2018 Community Health Needs Assessment **Report**

Aurora BayCare Medical Center

Aurora Health Care® BAYCARE CLINIC

Aurora BayCare Medical Center
2845 Greenbrier Road
Green Bay, WI 54311

Table of Contents

Executive Summary | Aurora BayCare Medical Center

Aurora BayCare Medical Center (ABMC) is an active member of the *Beyond Health to Healthiest Brown County* partnership to improve the health of the Brown County community. In addition to ABMC, *Beyond Health* membership includes the Brown County Health Department, the City of De Pere Health Department, Bellin Health System, Hospital Sisters Health Systems' St. Mary's and St. Vincent's Hospitals and the Brown County United Way. *Beyond Health* seeks to improve the health of Brown County residents by conducting periodic community health needs assessments and leading community-wide action planning teams. In the fall of 2017, the *Beyond Health* partnership convened to review Brown County community health assessment data, with most of the data originating from the *County Health Rankings*.

ABMC's data collection process was comprised of four main components:

1) Wisconsin Behavioral Risk Factor Survey: Brown County – As part of the Centers for Disease Control and Prevention's (CDC) Behavioral Risk Factor Surveillance System, this survey collects information on adult health-risking behaviors, health conditions, use of preventive care and other health-related topics
2) Secondary Data Report – prepared by the Center for Urban Population Health, a summary of the demographic and health-related information for Brown County using publicly available data sources
3) Key Informant Interview Report – a summary of the top five health issues, additional health issues, existing strategies to address the issue, barriers or challenges to addressing the issue, additional strategies needed to address the issue from the perspective of the key informants, individuals who represent the broad interests of the community served
4) County Health Rankings: Brown County 2018 – a compilation of data using county-level measures from a variety of national and state data sources

In 2018, ABMC utilized the above data and other data sources to identify and prioritize significant health needs, and develop implementation strategies to address the prioritized health needs within the context of the hospital's existing programs, resources, strategic goals and partnerships. To determine the significant health needs identified through the CHNA, the following criteria was considered:

- Burden of the health issue on individuals, families, hospitals and/or health care systems (e.g., illness, complications, cost, death);
- Scope of the health issue within the community and the health implications;
- Health disparities linked with the health issue; and/or
- Health priorities identified in the municipal health department Community Health Improvement Plan (CHIP)

A Hanlon Ranking further confirmed the prioritization process.

In addition, ABMC evaluated the impact of the initiatives identified in its *2015 Community Health Needs Assessment Report* / *2016-2018 Implementation Strategy* plan which was executed with some successes, including providing telepsychiatry services, school-based primary care, pediatric specialty services, college-aged primary care, chronic disease education and screenings, along with partnering with Healthy Brown County 2020 on alcohol and drug use education and policy development, in addition to recruiting and retaining EMS and primary care providers within Brown County. For further description see Appendix F.

As a result, ABMC prioritized the following significant health needs to address in our 2019-2021 implementation strategy:

- Access and coverage
- Behavioral health
- Nutrition and physical activity
- Youth injury prevention
- Chronic disease
- Health professions education

ABMC leadership presented the completed CHNA report to the Aurora Health Care Community Board of the Advocate Aurora Health Board of Directors, who approved the report on November 19, 2018.

Introduction | About Advocate Aurora Health

Advocate Aurora Health is the 10th largest not-for-profit, integrated health system in the United States and a leading employer in the Midwest with more than 70,000 team members, including more than 22,000 nurses and the region's largest employed medical staff and home health organization. A national leader in clinical innovation, health outcomes, consumer experience and value-based care, the system serves nearly 3 million patients annually in Illinois and Wisconsin across more than 500 sites of care. Advocate Aurora is engaged in hundreds of clinical trials and research studies, and is nationally recognized for its expertise in cardiology, neurosciences, oncology and pediatrics. The organization contributed $2 billion in charitable care and services to its communities in 2016. To learn more, visit aah.org.

Part I | Aurora BayCare Medical Center (ABMC)

Who we are. What we do

Aurora BayCare Medical Center is a joint venture of Aurora Health Care and BayCare Clinic. BayCare Clinic is the largest physician-owned specialty-care clinic in Northeast Wisconsin and the Upper Peninsula of Michigan. It is comprised of over 100 specialty physicians with expertise in more than 20 specialties. BayCare Clinic physicians have served patients in Green Bay and the surrounding region for over 25 years. To learn more about BayCare Clinic, visit the BayCare web site at http://www.BayCare.net.

Aurora BayCare Medical Center is committed to providing the highest quality comprehensive health care through superior personalized service, the advancement of medical education and research, and the most efficient use of resources.

Who we serve

Aurora BayCare Medical Center is a 167 licensed bed, full-service hospital serving the Green Bay area and communities throughout northeastern Wisconsin and Michigan's Upper Peninsula. At Aurora BayCare Medical Center, patients receive the highest quality care in a healing environment that emphasizes their comfort and convenience.

ABMC by the Numbers (2017)

- 167 licensed hospital beds
- 242,561 outpatients visits
- 9,560 inpatient admissions
- 1,659 newborn deliveries
- 33,834 emergency department and urgent care visits
- 16,693 surgical cases (inpatient and outpatient)

Our distinctions include (2018):

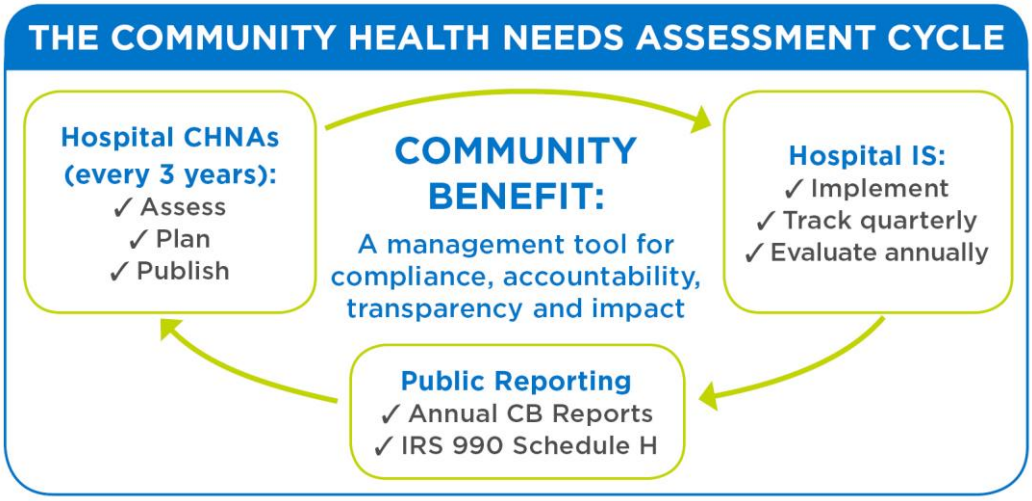
- Get With the Guidelines™ for Heart Failure – Gold Plus 2013, 2014, 2015, 2016, 2017, 2018
- Get With the Guidelines™ for Stroke Gold Award Plus/Honor Roll Elite Plus 2016, 2017, 2018
- Get With the Guidelines™ for Atrial Fibrillation – Gold 2017, 2018
- American College of Cardiology Foundation's NCDR® ACTION Registry® Get With the Guidelines™ -- Platinum Performance Achievement Award, 2012, 2013, 2014, 2015, 2016, 2017
- Mission: Lifeline® Receiving Center – Gold Plus Level Award, 2016, 2017
- Mission: Lifeline NSTEMI Bronze Level Award, 2017
- Best Hospital in Northeast Wisconsin 2012-2013, 2013-2014, 2014-2015, 2016-2017: *U.S. News & World Report*
- Commission on Cancer Outstanding Achievement Award, 2011, 2014, 2017
- OptumHealth Center of Excellence for Reproductive Resource Services – Aurora Fertility Services

- Truven Health Top 50 Cardiovascular Hospital, 2013, 2014, 2015
- Truven Health 100 Top Hospitals, 2015, 2016
- University of Wisconsin Organ and Tissue Donation (UW OTD) Award of Hope (Silver) 2016
- University of Wisconsin Organ and Tissue Donation – Excellence in Tissue Donation, 2016, 2017, 2018
- HealthCare Chaplaincy Network: Excellence in Spiritual Care Award, 2018
- Get With The Guidelines™ for Resuscitation – Silver Award, 2018
- Becker's Healthcare 100 Great Community Hospital, 2018

To learn more about our hospital, please see https://ahc.aurorahealthcare.org/aboutus/community-benefits/hospitals/baycare.asp.

Assessing community health status – an ongoing commitment

Since 2003, Aurora Health Care has underwritten community health assessments and other reports of Brown County periodically, conducted in partnership with the municipal health departments. This helps the health department focus its resources on community health issues and enables us to align our charitable resources and expertise to respond to identified community health priorities. To view the community health surveys dating back to 2003, visit http://www.aurora.org/commresearch.



Part II | Aurora BayCare Medical Center (ABMC)
2018 Community Health Needs Assessment (CHNA) Report

Section 1 | Community served: Brown County

Although Aurora BayCare Medical Center serves Brown County and beyond, for the purpose of the community health needs assessment the community served is defined as Brown County.

With over 245,000 residents, Brown County is the 4th largest County in Wisconsin. Agriculture production and agribusiness is of tremendous importance to the community. Dairying is the largest income generator, although canning, cash crops and other livestock also contribute substantially to the income generated in this area. The largest employer in Brown County is the Oneida Tribe of Indians of Wisconsin: Business/Development Corp.[1]

The University of Wisconsin-Green Bay, St. Norbert College and Northeastern Wisconsin Technical College are the three major institutions that offer higher education opportunities within Brown County.

Green Bay, or "Titletown, U.S.A.," is the largest city in Brown County and is home to the Green Bay Packers. The principal industry of Green Bay is that of paper-making.[2] Green Bay is the home base for one of the nation's most recognized environmental quality paper converters and recycling companies. Additionally, Green Bay is the largest cheese processing, concentrating and shipping center in the U.S.[3]

Brown County is composed of 13 townships, nine villages and two cities, of which Green Bay is the largest.[4]

- Cities: De Pere and Green Bay
- Villages: Allouez, Ashwaubenon, Bellevue, Denmark, Hobart, Howard, Pulaski, Suamico, Wrightstown
- Towns: Eaton, Glenmore, Green Bay, Holland, Humboldt, Lawrence, Ledgeview, Morrison, New Denmark, Pittsfield, Rockland, Scott, Wrightstown

[1] Brown County. Available at http://www.co.brown.wi.us/about_us/, accessed March 13, 2018.
[2] Brown County. Available at http://www.co.brown.wi.us/about_us/. accessed March 13, 2018.
[3] Brown County. Available at http://www.co.brown.wi.us/about_us/. accessed March 13, 2018.
[4] Brown County. Available at http://www.co.brown.wi.us/municipalities/. accessed March 13, 2018.

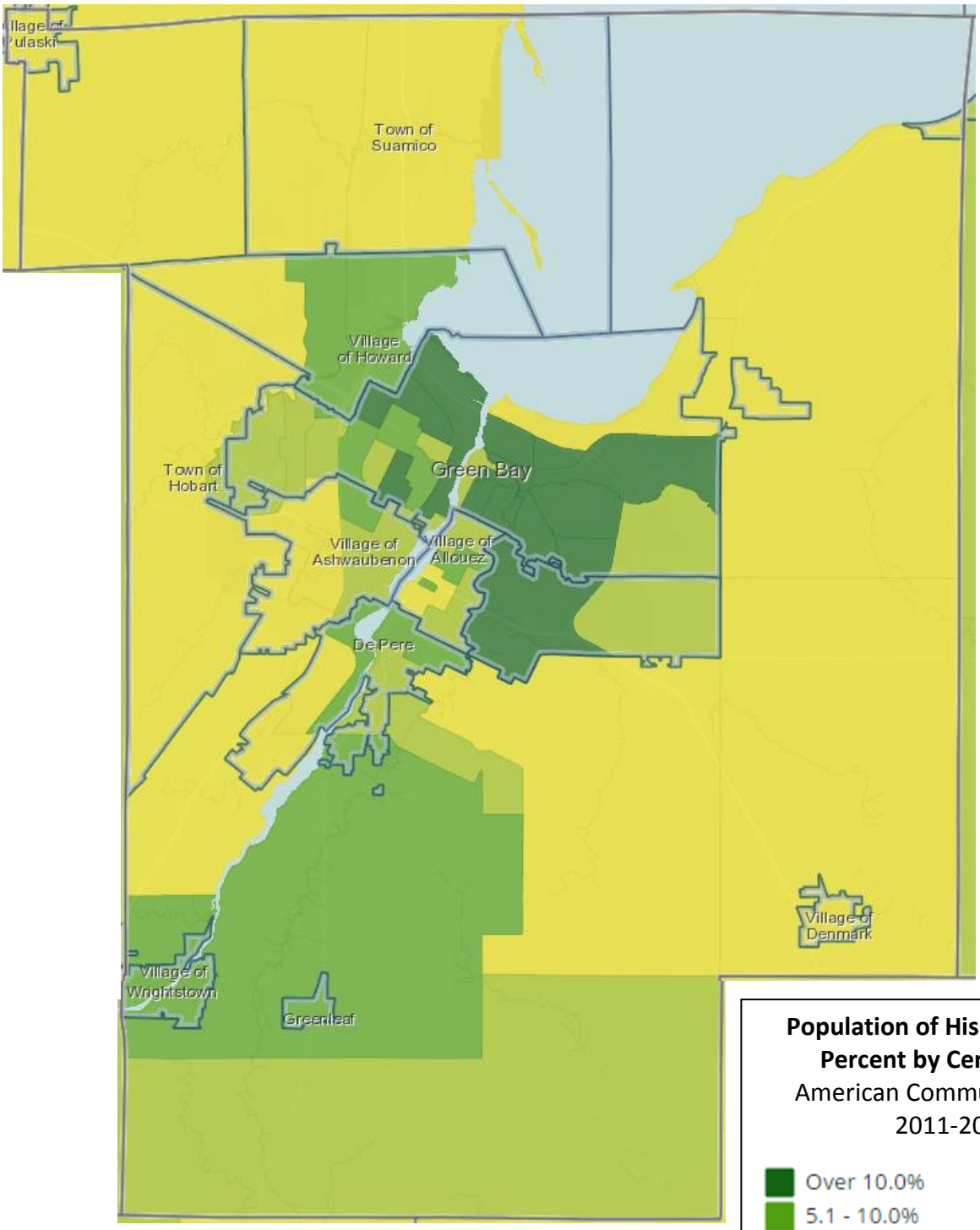
Demographic Characteristics of Brown County and Wisconsin, 2016

Characteristics	Brown County	Wisconsin
Total Population*	256,621	5,754,798
Median Age (years)*	36.8	39.1
Race*		
White	86.0%	86.2%
Black or African American	2.3%	6.3%
Asian	3.1%	2.6%
American Indian and Alaska Native	2.5%	0.9%
Native Hawaiian or Other Pacific Islander	0.0%	0.0%
Some other race	3.1%	1.8%
Two or more races	3.1%	2.2%
Hispanic or Latino (of any race)	8.1%	6.5%
Age*		
0-14 years	20.3%	18.6%
15-44 years	39.9%	38.4%
45-64 years	26.8%	27.8%
65 years and older	13.1%	15.2%
Education level of adults 25 years and older**		
Less than high school degree	8.7%	8.7%
High school degree	31.3%	31.7%
Some college/associates	31.9%	31.3%
Bachelor degree or higher	28.2%	28.3%
Unemployment Rate (estimate)**		
Percent of those ages 16 or older who are unemployed (estimate)	5.3%	5.5%
Median household income (estimate) (2016 inflation-adjusted dollars)	$54,172	$54,610
Percent below poverty in the last 12 months (estimate)	11.7%	12.7%

Note: Some totals may be more or less than 100% due to rounding or response category distribution

* American Community Survey. 2012-2016 5-year Estimates, accessed February 9, 2018.

Brown County

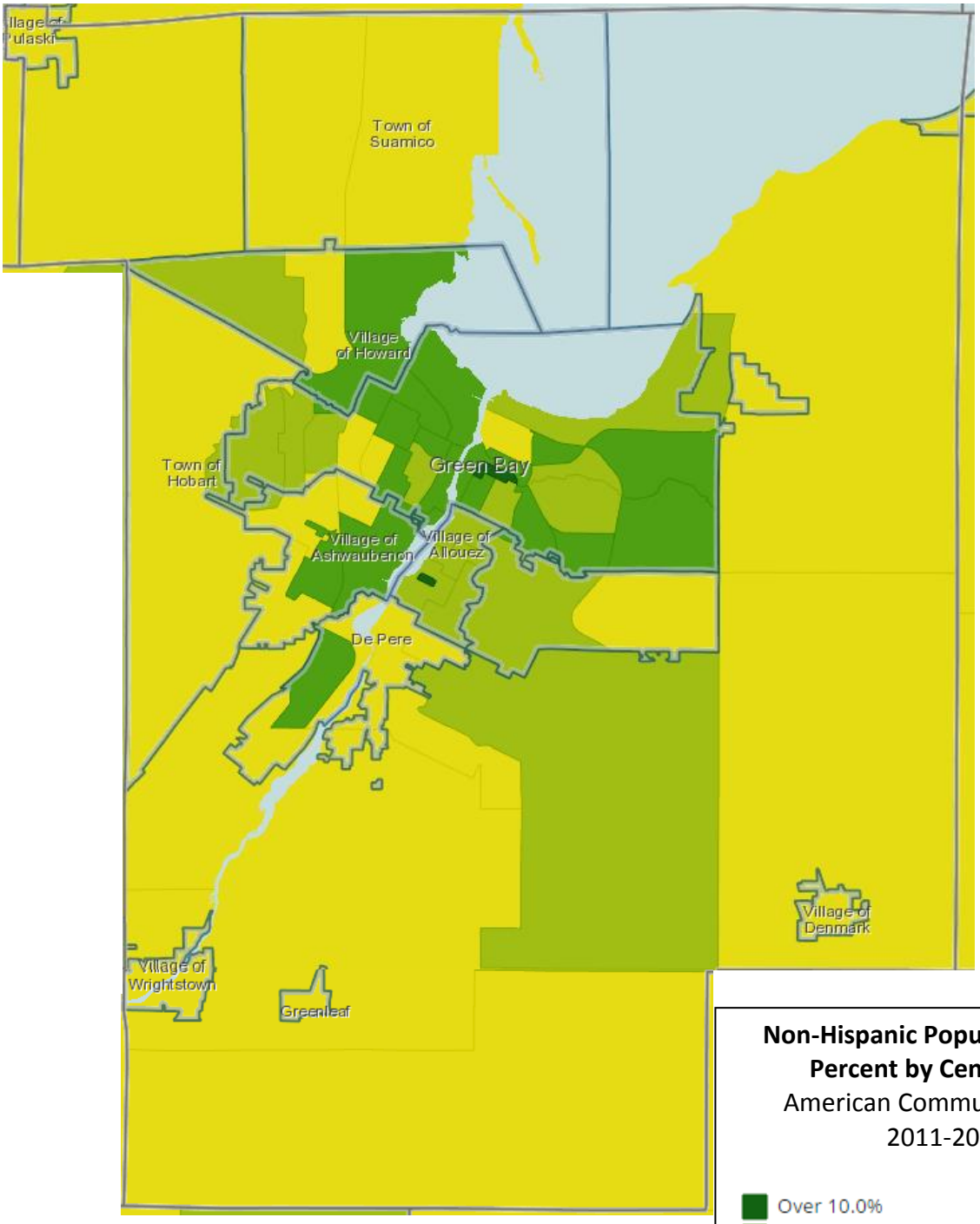


Population of Hispanic Origin: Percent by Census Tract
American Community Survey 2011-2015

- Over 10.0%
- 5.1 - 10.0%
- 2.1 - 5.0%
- Under 2.1%
- No Data or Data Suppressed

Data mapping from the Community Commons website, available at https://www.communitycommons.org/maps-data/, accessed February 14, 2018.

Brown County

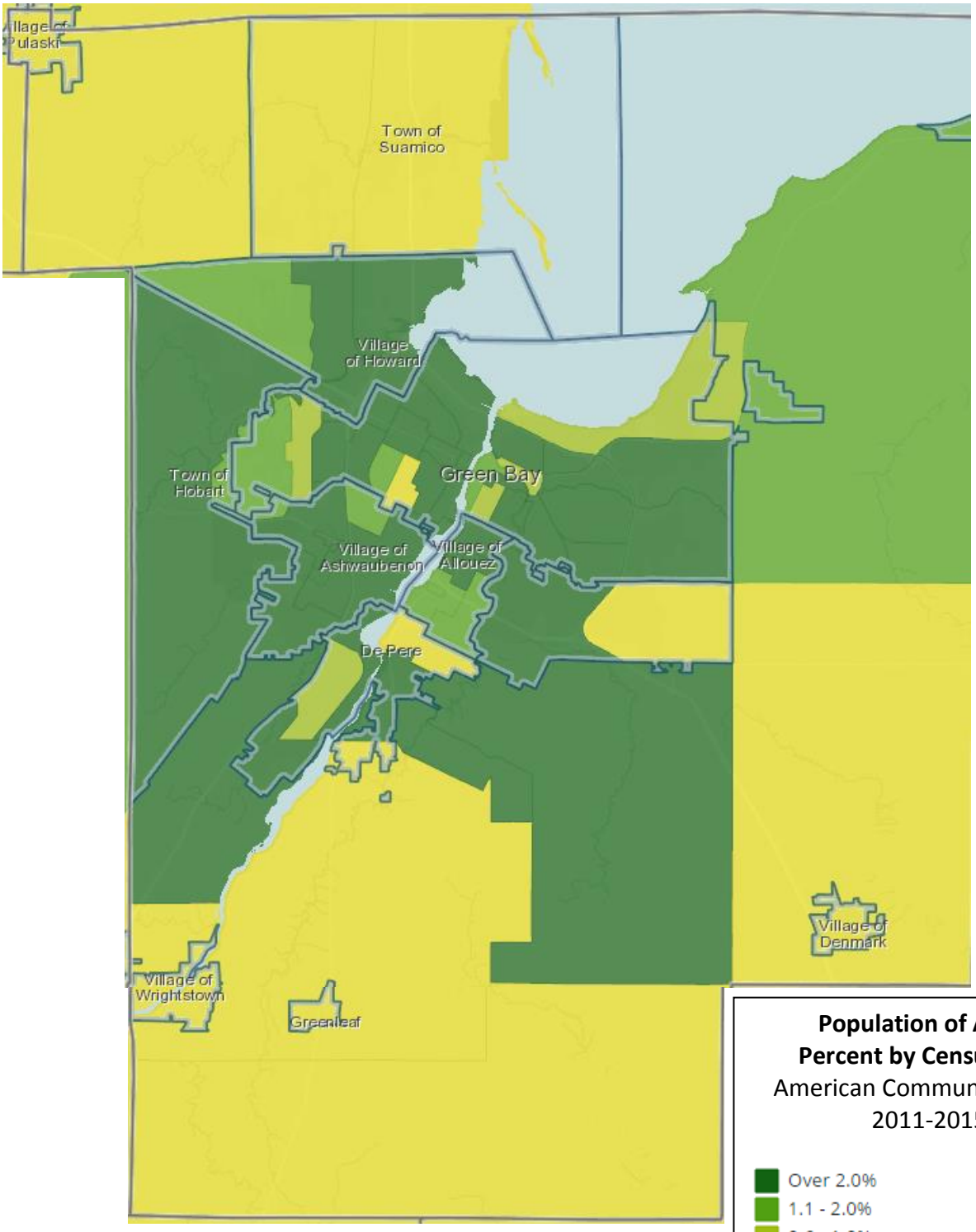


Non-Hispanic Population, Black: Percent by Census Tract
American Community Survey
2011-2015

- Over 10.0%
- 2.1 - 10.0%
- 0.6 - 2.0%
- Under 0.6%
- No Data or Data Suppressed

Data mapping from the Community Commons website, available at https://www.communitycommons.org/maps-data/, accessed February 14, 2018.

Brown County



Population of Asian: Percent by Census Tract
American Community Survey 2011-2015

- Over 2.0%
- 1.1 - 2.0%
- 0.6 - 1.0%
- Under 0.6%
- No Asian Population Reported
- No Data or Data Suppressed

Data mapping from the Community Commons website, available at https://www.communitycommons.org/maps-data/, accessed February 14, 2018.

Section 2 | How the Community Health Needs Assessment (CHNA) was conducted

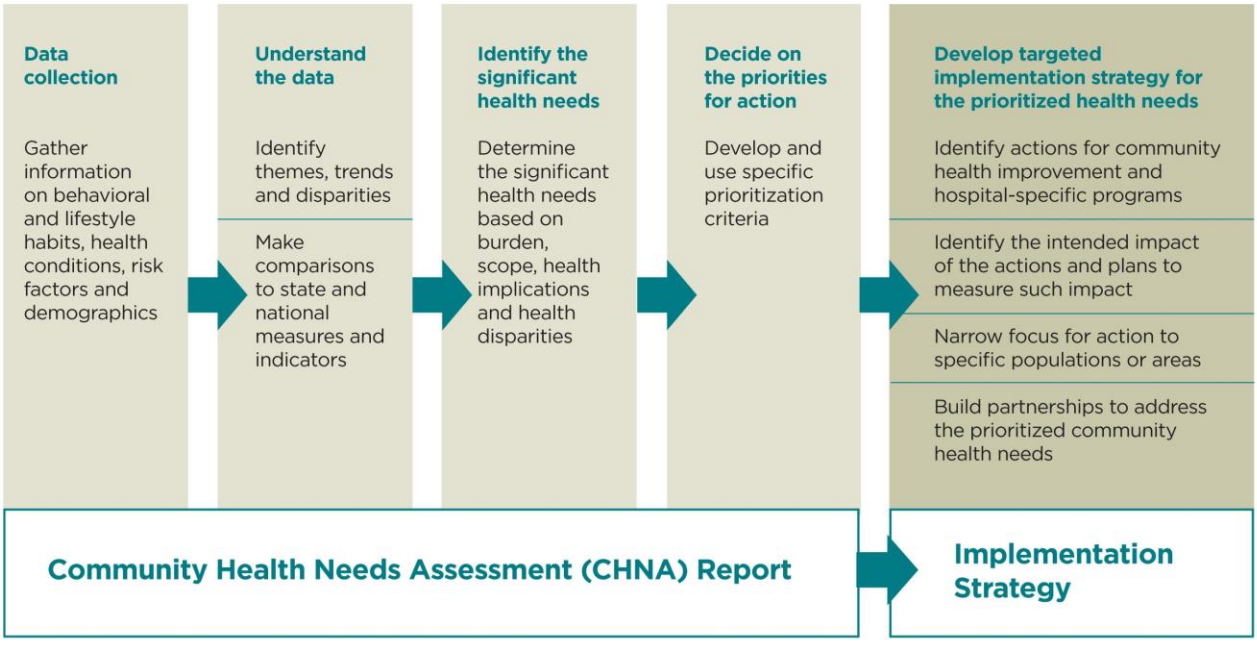
Purpose and process of the shared Community Health Needs Assessment

The inaugural community health needs assessment (CHNA) was conducted in 2013 and adopted by the Social Responsibility Committee of the Aurora Health Care (AHC) Board of Directors on December 19, 2013. In 2018, a CHNA was conducted to 1) determine current community health needs in Brown County, 2) gather input from persons who represent the broad interests of the community and to identify community assets, 3) identify and prioritize significant health needs, and 4) develop implementation strategies to address the prioritized health needs within the context of the hospital's existing programs, resources, strategic goals and partnerships. The process of conducting the CHNA is illustrated below and is described in this report.

Partnership

Aurora BayCare Medical Center is an active member of the *Beyond Health to Healthiest Brown County* partnership to improve the health of Brown County. In addition to Aurora BayCare Medical Center, *Beyond Health* membership includes the Brown County Health Department, the City of De Pere Health Department, Bellin Health System, Hospital Sisters Health Systems' St. Mary's and St. Vincent's Hospitals and the Brown County United Way. *Beyond Health* seeks to improve the health of Brown County residents by conducting periodic community health needs assessments and leading community-wide action planning teams. In the fall of 2017, the *Beyond Health* partnership convened to review Brown County community health assessment data with most of the data originating from the *County Health Rankings*.

The 2018 community health needs assessment is based on prior efforts undertaken by Aurora Health Care to assess community health needs. Since 2003, Aurora Health Care has underwritten community health assessments and other reports of Brown County periodically, conducted in partnership with the municipal health departments.



Data collection and analysis

Quantitative data was collected through primary and secondary sources and was supplemented with qualitative data gathered through key informant interviews. Different data sources were collected, analyzed and published at different intervals, and therefore the data years (e.g., 2012, 2014, 2017) will vary in this report. The most current data available was used for this CHNA Report.

The core data sources for the CHNA include:

Quantitative data sources

Source #1 | Wisconsin Behavioral Risk Factor Survey: Brown County

The Wisconsin Behavioral Risk Factor Survey is part of the national Behavioral Risk Factor Surveillance System (the System), which is coordinated by the CDC. Every state and U.S. territory health department conducts the survey as part of the system, whose purpose is to collect information on adult health-risking behaviors, health conditions, use of preventive care and other health-related topics. For further description see Appendix A.

Source #2 | Secondary Data Report

This report summarizes the demographic and health-related information for Brown County. Data used in the report came from publicly available data sources. Data for each indicator is presented by race, ethnicity and gender when the data is available. When applicable, *Healthy People 2020* objectives are presented for each indicator. The report was prepared in 2018 by the Center for Urban Population Health (CUPH). For further description see Appendix B.

Qualitative data source

Source #3 | Key Informant Interview Report

Five individual key informant interviews were conducted in June through July 2017, taking into account input from persons who represent the broad interests of the community served. Each key informant was asked to rank order the top three to five major health-related issues for Brown County, based on the focus areas presented in Wisconsin's State Health Plan, *Healthiest Wisconsin 2020*. For each top-ranked health topic, the informant was asked to specify existing strategies to address the issue, barriers or challenges to addressing the issue, additional strategies needed, key partners in the community that hospitals should collaborate with to improve community health, and targeted groups to address health disparities. Among the key informants were leaders from public health, education and community organizations. These key informants represent the broad interest of the community served, including medically underserved, low income and minority populations.

The *Key Informant Interview Report* presents the results, including cross-cutting themes and summaries of the top five health issues and additional health issues. Moreover, the Key Informant Interview Report compiles a listing of potential resources and partnerships identified to address community health issues (Appendix C). The report was prepared by CUPH.

Other data sources

Source #4 | County Health Rankings: Brown County 2018

The County Health Rankings measure the health of nearly all counties in the nation and rank them within states. The Rankings are compiled using county-level measures from a variety of national and state data sources. These measures are standardized and combined using scientifically-informed weights. The Rankings are based on a model of population health that emphasizes the many factors that, if improved, can help make communities healthier places to live, learn, work and play. Building on the work of America's Health Rankings, the University of Wisconsin Population Health Institute has used this model to rank the health of Wisconsin's counties every year since 2003. For further description, see Appendix B.

Source #5 | Leading Indicators For Excellence (LIFE) Study Brown County: 2016 – A Community Assessment for Brown County, Wisconsin

Conducted in 2016, the Leading Indicators For Excellence (LIFE) Study is a tool for building knowledge and engaging residents so together our community can prioritize needs and align resources to advance common goals. By assessing 10 sectors of life in the Brown County community, the LIFE Study offers a synopsis of data, surveys, and expert analysis on a broad range of community issues. Sponsored by the Brown County United Way, the Greater Green Bay Chamber and the Greater Green Bay Community Foundation, the LIFE Study may be found at http://lifestudy.info/#1506631851754-a8123c69-3a65.

Source #6 | Written Comments on the Current CHNA Report and Implementation Strategy

Aurora Health Care invites the community to provide written comments on its current CHNA Reports and Implementation Strategies via a portal on its website at http://www.aurora.org/commbenefits. *Through October 2018, ABMC did not receive any comments on the current CHNA Report or Implementation Strategy.*

Additional sources of data and information used to prepare the ABMC CHNA Report were considered when identifying significant community health needs and are cited within the report.

Section 3 | Significant health needs identified through the Community Health Needs Assessment (CHNA) for Brown County

The significant health needs identified through the CHNA are also identified as key health issues for the state as outlined in the state health plan, *Healthy Wisconsin*, as well as the nation, as outlined in *Healthy People 2020*, and are among major focus areas of the Centers for Disease Control and Prevention (CDC). From a local perspective, the significant health needs identified through the CHNA have an impact on community health, both for the community at-large and in particular specific areas within the community (such as neighborhoods or populations experiencing health disparities).

To determine the significant health needs identified through the CHNA, the following criteria was considered:

- Burden of the health issue on individuals, families, hospitals and/or health care systems (e.g., illness, complications, cost, death);
- Scope of the health issue within the community and the health implications;
- Health disparities linked with the health issue; and/or
- Health priorities identified in the municipal health department Community Health Improvement Plan (CHIP)
- Hanlon Rankings (see page 40)

The *Healthy People 2020* definition of a health disparity:

> If a health outcome is seen in greater or lesser extent between populations, there is disparity. Race or ethnicity, sex, sexual identity, age, disability, socioeconomic status and geographic location all contribute to an individual's ability to achieve good health.

Summary of municipal health department community health improvement plan (CHIP), *Healthy Wisconsin* and *Healthy People 2020*

Local Health Department *Community Health Improvement Plan (CHIP)*	"Since 1993, Wisconsin State Statutes have required communities throughout Wisconsin to develop and implement local health plans to address health conditions impacting their residents." This process has been referred to as the Community Health Improvement Plan (CHIP). http://www.dhs.wisconsin.gov/chip/
Healthy Wisconsin	*"Healthiest Wisconsin 2020 (HW2020)* identifies priority objectives for improving health and quality of life in Wisconsin. These priorities were chosen based on which accomplishments would offer the greatest improvements in lifelong health, and to eliminate health disparities and achieve more equal access to conditions in which people can be healthy. Priorities were influenced by more than 1,500 planning participants statewide, and shaped by knowledgeable teams based on trends affecting health and information about effective policies and practices in each focus area." The 23 focus area profiles of *HW2020* were grouped into three categories: crosscutting, health and infrastructure. http://www.dhs.wisconsin.gov/hw2020/pdf/exesummary.pdf Updated in 2017, *HW2020* was rebranded to *Healthy Wisconsin* to prioritize and narrow the focus areas to alcohol, nutrition & physical activity, opioids, suicide and tobacco along with addressing ACEs or adverse childhood experiences. https://healthy.wisconsin.gov/
Healthy People 2020	"*Healthy People* provides science-based, 10-year national objectives for improving the health of all Americans. For three decades, *Healthy People* has established benchmarks and monitored progress over time in order to: • Encourage collaborations across communities and sectors • Empower individuals toward making informed health decisions • Measure the impact of prevention activities" http://www.healthypeople.gov/2020/about/default.aspx

Summary of the significant health needs identified through the CHNA for Brown County

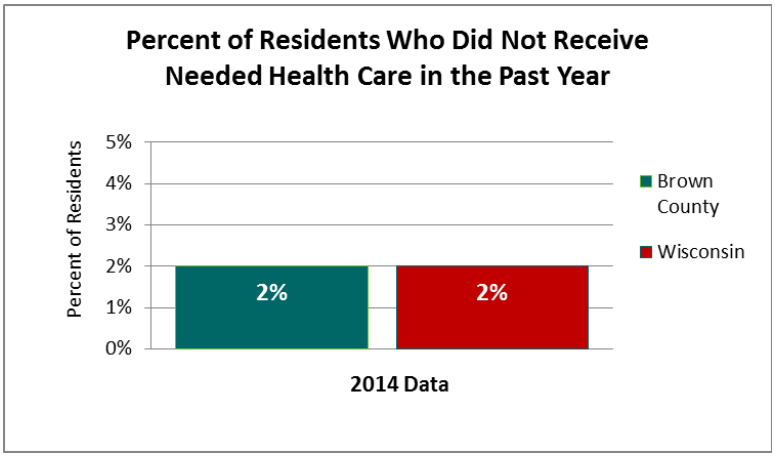
This report focuses on the following data collection years: 2005, 2008, 2012, 2014 and 2016. The WI BRFS Brown County (Source #1), the secondary data report (Source #2), the key informant interview report (Source #3), and the County Health Rankings Brown County 2017 (Source #4) provide an overview of the community health issues in Brown County. When available and applicable, *Healthy People 2020* objectives are listed for the health topics.

Access

Unmet medical care | In 2015, only 2% of the population did not receive needed health care in both Brown County and Wisconsin. In addition, the ratio of population to primary care physicians in Brown County was 1,410:1 as compared to the state's 1,250:1 (Source #4). According to the Brown County United Way's 2016 Annual Report, health care needs was the fifth most requested need on the 2-1-1 information and referral service.[5]

- The *Healthy People 2020* targets are to reduce the proportion of persons who are without health care coverage to 0% and who are unable to obtain or delay in receiving necessary medical care to 4.2%.

  Why is this significant? Unmet medical care can lead to further health complications and increase future costs. Access to medical care can detect and treat disease at an earlier stage, improve overall health, prevent disease and disability, and reduce preventable deaths.[6]



Unmet mental health services | The ratio of population to mental health providers in Brown County was 590:1, higher compared to the state's 560:1 (Source #4).

Why is this significant? Mental health and physical health are interconnected. An unmet mental health need can lead to further complications and increase future costs; the burden of mental illness and unwellness is among the highest of all diseases. Screening, early detection and access to services can improve outcomes and over time can provide savings to the health care system.[7]

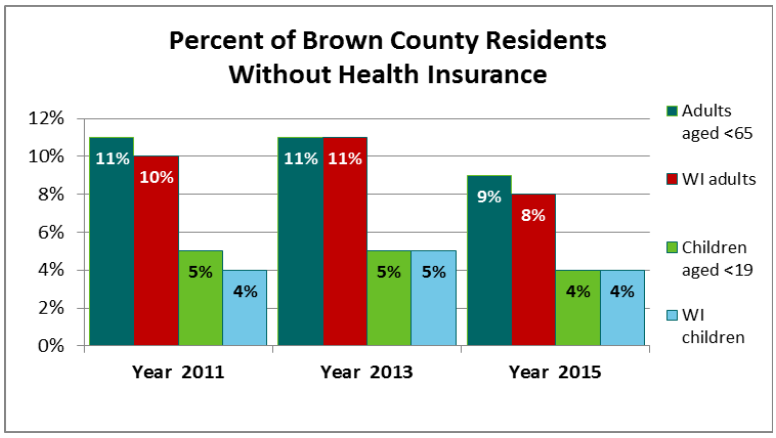
[5] Brown County United Way – 2016 Annual Report: 2-1-1 Services. Available at http://www.browncountyunitedway.org/wp-content/uploads/2016-Annual-Snapshot-Draft-1.pdf, accessed March 14, 2018.
[6] Healthy People 2020 – Access to Health Services. U.S. Department of Health and Human Service. Available at http://www.healthypeople.gov/2020/topics-objectives/topic/Access-to-Health-Services Accessed February 5, 2018.
[7] Healthy People 2020 – Mental Health and Mental Disorders. U.S. Department of Health and Human Service. Available at https://www.healthypeople.gov/2020/topics-objectives/topic/mental-health-and-mental-disorders. Accessed February 5, 2018.

Coverage

Health care coverage | In 2015, 9% of adults under age 65 years did not have health care insurance, slightly higher than the Wisconsin level of 8%. In 2015, 4% of children aged less than 19 years did not have health care insurance, slightly less than the state (Source #4).

- The *Healthy People 2020* target for health care coverage is 100%.

Why is this significant? Adults without consistent health care coverage are more likely to skip medical care because of cost concerns, which can lead to poorer health, higher long-term health care costs and early death.[8, 9]



Chronic disease: asthma, diabetes, heart disease, overweight/obesity and cancer

Chronic conditions such as asthma, diabetes, heart disease and cancer can result in health complications, compromised quality of life and burgeoning health care costs. As the most common and preventable of all health issues, chronic diseases account for 86% of health care costs nationwide.[10] Chronic diseases were identified as one of the top five health issues in the community by the key informants (Source #3).

Top Health Issue

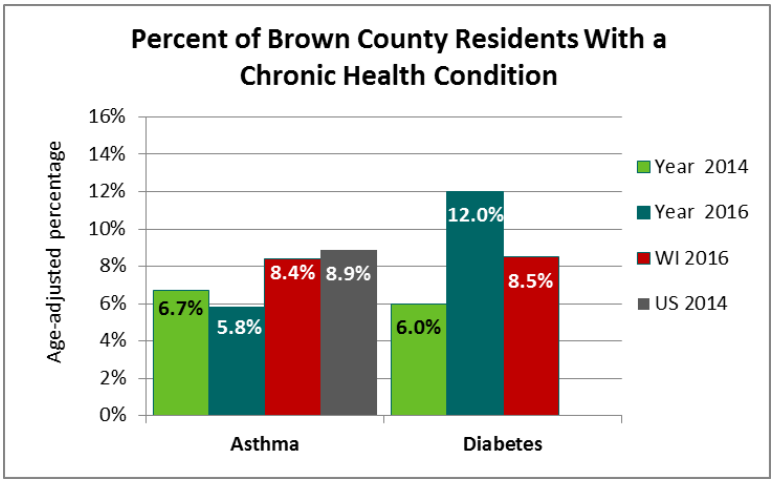
Asthma | In 2016, 5.8% of Brown County adults reported asthma, an improvement from 6.7% in 2014. This is significantly lower compared to 8.4% for the state and 8.9% for the United States. In addition, the rates for Brown County males (3.1%) and females (9.6%) are lower than the state's rate (7.1% and 12.0% respectively) for the combined years of 2014- 2016 (Source #1).

Why is this significant? Without proper management, asthma can lead to increased health care usage and decreased quality of life.[11] Management of the disease with medical care and prevention of attacks by avoiding triggers is essential.

[8] Healthy People 2020 – Access to Health Services. U.S. Department of Health and Human Service. Available at http://www.healthypeople.gov/2020/topics-objectives/topic/Access-to-Health-Services. Accessed February 5, 2018.
[9] Key Facts about the Uninsured Population. Kaiser Family Foundation. Available at https://www.kff.org/uninsured/fact-sheet/key-facts-about-the-uninsured-population/. Accessed February 5, 2018.
[10] Centers for Disease Control and Prevention - Chronic Disease Prevention and Health Promotion. Available at http://www.cdc.gov/chronicdisease/index.htm. Accessed February 5, 2018.
[11] Centers for Disease Control and Prevention – Uncontrolled Asthma among Persons with Current Asthma. Available at https://www.cdc.gov/asthma/asthma_stats/uncontrolled_asthma.htm. Accessed February 5, 2018.

Diabetes | In 2016, 12% of Brown County adults reported diabetes, doubling the 2014 rates. This is significantly higher than the state rate of 8.5%. In addition, Brown County rates among males (9.3%) and females (8.5%) are higher than the state's (8.8% and 6.9% respectively) for the combined years 2014-2016 (Source #1).

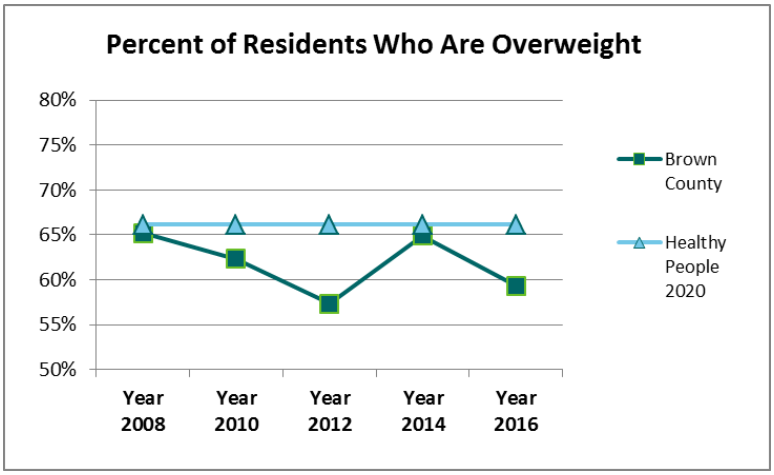
Why is this significant? Diabetes may lead to serious health complications including heart disease, blindness, kidney failure and lower-extremity amputations; it is the seventh leading cause of death in the US.[12] The average medical expenditures among people with diagnosed diabetes were about 2.3 times higher than expenditures for people without diabetes. [13]



Overweight/Obesity | In 2016, Brown County had a lower percentage of adults who were overweight or obese (59.3%) than the state (65.2%) and national (65.4%) averages (Source #1).

Top Health Issue

The category "overweight" includes overweight and obese respondents. One nationally used definition of overweight status developed by the CDC is when a person's body mass index (BMI) is greater or equal to 25.0. A BMI of 30.0 or more is considered obese. Body Mass Index is calculated by using weight in kilograms/height in meters^2.



[12] Centers for Disease Control and Prevention. - Diabetes Public Health Resources. Available at http://www.cdc.gov/basics/diabetes.html. Accessed February 5, 2018.
[13] CDC National Diabetes Statistics Report, 2017: Estimates of Diabetes and Its Burden in the United States. Available at https://www.cdc.gov/diabetes/pdfs/data/statistics/national-diabetes-statistics-report.pdf. Accessed February 5, 2018.

Why is this significant? Overweight and obesity can increase the risk for high blood pressure, high cholesterol levels, coronary heart disease, type 2 diabetes, stroke, some cancers, low quality of life and other health conditions. People who have obesity have annual medical costs which average $1,429 higher than those of normal weight.[14]

Cancer | The 2010-2014 cancer age-adjusted incidence rate in Brown County was 461.0 per 100,000 population, slightly higher compared to the state at 459.0 per 100,000. The table below compares Brown County's age-adjusted cancer incidence and mortality rates per 100,000 population with the rates for Wisconsin (WI), national (US), and *Healthy People 2020* objectives *(HP2020)* (Source #2).

Why is this significant? A person's cancer risk can be reduced in a number of ways including, but not limited to, receiving regular medical care and screenings, getting vaccinated, avoiding tobacco, limiting alcohol use, avoiding excessive exposure to ultraviolet rays from the sun and tanning beds, eating a diet rich in fruits and vegetables, maintaining a healthy weight and being physically active.[15]

Cancer	Brown	WI	US	*HP2020*	Status
Female Breast Cancer Incidence Rate	62.1	127.9	123.6		
Cervical Cancer Incidence Rate	3.4	6.7			
Male Colorectal Cancer Incidence Rate	39.3	42.2	45.8		
Female Colorectal Cancer Incidence Rate	31.3	31.9	34.8		
Male Lung/Bronchus Cancer Incidence Rate	74.3	64.8	72.7		
Female Lung/Bronchus Cancer Incidence Rate	46.4	52.9	52.6		
Prostate Cancer Incidence Rate	54.2	99.8	114.9		
Female Breast Cancer Mortality Rate	19.7	18.6	21.2	20.7	●
Cervical Cancer Mortality Rate	1.6	2.1		2.2	●
Male Colorectal Cancer Mortality Rate	12.6	15.6	17.7	14.5	●
Female Colorectal Cancer Mortality Rate	9.7	10.1	12.4	14.5	●
Male Lung/Bronchus Cancer Mortality Rate	55.0	48.8	55.9	45.5	■
Female Lung/Bronchus Cancer Mortality Rate	30.2	33.3	36.3	45.5	●
Prostate Cancer Mortality Rate: Age-Adjusted	19.5	20.7	20.1	21.8	●

*If Brown County's rate meets or exceeds the HP2020 benchmark, then a green circle (●) is shown under "Status". Conversely, if the community falls below the 2020 goal, then a red square (■) is shown. If the CDC did not set a HP2020 goal in a specific health indicator, then the community's health information is compared with the U.S. goal. If no information is available under HP2020 or national data, or community data, then "na" is displayed for "not available".

Health risk behaviors: alcohol use, substance use, tobacco use, nutrition and physical activity

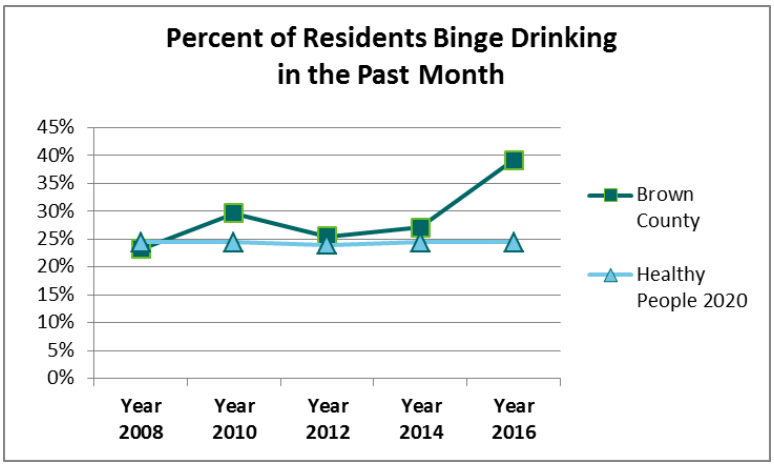
Four modifiable health risk behaviors are responsible for the main share of premature death and illness related to chronic diseases: excessive alcohol consumption, tobacco use and exposure, poor nutrition and lack of physical activity.[16]

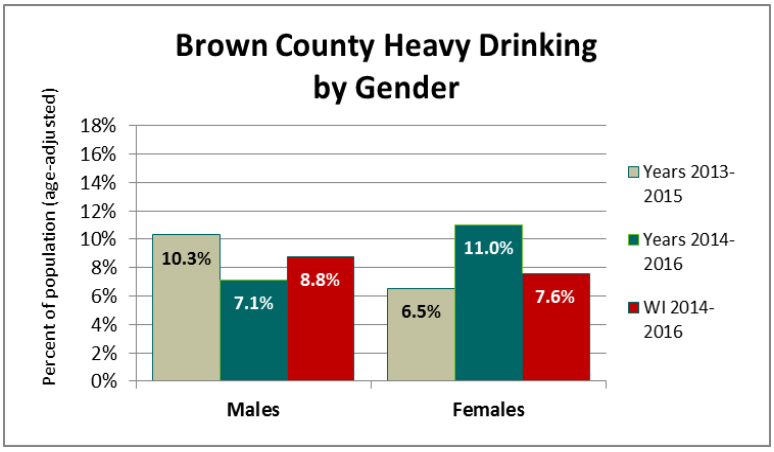
Alcohol use | In 2016, 39.2% of adults in Brown County reported binge drinking in the past month, a statistically significant increase from 2008 (23.2%), and higher compared to the state (26.1%) and the United States (16.9%).

[14] Centers for Disease Control and Prevention – Overweight & Obesity: Adult Obesity Facts. Available at https://www.cdc.gov/obesity/data/adult.html. Accessed February 5, 2018.
[15] Centers for Disease Control and Prevention – Cancer. Available at https://www.cdc.gov/cancer/dcpc/prevention/index.htm. Accessed February 5, 2018.
[16] Centers for Disease Control and Prevention-Chronic Disease Overview. Available at https://www.cdc.gov/chronicdisease/resources/infographic/nccdphp.htm. Accessed February 5, 2018.

Further, female residents of Brown County reported heavy drinking at a higher rate (11.0%) than the state rate (7.6%) and higher than Brown County males (7.1%) (Source #1).

Excessive drinking reflects the percent of adults who report either binge drinking or heavy drinking. According to the National Institute on Alcohol Abuse and Alcoholism (NIAAA), binge drinking is defined as alcohol consumption that brings the blood alcohol concentration to 0.08% or more; this is generally achieved through consuming four or more alcoholic beverages for women or five or more for men within approximately two hours. In addition, the NIAAA defines heavy drinking as drinking more than one drink for women or more than two drinks for men per day on average.[17] Alcohol (and other drugs) was identified as one of the top health issues in the county by key stakeholders (Source #3).





– The *Healthy People 2020* goal for binge drinking among adults is 24.4%.

Why is this significant? Binge drinking is associated with an array of health problems including, but not limited to, unintentional injuries (e.g. car crashes, falls, burns, drownings), intentional injuries (e.g., firearm injuries, sexual assault, domestic violence), alcohol poisoning, sexually transmitted infections, unintended pregnancy, high blood pressure, stroke and other cardiovascular diseases, poor diabetes

[17] National Institute on Alcohol Abuse and Alcoholism – Alcohol & Your Health: Drinking Levels Defined. Available at https://www.niaaa.nih.gov/alcohol-health/overview-alcohol-consumption/moderate-binge-drinking. Accessed February 6, 2018.

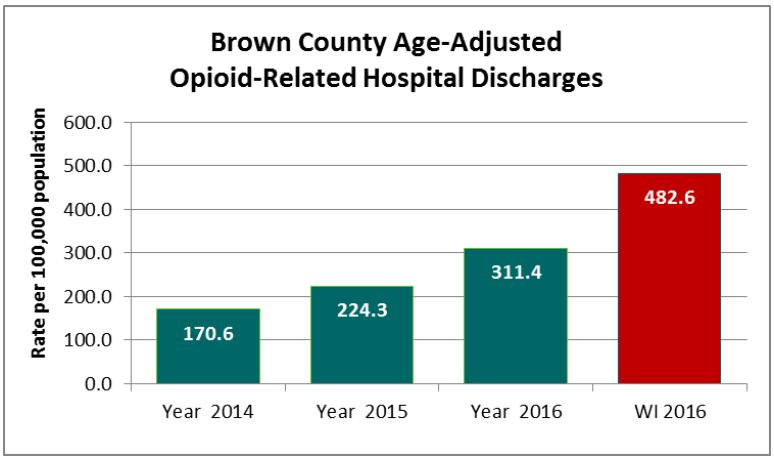
control, cancer, mental health problems and learning and memory issues. Binge drinking is extremely costly to society from losses in productivity, employment, health care, crime and other expenses.[18]

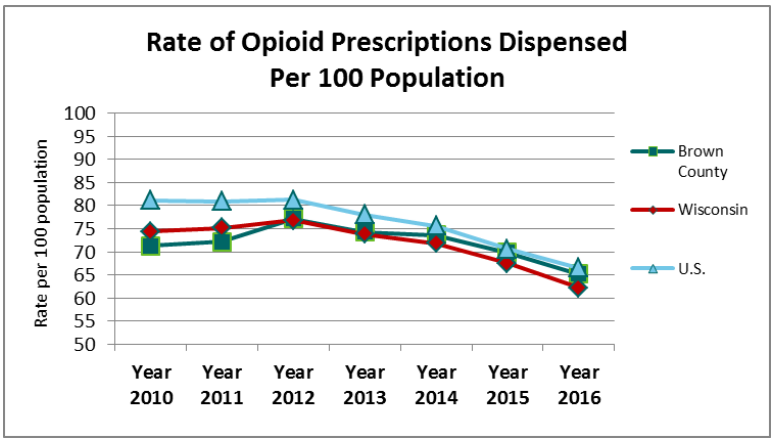
Substance use | Drug misuse, specifically opioids, is escalating statewide. In Brown County, the rate of age-adjusted opioid-related hospital encounters was 311.4 per 100,000 population in 2016, lower than Wisconsin rate of 482.6 per 100,000 population. Brown County residents who identified as Black, non-Hispanic or American Indian had higher opioid-related hospital encounter rates than other races or ethnicities (Source #2). According to the CDC, the rate of dispensed opioid prescriptions peaked in 2012 and has since decreased steadily. The rate of opioid prescriptions dispensed was higher in Brown County at 65.2 prescriptions per 100 population than the state rate (62.2/100 population) but lower than the U.S. rate (66.5/100 population respectively).[19] Key informants identified drug misuse as one of the top health issues challenging the community (Sources #1, #3).

Top Health Issue

– The *Healthy People 2020* goal for drug-induced deaths is 12.6 deaths per 100,000 population.

Why is this significant? Nationally, the amount of pain medicines prescribed and sold have increased since 1999. Every day in the U.S., 115 people die due to an overdose of prescription opioids. The overprescribing of opiates and other pain medicines leads to medicinal abuse and overdose deaths.[20]





[18] Centers for Disease Control and Prevention – Alcohol & Public Health. Available at https://www.cdc.gov/alcohol/fact-sheets/alcohol-use.htm. Accessed February 6, 2018.
[19] Centers for Disease Control and Prevention – Opioid Overdose: U.S. County Prescribing Rates. Available at https://www.cdc.gov/drugoverdose/maps/rxcounty2016.html. Accessed February 16, 2018.
[20] Centers for Disease Control and Prevention – Opioid Overdose. Available at https://www.cdc.gov/drugoverdose/index.html. Accessed February 8, 2018.

Tobacco Use and Exposure | In 2016, 16.5% of adults in Brown County reported cigarette smoking in the past 30 days (current smoker), higher than in 2014 (14.8%) but lower than the state (17.8%). At 16.2%, Brown County females smoked at a higher rate than Brown County males (15.4%) (Source #1).

- The *Healthy People 2020* target is to reduce cigarette smoking by adults to 12.0%.

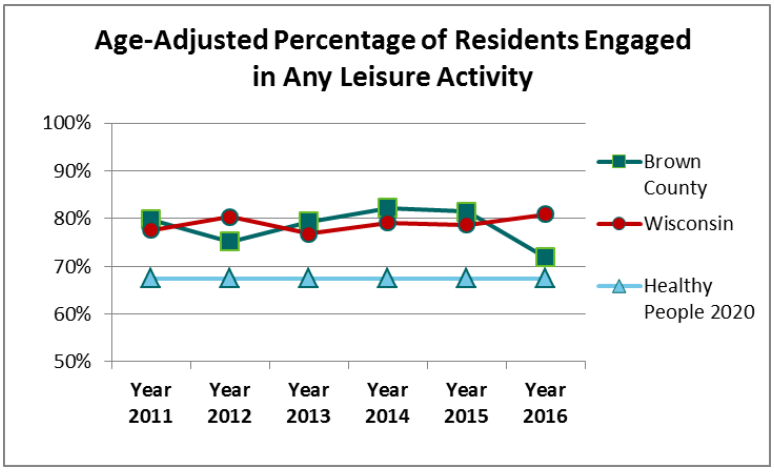
Additionally, in 2016, 13.4% of Brown County mothers indicated smoking during pregnancy, higher than the state rate of 11.3% (Source #2).

- The *Healthy People 2020* target is no greater than 1.4%.

Why is this significant? In the United States, cigarette smoking is the leading cause of preventable death. Smoking harms nearly every organ in the body, leading to disease and disability, including increasing the risk of coronary heart disease, stroke and several types of cancer. In addition, research has shown that smoking during pregnancy can cause health problems for both mother and baby, such as pregnancy complications, premature birth, low birth weight infants and stillbirth. [21]

Nutrition and physical activity | In 2016, 71.6% of adults in Brown County reported engaging in any leisure time physical activity, lower than the Wisconsin rate of 80.9%. In Brown County, females engaged in any leisure time physical activity at a higher percentage than males (81.3% and 75.4% respectively) (Source #1). Based on the *2018 County Health Rankings* for Brown County, 6% of the population had limited access to healthy foods.[22] This was higher than the state (5.0%), and higher than the national benchmark (0% of the population had limited access to healthy foods) (Source #2). Key informants identified physical activity and nutrition as a top five health issue (Source #3).

Top Health Issue



- The *Healthy People 2020* target is to increase the percentage of adults engaged in the recommended moderate or vigorous physical activity to 47.9% and to reduce the percentage of students playing video games or using the computer for non-school work three or more hours on an average school day to 17.4%.

[21] Centers for Disease Control and Prevention – Smoking & Tobacco Use. Available at https://www.cdc.gov/tobacco/data_statistics/fact_sheets/index.htm. Accessed February 8, 2018.
[22] Note: Limited access to healthy foods captures the percentage of the population who are low income and do not live close to a grocery store. In rural areas, living close to a grocery store means living less than 10 miles from a grocery store whereas in non-rural areas it is less than 1 mile. Low income is defined as having an annual family income of less than or equal to 200% of the federal poverty threshold for the family size. Available at http://www.countyhealthrankings.org/app/wisconsin/2017/measure/factors/133/description. Accessed February 8, 2018.

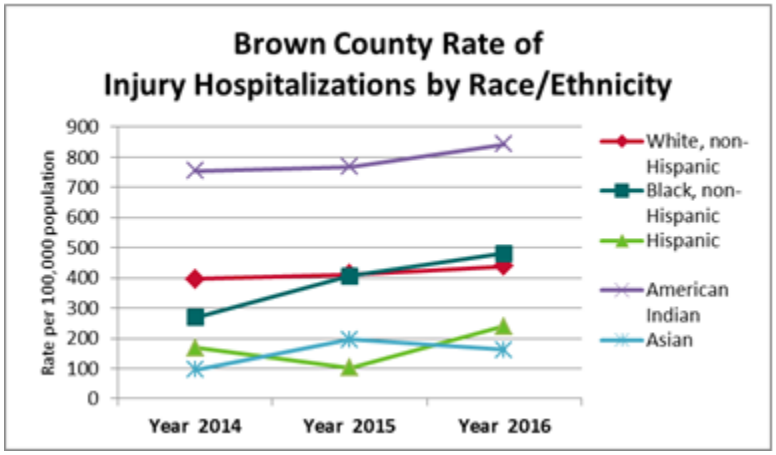
Why is this significant? Inactive adults have a higher risk for obesity, coronary heart disease, type 2 diabetes, stroke, some cancers, depression and other health conditions.[23]

Injury and Violence

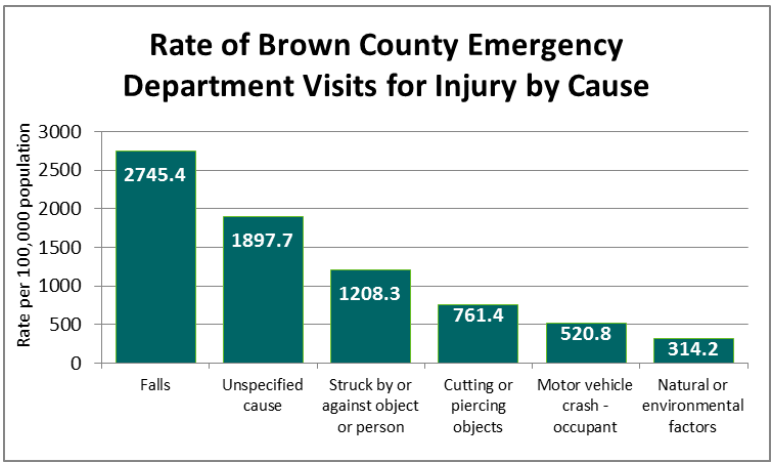
Injury hospitalization | The 2016 Brown County injury-related hospitalizations rate was 439.9 per 100,000, which is lower compared to the state (500.0 per 100,000) and lower than the *Healthy People 2020* target (555.8 per 100,000). Brown County residents who are American Indian had higher rates of injury-related hospitalizations compared to Whites whereas Brown County Blacks and Hispanics had highly variable rates year to year. The injury-related emergency department (ED) visit rate for Brown County was 8,864.4 per 100,000, which is higher than the Wisconsin rate (7,392.4 per 100,000).[24] The injury-related death rate in Brown County was 72.0 per 100,000 population, lower than the Wisconsin rate of 81.2 per 100,000 population, but higher than the Healthy People 2020 goal of 53.3 per 100,000 population. The top ranked cause of injury-related ED visits was falls, over two times higher than the second ranked cause (Source #2).

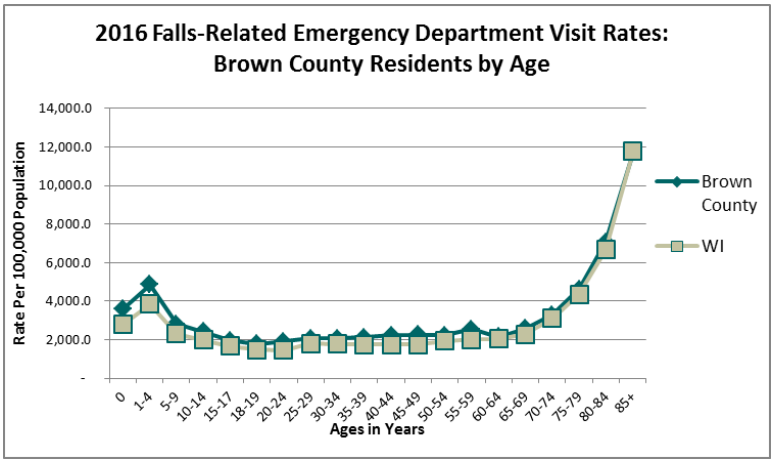
- The *Healthy People 2020* target for injury-related hospitalization rate is 555.8 per 100,000; the target for injury emergency department visit is 7,533.4 per 100,000. The target for injury related death rate is 53.3 per 100,000.

  Why is this significant? Injuries are a leading cause of death for people ages 1-44 in the United States. In 2013 alone, injuries cost the nation 671 billion dollars in lost productivity and medical care. Injuries can be prevented and their consequences reduced for infants, children and adults.[25]

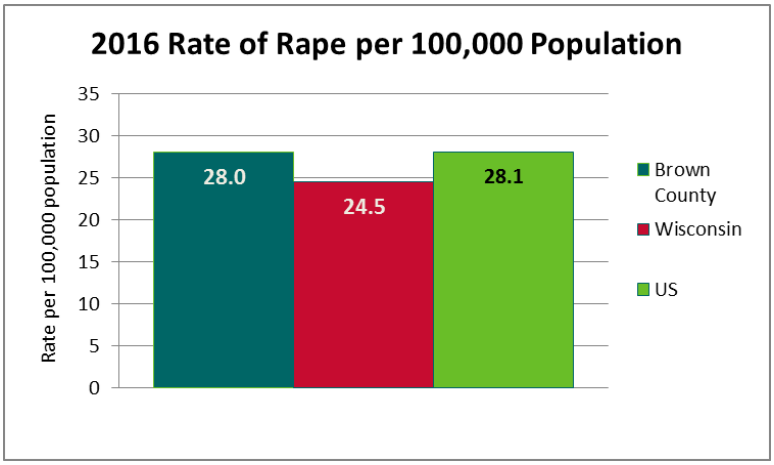


[23] Centers for Disease Control and Prevention – Division of Nutrition, Physical Activity, and Obesity. Available at https://www.cdc.gov/nccdphp/dnpao/division-information/media-tools/dpk/vs-disability-activity/index.html. Accessed February 8, 2018.
[24] Wisconsin Interactive Statistics on Health (WISH), Available at https://www.dhs.wisconsin.gov/wish/index.htm. Accessed June 12, 2018
[25] Centers for Disease Control and Prevention – Injury Prevention and Control. Available at https://www.cdc.gov/injury/wisqars/overview/key_data.html. Accessed February 8, 2018.





Sexual violence | Sexual violence is defined as sexual activity when consent is not obtained or not given freely.[26] The rate of rape for Brown County was 28.0 reports per 100,000 persons, higher than Wisconsin's overall rate of 24.5 per 100,000 in 2016.[27] However, sexual assault and rape are underreported and the definition of sexual assault varies across different agencies; therefore, the number and rate may vary depending on the source.



[26] Centers for Disease Control and Prevention – Violence Prevention: Sexual Violence. Available at https://www.cdc.gov/violenceprevention/sexualviolence/index.html. Accessed February 8, 2018.
[27] Wisconsin Department of Justice, Crime in Wisconsin 2012, September 2013. Available at https://wilenet.org/html/justice-programs/programs/justice-stats/library/crime-and-arrest/2012-crime-in-wi.pdf. Accessed February 22, 2016

Why is this significant? Sexual violence can have harmful and lasting consequences for victims, families, and communities including, but not limited to, unintended pregnancy, sexually transmitted infections, long term physical consequences, immediate and chronic psychological consequences, health behavior risks and financial cost to victims, families and communities.[28]

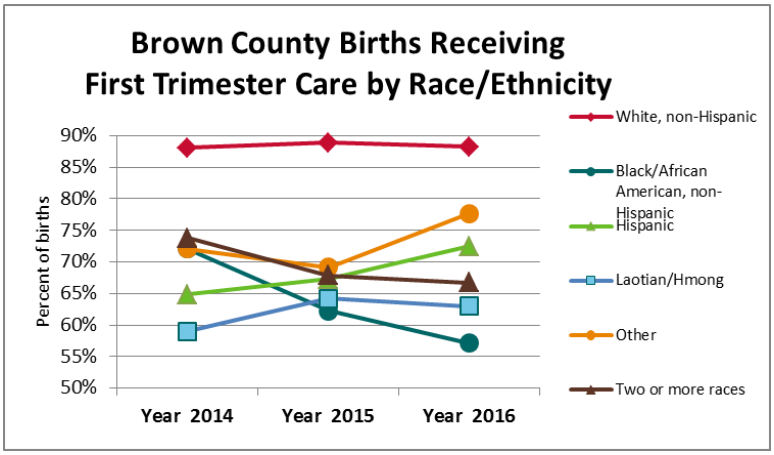
Other violence | The rate of aggravated assault for Brown County in 2016 was 167.9 reports per 100,000 persons, lower than Wisconsin's overall rate of 186.3 per 100,000.[29] In Wisconsin, the rate of Child Protective Services (CPS) reports was 33.1 per 1,000 children in 2014; Brown County's rate was lower at 32.3 reports per 1,000 children (Source #2).

Why is this significant? Violence has a lasting effect throughout one's life. Survivors of violence may suffer from physical, emotional, social and other health problems.[30]

Reproductive Health

Births receiving first trimester care | In 2016, the percent of births receiving first trimester care in Brown County was 82.5%, higher compared to the state (76.4%). Women who were White experienced consistently higher rates than other races while women who were Hispanic/Latina or Black/African American had the lowest rates in 2016 (Source #2).

- The *Healthy People 2020* target for births receiving first trimester care is 77.9%.



Premature births | In 2016, Brown County's rate for premature births was 9.9%, slightly higher than the state rate (9.6%). Premature birth is defined as birth occurring before 37 weeks gestation. Brown County African Americans had the highest percentages compared to the other races (Source #2).

- The *Healthy People 2020* target for premature births is 11.4%.

Low birth weight | In 2016, the percent of low birth weight births (less than 2,500 grams or approximately 5.5 pounds) in Brown County was 6.7%, lower compared to the state (7.4%). Low birth weights was highest among Black/African Americans in Brown County (14.9%) (Source #2).

[28] Centers for Disease Control and Prevention – Violence Prevention/Sexual Violence: Consequences. Available at https://www.cdc.gov/violenceprevention/sexualviolence/consequences.html. Accessed February 8, 2018.
[29] Wisconsin Department of Justice, UCR Offense Data, 2016. Available at https://www.doj.state.wi.us/dles/bjia/ucr-offense-data. Accessed June 29, 2017.
[30] Centers for Disease Control and Prevention – Violence Prevention. Available at https://www.cdc.gov/violenceprevention/. Accessed February 8, 2018.

- The *Healthy People 2020* target for low birth-weight births is 7.8%.

Why is this significant? Preconception and early prenatal care improves mother and infant outcomes. Babies born prematurely (three weeks or earlier than their due date) or with a low birth weight (less than 2,500 grams or about 5.5 pounds) experience a greater risk for an adverse outcomes including a serious disability or death. In 2015, preterm birth and low birth weight accounted for about 17% of infant deaths.[31]

Birth rate to teens| In 2016, births among Brown County females aged 15-17 years was 7.1 per 1,000 females, higher than the state rate of 6.2 births per 1,000 females. For Brown County females aged 15-19 years, the birth rate was 18.2 per 1,000 females, significantly higher than the state rate of 15.2 births per 1,000 females (Source #2).

Why is this significant? Teen pregnancy and childbearing bring substantial social and economic costs through immediate and long-term impacts on teen parents and their children. The children of teenage mothers are more likely to have lower school achievement and to drop out of high school, have more health problems, be incarcerated at some time during adolescence, give birth as a teenager, and face unemployment as a young adult. [32]

Infant Mortality | In 2015, the rate of infants dying before their first birthday in Brown County was 7.2 deaths per 1,000 live births, higher than the statewide rate of 5.7 deaths per 1,000 live births. Within Brown County, African Americans had the highest rate of infant mortality among all races and ethnicities at 13.6 deaths per 1,000 live births (Source #2).

- The *Healthy People 2020* target for rate of infant deaths (within one year) is 6.0 per 1,000 live births.

Mental health

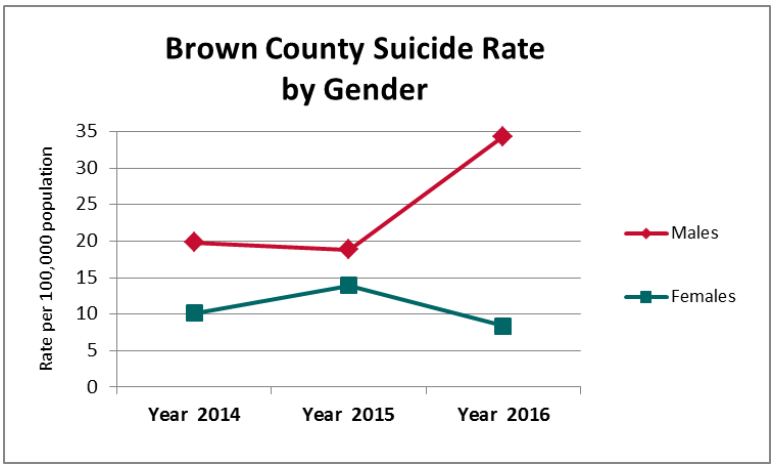
Mental health conditions| Brown County adults reported an average of 3.4 mentally unhealthy days in the past 30 days, less than the state average of 3.8 days (Source #4). Mental health was identified as one of the top health issues in the county by key stakeholders (Source #3).

Mental health is defined as including "our emotional, psychological, and social well-being. It affects how we think, feel, and act. It also helps determine how we handle stress, relate to others, and make healthy choices."[33] Indicators of mental health include emotional, social and psychological well-being. This definition differs from mental illness, which is classified as "conditions that affect a person's thinking, feeling, mood or behavior," which "may be occasional or long-lasting (chronic) and affect someone's ability to relate to others and function each day."[34] Anxiety, depression and bipolar disorder are examples of mental illness.

Why is this significant? Mental health conditions are related to risk behaviors for chronic disease, such as physical inactivity, smoking, excessive drinking and insufficient sleep, and associated with chronic diseases such as cardiovascular disease, diabetes and obesity.[35]

[31] Centers for Disease Control and Prevention – Reproductive Health: Preterm Birth. Available at https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pretermbirth.htm. Accessed February 8, 2018.
[32] Centers for Disease Control and Prevention – Reproductive Health: About Teen Pregnancy. Available at https://www.cdc.gov/teenpregnancy/about/index.htm. Accessed February 8, 2018.
[33] Centers for Disease Control and Prevention – Learn About Mental Health. Available at https://www.cdc.gov/mentalhealth/learn/index.htm. Accessed February 8, 2018.
[34] Centers for Disease Control and Prevention – Learn About Mental Health. Available at https://www.cdc.gov/mentalhealth/learn/index.htm. Accessed February 8, 2018.
[35] Centers for Disease Control and Prevention – Learn About Mental Health. Available at https://www.cdc.gov/mentalhealth/learn/index.htm. Accessed February 8, 2018.

Suicide | In 2016, there were 55 suicides in Brown County at a rate of 21.3 per 100,000, significantly higher than the Wisconsin rate of 14.9 per 100,000 population. Additionally, Brown County males (34.3/100,000) had a higher rate of suicides than the state (23.5/100,000); this was the same pattern for Brown County females compared to the state (8.4/100,000 and 6.4/100,000 respectively) (Source #2).



- The *Healthy People 2020* target is 10.2 suicides per 100,000.

  Why is this significant? A serious public health problem, suicide can have lasting harmful effects on individuals, their families and their communities. While its causes are complex and multifaceted, the aim of suicide prevention is to decrease risk factors and promote resilience.[36]

[36] Centers for Disease Control and Prevention – Suicide Prevention. Available at https://www.cdc.gov/violenceprevention/suicide/. February 8, 2018.

Section 4 | Prioritized significant health needs

Criteria for prioritizing significant health need

During 2012 an ad hoc committee of the Aurora Health Care Board of Directors' Social Responsibility Committee undertook a five-month process to identify a common need in all Aurora Health Care service areas. The ad hoc committee presented its final recommendation to the Social Responsibility Committee in October of 2012 and, for the purpose of developing community benefit implementation strategies, a "signature community benefit focus" for all Aurora Health Care hospital facilities was determined:

- A demonstrable increase in "health home" capacity and utilization by underserved populations across Aurora's footprint (Medicaid-eligible and uninsured)

During 2018, Aurora hospital facility leaders prioritized significant needs based on the following criteria:

- Meets a defined community need (i.e., access for underserved populations)
- Aligns community benefit to organizational purpose and clinical service commitment to coordinate care across the continuum
- Aligns with hospital resources and expertise and the estimated feasibility for the hospital to effectively implement actions to address health issues and potential impact
- Reduces avoidable hospital costs by redirecting people to less costly forms of care and expands the care continuum
- Has evidence-basis in cross-section of the literature for management of chronic diseases in defined populations
- Leverages existing partnerships with free and community clinics and Federally Qualified Health Centers (FQHCs)
- Resonates with key stakeholders as a meaningful priority for the Aurora hospital to address
- Potential exists to leverage additional resources to extend impact
- Increases collaborative partnerships with others in the community by expanding the care continuum
- Improves the health of people in the community by providing high-quality preventive and primary care
- Aligns hospital resources and expertise to support strategies identified in municipal health department Community Health Improvement Plan (CHIP)
- Quantifying health issues based on the *Hanlon Method for Prioritizing Health Problems*[37] (see Appendix E for details)

Using this criteria, Aurora BayCare Medical Center has prioritized the significant health needs to address in our 2019-2021 implementation strategy:

- Access and coverage
- Behavioral health
- Chronic diseases
- Physical activity and nutrition
- Youth injury prevention
- Health professions education

Significant health needs not being addressed in the implementation strategy and the reason:

The implementation strategy does not include specific strategies and goals for asthma, high blood pressure and high blood cholesterol as these are part of the standard continuum of clinical care at ABMC and Aurora clinics. Additionally, one of the aims of increasing access to health care, specifically primary care, is to address the health risk factors and behaviors that put people at greater risk for health complications and disease.

[37] National Association of County & City Health Officials (NACCHO) – First Things First: Prioritizing Health Problems. Available at http://archived.naccho.org/topics/infrastructure/accreditation/upload/Prioritization-Summaries-and-Examples.pdf, accessed August 23, 2017.

Section 5 | Community resources and assets

The assessment identified a multitude of community resources and assets from ABMC plus the other hospital and their community benefit programs, primary and specialty health care providers and dentists, municipal governments and their departments, public and private schools and many religious organizations. The *Brown County Health Needs Assessment: A Summary of Key Informant Interviews Report 2017* describes available community health resources and assets under each health issue as noted by the interviewed community members. The organizations listed as providing key informants for interviews are assets and resources for the community as well. Specific resources leveraged by ABMC are identified in the Implementation Strategy. For details, see Appendix C.

Section 6 | Evaluation of impact: ABMC's 2015 CHNA Report / 2016-2018 Implementation Strategy

The impact of the initiatives identified in ABMC's *2015 Community Health Needs Assessment Report / 2016-2018 Implementation Strategy* plan was executed with some successes. Successes at ABMC included providing telepsychiatry services, school-based primary care, pediatric specialty services, college-aged primary care, chronic disease education and screenings along with partnering with Healthy Brown County 2020 on alcohol and drug use education and policy development and recruiting and retaining EMS and primary care providers within Brown County. For detailed evaluation of impact, see Appendix F.

This Community Health Needs Assessment (CHNA) Report was adopted by the Aurora Health Care Community Board of the Advocate Aurora Health Board of Directors on November 19, 2018.

To submit written comments about the Community Health Needs Assessment (CHNA) report or request a paper version of the report, go to www.aurora.org/commbenefits.

Appendix A | Wisconsin Behavioral Risk Factor Survey: Brown County (Source #1)

Data collection and analysis:
The Wisconsin Behavioral Risk Factor Survey is part of the national Behavioral Risk Factor Surveillance System, which is coordinated by the Centers for Disease Control and Prevention (CDC). Every state and U.S. territory health department conducts the survey as part of the system, whose purpose is to collect information on adult health-risking behaviors, health conditions, use of preventive care and other health-related topics.

This module offers state and sub-state level estimates from the Behavioral Risk Factor Survey (BRFS), a telephone survey of Wisconsin adults. Starting with 2011, BRFS began including both landline and cell phone interviews, obtained from separate samples and later combined and weighted by the CDC. Prior to 2011, only landline telephone numbers were sampled. The Wisconsin BRFS Trend Data Module includes only topics that have appeared in the survey since 2000. BRFS data are weighted to represent the state's non-institutionalized adult population ages 18 and older.

The “Trend Data” module provides BRFS estimates by county, with some restrictions based on the number of interviews. Specifically, a minimum of 100 survey interviews is necessary for results to be displayed to provide reliable estimates. A number of counties do not meet this threshold for single-year estimates, and multiple years of data are needed to produce reliable estimates for those counties. Unless otherwise noted, aged-adjusted data for the years 2014-2016 were used for the Brown County statistics. The “All County Module” also provides estimates by county for specific three-year periods.

Appendix B| Brown County Health Data Report: A summary of secondary data sources (2017) (Source #2)
The report is available at www.aurora.org/commresearch

Data Collection & Analysis: In the spring of 2018, the Center for Urban Population Health was enlisted to compile secondary data to supplement the community health survey and key informant interviews. This report summarizes the demographic and health-related information for Brown County.

Publicly available data sources used for the Secondary Data Report

Source	Description
American Community Survey	*American Community Survey* provides access to data about the United States. The data comes from several censuses and surveys. The American Community Survey (ACS) is a nationwide survey designed to provide information of how communities are changing. ACS collects and produces population and housing information every year, and provides single and multi-year estimates. *Source: United States Department of Commerce, US Census Bureau*
County Health Rankings	Each year the overall health of almost every county in all 50 states is assessed and ranked using the latest publically available data. Ranking includes health outcomes (mortality and morbidity) and health factors (health behaviors, clinical care, social and economic factors and physical environment). *Source: Collaboration of the Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute*
Wisconsin Department of Health Services – Data & Statistics	All reportable communicable disease case counts, including sexually transmitted diseases (STD) and HIV incidences, are based on case reports for 2015 or later. Reports are available for Wisconsin statewide, the five DPH regions, and the 72 Wisconsin counties. *Source: Wisconsin Department of Health Services*
Wisconsin Interactive Statistics on Health (WISH)	WISH uses protected databases containing Wisconsin data from a variety of sources and provides information about health indicators (measure of health). Select topics include Behavioral Risk Factor Survey, birth counts, fertility, infant mortality, low birth weight, prenatal care, teen births, cancer, injury emergency department visits, injury hospitalizations, injury mortality, mortality and violent death. *Source: Wisconsin Department of Health Services, Division of Public Health, Office of Health Informatics*
Wisconsin Uniform Crime Reporting Data Dashboard Center	The dashboards were developed and are maintained by the Bureau of Justice Information and Analysis (BJIA) of the WI Department of Justice. *Source: Wisconsin Department of Justice*

Data for each indicator is presented by race, ethnicity and gender when the data is available. In some cases data is not presented by the system from which it was pulled due to internal confidentiality policies which specify that data will not be released when the number is less than five. In other cases, the data were available but the rates or percentages are not presented in this report. This is due to the indicator having small numbers in the numerator or denominator resulting in rates or percentages that were subject to large year to year fluctuations and, as such, would not have provided a meaningful representation of the data for the population subset. When applicable, *Healthy People 2020* objectives are presented for each indictor. The objectives were not included unless the indicator directly matched with a *Healthy People 2020* objective.

Partners & Contracts: This report was sponsored by Aurora Health Care. The report was prepared by the Center for Urban Population Health.

Appendix C | Brown County Health Needs Assessment: A summary of key informant interviews (2017) (Source #3)

The report is available at www.aurora.org/commresearch

Data Collection and Analysis: Five individual interviews representing five different organizations were conducted between June and July 2017. The organizations were selected based on the following criteria:

- Provided a broad interest of the community and the health needs in Brown County,
- Comprised of leaders within the organization with knowledge or expertise relevant to the health needs of the community, health disparities or public health, and/or
- Served, represented, partnered or worked with members of the medically underserved, low income and/or minority populations

Key informant interviews were conducted with leaders with broad representation from public health, education and community organizations. Cumulatively, these organizations focus on a range of public health issues and represent the broad interests of community, including medically underserved, low-income and/or minority populations.

Summary of the organizations representing the broad interest of the community

Organization	Description of the organizations *The description is based on information provided on the organization's website, accessed February 22, 2018.*
ADRC of Brown County	"Our mission: We strive to improve the lives of older adults, adults with disabilities, and caregivers through collaborations and partnerships."
Brown County United Way	"Our vision: Everyone is exchanging and growing their gifts and strengths to assure needs are being met and the quality of life is continually being elevated for everyone. Brown County United Way engages our community, mobilizes volunteers and strengthens local nonprofits to achieve measurable results and change lives."
Casa ALBA Melanie	"Casa ALBA Melanie is the Hispanic Resource Center of the greater Green Bay area. Casa ALBA Melanie serves as a hub for information and referral, bringing together persons seeking assistance with service providers in the community."
Greater Green Bay YMCA	"The YMCA is a cause driven non-profit organization dedicated to strengthening our communities in spirit, mind and body. Much more than just a fitness center, we focus on youth development, healthy living, and social responsibility as well."
N.E.W. Community Clinic	"The N.E.W. Community Clinic, under the name of the Green Bay Area Free Clinic, opened its doors for the first time on July 27, 1971. It was established to provide basic health care services and referrals for other care to area persons who lacked health insurance. Mission: To provide access to quality, comprehensive and compassionate health care to the underserved in our community."

The key informant interviews were conducted by Aurora Health Care. The interviewers used a standard interview script that included the following elements:

1) Ranking of up to five public health issues, based on the focus areas presented in Wisconsin's State Health Plan, that are the most important issues for the County; and
2) For those five public health issues:
    a. Existing strategies to address the issue
    b. Barriers/challenges to addressing the issue
    c. Additional strategies needed
    d. Key groups in the community that hospitals should partner with to improve community health

The report summarized the health issue rankings, including a list of the five issues which were ranked most frequently by respondents. Also, the report describes the themes that presented across the top ranked health topics along with a summary of the strategies, barriers and partners described by the participants.

Top five issues that emerged as key health priorities for Brown County and the identified community assets

The top five health issues that emerged as key priorities for Brown County were: 1) mental health, 2) alcohol and other drug use, 3) chronic diseases – tie, 3) nutrition – tie and 5) physical activity.

Key community partners, resources and assets to address health issues:

1. **Mental health:** Hospitals should be partnering with the Brown County Community Treatment Center, Brown County Mental Health Task Force, ADRC, health care providers, police departments, Brown County Behavioral Health, employers, veterans, criminal justice system representatives, basic needs services providers (e.g. housing, child care, transportation), non-traditional providers who can facilitate referrals to mental health services in an effective and efficient manner, faith based organizations, school districts, families (including teenagers and children), residency and clinical internship programs for health care providers, and Spanish speaking counselors.

2. **Alcohol and other drug use**: Hospitals should be partnering with legislators, families (including children and teenagers), the Pharmacy Board, current stakeholder and partners in the OWI Taskforce, the AODA Taskforce, the AA and NA community, Brown County Community Treatment Center, the criminal justice system, faith based organizations, schools, and adult organizations.

3. **Chronic diseases (tie)**: Hospitals should be partnering with Brown County Dementia Coalition, Alzheimer's Association, Memory Assessment clinics, health systems, public health, ADRC, memory care facilities, and the Wisconsin Alzheimer's Institute at the University of Wisconsin. For diabetes, it was suggested that those who can provide education about diabetes, exercise, and nutrition be engaged as primary partners to improve health.

3. **Nutrition (tie)**: Hospitals should be partnering with employers, school districts, Brown County, fitness centers, non-profit community gardens, and chronic disease diagnosis groups.

5. **Physical activity:** Hospitals should be partnering with cultural groups, seniors, fitness centers, and chronic disease diagnosis groups.

Partners & Contracts: This report was sponsored by Aurora Health Care. The report was prepared by the Center for Urban Population Health.

Brown (BR)

☐ Show areas to explore ☐ Show areas of strength

County Demographics –

	County	State
Population	260,401	5,778,708
% below 18 years of age	24.1%	22.3%
% 65 and older	14.0%	16.1%
% Non-Hispanic African American	2.5%	6.3%
% American Indian and Alaskan Native	3.2%	1.1%
% Asian	3.2%	2.8%
% Native Hawaiian/Other Pacific Islander	0.1%	0.1%
% Hispanic	8.5%	6.7%
% Non-Hispanic white	81.5%	81.7%
% not proficient in English	2%	1%
% Females	50.3%	50.3%
% Rural	14.5%	29.8%
Male population 0-17	31,555	659,600
Male population 18-44	46,783	1,003,259
Male population 45-64	33,973	789,397
Male population 65+	15,876	419,300
Total male population	128,187	2,871,556
Female population 0-17	30,281	630,421
Female population 18-44	45,634	968,609
Female population 45-64	34,385	795,855
Female population 65+	19,985	508,536
Total female population	130,285	2,903,421
Population growth	3%	1%

Health Outcomes					**30**
Length of Life					**22**
Premature death	5,500		5,200-5,900	5,300	6,000
Quality of Life					**41**
Poor or fair health	13%		13-14%	12%	15%
Poor physical health days	3.4		3.2-3.5	3.0	3.6
Poor mental health days	3.4		3.2-3.5	3.1	3.8
Low birthweight	7%		6-7%	6%	7%
Additional Health Outcomes (not included in overall ranking) –					
Premature age-adjusted mortality	290		280-300	270	300
Child mortality	50		40-60	40	50
Infant mortality	6		5-7	4	6
Frequent physical distress	10%		10-10%	9%	11%
Frequent mental distress	11%		10-11%	10%	12%
Diabetes prevalence	9%		8-11%	8%	9%
HIV prevalence	97			49	122
Communicable disease	749				882
Self-inflicted injury hospitalizations	74		68-80		99
Cancer incidence	461		449-473		469
Health Factors					**31**

Health Behaviors 57

Adult smoking	ⓘ	16%		16-17%	14%	17%
Adult obesity		30%		27-33%	26%	31%
Food environment index		8.4			8.6	8.8
Physical inactivity		19%		16-22%	20%	21%
Access to exercise opportunities		95%			91%	86%
Excessive drinking	ⓘ	28%		27-29%	13%	26%
Alcohol-impaired driving deaths		52%		46-57%	13%	36%
Sexually transmitted infections		423.1			145.1	423.5
Teen births		23		22-24	15	20

Additional Health Behaviors (not included in overall ranking) –

Food insecurity		10%			10%	11%
Limited access to healthy foods		6%			2%	5%
Drug overdose deaths		11		9-14	10	16
Drug overdose deaths - modeled		8-11.9			8-11.9	19.3
Motor vehicle crash deaths		7		6-8	9	10
Insufficient sleep		34%		33-35%	27%	32%
Smoking during pregnancy	ⓘ	12%				13%
Drug arrests	ⓘ	1,188				25,990
Motor vehicle crash occupancy rate	ⓘ	36				51
On-road motor vehicle crash-related ER visits	ⓘ	574		557-591		585
Off-road motor vehicle crash-related ER visits	ⓘ	59		54-65		65

Clinical Care 18

Uninsured	8%		7-8%	6%	7%
Primary care physicians	1,410:1			1,030:1	1,250:1
Dentists	1,400:1			1,280:1	1,520:1
Mental health providers	590:1			330:1	560:1
Preventable hospital stays	38		35-42	35	45
Diabetes monitoring	91%		87-96%	91%	90%
Mammography screening	74%		69-78%	71%	72%

Additional Clinical Care (not included in overall ranking) –

Uninsured adults	9%		8-10%	7%	8%
Uninsured children	4%		3-5%	3%	4%
Health care costs	$8,856				$8,696
Other primary care providers	920:1			782:1	1,055:1
No recent dental visit	25%		20-29%		26%
Did not get needed health care	2%		0-4%		2%
Childhood immunizations	80%				73%

Social & Economic Factors 34

High school graduation	88%			95%	88%
Some college	69%			72%	68%
Unemployment	3.7%			3.2%	4.1%
Children in poverty	12%		10-15%	12%	16%
Income inequality	4.2		4.0-4.3	3.7	4.3
Children in single-parent households	31%		28-33%	20%	32%
Social associations	8.7			22.1	11.6
Violent crime	259			62	283
Injury deaths	57		53-61	55	73

Additional Social & Economic Factors (not included in overall ranking) –

Disconnected youth		11%		10%	11%
Median household income		$58,400	$55,300-61,600	$65,100	$56,800
Children eligible for free or reduced price lunch		41%		33%	40%
Residential segregation - black/white		53		23	77
Residential segregation - non-white/white		33		14	56
Homicides		2	1-3	2	3
Firearm fatalities		8	7-10	7	10
Reading proficiency	ⓘ	55%			52%
W-2 enrollment	ⓘ	316			11,039
Poverty	ⓘ	10%	8-11%		12%
Older adults living alone	ⓘ	30%			29%
Hate crimes	ⓘ	0			1
Child abuse	ⓘ	2			4
Injury hospitalizations	ⓘ	689	657-721		806
Fall fatalities 65+	ⓘ	110	89-131		128

Physical Environment 20

Air pollution - particulate matter	8.8		6.7	9.3
Drinking water violations	No			
Severe housing problems	14%	13-15%	9%	15%
Driving alone to work	84%	83-85%	72%	81%
Long commute - driving alone	15%	14-16%	15%	27%

Additional Physical Environment (not included in overall ranking) –

Year structure built	16%			26%

Appendix E | Hanlon Method for Prioritizing Health Problems

In order to prioritize health issues, we recommend use of the Hanlon Method. Developed by J.J. Hanlon, the *Hanlon Method for Prioritizing Health Problems* is a well-respected technique which quantitatively and objectively ranks specific health problems based on the criteria of seriousness, magnitude, and effectiveness. Below is a description of this method. *Scales have been customized for Aurora's CHNA purposes.*

Step #1: Give each health problem a numerical rating on a scale of 0-10 for each of the three criteria shown in the columns.

Rating	Size of Health Problem (% of population) A	Seriousness of Health Problem B	Effectiveness of Interventions C
9 or 10	>50%	Very Serious	46% - 100% effective
7 or 8	40% - 49.9%	Relatively Serious	36% - 45% effective
5 or 6	30% - 39.9%	Serious	26% - 35% effective
3 or 4	20% - 29.9%	Moderately Serious	16% - 25% effective
1 or 2	10% - 19%	Relatively Not Serious	5% - 15% effective
0	<10%	Not Serious	<5% effective
Guiding considerations when ranking health issues against the three criteria	Size of the health problem should be based on data collected from the individual community	Does it require immediate attention? Is there public demand? What is the economic impact? What is the impact on quality of life? Is there a high hospitalization rate? Does it affect other health issues?	Determine upper and lower measures for effectiveness and rate health issues relative to those limits.

Step #2: Apply the 'PEARL' Test – Once health problems have been rated for all criteria, use the 'PEARL' Test to screen out health problems based on the following feasibility factors:

Propriety – Is a program for the health problem suitable?

Economics – Does it make economic sense to address the problem? Are there economic consequences if a problem is not carried out?

Acceptability – Will a community accept the program? Is it wanted?

Resources – Is funding available or potentially available for a program?

Legality – Do current laws allow program activities to be implemented?

Step #3: Calculate priority scores – Based on the three criteria rankings assigned to each health problem in Step 1 of the Hanlon Method, calculate the priority scores using the following formula:

D = [A + (2 x B)] x C

Where: D = Priority Score
A = Size of health problem ranking
B = Seriousness of health problem ranking
C = Effectiveness of intervention ranking

Step #4: Rank the health problems– Based on the priority scores calculated in Step 3 of the Hanlon Method, assign ranks to the health problems with the highest priority score receiving a rank of '1,' the next high priority score receiving a rank of '2,' and so on.

Aurora BayCare Medical Center Hanlon Rankings of Health Problems					
Ranking	**Health Issue Based on CHNA Data**	**A**	**B**	**C**	**D**
1	**No flu vaccine (19-64 years)**	**9**	**5**	**10**	**190**
2	**Not engaged in any leisure activity (physical activity)**	**4**	**5**	**4**	**156**
	Overweight	**9**	**8**	**4**	
3	**Binge drinking**	**6**	**8**	**4**	**88**
4	**Smoking**	**2**	**9**	**4**	**80**
Ranking	**Older Adults Subset**	**A**	**B**	**C**	**D**
1	No flu vaccine (65 and older)	7	5	10	170
2	No pneumonia vaccine (65 and older)	7	5	10	170
Ranking	**Women's Health Subset**	**A**	**B**	**C**	**D**
1	No first trimester prenatal care	2	9	9	180
2	No mammogram (Medicaid enrollees 67-69 years)	4	6	9	144

Appendix F | Evaluation of Impact

Focus | Access

Intended Impact

- Medicaid-eligible and uninsured patients using our hospital emergency department (ED) for primary care and frequent users of the ED for non-emergent reasons
- Children and students with unmet health care needs
- Patients with mental health conditions

Results

2016

- 1,046 non-emergent ED visits without a primary care physician (partial year)
- 1,076 children visits seen at Nicolet School pediatric clinic
- 430 at-risk children ages 0-4 referred to Wisconsin WIC program
- 2,208 pediatric patients accessing specialty clinic visits
- 678 pediatric patients accessing x-ray studies
- 63 patients utilizing tele-psychiatric program services

2017

- 1,793 non-emergent ED visits without a primary care provider
- 1,011 children visits seen at Nicolet School pediatric clinic
- 2,336 pediatric specialty care services provided in partnership with UW Health
- 60 patients utilizing tele-psychiatric program services
- 149.5 hours of medical services provided to 114 students at University of Wisconsin-Green Bay health center*

**New activity in 2017*

Focus | Nutrition, physical activity and overweight/obesity

Intended Impact

- Growth in community interest and participation in activities that promote physical activity and healthy weight
- Growth in number of patients and employees reporting increase in physical activity each year
- Growth in number of patients and employees achieving and maintaining a healthy weight each year

Results

2016

- 686 employees participating in the LiveFit: Prescription program
- 3,292 employees with ABMC fitness center membership
- 1,884 participants in Aurora BayCare personal training services
- 2,200 participants in Open Streets Green Bay
- 1,073 participants in Spooky Sprint 1K/5K/10K
- 1 Live54218 events supported by Aurora caregivers

2017

- 654 employees participating in the LiveFit: Prescription program
- 2,750 employees with ABMC fitness center membership
- 2,059 participants in Aurora BayCare personal training services
- 3,000 participants in Open Streets Green Bay
- 953 participants in Spooky Sprint 1K/5K/10K
- 3 Live54218 events supported by Aurora caregivers

Focus | Addressing unhealthy alcohol and drug use

Intended Impact

- Decrease in excessive alcohol use in Brown County
- The alcohol, depression and substance abuse screening tool will be successfully implemented to support a decrease in excessive alcohol use in Brown County
- A community-wide resource network for health care providers to access post screening will be packaged and available

Results

2016

- 2 AHCMG providers who implemented the alcohol, depression and substance abuse screening tool
- 10 Beyond Health to Healthiest Brown County steering committee meetings attended

2017

- 4 AHCMG providers who implemented the alcohol, depression and substance abuse screening tool
- Serving on the Healthy Brown County 2020 alcohol and drug use action group*
  - Educating local legislators and businesses on the severity of drugs and alcohol within Brown County and the state; reviewing local ordinances regarding the selling and distributing of alcohol
  - Partnering with the Brown County Tavern League to educate bartenders and business owners on safe serving
  - Organized educational fairs and events to educate the community on drug and alcohol abuse
  - Supported "Wreaked at the Weidner" event which simulated a motor vehicle crash related to substance abuse and all the consequences that occur as a result of poor choices for high school students

**New activity in 2017*

Focus | Youth injury prevention

	Intended Impact • Youth injury prevention, identification and intervention is improved • Student athletic injuries are successfully diagnosed, treated and rehabilitated

Results

2016

- 1,094 athletic trainer assessments at schools
- 698 baseline concussion screenings
- 279 youth sports physicals
- 91 health screenings and injury assessments provided at Aurora BayCare Orthopedic and Sports Medicine Center

2017

- 1,260 functional movement assessments
- 741 baseline concussion screenings
- 273 youth sports physicals
- 163 student athletes treated for a concussion (with previous concussion baseline screening)*
- 152 health screenings and injury assessments provided at Aurora BayCare Orthopedic and Sports Medicine Center
- 36 athletic events supported*

**New activity in 2017*

Focus | Chronic disease (including diabetes, heart disease, inflammatory bowel disease and cancer)

	Intended Impact • Improved health status and positive self-care behaviors for individuals with chronic disease (e.g. heart disease, asthma, diabetes, Crohn's/colitis) • Increased public awareness of, and knowledge about, Crohn's/colitis/other bowel diseases • Increased public awareness of colorectal cancer prevention, diagnosis and treatment; increase in screenings and early detection • Increased public awareness of breast cancer screening, diagnosis and treatment. • Increased public awareness and increase knowledge of prevention, risk factors and early warning signs for heart disease and stroke

Results

2016

- 1 Living Well with Diabetes programs with 15 participants
- 200 participants in Making Strides Against Breast Cancer Walk
- 5 cancer educational sessions with 125 attendees
- 4 skin cancer screening events held with 68 individuals screened
- 4 breast cancer support groups held with 186 attendees

- 10 heart/stroke education sessions held with 844 attendees
- 250 attendees at Crohn's and Colitis Foundation educational session

2017

- 3 Healthy Living with Diabetes programs with 42 participants
- 250 participants in Making Strides Against Breast Cancer Walk
- 7 cancer educational sessions with 615 attendees
- 10 skin cancer screenings provided
- 3 breast cancer support groups held with 121 attendees
- 13 heart/stroke education sessions held with 764 attendees
- 200 attendees at Crohn's and Colitis Foundation educational session
- As part of the Green Bay, Manitowoc & Marinette service area, 2,463 patients were tested for hepatitis C with 51 testing positive of which 25 had positive confirmatory tests resulting in 24 patients entering treatment*
  ** New activity in 2017*

Focus | Health professions education: primary care, rural medicine and emergency medical service providers

Intended Impact

- Prepare and encourage medical students to choose medical careers in primary care and rural medicine
- Increased collaboration between local EMS providers and various local EMS services

Results

2016

- 50 medical students participating in the WARM program rotation at ABMC
- 50% of WARM students passing Step 2 standardized exams became primary care providers
- 15 EMS scholarship recipients remained in surrounding communities
- 378 EMS personnel attended the EMS Huddle

2017

- 70 medical students participating in the WARM program rotation at ABMC
- 22% of WARM students passing Step 2 standardized exams became primary care providers
- 12 EMS scholarship recipients remained in surrounding communities
- 4 EMS Huddles provided with 349 attendees