Population Health Assessment and Evidence Based Interventions

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Community Description

Michigan was the 26th state to enter the Union on December 26th, 1837 (United States Census Bureau, 2015).  Michigan spans an area an area of 56,539.9 square miles with a population density of 174.8 persons per square mile (United States Census, 2015).  It shares a border with: Indiana, Illinois, Minnesota, Ohio and Wisconsin; As well Michigan has an international border with Canada. (United States Census, 2015).  Wayne County is the most highly populated county, with a population of 1,820,584 (United States Census Bureau, 2015).  The total population of Michigan, according to the 2010 Census, is 9,883,640 (United States Census Bureau, 2015). Table 1 gives population demographics, along with some economic and social figures for the state of Michigan.

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| *Table 1: Demographics for Michigan, across 2000 and 2010* | | |
|  | **2000** | **2010** |
| **Population (Total)** | 9,938,444 | 9,883,640 |
| **Age** | | |
| 0-4 years | 6.76% | 6.03% |
| 0-17 years | 19.36% | 17.68% |
| 18-64 years | 61.62%% | 62.51% |
| >65 years | 12.27% | 13.78% |
| **Gender** | | |
| Female | 50.97% | 50.95% |
| Male | 49.03% | 49.05% |
| **Race/Ethnicity** | | |
| American Indian | 0.59% | 0.63% |
| African American | 15.11% | 14.17% |
| Asian | 1.78% | 2.41% |
| Native Hawaiian/Pacific Islander | 0.03% | 0.03% |
| White | 80.15% | 78.95% |
| Another race | 1.30% | 1.49% |
| Two or more races | 1.94% | 2.33% |
| **Household Income Per Year** | | |
| < $10,000 | 4.8% | 5.0% |
| $10,000-$24,999 | 13.1% | 11.6% |
| $25,000-$49,999 | 28.1% | 24.1% |
| $50,000-$74,999 | 23.5% | 21% |
| $75,000-$99,999 | 14.2% | 15% |
| $100,000-$149,000 | 11.1% | 14.9% |
| >$150,000 | 5.2% | 8.5% |
| **Poverty Level** | | |
| Individuals below poverty level | 10.5% | 14.8% |
| **Educational Attainment (population 25 and over)** | | |
| Less than high school | 16.5% | 11.9% |
| High School Graduate | 31.3% | 31.5% |
| Some College/Associate’s degree | 30.3% | 31.5% |
| Bachelor’s degree or higher | 21.8% | 25.1% |
| **Health Insurance coverage -no data found on 2000 or 2010**  **(Civilian noninstitutionalized population)** | | **2016** |
| Health Insurance | \*\* | 90.4% |
| Private health insurance | \*\* | *69.8%* |
| Public Coverage | \*\* | *35.1%* |
| No Health Insurance | \*\* | 9.6% |
| *Sourcee: Data for Table 1 was obtained from the U.S. Census Bureau 2000 and 2010, as well as and Census Viewer and Census fact finder* | | |

Description of Table

Between the 2000 and 2010 censuses, Michigan’s population actually decreased by 0.5%, from 9.93 million to 9.88 million. This is a surprising statistic given that the overall United States population increased by 9.7% over that same time period. Overall, the population of Michigan aged a bit between 2000 and 2010, as the percentage of people children and teenagers dropped from 26.12% to 23.71%, while the percentage of people aged 18-64 increased from 61.62% to 62.51%. The largest age bracket change was found in those >65 years old – this jumped from 12.27% in the 2000 census to 13.78% in the 2010 census.

In terms of gender mix, there was almost no change between the two censuses – as the male to female mix remained about 51% female and 49% male. From a race/ethnicity point of view, there are a few differences worth noting. The most common ethnicity remains white, however the percentage of people that identify as such decreased by about 1.2% (80.15% to 78.95%). The next most common ethnicity remained African American, but the percentage also decreased (from 15.11% to 14.17%). The Asian population percentage increased the most (from 1.78% to 2.41%), while the percentage of people that identified with two or more races increased as well.

Interestingly, the % of people below the poverty level increased by about 4%, but at the same time the average household income rose from 2000 to 2010. In 2010, 23.4% of respondents cited an annual household income of $100,000 or more, compared to only 15.7% in 2000. At the same time, educational attainment increased as individuals with less than a high school degree decreased from 16.5% in 2000 to 11.9% in 2010. Furthermore, the percentage of individuals with a bachelor’s degree or higher increased from 21.8% to 25.1%.

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| *Table 2: Major causes of mortality by age group per 100,000 for Michigan and the U.S. across two time periods* | | | | |
| **Leading Causes of Mortality (Ages)** | **Year 2000** | | **Michigan** | **USA** |
|  | Michigan | USA | 2010 | 2010 |
| **Heart Disease** | | | | |
| **Gender** |  |  |  |  |
| Male | 337.6 | 1826.4 | 297.5 | 1285.3 |
| Female | 379.8 | 1605.9 | 306.4 | 1109.7 |
| **Race/Ethnicity** |  |  |  |  |
| White | 375 | 1710 | 314.7 | 1208.3 |
| African American | 319.8 | 1854.5 | 288.3 | 1240.8 |
| Native American/Alaskan Native | 186.4 | 1004.3 | 119.0 | 664.9 |
| Asian/Pacific Islander | 51.6 | 823.4 | 54.9 | 609.0 |
| Hispanic | N/a | 1130.9 | N/a | 788.0 |
| **Malignant Neoplasms (Age 25-65)** |  |  |  |  |
| **Gender** |  |  |  |  |
| Male | 214.7 | 112.6 | 226.3 | 196.2 |
| Female | 194.2 | 101.8 | 202.0 | 139.1 |
| **Race/Ethnicity** |  |  |  |  |
| White | 212.9 | 106.5 | 225.5 | 107.9 |
| African American | 181.5 | 134.3 | 185.9 | 130 |
| Native American/Alaskan Native | 108.1 | 53.5 | 128.3 | 59.1 |
| Asian/Pacific Islander | 47.5 | 55.3 | 47.8 | 54.4 |
| Hispanic | N/A | 49.3 | N/A | 50.3 |
| **External Cause of Death (accidents)** |  |  |  |  |
| **Gender** |  |  |  |  |
| Male | 73.6 | 27.3 | 82.6 | 21.7 |
| Female | 32.7 | 12.1 | 40.3 | 9.5 |
| **Race/Ethnicity** |  |  |  |  |
| White | 48.8 | 20.5 | 59.9 | 16.8 |
| African American | 79.1 | 19 | 74.7 | 18.3 |
| Native American/Alaskan Native | 41.9 | 30.8 | 63 | 19.7 |
| Asian/Pacific Islander | 23.5 | 9.6 | 16.6 | 6.0 |
| Hispanic | N/a | 16.9 | N/a | 11.3 |
| *Note:Rate Per 100,000*  *Source: Data for table 2 was obtained from the CDC and Michigan Department of Community Health* | | | | |

https://wonder.cdc.gov/controller/saved/D76/D22F064

**Descriptions of Table**

Male mortality across all regions of Illinois was higher than female mortality from years 2000 to 2010.  Male and female mortality in Illinois was similar to that of the United States with the exception of the south and southwest districts of Illinois, where mortality was significantly higher.  The majority of deaths occurred in individuals older than 75 years in Illinois.  Mortality was found to increase with each age cohort.  Overall mortality in the state of Illinois decreased slightly from 2000 to 2010; however, the mortality rate in the African-American population increased, particularly in Cook County from increasing firearm violence.  Mortality rates for Asians and Hispanics in Cook County were also higher than the rest of the country.   Overall, 70% of the all deaths in Illinois were caused by the top ten leading causes of death in the United States (CCDPH, 2010).

According to the Illinois Department of Public Health (2013), cardiovascular disease was named the leading cause of death in Illinois, responsible for more than one-third of all deaths.  According to gender, males have a higher cardiovascular disease mortality than females in Illinois.  By the race/ethnicity category, African-Americans have the highest rate of cardiovascular disease mortality in Illinois.  This aligns with trends seen nationwide with the exception of Hispanics in Illinois, who have lower rates of cardiovascular disease compared to Hispanics nationally (IDPH, 2013).

In addition to increased mortality, cardiovascular disease is also associated with increased morbidity.  Morbidity of cardiovascular disease is associated with disability, increased cost of healthcare expenses, and more years of potential life lost.  In 2010, it was estimated that 158,000 years of potential life was lost due to cardiovascular disease.  In Illinois, cardiovascular disease is responsible for 20% of all inpatient hospital costs.  Risk factors that increase the likelihood of developing cardiovascular disease include: high cholesterol, high blood pressure, smoking, diabetes, obesity, physical inactivity, poor nutrition, and excessive alcohol use.  In Illinois, 38% of adults have high cholesterol, 27% have high blood pressure, 17% smoke, 9% have diabetes, 29% are obese, 48% are inactive physically, 78% have poor nutrition, and 6% have excessive alcohol intake

**Evidence-Based Practice Strategy**

Healthy People 2020 identified cardiovascular disease as a leading cause of death in the United States, with the goal of improving cardiovascular health and quality of life through early detection, prevention, and treatment of risk factors (ODPHP, 2016). According to the U.S. Preventative Services Task Force and the American Heart Association, regular blood pressure screening in adults 18 years and older is as an effective way to identify hypertension, treat hypertension, and prevent further cardiovascular disease.  As an individual-level intervention, blood pressure screening is cost-effective and the benefits far outweigh the risks.  Screening for hypertension is considered a highly ranked grade A recommendation (ODPHP, 2016). The seventh report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure recommends screening every two years in individuals with blood pressures at or below normal, and every year for individuals with borderline high or high blood pressure (USPSTF, 2013).

An example of a community-level intervention that would decrease the amount of cardiovascular disease affecting older adults in Illinois would be a worksite wellness program.  With the majority of Illinois adults employed, the workplace provides an easy way to target a large group of sedentary adults at risk for cardiovascular disease.  Through a comprehensive wellness program, cardiovascular disease can be both identified early and prevented altogether.   The American Heart Association (AHA) supports a worksite wellness program as a proven strategy to decrease cardiovascular disease.  The AHA recommendations include: tobacco cessation programs, stress management/reduction programs, early detection and screening efforts, nutrition education and promotion, weight management, disease management, cardiovascular disease education that includes cardiopulmonary resuscitation, automated defibrillator training, and changes in the work environment to promote healthy behaviors and occupational safety. These recommendations align with those provided in Health People 2020 (Carnethon et al., 2009).  Programs should provide health education that relies on available sources and is consistent with all employees’ readiness for change, regardless of race, ethnicity, gender, socioeconomic status, physical or intellectual behavior. Without participation from all employees, significant reduction in cardiovascular disease cannot be achieved (Carnethon et al., 2009).

Programs which combine organizational and individual change have shown the most success in practice, mainly because employees report seeing that their individual needs are important and valued. It is also critical that wellness programs utilize employee assistance programs that are already in place in the workplace.  Also, the social and physical environment of the workplace should meet the program’s needs.  If medical screening is offered, there should be guidelines in place for appropriate follow-up.  Of United States firms with 250 to 749 employees, 11.3% have a comprehensive wellness program, whereas only 4.6% companies with 50 to 99 employees have them (Carnethon et al., 2009).  These findings demonstrate the void in wellness programs in the workplace, as well as the opportunity for change in all size companies.

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