2022

Manitowoc County

Community Health Assessment

MANITOWOC COUNTY WI

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Executive Summary

The Community Health Assessment (CHA) is a compilation of data that describes the health status of Manitowoc County. This report can be used to make data-informed decisions as to where our time and resources should be directed to increase the quality of our community's health.

The CHA report, prepared by Manitowoc County Health Department, provides an expansive review of Manitowoc County's health through community members' perspectives and measurable indicators of health. Data were collected from phone surveys, online surveys, key stakeholder interviews, community forums, and through review of secondary data.

The CHA report is organized according to the County Health Rankings Model, which explores areas of:

- Social & Economic Factors
- Health Behaviors & Outcomes
- Clinical Care
- Physical Environment

Over the course of the CHA process, three main health concerns surfaced: Mental Health, Physical Activity and Nutrition, and Substance Use. Community input emphasized the need to utilize a protective factor lens when looking at these priorities. By focusing on protective factors, which decrease the likelihood of negative health impacts, we can affect multiple areas of one's health including physical and mental at the same time. Common protective factors discussed during the CHA process included: supportive relationships, positive parenting, and safe/stable environments.

The top health priorities will become the core focus of our Community Health Improvement Plan (CHIP) as we collaborate with Healthiest Manitowoc County to create and implement timely, actionable, and data-based goals over the next five years.

- Manitowoc County Health Department

1. Manitowoc County Human Services Department, Crisis Intervention Report, 2022
2 & 4. Centers for Disease Control and Prevention, PLACES, 2022
3 & 5. Manitowoc County Youth Risk Behavior Survey, 2021
6. Feeding America, 2020
7. Wisconsin Department of Health Services, Alcohol Hospitalizations Dashboard, 2021
8. Wisconsin Department of Justice, 2021
9. Wisconsin Department of Health Services, Birth Counts Module, 2020
10. County Health Rankings & Roadmaps, 2022
11. U.S. Bureau of Labor Statistics, 2022

Top Health Priorities in Manitowoc County

Local data highlights

Top Health Priority: Mental Health

70% of County Crisis Line calls were mental health related [1]

20% of adults reported having depression [2]

16% of middle school students reported considering suicide [3]

Top Health Priority: Physical Activity & Nutrition

21% of adults report no leisure-time physical activity [4]

36% of high school students eat vegetables every day [5]

6,380 food insecure individuals [6]

Top Health Priority: Substance Use

824 alcohol-related hospitalizations [7]

400 drug possession arrests [8]

13% of women smoke tobacco during pregnancy [9]

Top Strengths of Manitowoc County [10]

High School Graduation Rate	92%
Unemployment Rate [11]	3%
Uninsured Rate	7%
Child Poverty Rate	10%

Acknowledgements

We would like to thank the residents of Manitowoc County who participated in the data collection process through the online survey, phone survey, stakeholder interviews, or community forums. Community engagement in the Community Health Assessment (CHA) provides the planning committee a better sense of health concerns in our community.

A special thank you to the members of the CHA Planning Committee, which include:

Manitowoc County Health Department Team

Sydney Herman Community Health Strategist
Stephanie Lambert Health Officer
Lexi Otis Health Educator, Emergency Preparedness Coordinator

Community Partners

Aurora Health Care

Ann Christiansen Vice President of Community Health in Wisconsin
Cathie Kocourek Hospital President, Administration
Sarah Vanausdall Community Benefit Analyst, Sr., Community Health

Froedtert Holy Family Memorial Hospital

Andrew Dresang Executive Director, Community Engagement
Kate Nickel Community Engagement Coordinator Sr.
Amanda Wisth Manager of Community Benefit and Impact
Xue Yang Community Relations Coordinator

Lakeshore Community Action Program, Inc.

Colleen Homb Executive Director

Lakeshore Community Health Care

Kristin Stearns Chief Executive Officer

Northeastern Wisconsin Area Health Education Center (NEW AHEC)

Annie Short Executive Director

United Way Manitowoc County, Inc.

Ashley Bender Executive Director

Thank You

Several local businesses and individuals contributed to the success of the CHA process, including Healthiest Manitowoc County (HMC), Dorothy Chaney of Impact Community Planning Group, JKV Research, Center for Urban Population Health, the Franciscan Center for Music Education and Performance, and those who volunteered to facilitate discussions at our community forums.

Our Approach

What is the
Community Health Assessment?

In accordance with Wisconsin State Statute § 251.05, all local health departments are required to conduct a Community Health Assessment (CHA) every five years.[1] Over the course of four phases, key community health concerns are identified using data collection, community meetings, and Manitowoc County resident feedback. Conclusions drawn from the CHA frame and focus top health priorities, strategies, and indicators used in a Community Health Improvement Plan (CHIP).

CHA Phases

Phase 1
Data Collection
September 2021 through April 2022

Phase 2
Community Forums
August 2022 through October 2022

Phase 3
Priority Setting
October 2022 through November 2022

Phase 4
CHA Report
December 2022

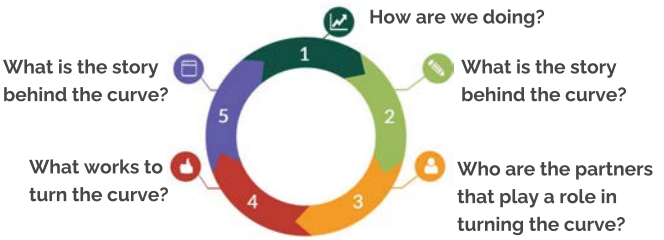
Timeline of Our CHA

- September 2021 — CHA Planning Meetings Begin
- January 2022 — Stakeholder Interviews
- February 2022 — JKV Phone Call Survey
- April 2022 — Online Survey Launch
- August 2022 — Community Data Walk
- September 2022 — Health Prioritization Meeting
- October 2022 — Listening Session
- November 2022 — Synthesize Data and Information
- December 2022 — Submit CHA Report

Community Change Model

Throughout the CHA and CHIP process, Results Based Accountability (RBA), a data-driven, decision-making framework, is being utilized to help frame complex issues into actionable problem statements. RBA for population health works backwards from identified issues using turn the curve thinking to move from problem to solution.

Figure 1: Results Based Accountability Turn the Curve Thinking[2]



1. Wisconsin Department of Health Services, 2022
2. Clear Impact

Community Health Assessment Process

Breaking down the CHA Phases

Phase 1

Data Collection: *Primary & Secondary Data*

Primary data is defined as information collected directly from a source. In terms of the CHA, the primary data sources consisted of members of the community, through the means of key stakeholder interviews, a phone survey, and an online survey. The CHA process hinges on the community's opinions and experiences.

Key Stakeholder Interviews *Total of 30 questions*

32 Interviews from providers, policy makers, local experts, and community members

The planning committee chose key stakeholders to represent various county populations and interests and conducted interviews from January through March 2022. Interview questions addressed pandemic-related needs or gaps, social determinants of health, populations most affected by health concerns, and major efforts needed in the community. The Center for Urban Population Health was commissioned to analyze the results in a comprehensive report.

Key Stakeholders

Aging and Disability Resource Center of the Lakeshore
Ascend Services, Inc.
Big Brothers Big Sisters Wisconsin Shoreline
CORE Treatment Services, Inc.
Family Connections
Hope House of Manitowoc County
InCourage
Lakeshore Community Action Program (CAP), Inc.
Lakeshore Community Health Care
Lakeshore Technical College
League of Women Voters of Manitowoc County
Lighthouse Recovery Community Center
Manitowoc County Health Department
Manitowoc County Human Services Department
Manitowoc County Sheriff's Office
Manitowoc County Veterans' Services Office
Manitowoc Public Library
Manitowoc Public School District
Manitowoc-Two Rivers YMCA
Painting Pathways Clubhouse, Inc.
PFLAG Manitowoc County Chapter
Prevent Suicide-Manitowoc County
Reedsville School District
RUTH - Interfaith Justice Group
St. Thomas the Apostle Catholic Church
The Chamber of Manitowoc County
The Crossing of Manitowoc County
The Haven of Manitowoc County, Inc.
The Salvation Army Manitowoc County
Trinity Hmong Lutheran Church
United Way Manitowoc County

Phone Survey *Total of 85 questions*

400 Completed Surveys

JKV Research, LLC conducted phone surveys between January 26 and April 2, 2022. The survey was offered in English and Spanish. Respondents were randomly selected. Callers anonymously answered questions about personal health conditions, health services, health care coverage, substance use, and economic hardship experienced in Manitowoc County.

Mode of Communication

55% Landline

45% Cellphone

Age of respondents

18-34 yrs	22%
35-44 yrs	15%
45-54 yrs	17%
55-64 yrs	21%
65+ yrs	26%

Gender of respondents

50% Female
49% Male
1% All Others

Education of respondents

30% High School Graduate or Less
35% Some Post High School
35% College Graduate

Community Health Assessment Process (Continued)

Phase 1

Data Collection: *Primary & Secondary Data continued*

Online Survey *Total of 30 questions*

958 Completed Surveys

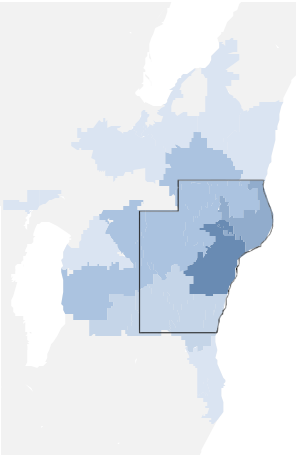
The online survey was created using Survey Monkey and was active between April 8 and June 1, 2022, during which 958 surveys were completed. The survey was open to any resident or worker in Manitowoc County, 18 years old or older, and available in English, Spanish, and Hmong. Planning committee members distributed posters and flyers throughout the county and marketed the survey on social media. This was a perception survey, focusing on attitudes and experiences around health in Manitowoc County.

Age of respondents

18-34 yrs	23%
35-44 yrs	15%
45-54 yrs	17%
55-64 yrs	21%
65+ yrs	25%

Geographic Areas of respondents

Manitowoc City Area	71%
Two Rivers City Area	11%
Northwest Manitowoc County	11%
Southern Manitowoc County	4%
Outside of County	3%



Education of respondents

13%	High School Graduate or Less
28%	Some Post High School
59%	College Graduate

Ethnicity of respondents

97%	Not Hispanic or Latino
3%	Hispanic or Latino

Race of respondents

94%	White
2%	Asian
2%	Multiple Races
<1%	Black, African American
<1%	American Indian or Alaska Native
0%	Native Hawaiian or Other Pacific Islander
<1%	Other Race

Secondary Data is data that has already been collected by researchers. The Center for Urban Population Health was contracted by the planning committee to gather and analyze Manitowoc County data from existing local, state, and national sources. Many of these data points provide insight into longitudinal trends over several years that serve as indicators of improvement or decline in Manitowoc County's health.

Manitowoc County Secondary Data Report Sources

American Community Survey
Behavioral Risk Factor Surveillance System
CDC PLACES
County Health Rankings & Roadmaps
US Census Bureau
US Department of Health and Human Services, Healthy People 2030
WI Department of Health Services, WISH
WI Department of Justice

Community Health Assessment Process (Continued)

Phase 2 — Community Forums

After county data was collected from primary and secondary sources, a series of community forums were held to present the data and gather direct input from participants. All members of the community were invited and forums were advertised through flyers, social media, and press releases to local media.

Community Data Walk

August 31, 2022

57 People in attendance

32 Organizations represented

Following an optional lunch, community members were assigned to groups of seven, including a table facilitator to moderate discussion and answer questions along the way. The data walk was in part prepared and led by Dorothy Chaney of Impact Community Planning Group, LLC. Participants walked around the room to view data posted on walls and eventually narrowed the scope of health issues down to the top three health priorities in Manitowoc County.

Health Prioritization Meeting

September 30, 2022

43 People in attendance

28 Organizations represented

As a direct follow-up to the data walk, participants reviewed in-depth data for each of the top three health priorities: mental health; substance use; and nutrition, physical activity, and obesity. Each group selected specific priorities for their chosen health priority with an emphasis on risk and protective factors.

Listening Session

An evening listening session was offered on October 17, 2022 at the Manitowoc Public Library with an option to join via Zoom. This was an additional opportunity for community members to provide feedback.

Phase 3 — Prioritization: *Top Health Priorities*

Results from the data collection process led to the selection of the following top three health priorities:

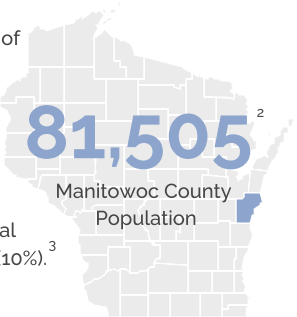
	Substance Use	Mental Health	Physical Activity & Nutrition
Phone Survey	#1	#2	#3
Online Survey	#1	#2	#3
Stakeholder Interviews	#2	#1	#3
Community Data Walk	#3	#1	*

* Physical Activity & Nutrition was not chosen as one of the top 3 health priorities during the Data Walk.

Manitowoc County Profile

About Our Community

Manitowoc County is situated along the coast of Lake Michigan and is surrounded by Kewaunee, Brown, Calumet, and Sheboygan counties. Encompassing 589 square miles of land, Manitowoc County is home to approximately 81,505 people.[1]



Manitowoc County's predominant employment industry is manufacturing (32%), followed by health care and social assistance (13%) and retail trade (10%).[3]

The following townships, villages, and cities comprise Manitowoc County:

Towns		*Villages*	*Cities*
Cato	Manitowoc Rapids	Cleveland	Kiel
Centerville	Maple Grove	Francis Creek	Manitowoc
Cooperstown	Meeme	Kellnersville	Two Rivers
Eaton	Mishicot	Maribel	
Franklin	Newton	Mishicot	
Gibson	Rockland	Reedsville	
Kossuth	Schleswig	St. Nazianz	
Liberty	Two Creeks	Valders	
Manitowoc	Two Rivers	Whitelaw	

Photo credit: "City of Manitowoc Sign" by eyfoto

Gender[2]

49% Female

51% Male

Ethnicity[4]

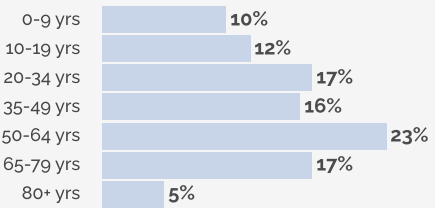
95% Not Hispanic or Latino

5% Hispanic or Latino

Race[5]

89.9%	White
6.0%	Multiple Races
2.5%	Asian
0.4%	Black or African American
0.2%	American Indian or Alaska Native
0.1%	Native Hawaiian or Other Pacific Islander
0.7%	Other

Age[2]



61% Urban[6]

39% Rural

Median Household Income[7]

$57,918

Poverty[8]

12% of population is below the Federal Poverty Level (FPL)

Education[9]

8%	Less than high school education
41%	High school graduate
30%	Some college/Associate's degree
21%	Bachelor's degree or higher

1. U.S. Census Bureau, Quick Facts
2-5 & 7-9. U.S. Census Bureau (Tables S0101, S2404, B03003, B02001, S1903, S1701, S1501), 2021
6. City-Data.com, 2019

County Health Rankings & Roadmaps

Grounding our data

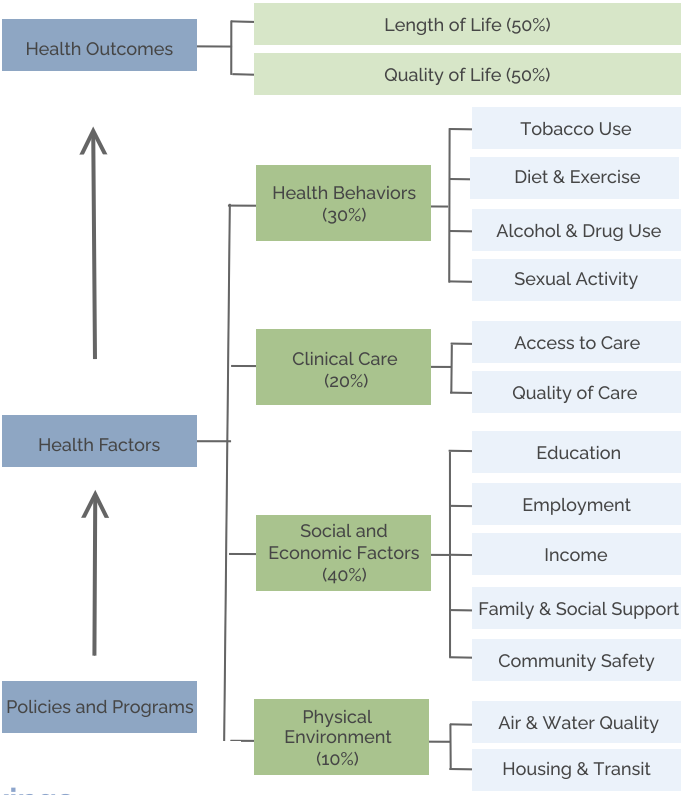
Data analysis of primary and secondary data, along with results from the community forums, was framed by the County Health Rankings Model (Figure 2).

This model outlines extensive factors of community health, which amounts to health behaviors (30%), clinical care (20%), social and economic factors (40%), and physical environment (10%). The health factors of an individual directly influences that person's overall health outcome.

Organizing the data according to the County Health Rankings Model, revealed longitudinal trends of health concerns and strengths in the county and informs health priorities.

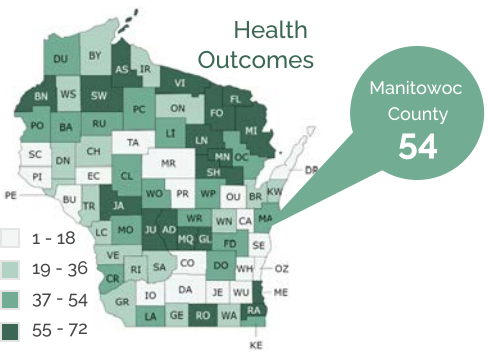
With the breakdown of health factors in mind, we chose unique health indicators for Manitowoc County based on significant trends over time.

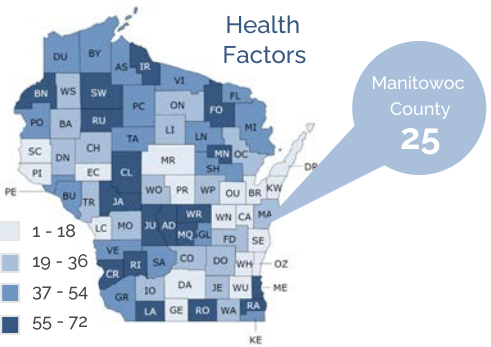
Figure 2: County Health Rankings Model[1]



2022 County Health Rankings

County Health Rankings and Roadmaps annually prepares rankings of all counties in the state based on specific health indicators. The counties are ranked in two different categories: health outcomes and health factors on a scale from 1 to 72 (1 being the best, 72 being the worst).





1. County Health Rankings & Roadmaps, 2022

Health Factor #1

Social & Economic Factors

Social and economic factors account for **40%** of health factors in the County Health Rankings Model. This factor equates to another concept, social determinants of health, in which "conditions in the places where people live, learn, work, and play affect a wide-range of health and quality-of-life-risks and outcomes". [1] Such social and economic factors include: child care, education, employment, income, food access, and housing.

- Child Care
- Education
- Employment & Income
- Food Access
- Housing

1. Centers for Disease Control and Prevention, 2021

Child Care

Why is Child Care Important?

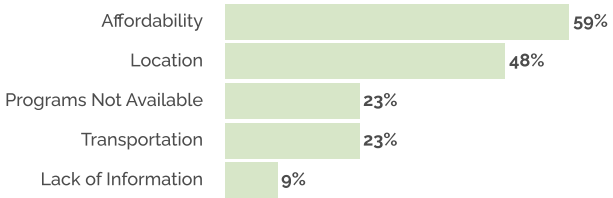
Access to affordable and quality child care is vital for working parents in order to support their families. Families who access child care can earn paid income or pursue higher education; however, many barriers exist to accessing care.

Child Care Centers

Earning an income during the day requires most parents or guardians to find suitable child care for their children, most often in the care of licensed daycares or family child care providers. There are **27** state-licensed child care facilities in Manitowoc County, **41%** of which are located in the City of Manitowoc.[1]

Child Care Barriers

What barriers are keeping you from accessing the programs and services you need for your children?[2]



Affordable and Accessible Child Care *consistently ranked in the top 2 social/economic issues in Manitowoc County among surveys and interviews*

53% **of respondents** answered that there is a high need for full day child care in the community.[2]

23% **of median household income** is needed to pay child care in the community.[3]

In a household making $58,464, $13,489 is needed to pay for child care for two children.

Child Care center per Children under the age of 5 [4]

"A lack of access to child care and younger children doing virtual school from home during the pandemic meant parents, usually moms, or grandparents had to leave the workforce to stay home with children." - **Key Stakeholder** [5]

1. Wisconsin Department of Children and Families, 2022
2. YMCA Community Survey Report, 2022
3 & 4. County Health Rankings & Roadmaps, 2022
5. Manitowoc County Key Stakeholder Interviews, 2022

Education

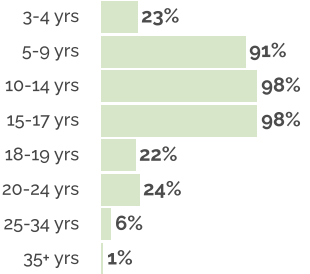
Why is Education Important?

Education teaches and refines important skills and knowledge, which aid people in making informed choices about personal and familial health. Quality education promotes better health through prospects for higher paying jobs, often supplemented with health insurance and other benefits.[1]

Our Schools

- **16** Private Schools
- **13** Public Elementary Schools
- **7** Public Middle Schools
- **6** Public High Schools
- **2** Colleges
- **1** Charter School

School Enrollment (2021)[2]



High School Graduation (2019)[3]

Percent of ninth-grade cohort that graduated high school.

92% Manitowoc County **90%** Wisconsin

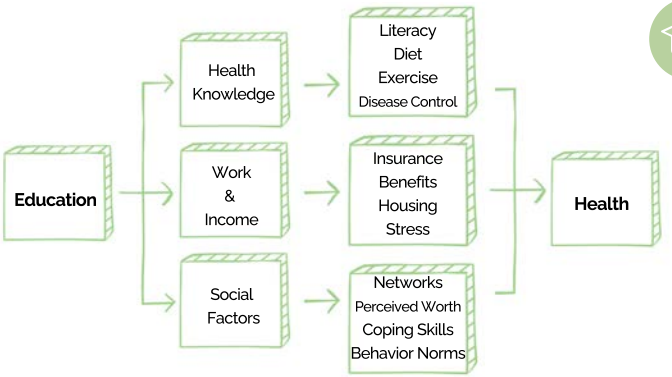
Education Attainment (2021)[4]

Population 25 years and older

- **8%** Less than High School Education
- **41%** High School Graduate
- **30%** Some College/Associate's Degree
- **21%** Bachelor's Degree or Higher

Figure 3: Relationship between education and health[1]

Adapted from the Robert Wood Johnson Foundation's Education and Health



Did you know?

Our libraries offer educational tools such as:

Homework help
Reading programs
Study rooms
Online research resources
and much more!

What is the YRBS?

The Youth Risk Behavior Survey (YRBS) is a biennial survey taken by middle and high school students. The students are granted complete anonymity and in return school districts and the county receive valuable data about student experiences and perceptions. In the 2020-2021 school year, 6 public middle schools and 7 public high schools in Manitowoc County participated in the survey.

Middle School[5]		High School
1,302 student responses		**2,311** student responses
70%	students participate in extracurriculars	**65%**
64%	students feel like they belong in school	**57%**
53%	students sleep 8 or more hours per night	**28%**
43%	students use technology between midnight and 5:00am on school nights	**52%**

1. Robert Wood Johnson Foundation, 2011
2 & 4. U.S. Census Bureau (Tables: S1401, S1501), 2021
3. County Health Rankings & Roadmaps, 2022
5. Manitowoc County Youth Risk Behavior Survey, 2021

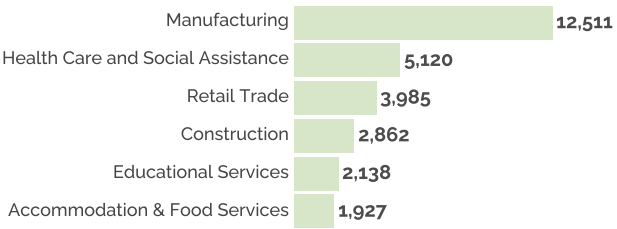
Employment & Income

Why is Employment and Income Important?

Jobs accompanied with health insurance, paid-sick leave, retirement and other benefits are proven to positively impact health; however, these opportunities are typically limited to higher wage jobs.[1]

Employment

Top industries in Manitowoc County by number of employees [2]



In 2020, Manitowoc County's unemployment rate rose to 6%, up 3% from the previous year.[3] These rates match Wisconsin's unemployment rates for the same years and can partially be contributed to effects from the COVID-19 pandemic.[4] As of September 2022, Manitowoc County's unemployment rate is back at 3%.[5]

83% of workers drive to work alone [6]

39% of workers drive more than 25 minutes to work [7]

56% of high school students work [8]
19% work 10-19 hours/week
14% work 20+ hours/week

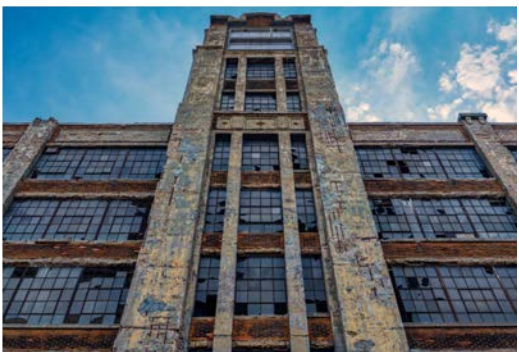


Photo credit: "Numbered Days" by Bill Chizek

Poverty

Federal Poverty Level Income Guidelines [9]

Individual: **$13,590**

Family of 4: **$27,750**

10% Of 18 and under population in Manitowoc County are living in poverty [10]

Living Wage [11]

The living wage shown is the hourly rate that an individual in a household in Manitowoc County must earn to support his or herself and their family. Minimum wage is currently **$7.25**.[12]

1 Working Adult				2 Working Adults			
0 Children	1 Child	2 Children	3 Children	0 Children	1 Child	2 Children	3 Children
$15.24	$30.33	$38.24	$50.04	$24.02	$29.24	$34.96	$37.16

1. Robert Wood Johnson Foundation, 2011
2. U.S. Census Bureau, Table: S2403, 2021
3, 6, 7 & 10. County Health Rankings & Roadmaps, 2022
4. Manitowoc County Workforce Profile, 2021
5. U.S. Bureau of Labor Statistics, 2022
8. Manitowoc County Youth Risk Behavior Survey, 2021
9. HealthCare.gov, 2022
11. Living Wage Calculator, 2022
12. Wisconsin's Current Minimum Wage Rates

Food Access

Why is Food Access Important?

Lack of regular access to affordable healthy food can lead to increased incidences of obesity, diabetes, heart disease and other health conditions. Those facing food insecurity often face additional issues such as poor housing and lack of health insurance.[1]

Food Insecurity

6,380
food insecure individuals in Manitowoc County in 2020 [2]

7%
of low-income individuals do not live close to a grocery store [3]

34%
of students enrolled in public school are eligible for free or reduced lunch[4]

$3,309,000
needed to cover the food budget shortfall in Manitowoc County annually [2]

Percentage of Manitowoc County students who reported experiencing hunger due to a lack of food at home in the past 30 days: [5]

Food Access

Resources like Women, Infants, and Children Nutrition Program (WIC) and Supplemental Nutrition Assistance Program (SNAP) provide eligible individuals and families assistance in buying food.[6]

3,821 households received SNAP benefits in 2021[7]

1,441 individuals received WIC benefits in 2021[8]

63,226 meals delivered to homes by ADRC in 2021[9]

Food Pantries

Crusaders Closet
Crusaders of Justicia Drive Up Food Pantry
Faith's Food Pantry
Grow it Forward Food Pantry
Kiel Area Community Food Pantry, Inc
Painting Pathways Emergency Food Pantry
Peter's Pantry
Salvation Army Food Pantry
St. Vincent De Paul Food Pantry
Two Rivers Christian Center Thrift Store
Two Rivers-Mishicot Ecumenical Pantry (TREP)
United Ministries Food Pantry

1. Healthy People 2030
2. Feeding America, 2020
3 & 4. County Health Rankings & Roadmaps, 2022
5 . Manitowoc County Youth Risk Behavior Survey, 2021
6. U.S. Department of Agriculture
7. U.S. Census Bureau, Table S2201, 2021
8. Manitowoc County Women, Infants, and Children, 2021
9. Aging & Disability Resource Center of the Lakeshore, 2021

Housing

Why is Housing Important?

When quality housing is unavailable and/or unaffordable, it can put stress on individuals and families and increase their chances for poor health outcomes. Location of housing can also affect one's health by providing or preventing access to transportation, healthy foods, exercise opportunities, safe neighborhoods, and educational opportunities.[1]

Homelessness

Manitowoc County has 3 shelters:

InCourage *Women's domestic violence shelter*
The Haven *Men's homeless shelter*
Hope House *90-day shelter program geared towards families, but serving some without children*

Demand that exceeds shelter capacity was one issue mentioned in key stakeholder interviews.

Capacity of Hope House[2]	Waitlist for Hope House at one point in 2022
7 households *or* 26 individuals	14 families 44 singles 14 couples

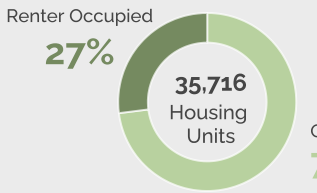
A group of volunteers and local agencies conduct a biennial Point-In-Time (PIT) homeless count in Manitowoc and surrounding counties. The PIT count focuses on locating individuals who may be experiencing homelessness by searching streets, cars, and other areas.

5 Individuals identified in the summer 2022 Point-In-Time count for Manitowoc County[3]

Key stakeholders noted the scope of homelessness in Manitowoc County goes beyond those identified in PIT counts and shelters.[4] The issue extends to those forced to couch surf, utilize 24/7 businesses, or those without permanent nighttime residence.

1 in **10** households in Manitowoc County experience at least one of the following:[5]

- **Overcrowding**
- **High housing costs**
- **Lack of kitchen facilities**
- **Lack of plumbing**



2·1·1 Get Connected. Get Help.™

United Way of Manitowoc County's 211 helpline directs callers to resources in the community.[7]

24% of calls were related to **Housing/Shelter**
6% of calls were related to **Utilities**

3 Shelters
6 Nursing Homes
10 Adult Homes
18 Independent Apartments
22 Subsidized Housing Facilities
37 Assisted Living Facilities[8]

1. Robert Wood Johnson Foundation, 2011
2. Hope House of Manitowoc County, 2022
3. United Way of Manitowoc County, 2022
4. Manitowoc County Key Stakeholder Interviews, 2022
5. County Health Rankings & Roadmaps, 2022
6. U.S. Census Bureau, Table S2502, 2021
7. United Way of Manitowoc County Annual Report, 2021
8. Aging & Disability Resource Center of the Lakeshore

Health Factor #2

Health Behaviors & Outcomes

30% of health factors are associated with ealth behaviors. Everyday actions, such as alcohol consumption, diet, and physical activity can influence a person's overall health. Practicing healthy behaviors can protect individuals from disease and death.

- Alcohol Use
- Drug Use
- Tobacco Use
- Mental Health
- Nutrition & Physical Activity
- Injury & Mortality

Alcohol Use

Top Health Substance Use Priority

Why is Alcohol Use Relevant?

Excessive consumption of alcohol is associated with various behavioral and health effects for both adults and youth. These may include injury, chronic illness, poor mental health, alcohol use disorders, or death as long-lasting effects of excessive alcohol use.[1]

Excessive Drinking

Excessive drinking includes binge drinking, heavy drinking, and drinking while pregnant. Individuals who excessively drink are at risk for negative health effects.

The number of drinks for men and women varies for binge and heavy drinking.[2]

Binge Drinking per occasion

Men	**5** or more drinks
Women	**4** or more drinks

Heavy Drinking per week

Men	**15** or more drinks
Women	**8** or more drinks

Adults reporting binge or heavy drinking (2019)[4]

27% Manitowoc County **25%** Wisconsin

In Wisconsin, **6%** of women drink alcohol in excess (8 or more drinks per week) 3 months before pregnancy[5]

Short-Term Risks[3]

Alcohol poisoning
Unintentional injuries
Violence
Poor pregnancy outcomes
Memory problems

Long-Term Risks

Cancer
High blood pressure
Heart disease
Liver disease
Learning/memory problems
Weakened immune system
Mental health problems
Alcohol use disorders

Underage Alcohol Use

Consumption of alcohol before the legal age of 21 can have damaging effects on brain and body development. There is also evidence of linked mental health problems and other addictions.[6]

Wisconsin is one of many states that allows minors to not only be present on alcohol serving premises but also consume alcohol under adult supervision.[7] This normalization can lead to a low perception of risk towards excessive drinking.

1 in **4** high school students **currently drink**[8]

(At least 1 drink in the past 30 days)

10% of those who currently drink, report **binge drinking**

1. Alcohol Prevention Ad Hoc Workgroup, 2021
2. Centers for Disease Control and Prevention, 2022
3. Medical College of Wisconsin
4. County Health Rankings & Roadmaps, 2022
5. Wisconsin PRAMS Surveillance Report, 2019
6. Wisconsin Department of Health Services, 2022
7. Serving Alcohol Inc.
8. Manitowoc County Youth Risk Behavior Survey, 2021

Alcohol Use (Continued)

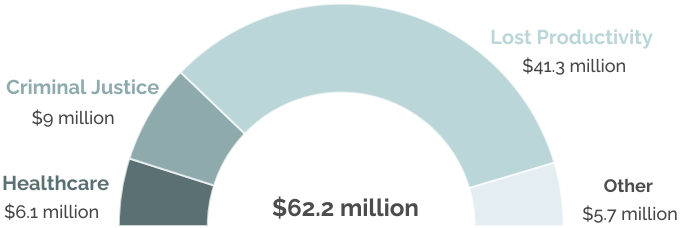
Top Health Substance Use Priority

Estimated Annual Cost of Binge Drinking[9]

$62.2 million in Manitowoc County

$770
cost per resident

$25.8 million
cost to the government



Alcohol-Related Outcomes

Alcohol consumption in Manitowoc County contributed to the following in 2021:

824
Total alcohol-related hospitalizations[10]

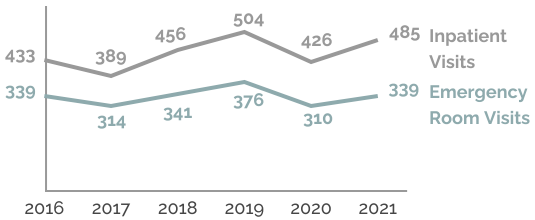
282
Arrests for driving under the influence[11]

103
Vehicle crashes involving impaired drivers[12]

47
Alcohol attributed deaths[13]

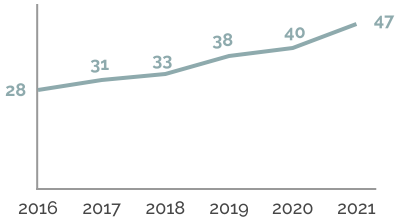
Alcohol-Related Hospitalizations

of Hospitalizations*



Alcohol Attributed Deaths

of Deaths



*Note that alcohol-related hospitalizations account for chronic hospitalizations as a result of long-term alcohol use. This does not include acute alcohol hospitalizations.

9. The Burden of Binge Drinking in Wisconsin, 2019
10. Wisconsin Department of Health Services, Alcohol Hospitalizations Dashboard, 2021
11. Wisconsin Department of Justice, 2021
12. Community Maps
13. Wisconsin Department of Health Services, Alcohol Deaths Dashboard, 2021

Drug Use

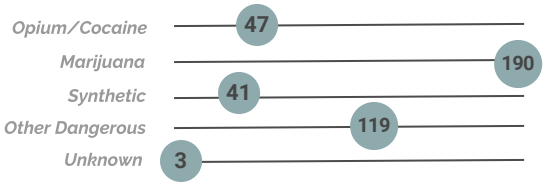
Top Health Substance Use Priority

Why is Drug Use Relevant?

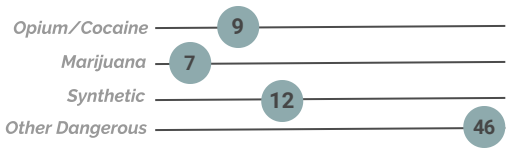
Drug use can lead to increased risk of chronic illness, heart disease, HIV/AIDS, Hepatitis C, and mental illness.[1] The rising number of people who use drugs or illegal substances has led to an increase in issues surrounding drug-related crimes and violence, legal system capacity strain, decreased workforce productivity, increased healthcare needs, and increased social service needs.[2]

Drug Crime Arrests in 2021[3]

400 possession arrests



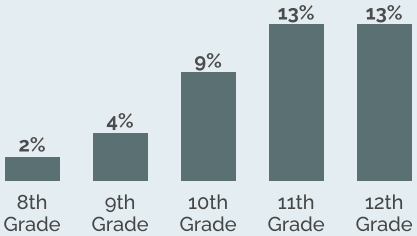
74 sale arrests



Youth Drug Use[4]

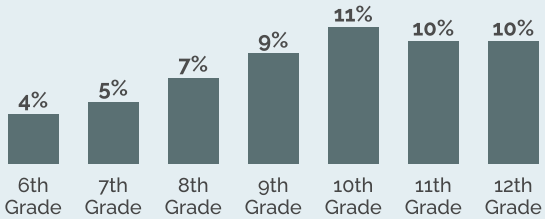
Marijuana Use

% of students who self-reported marijuana use in the past 30 days



Legal Drug Misuse

% of students who self-reported misusing over-the-counter and/or prescription pain medication



Of the high school students who reported using marijuana, **15%** reported starting before the age of 13.

7% of high school students reported being **offered, sold, or given drugs** on school property.

1. National Institute on Drug Abuse, 2022
2. Substance Abuse and Public Health, 2020
3. Wisconsin Department of Justice, 2021
4. Manitowoc County Youth Risk Behavior Survey, 2021

Drug Use (Continued)

Top Health Priority: Substance Use

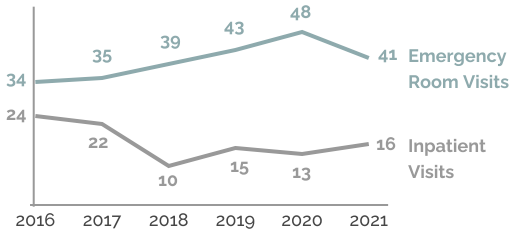
Community Input

Key Stakeholders noted how trauma, mental illness and stress from lack of education, employment, housing, and social belonging feed into use and misuse of substances. Multiple stakeholders remarked that the impact of substance use goes beyond direct use and impacts families and friends with feelings of guilt, confusion, hopelessness, or anger.[5] Substance use inside a home with young children can also normalize the behavior, which can lead to generational cycles of use.

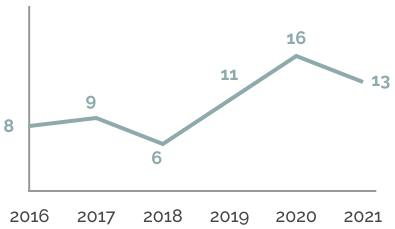
Opioid-Related Outcomes in Manitowoc County

89% of Manitowoc County overdoses involved opioids

# of Hospitalizations [6]



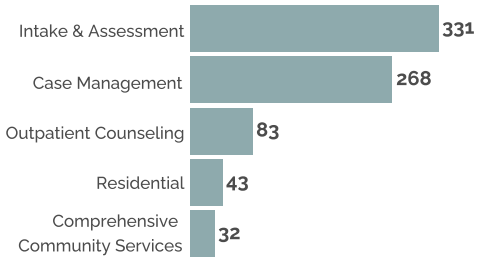
# of Deaths [7]



Manitowoc County Services [8]

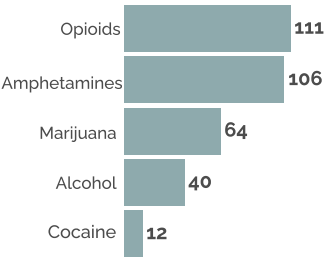
Top 5 most used services in 2020

# of people served in Manitowoc County



Top 5 most common substances in 2020

# of people served in Manitowoc County



201 pounds of unwanted or unused medications were collected at the 2022 Annual Drug Take Back Event.[9]

Permanent drug disposal box locations:

Kiel Police Department
Manitowoc City Police Department
Manitowoc County Sheriff's Office
Mishicot Police Department
Two Rivers Police Department

The Manitowoc County Crisis Line provides 24/7 crisis support to those in need.

920-683-4230
M-F 8:00AM - 4:30PM

1-888-552-6642
Nights, holidays, weekends

749 substance use disorder related calls placed to the County Crisis Line between January and October 2022.[10]

5. Manitowoc County Key Stakeholder Interviews, 2022
6. Wisconsin Department of Health Services, Opioid Hospitalization Module, 2022
7. Wisconsin Department of Health Services, Opioid Death Module, 2022
8. Wisconsin Department of Health Services, County Services - Substance Use, 2021
9. Holy Family Memorial, 2022
10. Manitowoc County Human Services Department, Crisis Intervention Report, 2022

Tobacco Use

Top Health Substance Use Priority

Why is Tobacco Use Relevant?

Tobacco consumption affects all areas of the body and can lead to disease, disability, or death in adults and youth.[1] Smoking is one of Wisconsin's top causes of preventable death.[2]

Health Effects

The toxic chemicals in tobacco products can lead to dangerous health outcomes, including eye diseases, cardiovascular disease, and several forms of cancer.[3, 4]

Incidence rates of cancer (per 100,000)[5]

Lung and Bronchus

61 Manitowoc County 59 Wisconsin

Oral Cavity and Pharynx

13 Manitowoc County 13 Wisconsin

Tobacco Products

Nicotine is the addictive ingredient in the tobacco plant.[6] Its presence in almost all tobacco products makes it difficult for users to quit.[7]

Cigarettes *Cigars* *Hookah Tobacco* *Roll-Your-Own Tobacco* *Dissolvables*

Nicotine Gels *Vapes, E-Cigarettes* *Smokeless Tobacco* *Pipe Tobacco*

Tobacco Prevalence

Adults

18% of adults ***currently smoke tobacco*** in Manitowoc County, compared to 16% statewide.[8]

13% of ***women use tobacco during pregnancy*** in Manitowoc County, compared to 8% statewide.[9]

Youth[10]

Students who currently vape

4% Middle school

13% High school

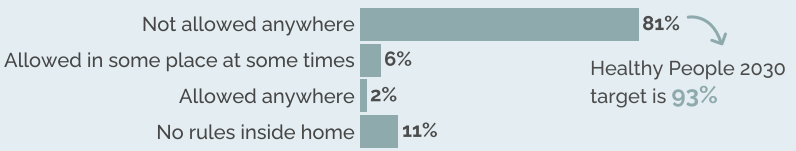
Students who currently smoke tobacco

2% Middle school

5% High school

Of the high school students who reported smoking/vaping, 49% tried to quit in the past 12 months.

Smoking Rules at Home according to Manitowoc County citizens[11]



Healthy People 2030 target is 93%

1. Centers for Disease Control and Prevention, 2022
2. Wisconsin Department of Health Services, 2022
3. U.S. Food and Drug Administration, 2022
4. U.S. Food and Drug Administration, 2021
5. Wisconsin State Cancer Profiles, 2015-2019
6. U.S. Food and Drug Administration, 2022
7. U.S. Food and Drug Administration, 2020
8. County Health Rankings & Roadmaps, 2022
9. Wisconsin Department of Health Services, Birth Counts Module, 2020
10. Manitowoc County Youth Risk Behavior Survey, 2021
11. Manitowoc County Phone Survey, 2022

Mental Health

Top Health Priority: Mental Health

Why is Mental Health Important?

Mental health is an ever-changing balance of our emotional, psychological, and social well-being affecting how someone thinks, feels, and acts. Mental health can influence one's ability to cope with stress, interact with others, and affect choices they make in regard to health. Mental illnesses are diagnosable conditions that affect a person's mental health. Common mental illnesses include anxiety, depression, personality disorders, and post-traumatic stress disorders, and can be caused by use of drugs or alcohol, battles with chronic health conditions, biological factors, and past traumatic experiences. [1]

Manitowoc County adults report an average of **4.4 poor mental health days** per month. **14%** of adults report 14 or more poor mental health days in the past 30 days.[2]

20% of Manitowoc County adults report having **depression.**[3]

3,049 calls placed to the County Crisis Line between January and October 2022 were **mental health related**, making up **70%** of the **total calls.** [4]

17% of Wisconsin mothers report experiencing **depression during pregnancy**. [5]

Manitowoc County Services[6]

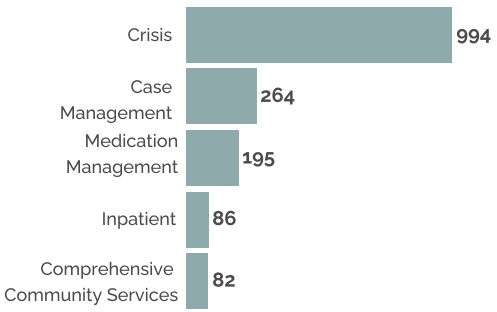
1,234	people served in 2020 by Manitowoc County mental health services
141	served had high intensity* ongoing needs
228	served had low intensity** ongoing needs
868	served had short term/ situational needs

*has a primary diagnosis of a major mental illness or severe emotional disturbance with substantial need for psychiatric and medical treatment

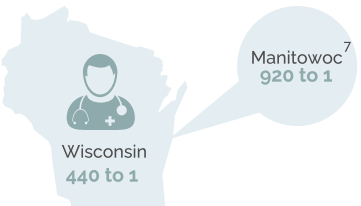
**has a diagnosed mental disorder, but is functioning in a fairly stable manner

Top 5 most used services in 2020

# of people served in Manitowoc County



The mental health provider ratio shows how many individuals would need to be served by 1 professional to cover the population. A high ratio can lead to high case loads and long wait lists.

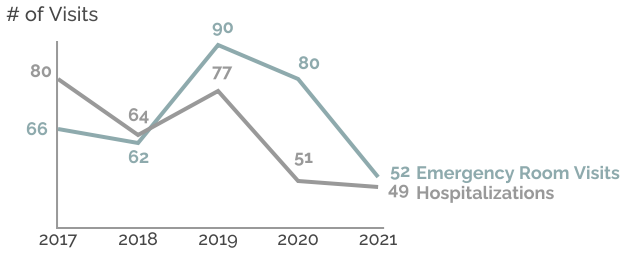


> The resources we have are either unaffordable for many on [*sic*] our community or insufficient to meet the need of those accessing services due to high demand of patient loads. Care is often superficial and a "band-aid" approach rather than actual treatment.
>
> -Online Survey comment[8]

1. Centers for Disease Control and Prevention, 2021
2 & 7. County Health Rankings & Roadmaps, 2022
3. Centers for Disease Control and Prevention, PLACES, 2022
4. Manitowoc County Human Services Department, Crisis Intervention Report, 2022
5. Wisconsin PRAMS Surveillance Report, 2019
6. Wisconsin Department of Health Services, County Services - Mental Health, 2021
8. Manitowoc County Online Survey, 2022

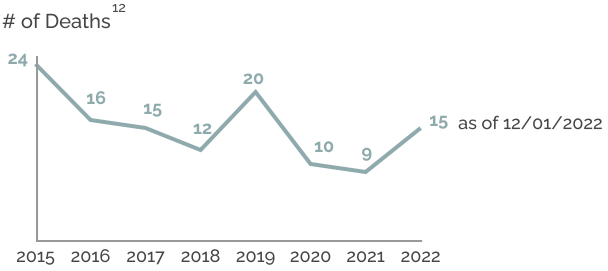
Mental Health (Continued)

Self-inflicted Injury Hospitalizations [9, 10]



Suicide

In 2020, **861** Wisconsinites died by suicide.[11] The impact of suicide reaches far and wide. Survivors may continue to feel depressed and develop mental health conditions while loved ones experience a range of emotions from anger, confusion, and depression to guilt.



In July 2022, the National Suicide Prevention Lifeline (1-800-273-TALK) launched a replacement Suicide & Crisis Lifeline (9-8-8).[13] All calls to the original lifeline will automatically be rerouted to 9-8-8. The new number will continue to provide 24/7 confidential help to those in crisis.

NATIONAL SUICIDE PREVENTION LIFELINE
1-800-273-TALK (8255)
suicidepreventionlifeline.org

988 SUICIDE & CRISIS LIFELINE

Top Health Priority: Mental Health

Youth Mental Health

Youth with mental health conditions are more likely to experience social isolation, discrimination, development of other health conditions, educational difficulties, and are at higher risk of choosing risky behaviors.[14]

1 in 4 telephone survey respondents stated a child in their household was diagnosed with one or more mental health conditions.[15]

2021 YRBS Results[16]

Every 2 years students take a self-reported survey about various health topics.

	Middle School 1,302 Responses	High School 2,311 Responses
Had Anxiety	50%	47%
Had Depression	29%	29%
Self-harmed	22%	17%
Considered Suicide	16%	14%
Had a Suicide Plan	11%	12%
Attempted Suicide	5%	7%

Bullying affects short and long-term health of both those that experience bullying and those that bully others. It can lead to depression, school related challenges, and violence.[17]

Bullied on School Property	31%	19%
Bullied Online	19%	17%
Think Bullying is a Problem at School	46%	42%

9. Wisconsin Department of Health Services, Injury-Related Emergency Dept. Visits Module
10. Wisconsin Department of Health Services, Injury-Related Hospitalization Module
11. Wisconsin Department of Health Services, 2022
12. Wisconsin Department of Health Services, State Vital Records, 2022
13. Federal Communications Commission, 2022
14. World Health Organization, 2021
15. Manitowoc County Phone Survey, 2022
16. Manitowoc County Youth Risk Behavior Survey, 2021
17. U.S. Department of Health and Human Services, 2017

Nutrition & Physical Activity

Top Health Physical Activity & Nutrition Priority

Why is Nutrition and Physical Activity Important?

Healthy eating habits and physical activity are crucial elements of good physical and mental health.[1] Individuals lacking a balanced diet of nutrient-dense foods and adequate exercise are more at risk for chronic diseases and other poor health outcomes.[2]

Nutrition

Consuming the proper amount of protein, fruits, vegetables, and grains all contribute to numerous health benefits, including lower risk of chronic disease, bone health issues, and cardiovascular disease.[2]

Youth in Manitowoc County[3]

37% of high school students ate **fruit** every day

36% of high school students ate **vegetables** every day

Adults in Wisconsin[4]

60% of adults eat **fruits** more than once a day

80% of adults eat **vegetables** more than once a day

2020-2025 Dietary Guidelines[2]

Maintain a balance of Vegetables, fruits, grains, dairy, protein foods. and oils

Limit foods and beverages with Added sugars, saturated fat, sodium, and alcoholic beverages

Breastfeeding

Healthy nutrition can begin as early as infancy, especially during the first 6 months. Breastfeeding provides infants with important nutrients and antibodies which establish a stable foundation of health. Of the 729 babies born in Manitowoc County during 2020, **71%** were breastfed before leaving the hospital.[5]

Physical Activity

Frequent exercise provides immediate and long-term benefits for both adults and youth. These include improved cognition, sleep, mood, and bone health.[6]

Physical activity also reduces risk of obesity, cardiovascular disease, type 2 diabetes, depression, dementia, and cancer.[2]

Physical Activity Recommendations[6]

Adults 150 minutes of moderate intensity aerobic activity a week. Muscle-strengthening activity at least 2 days a week.

Youth At least 60 minutes of moderate-to-vigorous activity daily.

Did you know?

Throughout Manitowoc County, there are many opportunities for exercise.

85+ Parks **10+** Fitness Centers

Several trails, including:

Devil's River Trail
Ice Age Trail
Mariner's Trail
Point Beach State Park
Rahr Memorial School Forest
and **many more!**

Youth in Manitowoc County[3]

14% of high school students report no sustained exercise in 2021

Adults in Manitowoc County[7]

21% of adults report no leisure-time physical activity in 2020

1. County Health Rankings & Roadmaps, 2022
2. Dietary Guidelines for Americans, 2020
3. Manitowoc County Youth Risk Behavior Survey, 2021
4. Centers for Disease Control and Prevention, BRFSS, 2021
5. Wisconsin Department of Health Services, Birth Counts Module, 2020
6. Physical Activity Guidelines for Americans, 2018
7. Centers for Disease Control and Prevention, PLACES, 2022

Injury & Mortality

Why is Injury and Mortality Relevant?

Causes of injury and length of life inform us of our community's health and whether people live long, healthy lives.[1] Manitowoc County is ranked 54 out of 72 counties for health outcomes, 1 being the best, 72 being the worst.

Injury

In 2021, there were **5,241** emergency department visits and **390** hospitalizations due to injury.[2, 3]

Top 3 Causes of Injury in Manitowoc County:

Hospitalizations	Emergency Department Visits
Fall	Fall
Poisoning	Struck by or against object or person
Motor Vehicle	Cutting or piercing objects

Fall Injuries[2, 3]

Fall injuries in Manitowoc County were the top reported cause of hospital and emergency department visits in 2021.

1,739 Emergency Department Visits

14% increase from 2020

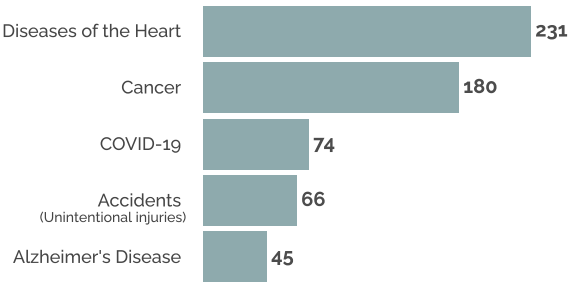
242 Hospitalizations

20% increase from 2020

Mortality

Length and quality of life of residents are evaluated to rank counties for health outcomes.[4] Various measures of mortality can help us identify preventable causes of death.

Top 5 Causes of Death in Manitowoc County in 2021[5]



Infant Mortality[6]

Infant mortality is calculated as the number of infant deaths per 1,000 live births.

Manitowoc County **5** infant deaths per 1,000 live births

Wisconsin **6** infant deaths per 1,000 live births

Premature Deaths

The average life expectancy in Manitowoc County is **78.6** years, while the Wisconsin's average is **78.9**.[7]

Premature death is a rate measured as the years of potential life lost before age 75 per 100,000 population.[8]

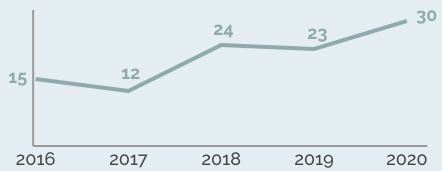
Manitowoc County **7,000** years of life lost per 100,000 people

Wisconsin **6,600** years of life lost per 100,000 people

Fall Injury Deaths[9]

According to the World Health Organization, "Falls are the second leading cause of unintentional injury deaths worldwide".[10] In the past five years, fall-related deaths have increased significantly in Manitowoc County.

# of Deaths



1, 4, 6, 7 & 8. County Health Rankings & Roadmaps, 2022
2. Wisconsin Department of Health Services, Injury-Related Hospitalizations Module, 2021
3. Wisconsin Department of Health Services, Injury-Related Emergency Dept. Module, 2021
5. Wisconsin Department of Health Services, 2022
9. Wisconsin Department of Health Services, Mortality Module, 2020
10. World Health Organization, 2021

Health Factor #3

Clinical Care

Clinical Care represents **20%** of health factors in the County Health Rankings Model. Affordable, quality, and prompt health care are key qualities that have the potential to limit disease and identify health issues quickly.

- Health Care Access
- Preventative Care
- Communicable Diseases
- Chronic Diseases

Health Care Access

Why is Health Care Access Important?

Access to health care, especially affordable and available services, is a valuable asset in a healthy community. Financial resources including health insurance, Medicaid, BadgerCare Plus, and programs for the uninsured are all opportunities for individuals to receive aid while accessing care.

Health Care Providers

There are 2 hospital systems in Manitowoc County, along with several other behavioral, mental, and dental health clinics.

Ratio of People to Providers [1]

Provider ratios depict the number of individuals who need to be served by 1 professional to cover the entire population. A high ratio implies challenges to accessing care.

Primary Care Providers	Manitowoc County	2,030 to 1
	Wisconsin	1,260 to 1
Dental Care Providers	Manitowoc County	1,610 to 1
	Wisconsin	1,390 to 1
Mental Health Providers	Manitowoc County	920 to 1
	Wisconsin	440 to 1

Insurance Coverage

Without insurance or a means of affording health care, uninsured individuals can face serious illness or health problems if they avoid receiving care. Others may be unable to pay medical bills, resulting in debt.

7%
of population under age 65 did not have health insurance in 2019. [2]

13,574
people were enrolled in BadgerCare Plus in October 2022. **4,956** of which were children. [3]

84% of respondents have a primary care provider where they regularly go for checkups and when they are sick. [4]

59% of respondents agree there are affordable health care services in the community. [4]

Lakeshore Community Health Care

Lakeshore Community Health Care serves both Manitowoc and Sheboygan counties with medical, mental health, dental, pharmaceutical, and support services. These services are available to everyone, regardless of insurance coverage. [5]

BadgerCare Plus Eligibility [6]

Must be

Wisconsin Resident
U.S. citizen or qualifying immigrant

And one of the following

Child
age 18 or younger with income at or below 300% of the FPL*.

Pregnant Woman
with income at or below 300% of the FPL.

Young Adult
under age 26, and were in a foster home, court-ordered Kinship Care, or subsidized guardianship when they turned 18, regardless of income.

Adult
with income at or below 100% of the FPL.

**Federal Poverty Level (FPL)*

1 & 2. County Health Rankings & Roadmaps, 2022
3 & 6. Wisconsin Department of Health Services, 2022
4. Manitowoc County Online Survey, 2022
5. Lakeshore Community Health Care

Preventative Care

Why is Preventative Care Important?

Routine checkups, screenings, and vaccinations are all steps an individual should take throughout their life to ensure a healthy lifestyle. Regularly scheduled care can detect and prevent chronic diseases.

Vaccinations

Vaccines are a preventative measure that equip an individual's immune system to defend against potentially life-threatening diseases.

Routine vaccinations are highly recommended for young children as early as birth. Many vaccines are given as a series over the course of several weeks to ensure complete protection. As children reach school-age, several vaccines are required by the state of Wisconsin unless parents complete an immunization waiver.[1]

While most vaccines are administered through adolescence, adults are encouraged to receive additional immunizations, including an annual influenza vaccine and the occasional tetanus booster.[2]

Adolescent Vaccinations

Adolescent vaccination rates in Manitowoc County are considerably low.

Only **55%** of adolescents completed the recommended doses of HPV, while Healthy People 2030 target is **80%**.[3]

633 students (all ages) have at least one waiver for required school vaccines in Manitowoc County.[4]

2021 Vaccination Rates

Children (up to age 2)[5]

Dtap	77%
Hepatitis A (1)*	84%
Hepatitis A (2)	55%
Hepatitis B	88%
HiB	84%
MMR	85%
Polio	87%
Pneumoccocal	82%
Varicella	84%

Adolescents (aged 13 through 18)[6]

HPV (1)	66%
HPV Complete	55%
Mening ACWY (1)	79%
Mening ACWY UTD**	53%
Tdap (1)	86%
Mening B (1)	38%
Mening B (2)	26%

Adults (age 18 and older)[7]

Tdap (1)	74%
HPV Complete	47%
Zoster Complete	22%
PCV13 (1)	58%
PPSV23 (1)	62%
Hepatitis A UTD	18%

For more information about recommended vaccines, visit ***Wisconsin Dept. of Health Services***.

* The number following the vaccine refers to the dose in the series.

** Certain vaccines require a number of doses to be considered up-to-date (UTD).

Routine Screenings

	Manitowoc County[8]	Wisconsin[9]
Visit to doctor for checkup (past year among adults 18+)	72%	72%
Visit to dentist or dental clinic (past year among adults 18+)	66%	71%
Cervical Cancer Screening (past 3 years for women aged 21-65)	82%	78%
Colorectal Cancer Screening (among adults aged 50-75)	61%	67%
Mammography (past 2 years for women aged 50-74)	75%	81%

Prenatal Care

Prenatal care visits include physical exams, weight checks, ultrasounds, and blood tests. Receiving routine care during pregnancy informs women of recommendations and aids a healthy pregnancy.[10]

- Increase intake of folic acid
- Avoid smoking, drinking, and using drugs
- Control existing health conditions (diabetes or high blood pressure)

In 2020, **79%** of pregnant women received care during the first trimester in Manitowoc County.[11]

1 & 2. Wisconsin Department of Health Services, 2022
3. Healthy People 2030
4. Wisconsin Department of Health Services, REDCap, 2022
5, 6 & 7. Wisconsin Department of Health Services, Vaccination Coverage, 2022
8. Centers for Disease Control and Prevention, PLACES, 2022
9. Centers for Disease Control and Prevention, BRFSS, 2020
10. National Institute of Child Health and Human Development, 2017
11. Wisconsin Department of Health Services, Birth Counts Module, 2020

Communicable Diseases

Why are Communicable Diseases Relevant?

While most communicable disease infections are mild, some can lead to severe disease, disability, or death. Reporting and surveillance of infectious diseases mitigates widespread outbreaks and protects the public's health.

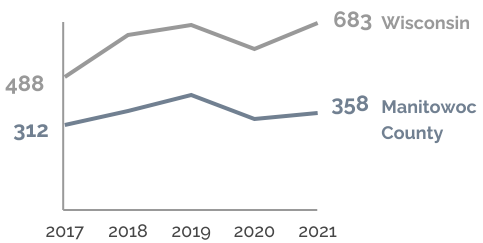
STI's
Sexually Transmitted Infections

Sexually transmitted infections (STI's) in Manitowoc County make up some of the highest reportable incidences of disease in 2021.

Reported Incidences in 2021[1]

Chlamydia	234 cases
Gonorrhea	41 cases
Syphilis	8 cases

Rate of STI's per 100,000[1]



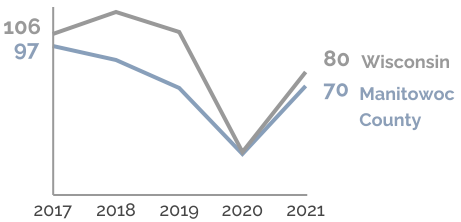
Enteric Diseases

Enteric diseases occur in the intestines as a result of consuming contaminated substances. Despite the recent decline of infections, both Manitowoc County and the State are experiencing a rise of cases.[2]

Reported Incidences in 2021[1]

Salmonellosis	13 cases
Cryptosporidiosis	6 cases
Giardiasis	6 cases
Yersiniosis	<5 cases

Rate of enteric disease per 100,000[1]



Respiratory Diseases

Respiratory diseases are infections affecting the lungs, bronchus, or respiration. Common diseases include influenza, respiratory syncytial virus (RSV), adenovirus, and many others.

Reported Incidences in 2021[1]

Active tuberculosis (TB)	<5 cases
Latent TB (LTBI)	10 cases

Tick-Borne Diseases

Tick-borne diseases are spread to humans through the bite of an infected tick. Left untreated, the infection can spread throughout the body.

Reported Incidences in 2021[1]

Lyme Disease	22 cases
Ehrlichiosis/Anaplasmosis	<5 cases

1. Manitowoc County Health Department Annual Report, 2021
2. Wisconsin Department of Health Services, 2022

Communicable Diseases (Continued)

COVID-19

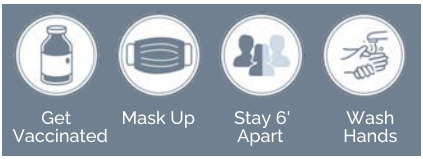
COVID-19 is a disease caused by the SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2) virus. It is transmissible through respiratory droplets or particles that can be inhaled or land on other people's eyes, nose, or mouth.[3]

The World Health Organization (WHO) declared the COVID-19 outbreak as a global pandemic on March 11, 2020 and Manitowoc County identified its first COVID-19 case on April 3, 2020.[4] Since then, Manitowoc County encountered two large waves of COVID-19 incidences, peaking in November 2020 and January 2022.

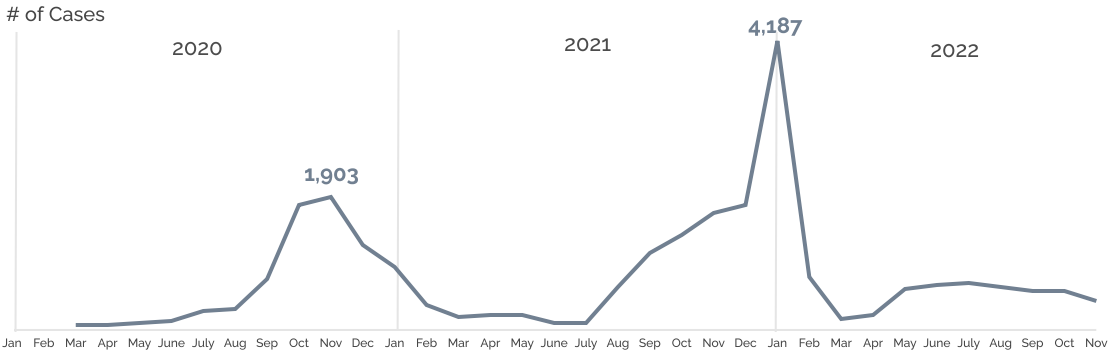
Between **March 2020** and **November 2022**, Manitowoc County experienced:[5]

22,870 Cases

206 Deaths



COVID-19 Cases in Manitowoc County



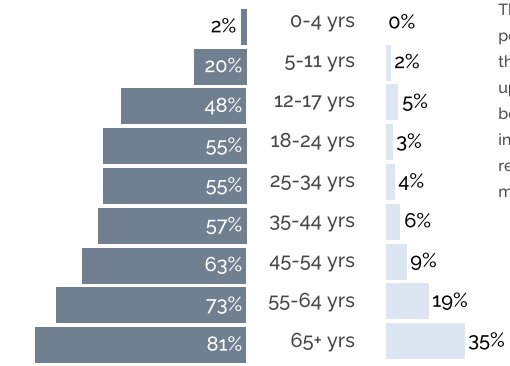
Vaccinations

The initial COVID-19 vaccine became available to the public in December 2020. It is recommended that all eligible individuals stay up to date on their COVID-19 vaccines, including boosters.

Available COVID-19 vaccines in the United States:

Moderna
Pfizer-BioNtech
Johnson and Johnson's Janssen
Novavax

Manitowoc County Vaccination Rates as of 11/30/2022[6]



This only shows the percent of population that received the updated bivalent booster. It does not include those who received the monovalent booster.

3. Centers for Disease Control and Prevention, 2022
4. WHO Declares COVID-19 a Pandemic, 2020
5 & 6. Wisconsin Department of Health Services, Daily COVID-19 Summary Report, 2022

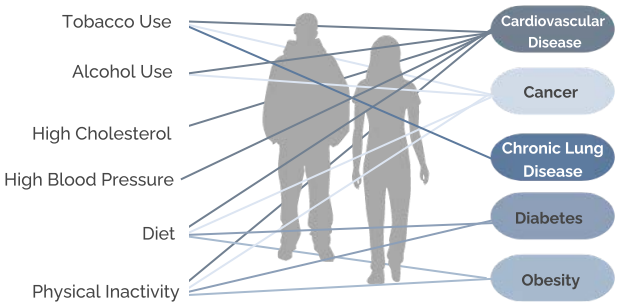
Chronic Diseases

Why are Chronic Diseases Relevant?

Chronic diseases are the leading cause of death and disability in the United States and are the number one cost to the health care system. They are long lasting conditions that reduce one's daily activities or requires ongoing medical attention. Many chronic diseases can be avoided by reducing or eliminating health behaviors such as: smoking, poor diet, physical inactivity, and excessive drinking.[1]

Figure 4: The Web of Chronic Disease [2]

Adapted from Alaska's Department of Health's The Web of Chronic Disease



Adult Risk Factors in Manitowoc County [3]

Tobacco Use

18% report smoking tobacco

Alcohol Use

26% report heavy drinking or binge drinking

High Blood Pressure

30% report having high blood pressure

High Cholesterol

79% report being screened for high cholesterol in the last year

29% report having high cholesterol

Physical Inactivity

21% report no leisure-time activity

Adult Disease Rates [3]

32%

OBESITY

Obesity is measured by a person's body mass index (BMI). BMI is calculated by dividing weight in kilograms by height in meters squared.[4]

8%

DIABETES

Diabetes affects how the body responds to the breakdown of sugar from food into energy. Untreated diabetes can cause vision loss, kidney and heart disease, or loss of limbs.[5]

3%

STROKE

Stokes happen when blood is blocked from the brain or a blood vessel bursts inside the brain causing brain tissue to die. About 80% of strokes are preventable.[6]

21%

ARTHRITIS

There are more than 100 types of arthritis affecting one's joints and tissues around joints. It causes pain and stiffness making daily activities difficult and painful.[7]

6%*

CANCER

*excludes skin cancer

The most common types of cancers in Manitowoc County are Breast, Lung, Prostate, Colorectal and Melanoma.[8]

10%

ASTHMA

Asthma affects the body's lungs causing episodes of wheezing, coughing, shortness of breath, and chest pain.[9]

6%

COPD

Chronic Obstructive Pulmonary Disease (COPD) is a group of diseases that cause breathing difficulties and airflow blockage. Smoking tobacco is the primary cause.[10]

5%

CORONARY HEART DISEASE

Coronary heart disease affects the functionality and structure of the heart by failing to bring oxygen-rich blood to the heart.[11]

1, 4, 5, 6, 7, 9 & 10. Centers for Disease Control and Prevention
2. Alaska Department of Health
3. Centers for Disease Control and Prevention, PLACES, 2019 & 2020
8. Wisconsin Cancer Collaborative, Manitowoc County Cancer Profile, 2021
11. National Heart, Lung, and Blood Institute, 2022

Health Factor #4

Physical Environment

Physical Environment accounts for **10%** of health factors in the County Health Rankings Model. There are aspects of the environment that an individual has little control over such as the quality of air and water. However, monitoring and testing the surrounding environment can detect harmful elements including radon and lead.

- Air Quality
- Radon
- Lead
- Water

Photo credit: "Manitowoc North Breakwater Lighthouse in Manitowoc, Wisconsin in July" by Michael Tatman

Air Quality

Why is Air Quality Important?

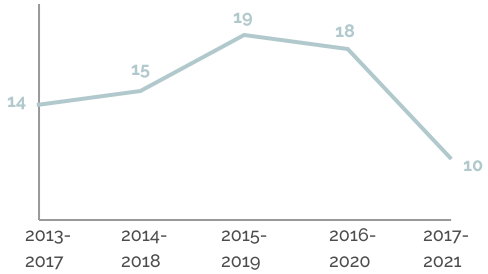
The Environmental Protection Agency (EPA) identified 6 pollutants to monitor air quality due to their potentially negative environmental and human health effects. These pollutants include: carbon monoxide, lead, nitrogen oxides, ground-level ozone, particle matter, and sulfur oxides.[1]

Carbon Monoxide

When inhaled, carbon monoxide will replace the oxygen in one's body. When exposed to high levels of carbon monoxide for long periods of time, nausea, vomiting, muscle weakness, confusion, or loss of consciousness can occur.[2]

Carbon Monoxide Poisonings in Manitowoc County[3]
(5-year average)

Rate of Emergency Department visits per 100,000

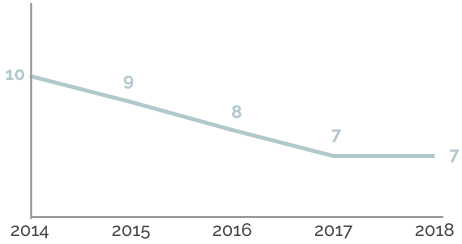


Particulate Matter (PM)

Particulate matter such as dust, dirt, soot, smoke, and liquid droplets are especially harmful to humans. Larger particles can irritate one's eyes, nose, and throat while smaller particles have potential to travel deep into one's lungs, and sometimes, bloodstream.[4]

Particulate Matter Pollution in Manitowoc County[5]

Average density (μg/m^3) of fine particulate matter

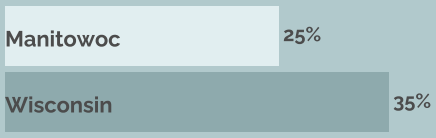


Radon

Why is Radon Relevant?

Radon is the leading cause of lung cancer in nonsmokers in the U.S. It is an odorless, colorless gas that can naturally be released into the environment by rock, soil and water. Radon can enter homes and businesses through cracks in the floors and walls.[6]

Radon Test Results in Manitowoc County[7]
% of tests results ≥ EPA action standard 4 pCi/L



Did you know?

The Manitowoc County Health Department offers low cost short-term and long-term radon test kits available for purchase.

1, 4, & 6. Centers for Disease Control and Prevention, 2022
2. United States Department of Labor, 2012
3. Environmental Public Health Data Tracker
5. County Health Rankings & Roadmaps, 2022
7. Manitowoc County Environmental Health Profile, 2021

Lead

Lead-Based Paint | Soil | Lead Pipes | Toys | Spices & Medicines [1, 2]

Why is Lead Relevant?

Lead is a toxic, naturally occurring element that can cause serious health effects in young children and adults. Children younger than 6 years old are especially susceptible to reduced IQ, learning disabilities, and other behavioral effects as a result of lead poisoning.[3]

Lead was commonly used before the 1980's in residential paint, varnish, gasoline, and plastics. Despite lead being banned from paint and varnish due to its toxicity in 1978, its presence in products still lingers.[3]

Blood Lead Reference Value (BLRV)

Lead exposure is confirmed if the patient has a blood lead level greater than or equal to 5 micrograms of lead per deciliter of blood (µg/dL).

As of May 2021, the CDC changed the BLRV from 5 µg/dL to 3.5 µg/dL. Lowering the reference value allows more time for parents, doctors, public health officials, and communities to reduce the child's future exposure to lead.[4]

In 2021, the blood lead levels of **49** children younger than 6 years old were greater than or equal to 5 µg/dL.[5]

Houses built before 1978 are at risk for having lead-based paint.[3]

67%

of housing units in Manitowoc County were built before 1979.[6]

Water

Why is Water Important?

Ensuring clean, safe water in homes and businesses is imperative to the health of the community. Throughout Manitowoc County, there are 11 different municipal water systems serving over 45,000 residents.[7] Those who are not connected to public water systems receive water from private wells.

Private Well Quality

Private wells can be exposed to natural contaminants in groundwater, which is why it is important to regularly test wells. Contaminants can include arsenic, nitrate, nitrite, bacteria, and lead.[8]

Test results above EPA standard of 10µg/L[9]

Arsenic

Manitowoc	4%
Wisconsin	5%

Nitrate

Manitowoc County	8%
Wisconsin	10%

Fluoride Levels

Population on fluoridated public water system.[10]

86% Manitowoc County

87% Wisconsin

Beach Monitoring

In Summer 2021, 11 Manitowoc County beaches along Lake Michigan were monitored frequently for bacteria. During that time, a total of 322 samples were collected leading to **41** advisories and **11** closures.[5]

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4. Centers for Disease Control and Prevention, 2021
5. Manitowoc County Health Department Annual Report, 2021
6. U.S. Census Bureau, Table S2504, 2021
7. Wisconsin Department of Natural Resources
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