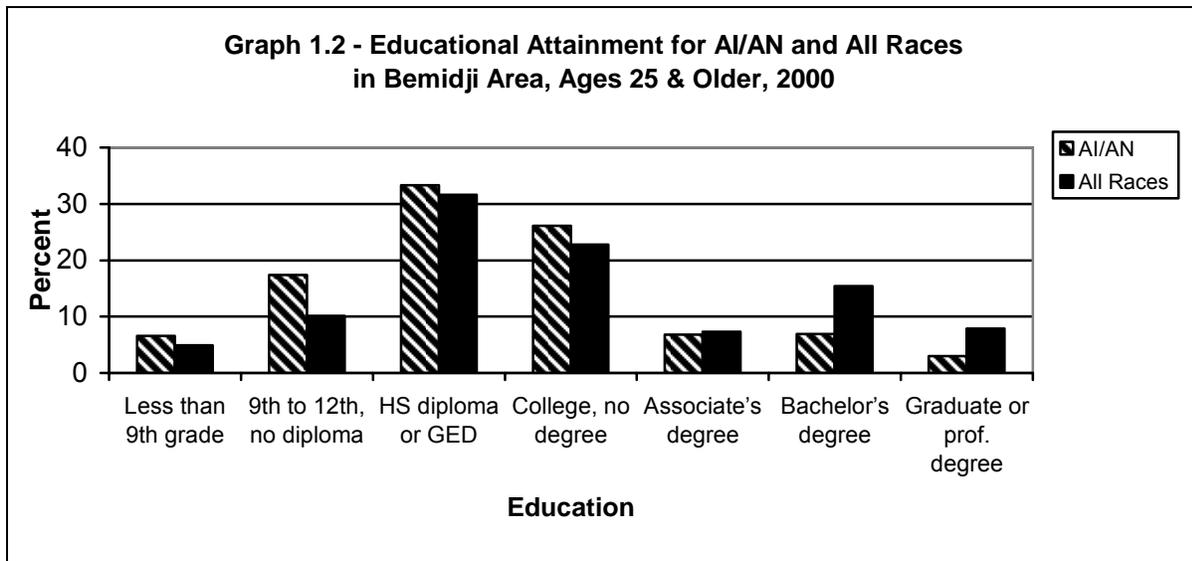
Tables 1.3a-d display the education levels attained by AI/AN and All Races in the Bemidji Area and for each of the three states. The Bemidji Area data for 2000 in Table 1.3a shows the proportion obtaining “high school diploma or higher” education was lower in the AI/AN population (76.1%) than the All Races population (85.0%), but showed a 12.6% improvement from 1990. For the “bachelor’s degree or higher” category, the AI/AN population in the Bemidji Area had a much lower completion percentage than the All Races population (9.9% to 23.3% respectively), but showed a 39.4% improvement from 1990.

TABLE 1.3a – Educational Attainment (by Percent) for American Indian/Alaska Natives and All Races in Bemidji Area, Ages 25 and Older, 1990 & 2000

Educational Attainment	AI/AN			All Races		
	1990	2000	% Change	1990	2000	% Change
Less than 9 th grade	9.8	6.6	-32.7	8.4	4.9	-41.7
9 th to 12 th , no diploma	23.6	17.4	-26.3	13.0	10.1	-22.3
High school diploma or GED	33.8	33.3	-1.5	33.7	31.6	-6.2
Some college, no degree	20.7	26.1	+26.1	19.1	22.8	+19.4
Associate’s degree	6.1	6.8	+11.5	7.3	7.3	0.0
Bachelor’s degree	4.7	6.9	+46.8	12.3	15.4	+25.2
Graduate or professional degree	2.4	3.0	+25.0	6.2	7.9	+27.4
High school diploma or higher	67.6	76.1	+12.6	78.6	85.0	+8.1
Bachelor’s degree or higher	7.1	9.9	+39.4	18.5	23.3	+25.9

Source: U.S. Census Bureau, 1990 Summary Tape File 3 (STF 3) & 2000 Summary File 3 (SF-3)

Graph 1.2 illustrates the differences in educational attainment between AI/AN and All Races in the Bemidji Area.



Source: U.S. Census, 2000 Summary File 3 (SF-3)

TABLE 1.3b – Educational Attainment (by Percent) for American Indian/Alaska Natives and All Races in Michigan, Ages 25 and Older, 1990 & 2000

Educational Attainment	AI/AN			All Races		
	1990	2000	% Change	1990	2000	% Change
Less than 9 th grade	9.5	6.6	-30.5	7.8	4.7	-39.7
9 th to 12 th , no diploma	22.7	17.0	-25.1	15.5	11.9	-23.2
High school diploma or GED	33.5	32.1	-4.2	32.3	31.3	-3.1
Some college, no degree	21.2	26.8	+26.4	20.4	23.3	+14.2
Associate's degree	5.5	7.1	+29.1	6.7	7.0	+4.5
Bachelor's degree	4.9	7.4	+51.0	10.9	13.7	+25.7
Graduate or professional degree	2.7	2.9	+7.4	6.4	8.1	+26.6
High school diploma or higher	67.8	76.3	+12.5	76.7	83.4	+8.7
Bachelor's degree or higher	7.6	10.3	+35.5	17.3	21.8	+26.0

Source: U.S. Census Bureau, 1990 Summary Tape File 3 (STF 3) & 2000 Summary File 3 (SF-3)

TABLE 1.3c – Educational Attainment (by Percent) for American Indian/Alaska Natives and All Races in Minnesota, Ages 25 and Older, 1990 & 2000

Educational Attainment	AI/AN			All Races		
	1990	2000	% Change	1990	2000	% Change
Less than 9 th grade	9.3	7.4	-20.4	8.6	5.0	-41.9
9 th to 12 th , no diploma	22.6	18.1	-19.9	9.0	7.0	-22.2
High school diploma or GED	33.3	32.2	-3.3	33.0	28.8	-12.7
Some college, no degree	20.3	27.2	+34.0	19.0	24.0	+26.3
Associate's degree	6.9	6.3	-8.7	8.6	7.7	-10.5
Bachelor's degree	5.3	6.1	+15.1	15.6	19.1	+22.4
Graduate or professional degree	2.3	2.7	+17.4	6.2	8.3	+33.9
High school diploma or higher	68.1	74.5	+9.4	82.4	87.9	+6.7
Bachelor's degree or higher	7.6	8.8	+15.8	21.8	27.4	+25.7

Source: U.S. Census Bureau, 1990 Summary Tape File 3 (STF 3) & 2000 Summary File 3 (SF-3)

TABLE 1.3d – Educational Attainment (by Percent) for American Indian/Alaska Natives and All Races in Wisconsin, Ages 25 and Older, 1990 & 2000

Educational Attainment	AI/AN			All Races		
	1990	2000	% Change	1990	2000	% Change
Less than 9 th grade	10.7	5.6	-47.7	9.5	5.4	-43.2
9 th to 12 th , no diploma	22.5	17.1	-24.0	11.9	9.6	-19.3
High school diploma or GED	34.9	36.0	+3.2	37.1	34.6	-6.7
Some college, no degree	20.4	24.0	+17.6	16.7	20.6	+23.4
Associate's degree	5.9	6.9	+16.9	7.1	7.5	+5.6
Bachelor's degree	3.7	6.9	+86.5	12.1	15.3	+26.4
Graduate or professional degree	1.8	3.5	+94.4	5.6	7.2	+28.6
High school diploma or higher	66.8	77.3	+15.7	78.6	85.1	+8.3
Bachelor's degree or higher	5.5	10.4	+89.1	17.7	22.4	+26.6

Source: U.S. Census Bureau, 1990 Summary Tape File 3 (STF 3) & 2000 Summary File 3 (SF-3)

Employment

Employment status and occupation (refer to Tables 1.4a-d) are important with respect to population health due to the fact that health care benefits are often tied to full-time employment. In addition, there is a general tendency for those with lower income to experience a lower health status than those with a higher income. Table 1.4a shows that unemployment for AI/AN in the Bemidji Area decreased from 17.3% in 1990 to 12.5% in 2000.

TABLE 1.4a – Employment Status for American Indian/Alaska Natives in the Bemidji Area, by Percent, 1990 and 2000

Employment	AI/AN			All Races		
	1990	2000	Change	1990	2000	Change
In Labor Force	62.8	65.5	+4.3	66.3	67.4	+1.7
<i>In Armed Forces</i>	0.3	0.1	-66.7	0.2	0.1	-50.0
<i>Employed</i>	82.5	87.4	+5.9	93.1	94.9	+1.9
<i>Unemployed</i>	17.3	12.5	-27.7	6.6	5.0	-24.2
Not in Labor Force	37.2	34.5	-7.3	33.7	32.6	-3.3

Source: U.S. Census Bureau, 1990 Summary Tape File 3 (STF 3) & 2000 Summary File 3 (SF-3)

TABLE 1.4b – Employment Status for American Indian/Alaska Natives in Michigan, by Percent, 1990 and 2000

Employment	AI/AN			All Races		
	1990	2000	Change	1990	2000	Change
In Labor Force	65.6	66.2	+0.8	64.1	64.6	+0.7
<i>In Armed Forces</i>	0.3	0.1	-53.5	0.3	0.1	-72.8
<i>Employed</i>	84.0	89.0	+6.0	91.5	94.1	+2.9
<i>Unemployed</i>	15.7	10.8	-31.1	8.2	5.8	-29.6
Not in Labor Force	34.4	33.8	-1.6	35.9	35.4	-1.2

Source: U.S. Census Bureau, 1990 Summary Tape File 3 (STF 3) & 2000 Summary File 3 (SF-3)

TABLE 1.4c – Employment Status for American Indian/Alaska Natives in Minnesota, by Percent, 1990 and 2000

Employment	AI/AN			All Races		
	1990	2000	Change	1990	2000	Change
In Labor Force	58.2	63.0	+8.2	69.7	71.2	+2.1
<i>In Armed Forces</i>	0.1	0.1	+0.7	0.2	0.1	-38.7
<i>Employed</i>	79.9	85.1	+6.4	94.7	95.9	+1.2
<i>Unemployed</i>	19.9	14.8	-25.7	5.1	4.1	-21.1
Not in Labor Force	41.8	37.0	-11.5	30.3	28.8	-4.9

Source: U.S. Census Bureau, 1990 Summary Tape File 3 (STF 3) & 2000 Summary File 3 (SF-3)

TABLE 1.4d – Employment Status for American Indian/Alaska Natives in Wisconsin, by Percent, 1990 and 2000

Employment	AI/AN			All Races		
	1990	2000	Change	1990	2000	Change
In Labor Force	63.9	67.2	+5.2	67.6	69.1	+2.2
<i>In Armed Forces</i>	0.3	0.0	-100.0	0.2	0.1	-50.1
<i>Employed</i>	82.7	87.6	+5.9	94.6	95.2	+0.7
<i>Unemployed</i>	17.0	12.4	-26.9	5.2	4.7	-10.1
Not in Labor Force	36.1	32.8	-9.2	32.4	30.9	-4.6

Source: U.S. Census Bureau, 1990 Summary Tape File 3 (STF 3) & 2000 Summary File 3 (SF-3)

Income

Low income tends to be correlated with higher rates of chronic disease. This association is related to problems of access to care, obstacles in obtaining and using health insurance, and higher levels of risk behaviors. As with education, Table 1.5a shows that income levels in both 1989 and 1999 for the Bemidji Area AI/AN population were lower than for the Bemidji Area All Races population, but there is a shrinking disparity in household income over the same time. Household income data by state appear in Tables 1.5b-d. About twice as many AI/AN households (14.6%) had income under \$10,000 than households of All Races (7.6%). More AI/AN households (38.1%) had income under \$25,000 compared to 25.5% of All Races households in the Bemidji Area. Note that these income changes over time have not been adjusted for inflation.

TABLE 1.5a – Household Income for American Indian/Alaska Natives and All Races Bemidji Area, by Percent, 1989 & 1999

Household Income	AI/AN			All Races		
	1989	1999	Change	1989	1999	Change
Less than \$10,000	30.1	14.6	-51.5	14.8	7.6	-48.6
\$10,000 to \$14,999	12.3	7.6	-38.0	8.8	5.7	-35.3
\$15,000 to \$24,999	20.0	15.9	-20.5	17.3	12.2	-29.3
\$25,000 to \$34,999	14.1	11.2	-20.8	16.2	12.6	-22.1
\$35,000 to \$49,999	12.8	17.1	+33.8	19.3	17.0	-11.7
\$50,000 to \$74,999	8.0	17.9	+123.8	15.5	21.6	+39.3
\$75,000 or \$99,999	1.9	7.6	+301.8	4.7	11.4	+143.1
\$100,000 or more	0.9	5.1	+465.3	3.4	11.8	+246.9

Source: U.S. Census Bureau, 1990 Summary Tape File 3 (STF 3) & 2000 Summary File 3 (SF-3)

TABLE 1.5b – Household Income for American Indian/Alaska Natives and All Races Michigan, by Percent, 1989 & 1999

Household Income	AI/AN			All Races		
	1989	1999	Change	1989	1999	Change
Less than \$10,000	26.0	12.1	-53.5	15.5	8.3	-46.5
\$10,000 to \$14,999	10.0	7.0	-30.0	8.6	5.8	-32.6
\$15,000 to \$24,999	19.8	13.9	-29.8	16.4	12.4	-24.4
\$25,000 to \$34,999	15.7	14.0	-10.8	15.3	12.4	-19.0
\$35,000 to \$49,999	14.7	17.8	+21.1	18.7	16.5	-11.8
\$50,000 to \$74,999	10.1	19.9	+97.0	16.3	20.6	+26.4
\$75,000 or \$99,999	2.7	9.3	+244.4	5.4	11.4	+111.1
\$100,000 or more	1.1	5.9	+436.4	3.8	12.7	+234.2

Source: U.S. Census Bureau, 1990 Summary Tape File 3 (STF 3) & 2000 Summary File 3 (SF-3)

TABLE 1.5c – Household Income for American Indian/Alaska Natives and All Races Minnesota, by Percent, 1989 & 1999

Household Income	AI/AN			All Races		
	1989	1999	Change	1989	1999	Change
Less than \$10,000	35.8	18.0	-49.7	13.9	6.7	-51.8
\$10,000 to \$14,999	13.2	8.7	-34.1	8.6	5.4	-37.2
\$15,000 to \$24,999	19.0	17.8	-6.3	17.5	11.4	-34.9
\$25,000 to \$34,999	11.9	13.4	+12.6	16.6	12.4	-25.3
\$35,000 to \$49,999	11.5	15.6	+35.7	19.7	17.0	-13.7
\$50,000 to \$74,999	6.2	15.5	+150.0	15.6	22.4	+43.6
\$75,000 or \$99,999	1.5	6.0	+300.0	4.5	12.1	+168.9
\$100,000 or more	0.9	4.9	+444.4	3.6	12.6	+250.0

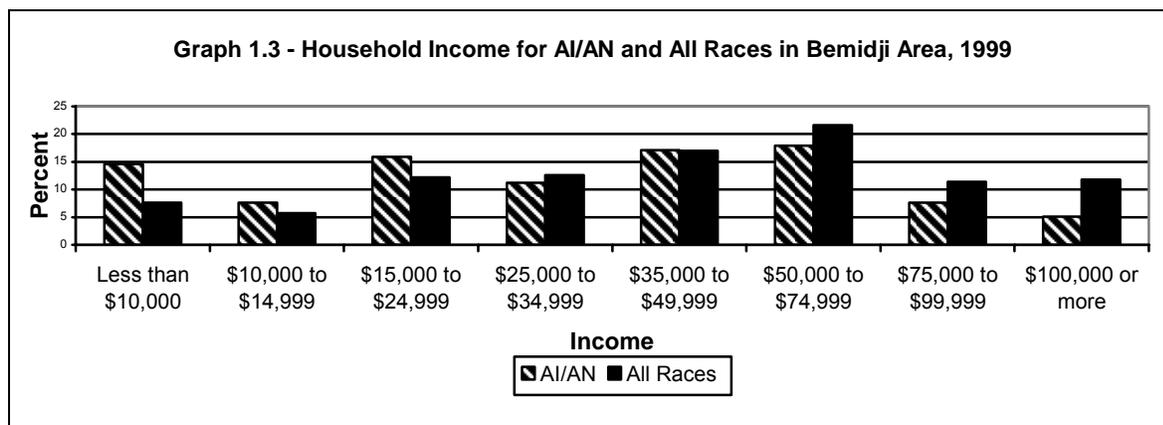
Source: U.S. Census Bureau, 1990 Summary Tape File 3 (STF 3) & 2000 Summary File 3 (SF-3)

TABLE 1.5d – Household Income for American Indian/Alaska Natives and All Races Wisconsin, by Percent, 1989 & 1999

Household Income	AI/AN			All Races		
	1989	1999	Change	1989	1999	Change
Less than \$10,000	29.6	14.2	-52.0	14.0	7.1	-49.2
\$10,000 to \$14,999	14.8	7.3	-50.9	9.4	5.8	-38.1
\$15,000 to \$24,999	21.7	16.4	-24.4	18.7	12.7	-32.1
\$25,000 to \$34,999	14.2	15.0	+5.7	17.4	13.2	-24.0
\$35,000 to \$49,999	11.2	17.9	+59.8	20.2	18.1	-10.4
\$50,000 to \$74,999	6.8	17.8	+161.8	14.1	22.7	+61.2
\$75,000 or \$99,999	1.1	7.2	+550.4	3.6	10.9	+201.4
\$100,000 or more	0.6	4.2	+606.9	2.6	9.4	+262.5

Source: U.S. Census Bureau, 1990 Summary Tape File 3 (STF 3) & 2000 Summary File 3 (SF-3)

Graph 1.3 illustrates the disparities in 1999 income levels between the AI/AN population and All Races for the Bemidji Area.



Source: U.S. Census, 2000 Summary File 3 (SF-3)

Poverty Status

Poverty status in the U.S. is determined by a set of income thresholds that vary by family size and composition (see Appendix C: Technical Notes for 2000 poverty guidelines). Tables 1.6a-d display poverty status by age groups in the AI/AN and All Races populations. According to the 2000 Census (using 1999 reported income), over 22% of AI/AN were considered below poverty in the Bemidji Area, including 30.5% of AI/AN 5 years and under. This is compared to 9.4% of All Races below poverty.

Table 1.6a – Poverty Status*, Bemidji Area, 1999

Poverty Status by Age	AI/AN		All Races	
	#	%	n	%
Below poverty	34,875	22.1	1,853,619	9.4
5 years and under	5,099	30.5 [^]	217,840	13.6 [^]
6 to 17 years	9,839	25.9 [^]	406,952	11.4 [^]
18 to 64 years	18,593	19.4 [^]	1,038,061	8.5 [^]
65 years and over	1,344	18.4 [^]	190,766	8.0 [^]
At or above poverty	122,784	77.9	17,852,750	90.6
Total	157,659	100.0	19,706,369	100.0

Source: U.S. Census 2000 (Summary File 3)

*Only includes population for whom poverty status was determined

[^]Indicates percent of each age group below poverty level

Table 1.6b – Poverty Status*, Michigan, 1999

Poverty Status	AI/AN		All Races	
	#	%	n	%
Below poverty	9,855	16.8	1,021,605	10.5
5 years and under	1,267	22.2 [^]	123,830	15.5 [^]
6 to 17 years	2,375	18.7 [^]	229,105	13.1 [^]
18 to 64 years	5,702	15.3 [^]	572,554	9.6 [^]
65 and over	511	17.1 [^]	96,116	8.2 [^]
At or above poverty	48,809	83.2	8,679,017	89.5
Total	58,664	100.0	9,700,622	100.0

Source: U.S. Census 2000 (Summary File 3)

*Only includes population for whom poverty status was determined

[^]Indicates percent of each age group below poverty level

Table 1.6c – Poverty Status*, Minnesota, 1999

Poverty Status	AI/AN		All Races	
	#	%	n	%
Below poverty	14,686	28.6	380,476	7.9
5 years and under	2,217	38.7 [^]	41,403	10.6 [^]
6 to 17 years	4,414	33.3 [^]	80,288	9.2 [^]
18 to 64 years	7,625	25.1 [^]	213,380	7.2 [^]
65 and over	430	20.7 [^]	45,405	8.2 [^]
At or above poverty	36,685	71.4	4,413,668	92.1
Total	51,371	100.0	4,794,144	100.0

Source: U.S. Census 2000 (Summary File 3)

*Only includes population for whom poverty status was determined

[^]Indicates percent of each age group below poverty level

Table 1.6d – Poverty Status*, Wisconsin, 1999

Poverty Status	AI/AN		All Races	
	#	%	n	%
Below poverty	10,334	21.7	451,538	8.7
5 years and under	1,615	30.6 [^]	52,607	12.9 [^]
6 to 17 years	3,050	25.4 [^]	97,559	10.4 [^]
18 to 64 years	5,266	18.7 [^]	252,127	7.9 [^]
65 and over	403	18.2 [^]	49,245	7.4 [^]
At or above poverty	37,290	78.3	4,760,065	91.3
Total	47,624	100.0	5,211,603	100.0

Source: U.S. Census 2000 (Summary File 3)

*Only includes population for whom poverty status was determined

[^]Indicates percent of each age group below poverty level

Family Households

This section looks at the makeup of families in terms of head(s) of households and children present. Table 1.7 shows that the percent of single, AI/AN female-headed households decreased in each state from 1990 to 2000. However, in 2000, the percentage is still over two times higher among AI/AN than the general Bemidji Area population (16.7% to 6.5%, respectively). Male AI/AN-headed households increased in each state from 1990 to 2000.

TABLE 1.7 – Single Parent-Headed Households for American Indian/Alaska Natives & All Races, 1990 and 2000

Household Characteristics by Area	AI/AN		All Races	
	1990	2000	1990	2000
<i>Female householder (no husband) with own children under 18 years old</i>				
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
Bemidji Area	19.3	16.7	6.6	6.5
<i>Male householder (no wife) with own children under 18 years old</i>				
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
Bemidji Area	4.1	5.3	1.3	2.0

Source: U.S. Census, 1990 (Summary Tape File 3) & 2000 (Summary File 3)

Note: Columns not meant to total 100% since some householder categories are not reported here

SECTION 2 MORTALITY

This section contains mortality data for the leading causes of death in 2002-2004 and age adjusted mortality for selected causes of death for each of the three states and the Bemidji Area. Graphs are also included, which depict crude mortality rate trends over time. American Indian/Alaska Native data presented in this section are from each state's mortality files which come from death certificates. It is important to note that the underlying cause of death reported on a death certificate does not necessarily reflect all contributing factors affecting a death. There may also be erroneous demographic data on certificates, including racial misclassification. However, death certificate information is an important source of data since it is routinely collected following guidelines and connects cause of death, race, and county of residence. Appendix B lists the ICD-9 and ICD-10 codes used for categorizing the underlying causes of death.

Table 2.1a shows that for 2004, cancer (21.5% of all causes) was the highest cause of death for American Indian/Alaskan Native in the Bemidji Area. The proportion of deaths from lung cancer shows an increase from 2002 (25.5%) to 2004 (55.8%).

TABLE 2.1a – Selected Causes of Death for American Indian/Alaska Natives in Bemidji Area, 2002-2004

Cause of Death	2004		2003		2002	
	#	%	#	%	#	%
Heart Disease	236	20.9	259	24.1	225	21.8
<i>Ischemic Heart Disease</i>	166	70.3	150	57.9	173	76.9
Cancer	242	21.5	207	19.3	165	15.9
<i>Lung Cancer</i>	135	55.8	103	49.8	42	25.5
Unintentional Injury	108	9.6	99	9.2	107	10.4
<i>Motor Vehicle Accidents</i>	51	47.2	50	50.5	33	30.8
Diabetes	76	6.8	76	7.1	67	6.5
Chronic Lower Resp. Disease	52	4.6	54	5.0	65	6.3
Sub-total	714	63.5	695	64.8	629	60.9
TOTAL DEATHS	1125	100.0	1073	100.0	1032	100.0

Sources: 2002-2004 Mortality Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information

Tables 2.1b-d display selected causes of death for each state from 2002-2004.

TABLE 2.1b – Selected Causes of Death for American Indian/Alaska Natives in Michigan, 2002-2004

Cause of Death	2004		2003		2002	
	#	%	#	%	#	%
Heart Disease	113	27.8	118	29.4	103	25.8
<i>Ischemic Heart Disease</i>	93	82.3	88	74.6	89	86.4
Cancer	91	22.4	89	22.1	67	16.8
<i>Lung Cancer</i>	74	81.3	65	73.0	29	43.3
Unintentional Injury	29	7.1	29	7.2	23	5.8
<i>Motor Vehicle Accidents</i>	17	58.6	16	55.2	10	43.5
Diabetes	25	6.2	25	6.2	27	6.8
Chronic Lower Resp. Disease	21	5.2	26	6.5	28	7.0
Sub-total	279	68.7	287	71.4	248	62.0
TOTAL DEATHS (ALL CAUSES)	406	100.0	402	100.0	400	100.0

Source: Death Files from Michigan Department of Community Health, 2002-2004

TABLE 2.1c – Selected Causes of Death for American Indian/Alaska Natives in Minnesota, 2002-2004

Cause of Death	2004		2003		2002	
	#	%	#	%	#	%
Heart Diseases	67	17.0	73	19.1	66	18.4
<i>Ischemic Heart Disease</i>	41	10.4	15	20.5	43	65.2
Cancers	78	19.8	71	18.5	56	15.6
<i>Lung Cancer</i>	33	8.4	25	35.2	13	23.2
Unintentional Injuries	50	12.7	39	10.2	50	14.0
<i>Motor Vehicle Accidents</i>	22	5.6	22	56.4	23	46.0
Diabetes	19	4.8	34	8.9	24	6.7
Chronic Lower Resp. Disease	15	3.8	15	3.9	10	47.6
Sub-total	229	58.3	232	60.6	238	66.5
TOTAL DEATHS (ALL CAUSES)	393	100.0	383	100.0	358	100.0

Source: Minnesota Center for Health Statistics, Mortality Files, 2002-2004

TABLE 2.1d – Selected Causes of Death for American Indian/Alaska Natives in Wisconsin, 2002-2004

Cause of Death	2004		2003		2002	
	#	%	#	#	#	%
Heart Disease	56	17.2	68	23.6	57	20.1
<i>Ischemic Heart Disease</i>	32	57.1	47	69.1	41	71.9
Cancer	73	22.4	47	16.3	45	15.8
<i>Lung Cancer</i>	28	38.4	13	27.7	14	31.1
Unintentional Injury	29	8.9	31	10.8	37	13.0
<i>Motor Vehicle Accidents</i>	12	41.4	12	38.7	22	59.4
Diabetes	32	9.8	17	5.9	17	6.0
Chronic Lower Resp. Disease	16	4.9	13	4.5	16	5.6
Sub-total	206	63.2	176	61.1	172	60.6
TOTAL DEATHS (ALL CAUSES)	326	100.0	288	100.0	284	100.0

Source: WISH Data Query System (Wisconsin Interactive Statistics on Health), 2002-2004

Tables 2.2-2.11 compare selected causes of death between populations. The mortality rates are all directly age-adjusted to a standard population based on the projected population of the United States in 2000 (See Appendix C, Table 1). These rates for AI/AN are lower than past years due to the increased populations from the race-bridging technique (see Section 1). Also, misclassification has NOT been taken into account here, which may drastically increase the rate.

TABLE 2.2 – All Causes Age-Adjusted Mortality Rates, 2000-2004 (per 100,000)

AI/AN Michigan	1036.7	All Races Michigan	851.4
AI/AN Minnesota	1186.0	All Races Minnesota	727.7
AI/AN Wisconsin	919.6	All Races Wisconsin	784.1
AI/AN Bemidji Area	1048.5	All Races Bemidji Area	803.8
All Races HP 2010 Goal	N/A	All Races U.S. 2002	845.3

Data Sources: 2000-2004 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 DHHS.

TABLE 2.3 – All Heart Disease Age-Adjusted Mortality Rates, 2000-2004 (per 100,000)

AI/AN Michigan	317.8	All Races Michigan	264.1
AI/AN Minnesota	241.2	All Races Minnesota	160.9
AI/AN Wisconsin	213.2	All Races Wisconsin	212.9
AI/AN Bemidji Area	266.1	All Races Bemidji Area	224.8
All Races HP 2010 Goal	N/A	All Races U.S. 2002	240.8

Data Sources: 2000-2004 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 DHHS.

TABLE 2.4 – Ischemic Heart Disease Age-Adjusted Mortality Rates 2000-2004 (per 100,000)

AI/AN Michigan	246.2	All Races Michigan	190.9
AI/AN Minnesota	160.6	All Races Minnesota	104.2
AI/AN Wisconsin	154.1	All Races Wisconsin	127.5
AI/AN Bemidji Area	195.7	All Races Bemidji Area	152.1
All Races HP 2010 Goal	166.0	All Races U.S. 2002	170.9

Data Sources: 2000-2004 Death 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 DHHS.

TABLE 2.5 – Stroke Age-Adjusted Mortality Rates, 2000-2004 (per 100,000)

AI/AN Michigan	48.7	All Races Michigan	54.7
AI/AN Minnesota	59.1	All Races Minnesota	50.1
AI/AN Wisconsin	50.2	All Races Wisconsin	55.9
AI/AN Bemidji Area	52.1	All Races Bemidji Area	53.9
All Races HP 2010 Goal	48.0	All Races U.S. 2002	56.2

Data Sources: 2000-2004 Death 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 DHHS.

TABLE 2.6 – All Cancer Age-Adjusted Mortality Rates, 2000-2004 (per 100,000)

AI/AN Michigan	221.4	All Races Michigan	195.4
AI/AN Minnesota	230.5	All Races Minnesota	182.8
AI/AN Wisconsin	181.6	All Races Wisconsin	186.5
AI/AN Bemidji Area	212.7	All Races Bemidji Area	190.1
All Races HP 2010 Goal	159.9	All Races U.S. 2002	193.5

Data Sources: 2000-2004 Death 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 DHHS.

TABLE 2.7 – Lung Cancer Age-adjusted Mortality Rates, 2000-2004 (per 100,000)

AI/AN Michigan	164.9	All Races Michigan	133.9
AI/AN Minnesota	78.8	All Races Minnesota	46.8
AI/AN Wisconsin	53.4	All Races Wisconsin	48.6
AI/AN Bemidji Area	108.5	All Races Bemidji Area	89.5
All Races HP 2010 Goal	44.9	All Races U.S. 2002	54.9

Data Sources: 2000-2004 Death 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 DHHS.

TABLE 2.8 – All Unintentional Injury Age-adjusted Mortality Rates, 2000-2004 (per 100,000)

AI/AN Michigan	48.9	All Races Michigan	40.1
AI/AN Minnesota	95.2	All Races Minnesota	35.4
AI/AN Wisconsin	57.9	All Races Wisconsin	38.6
AI/AN Bemidji Area	66.0	All Races Bemidji Area	38.7
All Races HP 2010 Goal	17.5	All Races U.S. 2002	35.8

Data Sources: 2000-2004 Death 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 DHHS.

TABLE 2.9 – Motor Vehicle Accidents Age-adjusted Mortality Rates, 2000-2004 (per 100,000)

AI/AN Michigan	21.9	All Races Michigan	13.3
AI/AN Minnesota	45.4	All Races Minnesota	13.2
AI/AN Wisconsin	28.4	All Races Wisconsin	15.0
AI/AN Bemidji Area	31.3	All Races Bemidji Area	13.7
All Races HP 2010 Goal	9.2	All Races U.S. 2002	27.1

Data Sources: 2000-2004 Death 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 DHHS.

TABLE 2.10 – Chronic Lower Respiratory Disease Age-Adjusted Mortality Rates, 2000-2004 (per 100,000)

AI/AN Michigan	72.5	All Races Michigan	42.4
AI/AN Minnesota	62.6	All Races Minnesota	37.4
AI/AN Wisconsin	52.2	All Races Wisconsin	39.7
AI/AN Bemidji Area	66.4	All Races Bemidji Area	40.5
All Races HP 2010 Goal	N/A*	All Races U.S. 2002	43.5

Data Sources: 2000-2004 Death 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 DHHS.

*The goal given was for ages 45 and over and another goal was provided for asthma in younger persons, neither would be comparable to the data reported in the table.

TABLE 2.11 – Diabetes Age-Adjusted Mortality Rates, 2000-2004 (per 100,000)

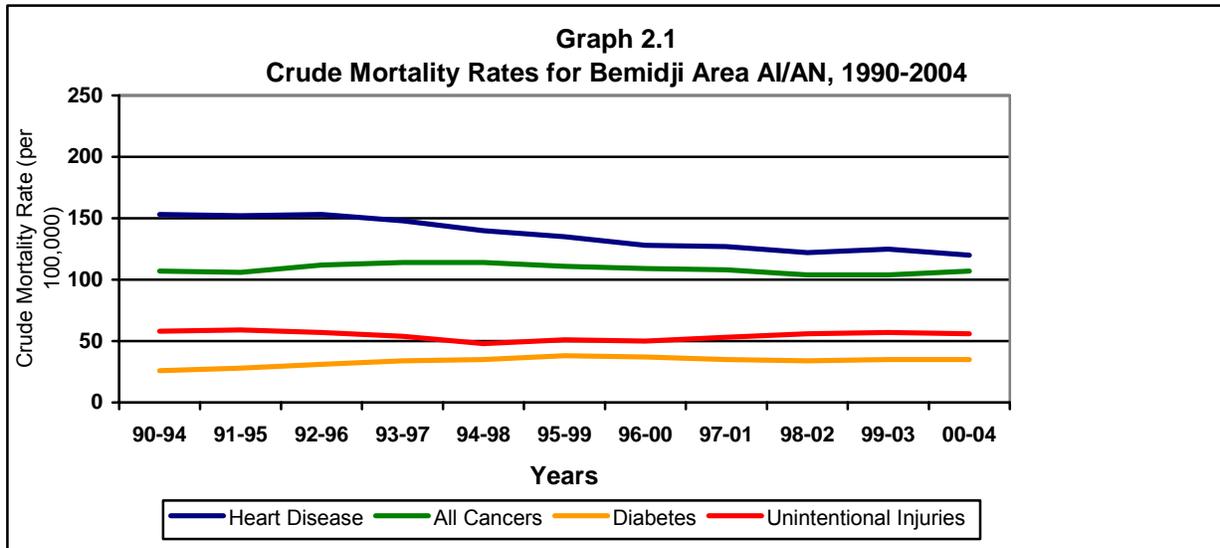
AI/AN Michigan	63.8	All Races Michigan	26.9
AI/AN Minnesota	86.5	All Races Minnesota	24.1
AI/AN Wisconsin	67.6	All Races Wisconsin	22.7
AI/AN Bemidji Area	71.2	All Races Bemidji Area	25.1
All Races HP 2010 Goal	N/A*	All Races U.S. 2002	25.4

Data Sources: 2000-2004 Death 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 DHHS.

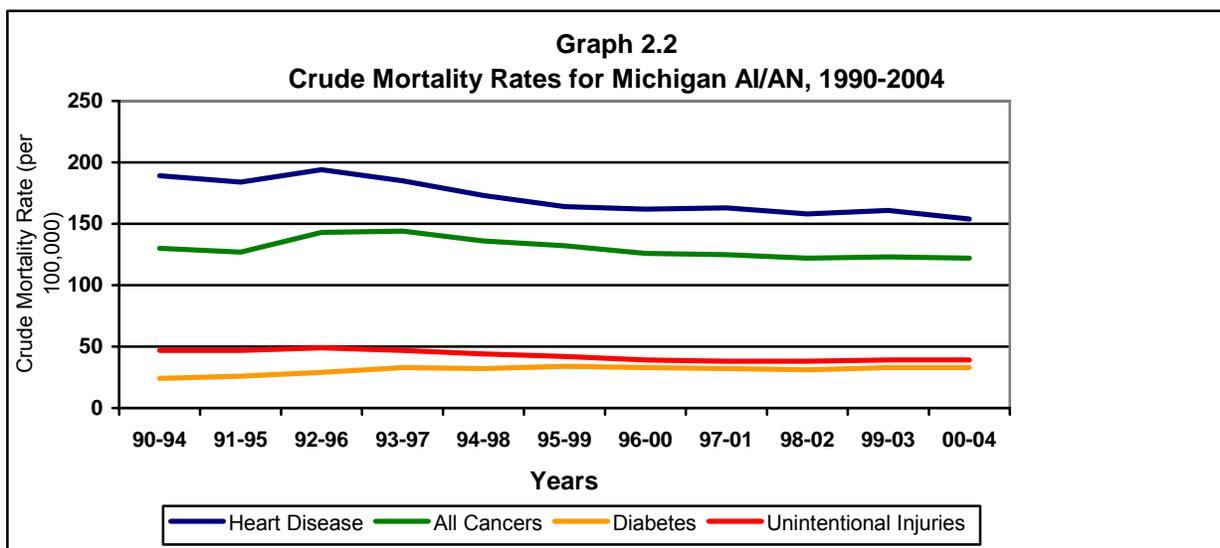
*HP 2010 goal given is for all diabetes-related deaths, which would not be comparable to the data reported in the table.

Mortality Trends for Selected Causes of Death

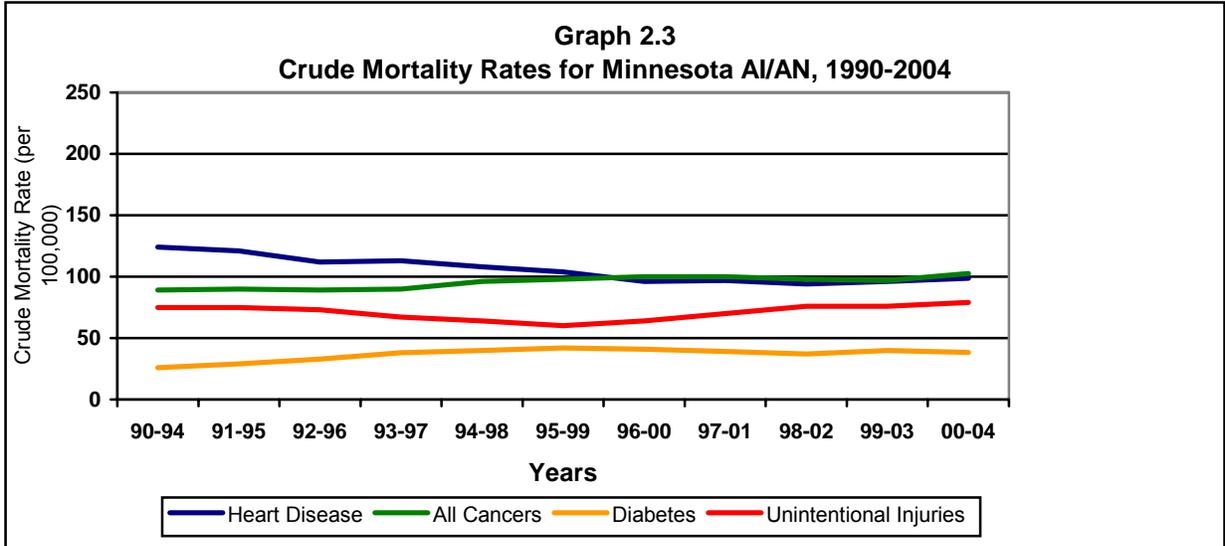
Graphs 2.1-2.4 display crude mortality rate trends for the AI/AN population for selected causes of death from 1990-2004. Following death rates over time allows one to track changes in death rates for a population. However, using crude rates, one can only look at trends within each designated population from year to year. Comparisons from state to state cannot be made since these rates are not age-adjusted. Five-year age groups are formed to provide larger counts.



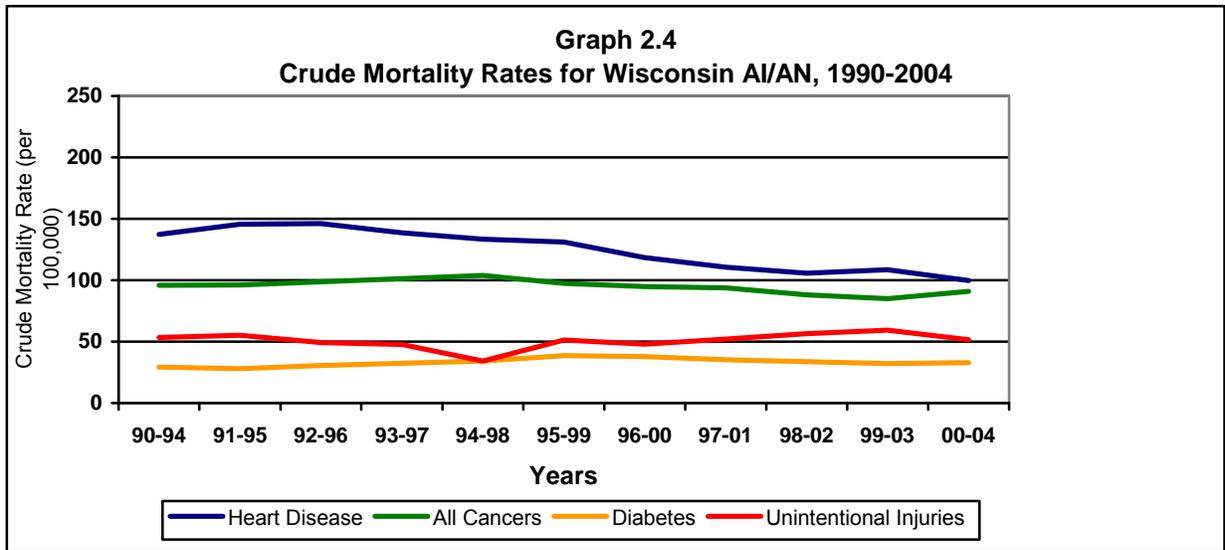
Data Sources: Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information, Mortality Files, 1990-2004



Data Source: Michigan Department of Community Health, Mortality Files, 1990-2004



Data Source: Minnesota Center for Health Statistics, Mortality Files, 1990-2004



Data Source: WISH Data Query System (Wisconsin Interactive Statistics on Health), 1990-2004

SECTION 3

DIABETES

Burden of Diabetes among AI/AN in the Bemidji Area

Despite broad advances in health care and prevention nationally, the existing health data on American Indian/Alaska Native (AI/AN) populations indicate that there are substantial, and sometimes vast, disparities between their overall health status and that of the general US population (IHS, 2001). Chronic diseases such as diabetes mellitus, heart disease, and cancer are currently among the leading causes of death in AI/AN adults (Galloway et al, 1999). Diabetes was rarely reported among Native Americans 50 years ago, but it is now found in epidemic proportions in AI/AN populations and is a major cause of morbidity (such as blindness, kidney failure, lower-extremity amputation, and cardiovascular disease), disability, decreased quality of life, and premature mortality (Gohdes, 1995).

Limitations

The reported trends for diabetes prevalence rates for the tribes in the Bemidji Area have several limitations. First, we were unable to account for individuals with undiagnosed diabetes. Second, we lack data on diabetic AI/AN who did not visit IHS or tribal health facilities at least once during the years studied. Third, we are missing data on diabetic AI/AN who visited IHS or tribal health facilities that either did not report or incompletely reported their data to the local outpatient database (Diabetes Registry). Despite these limitations, previous research has shown that the IHS outpatient database and IHS service population estimates closely agree with estimates from other Native American and Alaskan Native diabetes prevalence studies (Valway et al, 1993). The experts who work with IHS believe that the diabetes burden is higher within the AI/AN population considering the racial misclassification and incomplete local data collection.

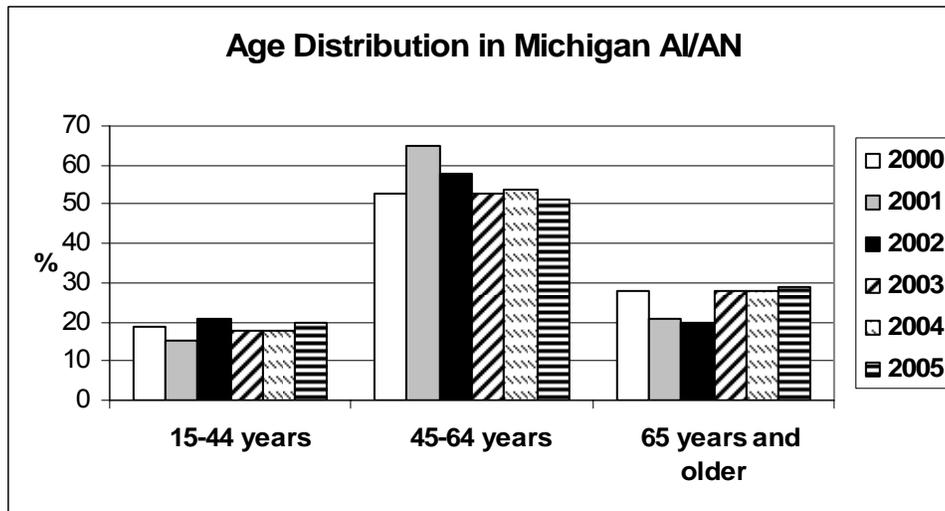
Diabetes Clinical Care Trends in Bemidji Area (Michigan, Minnesota, and Wisconsin)

The clinical information in this section is based on the diabetes audits from years 2000 to 2005 reported by the various tribal health clinics in the states of Michigan (MI), Minnesota (MN) and Wisconsin (WI). Various IHS standard health indicators are tracked in the annual diabetes audits (electronic or manual) and reported to the Bemidji Area Office. The trends in this report will paint a picture of diabetic health status in the states of MI, MN and WI. Tribal diabetes programs can use this data to support those in the community with diabetes and to work towards diabetes prevention in future generations. In 2000, 2001, 2002, 2003, 2004 and 2005, a total of 1,172, 1,213, 556, 1,307, 1,696 and 2,000, individuals respectively were included in the audit sample for the Bemidji Area. A few selected demographic and diabetes quality improvement process measures are reported in this section.

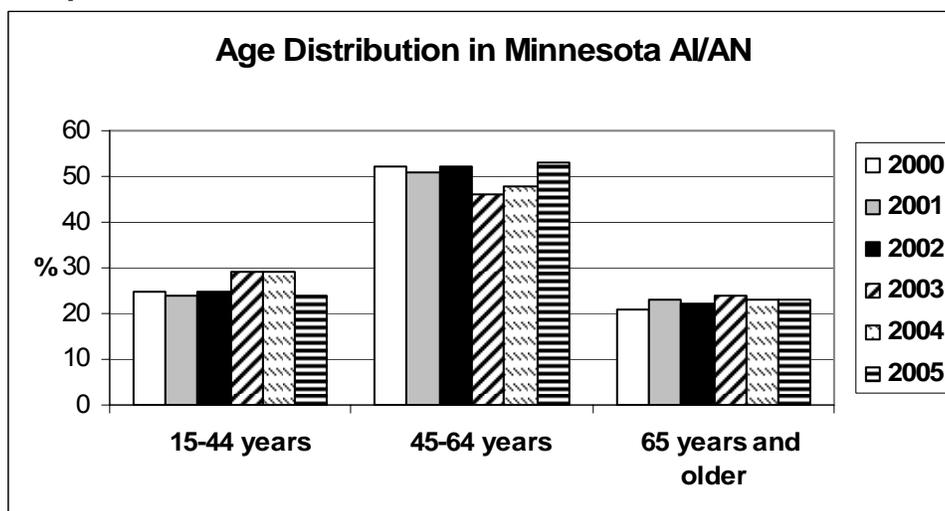
Age Distribution

Graphs 3.1-3.3 display the age distribution trends for the AI/AN population with a diagnosis of diabetes in three states MI, MN and WI. Age is a risk factor for type 2 diabetes. In the past, type 2 diabetes was diagnosed predominately in patients age 40 and older. Today, young adults (30-35) are the fastest growing group developing type 2 diabetes. The trends for people diagnosed with diabetes in the states of Minnesota, Michigan and Wisconsin remain stable, but recent research studies have shown there is a growing concern of type 2 diabetes being diagnosed in children.

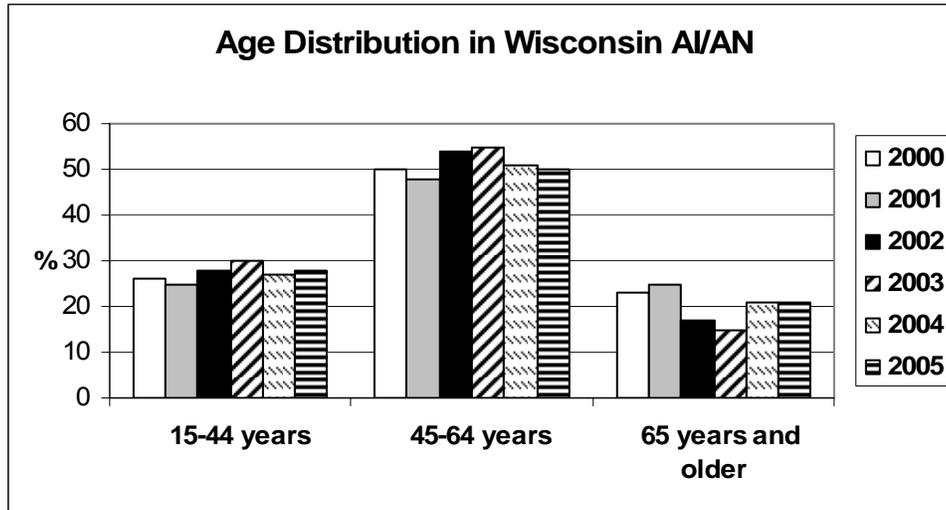
Graph 3.1



Graph 3.2



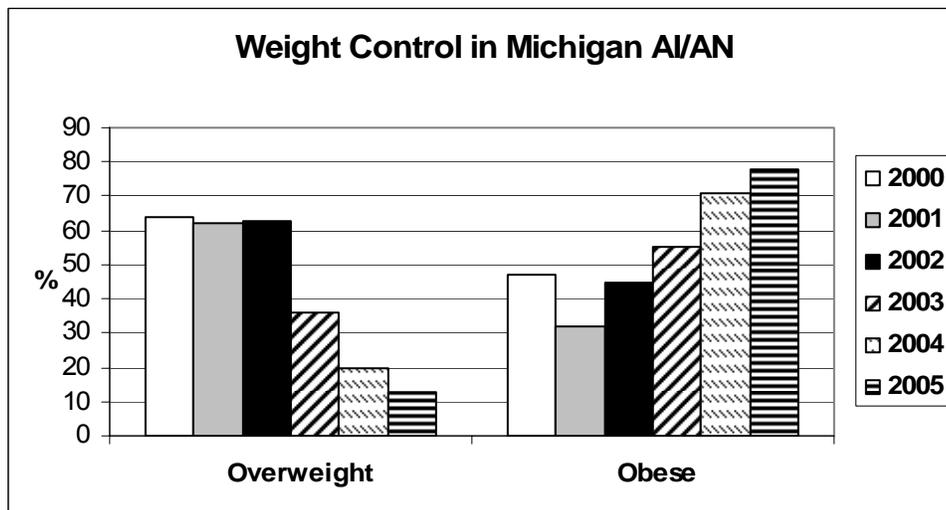
Graph 3.3



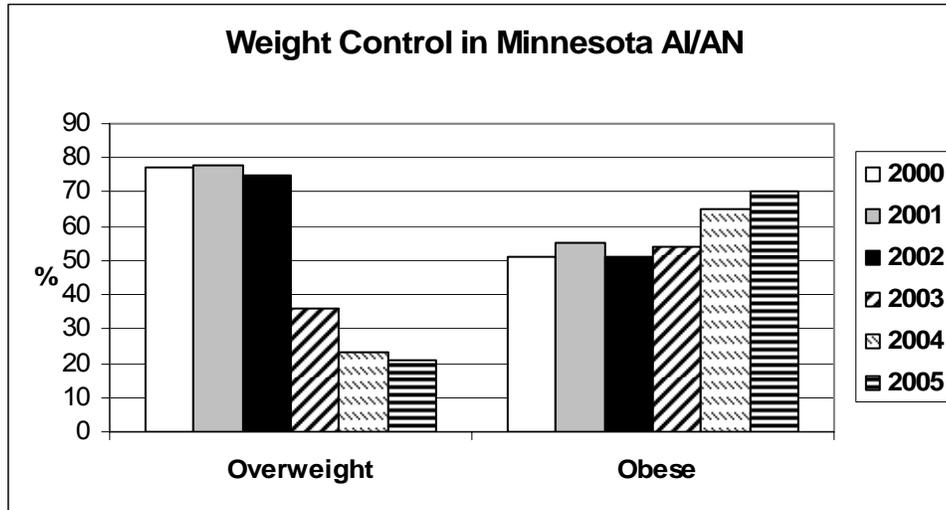
Overweight and Obesity

Graphs 3.4-3.6 display overweight and obesity trends for the AI/AN population with the diagnosis of diabetes in three states MI, MN and WI. Obesity and physical inactivity are associated with the development of type 2 diabetes. Adopting habits that control weight and increasing exercise have been shown to significantly reduce the risk of developing diabetes. Minimal weight loss of just 10-20 pounds can improve blood glucose levels, blood pressure and cholesterol levels in patients with type 2 diabetes.

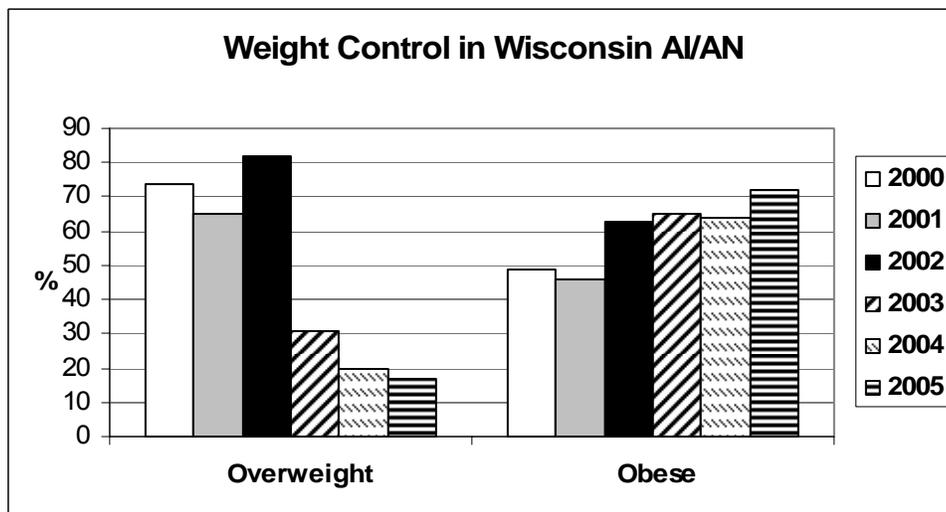
Graph 3.4



Graph 3.5



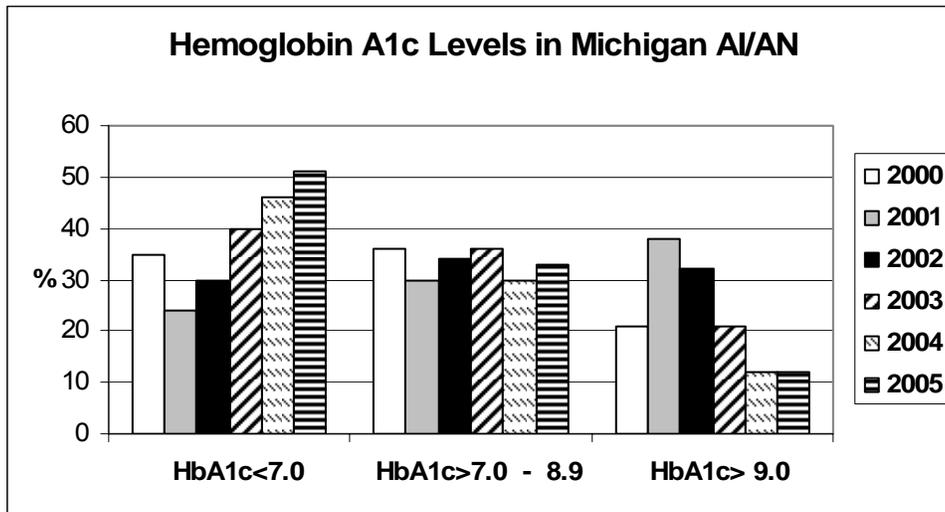
Graph 3.6



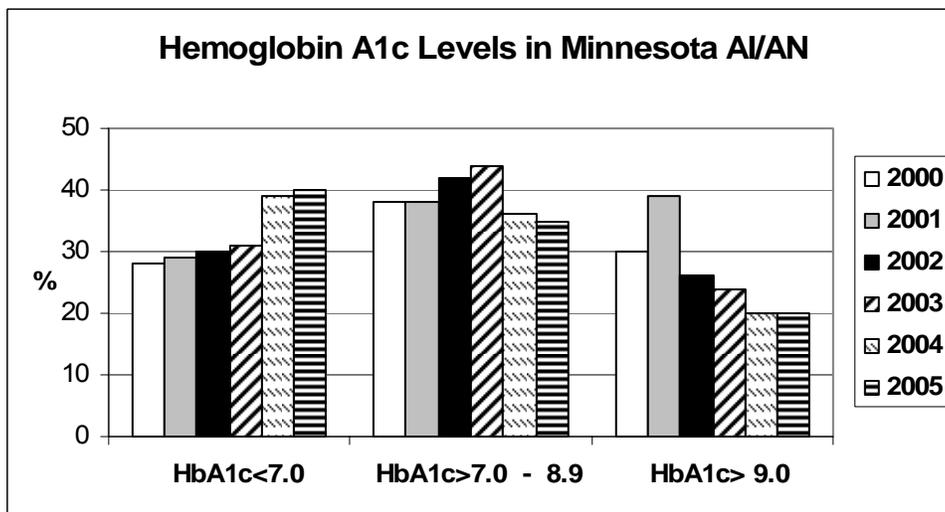
Metabolic Control

Graphs 3.7-3.9 display the metabolic control trends for the AI/AN population diagnosed with diabetes in three states MI, MN and WI. Testing of Hemoglobin A1c (A1c) estimates the average degree of glycemic control over a period of time and should be monitored at 3-4 month intervals for those with elevated levels (A1c >7.0%). As a patient's A1c value increases, the risk of macro- and microvascular complications increase. The overall trends of A1c values < 7.0 have increased for people diagnosed with diabetes in the states of Minnesota, Michigan and Wisconsin. In addition, there were marked improvements in documentation of glycemic control noted throughout the five year time period.

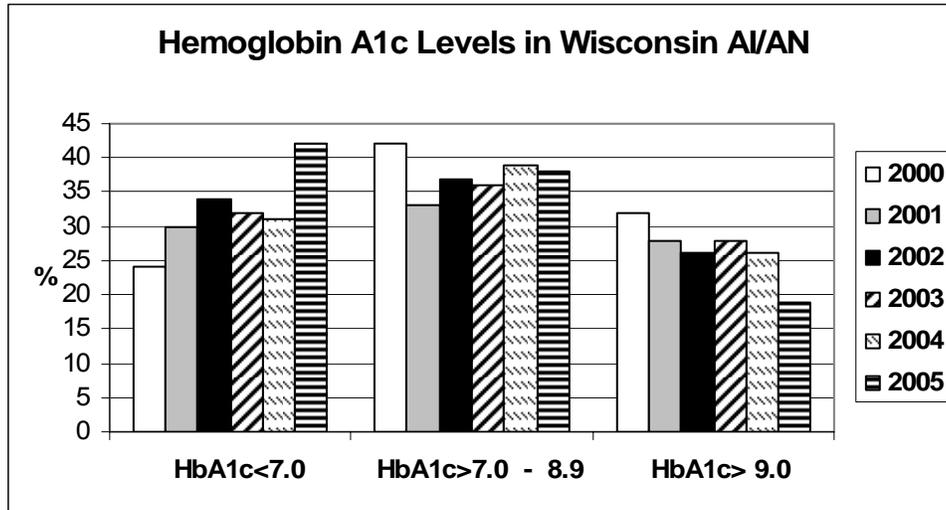
Graph 3.7



Graph 3.8



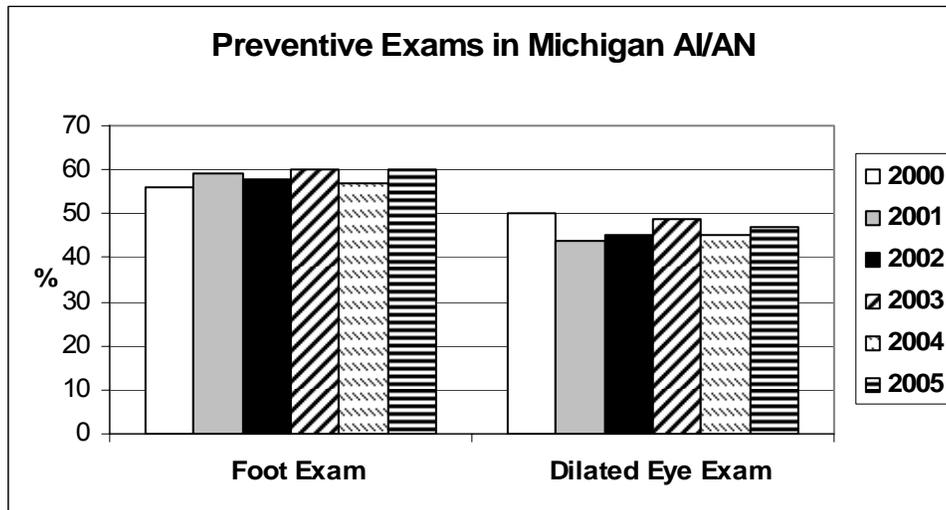
Graph 3.9



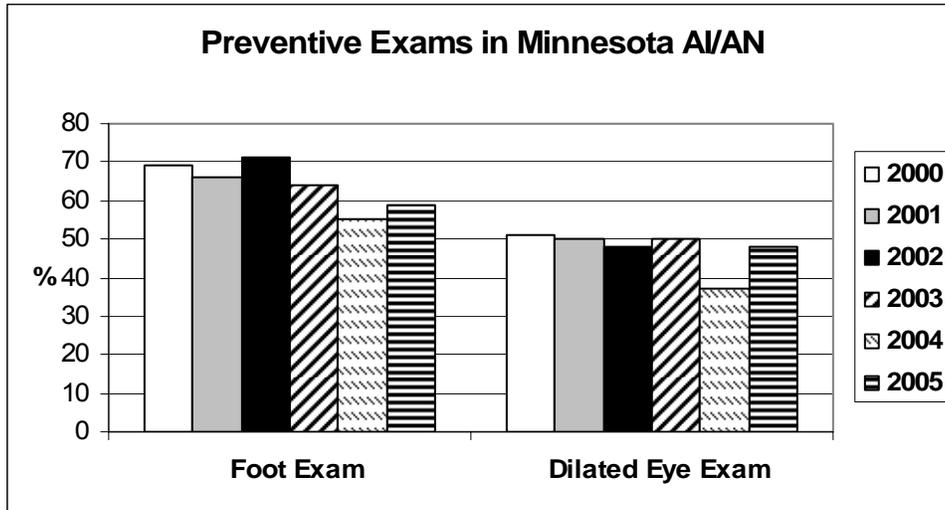
Preventive Care Measures

Graphs 3.10-3.12 display the preventive care measures trends for the AI/AN population diagnosed with diabetes in three states MI, MN and WI. Annual screening exams are an important aspect of diabetes care. Indian Health Service standards recommend annual foot, dilated eye and dental exams. The proportion of people receiving dilated eye exams was found to be well below the Healthy People 2010 target of 75% in all three states.

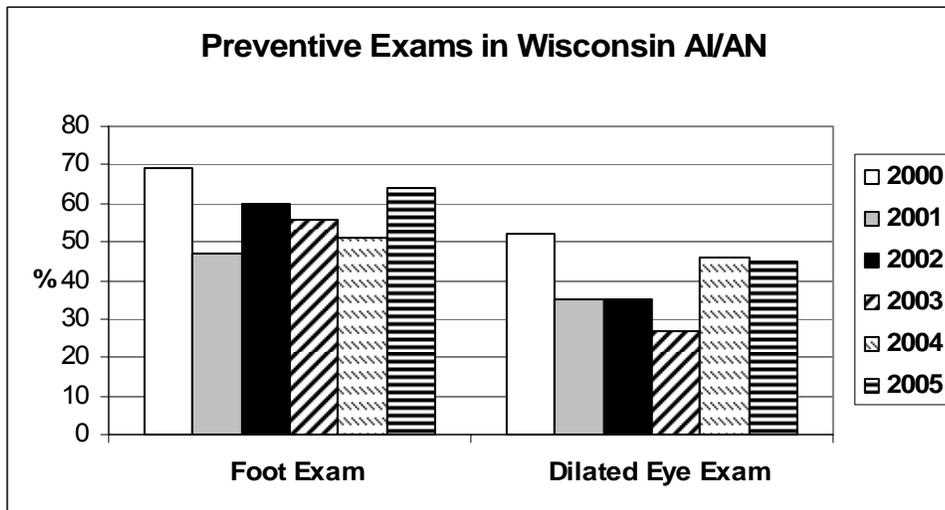
Graph 3.10



Graph 3.11



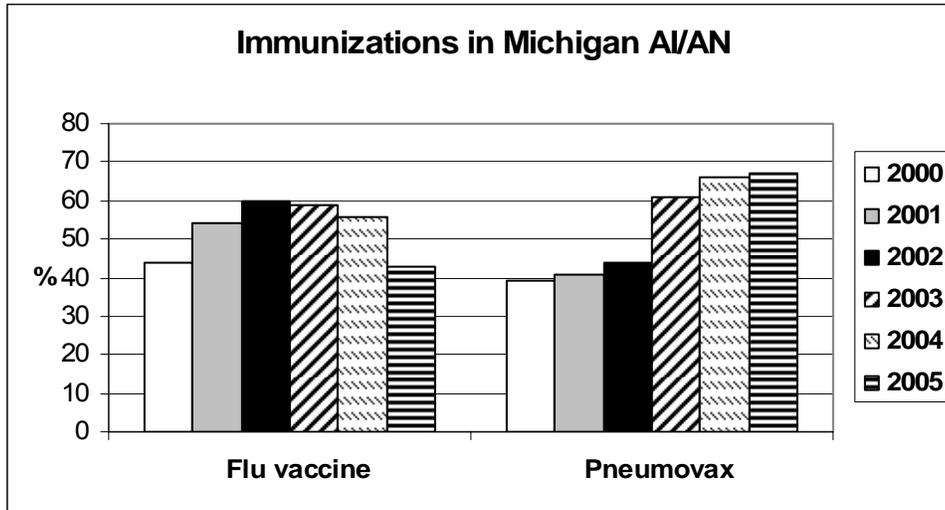
Graph 3.12



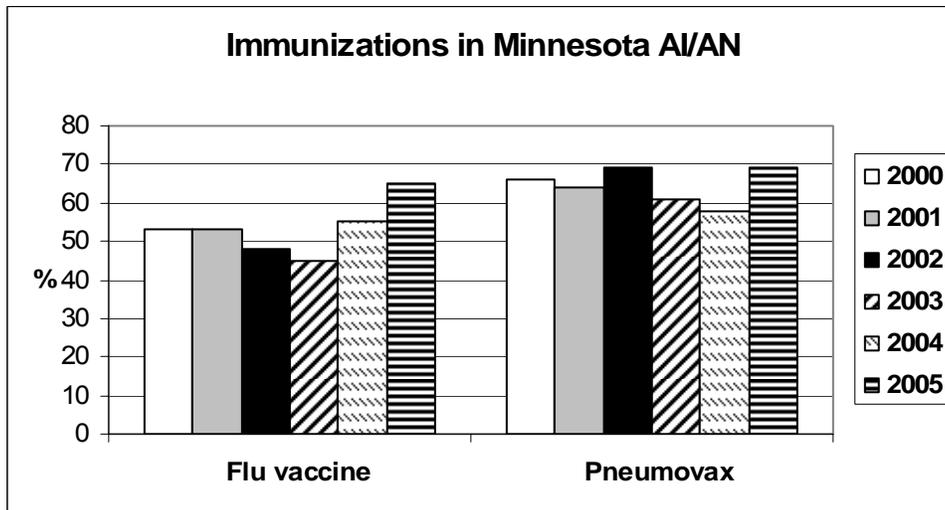
Immunizations

Graphs 3.13-3.15 display the immunizations trends for the AI/AN population diagnosed with diabetes in three states MI, MN and WI. All persons with diabetes should have flu and pneumovax vaccines. Yearly re-vaccination for flu is recommended to provide up-to-date protection. The pneumovax vaccine is necessary at least once and a booster may be needed per physician advice. During 2000 to 2005 the overall trends in the flu vaccine percentages showed an increasing trend for Minnesota and were relatively stable in Michigan and Wisconsin. The pneumovax vaccine percentages were variable in Minnesota, and showed an upward trend for Michigan and Wisconsin.

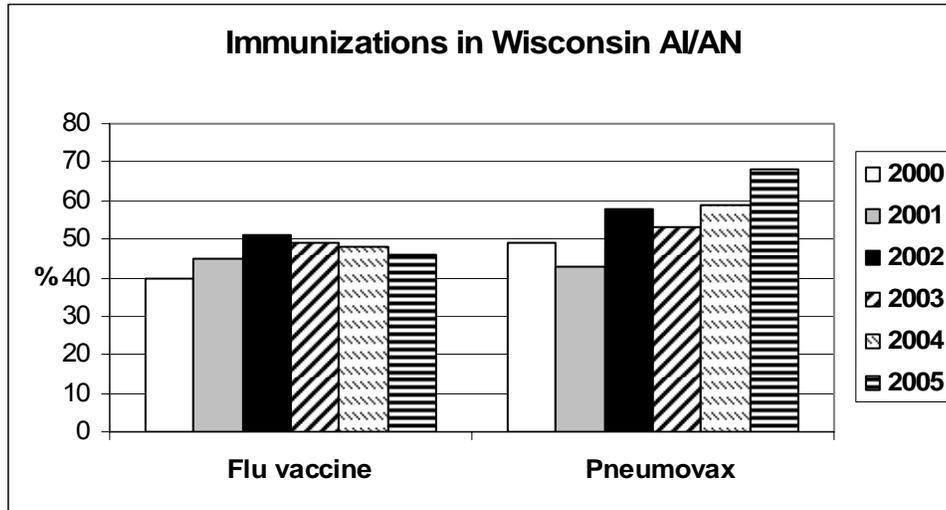
Graph 3.13



Graph 3.14



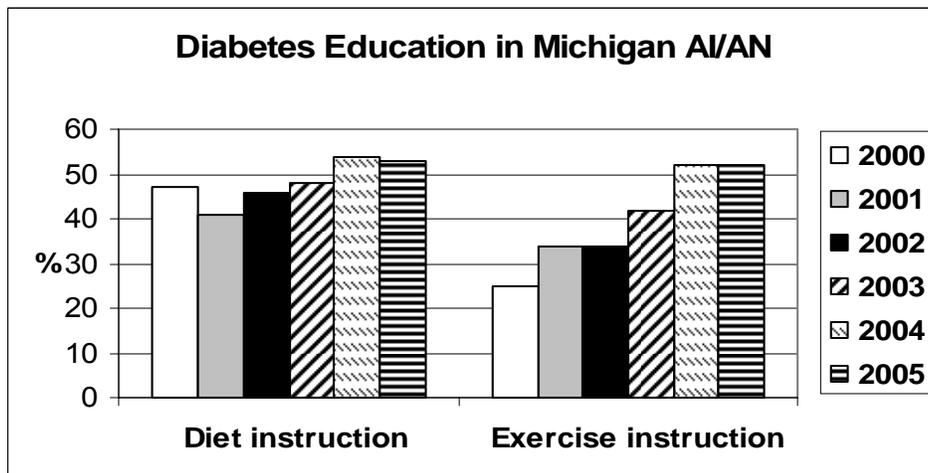
Graph 3.15



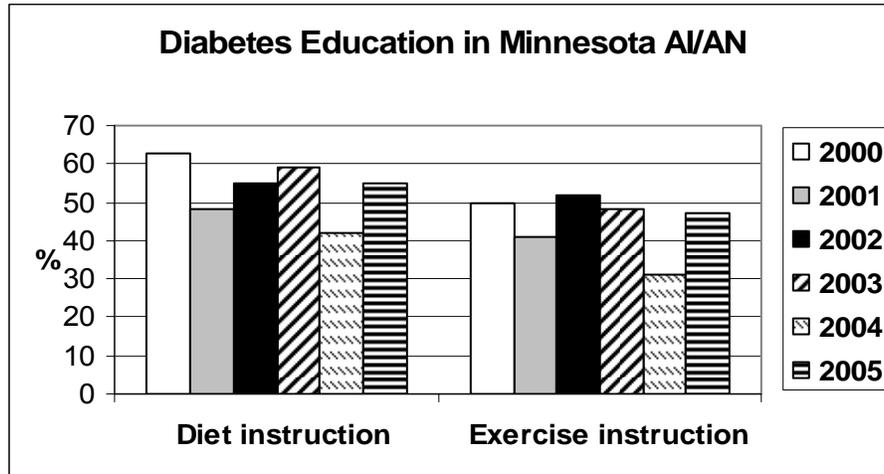
Diabetes Education

Graphs 3.16-3.18 display the diabetes education trends for the AI/AN population diagnosed with diabetes in three states MI, MN and WI. Medical nutrition therapy and exercise are the primary treatment strategies for type 2 diabetes. All patients with diabetes and their families should have diabetes self-management education every year. During 2000 to 2005 the overall trends in diet and exercise instruction for diabetes education showed an increasing trend in Michigan and varied for Minnesota and Wisconsin. Therefore, diabetic teams may need to provide more diet and exercise education for diabetic patients in their communities.

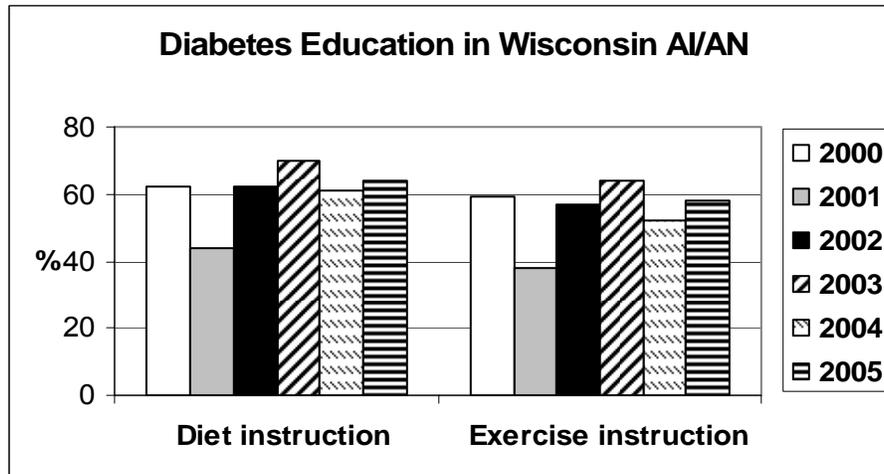
Graph 3.16



Graph 3.17



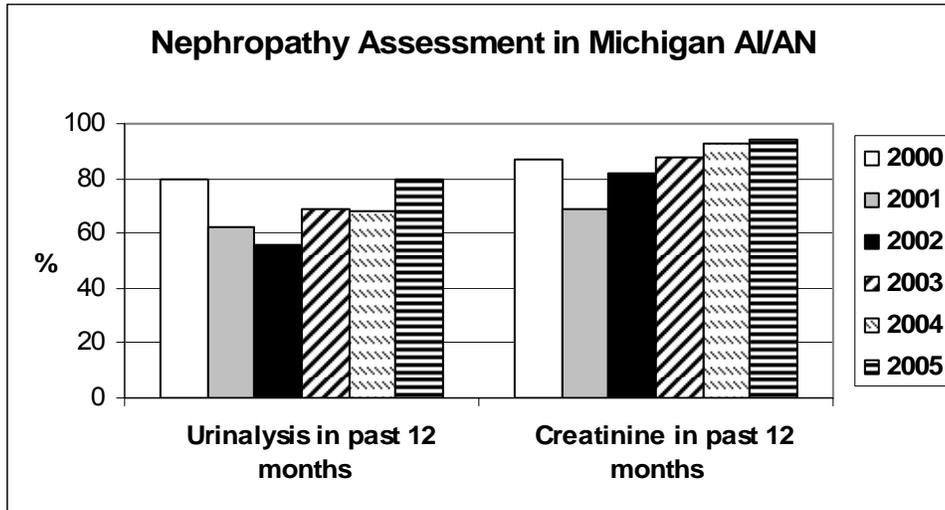
Graph 3.18



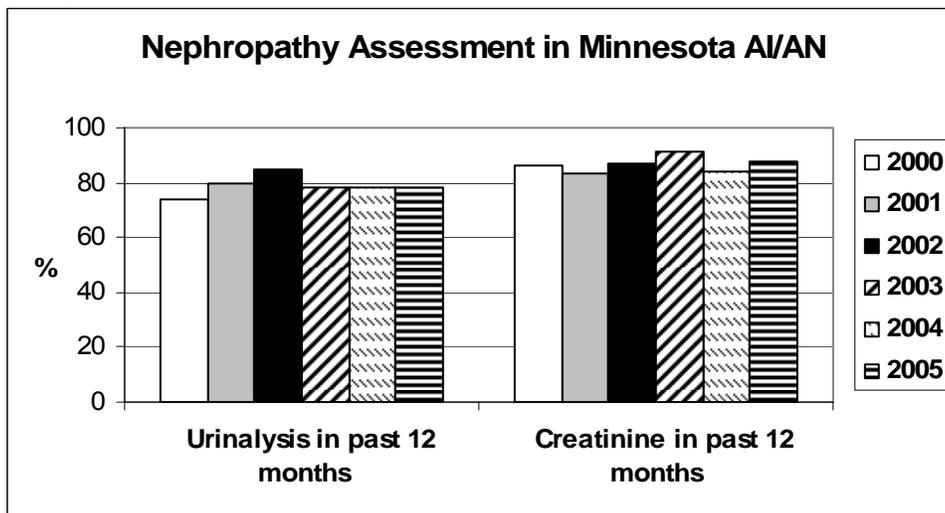
Assessment for Nephropathy

Graphs 3.19-3.21 display the assessment for nephropathy trends for the AI/AN population diagnosed with diabetes in three states MI, MN and WI. Protein appearing in the urine is referred to as microalbuminuria, and is an indication of kidney disease. People with type 2 diabetes who have microalbuminuria are more likely to have a heart attack or stroke. Treatment with ACE Inhibitors slows the deterioration of kidney function in diabetes. The overall screening rates for nephropathy were variable in all three states from 2000 to 2005.

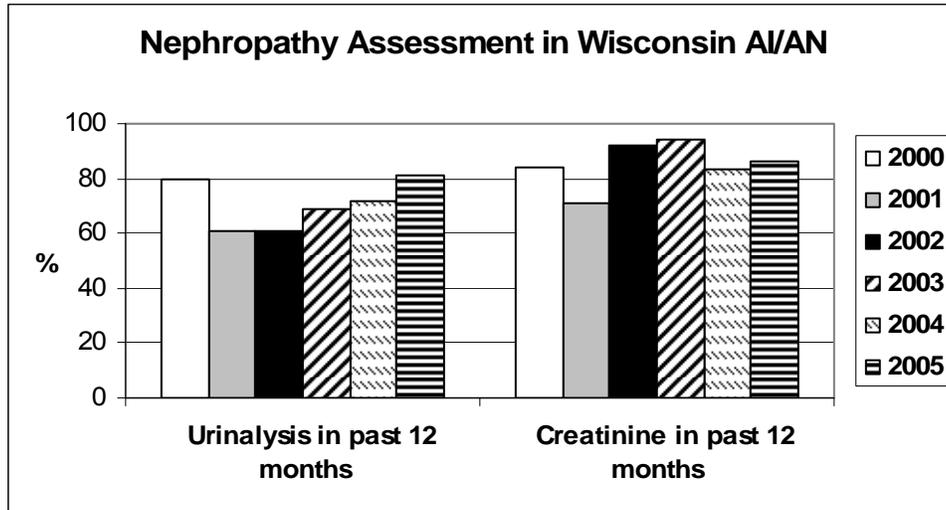
Graph 3.19



Graph 3.20



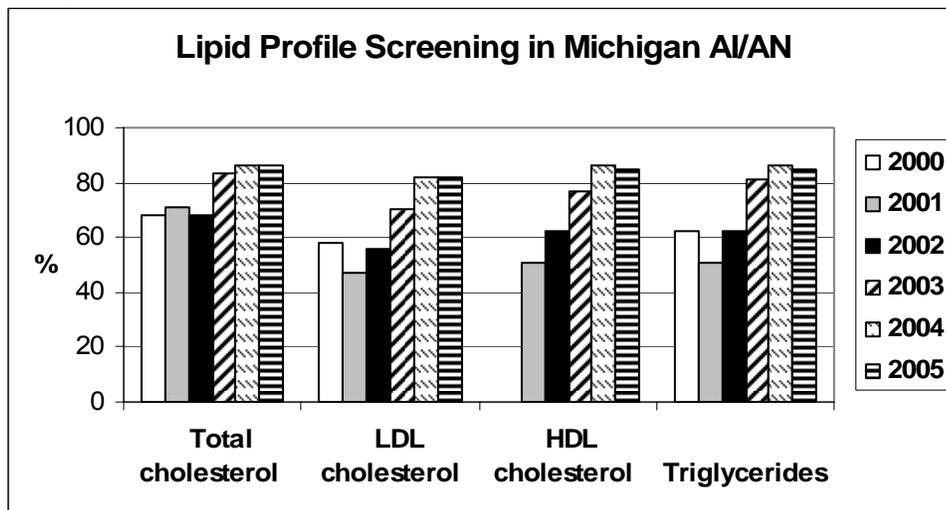
Graph 3.21



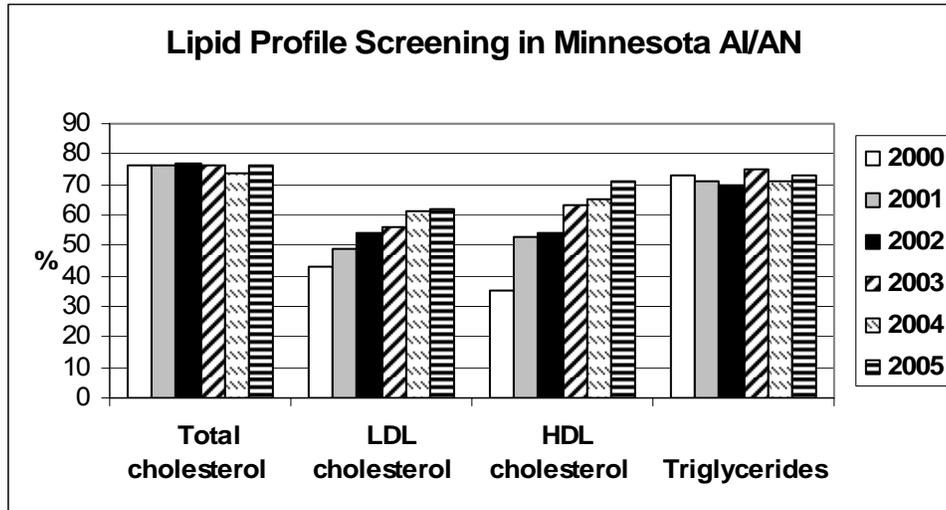
Lipid Screening

Graphs 3.22-3.24 display the lipid screening trends for the AI/AN population diagnosed with diabetes in three states MI, MN and WI. A lipid panel {Total Cholesterol (TC), Low Density Lipoprotein (LDL), High Density Lipoprotein (HDL), and Triglyceride (TG)} should be performed annually for each diabetic patient. Risk factors for atherosclerosis include: TC >200 mg/dl, LDL >100 mg/dl, HDL <40 mg/dl in men, HDL <45 mg/dl in women, and TG >200 mg/dl. The proportions of patients receiving a lipid profile screening in the states of Minnesota, Michigan and Wisconsin have steadily increased from 2000 to 2005 for most of the lipid parameters.

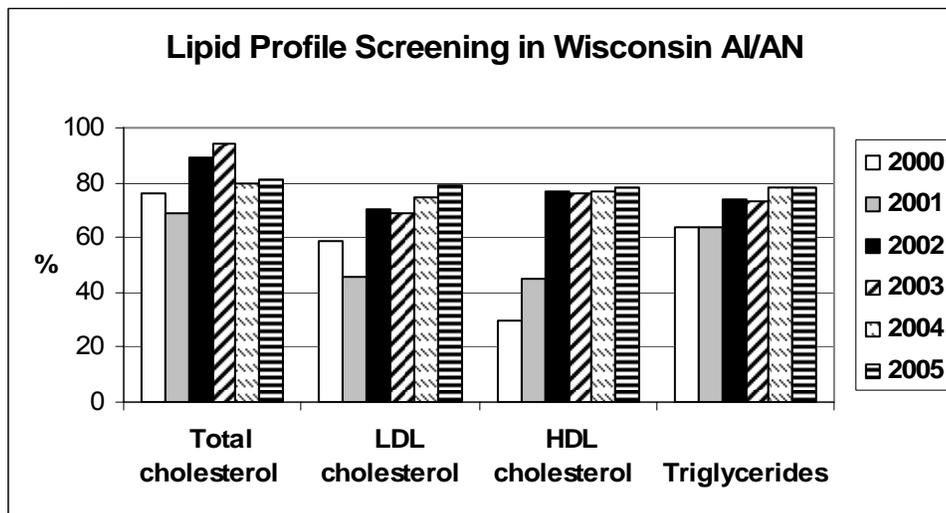
Graph 3.22



Graph 3.23



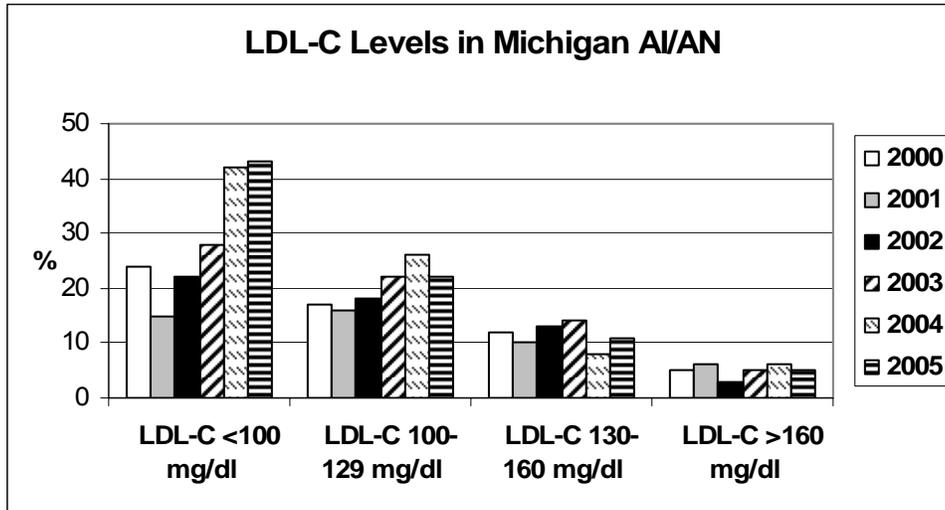
Graph 3.24



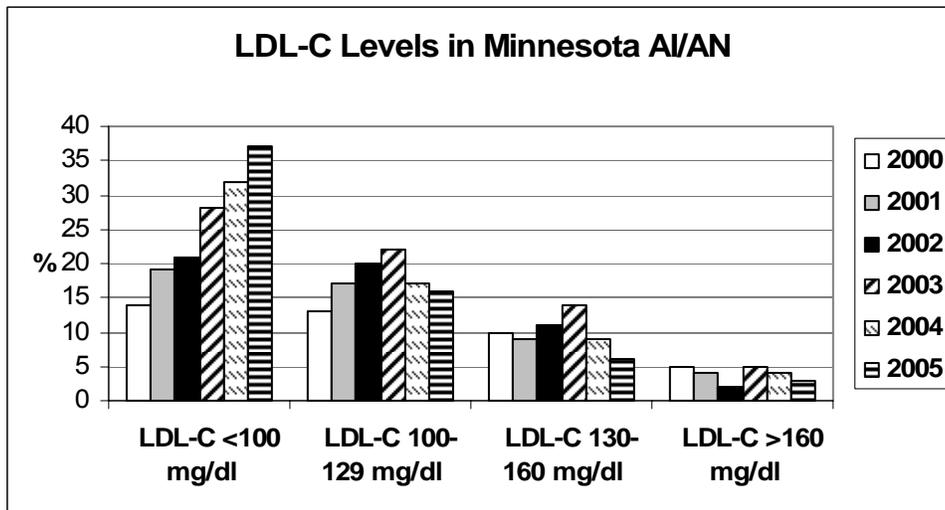
LDL-C Levels

Graphs 3.25-3.27 display the Low Density Lipoprotein-Cholesterol (LDL-C) trends for the AI/AN population diagnosed with diabetes in three states MI, MN and WI. All patients with LDL >100 mg/dl require medical nutrition therapy and lifestyle modifications. Pharmacologic intervention is recommended if dietary interventions and lifestyle modifications are ineffective in lowering LDL to less than 100mg/dl. The percentage of patients who met the goal of LDL <100 mg/dl showed an improvement from 2000 to 2005.

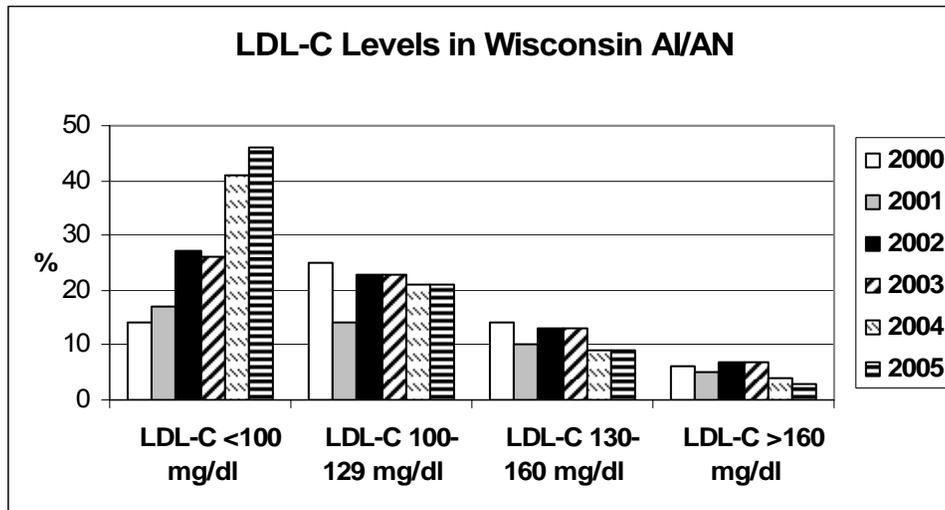
Graph 3.25



Graph 3.26



Graph 3.27



Summary

From 2000 to 2005, improvements in the results of diabetes quality of care measures, like A1c test and lipid profiles reported here are encouraging for patients with diabetes in the states of Minnesota, Michigan and Wisconsin. The dilated eye exam rate, one of the diabetes qualities of care measures, is low across the three states compared to Healthy People 2010. The overall trends of metabolic control and the percentage of A1c values < 7.0 have increased for people diagnosed with diabetes in the states of Minnesota, Michigan and Wisconsin and there have been marked improvements in documentation of glycemic control noted during the five year time period. The percentage of patients who met the goal of LDL <100 mg/dl showed an increasing trend from 2000 to 2005 in the states of Minnesota, Michigan and Wisconsin. Overall, there is great potential and opportunity for improving diabetes care in IHS Bemidji Area.

Diabetes References:

1. United States Department of Health and Human Services (2001) Regional Differences in Indian Health Rockville, Maryland: Public Health Service and Indian Health Service.
2. Galloway JM, Goldberg BW, and Alpert JS (eds): Primary Care of Native American Patients: Diagnosis, Therapy, and Epidemiology. Boston: Butterworth-Heinemann, 153,1999.
3. Burrows NR, Geiss LS, Engelgau MM, and Acton KJ: Prevalence of Diabetes Among Native Americans and Alaska Natives,1900-1997: An Increasing burden. Diabetes Care. 23(12): 1786-1790, December 2000.

4. Gohdes D. Diabetes in North American Indians and Alaska Natives. In National Diabetes Data Group, *Diabetes in America*, 2nd ed. NIH Publication No. 95-1468, 683-701. Bethesda, MD: National Institute of Diabetes and Digestive and Kidney Diseases, National Institutes of Health; 1995.
5. Valway S, Freeman W, Kaufman S, Welty T, Helgerson SD, Gohdes D: Prevalence of diagnosed diabetes among American Indians and Alaska Natives, 1987: estimates from a national outpatient database. *Diabetes Care* 16:271–276, 1993

Diabetes Technical Notes

The diabetes clinical care report contains data on diabetes-related care, and the health status of American Indians and Alaska Natives with diabetes who receive care from IHS, Tribal or Urban health facilities. The data is obtained from an annual chart audit conducted under the auspices of the IHS Diabetes Program. A random sample is drawn from the health facility's list of active diabetic patients in sufficient number to provide an estimated alpha equivalent to 10% of the true rate (at a 90% level of certainty).

The percentages reported represent either the proportion of the sample population having a particular attribute, in the case of demographic data, or the percentage in compliance with a specific standard of care. The reported rates are calculated using the total audit sample as the denominator for each of the standards.

Definitions

Eye Exam: A dilated fundoscopic exam conducted by a primary care provider, optometrist or ophthalmologist, or a dilated fundoscopic photograph.

Foot Exam: An examination of the feet that includes neurologic and vascular evaluation as well as visual inspection for deformities or lesions.

Glycemic Control: Based on last HbA1c level, if one was recorded in the past year. If No HbA1c was recorded, then based on the average of the last 3 blood Glucoses drawn within the past year. For records without an HbA1c value, the mean blood glucose is converted to the analogous HbA1c level, using the formula:

$$\text{HbA1c} = \frac{\text{Mean Blood Sugar} + 60.16}{30.9}$$

Be aware that in the audit reports from 1998 and earlier, mean blood glucose values were not converted to HbA1c values. Instead, glycemic control categories included separate HbA1c and blood glucose ranges, as shown in Table 1.

Table 1 Glycemic Control Categories (IHS GPRA as of 9/20/04)

<u>Control level</u>	<u>HbA1c</u>	<u>Mean Blood Glucose</u>
Ideal	<7.0	<156
Good	7.0 -7.9	156-184
Fair	8.0-9.5	184-233
Poor	>9.5	>233

Proteinuria: Considered to be present if the most recent urine dipstick test in the past year showed 1+ (30 mg/dl) or more protein. Because the color difference between a "Negative" and a "Trace" reading can be subtle and misread, a Trace reading is not sufficient to constitute proteinuria for audit purposes.

Microalbuminuria: Considered to be present if the urine specimen is without gross proteinuria (as defined above) and meets one of the following criteria:

- urine albumin/creatinine (A/C) ratio is ≥ 30 mg/gm.
- urine albumin excretion rate (AER) >20 mcg/min, or ≥ 30 mg/24hrs.
- ≥ 30 mg albumin/L of urine.

SECTION 4

COMMUNICABLE DISEASES

Section 4 contains data on sexually transmitted diseases (STDs) for AI/AN in the three states and the Bemidji Area. Please note that these data only represent cases reported by local health departments and that the degree and completeness of reporting by physicians, hospitals, and clinical laboratories to local health departments vary significantly. Racial non-documentation and misclassification is also prevalent, so AI/AN cases may not be identified accurately. It is likely that the number of cases reported severely under-represents the true prevalence of disease.

Some communicable diseases besides STDs are also reported to health departments. These diseases are usually vaccine-preventable, highly infectious, and/or can cause severe conditions, including death. The attack rates of many of these diseases are very low and may occur in a cluster at a specific time in a specific place as opposed to being an ongoing health problem. For example, the majority of salmonellosis cases in a given year could be from a single outbreak at one community dinner. Therefore, determining a trend over time would be extremely difficult and may not accurately reflect the general health of the AI/AN population in the three-state region.

Tables 4.1a-d display information on two sexually transmitted diseases: Chlamydia and gonorrhea. Table 4.1a shows that since 1998, the numbers and rates for Chlamydia in the Bemidji Area appears to be remaining stable in the AI/AN population, while rates for the All Races population have been steadily increasing. Rates for Gonorrhea appear to be leveling off in both the AI/AN population and in the Bemidji Area as a whole. The numbers of cases vary greatly by year and it is not clear if this represents fluctuation in burden of disease or changes related to reporting and/or screening. For example, upward trends may be due to increased screening rather than an increase in the numbers of infected persons.

TABLE 4.1a – Numbers and Rates (per 100,000) for Selected Sexually Transmitted Diseases in American Indian/Alaska Natives in Bemidji Area, 1998-2004

	Chlamydia				Gonorrhea			
	AI/AN		All Races		AI/AN		All Races	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
1998	450	303.7	42990	231.2	78	52.6	25242	135.8
1999	604	407.7	45344	243.9	129	87.1	25556	137.5
2000	623	387.7	50726	250.9	113	70.3	28377	140.3
2001	664	413.3	55718	275.5	121	75.3	25836	127.8
2002*	636	331.7	59448	289.8	142	74.1	24181	117.9
2003*	678	353.2	61067	296.3	128	66.7	22760	110.4
2004*	775	396.9	69992	337.8	148	75.8	25804	124.5

Source: Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Department of Health and Family Services, Bureau of Communicable Disease

* Denominators are population estimates from the National Center for Health Statistics release of the bridged-race postcensal series of estimates of the July 1 resident population of the United States, based on the 2000 census.

TABLE 4.1b – Cases and Rates (per 100,000) of Sexually Transmitted Diseases for American Indian/Alaska Natives and All Races, Michigan, 1998-2004

	Chlamydia				Gonorrhea			
	AI/AN		All Races		AI/AN		All Races	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
1998	12	20.1	22001	224.0	8	13.4	16319	166.0
1999	34	56.8	23107	234.0	8	13.4	15907	161.0
2000	39	66.7	26237	264.0	10	17.1	18182	183.0
2001	40	66.1	31090	311.0	10	16.5	17121	171.0
2002*	48	47.8	32272	325.0	7	7.0	14770	147.0
2003*	49	67.6	32590	323.3	6	8.3	13965	138.5
2004*	59	80.5	38729	382.9	15	20.5	17684	174.9

Source: Michigan Department of Community Health

* Denominators are population estimates from the National Center for Health Statistics release of the bridged-race postcensal series of estimates of the July 1 resident population of the United States, based on the 2000 census

TABLE 4.1c – Cases and Rates (per 100,000) of Sexually Transmitted Diseases for American Indian/Alaska Natives and All Races, Minnesota, 1998-2004

	Chlamydia				Gonorrhea			
	AI/AN		All Races		AI/AN		All Races	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
1998	269	459.2	6997	147	46	78.5	2716	57
1999	350	583.8	7460	155	82	136.8	2830	59
2000	316	503.9	8147	168	72	114.8	3189	66
2001	347	547.8	8369	170	70	110.5	2708	55
2002*	304	476.4	10118	201.4	72	112.8	3051	60.7
2003*	376	584.4	10714	211.8	84	130.6	3202	63.3
2004*	396	602.0	11601	227.4	72	109.5	2957	58.0

Source: Minnesota Center for Health Statistics, STD & HIV Division

*Denominators are population estimates from the National Center for Health Statistics release of the bridged-race postcensal series of estimates of the July 1 resident population of the United States, based on the 2000 census

TABLE 4.1d – Numbers and Rates (per 100,000) for Selected Sexually Transmitted Diseases in American Indian/Alaska Natives and All Races in Wisconsin 1998-2004

	Chlamydia				Gonorrhea			
	AI/AN		All Races		AI/AN		All Races	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
1998	206	518.6	13992	286.0	38	95.7	6207	126.9
1999	227	571.4	14777	302.1	39	98.2	6819	139.4
2000	268	567.5	16376	305.3	31	65.6	7014	130.8
2001	277	586.5	16573	309.0	41	86.8	6129	114.3
2002*	284	517.6	17,058	313.5	64	116.6	6360	116.9
2003*	253	458.8	17763	324.6	38	68.9	5593	102.2
2004*	320	569.5	19662	356.9	61	108.5	5163	93.7

Source: Wisconsin Department of Health and Family Services, Bureau of Communicable Disease

*Denominators are population estimates from the National Center for Health Statistics release of the bridged-race postcensal series of estimates of the July 1 resident population of the United States, based on the 2000 census

SECTION 5

MATERNAL AND CHILD HEALTH

Section 5 contains information regarding maternal and child health in AI/AN populations and All Races in the Bemidji Area, as well as All Races in the U.S. For the purposes of this report, total AI/AN births in the Bemidji Area consider whether the race of the mother OR the race of the father is identified as American Indian. Normally, state and national data report the race of a child as the race of the mother, so care needs to be taken when comparing numbers. The data included is primarily from birth certificates but also includes information from the Women, Infants, and Children (WIC) Program.

Infant Mortality Rates

Infant Mortality Rates (IMR) measure the number of deaths to children less than one year of age divided by the number of live births in a given year, and then multiplied by 1,000. IMR are commonly used as an indicator of community health status, since children under one year of age are highly susceptible to disease. Table 5.1 shows that the IMR for the Bemidji Area AI/AN in 2000-2004 was 8.3 deaths per 1,000 live births. Neither the Bemidji Area AI/AN nor Bemidji Area All Races IMR meets the HP2010 goal of 4.5 deaths per 1,000 live births. While the small number of annual infant deaths in each state lead to the fluctuation in state rates over the past decade (as shown in Graph 5.1), improvements in the AI/AN IMR rate in the Bemidji Area as a whole have occurred, contributing to a nearly 2% reduction (from 10.5% during 1994-1998 to 8.28% during 2000-2004) over the past decade.

TABLE 5.1 - Infant Mortality Rates (per 1,000 live births), 2000-2004

AI/AN Michigan	6.8	All Races Michigan	8.3
AI/AN Minnesota	8.2	All Races Minnesota	5.1
AI/AN Wisconsin	9.7 [^]	All Races Wisconsin	6.6 ^{^^}
AI/AN Bemidji Area	8.3	All Races Bemidji Area	7.1
IHS Total	7.6 [*]	All Races U.S. ^{**}	6.8
HP 2010	4.5		

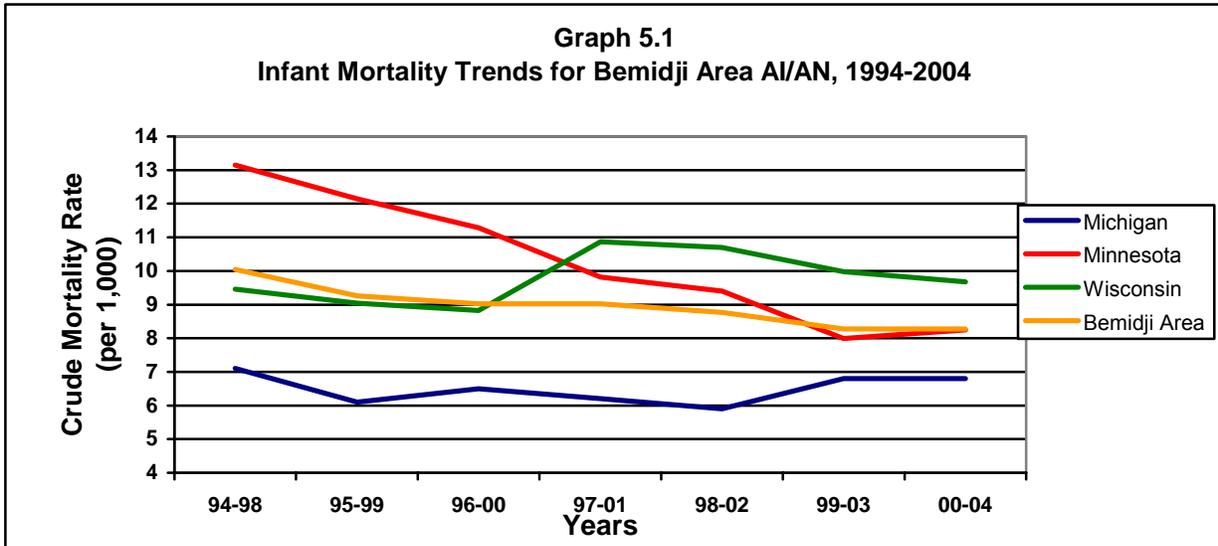
Data Sources: 2000-2004 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information

[^]2000-2004 Birth Files, Wisconsin Department of Health and Human Services

^{^^} WISH Data Query System (Wisconsin Interactive Statistics on Health)

^{*}Data from Trends in Indian Health, IHS, 2000-2001 (1996-1998 data)

^{**}National Center for Health Statistics, 2004



Data Sources: 1994-2004 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information
1994-2004 Birth Files, Wisconsin Department of Health and Human Services

Birth Weight

Birth weight is a valuable indicator of health for both the infant and mother. Low birth weight babies are at a higher risk of death within the first year of life, since they may be more susceptible to illness due to lack of physical development. Table 5.2 shows that the Bemidji Area All Races population had a higher percent of low birth weight babies compared to the AI/AN total population in the Bemidji Area for 2000-2004 (7.3% and 6.7%, respectively). However, neither the AI/AN nor the All Races populations in the Bemidji Area met the HP 2010 low birth weight goal of 5.0%.

TABLE 5.2 - Low Birth Weight Births (less than 2,500 grams), by Percent, 2000-2004

AI/AN Michigan	6.9	All Races Michigan	8.2
AI/AN Minnesota	7.1	All Races Minnesota	6.3
AI/AN Wisconsin	5.8 [^]	All Races Wisconsin	6.7 ^{^^}
AI/AN Bemidji Area	6.7	All Races Bemidji Area	7.3
IHS Total	6.3 [*]	All Races U.S.	8.1 ^{**}
HP 2010	5.0		

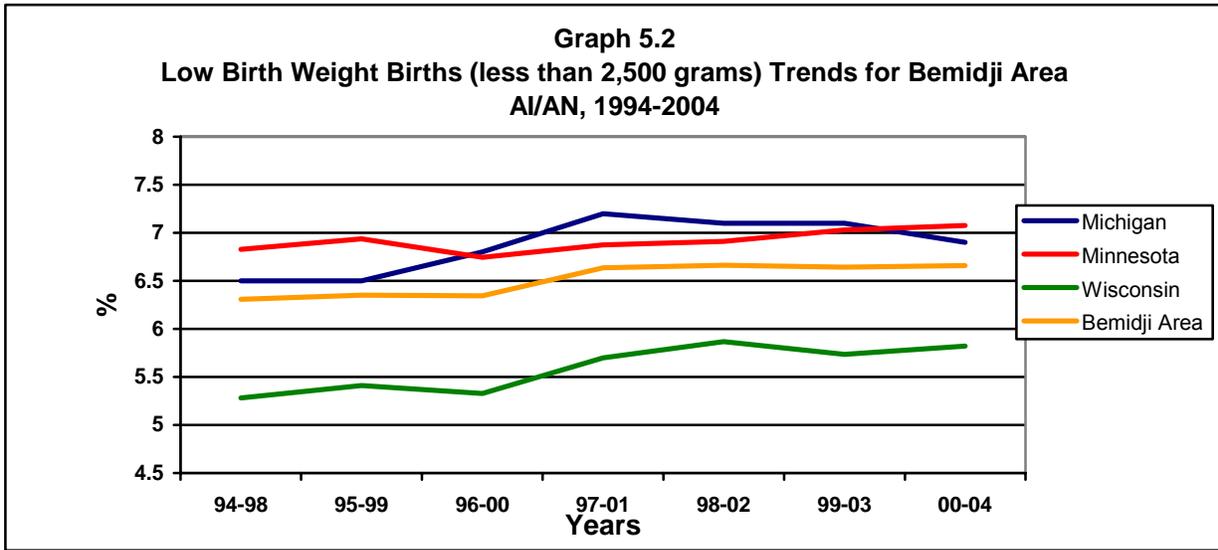
Data Sources: 2000-2004 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information

^{*}Data from Trends in Indian Health, IHS, 2000-2001 (1996-1998 data)

^{**}National Center for Health Statistics, 2004

[^]2000-2004 Birth Files, Wisconsin Department of Health and Human Services

^{^^} WISH Data Query System (Wisconsin Interactive Statistics on Health)



Data Sources: 1994-2004 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information
1994-2004 Birth Files, Wisconsin Department of Health and Human Services

High birth weight is an important indicator because these babies may have increased risk of developing diabetes, metabolic problems, or obesity throughout their lifetime. The high birth weight of a baby can also cause problems for mothers during delivery and may be an indicator that the mother has diabetes or other metabolic disorders. Table 5.3 displays the comparison of high birth weight babies for different populations. The Bemidji Area AI/AN 2000-2004 births had a higher percentage of high birth weight babies (14.7%) than the All Races Bemidji Area population (11.2%) for this same time period. The corresponding values during a similar time period for the national AI/AN IHS population and All Races U.S. population were 12.6% and 8.8% respectively.

TABLE 5.3 - High Birth Weight Births (greater than 4,000 grams), by Percent, 2000-2004

AI/AN Michigan	13.2	All Races Michigan	10.4
AI/AN Minnesota	15.2	All Races Minnesota	12.3
AI/AN Wisconsin	15.2 [^]	All Races Wisconsin	11.5 ^{^^}
AI/AN Bemidji Area	14.7	All Races Bemidji Area	11.2
IHS Total	12.6 [*]	All Races U.S.	8.8 ^{**}
HP 2010	-		

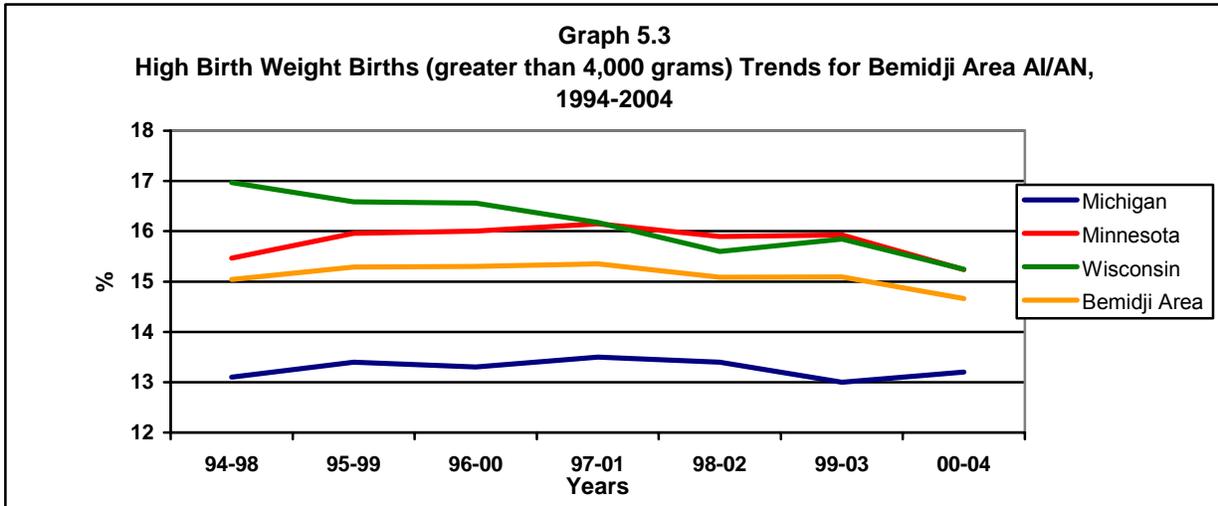
Data Sources: 2000-2004 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information

^{*}Data from Trends in Indian Health, IHS, 2000-2001 (1996-1998 data)

^{**}National Center for Health Statistics, 2003

[^]2000-2004 Birth Files, Wisconsin Department of Health and Human Services

^{^^} WISH Data Query System (Wisconsin Interactive Statistics on Health)



Data Sources: 1994-2004 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information 1994-2004 Birth Files, Wisconsin Department of Health and Human Services

Prenatal Care

The trimester prenatal care began has traditionally been used as an indicator of birth outcomes. Receiving prenatal care in the first trimester could assist with the detection of potential health problems early in a pregnancy. Early care during pregnancy allows for early education and consultation about nutrition, exercise and basic care during pregnancy and birth for both parents.

Table 5.4 displays information on the percentage of births in which the mother began prenatal care in the first trimester. Of AI/AN births in the Bemidji Area, 72.7% began prenatal care in the first trimester compared to 83.9% of All Races in the Bemidji Area. The AI/AN population percentages, both in the Bemidji Area and nationally, remain well below the HP 2010 goal of 90%.

TABLE 5.4 – Births with Prenatal Care Beginning in the First Trimester, by Percent, 2000-2004

AI/AN Michigan	78.9	All Races Michigan	82.8
AI/AN Minnesota	67.6	All Races Minnesota	85.7
AI/AN Wisconsin	73.7 [^]	All Races Wisconsin	84.5 ^{^^}
AI/AN Bemidji Area	72.7	All Races Bemidji Area	83.9
IHS Total	68.5 [*]	All Races U.S.	83.9 ^{**}
HP 2010	90.0		

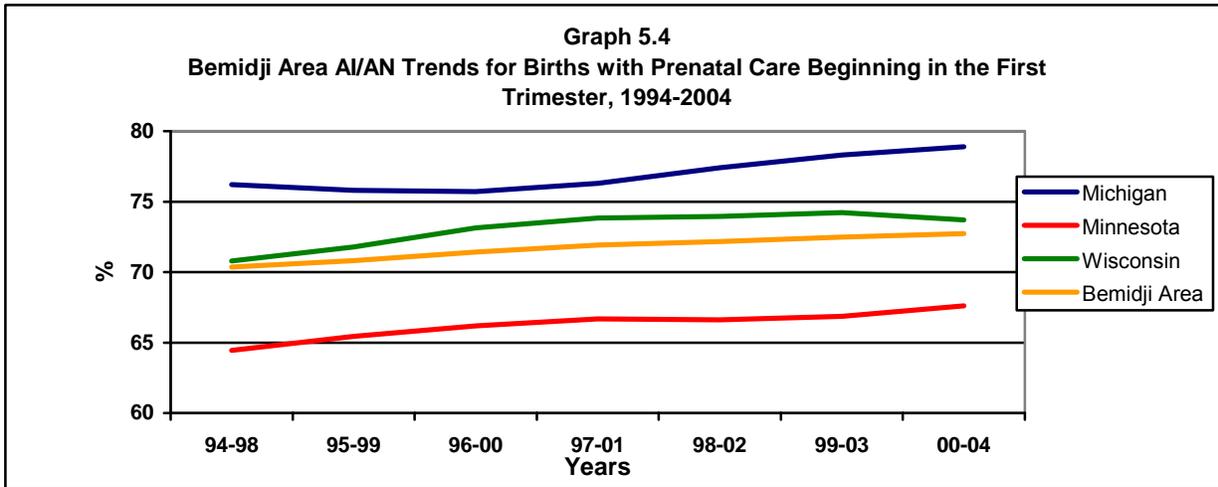
Data Sources: 2000-2004 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information

^{*}Data from Trends in Indian Health, IHS, 2000-2001 (1996-1998 data)

^{**}National Center for Health Statistics, 2004

[^]2000-2004 Birth Files, Wisconsin Department of Health and Human Services

^{^^} WISH Data Query System (Wisconsin Interactive Statistics on Health)



Data Sources: 1994-2004 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information
 ^1994-2004 Birth Files, Wisconsin Department of Health and Human Services

Smoking During Pregnancy

Smoking during pregnancy is an important indicator of both child and maternal health outcomes. Mothers who smoke during pregnancy are at personal risk for smoking-related illness and their babies are at risk as infants and children for a host of problems. Smoking during pregnancy has been linked to prematurity, low birth weight in infants, asthma, and chronic ear infections in children. Table 5.5 shows that from 2000 to 2004, 34.5% of Bemidji Area AI/AN babies were born to mothers who smoked during pregnancy, which is higher than the IHS population (20.2%), All Races in the Bemidji Area (13.8%), and All Races in the U.S. (10.2%). On an encouraging note, rates of smoking during the pregnancy of an AI/AN birth in the Bemidji Area have been steadily decreasing over the past decade (Graph 5.5).

TABLE 5.5 - Births to Mothers Who Smoked During Pregnancy, by Percent, 2000-2004

AI/AN Michigan	32.4	All Races Michigan	14.8
AI/AN Minnesota	36.1	All Races Minnesota	10.5
AI/AN Wisconsin	34.2 [^]	All Races Wisconsin	15.0 ^{^^}
AI/AN Bemidji Area	34.5	All Races Bemidji Area	13.8
IHS Total	20.2 [*]	All Races U.S.	10.2 ^{**}
HP 2010	-		

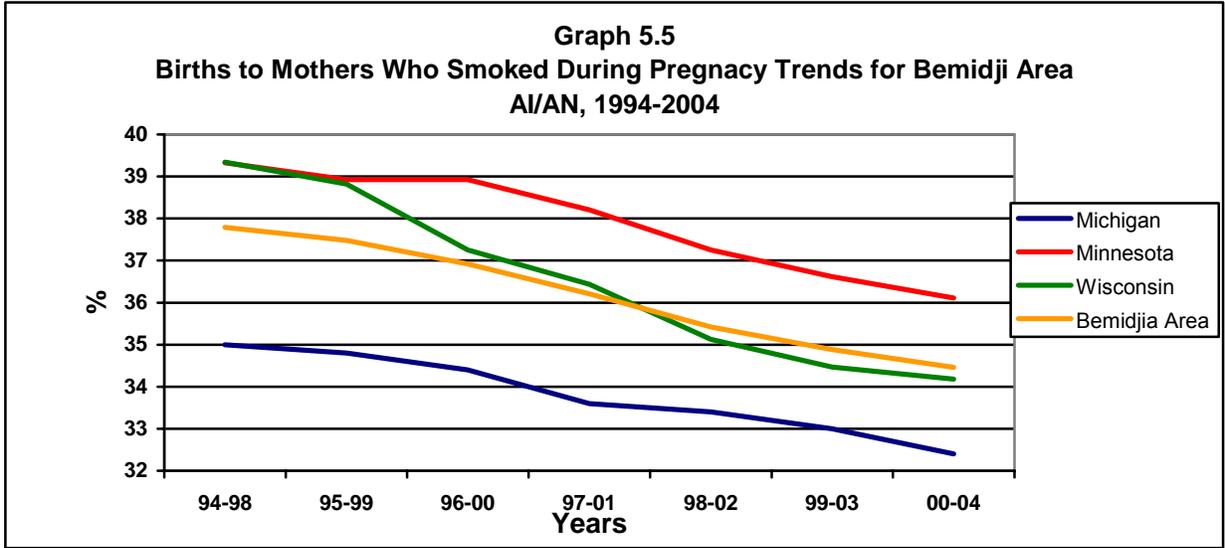
Data Sources: 2000-2004 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information

^{*}Data from Trends in Indian Health, IHS, 2000-2001 (1996-1998 data)

^{**}National Center for Health Statistics, 2004

[^]2000-2004 Birth Files, Wisconsin Department of Health and Human Services

^{^^} WISH Data Query System (Wisconsin Interactive Statistics on Health)



Data Sources: 1994-2004 Birth and Death Files from Michigan Department of Community Health, Minnesota Center for Health Statistics, and Wisconsin Bureau of Health Information
1994-2004 Birth Files, Wisconsin Department of Health and Human Services

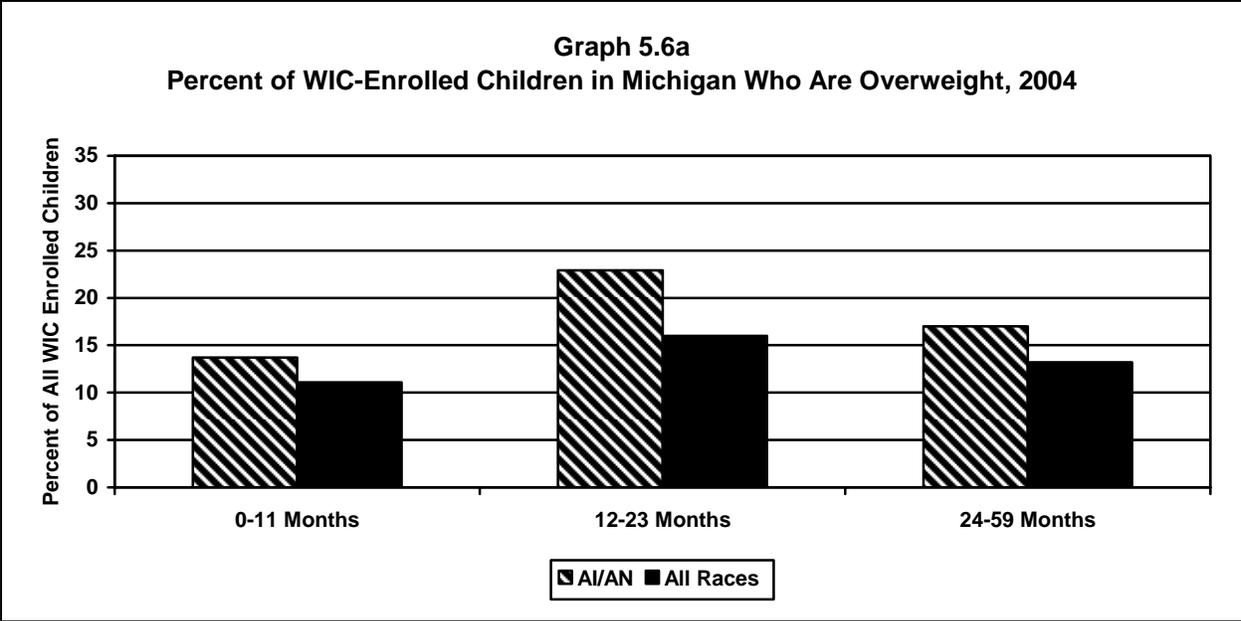
Childhood Weights

Overweight children are defined as those with a weight for height greater than the 95th percentile. Table 5.6 and Graphs 5.6a-c display data from each state’s WIC Program. Overweight levels for WIC-enrolled AI/AN children in all three states within the Bemidji Area are higher than for WIC-enrolled children of All Races.

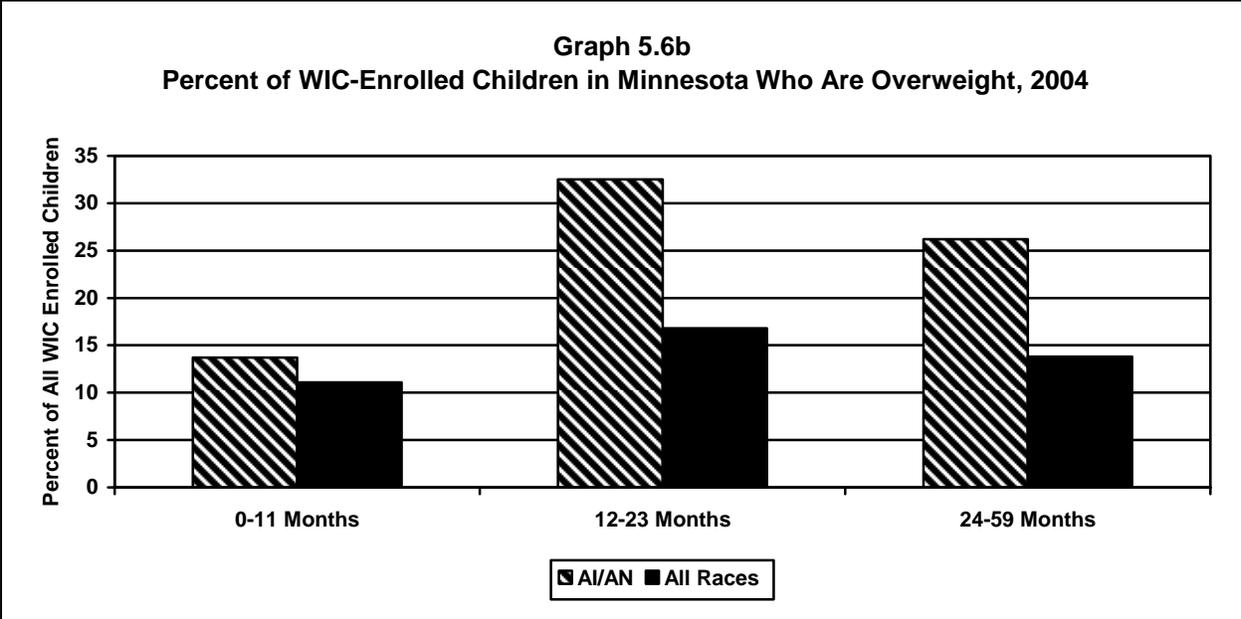
TABLE 5.6 – Percent of WIC Enrolled Children Who Are Overweight, 2004

Age	Michigan		Minnesota		Wisconsin	
	AI/AN	All Races	AI/AN	All Races	AI/AN	All Races
0-11 months	13.7	11.1	13.7	11.1	12.0	8.1
12-23 months	22.9	16.0	32.5	16.8	24.9	16.1
24-59 months	17.0	13.2	26.2	13.8	20.5	13.3
Total	17.1	13.0	24.5	13.8	19.2	12.4

Source: CDC Pediatric Nutrition Surveillance System (PedNSS), Table 16C, 2004 Annual Summaries for Michigan, Minnesota, and Wisconsin

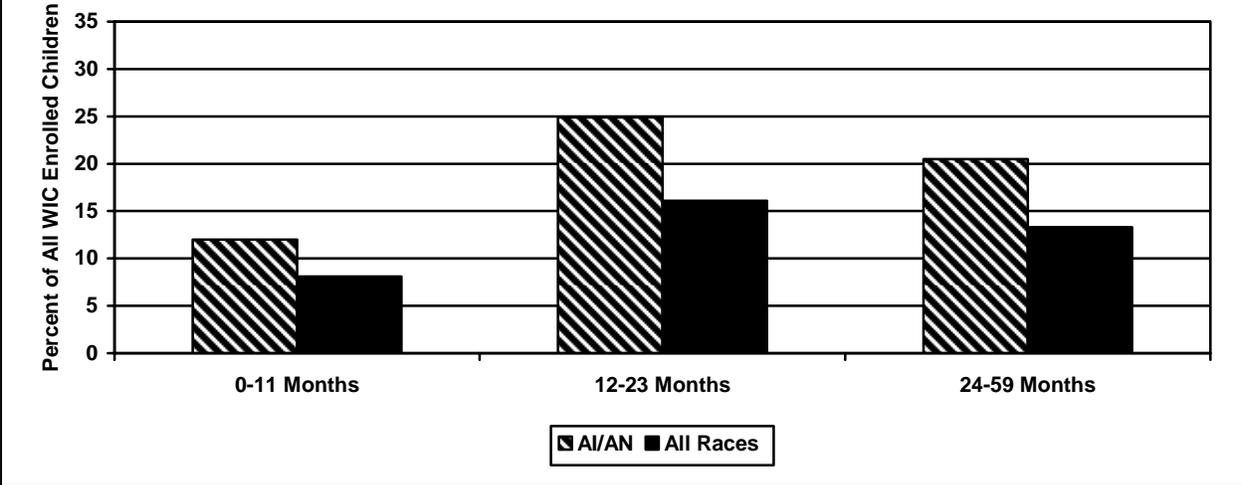


Source: Pediatric Nutrition Surveillance, Table 16C, 2004 Annual Summary for Michigan



Source: CDC Pediatric Nutrition Surveillance System, Table 16C, 2004 Annual Summary for Minnesota

Graph 5.6c
Percent of WIC-Enrolled Children in Wisconsin Who Are Overweight, 2004



Source: Pediatric Nutrition Surveillance, Table 16C, 2004 Annual Summary for Wisconsin.

SECTION 6

CONCLUSION

The data included in this report comes from a variety of local, state, and national sources. Although limited, the health information in this report shows some areas of accomplishment as well as areas needing improvement. The following discusses some of the health indicators from different sections of this report. Appendix D contains resources for additional information.

The mortality section displays information on death by ranking the causes of death and comparing death rates between different populations. Ranking by American Indian/Alaska Native number of deaths shows the top five causes of death in the Bemidji Area for 2004 were: 1) cancer, 2) heart disease, 3) unintentional injury, 4) diabetes, and 5) chronic lower respiratory disease. Crude mortality trends for different causes of death are also presented in Section 2. These graphs should be interpreted within each state, not compared to each other, since they are not age-adjusted.

Health information on risk factors associated with chronic disease and the top causes of AI/AN mortality such as smoking, obesity, level of exercise, drug and alcohol use, and hypertension, among others, is not yet available to the EpiCenter on a state or Bemidji Area level. However, some small projects have provided information that provides some insight as to the levels of risk factors for AI/AN people. One in particular, the Inter-Tribal Heart Project, was a comprehensive assessment of cardiovascular disease risk factors for Tribes in Minnesota and Wisconsin. Youth tobacco surveys, health needs assessments, youth obesity studies, and program evaluations at the state and tribal level serve as a source of information. Determination of risk factor prevalence is extremely important for AI/AN communities because many of the top causes of death and chronic disease directly result from common risk factors which can be modified or prevented through a targeted approach to programming for community health.

The diabetes section in this report contains locally collected Tribal diabetes outcome audit information from the Bemidji Area diabetes programs reported to the IHS. The various IHS standards of diabetes care indicators from 2000-2005 are displayed in this section. Please note, some indicators are more difficult to track than others, especially when the services are not provided directly by Tribal Health facilities. Improvements were observed in the following areas: documentation of various indicators such as height/weight and metabolic control, increased proportions of A1c tests <7.0, and increased proportions of people with diabetes receiving lipid screenings. There are still areas in need of improvement, such as increasing the proportion of people with diabetes who receive dilated eye exams, and reducing the rising obesity rates among people with diabetes.

Data in the communicable disease section of this report show numbers and rates of the sexually transmitted diseases reported. Chlamydia has the highest rates from year to year. The change in rates for chlamydia over time may be partially attributable to increased testing and improved surveillance systems than an actual increase in

prevalence; however, these increases should be taken seriously with proper prevention programs. This information helps target groups most affected by preventable diseases, such as HIV and STDs.

The average rate of AI/AN newborns with mothers who smoked in the Bemidji Area was about 34.5% in 2000-2004, compared to 13.8% for Bemidji Area All Races. However, for some Tribal communities, nearly half of the AI/AN babies had mothers who smoked during their pregnancy. Smoking can cause many health problems for both the mothers and their babies. This may be an issue that can be addressed by increasing prevention efforts of already existing prenatal programs. Tribal health centers may want to examine this issue within their own communities.

APPENDIX A

Age relates directly to patterns of morbidity and mortality. The following table lists the most prevalent health problems associated with each age group.

Age group	Health Problem Associations	Examples of Illnesses and Injuries
Infants	Prematurity, injury, and infectious diseases	Birth defects, pneumonia, sudden infant death syndrome, poisonings, burns, and falls
Childhood	Injury, infectious diseases, and abuse	Poisonings, burns, falls, vehicle crashes, influenza, ear/nose/throat (ENT) infections, bone fractures, and skin abrasions
Adolescence	Risk-taking behaviors, injury, infectious diseases, and sexual behaviors	Burns, bone fractures, spinal injury, poisonings, firearm and automobile-related trauma, abuse of chemicals, use of tobacco products, sexually-transmitted diseases, ENT infections, influenza, and unplanned pregnancy
Adulthood (Ages 24-44)	Risk-taking behaviors, injury, and infectious diseases	Bone fractures, lacerations, spinal injury, firearm-related trauma, abuse of chemicals, use of tobacco products, influenza, and asthma
Adulthood (Ages 45-64)	Chronic disease and risk-taking behavior	Cancer, heart disease, hypertensive disease, dental disease, arthritis, consumption of tobacco products, abuse of chemicals, and improper dietary practices
Adulthood (Ages 65+)	Acute disease, injury, and chronic disease	Influenza and pneumonia, falls, burns, suicides, cancer, heart disease, and cerebrovascular disease

Source: J.A. Rice. *Community Assessment: The First Step in Community Health Planning*. Chicago, Illinois: American Hospital Association, 1993

APPENDIX B

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

Cause of Death	ICD-9 Codes	ICD-10 Codes
Malignant Neoplasms (Cancer)	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-I11.9
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 Diseases	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 (Accidents)	E800-E869, E880-E929	V01-X59, Y85-Y86
Motor Vehicle Accidents	E810-E825	V02-V04, V09.0, V09.2, V12-V14, V19.0-V19.2, 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

ICD-9: International Classification of Diseases, 9th Edition, 1975
ICD-10: International Classification of Diseases, 10th Edition, 1993

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	3,795,000	0.013818
1-4 years	15,192,000	0.055317
5-14 years	39,977,000	0.145565
15-24 years	38,077,000	0.138646
25-34 years	37,233,000	0.135573
35-44 years	44,659,000	0.162613
45-54 years	37,030,000	0.134834
55-64 years	23,961,000	0.087247
65-74 years	18,136,000	0.066037
75-84 years	12,915,000	0.044842
85 years and over	4,259,000	0.015508
Total	275,234,000	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 AI/AN 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 use only a single race distinction. 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.

The sexually transmitted disease section includes data for the AI/AN and All Races population across years to show changes over time, not necessarily to compare with each other. In addition, when compiling this data, race categories employed may vary from state to state.

Data included in 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	23,436	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 AI/AN populations. Using death certificates from 1986-1988, the IHS found that the Bemidji Area was 16% race inconsistent (Michigan 31.7%, Minnesota 9.8%, and Wisconsin 14.1%). These misclassifications decrease the number of AI/AN 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

RESOURCES

Great Lakes EpiCenter

Kristin Hill, EpiCenter Director
Kimmie Pierce, Epidemiologist
Olivia Byron-Cooper, Epidemiologist
Allison La Pointe, Epidemiologist
Dina Chapman, MIS Analyst
Nancy Peterman, MIS Analyst
Jean Koranda, Administrative Asst.

Great Lakes Inter-Tribal Council, Inc.

2932 Hwy 47 North
P.O. Box 9
Lac du Flambeau, WI 54538
(715) 588-3324
(800) 472-7207

Bemidji Area Office

Indian Health Service
Federal Building
522 Minnesota Ave.
Bemidji, MN 56601
(218) 759-3440

Rhineland Field Office

Indian Health Service
9A S. Brown St.
Rhineland, WI 54501
(715)365-5106

Epidemiology Branch

Indian Health Service
5300 Homestead Dr., NE
Albuquerque, NM 87110
(505)248-4226

Wisconsin Department of Health and Family Services

Bureau of Health Information
1 West Wilson St.
P.O. Box 309
Madison, WI 53701-0309
(608)266-7568

Michigan Department of Community Health

Lewis Cass Building
320 South Walnut St.
Lansing, MI 48913
(517)373-3740

Minnesota Center for Health Statistics

121 East 7th Place
Metro Square Building, 4th Floor
St. Paul, MN 55101
(612)297-1232

Websites

Centers for Disease Control and Prevention
National Center for Health Statistics
U.S. Census Bureau
Indian Health Service
Great Lakes Inter-Tribal Council, Inc.
Michigan Dept. of Community Health
Wisconsin Dept. of Health and Family Services
Minnesota Dept. of Health

www.cdc.gov
www.cdc.gov/nchs/
www.census.gov
www.ih.gov
www.glitc.org
www.michigan.gov/mdch
www.dhfs.state.wi.us
www.health.state.mn.us

