2018

21 Primary Service Counties Health Indicator Assessment
Approved by the Board of Trustees/Board of Governors on November 26, 2018

GUNDERSEN

HEALTH SYSTEM®

Gundersen Lutheran Medical Center

21 Primary Service Counties Health Indicator Assessment

Methodology & Data Sources

To identify the health needs of Gundersen Health System's 21 county service area, analysis of publicly available data was completed. Secondary data — including population demographics, mortality, morbidity, health behavior, and clinical care — were used to identify and prioritize significant community health needs in each county. Population characteristics, socioeconomic, and health status data were also examined. Community-level data were compared to the state, nation, and Healthy People 2020 benchmarks to help identify key health issues in each county. This assessment informed the 2018 Gundersen Lutheran Medical Center Health Needs Assessment and Health Implementation Plan.

Limitations

While the quantitative analysis used the most recent data sources available as of July 1, 2018, some of these sources contain data that are several years old. The data presented in this report may not necessarily represent the current situation in each county but are the best data available the time of writing this assessment. Data sources and dates are provided. Where possible, comparisons to national data are given, but for some data sets, nationally available data is not comparable, due to differences in methodology or definitions.

County Characteristics and Health Indicators

Health Outcomes Ranking

The County Health Rankings is an annual report measuring important health factors in each county. Each county is compared to other counties within their state, providing an understanding on how each county is meeting the health needs of its residents. Health outcomes include how long people live and how healthy people feel (University of Wisconsin Population Health Institute, 2018).

Quality of Life Ranking

The quality of life in each county is measured by self-reported health status and the percentage of low birth weight newborns (University of Wisconsin Population Health Institute, 2018). Quality of life relates to an individual's physical, mental, emotional, and social functioning (Office of Disease Prevention and Health Promotion [ODPHP], 2016), going beyond simply examining death and disease.

Social Determinants of Health

Research has shown that health is not isolated at the individual level. Factors such as where "people are born, live, learn, work, play, worship, and age" affect the health of an individual

and a population (ODPHP, 2016a). Available and accessible resources also impact population health outcomes. These resources are often distributed unequally, determined by an individual's social, economic, and physical characteristics. According to the Centers for Disease Control and Prevention (2013), the "burden of illness, premature death, and disability disproportionately affects certain populations," (p.3). Minority populations continue to live at lower socioeconomic status, face barriers to access to health care, and have greater risk for morbidity and mortality (CDC, 2013). Understanding disparities in health outcomes and addressing social determinants of health will improve health outcomes and achieve health equity (Williams, Costa, Odunlami & Mohammed, 2008; Marmot, 2007).

Healthy People 2020 Objectives

Begun in 1979, Healthy People goals and objectives have guided the nation's leading health organizations, health leaders, policymakers, and the general public to improve the health and well-being of the United States. Every 10 years, past objectives are reviewed, progress is evaluated, gaps are determined, and new goals and objectives are developed based on the latest science and research (ODPHP, 2018). If available, Healthy People 2020 objectives are listed for each related health indicator, providing a framework to understand the progress of the 21-county service area.

Evidence based practice recommendations

Evidence based public health incorporates scientific reasoning, data and information systems, behavioral science theory, and program planning models in order to develop, implement, and evaluate programs and policies (Brownson, Baker, Leet, & Gillespie, 2003). By identifying evidence-based practices targeting specific public health problems, effective and efficient programs can be developed that will have greater chance impacting rates of morbidity, mortality, and ultimately, life expectancy. Specific evidence-based practice strategies will be discussed for each proceeding health indicator but are not meant to be exhaustive.
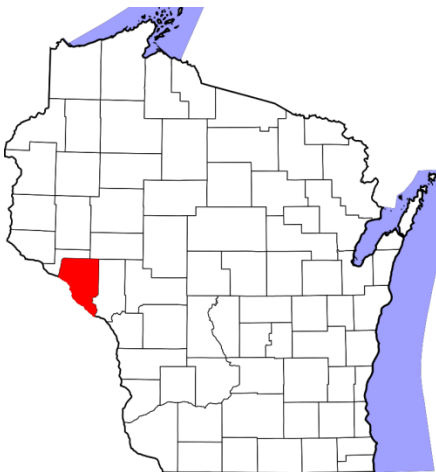
*County Characteristics***
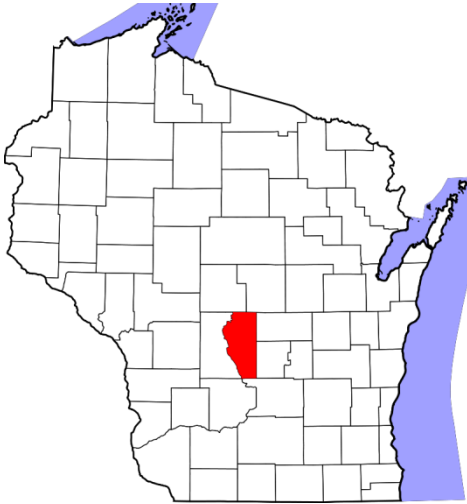
Adams, Wisconsin

Health Outcomes State Ranking: **69** out of 72

Quality of Life State Ranking: **64** out of 72

<u>Social determinants of health indicators</u>

- Unemployment—3.5%
- Poverty—12.7%
- Children living in poverty—**25%**
- High school education or less-- **55.6%**
- Median Household Income-- $43,554

- Households Spending Over 30% of Income on Housing—**30%**
- Population with Access to Large Grocery Store—**9.3%**

Buffalo, Wisconsin

Health Outcomes State Ranking: 33 out of 72

Quality of Life State Ranking: 23 out of 72

<u>Social determinants of health indicators</u>

- Unemployment—2.8%
- Poverty—10.8%
- Children living in poverty—14%
- High school education or less—**50.5%**
- Median Household Income-- $50,196

- Households Spending Over 30% of Income on Housing—27%
- Population with Access to Large Grocery Store—23.4%

Crawford, Wisconsin

Health Outcomes State Ranking: 56 out of 72

Quality of Life State Ranking: 53 out of 72
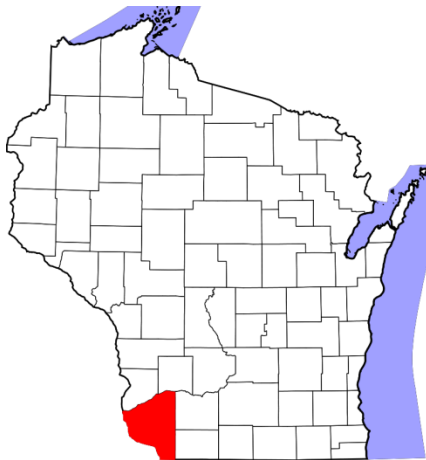
Social determinants of health indicators

- Unemployment—3.1%
- Poverty—13.6%
- Children living in poverty—**20%**
- High school education or less—**51.8%**
- Median Household Income-- $44,459
- Households Spending Over 30% of Income on Housing—27%
- Population with Access to Large Grocery Store—12.5%

Grant, Wisconsin

Health Outcomes State Ranking: 32 out of 72

Quality of Life State Ranking: 33 out of 72

Social determinants of health indicators

- Unemployment—2.4%
- Poverty—15.3%
- Children living in poverty—17%
- High school education or less—47.2%
- Median Household Income-- $49,067
- Households Spending Over 30% of Income on Housing—26.5%
- Population with Access to Large Grocery Store—16.6%

Jackson, Wisconsin

Health Outcomes State Ranking: 45 out of 72

Quality of Life State Ranking: 35 out of 72

<u>Social determinants of health indicators</u>

- Unemployment—2.5%
- Poverty—13.1%
- Children living in poverty—16%
- High school education or less—**54.1%**
- Median Household Income-- $47,851

- Households Spending Over 30% of Income on Housing—28.7%
- Population with Access to Large Grocery Store—30.2%

Juneau, Wisconsin

Health Outcomes State Ranking: 57 out of 72

Quality of Life State Ranking: **60** out of 72

<u>Social determinants of health indicators</u>

- Unemployment—2.6%
- Poverty—13.1%
- Children living in poverty—**21%**
- High school education or less—**55.7%**
- Median Household Income-- $44,961

- Households Spending Over 30% of Income on Housing—**31.6%**
- Population with Access to Large Grocery Store—24.5%

La Crosse, Wisconsin

Health Outcomes State Ranking: 27 out of 72

Quality of Life State Ranking: 48 out of 72

<u>Social determinants of health indicators</u>

- Unemployment—2.3%
- Poverty—14.8%
- Children living in poverty—12%
- High school education or less—31.9%
- Median Household Income-- $50,539

- Households Spending Over 30% of Income on Housing—28.9%
- Population with Access to Large Grocery Store—22%

Marquette, Wisconsin

Health Outcomes State Ranking: 54 out of 72

Quality of Life State Ranking: 52 out of 72

<u>Social determinants of health indicators</u>

- Unemployment—2.8%
- Poverty—11.7%
- Children living in poverty—**20%**
- High school education or less—**54.3%**
- Median Household Income-- $46,242

- Households Spending Over 30% of Income on Housing—**31.4%**
- Population with Access to Large Grocery Store—**1.7%**

Monroe, Wisconsin

Health Outcomes State Ranking: 53 out of 72

Quality of Life State Ranking: 38 out of 72

Social determinants of health indicators

- Unemployment—2.2%
- Poverty—13.9%
- Children living in poverty—**20%**
- High school education or less—48.6%
- Median Household Income-- $51,994

- Households Spending Over 30% of Income on Housing—25.3%
- Population with Access to Large Grocery Store—**11%**

Richland, Wisconsin

Health Outcomes State Ranking: 29 out of 72

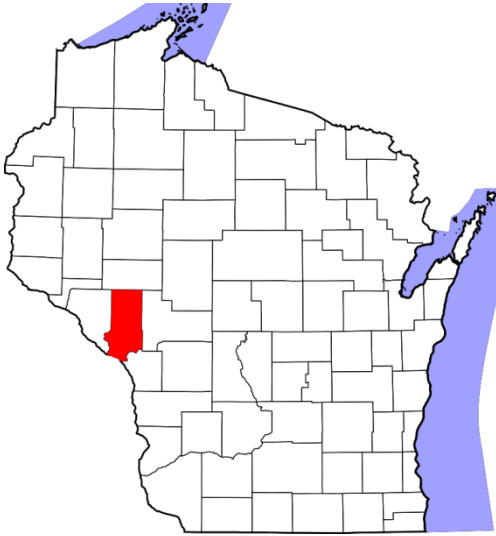Quality of Life State Ranking: 15 out of 72

Social determinants of health indicators

- Unemployment—2.3%
- Poverty—13.7%
- Children living in poverty—**21%**
- High school education or less—**52.1%**
- Median Household Income-- $44,810

- Households Spending Over 30% of Income on Housing—28.4%
- Population with Access to Large Grocery Store—25.2%

Trempealeau, Wisconsin

Health Outcomes State Ranking: 11 out of 72

Quality of Life State Ranking: 29 out of 72

Social determinants of health indicators

- Unemployment—2.3%
- Poverty—9.7%
- Children living in poverty—12%
- High school education or less—49.9%
- Median Household Income-- $51,077

- Households Spending Over 30% of Income on Housing—25,1%
- Population with Access to Large Grocery Store—**9.6%**

Vernon, Wisconsin

Health Outcomes State Ranking: 16 out of 72

Quality of Life State Ranking: 12 out of 72

Social determinants of health indicators

- Unemployment—2.3%
- Poverty—16.3%
- Children living in poverty—**26%**
- High school education or less—49.9%
- Median Household Income-- $47,675

- Households Spending Over 30% of Income on Housing—27.3%
- Population with Access to Large Grocery Store—17.4%

Fillmore, Minnesota

Health Outcomes State Ranking: 8 out of 87
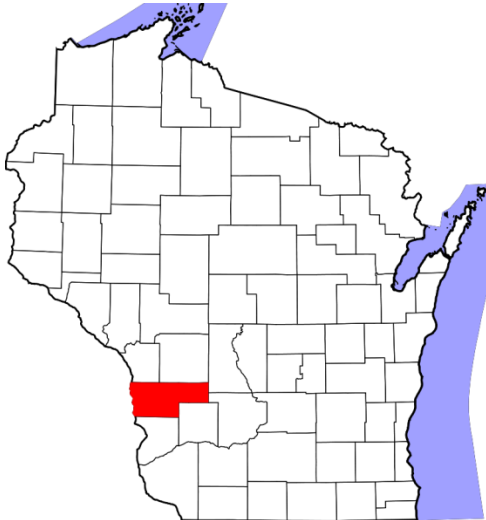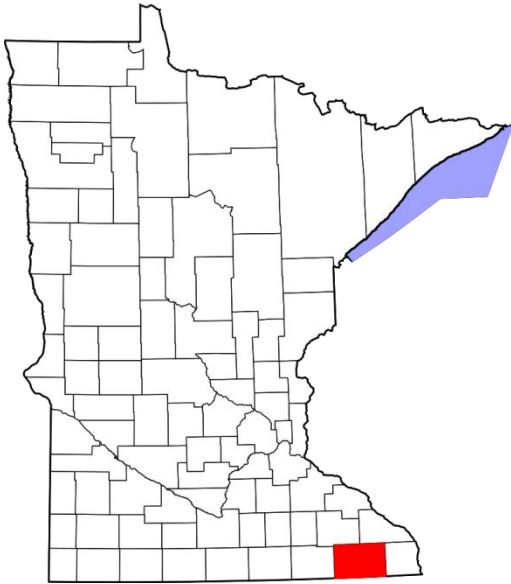
Quality of Life State Ranking: 6 out of 87

Social determinants of health indicators

- Unemployment—2.3%
- Poverty—12.1%
- Children living in poverty—19%
- High school education or less—**43.5%**
- Median Household Income-- $51,665

- Households Spending Over 30% of Income on Housing—25%
- Population with Access to Large Grocery Store—**2.2%**

Houston, Minnesota

Health Outcomes State Ranking: 19 out of 87

Quality of Life State Ranking: 38 out of 87

Social determinants of health indicators

- Unemployment—2.0%
- Poverty—10.3%
- Children living in poverty—11%
- High school education or less—40.2%
- Median Household Income-- $53,809

- Households Spending Over 30% of Income on Housing—26,2%
- Population with Access to Large Grocery Store—13.7%

Wabasha, Minnesota

Health Outcomes State Ranking: 11 out of 87

Quality of Life State Ranking: 16 out of 87

Social determinants of health indicators

- Unemployment—2.4%
- Poverty—6.6%
- Children living in poverty—10%
- High school education or less—43.9%
- Median Household Income-- $56,510

- Households Spending Over 30% of Income on Housing—24.4%
- Population with Access to Large Grocery Store—**10.3%**

Winona, Minnesota

Health Outcomes State Ranking: 35 out of 87

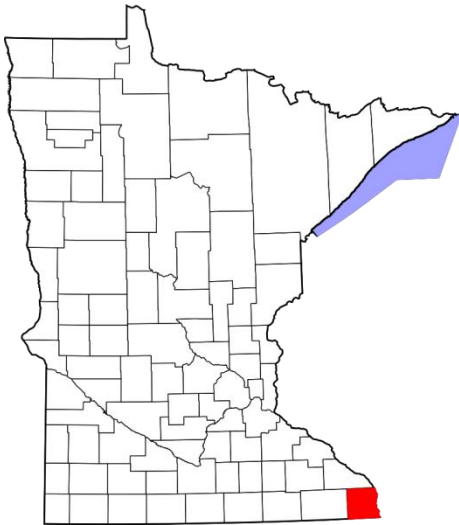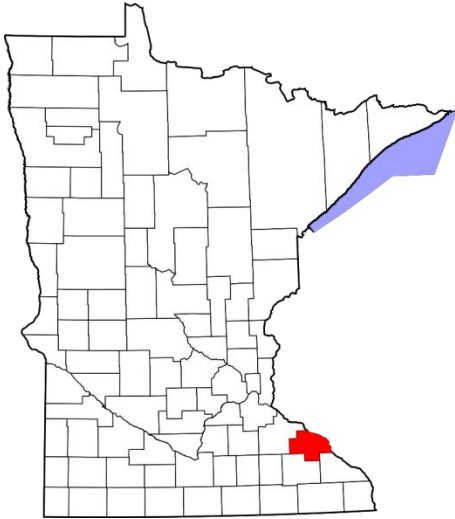Quality of Life State Ranking: 34 out of 87

- Social determinants of health indicators

- Unemployment—2.4%
- Poverty—13.9%
- Children living in poverty—12%
- High school education or less—**36.7%**
- Median Household Income-- $50,547

- Households Spending Over 30% of Income on Housing—27.8%
- Population with Access to Large Grocery Store—12.1%

Allamakee, Iowa

Health Outcomes State Ranking: 25 out of 99

Quality of Life State Ranking: 20 out of 99

Social determinants of health indicators

- Unemployment—2.2%
- Poverty—10.2%
- Children living in poverty—19%
- High school education or less—**52.3%**
- Median Household Income-- $45,890
- Households Spending Over 30% of Income on Housing—17.6%
- Population with Access to Large Grocery Store—10.3%
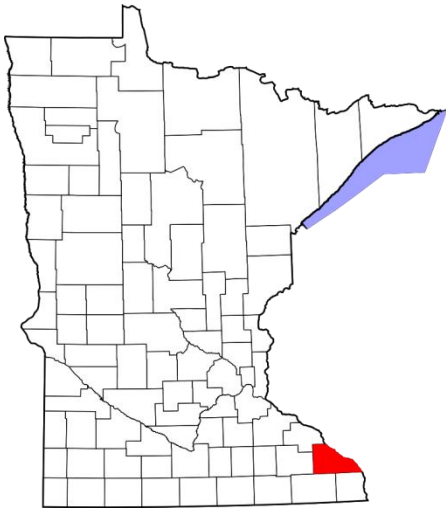

Clayton, Iowa

Health Outcomes State Ranking: 20 out of 99

Quality of Life State Ranking: 33 out of 99

Social determinants of health indicators

- Unemployment—2.2%
- Poverty—10.5%
- Children living in poverty—15%
- Residents with high school education or less—**53.8%**
- Median Household Income-- $48,007
- Households Spending Over 30% of Income on Housing—22.6%
- Population with Access to Large Grocery Store—**0.7%**
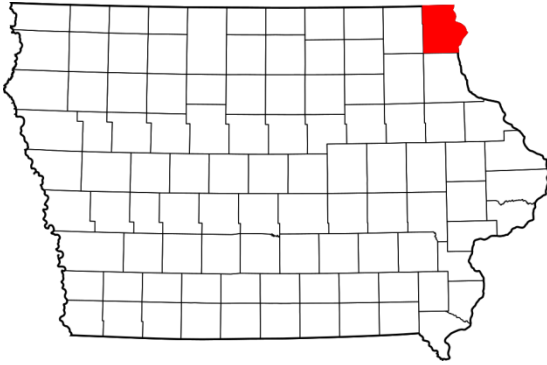
Fayette, Iowa

Health Outcomes State Ranking: **67** out of 99

Quality of Life State Ranking: 41 out of 99

Social determinants of health indicators

- Unemployment—2.4%
- Poverty—13.1%
- Children living in poverty—18%
- Residents with high school education or less—48.7%
- Median Household Income-- $44,928
- Households Spending Over 30% of Income on Housing—22.6%
- Population with Access to Large Grocery Store—**8.7%**

Howard, Iowa
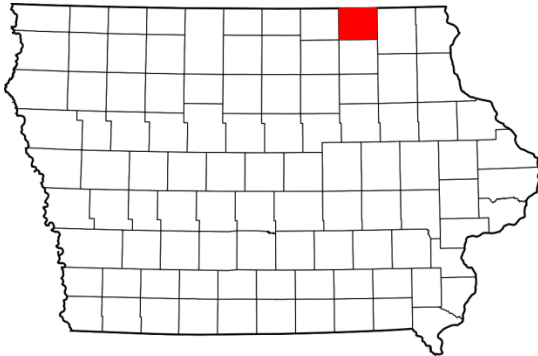
Health Outcomes State Ranking: 34 out of 99

Quality of Life State Ranking: **55** out of 99

Social determinants of health indicators

- Unemployment—1.9%
- Poverty—11.6%
- Children living in poverty—14%
- Residents with high school education or less—**54.5%**
- Median Household Income-- $49,869
- Households Spending Over 30% of Income on Housing—22.4%
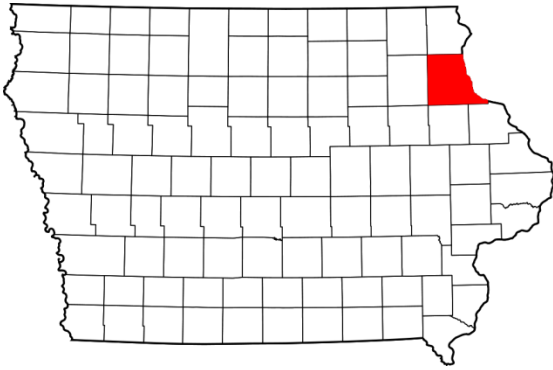- Population with Access to Large Grocery Store—38.5%

Winneshiek, Iowa

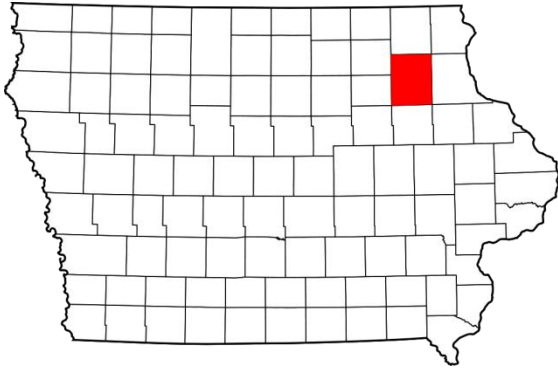Health Outcomes State Ranking: 5 out of 99

Quality of Life State Ranking: 5 out of 99

Social determinants of health indicators

- Unemployment—2.0%
- Poverty—8.0%
- Children living in poverty—10%
- Residents with high school education or less—39.3%
- Median Household Income-- $54,429
- Households Spending Over 30% of Income on Housing—21.1%
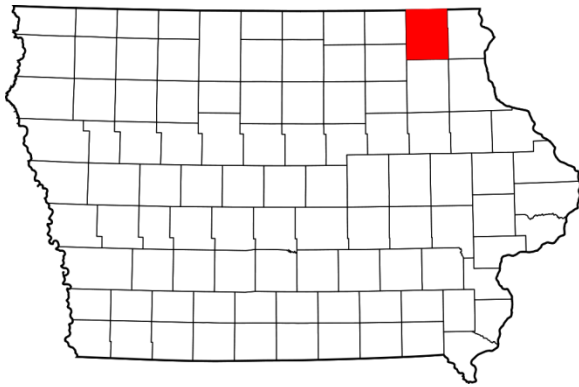- Population with Access to Large Grocery Store—21.0%

**Characteristic data bolded based on recommended "areas to explore" from County Health Rankings and Roadmaps. See appendix for table and data sources of all county information.

Health Indicators

Health Outcomes & Quality of Life Indicators

Life Expectancy

An estimate of the average number of years of life for individuals within a population, life expectancy is often used to measure the overall health of a community (Utah Department of Health, n.d.). Determining the length of life for individuals within a community, coupled with mortality and morbidity information, may provide insight on current and future areas of need.

Figure 1. Life expectancy by county, compared to state and national averages.
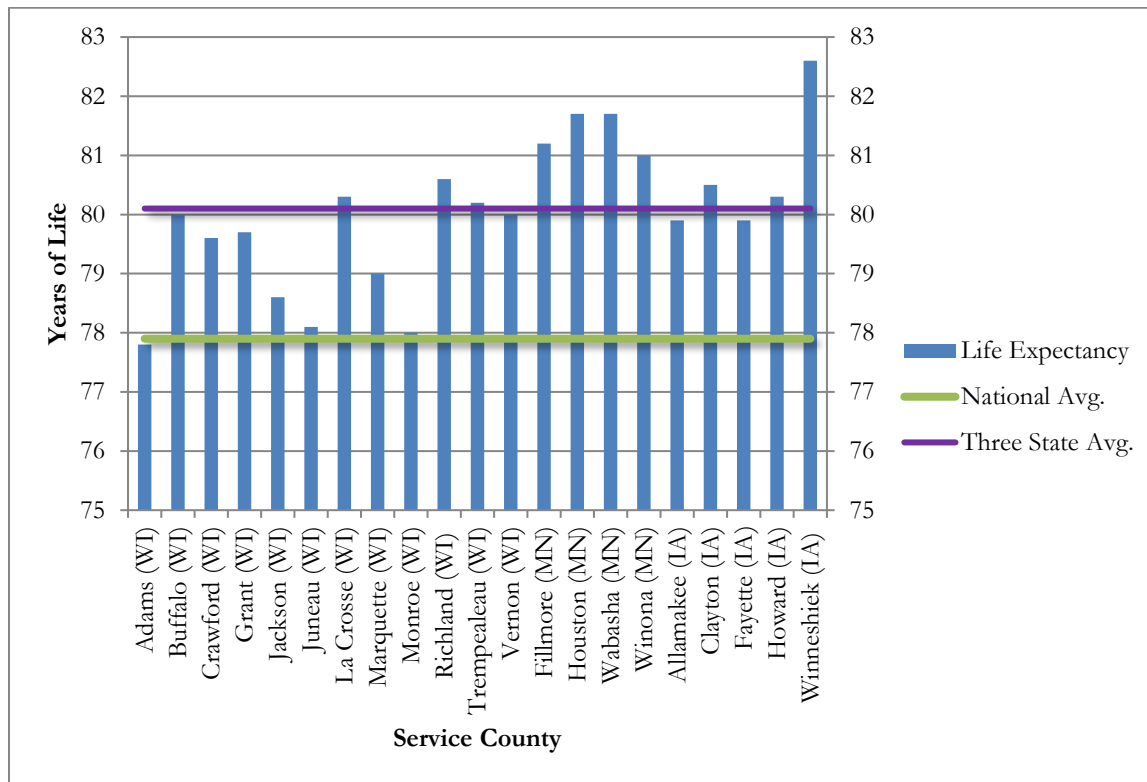
Source: U.S. News & World Report. (released 2018). Healthiest Communities.

Life expectancy within the United States was estimated at 78.8 years in 2015, which was a decrease of 0.1 from 2014, the first decrease since 1993 (National Vital Statistics, 2017). According to U.S. News & World Report's Healthiest Communities (2018), statewide life expectancy is 79.7 in Wisconsin, 80.7 in Minnesota, and 79.8 in Iowa. Nationally, life expectancy is 77.9 years. Majority of

the 21 county service region, meets or exceeds the national average. Winneshiek County has the highest life expectancy at 82.6 years, and Adams County has the lowest life expectancy at 77.8 years.

Changing Populations: Along with increased life expectancy, the United States' population continues to grow in age and in diversity. According to the United States Census Bureau (2017) the number of people age 65 and older increased from 35.0 million in 2000 to 49.2 million in 2016. Between 2015-2016, about two-thirds of U.S. counties saw an increase in median age, and all race and ethnic groups grew (U.S. Census Bureau, 2017). Currently, those aged 65 and older make up 15.24% of the total U.S. population, and is projected to exceed 20% of the population by 2040 (U.S. Census Bureau, 2018). The 21 county service region reflects this trend as well. Throughout the region, those aged 65 and older are projected to make up 24-40% of county populations, with Adams County at the highest by 2040 (Wisconsin Department of Health Services, 2015). Growth in the 65 and older population in the region, Wisconsin, and the United States for years 2007-2011 and 2012-2016 is shown below.

Figure 2. Percentage of population aged 65 and older by region, Wisconsin, United States for years 2007-2011, 2012-2016.
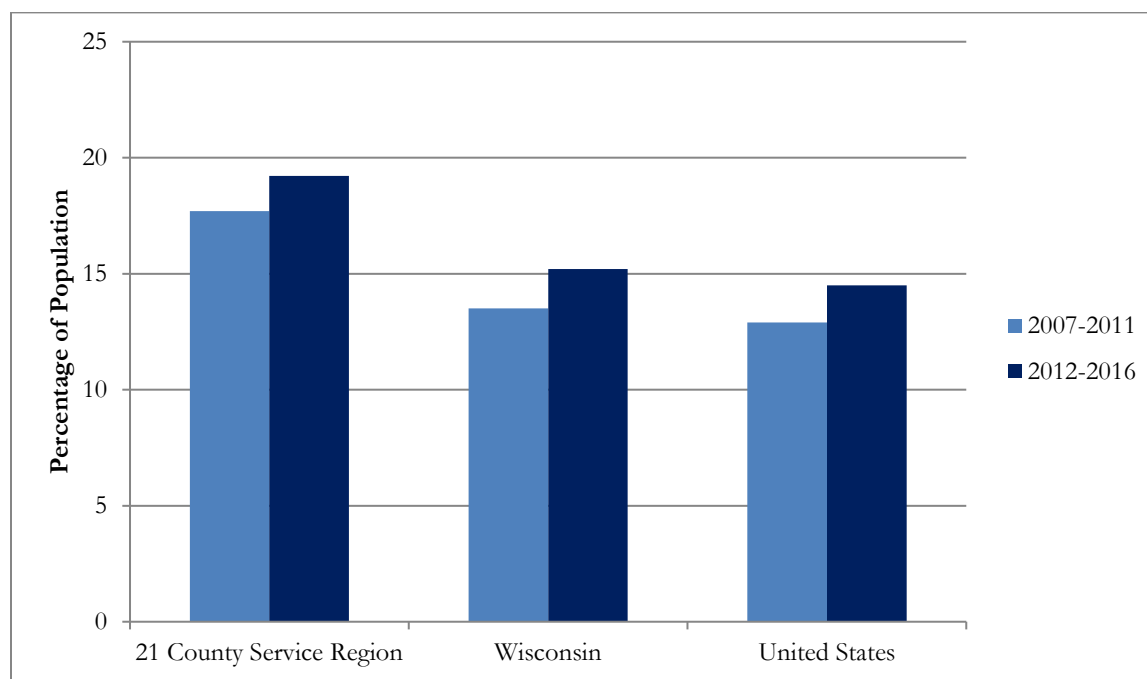
Source: U.S. Census Bureau. 2012-2016 American Community Survey 5 Year Estimates; 2007-2011 American Community Survey 5 Year Estimates

Overall, the 21 county service region has an older population than Wisconsin and the U.S. However, the percent change in growth is slightly smaller within the region (1.51% change) compared to Wisconsin (1.70% change) and the U.S. (1.60% change).

Utilizing the same data as above, changes in populations according to race and ethnicity were analyzed. Changes between population estimates for years 2007-2011 and 2012-2016 were not significant for the 21 county service region compared to the United States. As discussed previously, disparities in health outcomes by race/ethnicity have been consistently found within the United States (ODPHP, n.d.). While the 21 county service region has not seen the same amount of growth in diversity, racial/ethnic differences in area health outcomes can be significant. Population demographics, especially race and ethnicity, should be considered when analyzing data and developing implementation plans. Individual county populations by race and ethnicity may not be accurately reflected in table below and should be considered when programmatic planning is completed.

Table 1. Percentage of population by race and ethnicity by entire 21 county region and U.S.

	21 County Region	United States
Non-Hispanic White	96.8%	76%
Non-Hispanic Black	1.4%	13.8%
American Indian/Alaska Native	1.2%	1.7%
Asian	1.0%	6.2%
Native Hawaiian/Other Pacific Islander	0.05%	0.4%
Hispanic or Latino-Any race	2.6%	17.3%
Other	0.86%	5.3%

Source: U.S. Census Bureau. 2012-2016 American Community Survey 5 Year Estimates

Adverse Childhood Experiences

Adverse childhood experiences (ACEs) are traumatic events occurring during an individual's childhood that can be correlated to risky health behaviors and health issues as an adult. These events could be maltreatment, exposure to domestic violence, having members of the household incarcerated, divorce, substance abuse, or mental illness (Wisconsin Child Abuse and Neglect Prevention Board, 2016). The original study found majority of people experience at least one ACE, and as an individual's number of ACEs increases, the poorer the health outcome later in life (Central Iowa ACEs Coalition, 2016). For example, in Wisconsin, adults who have a higher number of co-occurring ACEs have been shown to have higher rates of depression, increased health risk behaviors (including tobacco use, excessive drinking, limited exercise), poor general health (obesity, lost teeth, daily feeling of un-wellness), and chronic health conditions (asthma, cancer, arthritis, diabetes) (Wisconsin Child Abuse and Neglect Prevention Board, 2016).

> **Healthy People 2020 Objective:** Reduce children's exposure to violence from a baseline of 58.9% of children exposed to any form of violence, crime and abuse to 53.0% of children.

Figure 3. Adverse Childhood Experiences Pyramid

Mechanism by Which Adverse Childhood Experiences
Influence Health and Well-being Throughout the Lifespan
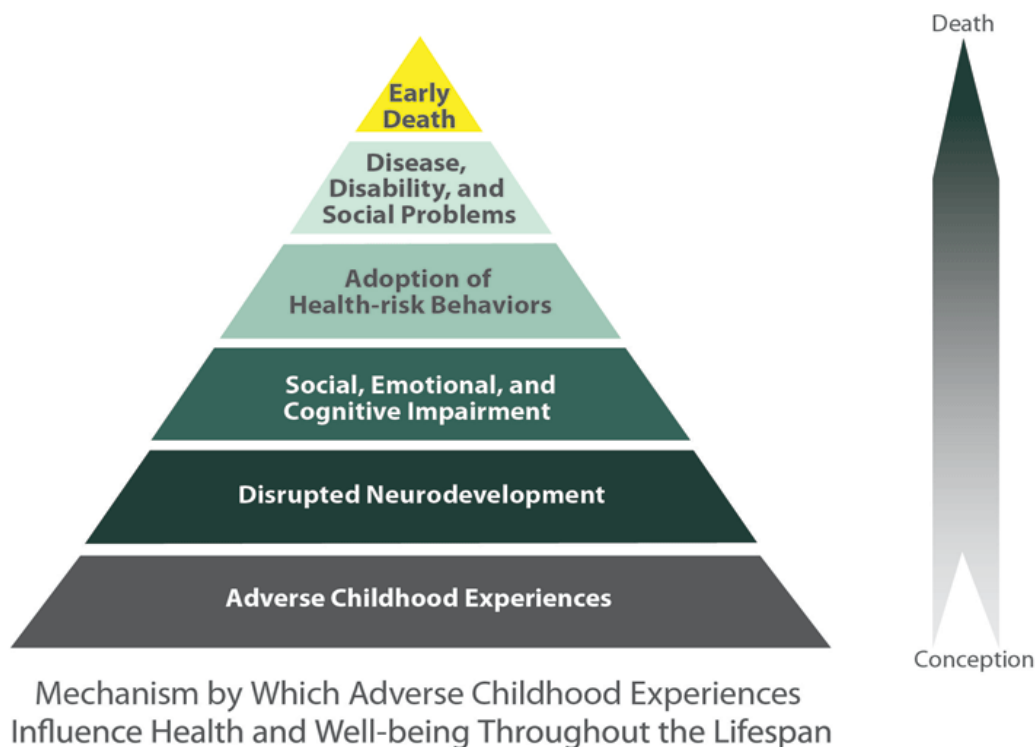
Source: Centers for Disease Control and Prevention.

In Iowa, 56% of adults report experiencing at least one ACE, with 14.5% experiencing 4 or more ACEs (Central Iowa ACEs Coalition, 2016). According to 2011 data, 55% of adults in Minnesota report experiencing one or more ACEs, with 24% reporting 4 or more (Minnesota Department of Health, 2013). For Wisconsin, 58% of respondents between 2011-2013 report at least 1 ACE, with 14% experiencing 4 or more ACEs (Wisconsin Child Abuse and Neglect Prevention Board, 2016). Specific county level data is limited. However, based on the cumulative state and national research, it can be assumed that majority of the service region has experienced at least one ACE and that these experiences impact the overall health and well-being of the population.

Figure 4. Correlation between ACE scores and health outcomes in Wisconsin

Figure 5: Prevalence of Health Category by ACE Score [8,9]
(N=25,425 - 25,518)
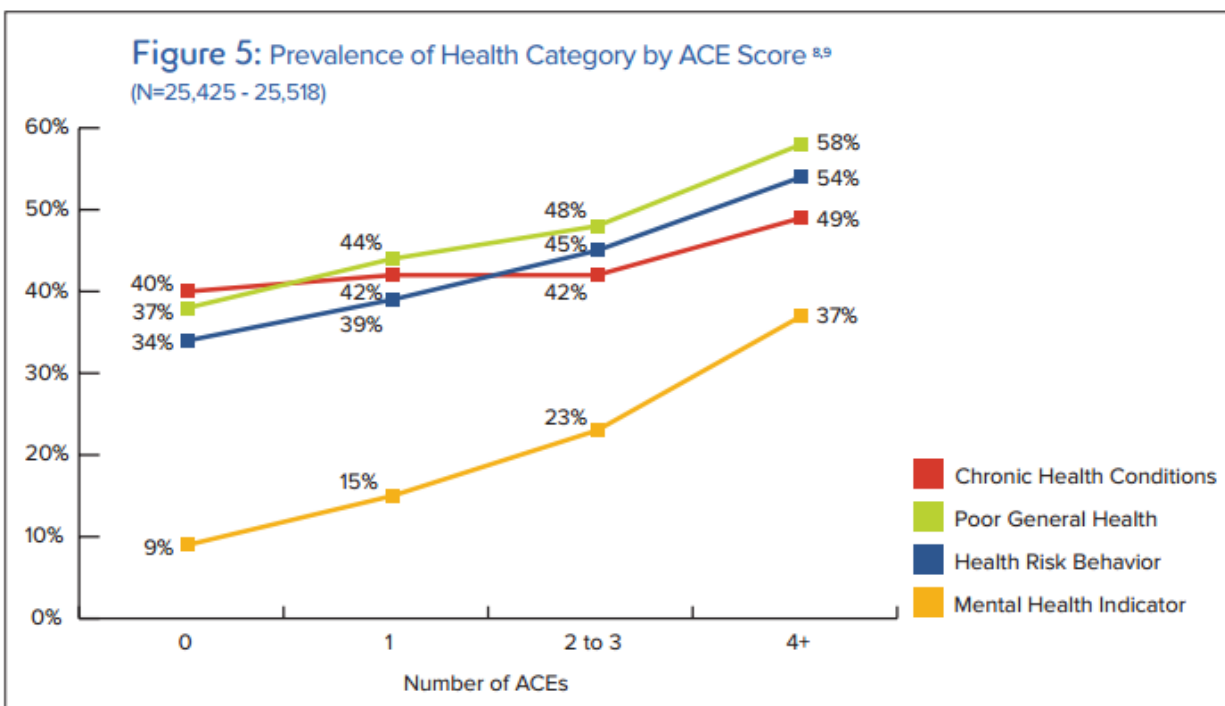
Source: Wisconsin Child Abuse and Neglect Prevention Board (2018).

Evidence Based Practice:

Understanding the impact of ACEs on physical and mental health, as well as the influence on health behaviors will strengthen organizational and community response. Strategies to address this impact should be interwoven within the continuum of care. Possible strategies include:

- Trauma informed care (Substance Abuse and Mental Health Services Administration, 2014).

- Community capacity building by increasing awareness about the impact of ACEs and strategies to address those (Centers for Disease Control and Prevention, n.d.; Hall, Porter, Longhi, Becker-Green, & Dreyfus, 2012)

Gundersen Population Health Initiative Alignment

ACEs & Trauma

Informed Care

Child Abuse

According to the U.S. Department of Health and Human Services' Child Maltreatment report [USDHH] (2018), 17.2% of children who were reported to Child Protective Services were found to

be victims of maltreatment in 2016. Overall, children with the highest rate of victimization were children in the first year of life, American-Indian or Alaska Native, and those subject to alcohol or drug abuse younger than 1 year old (USDHH, 2018). Adverse childhood experiences, such as abuse or neglect, can impact an infant's brain development, disrupting a child's ability to think, learn, and develop normally (Central Iowa ACEs Coalition, 2016).

Healthy People 2020 Objective:

Reduce nonfatal child maltreatment from a baseline of 9.4 victims per 1,000 children under age 18 to 8.5 victims per 1,000 children.

Table 2. Known rates of child abuse per 1,000, by county and state

County	Rates of Child Abuse per 1,000
Wisconsin	3.7
Iowa	11.7
Minnesota	6.2
Adams (WI)	15
Buffalo (WI)	3
Crawford (WI)	5
Grant (WI)	4
Jackson (WI)	10
Juneau (WI)	4
La Crosse (WI)	3
Marquette (WI)	2
Monroe (WI)	5
Richland (WI)	5
Trempealeau (WI)	4
Vernon (WI)	2
Allamakee (IA)	10
Clayton (IA)	8
Fayette (IA)	12
Howard (IA)	16
Winneshiek (IA)	5
Fillmore (MN)	1.2
Houston (MN)	4.0
Wabasha (MN)	1.5
Winona (MN)	4.6

Sources: University of Wisconsin Population Health (released 2018). County health rankings and roadmaps. Iowa Department of Human Services (2017). Iowa Child Abuse Rates by County-2016. Minnesota Department of Human Services (2017). Minneosta's Child Maltreatment Report-2016. USDHH (2016). Statewide rates.

Nearly one fourth of the counties with known child abuse rates exceed the national average, as well as the Healthy People 2020 goal of 8.5 victims per 1,000 children. Three of the five counties with the highest rates are within the Iowa service region. Statewide rates vary with Iowa having the highest rate in 2016 at 11.7 per 1,000 children. This rate has decreased since 2012 but remains higher than national rates. Minnesota and Wisconsin's rate of child abuse are 6.2 and 3.7 per 1,000 children respectively (USDHH, 2018). As discussed earlier, children and youth who experience traumatic events have a greater chance of developing mental or physical diseases or disabilities as adults, as well as greater disparity in social determinants of health that could provide resources capable of building resiliency (Fortson, Klevens, Merrick, Gilbert, & Alexander, 2016; Wisconsin Child Abuse and Neglect Prevention Board, 2016).

Evidence Based Practice:

Working collaboratively with community organizations to address services throughout the lifespan will provide a greater opportunity to reduce child abuse rates, and possibly rates of disease and mortality. Possible strategies include:

> **Gundersen Population Health Initiative Alignment**
>
> ACEs & Trauma
>
> Informed Care

- Implementing early childhood visitation programs that include positive parenting skills, strengthening social support for parents, and connecting families with social services. These programs have shown to reduce violence against children (Community Preventive Services Task Force, 2013).

- Trauma informed care, including primary care identification and screening (Substance Abuse and Mental Health Services Administration, 2014).

- Strengthening economic supports for families (Fortson, Klevens, Merrick, Gilbert, & Alexander, 2016; Wisconsin Child Abuse and Neglect Prevention Board, 2016).

Mental Health

The average poor mental health days for individuals is considered an aspect of the health-related quality of life indicator. A person's overall health includes both physical and mental well-being. Counties with more unhealthy days have been found to have higher rates of unemployment, poverty, percentage of adults who did not complete high school, mortality rates, and disability (University of Wisconsin Population Health Institute, 2018). Mental health can be intimately tied to ACEs, chronic illness, homelessness, and alcohol/substance abuse, influencing health behaviors and outcomes (ODPHP, 2016a).

> **Healthy People 2020 Objective:**
>
> Increase the proportion of adults who self-report good or better mental health, from a baseline of 79.1% to 80.1%.

Figure 5. Average poor mental health days by county, state, and nation
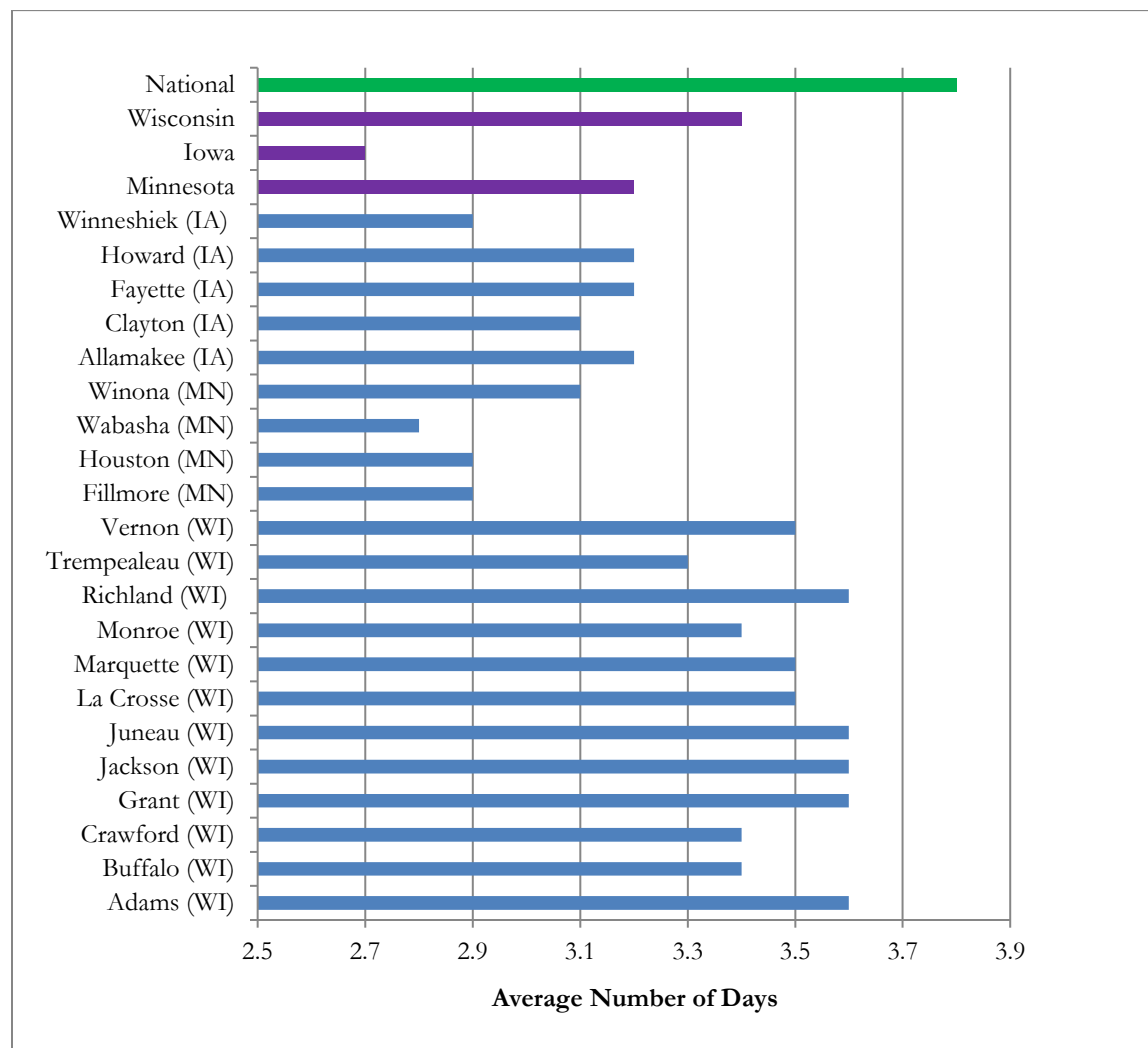
Source: U.S. News & World Report. (released 2018). Healthiest Communities.

Overall, the average poor mental health days per month for the 21 county service region range between 2.8-3.6 days. This is slightly lower than the U.S. average of 3.8 days per month. Statewide averages are 3.2 days per month in Minnesota, 2.7 days per month in Iowa, and 3.4 days per month in Wisconsin (U.S. News & World Report, 2018). Majority of the counties (17 out of 21) averaged at least 3 days per month. While the residents of the 21 county service region have less poor mental health days than the average U.S. citizen, program development and implementation plans should consider those counties with the highest rate of poor mental health days, high rates of suicide, limited access to mental health services, as well as the impact of ACEs. The Wisconsin Child Abuse and Neglect Prevention Board (2016), found that as the number of ACEs increased, so did the prevalence of depression. The preceding data also does not reflect the mental health of youth within

the service area, which may have higher or lower rates of poor mental health days and require different strategies to address need.

Evidence Based Practice:

Poor mental health can influence health across all age, race, ethnicity, socio economic, and geographic locations. Multi-component strategies across all sectors should be considered. Possible strategies include:

- Mental health benefits legislation to ensure quality benefits for mental health service. This has shown to decrease financial burden, increase use and access to care, increase diagnosis, reduce prevalence of poor mental health, and reduce suicide rates (Community Preventive Services Task Force, 2015).

- Integration of behavioral health into primary care practice, including screening and treatment. This has shown to improve depression symptoms, adherence and response to treatment, remission and recovery, and delivers a positive economic value (Community Preventive Services Task Force, 2014)

- Depression care management for older adults through primary care (Community Preventive Services Task Force, 2014b), addressing need for wraparound services as identified in the COMPASS Now report.

- Trauma informed schools (University of Wisconsin Population Health Institute, 2018) and trauma informed care (Substance Abuse and Mental Health Services Administration, 2014). This would also address need for wraparound services as identified in the COMPASS Now report, as well as Gundersen's population health initiatives.

Gundersen Population Health Initiative Alignment

ACEs & Trauma Informed Care

Mental Health & Substance Abuse

Mortality

Mortality rates are an important indicator of the burden of disease within a population (World Health Organization, 2014). These rates, along with morbidity, may provide insight on program effectiveness and/or need for intervention. The chart below depicts the age-adjusted mortality rates by year for specific causes for the entire 21 county service area.

Healthy People 2020 Objectives:

Reduce the **diabetes** death rate from 74 per 100,000 to 66.6 per 100,000.

Reduce coronary **heart disease** deaths from 129.2 per 100,000 to 103.4 per 100,000

Reduce the overall **cancer** death rate from 179.3 per 100,000 to 161.4 per 100,000.

Reduce the **suicide** rate from 11.3 per 100,000 to 10.2 per 100,000.

Figure 6. Mortality rates per 100,000, by year for 21 county service region
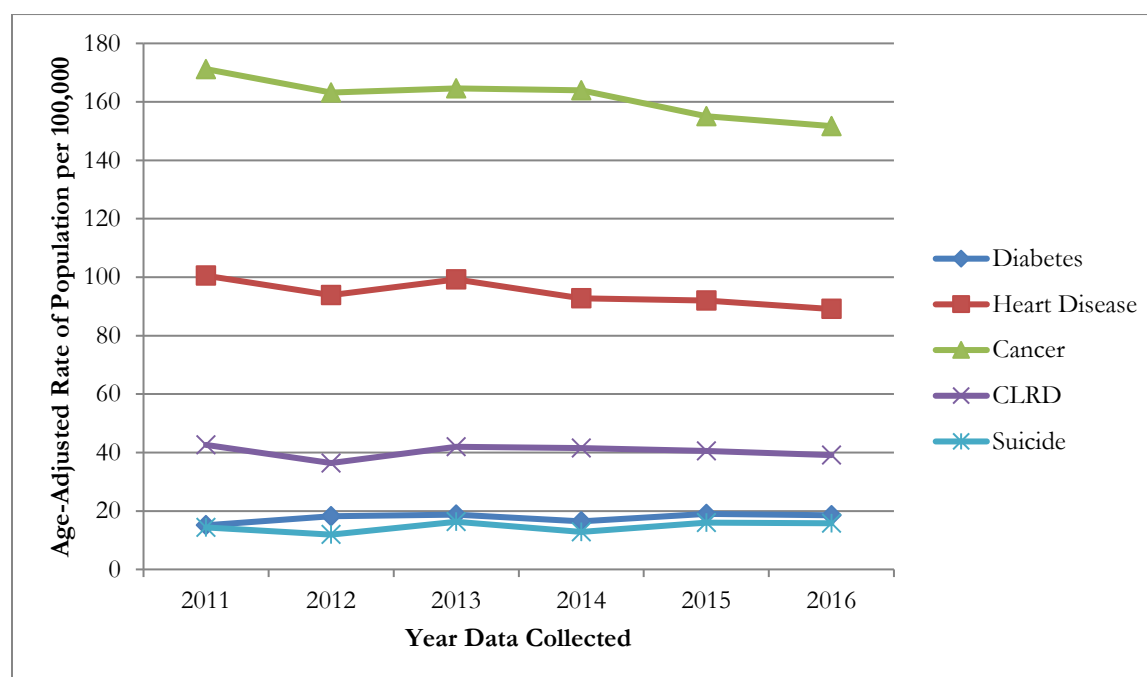
Source: Centers for Disease Control and Prevention. (2017). Compressed Mortality File 1999-2016 on CDC WONDER.

Overall, mortality rates for the service area have remained consistent over the past 5 years. However, decreases in deaths due to cancer and heart disease were seen for the region between 2011 and 2016. Both rates were lower than the Healthy People 2020 objectives at 151.7 per 100,000 deaths due to cancer, and 89.1 per 100,000 deaths due to heart disease. Deaths due to chronic lower respiratory disease slightly decreased for the region from 42.6 in 2011 to 39.1 in 2016. This is still higher than statewide rates in Minnesota (35.8) and Wisconsin (38.3), but lower than Iowa (48.6) in the same year.

Cancer

Gundersen Health System's Center for Cancer and Blood Disorders recently completed a Community Needs Assessment focusing on cancer data from the entire 21-county service region and Gundersen patient record, to be released this year. For this assessment, cancer mortality data were gathered for Wisconsin using the Wisconsin Interactive Statistics on Health (WISH) website for 2009-2016, reflecting crude death rates. As shown in this report, the causes of all cancer deaths are demonstrated below. Lung cancer is the leading cause of cancer deaths in the 21-county service region accounting for nearly one out of every five cancer deaths. Unfortunately, access to Minnesota and Iowa mortality statistics by specific type of cancer wasn't available for the same number of years as in Wisconsin, so these numbers may be an underestimate of the total number of deaths by cause.

Table 4. Total and percentage of deaths by cancer type within 21 county region

Cancer deaths by type (2009-2016 combined)	Total GHS county deaths	% of deaths
All cancers	**10,490**	
Lung	1,947	18.6%
Colorectal	640	6.1%
Breast	487	4.6%
Pancreas	471	4.5%
Prostate	423	4.0%
Non-Hodgkin's Lymphoma	265	2.5%
Esophagus	228	2.2%
Leukemia	228	2.2%
Liver	220	2.1%
Brain/CNS	196	1.9%
Bladder	192	1.8%
Kidney	190	1.8%
Multiple Myeloma and Immunoproliferative neoplasms	163	1.6%
Ovary	146	1.4%
Skin	121	1.2%
Uterus	109	1.0%
Stomach	104	1.0%
Lip, oral Cavity, Pharynx	94	0.9%
Larynx	47	0.4%
Cervical	35	0.3%
Hodgkin's	11	0.1%
All other unspecified malignant Neoplasms	882	8.4%
Other Unspecified neoplasms of lymphoid, hematopoietic and related tissue	1	0.0%
Unknown specific causes for all cancer deaths in Minnesota counties: 2014-2016 and Iowa counties: 2013-2016	3,290	31.4%

Source: Gundersen Center for Cancer and Blood Disorders, (released 2018).

Reviewing the rate of cancer deaths and types of cancer, it is important to consider the possibility of prevention and the relation to other health risk factors. As discussed in the Cancer Needs Assessment (2018), the following table describes cancers that may be preventable, along with related preventable risk factors.

Table 5. Preventable cancer type with preventable risk factors

	Routine Early Identification by Screening	Preventable	Preventable risk factors
Cancers that are high in prevalence, may be preventable, and for which routine screening is recommended			
Breast	Yes	Yes – 33%	Obesity, alcohol use
Lung	Yes	Yes – 70%	Tobacco use, radon exposure
Colorectal	Yes	Yes – 50%	Obesity, Tobacco use, alcohol use
Cervix	Yes	Yes	Tobacco use, HPV infection
Prostate	Yes	possibly	(obesity?)
Skin	Yes	Yes	Sun exposure (tanning - no protection)
Cancers that are low in prevalence, and are not routinely screened for in clinic practice			
Bladder	No	Yes	Tobacco use
Lip	No	Yes	Tobacco use
Lymph	No	Yes	Tobacco use
Pancreas	No	Yes	Obesity, Tobacco use, alcohol use
Stomach	No	Yes	Tobacco use
Esophagus	No	Yes	Obesity, Tobacco use, alcohol use
Liver	No	Yes	Tobacco use, alcohol use
Larynx	No	Yes	Tobacco use, alcohol use

Source: Taken from Gundersen Center for Cancer and Blood Disorders, (released 2018) Cancer Needs Assessment; original sources-World Health Organization, (n.d.); American Institute for Cancer Research, (2018); American Cancer Society, (n.d.)

Further discussion on preventable risk factors, as well as strategies to address preventable risk factors and preventable cancers will be considered throughout the remainder of this report.

Suicide

Deaths due to suicide slightly increased in the area from 14.4 in 2011 to 15.8 in 2016 respectively (CDC, 2017). Total age-adjusted mortality rates due to suicide in 2016 for the 21-county service region is higher than statewide rates. In 2016 statewide rates of suicide were found to be 13.2 per 100,000 in Minnesota, 14.6 per 100,000 in Iowa, and 14.7 per 100,000 in Wisconsin. To analyze county level mortality data, the compressed mortality rates were calculated using data from 1999-2016. For deaths by suicide, Winneshiek County recorded the lowest at 8.6 per 100,000. Adams and Marquette counties recorded the highest amount at 19.4 deaths per 100,000. Over half (15 out of 21) of the counties had higher rates of suicide compared to statewide data during the same time period (Minnesota-11.0, Iowa-12.0, Wisconsin-12.5). Individual county rates of suicide are shown in chart below, compared

to the three-state average. The significant rates of suicide within the service region, as well as poor mental health days and access to mental health services should be considered when developing an implementation plan.

Table 6. Age-adjusted mortality rates due to suicide 1999-2016 by county compared to Tri-State average of 11.8 per 100,000

County	Suicide	Rate Ratio Comparison
Adams (WI)	19.4	1.64
Buffalo (WI)	14.1	1.19
Crawford (WI)	14.4	1.22
Grant (WI)	12.3	1.04
Jackson (WI)	16.1	1.36
Juneau (WI)	16.1	1.36
La Crosse (WI)	12.9	1.09
Marquette (WI)	19.4	1.64
Monroe (WI)	15.3	1.30
Richland (WI)	9.3	0.79
Trempealeau (WI)	15.5	1.31
Vernon (WI)	13.5	1.14
Fillmore (MN)	9.3	0.79
Houston (MN)	9.6	0.81
Wabasha (MN)	10.2	0.86
Winona (MN)	10.5	0.89
Allamakee (IA)	14.1	1.19
Clayton (IA)	12.8	1.08
Fayette (IA)	15.4	1.30
Howard (IA)	12.0*	1.01
Winneshiek	8.6	0.73

*Unreliable- Death rates are flagged as unreliable when rate is calculated with a numerator of 20 or less.

Source: Centers for Disease Control and Prevention. (2017). Compressed Mortality File 1999-2016 on CDC WONDER

Diabetes

Deaths due to diabetes slightly increased in the area from 15.1 in 2011 to 18.5 in 2016. Total age-adjusted mortality rates due to diabetes in 2016 was lower in the 21-county service region, compared to statewide rates. In 2016, the following statewide rates of death due to diabetes were found to be 22.9 per 100,000 in Minnesota, 27.0 per 100,000 in Iowa, and 24.9 per 100,000 in Wisconsin. At the county level, diabetes accounted for 12.3 deaths per 100,000 in Winona County and 33.4 deaths per 100,000 in Juneau County between 1999-2016. Less than half (8 out of 21) of the counties had higher rates of death due to diabetes

compared to statewide data during the same time period (Minnesota-21.0, Iowa-20.6, Wisconsin-20.1). Further discussion of rates of diagnosed diabetes, morbidity, and behavioral factors should be considered when developing implementation plan.

Table 7. Age-adjusted mortality rates due to diabetes 1999-2016 by county compared to Tri-State average of 20.6 per 100,000

County	Diabetes	Rate Ratio Comparison
Adams (WI)	20.9	1.01
Buffalo (WI)	12.4	0.60
Crawford (WI)	17.7	0.85
Grant (WI)	23.1	1.12
Jackson (WI)	19.4	0.94
Juneau (WI)	33.4	1.62
La Crosse (WI)	17.5	0.85
Marquette (WI)	28.7	1.39
Monroe (WI)	28.4	1.38
Richland (WI)	12.8	0.62
Trempealeau (WI)	24.3	1.18
Vernon (WI)	12.7	0.62
Fillmore (MN)	17.2	0.83
Houston (MN)	18.8	0.91
Wabasha (MN)	20.5	1.00
Winona (MN)	12.3	0.60
Allamakee (IA)	19.4	0.94
Clayton (IA)	20.6	1.00
Fayette (IA)	22.0	1.07
Howard (IA)	17.1	0.83
Winneshiek	15.2	0.74

Source: Centers for Disease Control and Prevention. (2017). Compressed Mortality File 1999-2016 on CDC WONDER

Evidence based practice:

Population demographics, especially geographic location, socioeconomic status, education, and race or ethnicity, should be reflected upon when considering evidence-based strategies. Possible strategies include:

- Incorporating culturally competent care which includes tailoring care to patient's norms, beliefs, values, language, and literacy skills (University of Wisconsin Population Health Institute, 2015).

Gundersen Population Health Initiative Alignment

Chronic Illness

- Developing telemedicine practices that have shown to increase access to care, especially with chronic conditions and those in rural areas (University of Wisconsin Population Health Institute, 2016).

- Interventions proposed by the Gundersen Cancer Needs Assessment include promotion of the human papillomavirus vaccine, radon awareness, smoke free policies in HUD housing and CT scans of those at risk, and targeting disparate counties (Gundersen Center for Cancer and Blood Disorders, released 2018).

Morbidity

An increased rate of disease within a population impacts the burden upon the individual and the community. Health care cost, loss of work time, and risk for other health complications decrease the quality of life within a region. Across the United States, diabetes affects an estimated 29.1 million Americans and is the 7th leading cause of death. An individual with diabetes faces an increased risk for all-cause mortality and heart attack by 1.8 times compared to an individual without diabetes (ODPHP, 2016c). Also, the estimated cost of diabetes in 2012 was $245 billion, including medical care, disability, and premature death (Centers for Disease Control and Prevention, 2014). Increasingly, obesity has been found to be a risk factor for developing other diseases, including diabetes and cancer (Danaei, Ding, Mozaffarian, Taylor, Rehm, Murray C, et al., 2009).

Healthy People 2020 Objectives:

Reduce the annual number of new cases of diagnosed diabetes in the population from a baseline of 8.0 cases per 1,000 to 7.2 cases per 1,000.

Reduce the proportion of adults who are obese from 33.9% of persons aged 20 or over to 30.5%.

Figure 7. Percentage of population with diagnosed obesity and diabetes, by county, state, and nation
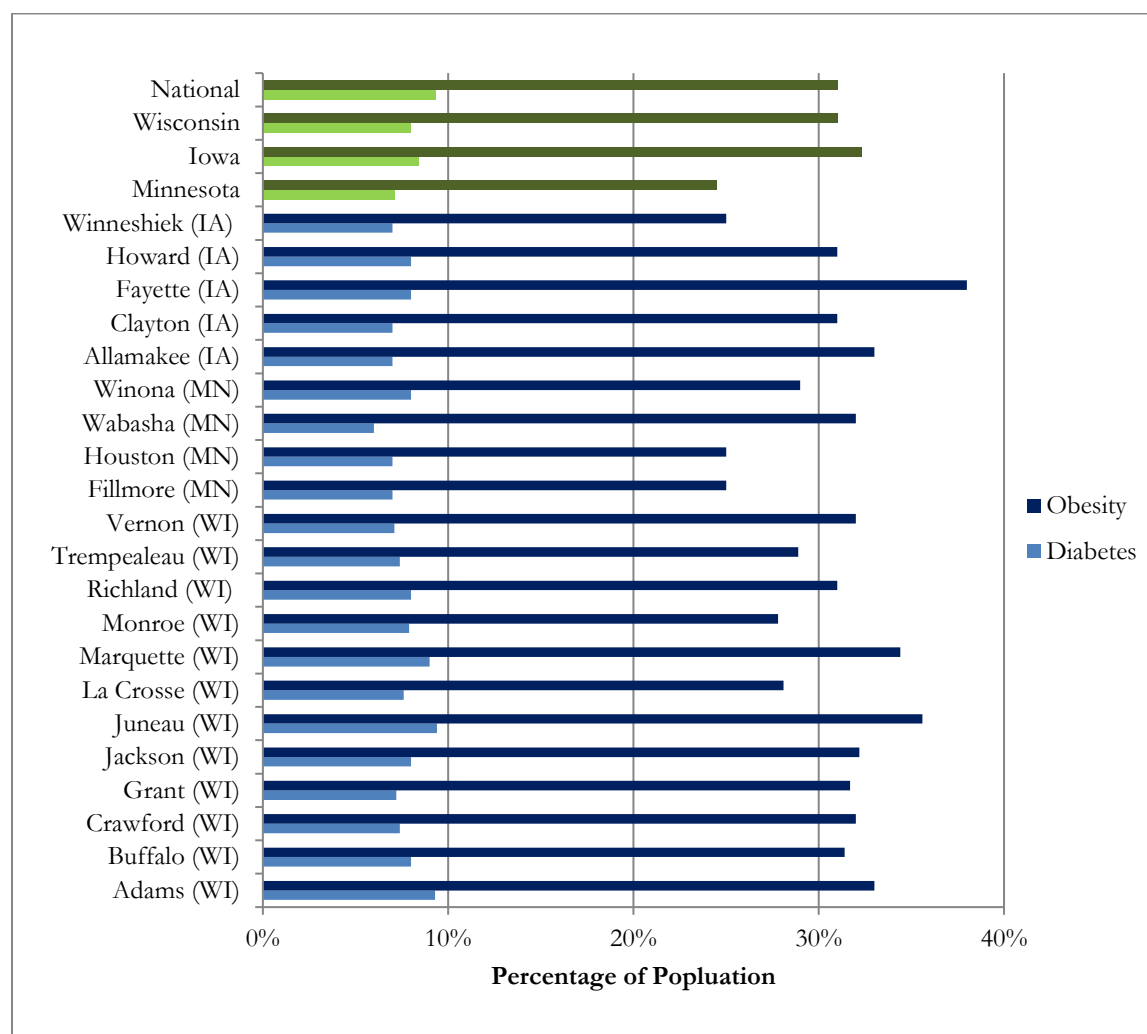
Overall, the entire 21 county service area is at or below the national average for diabetes at 9% of the U.S. population. Those counties with the highest percentage of the population diagnosed with diabetes are Adams, Juneau, and Marquette at 9%. Wabasha is the only county that is below state and national averages at 6% of the population. Reflecting national trends, obesity affects large proportions of the populations in the county service area. Majority of the counties (14 out of 21) meet or exceed the national average of the population who are obese at 31%. The counties with the highest rates of obesity include Adams (33%), Juneau (36%), Marquette (34%), Allamakee (33%), and Fayette (38%). Though Wabasha County has the lowest population with diabetes, the percentage of the population who are obese remains high at 32%. The counties with the lowest percentage of the population who are obese are Fillmore (25%), Houston (25%), and Winneshiek (25%).

Evidence Based Practice:

Interventions targeting obesity and diabetes should be directed toward multiple influences, including interpersonal, social, cultural, and environmental. Possible strategies include:

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Gundersen Population Health Initiative Alignment

Chronic Illness

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- Incorporating culturally competent care which includes tailoring care to patient's norms, beliefs, values, language, and literacy skills (University of Wisconsin Population Health Institute, 2015).

- Developing healthy food initiatives at local food banks which could offer healthy food choices, on-site cooking demonstrations, recipe tastings, and nutrition and/or health education (Flynn, Reinert, & Schiff, 2013)

- Introducing exercise prescription which provides exercise plans to meet patient's needs including setting goals, counseling, and progress checks and could address those living with specific health conditions (Muller-Riemenschneider, Reinhold, Nocon, & Willich, 2008; Senter, Appelle & Behera 2013; ParksRX http://parkrxamerica.org/; Exercise is Medicine https://www.exerciseismedicine.org/)

- Individually adapted physical activity programs for those living with specific health conditions, recovering from injury, or have special needs. This has shown to increase physical activity and fitness, decrease weight and body fat, increase flexibility, strength, and cognitive effects (Community Preventive Services Task Force, 2014c)

- Implement school-based interventions to address health behaviors and nutrition which would address the need for wraparound services as identified in the COMPASS Now report (Community Preventive Services Task Force, 2018).

Clinical Care

Access to Mental and Dental Health

According to the COMPASS Now report, "If the care that people need is not available, is difficult to access, or is not high quality, then people's health will suffer," (p. 52). This is especially true for those living in rural areas, who face higher rates of morbidity and mortality (Stanford School of Medicine, 2010). Across the United States, 20% of the population lives in rural communities, while less than 10% of physicians practice in these areas (Stanford School of Medicine, 2010). Further complicating the issue of access is access to mental and dental healthcare providers. Lack of mental health services has created gaps in health outcomes for those living in rural communities compared to non-rural populations. This includes disparities in depression, domestic violence, child abuse, and suicide (Van Hecke, 2012). Often, mental health services are provided through primary care doctors

who have limited time and less than adequate financial reimbursements (Rural Health Info, 2017). Data for access to mental and dental health providers for each county from the County Health Rankings is shown below. Also included are individual state rates. Access to mental health providers reflects data from the National Provider Identification database for year 2017. Access to dental health providers reflects data from Area Health Resource File/National Provider Identification for year 2016.

Healthy People 2020 Objectives:

Increase the proportion of primary care facilities that provide **mental health** treatment onsite or by paid referral from a baseline of 79% to 87%.

Reduce the proportion of persons who are unable to obtain or delay in obtaining necessary **dental care** from a baseline of 5.5% to 5.0%.

Table 7. Number of residents per mental and dental health provider by county, state, and U.S. top performer

County	Number of Residents per 1 Mental Health Provider	Number of Residents per 1 Dental Health Provider
Top U.S. Performer	330	1,280
Minnesota	470	1,440
Iowa	470	1,560
Wisconsin	560	1,520
Adams (WI)	**2,926**	**10,240**
Buffalo (WI)	**6,550**	820
Crawford (WI)	1,020	2,040
Grant (WI)	1,160	2,610
Jackson (WI)	710	1,710
Juneau (WI)	1,640	2,920
La Crosse (WI)	370	1,100
Marquette (WI)	1,080	**5,020**
Monroe (WI)	690	1,630
Richland (WI)	870	2,180
Trempealeau (WI)	2,120	**3,700**
Vernon (WI)	750	2,570
Fillmore (MN)	**7,000**	2,100
Houston (MN)	**4,700**	2,090
Wabasha (MN)	**21,270**	1,520
Winona (MN)	610	1,820
Allamakee (IA)	**4,630**	**3,470**
Clayton (IA)	**8,800**	1,950
Fayette (IA)	**2,860**	2,230
Howard (IA)	**4,670**	**4,670**
Winneshiek (IA)	450	1,580

Source: University of Wisconsin Population Health Institute (2018).

Overall, all counties fall below the top U.S. Performer for access to mental health providers at 330 to 1. However, Buffalo County's ratio of dental health providers to residents fell well below national and state ratios at 820 to 1. The counties facing the greatest disparity in access to mental health providers are Adams, Buffalo, Fillmore, Allamakee, Clayton, Fayette, Howard, and Wabasha. Wabasha had the least access at 21,270 to 1. The counties facing the greatest disparity in access to dental health providers are Adams, Marquette, Trempealeau, Allamakee, and Howard.

Evidence Based Practice

Technology and recruiting of practitioners within underserved areas has increasingly been used to bridge the gap for residents in rural communities. Innovative strategies and programs will further increase the reach of health systems. Possible strategies include:

- Developing telemedicine practices, including tele-mental health, that have shown to increase access to care, especially with chronic conditions and those in rural areas (University of Wisconsin Population Health Institute, 2015b, 2016).

- Introduction of behavioral health aide models (Van Hecke, 2012).

> **Gundersen Population Health Initiative Alignment**
>
> ACEs & Trauma Informed Care
>
> Mental Health & Substance Abuse

Health Behaviors

**Excessive Alcohol Use & Driving Deaths Due to Alcohol**

A risk factor for other health outcomes, such as alcohol poisoning, hypertension, suicide, interpersonal violence, and motor vehicle accidents, excessive drinking has been attributed to about 88,000 deaths per year and $249 billion in economic cost. Excessive drinking includes binge drinking, heavy drinking, and any drinking by pregnant women or people younger than age 21(Centers for Disease Control and Prevention, 2016). As discussed earlier, alcohol abuse can be a risk factor in child maltreatment cases, mental health, and certain diseases. Excessive alcohol use should be addressed in order to lessen the impact of these factors, as well as to reduce injuries and fatalities due to use.

Healthy People 2020 Objectives:

Reduce the proportion of adults who **drank excessively** in the previous 30 days from a baseline of 28.2% of adults 18 and older to 25.4%.

Decrease the rate of alcohol-impaired driving (.08+ blood alcohol content [BAC]) **fatalities** from a baseline of .39 deaths per 100 million vehicle miles traveled to .38 deaths per 100 million vehicle miles traveled.

Figure 8, 9, 10. Percentage of population engaging in excessive alcohol use & driving deaths due to alcohol by county, compared to state & top U.S. performer averages
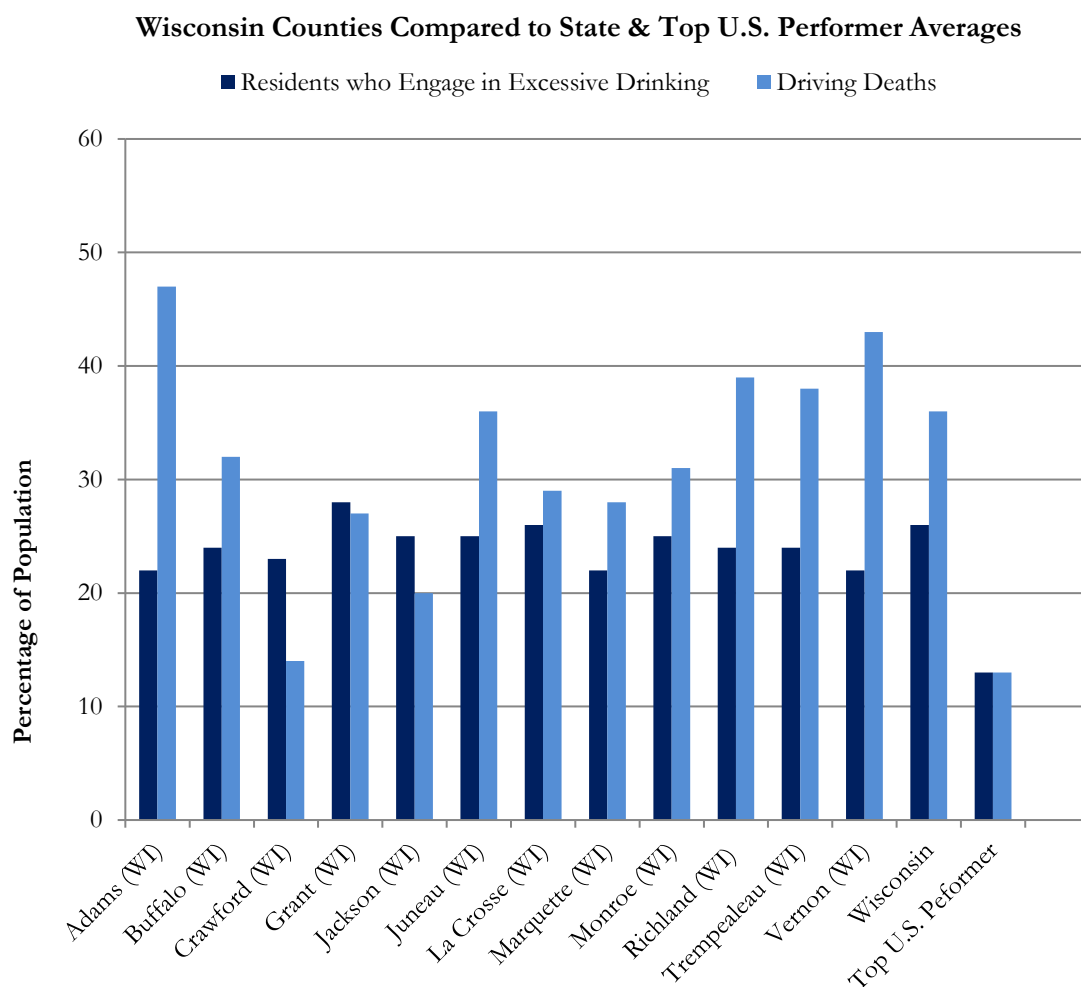
Wisconsin Counties Compared to State & Top U.S. Performer Averages

■ Residents who Engage in Excessive Drinking   ■ Driving Deaths

Source: University of Wisconsin Population Health Institute, (2018). Excessive drinking data from BRFSS-2016. Alcohol impaired driving deaths from FARS 2012-2016.

Minnesota Counties Compared to State & Top U.S. Performer Averages
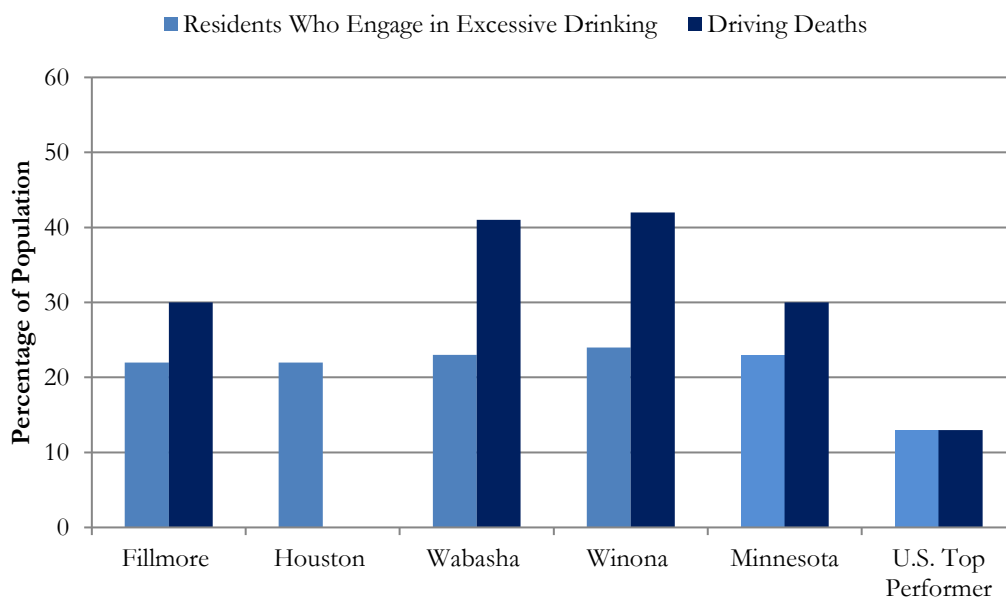
■ Residents Who Engage in Excessive Drinking   ■ Driving Deaths

Source: University of Wisconsin Population Health Institute, (2018). Excessive drinking data from BRFSS-2016. Alcohol impaired driving deaths from FARS 2012-2016.

Iowa Counties Compared to State & Top U.S. Performer Averages

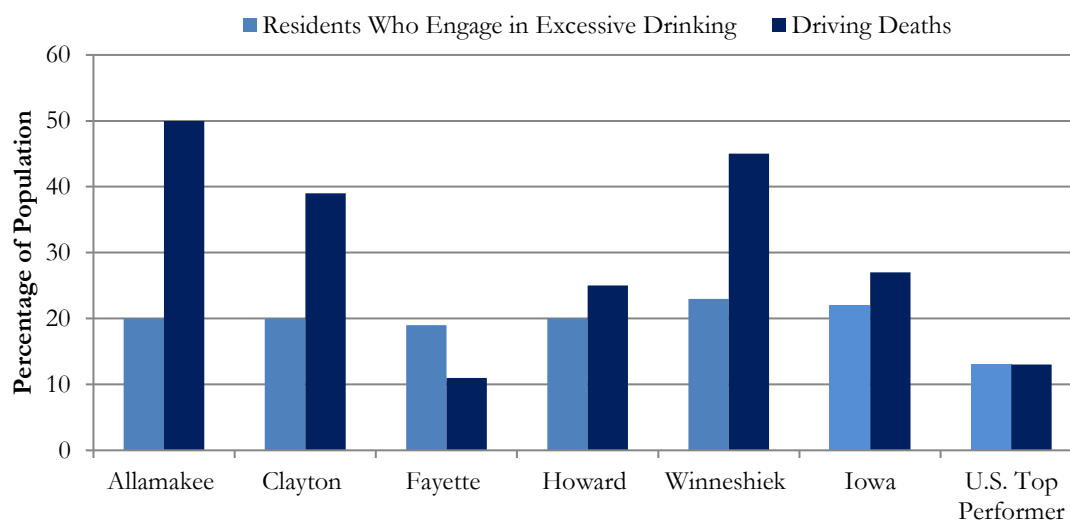■ Residents Who Engage in Excessive Drinking   ■ Driving Deaths

Source: University of Wisconsin Population Health Institute, (2018). Excessive drinking data from BRFSS-2016. Alcohol impaired driving deaths from FARS 2012-2016.

Overall, all counties have a higher percentage of excessive drinking and driving deaths compared to the top U.S. performer, except for Fayette County with 11% driving deaths and Howard County at 0% driving deaths. Wisconsin counties had the highest amounts of excessive drinkers ranging from 22-28% of the population. The counties with greater than 40% of driving deaths due to alcohol are Adams, Vernon, Wabasha, Winona, Winneshiek, and Allamakee.

Evidence based practice:

Behavior related interventions should be multi-faceted, encompassing aspects of personal, social, and environmental domains. Possible strategies include:

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> Homelessness

- Implementing alcohol brief intervention programs which has shown to reduce alcohol use, excessive drinking, underage drinking (when provided in schools), and alcohol-related injuries (Substance Abuse and Mental Health Services Administration, 2017), including electronic screening and brief intervention (Community Preventive Services Task Force, 2013a).

- Incorporating culturally competent care which includes tailoring care to patient's norms, beliefs, values, language, and literacy skills (University of Wisconsin Population Health Institute, 2015).

- Enacting policies that limit the days or hours of sale of alcohol (Community Preventive Services Task Force, 2008/2009).

Substance Abuse

Substance abuse has been found to be cumulative and is a great cost to social, physical, mental, and public health problems. Earlier initiation of drug use in life has been shown to increase possibility of substance abuse and develop into a chronic health issue (ODPHP, 2016). Adults who have had ACEs initiate use of alcohol at a younger age and have a higher risk for developing a substance abuse disorder (SAMSHA, 2018).

Healthy People 2020 Objective:

Reduce drug-induced deaths from a baseline of 12.6 age-adjusted deaths per 100,000 to 11.3 deaths per 100,000.

Figure 11. Age-adjusted drug overdose deaths per 100,000 for known counties and states
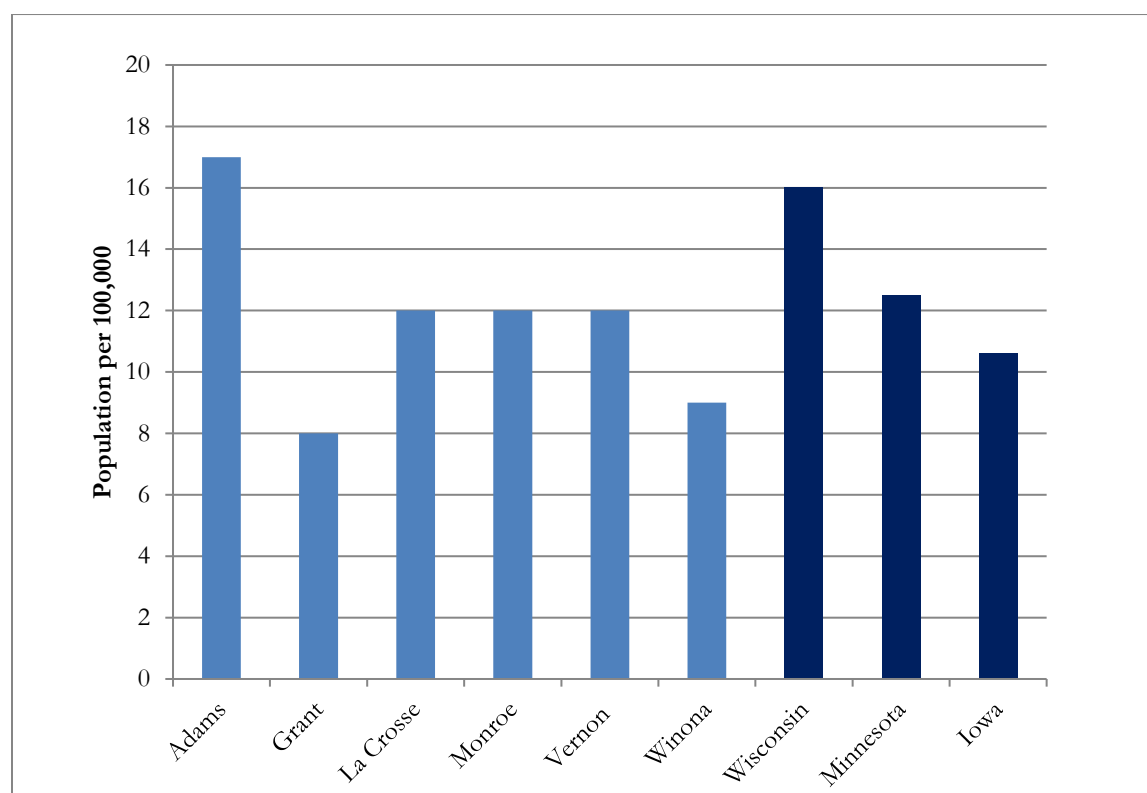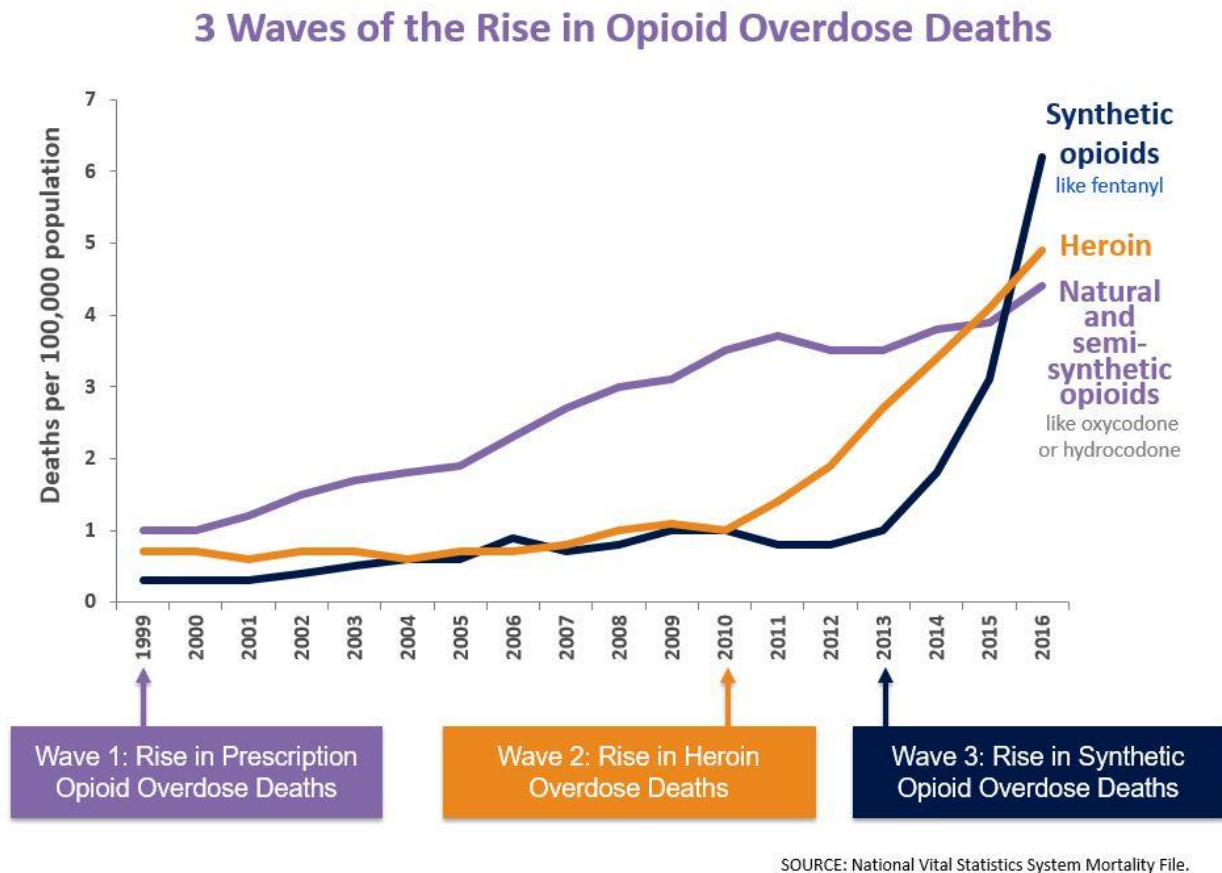

Source: County level data-University of Wisconsin Population Health Institute, (2018). From CDC Wonder-Compressed Mortality Data 2014-2016. State level data-Center for Disease Control and Prevention, Drug Overdose Death Data (2016).

Drug overdose deaths have increased significantly for many states, including Minnesota and Wisconsin (Hedegaard, Warner, & Minino, 2016). Between 2010 and 2016, rates of drug overdose deaths almost doubled in Wisconsin and Minnesota, increasing from 10.9 and 7.3 to 19.3 and 12.5 respectively. Iowa's rate of deaths slightly increased from 8.6 in 2010 to 10.6 in 2016 (Centers for Disease Control and Prevention, 2017b). Reliable county level data is known for 6 out of the 21 counties within the service area. Overall, Adams County has the highest reported rates of drug overdose deaths at 17 per 100,000 population, followed by La Crosse, Monroe, and Vernon at 12 deaths per 100,000. All counties, except Grant County are above the Healthy People 2020 goal.

Opioid Abuse

Across the nation, states have seen a steady increase in opioid abuse, and deaths related to opioid use. According to the COMPASS Now (2018) report, the region has documented slightly less deaths due to opioid at 7.2 deaths per 100,000, compared to Wisconsin at 11.0 deaths per 100,000 and Minnesota at 12.3 deaths per 100,000. Iowa is doing better overall, at 6.2 deaths per 100,000. Due to national trends, misuse and deaths due to opioids should be monitored throughout the 21-county service region.

Figure 12. Trend in opioid related deaths per 100,000 in the United States

3 Waves of the Rise in Opioid Overdose Deaths

SOURCE: National Vital Statistics System Mortality File.

Source: Centers for Disease Control, (2017c).

Evidence Based Practice

Strategies to reduce use of illicit drugs should begin with youth, and should include a variety of community resources to address specific areas of need. The U.S. Preventive Services Task Force has found insufficient evidence for specific screening and behavioral interventions for youth or adult drug use. Future research could provide insight on effective strategies. The Task Force did state the following strategy to be effective for reducing tobacco and alcohol use:

- Use of assessments with feedback combined with health education (U.S. Preventive Services Task Force, 2010).

Gundersen Population Health Initiative Alignment

ACEs & Trauma Informed Care

Mental Health & Substance Abuse

Homelessness

Smoking

Tobacco alone is one of the leading causes of disease, the largest preventable death, and costs the United States more than $300 billion in illness related costs. More than 16 million Americans suffer from an illness related to smoking (ODPHP, 2016c). Estimates show that as much as 80% of lung cancers for women and 90% of lung cancers for men can be linked to smoking (Gundersen Center for Cancer and Blood Disorders, released 2018).

Healthy People 2020 Objective:

Reduce cigarette smoking by adults from a baseline of 20.6% of adults aged 18 years and older to 12.0%.

Figure 13. Percent of population who smoke by county, state, and nation
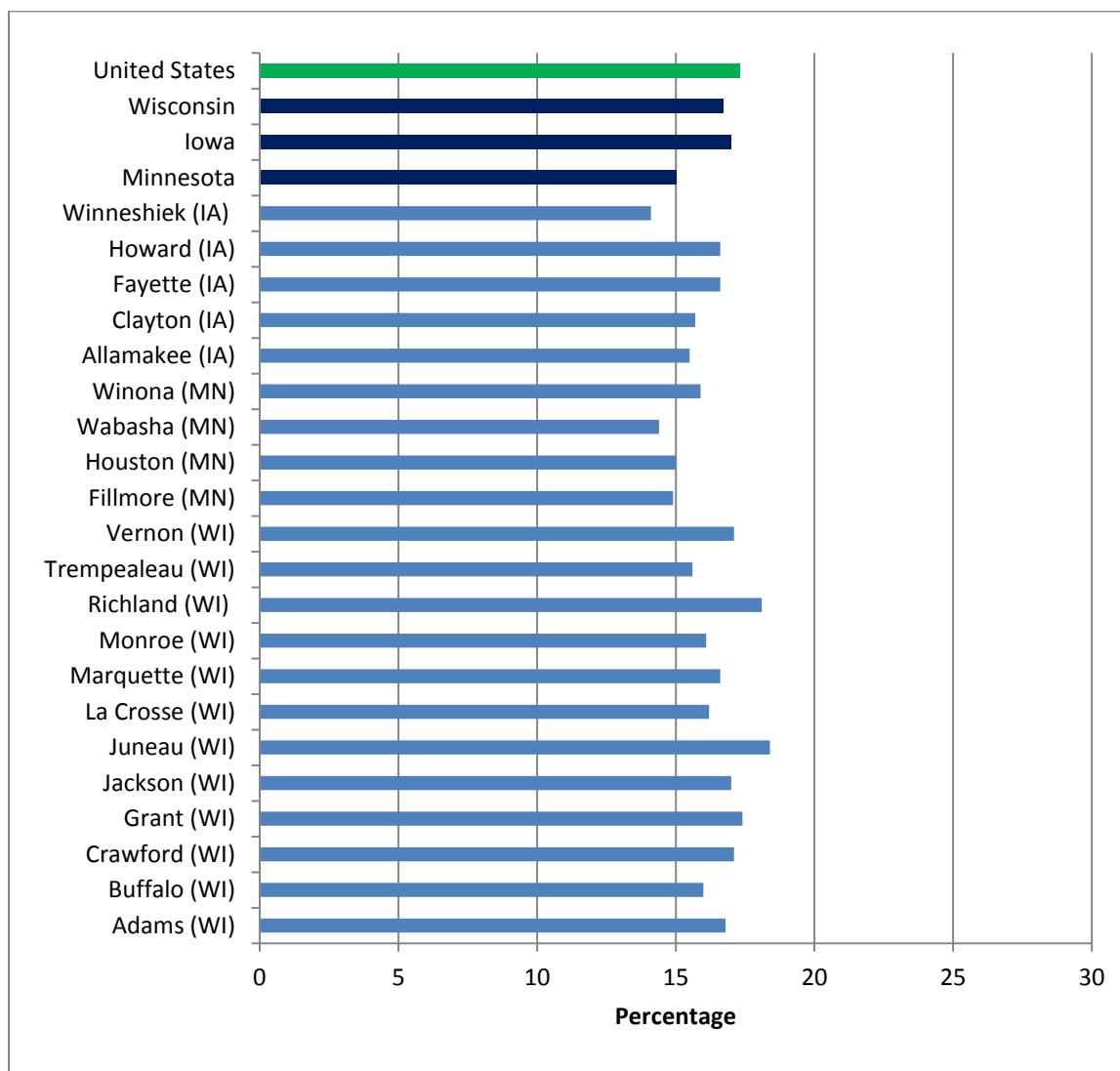
Source: U.S. News & World Report. (released 2018). Healthiest Communities.

Overall, county smoking rates ranged between 14 and 18%, comparable to state and national averages. Juneau had the highest percentage of population who smoke at 18.4%, and Allamakee had the least at 14.1%.

Evidence Based Practice

Smoking and tobacco's impact on health outcomes and mortality necessitate use of proven intervention strategies and programs. Interventions targeting interpersonal and intrapersonal behavior, as well as worksite options, and environmental or planning policies can motivate populations to decrease use of tobacco. Some possible strategies include:

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> Chronic Illness

- Incorporating culturally competent care which includes tailoring care to patient's norms, beliefs, values, language, and literacy skills (University of Wisconsin Population Health Institute, 2015).

- Cessation interventions along with mass reach marketing campaigns, price increases, and smoke free policies (Centers for Disease Control and Prevention, 2014b).
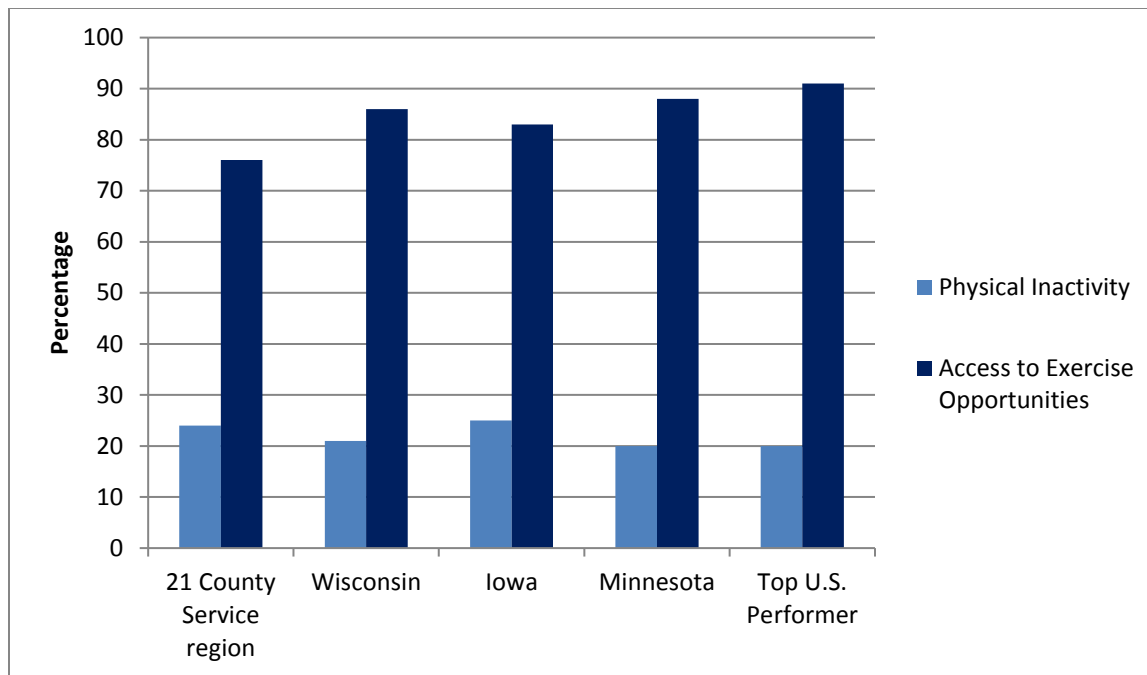

Physical Activity & Access to Exercise

Obesity, a leading risk factor for health disease and mortality, including diabetes, cancer, and heart disease (U.S. Department of Health and Human Services, 2013), is greatly influenced by an individual's inactivity. It is recommended that adults spend at least 150 minutes per week in moderate intensity activity; however, only about 50% of adults meet this recommendation according to self-reported data. It is recommended that youth spend at least 60 minutes a day being active (Centers for Disease Control and Prevention, 2016b). Similarly, more than 80% of adolescents do not meet this goal. Nonetheless, majority of individuals state that they have adequate access to exercise opportunities.

> **Healthy People 2020 Objectives:**
>
> Reduce the proportion of adults who engage in no leisure-time physical activity from a baseline of 36.2% to 32.6%.

Figure 14. Percentage of population who are inactive and have access to exercise opportunities, by 21 county region, state, and top U.S. performer

Sources: University of Wisconsin Population Health Institute, (2018). Physical inactivity data from CDC's National Diabetes Surveillance System-2014. Access to exercise opportunities data from Business analyst, Delorme Map data, ESRI, US Census Tigerline 2010,2016.

Overall, residents of the 21-county region feel they have less access to exercise opportunities compared to the three states and the top U.S. performer. The percentage of the population within the region who are inactive is 24%, which is higher than Wisconsin (21%), Minnesota (20%), and the top U.S. performer (20%). As discussed previously, rates of obesity are high throughout the region. Physical inactivity may contribute to obesity, as well as other health outcomes. Increasing opportunities and providing strategies to increase activity for all residents, regardless of geographic location, race or ethnicity, age, sex, education, or disability should be imperative to addressing chronic illness and other health outcomes.

Evidence Based Practice:

Behavior related interventions should be multi-faceted, encompassing aspects of personal, social, and environmental domains. Possible strategies include:

- Improved access to exercise opportunities, considering quality, cleanliness, safety, and weather. This has shown to result in an increase in physical activity, improve physical

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fitness, and decrease obesity (University of Wisconsin Population Health, 2018).

- Implement school based or worksite interventions to address health behaviors, both physical activity and nutrition (Community Preventive Services Task Force, 2013b).

- Introducing exercise prescription which provide exercise plans to meet patient's needs including setting goals, counseling, and progress checks and could address those living with specific health conditions (Muller-Riemenschneider, Reinhold, Nocon, & Willich, 2008; Senter, Appelle & Behera 2013; ParksRX http://parkrxamerica.org/; Exercise is Medicine https://www.exerciseismedicine.org/)

- Individually adapted physical activity programs for those living with specific health conditions, recovering from injury, or have special needs. This has shown to increase physical activity and fitness, decrease weight and body fat, increase flexibility, strength, cognitive effects (Community Preventive Services Task Force, 2014c).

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Appendix

County Characteristic Data

	State Rank Health Outcomes	Quality of Life	Education- HS or less %	Poverty Rate %	Children Living in Poverty %	Unemployment %	Median Household Income $	Spending Over 30% income on housing	Access to Large Grocery Store %
Adams (WI)	69/72	64/72	55.6	12.7	25	3.5	43,554	30	9.3
Buffalo (WI)	33/72	23/72	50.5	10.8	14	2.8	50,196	27	23.4
Crawford (WI)	56/72	53/72	51.8	13.6	20	3.1	44,459	27	12.5
Grant (WI)	32/72	33/72	47.2	15.3	17	2.4	49,067	26.5	16.6
Jackson (WI)	45/72	35/72	54.1	13.1	16	2.5	47,851	28.7	30.2
Juneau (WI)	57/72	60/72	55.7	13.1	21	2.6	44,961	31.6	24.5
La Crosse (WI)	27/72	48/72	31.9	14.8	12	2.3	50,539	28.9	22.0
Marquette (WI)	54/72	52/72	54.3	11.7	20	2.8	46,242	31.4	1.7
Monroe (WI)	53/72	38/72	48.6	13.9	20	2.2	51,994	25.3	11.0
Richland (WI)	29/72	15/72	52.1	13.7	21	2.3	44,810	28.4	25.2
Trempealeau (WI)	11/72	29/72	49.9	9.7	12	2.3	51,077	25.1	9.6
Vernon (WI)	16/72	12/72	49.9	16.3	26	2.3	47,675	27.3	17.4
Fillmore (MN)	8/87	6/87	43.5	12.1	19	2.3	51,665	25.2	2.2
Houston (MN)	19/87	38/87	40.2	10.3	11	2.0	53,809	26.2	13.7
Wabasha (MN)	11/87	16/87	43.9	6.6	10	2.4	56,510	24.4	10.3
Winona (MN)	35/87	34/87	36.7	13.9	12	2.4	50,547	27.8	12.1
Allamakee (IA)	25/99	20/99	52.3	10.2	19	2.2	45,890	17.6	10.3
Clayton (IA)	20/99	33/99	53.8	10.5	15	2.2	48,007	22.6	0.7
Fayette (IA)	67/99	41/99	48.7	13.1	18	2.4	44,928	22.6	8.7
Howard (IA)	34/99	55/99	54.5	11.6	14	1.9	49,869	22.4	38.5
Winneshiek (IA)	5/99	5/99	39.3	8.0	10	2.0	54,429	21.1	21.0

Sources: United States Census Bureau-2012-2016 American Community Survey 5 Year Estimates. Median household income, children in poverty, poverty, U.S. News & World Report. (2018).Household income, household income towards housing, access to grocery store. University of Wisconsin Population Health Institute. (2018). State rank health outcomes, quality of life. Unemployment—As of May 2018, not seasonally adjusted. Wisconsin Department of Workforce Development. Iowa Workforce Development. Minnesota Department of Workforce Development.