

Michigan Health Equity Data Tables and Related Technical Documents

2000-2009

Michigan Health Equity Data Project

Health Disparities Reduction and Minority Health Section
Division of Health, Wellness, and Disease Control
and
Division of Genomics, Perinatal Health, and Chronic Disease Epidemiology
Michigan Department of Community Health

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INTRODUCTION

Michigan Health Equity Data Project

Health Equity is “the absence of systematic disparities in health and its determinants between groups of people at different levels of underlying social advantage (i.e., wealth, power, and/or social prestige)” (*Michigan Health Equity Roadmap*). Monitoring health equity requires standardized, complete, and consistent data collection over time. The Michigan Health Equity Data Tables present consistent and standardized group-level data for five racial/ethnic minority groups across two time periods (2000-2004 and 2005-2009). By gathering comparable data for each racial/ethnic population and combining all indicators in one place, these Health Equity Data Tables allow us to routinely monitor health equity in Michigan and evaluate progress over time. The Health Equity Data Tables do not contain individual-level data, therefore, they are not intended to be used for statistical analyses. Rather, the tables present summary data at the group level so that disparities between groups can be monitored.

The focus of the Michigan Health Equity Project is **equity**; these tables present information about how populations compare to one another and if they become closer to (more equitable) or further from (less equitable) each other over time. They do not present information about how health status changes over time. In some cases, equity in the overall population increased even when the health status declined. When interpreting these tables, take note of what is changing to move populations closer to or further from each other.

Health Indicators

Each table contains the same set of indicators, and data for each group were gathered from the same sources. The indicators include health outcomes (e.g., diseases and deaths) and social, economic, and environmental determinants of individual and community health. Monitoring social determinants together with health outcomes is optimal for evaluating success in achieving sustainable health equity for racial and ethnic minority populations in Michigan.

Indicators were selected based on careful review of indicators for health outcomes and social determinants of health. A key justification for the selection of indicators was the availability of routinely reported measures for racial and ethnic populations in Michigan.

Health Equity Measures

In addition to presenting estimates for two time periods for each indicator, the equity tables incorporate four measures for monitoring racial and ethnic health equity in Michigan:

- 1) **Pairwise Disparity (rate difference and rate ratio)**: Compares the minority population to the white (reference) population for each indicator;
- 2) **Change in Pairwise Disparity Over Time**: Measures whether the index population rate has gotten closer to or farther from the white population rate from one time period to another;

- 3) **Index of Disparity:** Measures the level of disparity in the overall Michigan population for each indicator;
- 4) **Change in Population Disparity Over Time:** Measures whether the overall population disparity has increased or decreased from one time period to another.

The methods for calculating each measure are described in the Michigan Health Equity Epidemiology Brief: [Methods for Measuring and Monitoring Health Disparities in Michigan](#).

Choice of a Reference Group

Equity describes the gaps between two different groups. When measuring equity, a reference group must be chosen in order to measure how far is the minority group of interest from the reference group. For all pairwise comparisons the white population served as the reference group. This choice was made because, in Michigan, it is the only population large enough to provide a stable comparison over time.

Intended Uses

The Michigan Health Equity Data Tools presented here are intended to serve as resources for those interested in improving health equity in Michigan. The data presented in the equity tables can be used to prepare fact sheets, write grant proposals, and educate communities, policy makers, and health professionals. Additionally, it is hoped that these data will promote discussion among communities and organizations, and serve as tools to inform policies that support health equity improvements. With the methods and technical notes provided here, these tables can be replicated by groups to monitor health equity in their subject or geographic areas of interest.

If you have any questions about how these data can be used, please feel free to contact the Michigan Department of Community Health, Health Disparities Reduction/Minority Health Section (colormehealthy@michigan.gov or 517-373-5818).

Health Equity Data Table 1. African Americans compared to Whites as the reference group, Michigan, 2000-2009

Indicators ^a	Time 1 (Baseline)					Time 2 (Most Recent Data)						Change Over Time		
	Year/s	African American Rate	White Rate	Rate Difference	Rate Ratio	Year/s	African American Rate	White Rate	Rate Difference	Rate Ratio	Rank: Relative to Reference in Time 2 (Best to Worst) ^a	% Change in Rate Ratio	Inequity Status ^b	Rank: Improvement over Time (Best to Worst) ^a
Social Determinants														
Median annual household income, \$	2000	\$31,055	\$46,907	\$15,852	1.5	2006-08	\$31,989	\$52,954	\$20,965	1.7	9	9.6%	↑	17
Children at or below poverty, %	2000	30.2%	9.1%	21.0%	3.3	2006-08	41.7%	12.6%	29.1%	3.3	16	0.4%	↔	12
Unemployment rate, %	2000	6.9%	3.1%	3.8%	2.2	2009	21.0%	12.2%	8.8%	1.7	9	-22.7%	↓	1
High school dropout rate, %	2007	28.3%	10.8%	17.5%	2.6	2009	20.4%	8.1%	12.4%	2.5	14	-3.5%	↔	8
Persons not registered to vote, %	2000	28.4%	27.7%	0.7%	1.0	2008	22.8%	22.4%	0.4%	1.0	1	-0.7%	↔	9
Health Status, Behaviors, Healthcare														
Self-reported fair/poor health, %	2001-03	21.9%	13.0%	8.9%	1.7	2007-09	22.3%	12.5%	9.8%	1.8	11	5.9%	↑	16
Unhealthy physical days, % ≥14 in past month	2001-03	13.3%	11.1%	2.2%	1.2	2007-09	12.4%	10.0%	2.4%	1.2	4	3.5%	↔	14
Unhealthy mental days, % ≥14 in past month	2001-03	14.4%	11.0%	3.4%	1.3	2007-09	12.7%	10.7%	2.0%	1.2	4	-9.3%	↓	4
Obesity prevalence, %	2001-03	35.9%	23.3%	12.6%	1.5	2007-09	39.7%	28.1%	11.6%	1.4	7	-8.3%	↓	5
Tobacco use - current smoker, %	2001-03	26.5%	25.1%	1.4%	1.1	2007-09	20.7%	20.6%	0.1%	1.0	1	-4.8%	↔	7
Percent without health insurance, %	1997-99	16.5%	12.4%	4.1%	1.3	2005-07	19.0%	10.3%	8.7%	1.8	11	38.6%	↑	18
Morbidity and Mortality														
Heart disease mortality rate, per 100,000	2002	365.7	252.3	113.4	1.4	2007	313.8	210.2	103.6	1.5	8	3.0%	↔	14
Diabetes prevalence, %	2001-03	13.1%	6.9%	6.2%	1.9	2007-09	14.3%	7.4%	6.9%	1.9	13	1.8%	↔	13
All-cancer mortality rate, per 100,000	2002	247.0	192.5	54.5	1.3	2007	230.5	181.4	49.1	1.3	6	-1.0%	↔	9
Gonorrhea incidence, per 100,000	2003	474.0	15.0	459.0	31.6	2009	545.0	20.0	525.0	27.3	18	-13.8%	↓	2
HIV infection rate, per 100,000	2000	588.5	63.1	525.4	9.3	2008	574.0	62.0	512.0	9.3	17	-0.7%	↔	9
Infant mortality rate, per 1000 live births	2000-02	17.8	6.0	11.8	3.0	2006-08	15.3	5.6	9.7	2.7	15	-7.9%	↓	6
Unintentional injury mortality rate, per 100,000	2002	39.1	31.3	7.8	1.2	2007	37.8	34.5	3.3	1.1	3	-12.3%	↓	3

↑: Increase (worsening) in inequity. ↓: Decrease (improvement) in inequity. ↔: No Change. NA or ♦: Data Not Available.

a: Complete definitions and references for all indicators and ranking systems are listed in the Michigan Health Equity Dataset Technical Notes, which can be found online at www.michigan.gov/minorityhealth.

b: The inequity status measure is the percent change in the rate between the index minority population and the reference population for the noted time periods. Positive numbers (and upward arrows) indicate a relative increase in the inequity; negative numbers (and downward arrows) indicate a relative decrease in the inequity; horizontal arrows indicate no change in the equity gap. A change of less than 5% in either direction was considered no change.

Suggested citation: Michigan Health Equity Data Reference Tables, 2000-2009. Lansing, MI: Michigan Department of Community Health; Division of Health, Wellness, and Disease Control, Health Disparities Reduction and Minority Health Section, and Division of Genomic, Perinatal Health, and Chronic Disease Epidemiology; 2011.

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Health Equity Data Table 2. American Indians/Alaska Natives compared to Whites as the reference group, Michigan, 2000-2009

Indicators ^a	Time 1 (Baseline)					Time 2 (Most Recent Data)						Change Over Time		
	Year/s	AI/AN Rate	White Rate	Rate Difference	Rate Ratio	Year/s	AI/AN Rate	White Rate	Rate Difference	Rate Ratio	Rank: Relative to Reference in Time 2 (Best to Worst) ^a	% Change in Rate Ratio	Inequity Status ^b	Rank: Improvement over Time (Best to Worst) ^a
Social Determinants														
Median annual household income, \$	2000	\$37,071	\$46,907	\$9,836	1.3	2006-08	\$40,369	\$52,954	\$12,585	1.3	4	3.7%	↔	8
Children at or below poverty, %	2000	22.1%	9.1%	12.9%	2.4	2006-08	24.8%	12.6%	12.2%	2.0	10	-18.4%	↓	4
Unemployment rate, %	2000	NA	3.1%	NA	NA	2009	NA	12.2%	NA	NA	NA	NA	◆	NA
High school dropout rate, %	2007	19.0%	10.8%	8.2%	1.8	2009	16.6%	8.1%	8.6%	2.1	12	17.1%	↑	10
Persons not registered to vote, %	2000	NA	27.7%	NA	NA	2008	NA	22.4%	NA	NA	NA	NA	◆	NA
Health Status, Behaviors, Healthcare														
Self-reported fair/poor health, %	2001-03	23.8%	13.0%	10.8%	1.8	2007-09	31.1%	12.5%	18.6%	2.5	14	35.9%	↑	13
Unhealthy physical days, % ≥14 in past month	2001-03	13.0%	11.1%	1.9%	1.2	2007-09	23.1%	10.0%	13.1%	2.3	13	97.2%	↑	14
Unhealthy mental days, % ≥14 in past month	2001-03	15.4%	11.0%	4.4%	1.4	2007-09	14.0%	10.7%	3.3%	1.3	4	-6.5%	↓	7
Obesity prevalence, %	2001-03	35.3%	23.3%	12.0%	1.5	2007-09	37.1%	28.1%	9.0%	1.3	4	-12.9%	↓	5
Tobacco use - current smoker, %	2001-03	37.1%	25.1%	12.0%	1.5	2007-09	36.3%	20.6%	15.7%	1.8	8	19.2%	↑	11
Percent without health insurance, %	1997-99	NA	12.4%	NA	NA	2005-07	NA	10.3%	NA	NA	NA	NA	◆	NA
Morbidity and Mortality														
Heart disease mortality rate, per 100,000	2002	231.3	252.3	-21.0	0.9	2007	243.3	210.2	33.1	1.2	3	26.3%	↑	12
Diabetes prevalence, %	2001-03	21.3%	6.9%	14.4%	3.1	2007-09	14.9%	7.4%	7.5%	2.0	10	-34.8%	↓	1
All-cancer mortality rate, per 100,000	2002	231.9	192.5	39.4	1.2	2007	176.2	181.4	-5.2	1.0	1	-19.4%	↓	3
Gonorrhea incidence, per 100,000	2003	12.0	15.0	-3.0	0.8	2009	66.0	20.0	46.0	3.3	15	312.5%	↑	15
HIV infection rate, per 100,000	2000	76.1	63.1	13.0	1.2	2008	81.0	62.0	19.0	1.3	4	8.3%	↑	9
Infant mortality rate, per 1000 live births	2000-02	11.6	6.0	5.6	1.9	2006-08	9.9	5.6	4.3	1.8	9	-8.6%	↓	6
Unintentional injury mortality rate, per 100,000	2002	39.4	31.3	8.1	1.3	2007	34.7	34.5	0.2	1.0	1	-20.1%	↓	2

↑: Increase (worsening) in inequity. ↓: Decrease (improvement) in inequity. ↔: No Change. NA or ◆: Data Not Available.

a: Complete definitions and references for all indicators and ranking systems are listed in the Michigan Health Equity Dataset Technical Notes, which can be found online at www.michigan.gov/minorityhealth.

b: The inequity status measure is the percent change in the rate between the index minority population and the reference population for the noted time periods. Positive numbers (and upward arrows) indicate a relative increase in the inequity; negative numbers (and downward arrows) indicate a relative decrease in the inequity; horizontal arrows indicate no change in the equity gap. A change of less than 5% in either direction was considered no change.

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Health Equity Data Table 3. Arabs compared to Whites as the reference group, Michigan, 2000-2009

Indicators ^a	Time 1 (Baseline)					Time 2 (Most Recent Data)						Change Over Time		
	Year/s	Arab Rate	White Rate	Rate Difference	Rate Ratio	Year/s	Arab Rate	White Rate	Rate Difference	Rate Ratio	Rank: Relative to Reference in Time 2 (Best to Worst) ^a	% Change in Rate Ratio	Inequity Status ^b	Rank: Improvement over Time (Best to Worst) ^a
Social Determinants														
Median annual household income, \$	2000	\$43,870	\$46,907	\$3,037	1.1	2006-08	NA	\$52,954	NA	NA	NA	NA	◆	NA
Children at or below poverty, %	2000	NA	9.1%	NA	NA	2006-08	NA	12.6%	NA	NA	NA	NA	◆	NA
Unemployment rate, %	2000	NA	3.1%	NA	NA	2009	NA	12.2%	NA	NA	NA	NA	◆	NA
High school dropout rate, %	2007	NA	10.8%	NA	NA	2009	NA	8.1%	NA	NA	NA	NA	◆	NA
Persons not registered to vote, %	2000	NA	27.7%	NA	NA	2008	NA	22.4%	NA	NA	NA	NA	◆	NA
Health Status, Behaviors, Healthcare														
Self-reported fair/poor health, %	2001-03	NA	13.0%	NA	NA	2007-09	12.8%	12.5%	0.3%	1.0	3	NA	◆	NA
Unhealthy physical days, % ≥14 in past month	2001-03	NA	11.1%	NA	NA	2007-09	11.3%	10.0%	1.3%	1.1	5	NA	◆	NA
Unhealthy mental days, % ≥14 in past month	2001-03	NA	11.0%	NA	NA	2007-09	11.8%	10.7%	1.1%	1.1	5	NA	◆	NA
Obesity prevalence, %	2001-03	NA	23.3%	NA	NA	2007-09	27.0%	28.1%	-1.1%	1.0	3	NA	◆	NA
Tobacco use - current smoker, %	2001-03	NA	25.1%	NA	NA	2007-09	18.5%	20.6%	-2.1%	0.9	1	NA	◆	NA
Percent without health insurance, %	1997-99	NA	12.4%	NA	NA	2005-07	NA	10.3%	NA	NA	NA	NA	◆	NA
Morbidity and Mortality														
Heart disease mortality rate, per 100,000	2002	NA	252.3	NA	NA	2007	NA	210.2	NA	NA	NA	NA	◆	NA
Diabetes prevalence, %	2001-03	NA	6.9%	NA	NA	2007-09	6.3%	7.4%	-1.1%	0.9	1	NA	◆	NA
All-cancer mortality rate, per 100,000	2002	NA	192.5	NA	NA	2007	NA	181.4	NA	NA	NA	NA	◆	NA
Gonorrhea incidence, per 100,000	2003	NA	15.0	NA	NA	2009	NA	20.0	NA	NA	NA	NA	◆	NA
HIV infection rate, per 100,000	2000	NA	63.1	NA	NA	2008	NA	62.0	NA	NA	NA	NA	◆	NA
Infant mortality rate, per 1000 live births	2000-02	5.4	6.0	-0.6	0.9	2006-08	8.1	5.6	2.5	1.4	7	60.7%	↑	NA
Unintentional injury mortality rate, per 100,000	2002	NA	31.3	NA	NA	2007	NA	34.5	NA	NA	NA	NA	◆	NA

↑: Increase (worsening) in inequity. ↓: Decrease (improvement) in inequity. ↔: No Change. NA or ◆: Data Not Available.

a: Complete definitions and references for all indicators and ranking systems are listed in the Michigan Health Equity Dataset Technical Notes, which can be found online at www.michigan.gov/minorityhealth.

b: The inequity status measure is the percent change in the rate between the index minority population and the reference population for the noted time periods. Positive numbers (and upward arrows) indicate a relative increase in the inequity; negative numbers (and downward arrows) indicate a relative decrease in the inequity; horizontal arrows indicate no change in the equity gap. A change of less than 5% in either direction was considered no change.

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Health Equity Data Table 4. Asians compared to Whites as the reference group, Michigan, 2000-2009

Indicators ^a	Time 1 (Baseline)					Time 2 (Most Recent Data)						Change Over Time		
	Year/s	Asian Rate	White Rate	Rate Difference	Rate Ratio	Year/s	Asian Rate	White Rate	Rate Difference	Rate Ratio	Rank: Relative to Reference in Time 2 (Best to Worst) ^a	% Change in Rate Ratio	Inequity Status ^b	Rank: Improvement over Time (Best to Worst) ^a
Social Determinants														
Median annual household income, \$	2000	\$58,188	\$46,907	-\$11,281	0.8	2006-08	\$72,296	\$52,954	-\$19,342	0.7	10	-9.1%	↑	8
Children at or below poverty, %	2000	15.6%	9.1%	6.4%	1.7	2006-08	11.4%	12.6%	-1.2%	0.9	15	-46.8%	↓	4
Unemployment rate, %	2000	NA	3.1%	NA	NA	2009	11.9%	12.2%	-0.3%	1.0	16	NA	◆	NA
High school dropout rate, %	2007	9.8%	10.8%	-1.0%	0.9	2009	6.8%	8.1%	-1.3%	0.8	12	-7.0%	↑	9
Persons not registered to vote, %	2000	45.9%	27.7%	18.2%	1.7	2008	18.7%	22.4%	-3.7%	0.8	12	-49.6%	↓	3
Health Status, Behaviors, Healthcare														
Self-reported fair/poor health, %	2001-03	14.9%	13.0%	1.9%	1.1	2007-09	5.8%	12.5%	-6.7%	0.5	5	-59.5%	↑	2
Unhealthy physical days, % ≥14 in past month	2001-03	4.4%	11.1%	-6.7%	0.4	2007-09	2.6%	10.0%	-7.4%	0.3	2	-34.4%	↑	5
Unhealthy mental days, % ≥14 in past month	2001-03	2.0%	11.0%	-9.0%	0.2	2007-09	6.0%	10.7%	-4.7%	0.6	9	208.4%	↓	16
Obesity prevalence, %	2001-03	14.0%	23.3%	-9.3%	0.6	2007-09	5.8%	28.1%	-22.3%	0.2	1	-65.6%	↑	1
Tobacco use - current smoker, %	2001-03	3.9%	25.1%	-21.2%	0.2	2007-09	7.5%	20.6%	-13.1%	0.4	3	134.3%	↓	15
Percent without health insurance, %	1997-99	NA	12.4%	NA	NA	2005-07	NA	10.3%	NA	NA	NA	NA	◆	NA
Morbidity and Mortality														
Heart disease mortality rate, per 100,000	2002	110.6	252.3	-141.7	0.4	2007	98.7	210.2	-111.5	0.5	5	7.1%	↓	11
Diabetes prevalence, %	2001-03	7.3%	6.9%	0.4%	1.1	2007-09	11.5%	7.4%	4.1%	1.6	17	46.9%	↑	13
All-cancer mortality rate, per 100,000	2002	97.7	192.5	-94.8	0.5	2007	86.5	181.4	-94.9	0.5	5	-6.0%	↔	10
Gonorrhea incidence, per 100,000	2003	9.0	15.0	-6.0	0.6	2009	13.0	20.0	-7.0	0.7	10	8.3%	↓	12
HIV infection rate, per 100,000	2000	19.5	63.1	-43.6	0.3	2008	28.0	62.0	-34.0	0.5	5	46.1%	↓	13
Infant mortality rate, per 1000 live births	2000-02	5.7	6.0	-0.3	1.0	2006-08	4.2	5.6	-1.4	0.8	12	-21.1%	↑	7
Unintentional injury mortality rate, per 100,000	2002	16.3	31.3	-15.0	0.5	2007	13.9	34.5	-20.6	0.4	3	-22.6%	↑	6

↑: Increase (worsening) in inequity. ↓: Decrease (improvement) in inequity. ↔: No Change. NA or ◆: Data Not Available.

a: Complete definitions and references for all indicators and ranking systems are listed in the Michigan Health Equity Dataset Technical Notes, which can be found online at www.michigan.gov/minorityhealth.

b: The inequity status measure is the percent change in the rate between the index minority population and the reference population for the noted time periods. Positive numbers (and upward arrows) indicate a relative increase in the inequity; negative numbers (and downward arrows) indicate a relative decrease in the inequity; horizontal arrows indicate no change in the equity gap. A change of less than 5% in either direction was considered no change.

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Health Equity Data Table 5. Hispanics/Latinos compared to Whites as the reference group, Michigan, 2000-2009

Indicators ^a	Time 1 (Baseline)					Time 2 (Most Recent Data)						Change Over Time		
	Year/s	Hispanic Rate	White Rate	Rate Difference	Rate Ratio	Year/s	Hispanic Rate	White Rate	Rate Difference	Rate Ratio	Rank: Relative to Reference in Time 2 (Best to Worst) ^a	% Change in Rate Ratio	Inequity Status ^b	Rank: Improvement over Time (Best to Worst) ^a
Social Determinants														
Median annual household income, \$	2000	\$38,481	\$46,907	\$8,426	1.2	2006-08	\$39,077	\$52,954	\$13,877	1.4	7	11.2%	↑	13
Children at or below poverty, %	2000	17.3%	9.1%	8.1%	1.9	2006-08	31.0%	12.6%	18.4%	2.5	15	30.1%	↑	16
Unemployment rate, %	2000	6.6%	3.1%	3.5%	2.1	2009	16.6%	12.2%	4.4%	1.4	7	-36.1%	↓	1
High school dropout rate, %	2007	28.9%	10.8%	18.1%	2.7	2009	21.0%	8.1%	12.9%	2.6	17	-2.8%	↔	7
Persons not registered to vote, %	2000	50.5%	27.7%	22.8%	1.8	2008	42.2%	22.4%	19.8%	1.9	13	3.3%	↔	11
Health Status, Behaviors, Healthcare														
Self-reported fair/poor health, %	2001-03	19.1%	13.0%	6.1%	1.5	2007-09	19.7%	12.5%	7.2%	1.6	9	7.3%	↑	12
Unhealthy physical days, % ≥14 in past month	2001-03	11.1%	11.1%	0.0%	1.0	2007-09	11.3%	10.0%	1.3%	1.1	4	13.0%	↑	14
Unhealthy mental days, % ≥14 in past month	2001-03	16.3%	11.0%	5.3%	1.5	2007-09	10.8%	10.7%	0.1%	1.0	3	-31.9%	↓	3
Obesity prevalence, %	2001-03	30.4%	23.3%	7.1%	1.3	2007-09	34.0%	28.1%	5.9%	1.2	6	-7.3%	↓	5
Tobacco use - current smoker, %	2001-03	28.0%	25.1%	2.9%	1.1	2007-09	22.4%	20.6%	1.8%	1.1	4	-2.5%	↔	7
Percent without health insurance, %	1997-99	23.1%	12.4%	10.7%	1.9	2005-07	19.0%	10.3%	8.7%	1.8	11	-1.0%	↔	9
Morbidity and Mortality														
Heart disease mortality rate, per 100,000	2002	191.7	252.3	-60.6	0.8	2007	151.4	210.2	-58.8	0.7	2	-5.2%	↑	6
Diabetes prevalence, %	2001-03	10.5%	6.9%	3.6%	1.5	2007-09	13.1%	7.4%	5.7%	1.8	11	16.3%	↑	15
All-cancer mortality rate, per 100,000	2002	121.4	192.5	-71.1	0.6	2007	117.5	181.4	-63.9	0.6	1	2.7%	↔	10
Gonorrhea incidence, per 100,000	2003	40.0	15.0	25.0	2.7	2009	49.0	20.0	29.0	2.5	15	-8.1%	↓	4
HIV infection rate, per 100,000	2000	223.2	63.1	160.1	3.5	2008	139.0	62.0	77.0	2.2	14	-36.6%	↓	1
Infant mortality rate, per 1000 live births	2000-02	7.4	6.0	1.4	1.2	2006-08	9.7	5.6	4.1	1.7	10	40.4%	↑	17
Unintentional injury mortality rate, per 100,000	2002	NA	31.3	NA	NA	2007	NA	34.5	NA	NA	NA	NA	◆	NA

↑: Increase (worsening) in inequity. ↓: Decrease (improvement) in inequity. ↔: No Change. NA or ◆: Data Not Available.

a: Complete definitions and references for all indicators and ranking systems are listed in the Michigan Health Equity Dataset Technical Notes, which can be found online at www.michigan.gov/minorityhealth.

b: The inequity status measure is the percent change in the rate between the index minority population and the reference population for the noted time periods. Positive numbers (and upward arrows) indicate a relative increase in the inequity; negative numbers (and downward arrows) indicate a relative decrease in the inequity; horizontal arrows indicate no change in the equity gap. A change of less than 5% in either direction was considered no change.

Suggested citation: Michigan Health Equity Data Reference Tables, 2000-2009. Lansing, MI: Michigan Department of Community Health; Division of Health, Wellness, and Disease Control, Health Disparities Reduction and Minority Health Section, and Division of Genomic, Perinatal Health, and Chronic Disease Epidemiology; 2011.

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Health Equity Data Table 6. Index of Disparity (ID), Overall Population, Michigan, 2000-2009

Indicators ^a	Overall Inequity (ID) ^b :		Overall Inequity (ID) ^b :		Rank: ID in Time 2 (Best to Worst) ^a	Change in Overall Inequity ^c	Inequity Status ^c	Rank: Improvement over Time (Best to Worst) ^a
	Year/s	Time 1	Year/s	Time 2				
Social Determinants								
Median annual household income, \$	2000	16.4%	2006-08	25.6%	3	9.2%	↑	16
Children at or below poverty, %	2000	51.3%	2006-08	57.4%	16	6.1%	↑	14
Unemployment rate, %	2000	63.0%	2009	25.4%	3	-37.6%	↓	1
High school dropout rate, %	2007	53.6%	2009	56.4%	15	2.8%	↔	13
Persons not registered to vote, %	2000	36.1%	2008	26.3%	6	-9.8%	↓	5
Health Status, Behaviors, Healthcare								
Self-reported fair/poor health, %	2001-03	32.6%	2007-09	49.3%	14	16.7%	↑	17
Unhealthy physical days, % ≥14 in past month	2001-03	19.5%	2007-09	38.2%	10	18.7%	↑	18
Unhealthy mental days, % ≥14 in past month	2001-03	36.6%	2007-09	16.7%	1	-19.9%	↓	2
Obesity prevalence, %	2001-03	31.2%	2007-09	27.9%	8	-3.3%	↔	8
Tobacco use - current smoker, %	2001-03	29.9%	2007-09	26.5%	6	-3.3%	↔	8
Percent without health insurance, %	1997-99	33.8%	2005-07	42.3%	12	8.5%	↑	15
Morbidity and Mortality								
Heart disease mortality rate, per 100,000	2002	28.2%	2007	28.7%	8	0.5%	↔	12
Diabetes prevalence, %	2001-03	58.7%	2007-09	44.4%	13	-14.3%	↓	3
All-cancer mortality rate, per 100,000	2002	26.8%	2007	24.6%	3	-2.2%	↔	11
Gonorrhea incidence, per 100,000	2003	117.3%	2009	111.6%	18	-5.7%	↓	6
HIV infection rate, per 100,000	2000	113.4%	2008	98.6%	17	-14.8%	↓	3
Infant mortality rate, per 1000 live births	2000-02	43.4%	2006-08	39.5%	11	-3.9%	↔	8
Unintentional injury mortality rate, per 100,000	2002	23.9%	2007	18.2%	2	-5.7%	↓	6
↑: Increase (worsening) in inequity. ↓: Decrease (improvement) in inequity. ↔: No Change. NA or ♦: Data Not Available.								

a: Complete definitions and references for all indicators and ranking systems are listed in the Michigan Health Equity Dataset Technical Notes, which can be found online at www.michigan.gov/minorityhealth.

b: The Overall Population Index of Disparity (ID) is a measure of how much disparity exists in the overall population, summarizing how far each group is from the population average. ID=0 indicates no disparity in the population; higher values of ID indicate increasing levels of disparity in the population (for that specific indicator). ID does not reflect health status, but does reflect how much variation exists in the population.

c: The inequity status measure is the difference between overall population inequity (ID) in Time 1 and Time 2 (exact years vary for each indicator, but for all indicators Time 1 is between 2000 and 2004 and Time 2 is between 2005 and 2009). Positive numbers (and upward arrows) indicate a relative increase in the inequity; negative numbers (and downward arrows) indicate a relative decrease in the inequity; horizontal arrows indicate no change in the equity gap. A change of less than 5% in either direction was considered no change.

Suggested citation: Michigan Health Equity Data Reference Tables, 2000-2009. Lansing, MI: Michigan Department of Community Health; Division of Health, Wellness, and Disease Control, Health Disparities Reduction and Minority Health Section, and Division of Genomic, Perinatal Health, and Chronic Disease Epidemiology; 2011.

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Health Equity Data Table 7. Summary Table: Change in Health Inequity Over Time, by Race/Ethnicity and Overall Population, Michigan, 2000-2009

Indicators ^a	Inequity Status ^b					Overall Inequity ^c
	African Americans	American Indians/ Alaska Natives	Arabs	Asians	Hispanics/ Latinos	
Social Determinants						
Median annual household income, \$	↑	↔	◆	↑	↑	↑
Children at or below poverty, %	↔	↓	◆	↓	↑	↑
Unemployment rate, %	↓	◆	◆	◆	↓	↓
High school dropout rate, %	↔	↑	◆	↑	↔	↔
Persons not registered to vote, %	↔	◆	◆	↓	↔	↓
Health Status, Behaviors, Healthcare						
Self-reported fair/poor health, %	↑	↑	◆	↑	↑	↑
Unhealthy physical days, % ≥14 in past month	↔	↑	◆	↑	↑	↑
Unhealthy mental days, % ≥14 in past month	↓	↓	◆	↓	↓	↓
Obesity prevalence, %	↓	↓	◆	↑	↓	↔
Tobacco use - current smoker, %	↔	↑	◆	↓	↔	↔
Percent without health insurance, %	↑	◆	◆	◆	↔	↑
Morbidity and Mortality						
Heart disease mortality rate, per 100,000	↔	↑	◆	↓	↑	↔
Diabetes prevalence, %	↔	↓	◆	↑	↑	↓
All-cancer mortality rate, per 100,000	↔	↓	◆	↔	↔	↔
Gonorrhea incidence, per 100,000	↓	↑	◆	↓	↓	↓
HIV infection rate, per 100,000	↔	↑	◆	↓	↓	↓
Infant mortality rate, per 1000 live births	↓	↓	↑	↑	↑	↔
Unintentional injury mortality rate, per 100,000	↓	↓	◆	↑	◆	↓
↑: Increase (worsening) in inequity. ↓: Decrease (improvement) in inequity. ↔: No Change. NA or ◆: Data Not Available.						

a: Complete definitions and references for all indicators and ranking systems are listed in the Michigan Health Equity Dataset Technical Notes, which can be found online at www.michigan.gov/minorityhealth.

b: The inequity status measure is the percent change in the rate between the index minority population and the reference population for the noted time periods. Positive numbers (and upward arrows) indicate a relative increase in the inequity; negative numbers (and downward arrows) indicate a relative decrease in the inequity; horizontal arrows indicate no change in the equity gap. A change of less than 5% in either direction was considered no change.

c: The inequity status measure is the difference between overall population inequity (ID) in Time 1 and Time 2 (exact years vary for each indicator, but for all indicators Time 1 is between 2000 and 2004 and Time 2 is between 2005 and 2009). Positive numbers (and upward arrows) indicate a relative increase in the inequity; negative numbers (and downward arrows) indicate a relative decrease in the inequity; horizontal arrows indicate no change in the equity gap. A change of less than 5% in either direction was considered no change.

Suggested citation: Michigan Health Equity Data Reference Tables, 2000-2009. Lansing, MI: Michigan Department of Community Health; Division of Health, Wellness, and Disease Control, Health Disparities Reduction and Minority Health Section, and Division of Genomic, Perinatal Health, and Chronic Disease Epidemiology; 2011.

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MICHIGAN HEALTH EQUITY DATASET TECHNICAL NOTES

A. Race/Ethnicity Categories (unless otherwise noted)

African American: Black alone, not Hispanic/Latino

American Indian/Alaska Native: AI/AN alone, not Hispanic/Latino

Arab: Arab (excludes Assyrian/Chaldean/Syriac and does not exclude Hispanic/Latino)

Asian: Asian alone, not Hispanic/Latino

Hispanic/Latino: Hispanic/Latino (of any race)

White: White alone, Not Hispanic/Latino

B. Indicators

Median Annual Household Income

Definition: The median household income divides the income of all households into two halves, one-half of all households have incomes below the median and one-half of all households have incomes above the median income. This includes households with no income. Household income is the sum of the incomes over the past 12 months for all individuals ≥ 15 years old who live in the household at the time of the interview, whether or not they are related.

2000 Data Location: www.factfinder.census.gov → Fact Sheet → Fact Sheet for a Race, Ethnic, or Ancestry Group → Select population group separately for each race/ethnicity → Enter geographic area of interest (e.g., state=Michigan)

2006-2008 Data Location: www.factfinder.census.gov → Under “Get Detailed Data” select American Community Survey, get data → 2006-2008 American Community Survey 3-Year Estimates → Selected Population Profiles → Select State=Michigan, Add, Next → Select race/ethnicity separately for each race/ethnicity

2000 Citation: U.S. Census Bureau, 2000 Census.

2006-2008 Citation: U.S. Census Bureau, 2006-2008 American Community Survey.

Percent Children Below Federal Poverty Level

Definition: Percent of all individuals under 18 years who are in poverty. Poverty thresholds are determined using the family size and the number of family members under 18 years old. A child is living in poverty if their family’s total family income in the last 12 months falls below the poverty threshold for their family. *Note:* the Census bureau cautions against comparing poverty rates from the American Community Survey and 2000 Census due to differences in methodology.

Numerator population: Number of individuals under 18 years who are below the federal poverty level.

Denominator population: Total number of individuals under 18 years.

Data Locations:

2000 Numerator: www.factfinder.census.gov → American Community Survey, Get Data → 2000 Supplementary Survey → Enter a table number: enter separately for tables P114, P115B, P155C, P115D, P115J, P115K → select state, Michigan → Add → Show result

2000 Denominator: www.factfinder.census.gov → Fact Sheet → Fact Sheet for a Race, Ethnic, or Ancestry Group → Select population group separately for each race/ethnicity → Enter geographic area of interest (e.g., state=Michigan)

2006-2008 Data: www.factfinder.census.gov → Under “Get Detailed Data” select American Community Survey, get data → 2006-2008 American Community Survey 3-Year Estimates → Selected Population Profiles → Select State=Michigan, Add, Next → Select race/ethnicity separately for each race/ethnicity → “Poverty rates for under 18 years”

2000 Citation: U.S. Census Bureau, 2000 Supplementary Survey and 2000 Census.

2006-2008 Citation: U.S. Census Bureau, 2006-2008 American Community Survey.

Unemployment Rate

Definition: Percent of civilian labor force over 16 that is not employed. *Note:* Here populations for White, Black, and Asian races include individuals identifying as Hispanic ethnicity.

Numerator: Number of people who are unemployed

Denominator: Number of people in Civilian, Non-institutional Population Over 16 years and In Labor Force

Data Location: <http://www.bls.gov/lau/> → LAU Tables and Maps → Annual Average Statewide Data → Employment status of the civilian non-institutionalized population in states by sex, race, Hispanic or Latino ethnicity, marital status, and detailed age, 2009 (2000) annual average. Also contact LAUS for more information or help: (202) 691-6392.

Citation: Employment status of the civilian non-institutionalized population in states by sex, race, Hispanic or Latino ethnicity, marital status, and detailed age, 2009 (2000) Annual Averages. Local Area Unemployment Statistics, Bureau of Labor Statistics, U.S. Department of Labor.

High School Dropout Rate

Definition: Percentage of students who dropped out of high school, of all students who started 9th grade four years before dropout rate is calculated. *Note:* Includes only public high schools.

Numerator population: Number of students who left high school permanently at any time in four years before receiving a diploma, GED, or other certificate of completion.

Denominator population: Number of students who enrolled in 9th grade for the first time four years prior to year for which dropout rate is calculated. Cohort is adjusted for students who transfer in, students who transfer out, and students who are exempt.

Data Location: Center for Educational Performance and Information. www.michigan.gov/cepi → Data and Reports → Students → Michigan Cohort Graduation and Dropout Reports (2009) or Historical Public School Graduation/Dropout Data (2007)

2007 and 2009 Citation: State of Michigan 2007 and 2009 Cohort 4-Year Graduation and Dropout Rate Reports by Subgroup. Lansing, MI: State of Michigan Center for Educational Performance and Information.

Percent Not Registered to Vote

Definition: Percentage of all citizens who are not registered to vote.

Numerator: Total number of citizens not registered to vote

Denominator: Total number of citizens

Data Location: U.S. Census Bureau, Current Population Survey, November 2000 and 2008 www.census.gov → people and households → more → data by subject → voting and registration → population characteristics (P20) reports and detailed tables (under quick links), Table 4b

2000 Citation: U.S. Census Bureau, November 2000. Internet release date: February, 2002.

2008 Citation: U.S. Census Bureau, Current Population Survey, November 2008. Internet Release Date: February, 2009.

Self-Reported Fair or Poor Health

Definition: Among all adults, the proportion who reported that their health, in general, was either fair or poor. Age-adjusted¹.

Numerator: Number of respondents who reported their health was fair or poor.

Denominator: Number of adults (18 years and over) in Behavioral Risk Factor Survey sample.

Data Location: www.michigan.gov/brfs and email BRFS Epidemiologist to request data.

2001-2003 Citation: 2001-2003 Behavioral Risk Factor Survey. Lansing, MI: Michigan Department of Community Health, Bureau of Epidemiology, Chronic Disease Epidemiology Section.

2007-2009 Citation: C Fussman. 2010. Preliminary estimates for chronic health conditions, risk factors, health indicators, and preventive health practices by race/ethnicity, State of Michigan:

2007-2009 Behavioral Risk Factor Survey. Lansing, MI: Michigan Department of Community Health, Bureau of Epidemiology, Chronic Disease Epidemiology Section.

Unhealthy Physical Days (in Past 30 Days)

Definition: Among all adults, the proportion who reported 14 or more days of poor physical health, which includes physical illness and injury, during the past 30 days. Age-adjusted¹.

Numerator: Number of respondents who reported 14 or more days of poor physical health during the past 30 days.

Denominator: Number of adults (18 years and over) in Behavioral Risk Factor Survey sample.

Data Location: www.michigan.gov/brfs and email BRFs Epidemiologist to request data.

2001-2003 Citation: 2001-2003 Behavioral Risk Factor Survey. Lansing, MI: Michigan Department of Community Health, Bureau of Epidemiology, Chronic Disease Epidemiology Section.

2007-2009 Citation: C Fussman. 2010. Preliminary estimates for chronic health conditions, risk factors, health indicators, and preventive health practices by race/ethnicity, State of Michigan: 2007-2009 Behavioral Risk Factor Survey. Lansing, MI: Michigan Department of Community Health, Bureau of Epidemiology, Chronic Disease Epidemiology Section.

Unhealthy Mental Days (in Past 30 Days)

Definition: Among all adults, the proportion who reported 14 or more days of poor mental health, which includes stress, depression, and problems with emotions, during the past 30 days. Age-adjusted¹.

Numerator: Number of respondents who reported 14 or more days of poor mental health during the past 30 days.

Denominator: Number of adults (18 years and over) in Behavioral Risk Factor Survey sample.

Data Location: www.michigan.gov/brfs and email BRFs Epidemiologist to request data.

2001-2003 Citation: 2001-2003 Behavioral Risk Factor Survey. Lansing, MI: Michigan Department of Community Health, Bureau of Epidemiology, Chronic Disease Epidemiology Section.

2007-2009 Citation: C Fussman. 2010. Preliminary estimates for chronic health conditions, risk factors, health indicators, and preventive health practices by race/ethnicity, State of Michigan: 2007-2009 Behavioral Risk Factor Survey. Lansing, MI: Michigan Department of Community Health, Bureau of Epidemiology, Chronic Disease Epidemiology Section.

Obesity Prevalence

Definition: Among all adults, the proportion of respondents whose BMI was greater than or equal to 30.0. BMI (body mass index) = [weight (in kilograms)/height² (in meters)]. Weight and height were self-reported and pregnant women were excluded. Age-adjusted¹.

Numerator: Number of respondents whose BMI was greater than or equal to 30.0.

Denominator: Number of adults (18 years and over) in Behavioral Risk Factor Survey sample.

Data Location: www.michigan.gov/brfs and email BRFs Epidemiologist to request data.

2001-2003 Citation: 2001-2003 Behavioral Risk Factor Survey. Lansing, MI: Michigan Department of Community Health, Bureau of Epidemiology, Chronic Disease Epidemiology Section.

2007-2009 Citation: C Fussman. 2010. Preliminary estimates for chronic health conditions, risk factors, health indicators, and preventive health practices by race/ethnicity, State of Michigan: 2007-2009 Behavioral Risk Factor Survey. Lansing, MI: Michigan Department of Community Health, Bureau of Epidemiology, Chronic Disease Epidemiology Section.

Tobacco Use – Current Smoker

Definition: Among all adults, the proportion who reported that they had ever smoked at least 100 cigarettes (five packs) in their life and that they smoke cigarettes now, either every day or on some days. Age-adjusted¹.

Numerator: Number of respondents who reported that they were current smokers.

Denominator: Number of adults (18 years and over) in Behavioral Risk Factor Survey sample.

Data Location: www.michigan.gov/brfs and email BRFs Epidemiologist to request data.

2001-2003 Citation: 2001-2003 Behavioral Risk Factor Survey. Lansing, MI: Michigan Department of Community Health, Bureau of Epidemiology, Chronic Disease Epidemiology Section.

2007-2009 Citation: C Fussman. 2010. Preliminary estimates for chronic health conditions, risk factors, health indicators, and preventive health practices by race/ethnicity, State of Michigan: 2007-2009 Behavioral Risk Factor Survey. Lansing, MI: Michigan Department of Community Health, Bureau of Epidemiology, Chronic Disease Epidemiology Section.

Percent Without Health Insurance

Definition: Percentage individuals under 65 years old without health insurance.

Numerator: Number of individuals below 65 years old and living in Michigan who do not have health insurance.

Denominator: Number of individuals below 65 years old and living in Michigan.

Data Location: http://www.michigan.gov/mdch/0,1607,7-132-2946_5093-17224--,00.html

1997-99 Citation: 2001. Characteristics of the uninsured and select health insurance coverage in Michigan, non-elderly population: special report. Lansing, MI: Michigan Department of Community Health, Health Legislation and Policy Development.

2005-07 Citation: 2009. Characteristics of the uninsured and individuals with select health insurance coverage in Michigan 2009 Report: CPS 1999-2008. Lansing, MI: Michigan Department of Community Health, Health Policy, Regulation, and Professions Administration.

Heart Disease Mortality Rate

Definition: Number of deaths from heart disease per 100,000 people in the population, age-adjusted¹.

Numerator: Number of deaths occurring in the specified year for which heart disease was the underlying cause. The underlying cause of death is the condition giving rise to the chain of events leading to death. Heart disease deaths were classified using ICD-10 codes I00-I09, I11, I13, and I20-I51.

Denominator: Number of people in the population.

Data Location: Data Location: www.michigan.gov/mdch → Statistics and Reports → Vital Statistics → Historical Data → Mortality Report and by request from Vital Records and Health Statistics Section, Michigan Department of Community Health

Citation: 1989-2008 Michigan Resident Death Files, Vital Records & Health Statistics Section, Michigan Department of Community Health. Population Estimate (latest update 9/2009), National Center for Health Statistics, U.S. Census Populations With Bridged Race Categories.

Diabetes Prevalence

Definition: Among all adults, the proportion who were ever told by a doctor that they have diabetes. Women who had diabetes during pregnancy and adults who were diagnosed with pre-diabetes were considered not to have been diagnosed with diabetes. Age-adjusted¹.

Numerator: Number of respondents ever diagnosed with diabetes.

Denominator: Number of adults (18 years and over) in Behavioral Risk Factor Survey sample.

Data Location: www.michigan.gov/brfs and email BRFS Epidemiologist to request data.

2001-2003 Citation: 2001-2003 Behavioral Risk Factor Survey. Lansing, MI: Michigan Department of Community Health, Bureau of Epidemiology, Chronic Disease Epidemiology Section.

2007-2009 Citation: C Fussman. 2010. Preliminary estimates for chronic health conditions, risk factors, health indicators, and preventive health practices by race/ethnicity, State of Michigan: 2007-2009 Behavioral Risk Factor Survey. Lansing, MI: Michigan Department of Community Health, Bureau of Epidemiology, Chronic Disease Epidemiology Section.

All-Cancer Mortality Rate

Definition: Number of deaths from cancer per 100,000 people in the population, age-adjusted¹.

Numerator: Number of deaths occurring in the specified year for which cancer was the underlying cause. The underlying cause of death is the condition giving rise to the chain of events leading to death. Cancer deaths were classified using ICD-10 codes C00-C97.

Denominator: Number of people in the population.

Data Location: Data Location: www.michigan.gov/mdch → Statistics and Reports → Vital Statistics → Historical Data → Mortality Report and by request from Vital Records and Health Statistics Section, Michigan Department of Community Health

Citation: 1989-2008 Michigan Resident Death Files, Vital Records & Health Statistics Section, Michigan Department of Community Health. Population Estimate (latest update 9/2009), National Center for Health Statistics, U.S. Census Populations With Bridged Race Categories.

Gonorrhea Incidence

Definition: Number of new gonorrhea cases in the referenced year, per 100,000 population.

Numerator: Number of new gonorrhea cases diagnosed and reported in the referenced year.

Denominator: Total population living in Michigan, as determined by the 2000 U.S census.

Data Location: Email STI Epidemiologist to request data.

2003 Citation: 2003 Michigan Disease Surveillance System. Lansing, MI: Michigan Department of Community Health, Bureau of Epidemiology.

2009 Citation: 2009 Michigan Disease Surveillance System. Lansing, MI: Michigan Department of Community Health, Bureau of Epidemiology.

HIV Prevalence

Definition: Number of prevalent HIV and AIDS cases per 100,000 population.

Numerator: Number of HIV and AIDS cases reported and alive.

Denominator: Total population living in Michigan, as determined by the 1990 U.S. census (2000 rate) or 2000 U.S census (2008 rate).

Data Location: www.michigan.gov/mdch → Statistics and Reports → Communicable Diseases → HIV/AIDS → HIV/AIDS Statewide Quarterly Analyses

2000 Citation: 2000 Epidemiologic Profiles of HIV/AIDS in Michigan. 2001. Lansing, MI: Michigan Department of Community Health, Bureau of Epidemiology, HIV/AIDS Surveillance Section.

2008 Citation: Quarterly HIV/AIDS Report, Michigan. January, 2009. Lansing, MI: Michigan Department of Community Health, Bureau of Epidemiology, HIV/STD/VH/TB Epidemiology Section.

Infant Mortality Rate

Definition: Number of infant deaths per 1,000 live births.

Numerator: Number of infant deaths. An infant death is a death between 0 and <365 days old.

Denominator: All live births in the specified population in the specified year.

Data Location: www.michigan.gov/mdch → Statistics and Reports → Vital Statistics → Historical Data → Infant Death Report → Table 9: Infant, Hebdomadal, Fetal and Perinatal Death Rates by Specified Race and Ancestry

Citation: 2002-2007 Michigan Resident Birth and Death Files, Vital Records & Health Data Development Section, Michigan Department of Community Health.

Unintentional Injury Mortality Rate

Definition: Number of deaths from unintentional injury per 100,000 people in the population, age-adjusted¹.

Numerator: Number of deaths occurring in the specified year for which unintentional injury was the underlying cause. The underlying cause of death is the condition giving rise to the chain of events leading to death. Unintentional Injury deaths were classified using ICD-10 codes V01-X59, Y85-Y86.

Denominator: Number of people in the population.

Data Location: Data Location: www.michigan.gov/mdch → Statistics and Reports → Vital Statistics → Historical Data → Mortality Report and by request from Vital Records and Health Statistics Section, Michigan Department of Community Health

Citation: 1989-2008 Michigan Resident Death Files, Vital Records & Health Statistics Section, Michigan Department of Community Health. Population Estimate (latest update 9/2009), National Center for Health Statistics, U.S. Census Populations With Bridged Race Categories.

C. Additional Definitions and Notes

1. All mortality rates reported here are **age-adjusted** by the direct method, using the total population of the United States as measured by the 2000 United States Census.
2. **Rank Relative to Reference in Time 2 (Best to Worst):** Indicator rank in order of health outcome relative to reference in Time 2, with best (1) being the indicator with the most positive health outcome relative to the reference group. Rate ratios were used to determine these rankings. (*Equity Tables 1-5*)
3. **Rank in Improvement over Time (Best to Worst):** Indicator rank in order of improvement in disparity over time, with best (1) being the indicator with the largest improvement in health status relative to the reference group between Time 1 and Time 2. Percent change in rate ratios were used to determine these rankings. (*Equity Tables 1-5*)
4. **Rank in ID in Time 2 (Best to Worst):** Indicator rank in order of Overall Population Disparity (ID) in Time 2, with best (1) being the indicator with the lowest level of population disparity. The Index of Disparity (ID) was used to determine these rankings. (*Equity Table 6*)
5. **Rank in Improvement over Time (Best to Worst):** Indicator rank in order of improvement in population disparity over time, with best (1) being the indicator with the largest improvement in overall population disparity between Time 1 and Time 2. Absolute differences in Index of Disparity were used to determine these rankings. (*Equity Table 6*)
6. The data in these tables are collected for 1-3 year intervals, and the number of individual respondents or cases for each condition may be too few to produce reliable estimates for Michigan minority populations. **These data should be interpreted cautiously in the absence of statistical estimates of reliability for the reported indicators and measures.**



Health Inequities are differences in health between populations that are systemic, unnecessary, and avoidable.¹ **Health Disparities**, on the other hand, are measured differences between populations that may or may not result from social injustices. Disparities are used to identify inequities. In order to optimally monitor health equity in a population, it is necessary to measure health disparities between two or more groups using standard and consistent measures. This brief outlines methods to measure disparities and how they change over time.

Disparities can be measured on two levels: 1) disparities between a minority population of interest and a reference population (pairwise disparity); and 2) overall disparity in a population when comparing all minority populations to the total population (population disparity). Page 1 of this Brief summarizes the results of these methods. Pages 2-4 outline the following four methods used to create Table 1 and measure and monitor health disparities over time:

- 1) **Pairwise disparity:** Comparing one minority population to the reference population for a health outcome of interest.
- 2) **Change in pairwise disparity over time:** Measuring percent change in pairwise disparity between time 1 and time 2.
- 3) **Population disparity:** Measuring overall population disparity for a health outcome of interest.
- 4) **Change in population disparity over time:** Measuring difference between population disparity in time 1 and time 2.

Change in health disparities in Michigan, 2000-2009

Detailed data about the indicators and populations listed below can be found at www.michigan.gov/minorityhealth.

Table 1. Change in Health Disparities Over Time, by Race/Ethnicity and Overall Population, Michigan, 2000-2009².

Indicators	Pairwise Disparity ^a					Population ^b
	African American	American Indian	Arab/Chaldean	Asian	Hispanic / Latino	Overall Population
Social Determinants						
Median annual household income	↑	↔	•	↑	↑	↑
Children at or below poverty	↔	↓	•	↓	↑	↑
Unemployment rate	↓	•	•	•	↓	↓
High school drop-out rate	↔	↑	•	↑	↔	↔
Persons not registered to vote	↔	•	•	↓	↔	↓
Health Status, Behaviors, Healthcare						
Self-reported fair/poor health	↑	↑	•	↑	↑	↑
Unhealthy physical days	↔	↑	•	↑	↑	↑
Unhealthy mental days	↓	↓	•	↓	↓	↓
Obesity prevalence	↓	↓	•	↑	↓	↔
Tobacco use - current smoker	↔	↑	•	↓	↔	↔
Percent without health insurance	↑	•	•	•	↔	↑
Diseases and Deaths						
Heart disease mortality rate	↔	↑	•	↓	↑	↔
Diabetes prevalence	↔	↓	•	↑	↑	↓
All-cancer mortality rate	↔	↓	•	↔	↔	↔
Gonorrhea incidence	↓	↑	•	↓	↓	↓
HIV prevalence	↔	↑	•	↓	↓	↓
Infant mortality rate	↓	↓	↑	↑	↑	↔
Unintentional injury mortality rate	↓	↓	•	↑	•	↓

↑ Increase (worsening) in disparity ↓ Decrease (improvement) in disparity
↔ No Change in disparity • Data Not Available

^aChange is measured by the percent change in the relative difference between the index minority population and the white population from Time 1 to Time 2 (exact years vary for each indicator; Time 1 is between 2000 and 2004 and Time 2 is between 2005 and 2009).

^bChange is measured by the difference between the Index of Disparity in Time 1 and Time 2.

Note: The data in this table are collected for 1-3 year intervals, and the number of individual respondents or cases may be too few to produce reliable estimates for Michigan minority populations. These data should be interpreted cautiously in the absence of statistical estimates of reliability.

Methods for measuring pairwise disparity

1. Pairwise Disparity

$$\text{Absolute Difference} = \text{Minority Estimate} - \text{White Estimate}$$

Absolute Difference >0	Minority Estimate is higher than White Estimate
Absolute Difference <0	Minority Estimate is lower than White Estimate
Absolute Difference = 0	No disparity

Example: In 2007-2009 diabetes prevalence for Asians in Michigan was 4.1% higher than that of Whites in Michigan (Table 2). (4.1% = 11.5% - 7.4%)

$$\text{Relative Difference} = \text{Minority Estimate} / \text{White Estimate}$$

Relative Difference >1	Minority Estimate is higher than White Estimate
Relative Difference <1	Minority Estimate is lower than White Estimate
Relative Difference = 1	No disparity

Example: In 2007-2009 diabetes prevalence for Asians in Michigan was 1.6 times that of Whites living in Michigan (Table 2). (1.6 = 11.5 / 7.4)

2. Change in Pairwise Disparity Over Time

$$\% \text{ Change in Relative Difference} = [(\text{Time 2} - \text{Time 1}) / \text{Time 1}] * 100$$

E.g. % Change in diabetes prevalence = [(1.55 - 1.06) / 1.06] * 100 = 46.9% (Table 2)

Example: Between 2001-2003 and 2007-2009, the disparity in diabetes prevalence for Asians as compared to Whites increased (got worse) by 46.9% (Table 2).

If the Relative Differences are <1 then:		If the Relative Differences are >1 then:	
% Change >0	Decrease in disparity (better)	% Change >0	Increase in disparity (worse)
% Change <0	Increase in disparity (worse)	% Change <0	Decrease in disparity (better)

Table 2. Pairwise comparisons of diabetes prevalence for Asians and Whites in Michigan, 2001-2003 vs. 2007-2009^{3,4}.

Indicator	Diabetes prevalence
Years	2001-2003
Asian Estimate	7.3%
White Estimate	6.9%
Absolute Difference	0.4%
Relative Difference	1.1
Years	2007-2009
Asian Estimate	11.5%
White Estimate	7.4%
Absolute Difference	4.1%
Relative Difference	1.6
% Change Rel. Diff.	46.9%
Inequity Status	↑



Interpretations and considerations

The four methods outlined here provide a way to monitor health disparities in a single time period and changes in disparities over time. Table 1 (page 1) uses these methods to summarize health disparities in Michigan between 2000 and 2009. In interpreting this information it is important to remember that:

- 1) These methods summarize health **disparities**. When disparities increase (↑) it implies a **worsening** in equity. When disparities decrease (↓) it implies an **improvement** in equity.
- 2) Disparities are not necessarily inequities. These data **do not** provide any information about the reasons for the disparities or how to close the gaps.
- 3) These methods **do not** describe the quality of health status or how health is changing over time, but they **do** depict gaps in the health status between different groups and how those gaps grow or shrink over time.
- 4) These methods **do not** provide any information about statistical significance. They **do not** calculate if a difference is due to chance or due to a statistically significant difference in a population.

Despite the considerations listed above, these data provide a way to measure and monitor health disparities. With this information, public health interventions can be designed to reduce health disparities in Michigan and target populations with the greatest needs.

Methods for measuring population disparity

3. Population Disparity (ID)

$$\text{Index of Disparity}^5 = ((\sum |r_n - R|) / N) / R * 100$$

ID = Index of Disparity
 r_n = Estimate for Group n
 R = Estimate for Total Population
 N = Number of groups

The Index of Disparity (ID) is the average disparity between all subpopulations and the total population. This summarizes how much disparity there is in a population for each indicator. ID is expressed as a percentage. 0% represents no population disparity, and a higher ID value represents greater population disparity. ID can be greater than 100%.

Example: In 2000-02 the overall population disparity for infant mortality rates was 43.4% (Table 3).

$$43.4\% = (((|17.8 - 8.1| + |11.6 - 8.1| + |5.4 - 8.1| + |5.7 - 8.1| + |7.4 - 8.1| + |6.0 - 8.1|) / 6) / 8.1) * 100$$

4. Change in Population Disparity (ID) Over Time

$$\text{Change in ID Over Time} = \text{ID}_{\text{Time 2}} - \text{ID}_{\text{Time 1}}$$

Change in ID >0	Population disparity increased (got worse)
Change in ID <0	Population disparity decreased (got better)

Example: Between 2000-02 and 2006-08, the overall population disparity for infant mortality rates in Michigan decreased (improved) by 3.9% (Table 3). (-3.9% = 39.5% - 43.4%)

Table 3. Population disparity in infant mortality rates in Michigan, 2000-02 and 2006-08.

Infant Mortality Rate (IMR) (# Infant deaths per 1,000 live births)	African American (r_1)	American Indian/ Alaska Native (r_2)	Arab (r_3)	Asian (r_4)	Hispanic/ Latino (r_5)	White (r_6)	Overall Population (R)	ID
IMR, 2000-02 ⁶	17.8	11.6	5.4	5.7	7.4	6.0	8.1	43.4%
IMR, 2006-08 ⁶	15.3	9.9	8.1	4.2	9.7	5.6	7.6	39.5%

Change in ID over time: -3.9%

Inequity Status: ↓

Note: The number of infant deaths may be too few to produce reliable estimates for some populations, so these data should be interpreted cautiously.

References

1. *Michigan Health Equity Roadmap*. Lansing, MI: Michigan Department of Community Health, Health Disparities Reduction and Minority Health Section; 2010. (Available at <http://www.michigan.gov/minorityhealth>.)
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Guidelines when measuring health equity

Disparities can be measured in a variety of ways, and how disparities are measured will change the direction and magnitude of the disparity observed. Drawing on guidelines presented by the National Center for Health Statistics⁷, this Brief recommends the following guidelines to be used when measuring health disparities in Michigan:

1. Choose the reference group carefully

The reference group is the group to which a minority population's health is compared. The reference group could be a variety of groups, including the overall population, the largest population, or the group with the best health. In Michigan, estimates of health outcomes for racial and ethnic minority populations are often based on small sample sizes and have large margins of error. Because the white population is so much larger than the minority populations, estimates for health outcomes among the white population are more statistically reliable and less likely to change between years. For this reason, it is recommended that the white population be used as the reference group in Michigan.

2. Pairwise comparisons should be made on both absolute and relative scales

An **absolute difference** between a minority population and the reference population is calculated as the arithmetic difference between the two groups. Absolute differences retain the units and give information about the size and magnitude of the difference. Because the absolute difference is expressed in terms of the distinct units of the measure, they cannot be compared across indicators measured in different units. A **relative difference** between a minority population and the reference population is calculated as the minority population divided by the reference population. Relative differences do not retain units and can be compared across indicators. However, relative differences do not give information about the size of the difference between the two groups. To fully understand differences between two groups and how they compare to other indicators, pairwise comparisons should be made on both absolute and relative scales. More information about how to calculate these differences is on page 2.

3. Measures should be expressed in terms of negative events

Indicators can be expressed in terms of positive or negative events. For example, one could measure high school graduation or high school dropout rates; percent of people registered to vote or percent not registered to vote; mortality rates or survival rates. When comparing disparities it is important to be consistent in choosing to use positive or negative events so that change in one direction means the same thing for all indicators. Because health information is more often measured in terms of negative events (for example, infection or mortality rates versus non-infection or survival rates), all measures should be expressed in terms of negative events. (Note: for some indicators, such as household income, there is only one way to express the value, and that is what must be used.)

For More Information

Michigan Department of Community Health

The Health Disparities Reduction and Minority Health Section (HDRMHS) of the Michigan Department of Community Health provides a persistent and continuing focus on eliminating health disparities in Michigan's populations of color. The five racial/ethnic groups served by HDRMHS include African Americans, American Indians/Alaska Natives, Arab and Chaldean Americans, Asian Americans and Pacific Islanders, and Hispanics/Latinos. The major functions of HDRMH are: 1) To support and initiate programs, strategies, and health policies that address disease prevention, health service delivery, and applied research for populations of color; 2) To collaborate in the development of all Michigan Department of Community Health programs and strategies that address prevention, health service delivery, and applied research for populations of color; and 3) To facilitate an ongoing integration of culturally appropriate and linguistically appropriate health services into the public health system.

More detailed data about health disparities in Michigan and HDRMH can be found online at: www.michigan.gov/minorityhealth, by emailing colormehealthy@michigan.gov, or by calling 313-456-4355.

Resources that may be useful in monitoring Health Equity:

- HDRMHS Website: www.michigan.gov/minorityhealth
 - Michigan Health Equity Data Tables: Detailed data about five racial/ethnic populations in Michigan
 - Michigan Health Equity Roadmap
- National Center for Health Statistics Guidelines: http://www.cdc.gov/nchs/data/series/sr_02/sr02_141.pdf

