

Health and Well-Being in North Dakota, 2022

A Social Determinants of Health Perspective

January 2023



Center for Social Research Report No. 109

Health and Well-Being in North Dakota, 2022 – A Social Determinants of Health Perspective

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Acknowledgements

Health and Well-Being in North Dakota, 2022 – A Social Determinants of Health

Perspective was made possible by the Blue Cross Blue Shield of North Dakota Caring Foundation. With this study, the Caring Foundation sought to better understand the state of the social determinants of health – the conditions in which people are born, grow, live, work, and age – in North Dakota and how they shape the health of North Dakotans and the communities where they live.



Gaining insight into these data can serve to identify disparities and barriers that impact people's health. It is the study sponsor's hope that this effort leads to greater collaboration and alignment among key stakeholders as they work to develop community-driven solutions and identify resources, both financial and non-financial, to address and improve health and well-being of individuals and families in North Dakota.

The Center for Social Research, an applied social science research unit at North Dakota State University, was engaged to conduct this study to better understand how economic stability, education, the social and community context, the neighborhood and built environment, and access to health care are impacting the ability of individuals living in North Dakota to thrive. A special thanks is extended to Center staff who assisted in the effort.



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Introduction

People’s health and well-being are essential building blocks to personal fulfillment and thriving communities. Healthy communities, in turn, affect quality of life and overall well-being. Repeated studies have found that the conditions in which we live and work have an enormous impact on our health, long before we see a doctor. By thinking about health as something beyond what we get at the doctor’s office, but instead as something that starts in our families, in our schools and workplaces, in our playgrounds and parks, in the air we breathe, and the water we drink, the more opportunities present to improve it.

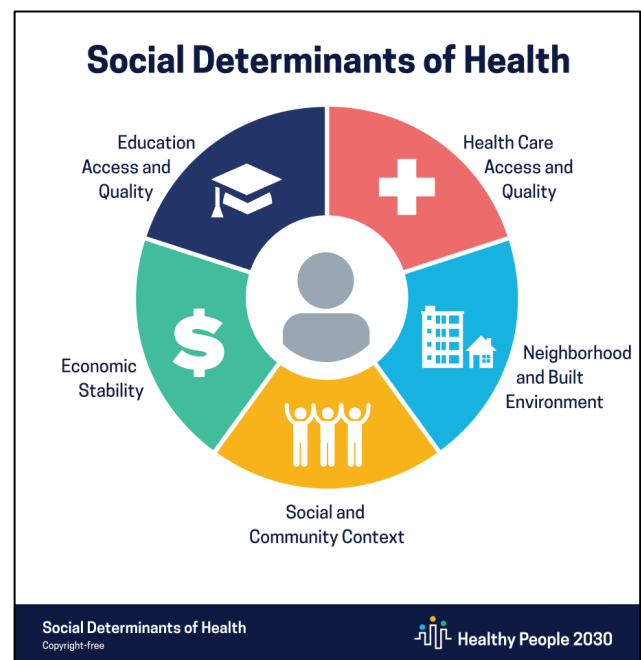
These conditions where we are born, live, work, play, and age are referred to as social determinants of health – and they affect a wide range of health, functioning, and quality-of-life outcomes and risks. Understanding these factors that contribute to overall health is essential to improving health and quality of life. For example, individuals with unmet social needs including inadequate access to food or stable housing are at greater risk of developing chronic health conditions and experience more difficulty managing those conditions. Communities experiencing persistent poverty or inequality tend to disproportionately experience unmet social needs. Communities may experience structural barriers which can create disparities including exposure to toxins and environmental hazards, limited choice and access to health care services, and can lead to widespread viral transmission across communities — creating sickness and diminishing opportunities to seek appropriate care. Further, because of social risk factors or underlying health risks, some communities may also experience disproportionate impacts of natural and manmade disasters and require unique or tailored emergency response services or treatment (U.S. Centers for Medicare & Medicaid Services, 2022).

The social determinants of health (SDOH) categories used in this report align with those used by Healthy People 2030, an effort to set national objectives to improve health and well-being over the next decade. SDOH measures are grouped into five domains, including economic stability, education, health care, physical environment, and social and community context (U.S. Department of Health & Human Services, 2022).

The following sections of this report begin with an overview of the state’s demographics with respect to changing population characteristics – then move on to describe each of the determinants and how they shape health outcomes in North Dakota. The individual determinants are followed by a discussion of health behaviors and finally, overall health outcomes in the state.

Key metrics within each category were selected based on availability by county (when possible), the ability to convey broad elements in overall health and well-being, the extent to which they provide for common interpretation, availability over time, usefulness as a tool to track long-term trends, and the validity of data sources.

Understanding the social determinants of health for North Dakota is not only important for improving overall health, but also for addressing and reducing health disparities that are often rooted in social and economic disadvantages.



Executive Summary

North Dakota has many assets. North Dakota's population is growing and becoming more diverse. North Dakota's economy is generally strong overall. While housing costs have increased substantially in the past 10 years, costs are low relative to the rest of the nation. Most people have enough to eat. Many people are engaged in their community and have access to exercise opportunities and health care. Despite high rates of tobacco and alcohol usage, North Dakota has seen some improvement in both over the past few years.

Despite these strengths, the prospect of a vibrant, healthy future is a challenge for many individuals and families in the state. Some populations experience far greater disparities in health than others. Research has shown that the key drivers of individual and community health are social and economic conditions that can either place people at risk or strengthen their situation, establishing a foundation for future health. These conditions influence the behaviors people engage in and ultimately the health outcomes of individuals and communities. By understanding the health risks and disparities in the overall health of people living in North Dakota communities and all the factors that influence health, from healthy or unhealthy behaviors to the socio-economic context, solutions to address these challenges can be established to help shape the future health of North Dakota.

Health Outcomes

In general, North Dakotans are reporting slightly better overall health than they were five years ago, yet, disparities in overall health persist across age, education, income, and racial background. And while people are perceiving better health, the average life expectancy for North Dakotans fell for the second consecutive year. It is now expected that someone born in North Dakota will live to age 77, which is down from 79 just two years ago.

In addition to shorter life spans, mental health concerns are on the rise. While slightly lower than the national average, the percentage of adults in North Dakota reporting at least two weeks of poor mental health each month is increasing. Individuals in the most frequent mental distress are most likely to live in rural portions of the state and reservation areas. Youth are particularly affected as the percentage of high school students feeling sad and hopeless doubled over the past decade, jumping two points in just the past two years.

Poor mental health is an important risk factor for suicide. As the second leading cause of death in people ages 15 to 44, suicide is a major contributor to premature mortality in North Dakota. And, despite an improvement in the teenage suicide rate in North Dakota, more teens are now considering it. One in five North Dakota high school students seriously considered suicide in 2021, up from one in 10 five years prior. Deaths from drug overdose are also an important factor in premature death in North Dakota. Over the past 10 years, the number of deaths from overdose has risen 23% each year on average – and the rate of deaths to overdose is now two to three times higher than it was 10 years ago, regardless of age, gender, and race.

Health Behaviors

While health behaviors can lead to improved health or increased risk of disease, not everyone has the means or opportunity to make healthy decisions. Income and education are important factors impacting smoking behavior, alcohol consumption, and physical activity in North Dakota. Rates of cigarette smoking and heavy drinking are down slightly in North Dakota, yet they remain a substantial challenge. North Dakota has the second highest binge drinking rate nationwide and one-third of all traffic fatalities in North Dakota are due to alcohol-impaired driving. Deaths due to alcohol poisoning or diseases such as liver diseases and pancreatitis recently surpassed the number of suicide deaths. And while rates of physical activity have remained relatively unchanged over the past several years, obesity rates are high across North Dakota, regardless of demographic characteristic.

Social Determinants of Health

Economic Stability. Over the past decade, North Dakota has experienced strong and steady economic growth. Household incomes are up and unemployment remains low. Despite overall progress, nearly 80,000 North Dakotans are living in poverty with incomes that are considered too low to cover basic living expenses – and another 107,564 live very near poverty. And while there was slight improvement in the poverty rate across demographics, many families are facing difficult choices between food, transportation, medical care, and housing. American Indian and Black individuals, single parents and their children, as well as people living in rural areas are more likely to experience financial strain in North Dakota.

Education. Quality, affordable child care is vital for many working parents in North Dakota, enabling them to remain in the labor force and support their households financially. However, for much of the state, licensed child care capacity is insufficient to reach all the children who may need it, resulting in parents using non-licensed forms of care when they may not want to, or withdrawing from the workforce.

In addition to supporting working families and strengthening the state’s current economy, quality early learning experiences also impact the state’s future economy by creating a foundation for children to be successful students and productive adults. Early learning plays a positive role in a child’s healthy intellectual, social, and emotional development — paving the way for higher test scores, fewer behavioral problems, better job opportunities, and higher income. Yet, North Dakota has the lowest percentage of young children enrolled in early learning programs nationwide. And, while similar to the national average, the majority of all North Dakota third graders do not read proficiently — and there are substantial disparities by race, ethnicity, income, and disability status.

Social and Community Context. Positive relationships at home, work, and in the community developed through social connections and community engagement are important factors in overall health. Older adults are at increased risk for loneliness and social isolation because they are more likely to live alone, have lost family or friends, and suffer from chronic illness or hearing loss. In North Dakota, about one-third of all seniors live by themselves – which is higher than any other state in the U.S.

North Dakota’s youth, while employed at rates higher than any other state in the nation, are also at risk of isolation. Since 2015, fewer high school students are now reporting participation in sports, band, drama, or clubs — and fewer are reporting connections to teachers or other adults in their school to talk to if they have problems. This is especially important considering that when compared to national averages, North Dakota children are more likely to live with someone experiencing mental illness, live with someone abusing substances, have a family member in jail or prison, or be a witness to domestic violence.

Neighborhood and Built Environment. Most North Dakotans have access to affordable housing, high-speed internet, and healthy foods. Yet, despite having the second smallest percentage of households burdened by housing costs among states, monthly housing costs for homeowners and renters in North Dakota are rising faster than inflation – and are a particular burden for seniors, renters, those with lower incomes, and householders who are Hispanic, Black, and Asian. Broadband coverage is good and improving, regardless of age, income, and racial background – yet, the percentage with an Internet subscription in North Dakota is less than the national average. And, while most people have enough to eat, every county in North Dakota is home to families facing hunger.

Access to Health Care. Access to affordable, quality health care is important to physical, social, and mental health. Despite low uninsured rates and advances in telehealth, North Dakota has a substantial shortage of primary care physicians, dentists, and mental health providers. Individuals who are American Indian, as well as those who live in rural areas of the state are more affected by access and affordability issues.

Demographics

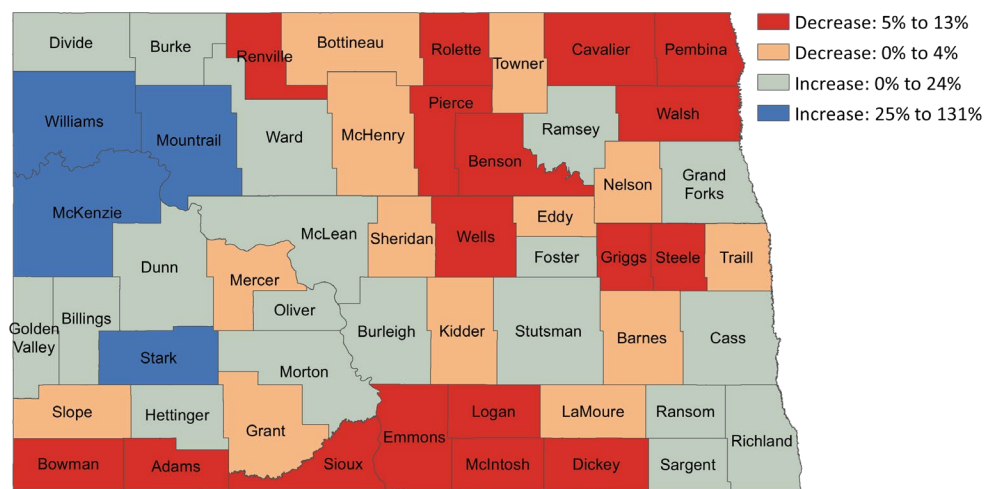
Population

North Dakota’s population has changed dramatically during the past decade, due largely to energy development activities. The 2020 Census counted 779,094 people in the state, a 16% increase from 2010 (an increase of 106,503 people). Only three other states (Utah, Idaho, and Texas) grew faster (U.S. Census Bureau, 2021a). Much of the growth took place in the first part of the 2010s, with population increasing an average of 2% annually from 2010 to 2015. In response to a downturn in the oil and gas industry and workers leaving the state, growth slowed to an average of 0.6% annually from 2015 to 2020. The current population estimate for 2021 suggests a slight decrease to 774,948 people in North Dakota (U.S. Census Bureau, 2022a).

North Dakota’s population growth has slowed after record increases.

The impact of shale oil extraction in the western part of the state, which began around 2006, significantly altered population migration flows. Population growth in some western counties has been extraordinary (Figure 1). McKenzie County’s population more than doubled from 2010 to 2020, growing by 131%. Other oil and gas producing counties experienced population growth ranging from 28% to 83% during the same timeframe. Despite this growth, the majority of counties in North Dakota experienced population decline from 2010 to 2020 (30 counties out of all 53). While much of this loss represents a continuation of long-term population trends, much of it is moderate relative to historical declines (U.S. Census Bureau, 2021a).

Figure 1. Population Change in North Dakota by County, 2010 to 2020



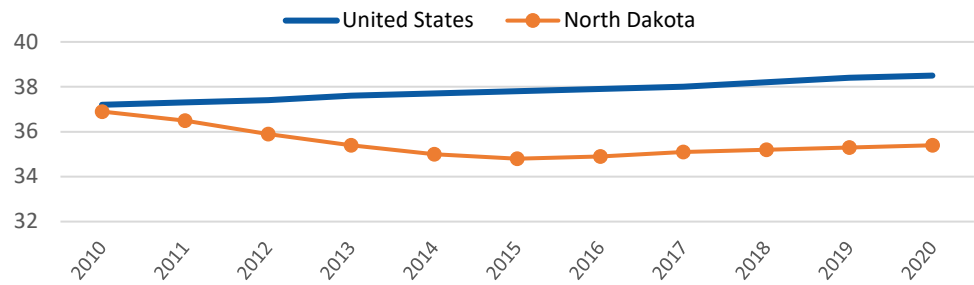
Source: U.S. Census Bureau (2021a)

Age

Despite aging Baby Boomers, North Dakota is the only state to become younger in past 10 years.

The age structure in North Dakota has been impacted by a strong, diversified economy in the eastern part of the state and the substantial growth in western North Dakota as a result of energy development. The rapid growth in population was fueled largely by people ages 25 to 44 moving to North Dakota for employment opportunities. This demographic shift, combined with an increased birth rate, resulted in North Dakota being the only state to become younger over the past decade, with the median age decreasing from 37.0 years in 2010 to 35.3 in 2020 (Figure 2).

Figure 2. Median Age in Years for North Dakota and the U.S., 2010 to 2020



Source: U.S. Census Bureau (2022a)

At the same time as North Dakota was becoming younger, the baby boom generation (a large cohort of people born after World War II, from 1946 through 1964) was getting older. As a result of this aging cohort and an outmigration of younger adults due to the downturn in the energy industry mid-decade, the median age in North Dakota has been slowing increasing since 2015.

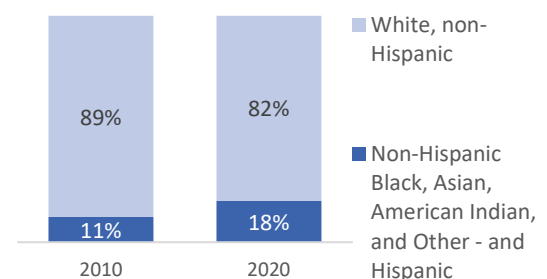
Race

Racial and ethnic diversity in North Dakota nearly doubled in past 10 years.

While the white population in North Dakota continues to compose the vast majority of people in the state (82%), the racial and ethnic composition has changed considerably in the past decade.

From 2010 to 2020, the proportion of North Dakota’s population that was a race other than non-Hispanic white increased from 11% to 18% (Figure 3). Specifically, the Black or African American population tripled from 7,960 to 26,783 and the Asian, Native Hawaiian, and Pacific Islander population doubled from 7,229 to 14,137 people. The Hispanic population, regardless of race, more than doubled, increasing from 13,467 in 2010 to 33,412 people in 2020. In addition, people reporting a single race other than one provided on the Census form, and those

Figure 3. Racial and Ethnic Population Diversity in North Dakota, 2010 and 2020

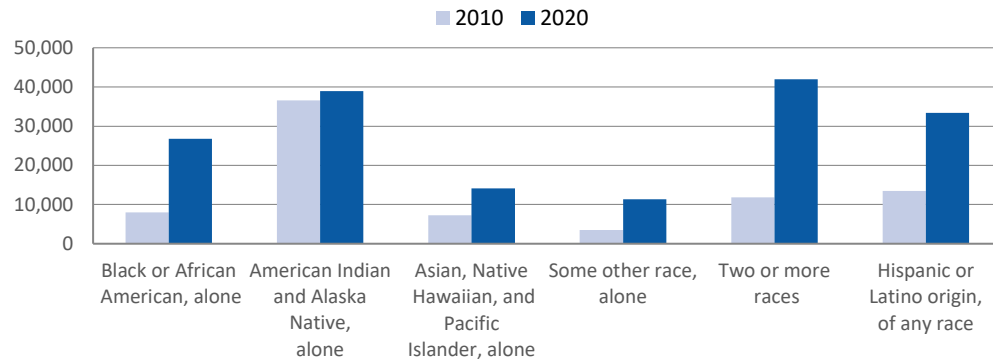


Source: U.S. Census Bureau (2021a)

reporting two or more races, both tripled (increases of 224% and 254%, respectively) (Figure 4) (U.S. Census Bureau, 2021a).

American Indian populations composed 5% of the state’s population in 2020 at 38,914 people. While this population grew 6% from 36,591 people in 2010, they remain at 5% of the state’s total population.

Figure 4. Individual Racial and Ethnic Population Diversity in North Dakota, 2010 and 2020



Note: ‘Alone’ indicates the respondent identified as ‘one race only’
 Source: U.S. Census Bureau (2021a)

Social Determinants of Health

Economic Stability

The income a family is able to generate shapes their choices and opportunities for housing, education, child care, food, medical care, and other expenses. The amount of wealth a family is able to generate through savings and assets helps to protect them in times of economic distress. Changes in income and wealth have an effect on one's health status. Income allows families and individuals to purchase health insurance and medical care, but also provides options for healthy lifestyle choices. Individuals and families with lower incomes are more likely to live in inadequate housing in unsafe neighborhoods, often with limited access to healthy foods and employment options. While the starkest difference in health is between those with the highest and lowest incomes, this relationship persists throughout all income brackets. The ongoing stress and challenges associated with poverty can lead to cumulative health damage, both physical and mental (County Health Rankings & Roadmaps, 2022).

Overall, North Dakota's economy is strong relative to the rest of the nation. North Dakota had one of the fastest growing economies in the United States over the past decade. From 2010 to 2020, gross domestic product, adjusted for inflation, grew 44% (more than twice the national average of 18%), real per capita personal income grew by 18%, and median household income grew by 40%. In addition, unemployment is relatively low when compared to other states (U.S. Bureau of Economic Analysis, 2022; U.S. Census Bureau, 2021b; U.S. Bureau of Labor Statistics, 2022).

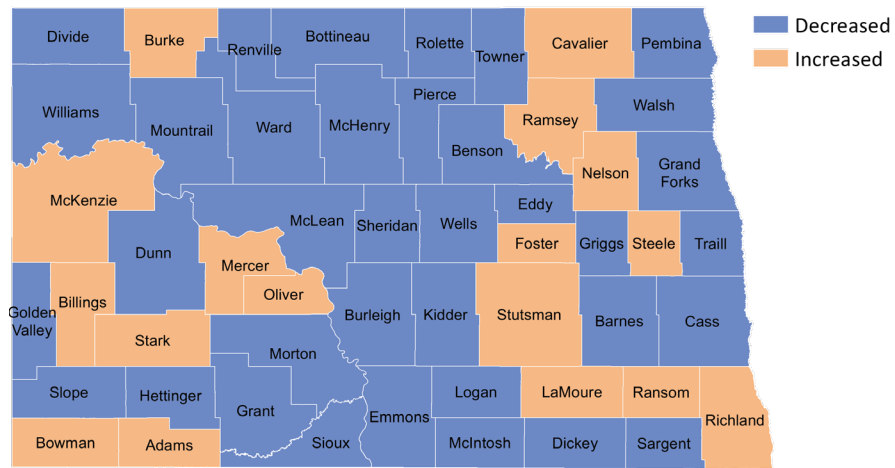
Despite this improvement over the past 10 years, more than 1 in 10 people in North Dakota still live below the poverty line and do not have enough income to cover basic living costs. While there has been slight improvement since 2010, great disparities exist across age, race, and geography within the state (U.S. Census Bureau, 2021b).

Poverty

The rapid growth in incomes across North Dakota during the past decade was accompanied by little change in the state's poverty rate. Approximately 77,491 North Dakotans were living in poverty in 2020, meaning they had incomes considered too low to cover basic living expenses. Overall, the poverty rate edged down slightly from 12% in 2010 to 11% in 2020. Despite statewide improvement, 17 counties (all in rural portions of the state) showed an increase in poverty since 2010 (U.S. Census Bureau, 2021b) (Figure 5).

Nearly 80,000 North Dakotans have incomes that are considered too low to cover basic living expenses.

Figure 5. Change in Poverty Rate in North Dakota by County, 2010 to 2020



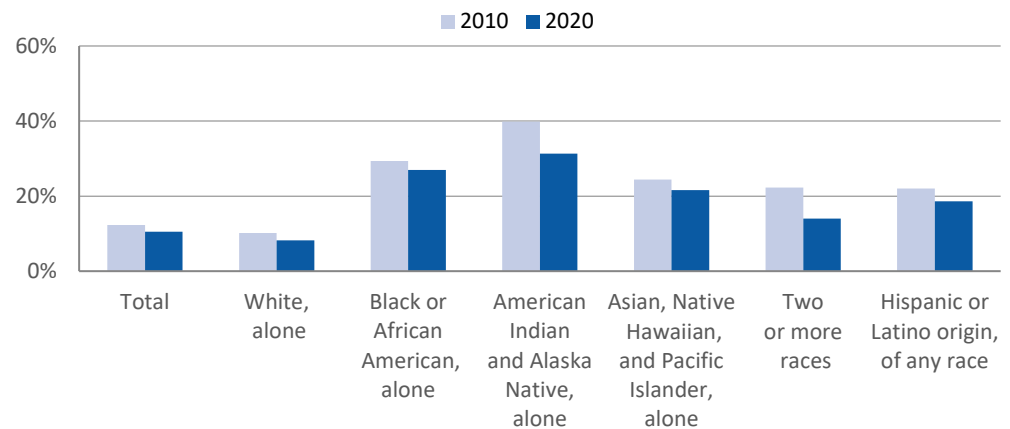
Source: U.S. Census Bureau (2021b)

Age. Poverty rates decreased across all age groups from 2010 to 2020, most notably for children ages 0 to 17 and for people ages 65 and older. In 2020, the poverty rate for children was 11%, which was down from 14% in 2010. The poverty rate for persons ages 65 and older decreased from 13% in 2010 to 9% in 2020; for individuals ages 18 to 64, the poverty rate decreased from 12% to 11% (U.S. Census Bureau, 2021b).

Race. When disaggregated by race and ethnicity, the poverty rate decreased for each racial group over the past decade. Despite this positive trend, the American Indian population is nearly four times more likely to experience poverty than the white population in North Dakota; Black or African American and Asian populations are three times more likely and Hispanic populations are twice as likely as the white population to experience poverty (Figure 6) (U.S. Census Bureau, 2021b).

Despite improvements in the poverty rate by age and race, disparities persist.

Figure 6. Poverty Rate in North Dakota by Race and Hispanic Origin, 2010 and 2020



Note: 'Alone' indicates the respondent identified as 'one race only'
 Source: U.S. Census Bureau (2021b)

When children lack opportunities to fulfill their potential, the cost to communities can be steep. Researchers estimate that child poverty costs the U.S. \$1 trillion annually in lost productivity and spending on health care and the criminal justice system (McLaughlin & Rank, 2018).

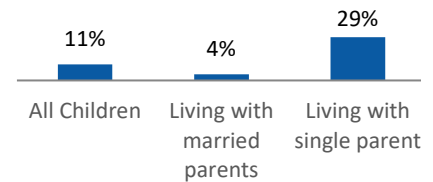
Child Poverty. In North Dakota, most parents are working. In 2020, 78% of children ages 0 to 17 lived in families where all parents in the household were working¹, which is 8 points higher than the national average of 70%. Yet, for 11% of children in North Dakota (19,459 children), their parents are not earning enough to meet their family’s needs financially (U.S. Census Bureau, 2021b).

For children living with a single parent, the poverty rate jumps to 29%, which is seven times higher than the poverty rate for children who live with married parents (4%) (Figure 7) (U.S. Census Bureau, 2021b).

Persistent Poverty. The impacts of poverty reach beyond the challenges faced by individuals and families struggling with low wages. Research has suggested that communities for which the poverty rate reaches 20% experience systemic problems that are more acute than in lower-poverty areas (Dalaker, 2022). In North Dakota, three counties have had poverty rates of at least 20% for each of the past several decades (Benson, Rolette, and Sioux). Populations in these indigenous communities have endured a legacy of racial discrimination and face significant, on-going barriers to financial stability (Arambula Solomon, et al., 2022).

Living Near Poverty. The official poverty measure is derived using income thresholds that vary by family size and composition. For example, individuals in a four-person family (i.e., two adults, two children) with a family income of \$26,246 or less were considered to be living in poverty in 2020 – and unable to afford basic living expenses (U.S. Census Bureau, 2022c). However, research from the Economic Policy Institute has determined that, in North Dakota, individuals need between two and three times that amount to attain a modest yet adequate standard of living (incomes up to 200% and 300% of the poverty threshold, respectively) (Economic Policy Institute, 2022). Thus, incomes that are above the poverty threshold, yet below 200% of poverty are often considered ‘lower income’ or ‘near poverty’, and potentially qualify individuals for support programs such as SNAP, Medicaid, and housing assistance.

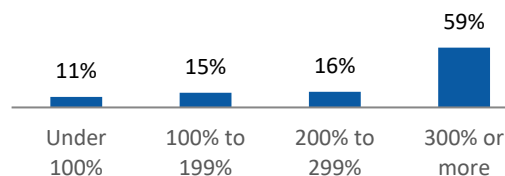
Figure 7. Child Poverty Rate in North Dakota by Family Type, 2020



Source: U.S. Census Bureau (2021b)

Figure 8. Percent of People by ‘Ratio of Income to Poverty’ in North Dakota, 2020

The percentage ‘Under 100%’ is the official poverty rate



Source: U.S. Census Bureau (2021b)

In addition to the 11% of North Dakotans living in poverty (77,491 people), a larger number are living near poverty. In 2020, 15% of individuals in North Dakota were living in families with income from 100% to 199% of poverty (107,564 people) (Figure 8) (U.S. Census Bureau, 2021b).

¹ Children living in families with all parents in the labor force includes children living with a single parent and that parent works, as well as children living with two parents and both of those parents are working.

Education

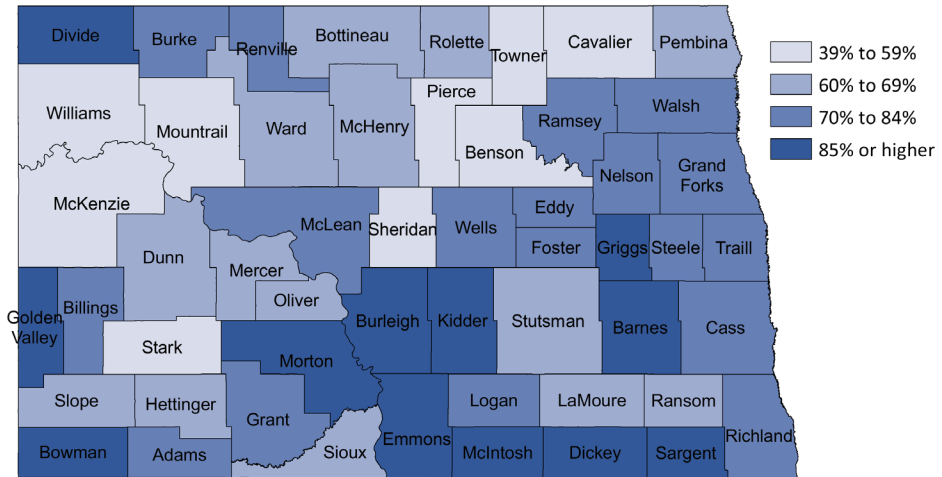
Research shows that the physical, social, and economic health and well-being of adults are strongly influenced by both positive and negative experiences in early childhood. The best time to build foundational skills, ensure healthy development, and prevent achievement and health inequities is in the very early stages of childhood. Later skills in schooling and employment build cumulatively upon early skills. Educated individuals live longer, healthier lives than those with less education — and their children are more likely to thrive, regardless of income (County Health Rankings & Roadmaps, 2022).

Child Care and Early Learning

Child Care Access. Finding quality, affordable child care is vital for many working parents in the state, and enables them to remain in the labor force and support their households financially. According to 2020 data, 74% of young children ages 0 to 5 in North Dakota lived in families where all the parents were in the labor force² - which is higher than the national average of 67% and is the sixth largest percentage among states (U.S. Census Bureau, 2021b). Within North Dakota, the percentage of young children living in families with all parents in the labor force exceeded 84% in 12 counties – largely in the southern half of the state (Figure 9).

According to 2020 data, 74% of young children ages 0 to 5 in North Dakota lived in families where all the parents were in the labor force — which is the sixth largest percentage among states.

Figure 9. Children Ages 0 to 5 with All Parents in the Labor Force in North Dakota by County, 2020



Source: U.S. Census Bureau (2021b)

Some working families alter their schedules to care for their own children and others use a network of family, friends, and neighbors for child care. Unlicensed care which may or may not be registered and/or monitored by the state provides an additional option for families. However, many working families in North Dakota rely on child care options that are licensed by the state. Licensure provides the necessary oversight to ensure care is provided in a healthy and safe environment by qualified people –

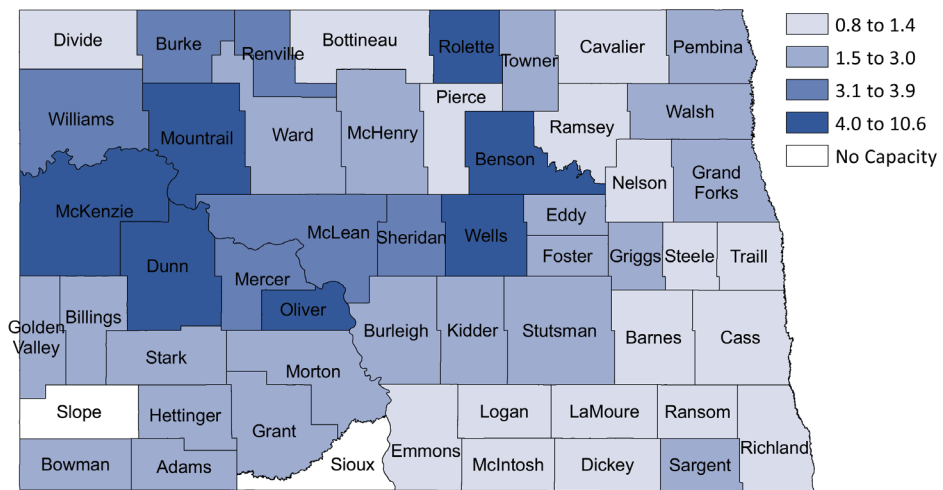
² Children living in families with all parents in the labor force includes children living with a single parent and that parent works, as well as children living with two parents and both of those parents are working.

and focuses on meeting the developmental needs of children. Research from the Center for American Progress has established that the number of licensed child care slots in a community should be able to reach at least one-third of young children. When slots are insufficient to meet this threshold, the likelihood that parents face difficulties finding child care increases. As such, a community with a ratio of more than three young children for every licensed child care slot indicates a child care desert (Malik, et al., 2018).

In 2020, two counties, Slope and Sioux, had no licensed child care capacity. In addition, the ratio of young children per licensed child care slot exceeded 3:1 in 13 counties – counties which are largely concentrated in the northwestern part of the state (Figure 10). These are some of the same areas where parents of young children are less likely to be engaged in the workforce, pointing to the possibility that some parents are staying out of the workforce due to lack of licensed child care options.

In 15 North Dakota counties, there is an insufficient number of licensed child care spots to reach all children ages 0 to 5 who may need it.

Figure 10. Number of Children Ages 0 to 5 for Every One Licensed Child Care Slot in North Dakota by County, 2020



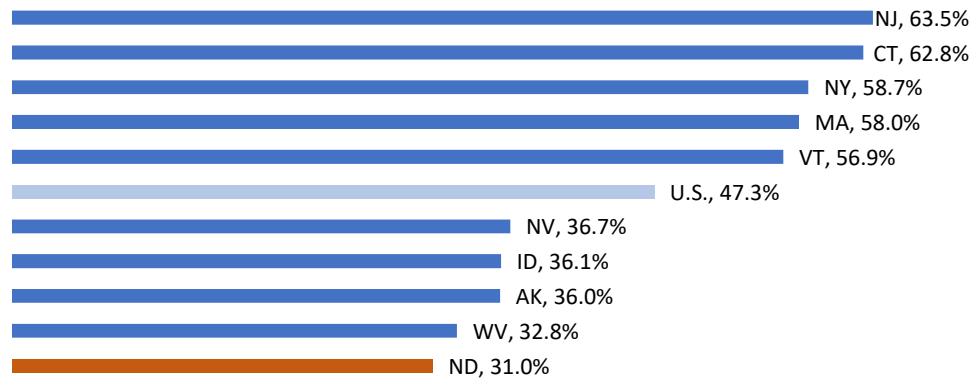
Sources: U.S. Census Bureau (2021b) and Malik, et al., (2018)

Quality Early Learning. In addition to supporting working families and strengthening the state’s economy, quality child care and early learning opportunities enrich childhood development. A significant body of research focusing on neuroscience and social science has established that fundamental cognitive and non-cognitive skills are produced in the early years of childhood, long before children begin kindergarten. Thus, high-quality preschool programs (i.e., public or private early learning programs providing educational experiences for children during the years preceding kindergarten such as Head Start, child care preschool, early childhood special education, or a school district prekindergarten program) are instrumental in helping prepare children not only academically, but socially and emotionally as well. These early experiences create a foundation for children to be successful students and eventually productive adults (Center on the Developing Child, 2022).

North Dakota has the lowest percentage of young children enrolled in early learning programs in the nation.

In North Dakota, 31% of young children ages 3 and 4 were enrolled in preschool programs in 2020 – the lowest percentage of any state in the nation. Nationally, just about half of all young children were enrolled in preschool (47% in 2020) (Figure 11) (U.S. Census Bureau, 2021b).

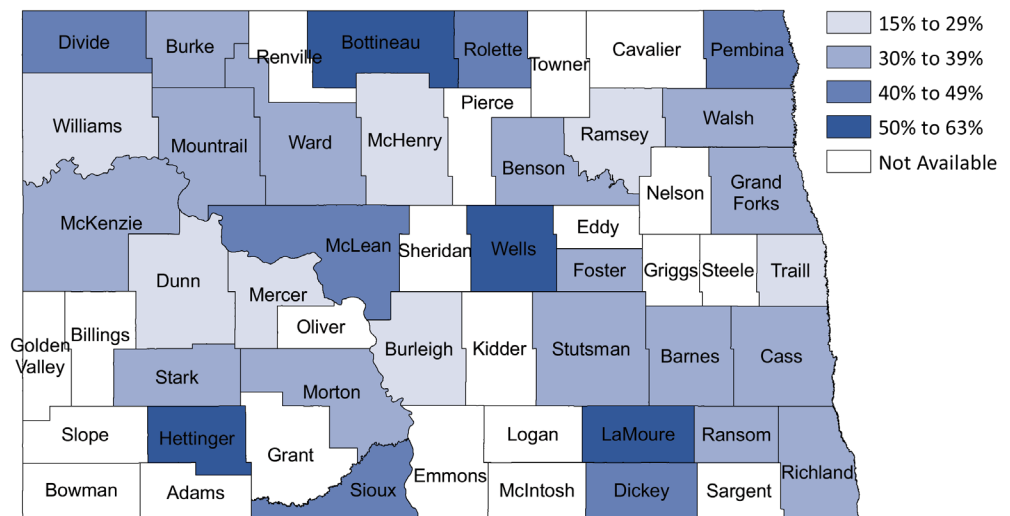
Figure 11. Percentage of Children Ages 3 and 4 Enrolled in Preschool Programs by State, 2020
Top Five and Bottom Five States Compared to the National Average



Note: Preschool programs include public or private early learning programs providing educational experiences for children during the years preceding kindergarten such as Head Start, child care preschool, early childhood special education, or a school district prekindergarten program.
Source: U.S. Census Bureau (2021b)

Due to the small numbers of young children enrolled in early learning programs across the state, data are limited for smaller areas of geography. Of the information available at a county level, at least half of children ages 3 and 4 were enrolled in early learning programs in four counties: Hettinger (53%), Bottineau (61%), Wells (61%), and LaMoure (63%) (Figure 12) (U.S. Census Bureau, 2021b).

Figure 12. Percentage of Children Ages 3 and 4 Enrolled in Preschool Programs in North Dakota by County, 2020

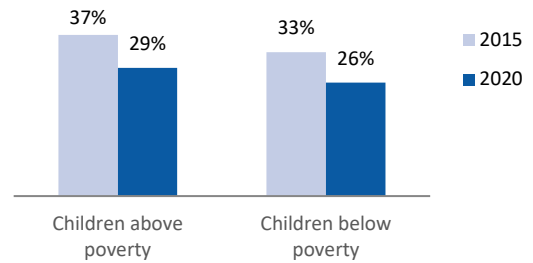


Source: U.S. Census Bureau (2021b)

Preschool enrollment rates for young children in North Dakota are down, regardless of income and race.

Household income plays a pivotal role in whether a family is able to enroll their child in early education. Families with incomes below the poverty level are less likely to enroll their young child in preschool than families with higher incomes. In North Dakota, one-fourth of young children living below the poverty line were enrolled in preschool in 2020 (26%), compared to 29% of children above poverty. Regardless of income level, enrollment rates are down by about 7 points from 2015 (U.S. Census Bureau, 2021b) (Figure 13).

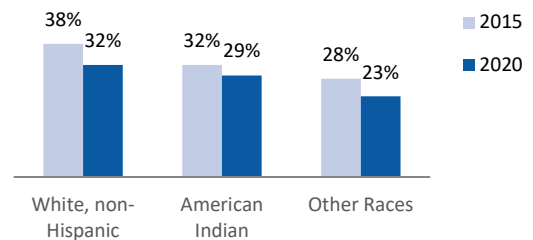
Figure 13. Percentage of Children Ages 3 and 4 Enrolled in Preschool Programs in North Dakota by Poverty Status, 2015 and 2020



Source: U.S. Census Bureau (2021b)

Disparities in preschool enrollment also exist when the data are disaggregated by race. In North Dakota, 32% of non-Hispanic white children ages 3 and 4 were enrolled in preschool in 2020 compared to 29% of American Indian children and 23% of children reporting other races.

Figure 14. Percentage of Children Ages 3 and 4 Enrolled in Preschool in North Dakota by Race, 2015 and 2020



Source: U.S. Census Bureau (2021b)

Regardless of household income and racial background, preschool enrollment rates in North Dakota are lower than they were in 2015 (U.S. Census Bureau, 2021b) (Figure 14).

Reading Achievement

Reading proficiency by the end of third grade is often used as a benchmark in a child’s educational development. Up until third grade, most children are learning to read. Beginning in fourth grade, however, they are reading to learn. In fourth grade, children begin to use the reading skills they have acquired to solve problems, think critically, and share their learned knowledge with others. Students who are still learning to read by fourth grade can quickly fall behind and struggle through high school, which can limit college and career opportunities (Center for Public Education, 2015).

In late January through early March of each year, the National Assessment of Educational Progress (NAEP) administers reading and mathematics assessments to representative samples of fourth and eighth grade students in approximately 100 public schools in each state. Each state also carries out its own reading and mathematics assessments at different grade levels – with differing results. It is important to understand that state assessments and NAEP are designed for different, although overlapping purposes. In particular, state assessments are designed to provide important information about individual students to their parents and

teachers, while NAEP is designed for a summary assessment at the state and national level. Accordingly, NAEP assessment results are provided in this section to show how North Dakota *fourth grade* students compare with the rest of the nation with respect to reading proficiency. State assessment results provided in this section focus on *third grade* reading results rather than fourth grade, and help to provide greater insight into reading proficiency by geography and various disparities in reading outcomes.

While the NAEP and State Assessment measure reading proficiency differently, results from both indicate that most North Dakota students in grades three and four are not meeting the standards for reading performance.

NAEP. Overall, the NAEP results show about one-third of North Dakota fourth grade students were proficient or advanced in reading in 2022 (31%), which is similar to the national average of 32%. This means that the majority of fourth grade students are not reading proficiently (U.S. Department of Education, 2022).

State Assessment. As a result of the COVID-19 pandemic, schools throughout the state have faced multiple shutdowns, staff shortages, absenteeism, and quarantines. Students, teachers, and administrators have faced many challenges to continued learning. Results from the statewide reading assessment given to third grade students in North Dakota show that the ability to read proficiently slowed considerably in 2021.

The majority of all North Dakota third graders are not meeting the expected level of performance with regard to reading standards.

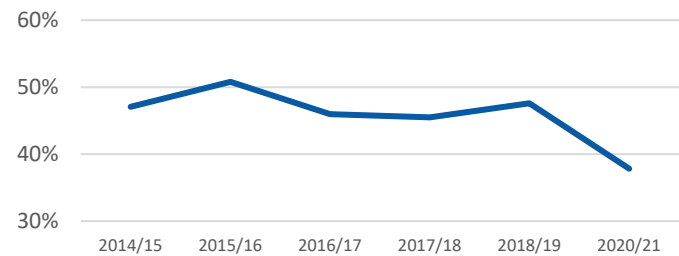
Prior to the pandemic, from 2015 to 2019, the percentage of third grade students determined to be at or above proficient in reading changed little, with nearly half of students attaining proficiency in 2015 and 2019 (48% each).

Results from the 2021 State Assessment

indicate that 38% of third grade students were proficient or advanced in reading, a drop of 10 points from 2019 (Figure 15). This means that the majority of all North Dakota third graders (62%) are not meeting the expected level of performance with regard to reading standards (North Dakota Department of Public Instruction, 2022).

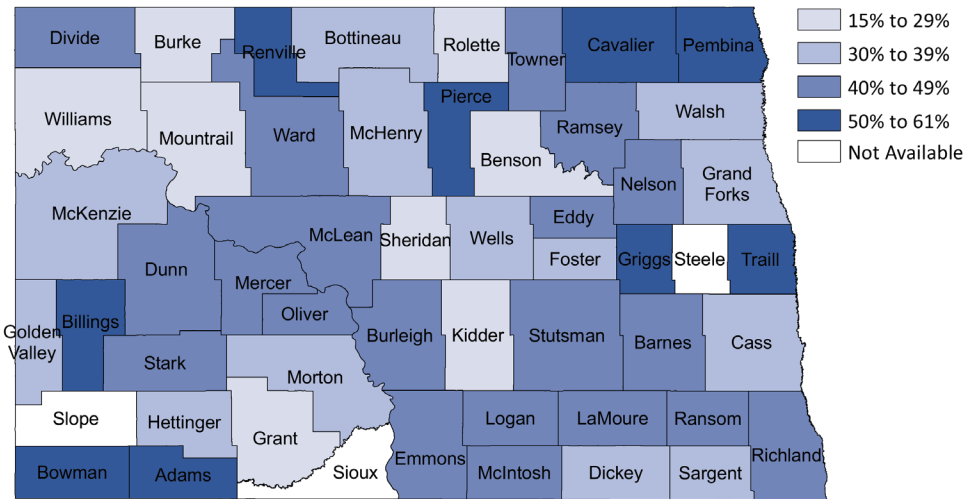
In nine counties, at least half of all third graders were proficient or advanced in reading in 2021 (Figure 16). Cavalier, Renville, and Griggs counties led the state with the highest percentage of third grade students reading proficiently or advanced (61%, 59%, and 57%, respectively) (North Dakota Department of Public Instruction, 2022).

Figure 15. Third Grade Students Achieving Reading/English Language Arts/Literacy Standards in North Dakota, 2014/15 to 2020/21



Note: Tests were not administered in 2019/2020 due to COVID-19 pandemic
Source: North Dakota Department of Public Instruction (2022)

Figure 16. Third Grade Students Achieving Reading/English Language Arts/Literacy Standards in North Dakota by County, 2020/21



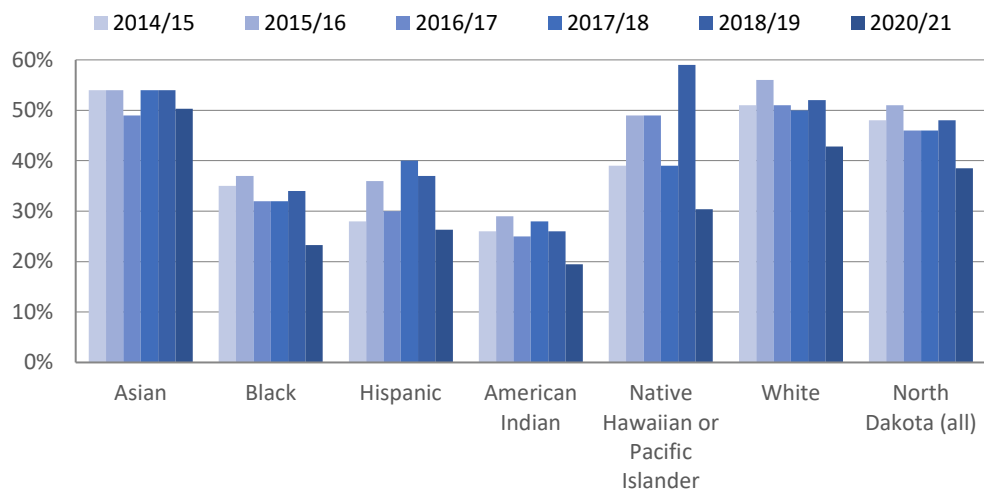
Source: North Dakota Department of Public Instruction (2022)

Significant disparities exist around 3rd grade reading with respect to race, income, and disability status.

Race. Gaps in third grade reading scores by race and ethnicity are persistent in North Dakota. Specifically, white and Asian students were twice as likely to be proficient or advanced in reading in third grade as American Indian, Black, and Hispanic students in 2021. These racial gaps have not improved over the past six years.

Prior to the pandemic, improvements in third grade reading were evident among Hispanic students (28% proficient or advanced in 2015 to 37% in 2019) and Native Hawaiian and Pacific Islander students (39% to 59%). Unfortunately, the pandemic has undone any gains in the overall results (Figure 17).

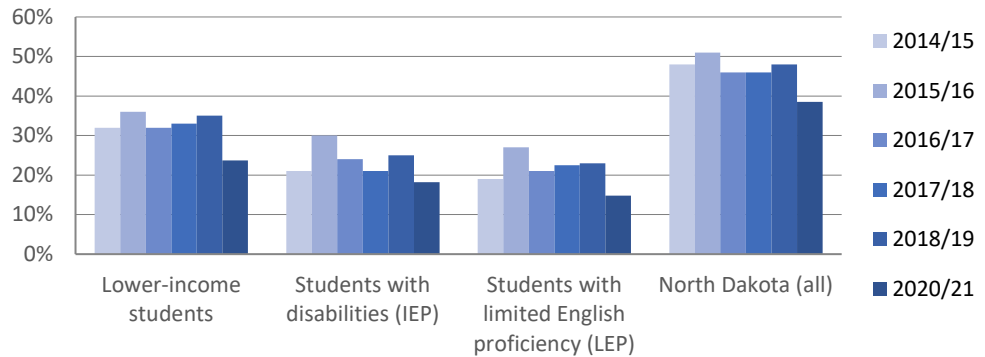
Figure 17. Third Grade Students Achieving Reading/English Language Arts/Literacy Standards in North Dakota by Race, 2014/15 to 2020/21



Source: North Dakota Department of Public Instruction (2022)

Low Income and Special Populations. Disparities in third grade reading proficiency extend to lower income students as well as students with disabilities and limited English skills. Approximately one-fourth of lower income students in North Dakota were proficient or advanced in reading in 2021 (24%), which is down from one-third of students in 2019 (35%). Likewise, one-fifth of students with disabilities were proficient or advanced in reading in 2021 (18%), which is down from 25% in 2019 (Figure 18) (North Dakota Department of Public Instruction, 2022).

Figure 18. Third Grade Students Achieving Reading/English Language Arts/Literacy Standards in North Dakota, by Income, Disability, and Limited English Proficiency Status, 2014/15 to 2020/21



Source: North Dakota Department of Public Instruction (2022)

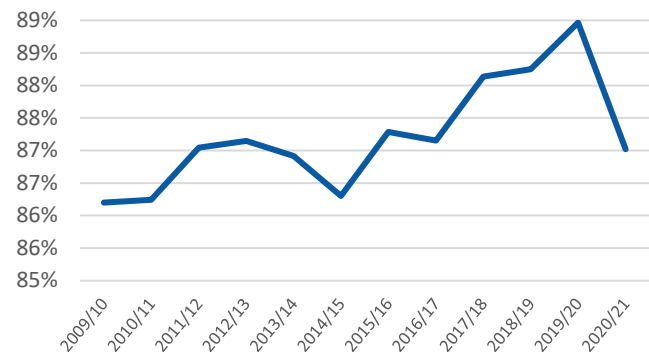
On-Time High School Graduation

On-time high school graduation reflects the percentage of students in a cohort, which is adjusted for transfers in and out of school, that graduate with a regular high school diploma within four years of the first enrollment in ninth grade. Students who graduate from high school on time are more likely to continue to postsecondary education or skills training, earn higher wages, and are generally healthier than students who do not graduate on time (County Health Rankings & Roadmaps, 2022).

In 2021, 87% of North Dakota high school students graduated on time, which reflects a decrease from the previous year.

Prior to the COVID-19 pandemic, the percentage of students graduating high school on time in North Dakota had been gradually increasing, from 86% in 2009/10 to 89% in 2019/20. However, in 2021, 87% of students graduated on-time, which reflects a decrease from the previous year (North Dakota Department of Public Instruction, 2022) (Figure 19).

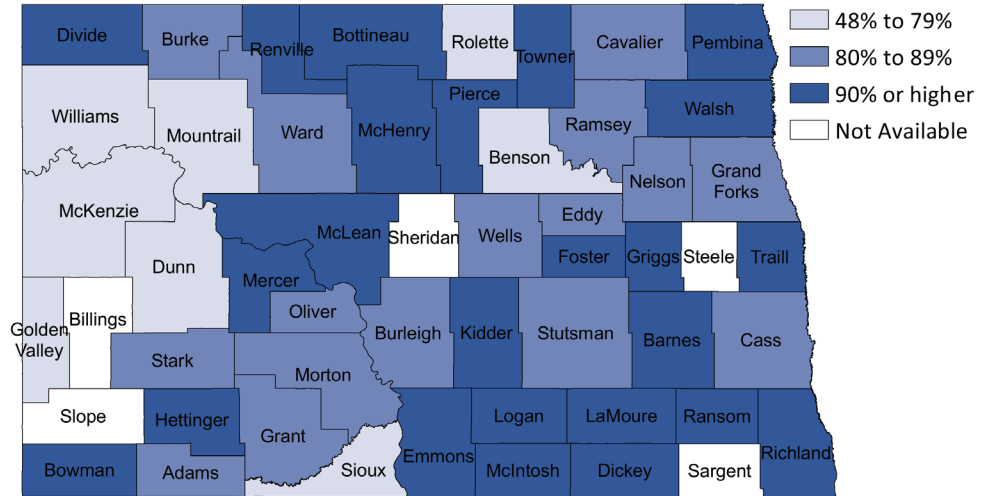
Figure 19. Four-Year High School Cohort Graduation Rate in North Dakota, 2009/10 to 2020/21



Source: North Dakota Department of Public Instruction (2022)

In 24 counties across North Dakota, at least 90% of high school students graduated on time in 2021. In six counties, the on-time high school graduation rate exceeded 95% (Emmons, Bottineau, McHenry, Mercer, Pembina, and Renville).

Figure 20. Four-Year High School Cohort Graduation Rate in North Dakota by County, 2020/21

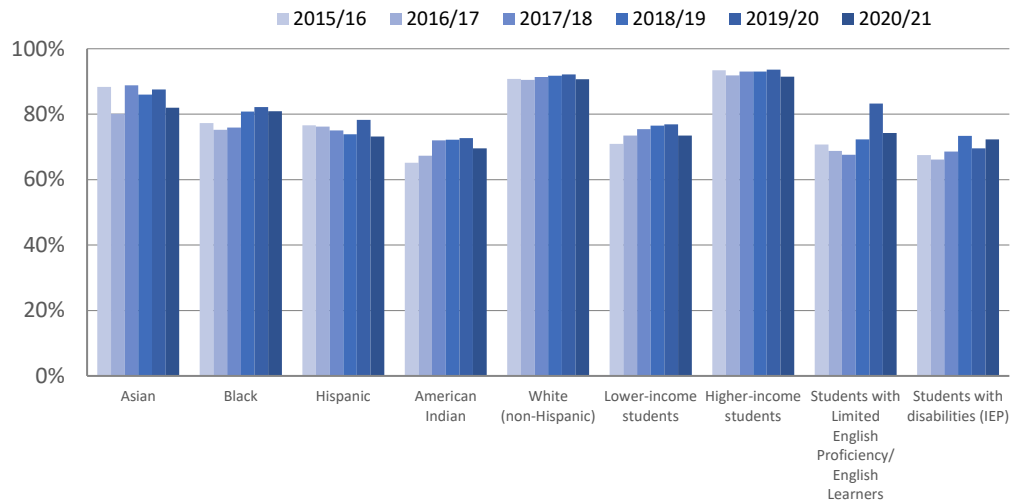


Source: North Dakota Department of Public Instruction (2022)

While the 2021 numbers show a slight reduction in the on-time high school graduation rate for all racial groups and income levels, disparity gaps have improved over the past 10 years.

Pre-pandemic improvements in the on-time high school graduation rate were evident across racial groups, income and disability status, and for students with limited English proficiency. While the 2021 numbers show a slight reduction in the on-time graduation rate for all racial groups and income levels, overall disparity gaps have improved over the past 10 years (Figure 21).

Figure 21. Four-Year High School Cohort Graduation Rate in North Dakota by Characteristic, 2009/10 to 2020/21



Source: North Dakota Department of Public Instruction (2022)

Social and Community Context

People’s relationships and interactions with family, friends, co-workers, and community members can have a major impact on health and well-being. Positive relationships at home, work, and in the community developed through social connections and community engagement are important factors in overall health.

Community engagement encompasses a wide range of actions and behaviors that improve communities and help solve problems – including political participation which can serve as an entry point to other kinds of participation. Beyond politics, many other activities represent acts of civic engagement: volunteering, working with neighbors, serving in community organizations, participating in social movements, discussing issues, or reading the news (CIRCLE, 2022).

There is robust evidence that social connection and community engagement reduce risk for premature mortality. In contrast, social isolation and loneliness are associated with increased risk for premature mortality and morbidity. The results of a large meta-analysis put together by Julianne Holt-Lunstad from Brigham Young University show that loneliness is strongly associated with an increased risk of heart disease, dementia, depression, and anxiety – and can diminish the quality of sleep. In addition, the research found that loneliness was also associated with a shorter life span (Holt-Lunstad, 2020).

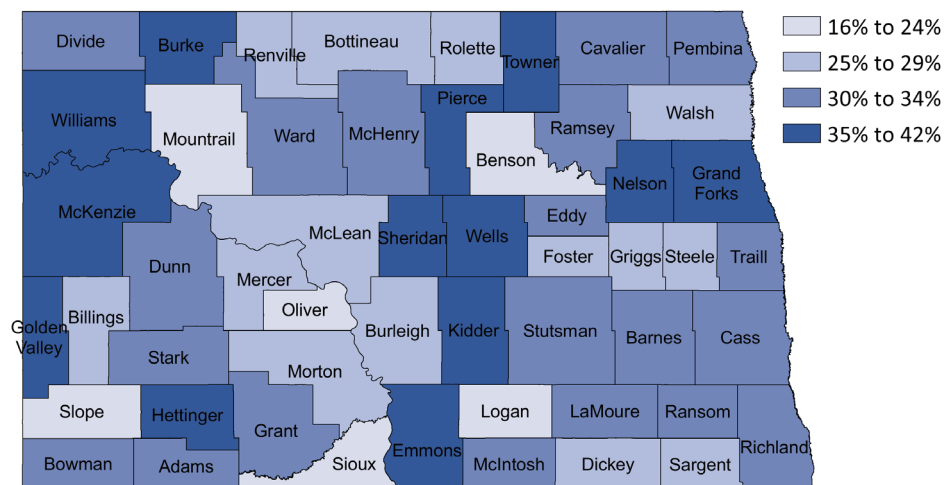
Seniors Living Alone

Research has linked social isolation and loneliness to higher risks for a variety of physical and mental conditions: high blood pressure, heart disease, obesity, a weakened immune system, anxiety, depression, cognitive decline, Alzheimer’s disease, and even death. People who find themselves unexpectedly alone due to the

In North Dakota, nearly one-third of all people ages 65 and older live in their own home by themselves (31%), a rate that is higher than any other state in the U.S

Figure 22. Seniors Living Alone in North Dakota by County, 2020

Percentage of people ages 65 and older who live alone in their own home



Source: U.S. Census Bureau (2021b)

death of a spouse or partner, separation from friends or family, retirement, loss of mobility, and lack of transportation are at particular risk (National Institute on Aging, 2019).

In North Dakota, nearly one-third of all people ages 65 and older live in their own home by themselves (31%), a rate that is higher than any other state in the U.S. The majority of North Dakota seniors who live alone, own their own home (59%) and 41% are renters (U.S. Census Bureau, 2021b).

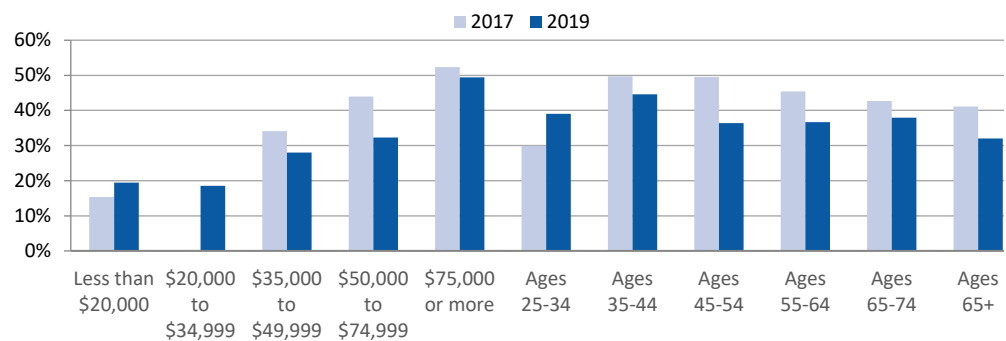
Volunteerism

Research has found a significant relationship between volunteering and health; when individuals volunteer, they not only help their community but also experience better health in later years, whether in terms of increased longevity, higher functional ability, or lower rates of depression (Mak, Coulter, & Fancourt, 2022).

In North Dakota, 192,616 adults volunteered in some capacity in 2019, which is approximately one-third of the population ages 16 and older (35%). People ages 35 to 44 (older Millennials) in North Dakota were the most likely to volunteer (45%) in 2019. However, volunteer rates in North Dakota were down across most age groups from 2017 to 2019. With the exception of people ages 25 to 34 (younger Millennials), volunteer rates decreased by at least 5 points for each age group (Figure 23) (Current Population Survey, Volunteering and Civic Life Supplement, 2022).

Volunteer rates were also down across most household income groups. The exception was individuals with the lowest household incomes (less than \$20,000 per year), where volunteer rates increased from 2017 to 2019.

Figure 23. Volunteer Rates for Persons 16 and Older in North Dakota by Age and Household Income, 2017 and 2019



Note: Data not available for those with household incomes of \$20,000 to \$34,999 in 2017.
 Source: Current Population Survey, Volunteering and Civic Life Supplement (2022)

Youth Engagement

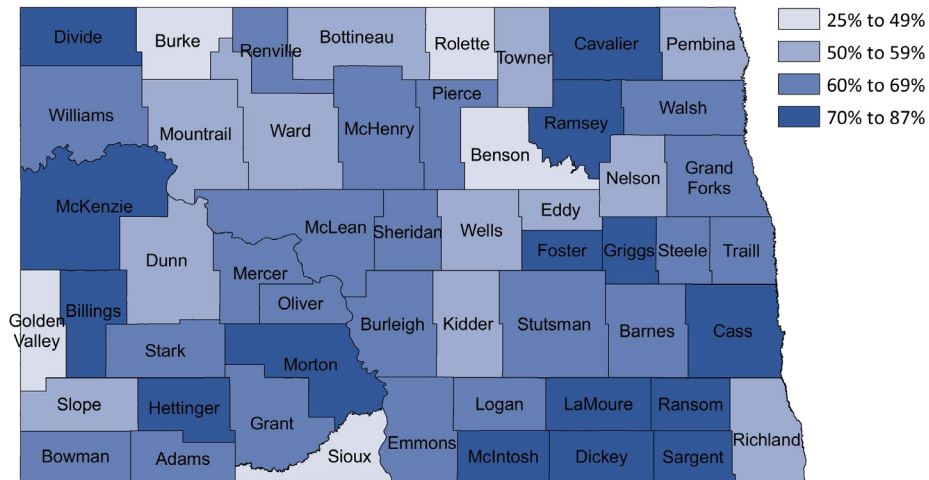
Social Activities and Relationships. Many North Dakota youth are actively engaged socially through various activities, school, and the workforce. North Dakota has the largest percentage of youth and young adults ages 16 to 24 employed in the workforce among states (65% in 2020, compared to 51% nationally) – a percentage which has edged up slightly from 63% in 2010. In six counties, the percentage of

North Dakotans were less likely to volunteer in 2019 than in 2017, regardless of age group or household income – with the exception of those earning the least. Individuals with household income less than \$20,000 per year were more likely to volunteer in 2019 than in 2017.

youth and young adults employed in the workforce exceeded 80%: Foster (87%), Billings (86%), Cavalier (84%), McKenzie (82%), Griggs (82%), and Divide (81%) (Figure 24) (U.S. Census Bureau, 2021b).

North Dakota has the largest percentage of youth and young adults ages 16 to 24 employed in the workforce among states (65% in 2020, compared to 51% nationally).

Figure 24. Working Youth and Young Adults in North Dakota by County, 2020
Percentage of persons ages 16 to 24 who are employed



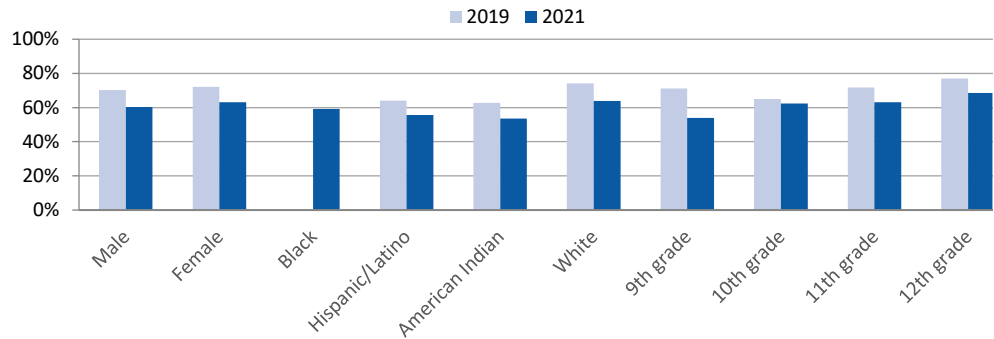
Source: U.S. Census Bureau (2021b)

For youth specifically, about half of teens ages 16 to 19 were employed in 2020 (46%). In addition to employment, about two-thirds of high school students and nearly three-fourths of middle school students in North Dakota participate in at least one hour per week of school activities such as sports, band, drama, or clubs (67% and 71%, respectively in 2021) (North Dakota Department of Public Instruction, 2022a).

For high school students in particular, the percentage participating in school activities has decreased slightly from 70% in 2015, mostly due to fewer female students engaging in activities. In 2015, three-fourths of female high school students were involved in sports, band, drama or clubs (74%); however, this percentage decreased to 68% in 2021. There was little change in male participation (67% in 2015 to 66% in 2021).

There was also a decrease in the percentage of high school students in the state who reported a connection to a teacher or other adult in their school, someone they can talk to if they have a problem. In 2021, 62% of North Dakota high school students said they had an adult at school to talk to if they had problems, which is down from 71% in 2019. Fewer connections to adults in 2021 were seen for females and males, as well as across ages, grades, and race (Figure 25) (North Dakota Department of Public Instruction, 2022a).

Figure 25. High School Students Reporting a Connection to a Teacher or Other Adult in School Who They Can Talk to if They Have a Problem in North Dakota by Characteristic, 2019 and 2021

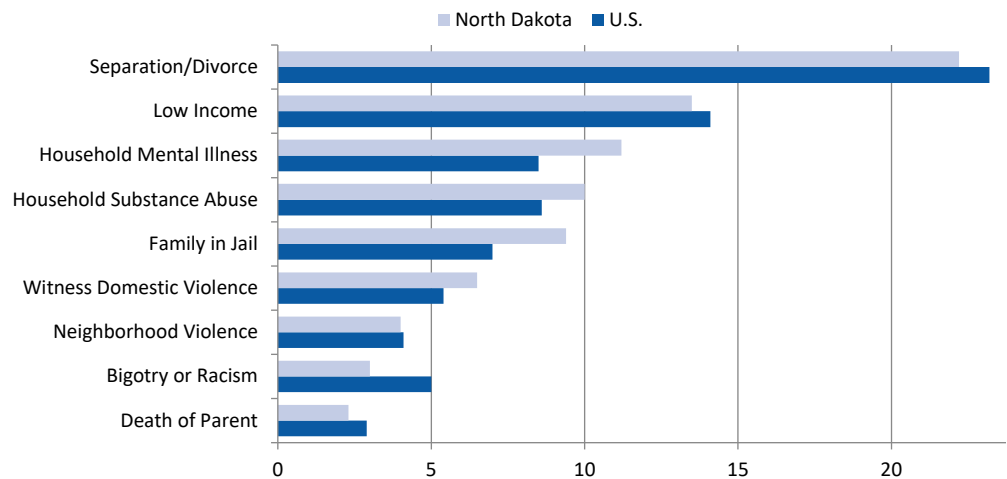


Source: North Dakota Department of Public Instruction (2022a)

Adverse childhood experiences. Adverse childhood experiences or ACEs, are potentially traumatic events that occur in childhood and include such things like experiencing violence, abuse, or neglect; witnessing violence in the home or community; and having a family member attempt or die by suicide. They can also include aspects of the child’s environment that can undermine their sense of safety, stability, and bonding, such as growing up in a household with substance use problems, mental health problems, and instability due to parental separation or incarceration.

Research shows that the more ACEs adults reported from their childhood, the worse their physical and mental health outcomes (e.g., heart disease, substance misuse, depression) (Felitti, et al., 1998). Preventing ACEs could potentially reduce many health conditions. For example, by preventing ACEs, up to 1.9 million heart disease cases and 21 million depression cases nationwide could have been potentially avoided (Centers for Disease Control and Prevention, 2021).

Figure 26. Percentage of Children with Adverse Childhood Experiences in North Dakota and the U.S., 2019-2020



Source: Child and Adolescent Health Measurement Initiative (2022)

When compared to national averages, North Dakota children are more likely to live with someone experiencing mental illness, live with someone abusing substances, have a family member in jail or prison, and be a witness to domestic violence.

According to 2019-2020 data from the National Survey of Children’s Health, approximately 32,095 children in North Dakota have experienced at least two adverse experiences in their life, which is about 19% of all children in the state. The most likely adverse experiences for children in North Dakota relate to parental separation (22%) and low-income families (14%), followed by living with someone experiencing mental illness (11%) and abusing substances (10%) (Figure 26) (Child and Adolescent Health Measurement Initiative, 2022).

When compared to national averages, North Dakota children are more likely to live with someone experiencing mental illness, live with someone abusing substances, have a family member in jail or prison, and be a witness to domestic violence.

Neighborhood and Built Environment

Neighborhood and built environments are important contexts in which health is shaped. There is a connection between where a person lives (housing, neighborhood, environment) and their health and well-being. A built environment comprises the man-made, physical attributes such as housing and conditions affecting walkability and recreation, and availability of resources and amenities that influence individual health behaviors. Evidence is compelling that the social and built environmental conditions facing residents affect health as much as do the individual characteristics of residents themselves (County Health Rankings & Roadmaps, 2022).

Housing Cost Burden

Housing structures protect from extreme weather and provide safe environments for families and individuals to live and form social bonds. However, houses and apartments can also be unhealthy, unsafe, or located in areas that are far from resources such as public transportation, grocery stores, and safe places to exercise. Housing is also a substantial expense, reflecting the largest single monthly expenditure for many individuals and families (County Health Rankings & Roadmaps, 2022).

Higher incomes increase the likelihood of owning a home, yet the homeownership rate decreased for all income levels over the past decade in North Dakota. While most occupied housing in North Dakota is owner-occupied (63% in 2020), the percentage is down from 67% in 2010. This may in part be explained by rising housing costs throughout the state. The median monthly housing costs for homeowners with a mortgage rose 27% since 2010, from \$1,146 to \$1,457 in 2020. Households that rent are also experiencing a substantial increase in rental costs. Gross rent in North Dakota grew by 49% during the past decade – more than twice the rate of inflation — from a median of \$555 per month in 2010 to \$828 in 2020 (U.S. Census Bureau, 2021b).

General guidance suggests that housing costs should not exceed 30% of monthly household income. When too much of a paycheck goes to paying the rent or mortgage, families may be faced with choosing among paying for essentials such as utilities, food, transportation, or medical care. In North Dakota, 70,445 households spent more than 30% of their income toward housing costs in 2020. Compared to

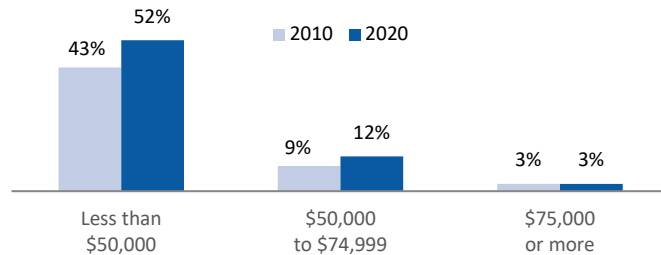
Monthly housing costs for homeowners and renters in North Dakota are rising faster than inflation.

other states, the percentage of households burdened with housing costs in North Dakota is relatively low (23% in 2020, which is the second lowest among states behind West Virginia). Within North Dakota, housing costs are substantially more of a burden for renters than homeowners. In 2020, 39% of renters in the state were cost burdened compared to 14% of homeowners (U.S. Census Bureau, 2021b).

Compared to the national average, housing costs in North Dakota are relatively low, yet continue to be a burden for many.

Income. Housing costs are also more of a burden on households with lower incomes. While there are now fewer North Dakota households earning less than \$50,000, the percentage of lower-income households that are paying 30% or more of their income toward housing costs increased

Figure 27. Households Spending 30% or More of Income Toward Housing Costs in North Dakota by Household Income, 2010 and 2020



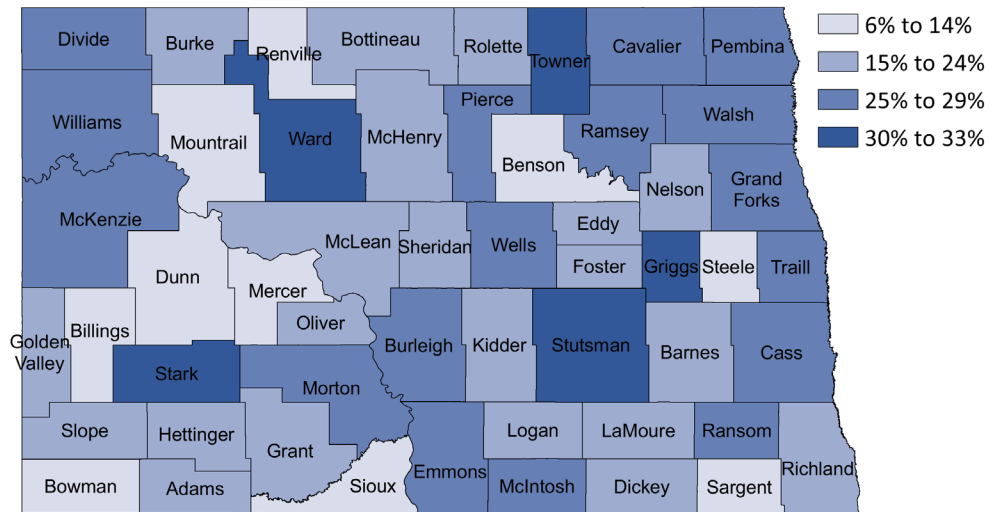
Source: U.S. Census Bureau (2021b)

during the past decade. Half of all households earning less than \$50,000 were burdened by housing costs in 2020 (52%), up from 43% in 2010. Likewise, 12% of households earning from \$50,000 to \$74,999 were cost burdened in 2020, which is up from 9% in 2010 (U.S. Census Bureau, 2021b) (Figure 27).

Age. In addition to households with lower incomes, householders ages 65 and older are more likely than householders ages 25 to 64 to be burdened by housing costs. Older householders, due to limited or fixed incomes can be vulnerable to becoming burdened by rising housing costs. Overall, one in four North Dakota householders ages 65 and older were burdened by housing costs in 2020 (26%). In five North Dakota counties, at least 30% of seniors were burdened by housing costs (Figure 28).

Figure 28. Senior Householders Burdened by Housing Costs in North Dakota, 2020

Percentage of householders ages 65 and older paying 30% or more of income toward housing costs

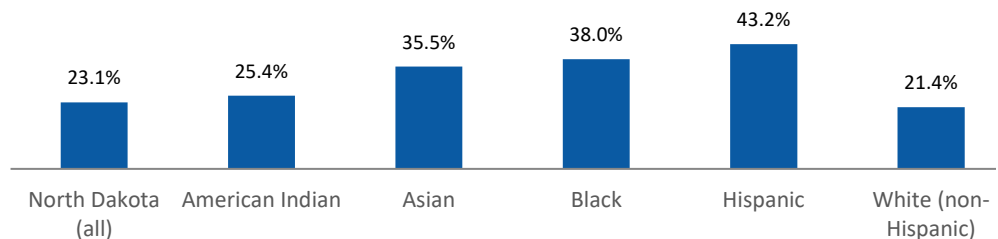


Source: U.S. Census Bureau (2021b)

For older adults who rent, the risk of housing costs exceeding 30% of their income increases substantially. Half of all renter-occupied householders ages 65 and older in North Dakota were cost-burdened in 2020 (55%) compared to 17% of owner-occupied householders ages 65 and older (U.S. Census Bureau, 2021b).

Race. Disparities in the ability to cover housing costs continue to persist for American Indian, Asian, Black, and Hispanic householders in North Dakota. Hispanic householders in particular are twice as likely as white householders to be burdened by housing costs (Figure 29) (U.S. Census Bureau, 2021b).

Figure 29. Households Spending 30% or More of Income Toward Housing Costs in North Dakota by Race, 2020



Source: U.S. Census Bureau (2021b)

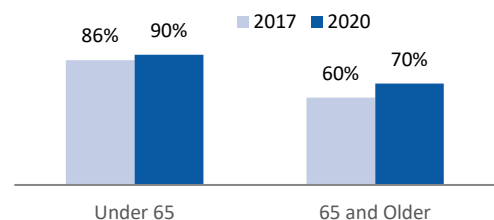
Broadband Internet Subscriptions

In addition to affordable housing, location is also an important factor in overall health and well-being. In particular, living in an area with access to reliable, high-speed broadband internet connections is essential to improving access to education, employment, and health care opportunities. Broadband access is often essential or required to access and enroll in state and federal programs. Studies have also found that broadband access can foster social connectedness, particularly among older populations, reducing the burden of social isolation, strengthening community support, and decreasing loneliness (County Health Rankings & Roadmaps, 2022).

In North Dakota, a growing number of households are acquiring a subscription to broadband internet. In 2020, 83% of households had a subscription, which is up from 78% in 2017. Even so, North Dakota lags behind the national average for broadband coverage (85% of households nationwide had a subscription in 2020) (U.S. Census Bureau, 2021b).

Age. North Dakotans ages 65 and older are less likely than individuals under 65 years to have a broadband subscription (70% compared to 90%, respectively). Even so, the percentage of people ages 65 and older with broadband increased by 10 points, up from 60% in 2017 (Figure 30).

Figure 30. Persons with a Broadband Internet Connection Subscription in North Dakota by Age, 2017 and 2020



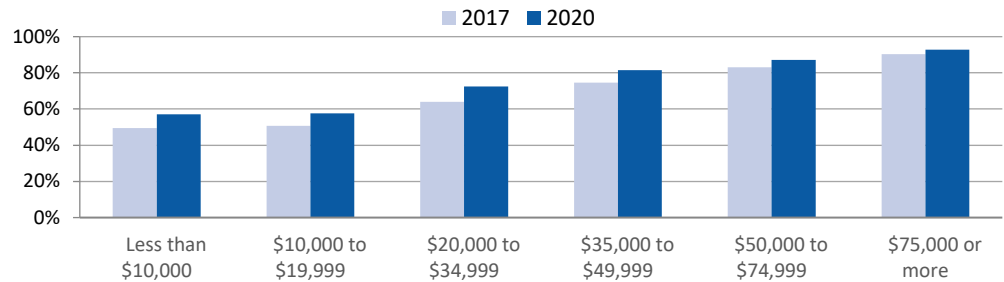
Source: U.S. Census Bureau (2021b)

The vast majority of North Dakotans have a broadband internet subscription (83%) — a percentage which continues to increase.

Despite disparities with regard to broadband subscriptions by age, income, and racial background, coverage increased from 2017 to 2020 for all categories.

Income. North Dakota households earning at least \$50,000 annually are nearly twice as likely to have a broadband subscription than those earning less than \$20,000 (91% compared to 57%, respectively). Despite the disparity of coverage by income levels, the percentage of households with a broadband connection increased for each income category from 2017 to 2020 (Figure 31).

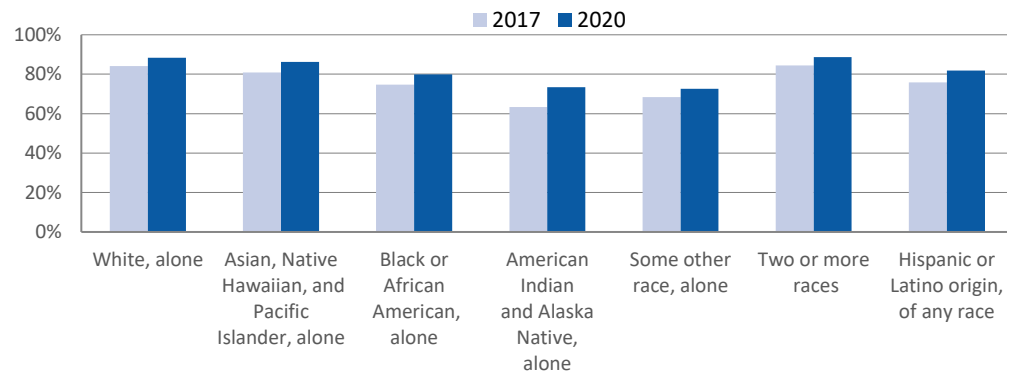
Figure 31. Households with a Broadband Internet Connection Subscription in North Dakota by Household Income, 2017 and 2020



Source: U.S. Census Bureau (2021b)

Race. People who are Black, American Indian, or Hispanic (of any race) are less likely than white and Asian individuals to have internet service. Despite the disparity of coverage by race and Hispanic origin, the percentage of individuals with a broadband connection increased for each racial category from 2017 to 2020 (Figure 32).

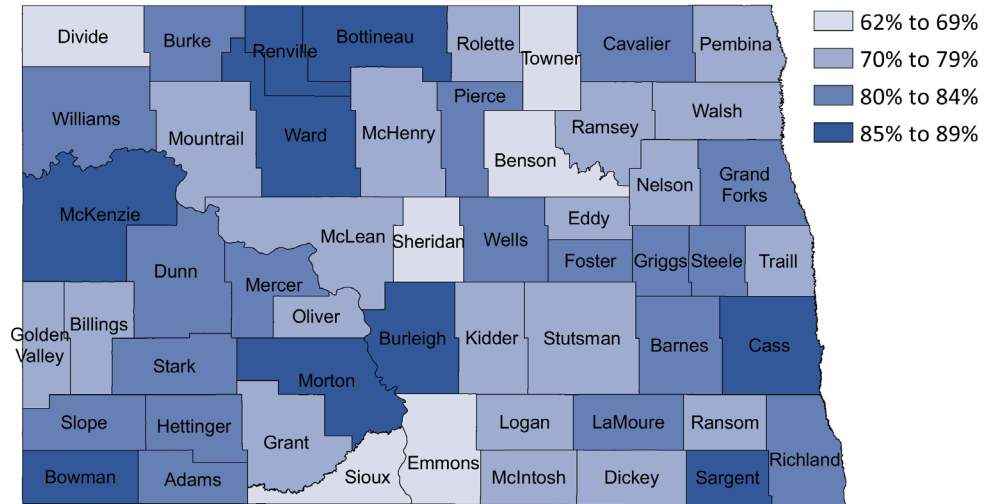
Figure 32. Persons with a Broadband Internet Connection Subscription in North Dakota by Race and Hispanic Origin, 2017 and 2020



Note: 'Alone' indicates the respondent identified as 'one race only'. Source: U.S. Census Bureau (2021b)

Geography. Households in rural areas throughout the state are less likely than households in more urban areas to have a broadband connection. In six largely rural North Dakota counties, fewer than 70% of households had internet service in 2020.

Figure 33. Households with a Broadband Internet Connection Subscription in North Dakota by County, 2020



Source: U.S. Census Bureau (2021b)

While most North Dakotans have enough to eat, for many who don't, the challenges are compounded. Three-fourths of individuals receiving services from the Great Plains Food Bank and their partner agencies also live with chronic illness.

Food Security

Most North Dakota households have consistent, dependable access to enough food for active, healthy living. Yet there are households in the state that experience food insecurity during the year, meaning their access to adequate food is limited by a lack of money and/or other resources. Research shows that lacking consistent access to healthy food can result in negative health outcomes such as weight-gain and premature mortality (County Health Rankings & Roadmaps, 2022). A 2018 survey by the Great Plains Food Bank and their partner food pantries and emergency meal programs in North Dakota found that 75% of the individuals they serve live with a chronic disease and just 11% were in excellent health. The survey also found that the average household income for clients served in 2018 was \$17,690 — and about half were making difficult choices between food and paying for gas for their car (49%) (Sobolik, 2018).

Recently released data from Map the Meal Gap indicates that 36,130 people in North Dakota were food insecure in 2020, which is 5% of all individuals in the state – the lowest percentage nationwide when compared to other states (Gundersen & Engelhard, 2022). This means that 5% of North Dakotans 1) lacked access, at times, to enough food for an active, healthy life and 2) had limited or uncertain availability of nutritionally adequate foods.

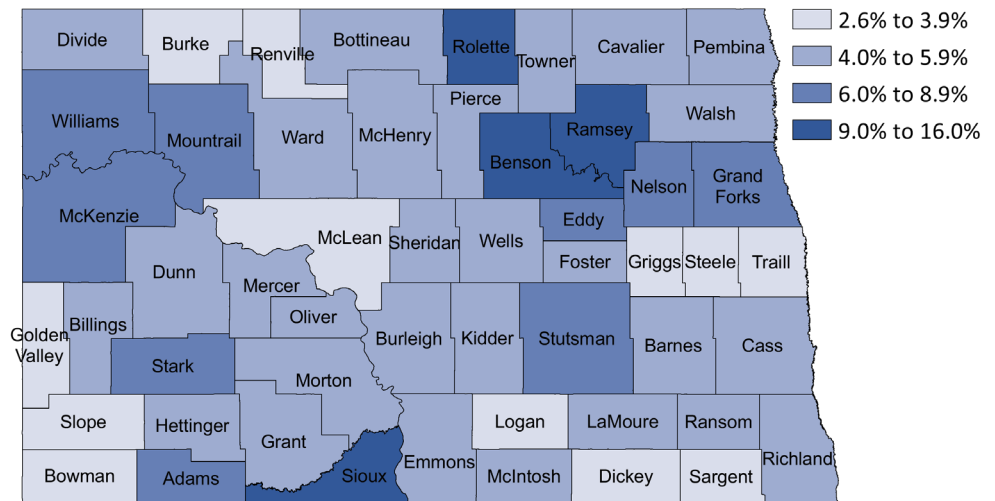
While there was little change from 2009 through 2014, the food insecurity rate in North Dakota began to slowly edge downward through 2018. While there was a change in methodology beginning with 2019 data, numbers seem to suggest that food insecurity continued a positive trend in 2020.

Every county in the state is home to families that face hunger – and many of them have incomes that are too high to qualify for assistance.

Income. Federal nutrition assistance programs, such as the Supplemental Nutrition Assistance Program (SNAP), are available to help supplement food budgets so families can purchase healthy foods. However, in North Dakota, one in four food-insecure individuals lived in households unlikely to qualify for most federal food assistance given various income and asset limitations for certain programs (24% in 2020). Data indicate that the share of food-insecure individuals not eligible for public food assistance was as high as 53% in Billings County (Gundersen & Engelhard, 2022).

Geography. Every county in the state is home to families that face hunger, however reservation areas within North Dakota tend to have higher rates of food insecurity. Counties with the highest rates of food insecurity (Rolette, Benson, and Sioux) also have notably higher poverty rates and lower incomes. Even so, for individuals who are food insecure in these three counties, at least 22% of them have incomes that make them ineligible for public food assistance (Gundersen & Engelhard, 2022).

Figure 34. Food Insecurity Rate for Individuals in North Dakota by County, 2020



Source: Gundersen & Engelhard (2022)

Access to Health Care

Access to affordable, quality health care is important to physical, social, and mental health. Health insurance helps individuals and families access needed primary care, specialists, and emergency care, but does not ensure access on its own—it is also necessary for providers to offer affordable care, be available to treat patients, and be in relatively close proximity to patients. Together, health insurance, local care options, and a usual source of care help to ensure access to health care. Having access to care allows individuals to enter the health care system, find care easily and locally, pay for care, and get their health needs met (County Health Rankings & Roadmaps, 2022).

Health Insurance

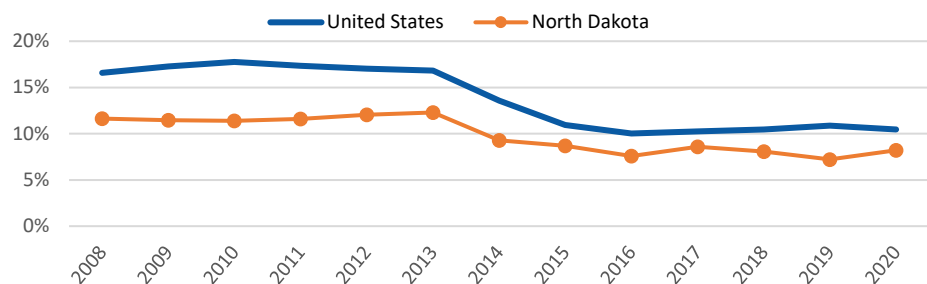
Most people need some form of medical care in their lives. Having health insurance helps to cover those medical costs and offers other benefits as well. In fact, research has shown that having health coverage is associated with better health-related outcomes – and a lack of insurance is associated with less medical care and less timely care, worse health outcomes, and financial strain for the uninsured and their families (Bovbjerg & Hadley, 2007).

In North Dakota, approximately 52,000 non-elderly (people ages 0 to 64) do not have any type of health care coverage, which is 8% of all individuals in the state (U.S. Census Bureau, 2022b). Since Medicare offers near universal coverage for persons 65 and older, the uninsured rate for this age group is less than 1% (U.S. Census Bureau, 2021b).

When major provisions of the Affordable Care Act (ACA) of 2010 went into effect in 2014, the uninsured rate dropped throughout the United States (from 17% in 2013 to 14% in 2014), and continued to fall to 10% in 2016. While the uninsured rate in North Dakota is consistently lower than the national average, it followed a similar pattern with the implementation of the ACA. The uninsured rate in North Dakota hovered around 12% from 2008 through 2013, then dropped to 9% in 2014 and 8% in 2016

Approximately 52,000 people ages 0 to 64 do not have any type of health care coverage, which is 8% of all individuals in North Dakota.

Figure 35. Uninsured Rate for the Non-elderly Population Ages 0 to 64 in North Dakota and the United States, 2008 to 2020



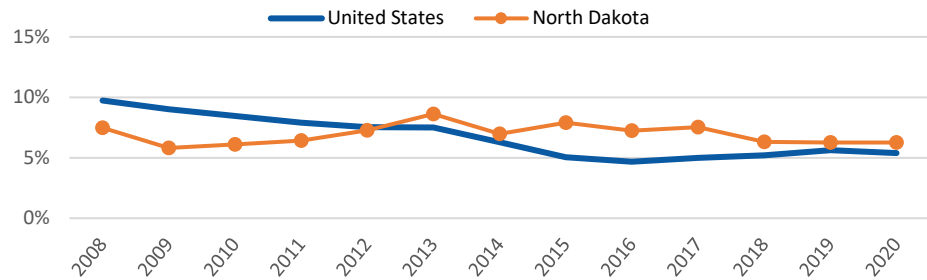
Note: Non-elderly includes individuals ages 0 to 64.
Source: U.S. Census Bureau (2022b)

The ACA has had little to no impact on the uninsured rate for children in North Dakota.

(U.S. Census Bureau, 2022b). There has been relatively little change in the overall uninsured rate since 2016 (Figure 35).

Age. In contrast to the overall trend, the uninsured rate for children ages 0 to 18 in North Dakota followed a different path. After the enactment of the 2010 ACA, but before the major provisions went into effect in 2014, the uninsured rate for youth increased from 6% in 2009 to 9% in 2013. Since then, the uninsured rate for children has been slowly trending downward and is currently at pre-ACA levels. However, the uninsured rate for children in North Dakota was higher than the national average in 2020 (6% and 5%, respectively) (Figure 36) (U.S. Census Bureau, 2022b).

Figure 36. Uninsured Rate for Children and Youth Ages 0 to 18 in North Dakota and the United States, 2008 to 2020



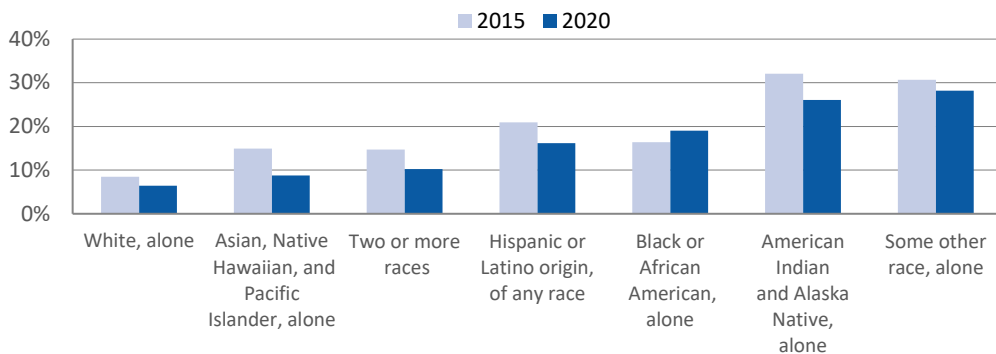
Note: Non-elderly includes individuals ages 0 to 64.
Source: U.S. Census Bureau (2022b)

When compared to other age groups, young adults ages 19 to 34 in North Dakota were the most likely to lack health insurance coverage in 2020.

When compared to other age groups, young adults ages 19 to 34 in North Dakota were the most likely to lack health insurance coverage in 2020. Nearly 13% of North Dakotans ages 26 to 34 were uninsured, followed by 10% of individuals ages 19 to 25 (U.S. Census Bureau, 2021b).

Race. Disparities in uninsured rates continue to exist in North Dakota by race and ethnicity. About one in four American Indian individuals ages 0 to 64 were without health insurance coverage in 2020 (26%) – a rate which is four times higher than the uninsured rate for white individuals (6%). Black or African American and Hispanic

Figure 37. Uninsured Rate for the Non-elderly Population Ages 0 to 64 in North Dakota by Race and Hispanic Origin, 2015 and 2020



Note: 'Alone' indicates the respondent identified as 'one race only'
Source: U.S. Census Bureau (2021b)

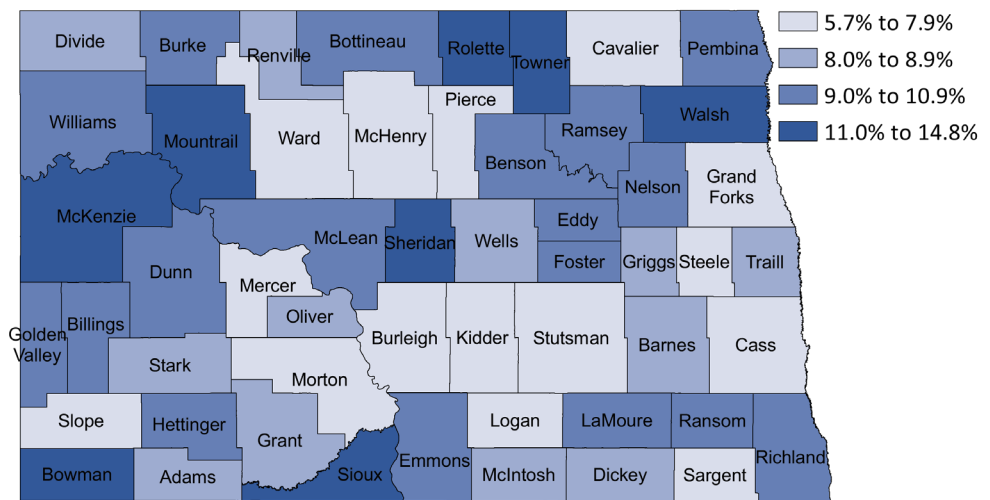
Since 2015, the uninsured rate decreased across racial groups in North Dakota, with the exception of individuals who are Black or African American.

populations were three times more likely than white persons to be uninsured (19% and 16%, respectively) (Figure 37) (U.S. Census Bureau, 2021b).

Since 2015, the uninsured rate decreased across racial groups, with the exception of individuals who are Black or African American. The uninsured rate for non-elderly Black or African Americans increased from 16% in 2015 to 19% in 2020.

Geography. Rural and reservation areas within North Dakota tended to have higher rates of uninsured populations than more urban and metro areas in 2020. Among all 53 counties, Mountrail and Rolette counties had the highest uninsured rates in the state in 2020 (15% and 14%, respectively) (U.S. Census Bureau, 2022b).

Figure 38. Uninsured Rate for the Non-elderly Population Ages 0 to 64 in North Dakota by County, 2020



Source: U.S. Census Bureau (2022b)

Primary Care Physicians

Access to care requires not only financial coverage, but also access to providers. Sufficient availability of primary care physicians is essential for preventive and primary care, and when needed, referrals to appropriate specialty care (County Health Rankings & Roadmaps, 2022).

In 2020, there were 676 professionally active primary care physicians practicing in North Dakota. Based on the number of people in the state, the average number of people to every primary care provider was 1,153 to 1, ranking North Dakota 35th when compared to other states (i.e., 34 states had better coverage) (Association of American Medical Colleges, 2021). Within North Dakota, the ratio varies considerably – indicating that much of the state is experiencing a shortage of health professionals.

Health Professional Shortage Area (HPSA) designations are used to identify areas, facilities, and population groups within the United States that are experiencing a shortage of health professionals. There are three categories of HPSA designation based on the health discipline that is experiencing a shortage: 1) primary medical; 2) dental; and 3) mental health. Federal regulations stipulate that, in order to be considered as having a shortage of providers, an area must have a population-to-

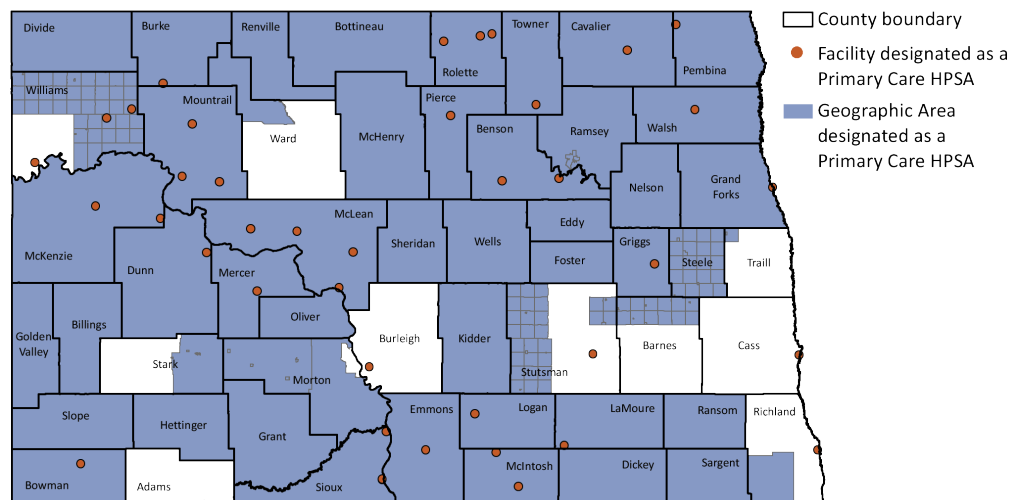
With the exception of Adams County, every county in North Dakota was fully or partially designated as a primary care shortage area – or was home to a facility that was designated as a primary care HPSA.

provider ratio of a certain threshold. For primary medical care, the population to provider ratio must be at least 3,500 to 1 (3,000 to 1 if there are unusually high needs in the community).

An important limitation of these designations is that the formula used to designate primary care HPSAs does not consider the availability of additional primary care services provided by nurse practitioners and physician assistants in an area.

Despite this limitation, according to shortage designations as of August 2022, an estimated 281,849 people in North Dakota lived in a primary care designated HPSA, which is 36% of the state’s total population. In fact, with the exception of Adams County, every North Dakota county was fully or partially designated as a primary care shortage area – or was home to a facility that was designated as a primary care HPSA (i.e., rural clinic, Indian and Tribal Health organization, Federally Qualified Health Center, correctional facility) (Figure 39) (U.S. Department of Health & Human Services, 2022b).

Figure 39. Primary Care Health Professional Shortage Areas (HPSA) in North Dakota as of August 2022



Note: For more information on each shortage area and facility, visit the HRSA Map Tool at <https://data.hrsa.gov/maps/map-tool/>

Source: U.S. Department of Health & Human Services (2022b)

Dentists

Untreated dental disease can lead to serious health effects including pain, infection, and tooth loss. Although lack of sufficient providers is only one barrier to accessing oral health care, much of the country suffers from provider shortages (County Health Rankings & Roadmaps, 2022).

In 2020, there were 516 professionally active dentists practicing in North Dakota. Based on the number of people in the state, the average number of people to dentists was 1,483 to 1, ranking North Dakota 28th when compared to other states (i.e., 27 states had better coverage) (County Health Rankings & Roadmaps, 2022).

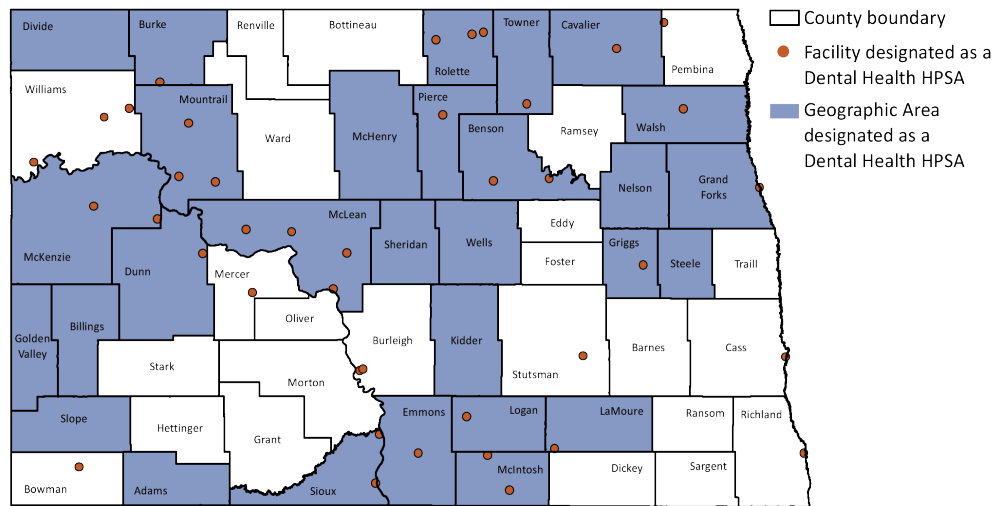
Federal regulations stipulate that, in order to be considered as having a shortage of providers, an area must have a population-to-provider ratio of a certain threshold.

A total of 36 North Dakota counties (of 53) were fully or partially designated as a dental health shortage area – or was home to a facility that was designated as a dental health HPSA.

For dental care, the population to provider ratio must be at least 5,000 to 1 (4,000 to 1 if there are unusually high needs in the community).

According to shortage designations as of August 2022, an estimated 211,631 people in North Dakota lived in a dental health designated HPSA, which is 27% of the state’s total population. In addition, a total of 36 North Dakota counties (of 53) were fully or partially designated as a dental health shortage area – or was home to a facility that was designated as a dental health HPSA (i.e., rural clinic, Indian and Tribal Health organization, Federally Qualified Health Center, correctional facility) (Figure 40) (U.S. Department of Health & Human Services, 2022b).

Figure 40. Dental Health Professional Shortage Areas (HPSA) in North Dakota as of August 2022



Note: For more information on each shortage area and facility, visit the HRSA Map Tool at <https://data.hrsa.gov/maps/map-tool/>
 Source: U.S. Department of Health & Human Services (2022b)

Mental Health Providers

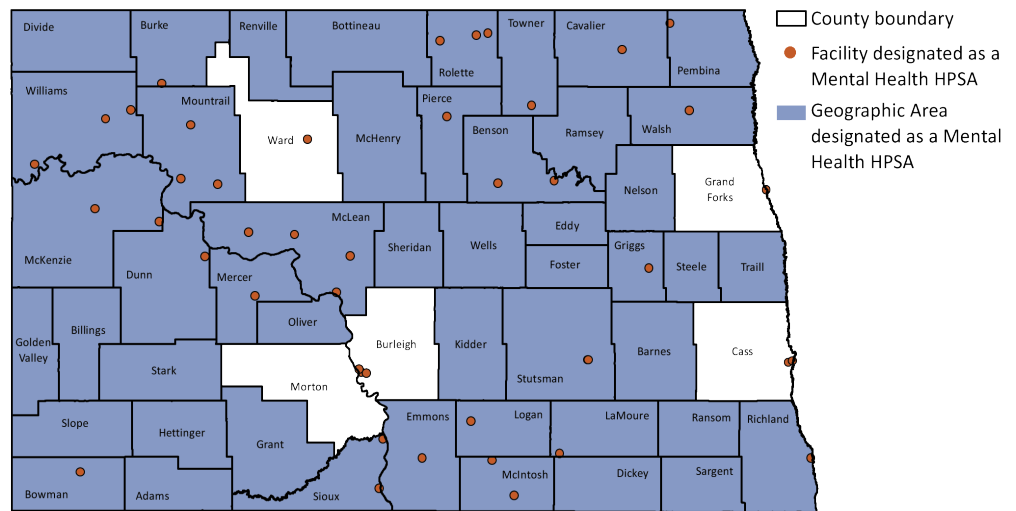
According to data from the 2022 County Health Rankings, there were 1,620 mental health providers practicing in North Dakota in 2021. Based on the number of people in the state, the average number of people to mental health providers was 472 to 1 in 2021, ranking North Dakota 38th when compared to other states (i.e., 37 states had better coverage) (County Health Rankings & Roadmaps, 2022).

Federal regulations stipulate that, in order to be considered as having a shortage of providers, an area must have a population-to-provider ratio of a certain threshold. For mental health, the population to provider ratio must be at least 30,000 to 1 (20,000 to 1 if there are unusually high needs in the community).

Every county in North Dakota was fully designated as a mental health shortage area – or was home to a facility that was designated as a mental health HPSA.

According to shortage designations as of August 2022, an estimated 355,835 people in North Dakota lived in a mental health designated HPSA, which is 46% of the state’s total population. In fact, every county in the state (with the exception of Morton County) was fully designated as a mental health shortage area – or was home to a facility that was designated as a mental health HPSA (i.e., rural clinic, Indian and Tribal Health organization, Federally Qualified Health Center, correctional facility) (Figure 41) (U.S. Department of Health & Human Services, 2022b).

Figure 41. Mental Health Professional Shortage Areas (HPSA) in North Dakota as of August 2022



Note: For more information on each shortage area and facility, visit the HRSA Map Tool at <https://data.hrsa.gov/maps/map-tool/>
 Source: U.S. Department of Health & Human Services (2022b)

Telehealth

Given the level of health professional shortage areas within North Dakota, telehealth presents an opportunity to connect rural patients to vital health care services through videoconferencing, remote monitoring, electronic consults, and wireless communications.

On the rise before the pandemic, telehealth usage has grown considerably in the past two years. In 2017, before the COVID-19 pandemic, 76% of U.S. hospitals connected with patients and consulting practitioners at a distance through the use of video and other technology – an increase from 35% in 2010 (American Hospital Association, 2019). The COVID-19 public health emergency which began in early 2020 brought considerable changes to health care service delivery in North Dakota and across the United States. As many medical offices closed down, the use of telehealth strategies increased in an effort to continue caring for patients.

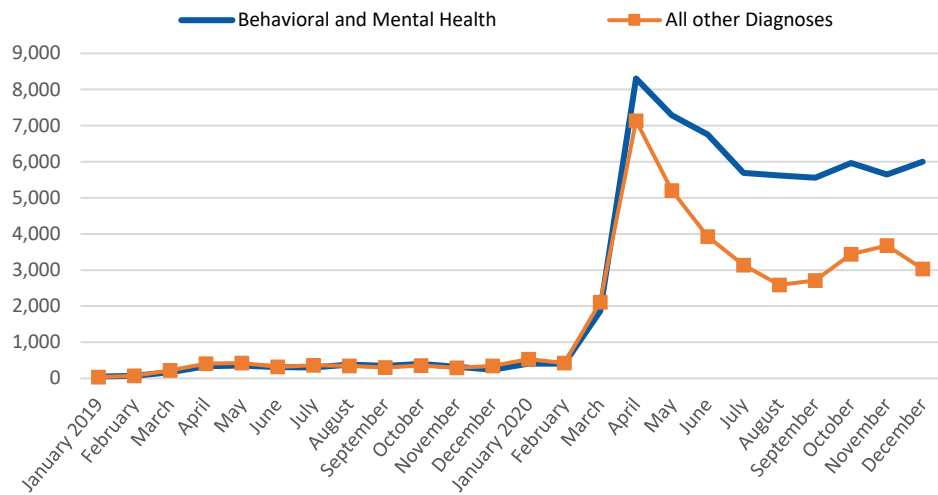
Early on in the pandemic, a collaboration of leading organizations across the healthcare industry formed the COVID-19 Healthcare Coalition and conducted the Telehealth Impact Study in 2021. By examining health insurance claims data between January 1, 2019, and December 31, 2020, the study found that prior to March 2020, telehealth claims in North Dakota grew at a very slow rate. With onset of the COVID-19 pandemic, there was an abrupt spike in telehealth claims in spring 2020 followed

by a gradual decline and leveling off. Overall, telehealth claims in North Dakota were 15 times higher in December 2020 than they were in December 2019 (The COVID-19 Healthcare Coalition Work Group, 2021).

With the onset of the COVID-19 pandemic, there was an abrupt spike in telehealth claims statewide.

While patients may be seen for multiple diagnoses during a single encounter with a medical provider, the Telehealth Impact Study focused on only the primary billing diagnosis for analysis. Individually, mental health disorders were the leading diagnosis for telehealth claims before and during the pandemic in North Dakota. Overall, telehealth claims for behavioral and mental health were 25 times higher in December 2020 than they were in December 2019 (Figure 42) (The COVID-19 Healthcare Coalition Work Group, 2021).

Figure 42. Telehealth Claims by Clinical Classification of Primary Diagnosis in North Dakota, January 2019 to December 2020



Source: The COVID-19 Healthcare Coalition Work Group (2021)

Health Behaviors

It is important to consider that not everyone has the means and opportunity to make healthy decisions. The social determinants of health provided in this study all play a factor in why, how, and when individual decisions are made.

Health behaviors are actions individuals take that affect their health. They include actions that lead to improved health, such as eating well and being physically active, and actions that increase one’s risk of disease, such as smoking and excessive alcohol intake.

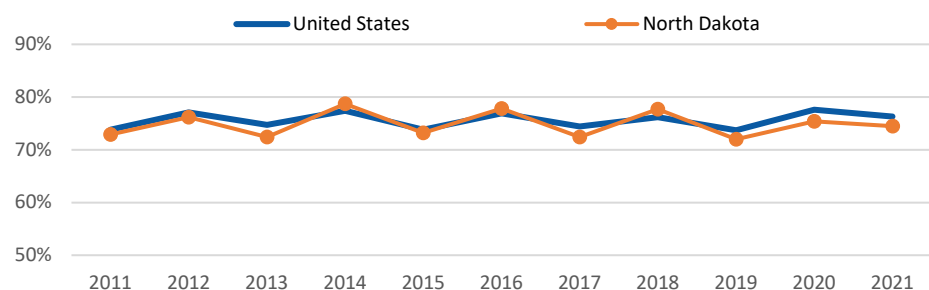
In the United States, many of the leading causes of death and disease are attributed to unhealthy behaviors. For example, poor nutrition and low levels of physical activity are associated with higher risk of cardiovascular disease, type 2 diabetes, and obesity. Tobacco use is associated with heart disease, cancer, and poor pregnancy outcomes if the mother smokes during pregnancy. Excessive alcohol use is associated with injuries, certain types of cancers, and cirrhosis.

It is important to consider that not everyone has the means and opportunity to make healthy decisions. The social determinants of health provided in this study all play a factor in why, how, and when individual decisions are made. Addressing health behaviors requires strategies to encourage individuals to engage in behaviors that would improve their health, as well as ensuring that they can access nutritious food, safe spaces to be physically active, and supports to make healthy choices (County Health Rankings & Roadmaps, 2022).

Physical Activity and Exercise

Adults. Most North Dakotans are physically active or exercise outside of their regular job. In 2021, 75% of adults in the state participated in activities such as running, calisthenics, golf, gardening, or walking – which is similar to the national average of 76% (Figure 43). When compared to other states, North Dakota ranked 36th nationwide, with 35 states having a higher percentage of adults participating in exercise. Colorado and Utah led the nation in physical activity among adults (83% each) (Centers for Disease Control and Prevention, 2022).

Figure 43. Adults who Participate in Physical Activity or Exercise in North Dakota and the United States, 2011 to 2021



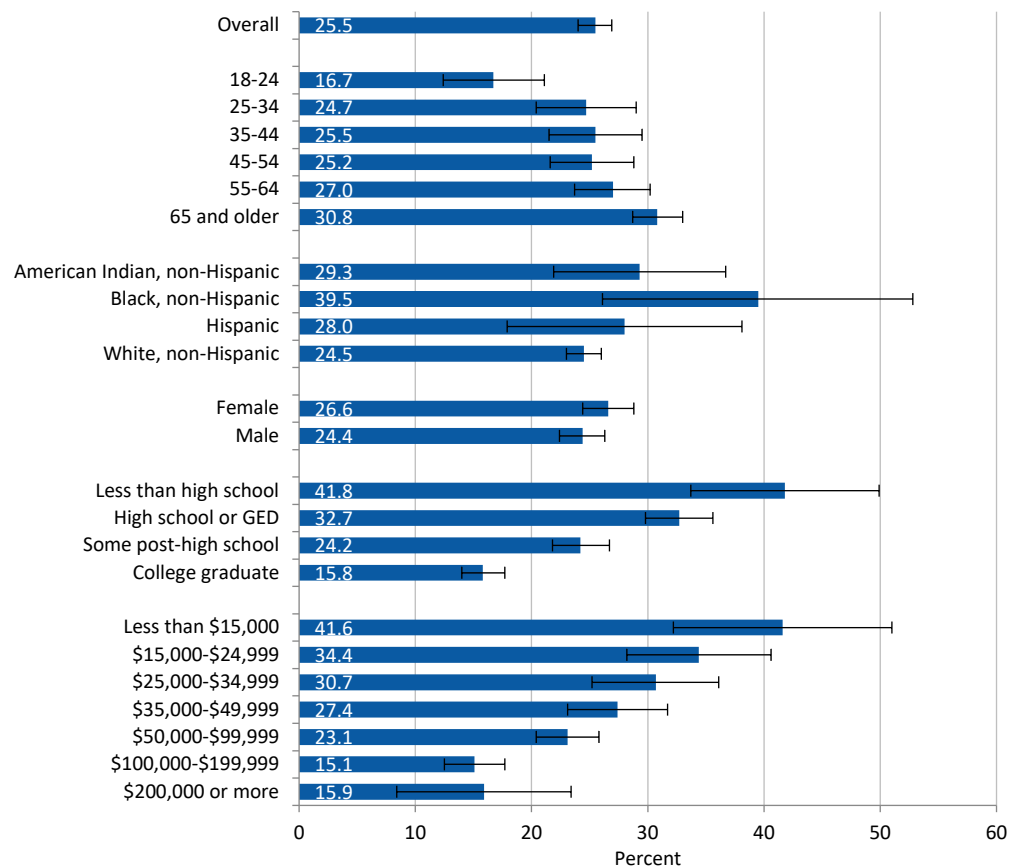
Source: Centers for Disease Control and Prevention (2022)

Income and education are important factors in the likelihood of physical activity.

For the 25% of North Dakotans in 2021 who were inactive, there is greater risk for obesity which can lead to a number of serious health conditions (County Health Rankings & Roadmaps, 2022). When disaggregated by age group, as might be expected, persons ages 65 and older were most likely to be inactive (31%) and younger adults ages 18 to 24 were the least inactive (17%).

Income and education are important factors in the likelihood of physical activity. In 2021, adults with less education and lower incomes were far less likely to be physically active in North Dakota. Specifically, 42% of adults in North Dakota with less than a high school education were physically inactive, which is more than twice as many adults with a college education (16%). In addition, 42% of adults earning less than \$15,000 annually were inactive compared to 15% of those earning \$100,000 or more (Figure 44) (Centers for Disease Control and Prevention, 2022).

Figure 44. Physical Inactivity Among Adults in North Dakota by Age, Race and Hispanic Origin, Gender, Educational Attainment, and Household Income, 2021
 Percentage of adults who *did not* participate in any physical activity or exercise in past month

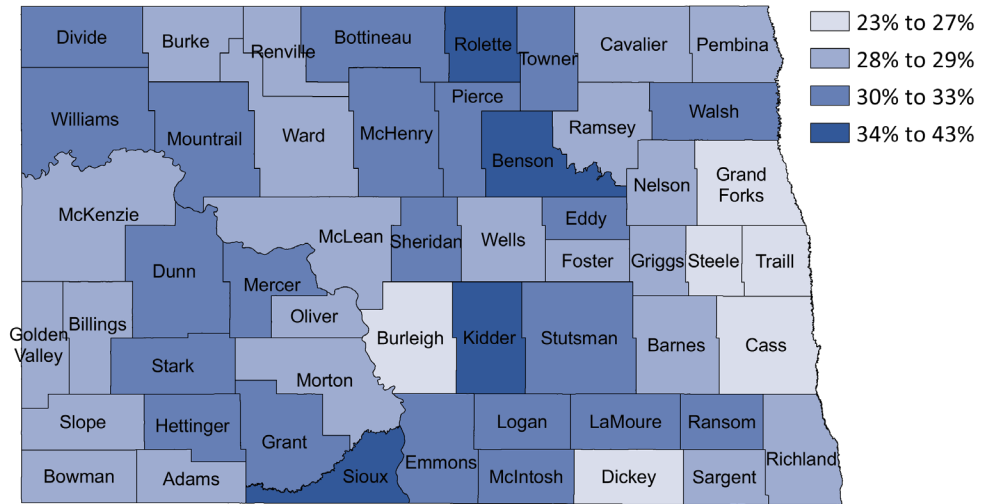


Note: Each estimate is presented with an error bar representing the 95% confidence interval.
 Source: Centers for Disease Control and Prevention (2022)

North Dakota counties with the highest rates of physical inactivity are in largely rural and reservation areas throughout the state. More than one-third of adults in Sioux, Benson, Rolette, and Kidder counties were physically inactive in 2019.

Figure 45. Physical Inactivity Among Adults in North Dakota by County, 2019

Percentage of adults who *did not* participate in any physical activity or exercise in the past month



Note: 2020 and 2021 data not currently available.
 Source: County Health Rankings & Roadmaps (2022)

Youth. According to the 2021 Youth Risk Behavior Survey (YRBS), a questionnaire administered to high school and middle school students throughout the U.S., approximately 1 in 10 high school students in North Dakota did not participate in 60 minutes of physical activity that increased their heart rate in the past week (11%). While there is some fluctuation from year to year, there was relatively little change from 2011 when 12% of high school students were inactive. Younger students, those in middle school, were more active than high school students in North Dakota. In 2021, only 6% of middle school students in the state did not participate in at least one hour of physical activity that increased their heart rate (North Dakota Department of Public Instruction, 2022a).

Smoking

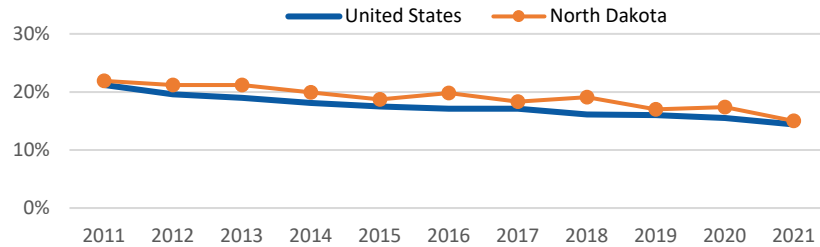
Adults. The rate of cigarette smoking among adults is decreasing nationwide. In North Dakota, 22% of adults were smokers in 2011. This percentage has been slowly, yet consistently becoming smaller, dropping 7 points to 15% in 2021 (Figure 46) (Centers for Disease Control and Prevention, 2022).

While cigarette smoking is down overall, the percentage of adults using electronic vapor products rose to 7% in 2021, which is up from 4% in 2016.

When compared to other states, the percentage of adult smokers in North Dakota ranked 30th nationwide, meaning that 29 states had a lower rate of adult cigarette smokers. Utah and California had the lowest smoking rates nationwide, with each having fewer than 10% of adult smokers in 2021 (7% and 9%, respectively) – states with the highest percentage of smokers included Arkansas (21%) and West Virginia (22%) (Centers for Disease Control and Prevention, 2022).

The rate of cigarette smoking among adults is decreasing nationwide.

Figure 46. Adults Who are Current Smokers in North Dakota and the United States, 2011 to 2021
 Percentage of adults who have smoked at least 100 cigarettes and smoke every day or some days

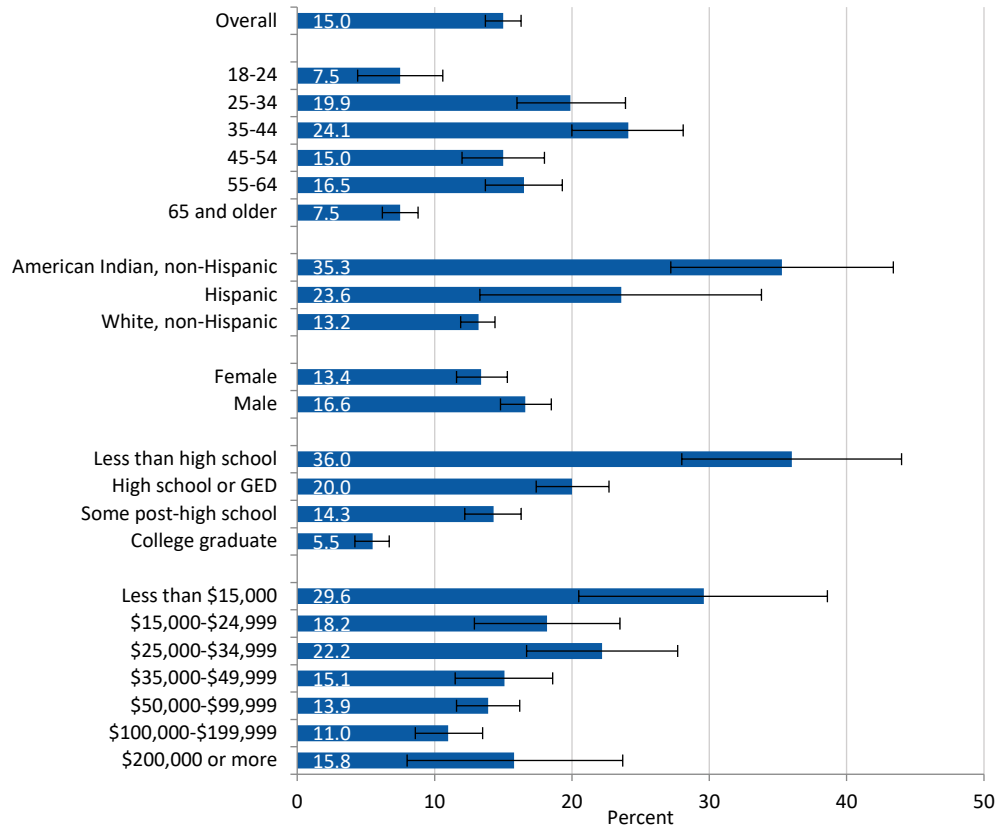


Source: Centers for Disease Control and Prevention (2022)

Age, race, gender, education, and income are all important factors in whether someone smokes cigarettes. Since 2016, rates of smoking have decreased across all of these components, with the exception of middle-aged individuals and those with the least education. The percentage of persons ages 35 to 44 in North Dakota who smoke increased from 22% in 2016 to 24% in 2021. Likewise, individuals with less than a high school education who smoke increased from 34% in 2016 to 36% in 2021 (Figure 47).

Since 2016, rates of smoking have decreased regardless of age, race, gender, education, and income — with the exception of individuals ages 35 to 44 and those with less than a high school education.

Figure 47. Adult Smokers in North Dakota by Age, Race and Hispanic Origin, Gender, Educational Attainment, and Household Income, 2021
 Percentage of adults who have smoked at least 100 cigarettes and smoke every day or some days

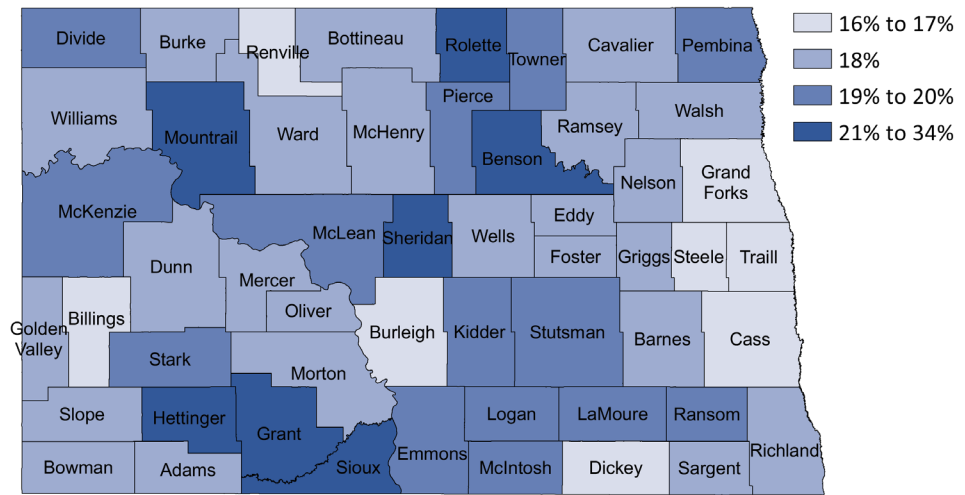


Note: Each estimate is presented with an error bar representing the 95% confidence interval.
 Source: Centers for Disease Control and Prevention (2022)

North Dakota counties with the highest rates of adult cigarette smokers are in largely rural and reservation areas throughout the state. More than one-fifth of adults in Grant, Hettinger, Mountrail, Sheridan, Benson, Rolette, and Sioux counties were current smokers in 2019.

Figure 48. Adult Smokers in North Dakota by County, 2019

Percentage of adults who have smoked at least 100 cigarettes and smoke every day or some days



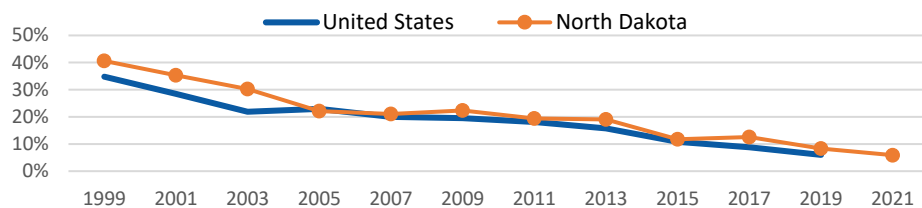
Note: 2020 and 2021 data not currently available.
Source: County Health Rankings & Roadmaps (2022)

While the rate of cigarette smoking among high school students has dropped substantially in the past several years, many are now using electronic vapor products.

Youth. According to the 2021 YRBS, 6% of high school students in North Dakota reported smoking cigarettes in the past month. The rate of smoking among high school students has dropped substantially in the past several years – down from 41% in 1999 (Figure 49) (North Dakota Department of Public Instruction, 2022a).

Figure 49. High School Students Who are Current Cigarette Smokers in North Dakota and the United States, 1999 to 2021

Percentage of high school students who smoked cigarettes in the past month



Note: National data for 2021 not currently available. Source: North Dakota Department of Public Instruction (2022a)

While cigarette smoking is down considerably among high school students in North Dakota, many are now using electronic vapor products. In 2021, one in five high school students reported using electronic vapor products in the past month (21%) – 8% of middle school students reported being current users. When all forms of tobacco are considered, 23% of the state’s high school students reported being current users of tobacco in one form or another (cigarette, smokeless, cigar, or e-product) in 2021 – which is down from 31% in 2015.

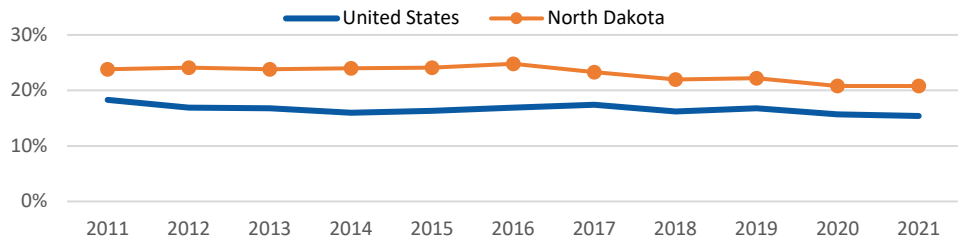
Alcohol Consumption

North Dakota has the second highest adult binge drinking rate in the nation behind Wisconsin.

Adults. North Dakota has the second highest adult binge drinking rate in the nation behind Wisconsin. While continuing to be higher than the national average, the rate of binge drinking among adults has slowly begun to decrease in North Dakota. In 2016, 25% of adults in North Dakota reported binge drinking (females having four or more drinks on one occasion and males having five or more drinks on one occasion). By 2021, the rate of binge drinking dropped to 21% statewide (compared to 15% nationally) (Figure 50) (Centers for Disease Control and Prevention, 2022).

Figure 50. Adults Who Report Binge Drinking in North Dakota and the United States, 2011 to 2021

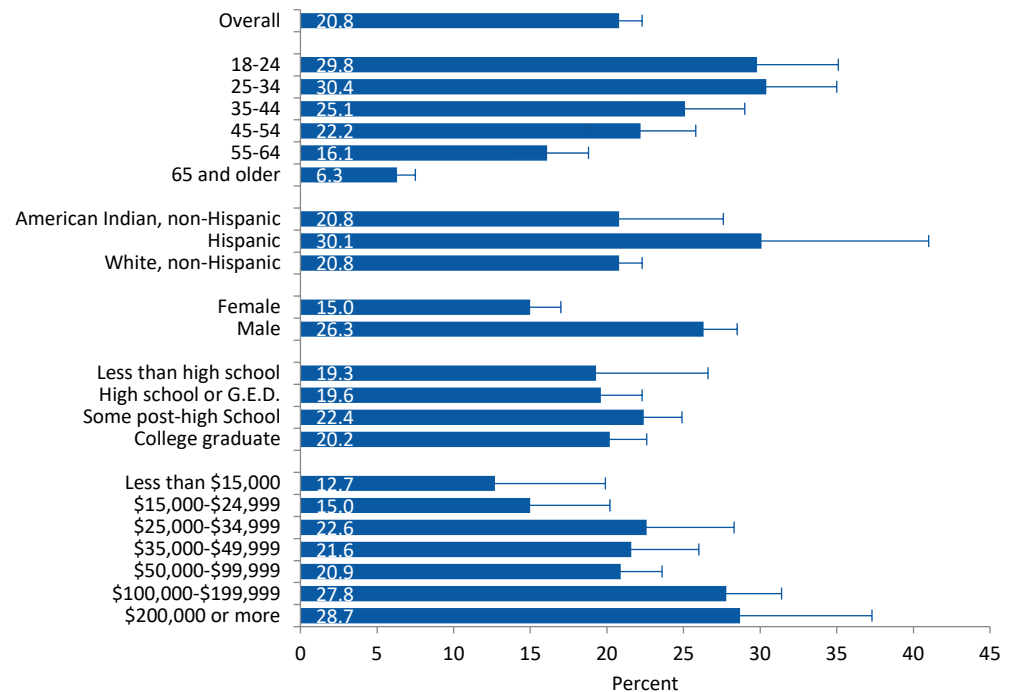
On one occasion, the % of adult females having four or more drinks on average and adult males having five or more drinks on average



Source: Centers for Disease Control and Prevention (2022)

Figure 51. Adults Who Binge Drink North Dakota by Age, Race and Hispanic Origin, Gender, Educational Attainment, and Household Income, 2021

On one occasion, the % of adult females having four or more drinks on average and adult males having five or more drinks on average



Note: Each estimate is presented with an error bar representing the 95% confidence interval.

Source: Centers for Disease Control and Prevention (2022)

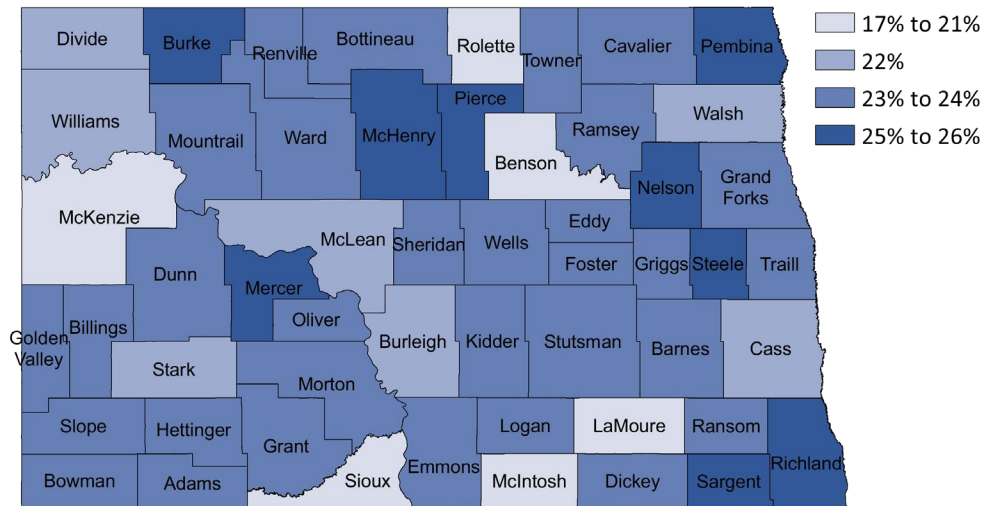
The number of alcohol-induced deaths in North Dakota has grown an average of 10% annually from 78 deaths in 2010 to 178 in 2020.

Rates of binge drinking drop considerably with age. Close to one-third of young adults in North Dakota reported binge drinking in 2021 (30% of those ages 18 to 24 and 25 to 34, respectively). Binge drinking rates drop by about half for pre-retirees ages 55 to 64 (16%) and half again to 6% for persons ages 65 and older (Figure 51).

Another measure to better understand the impact of alcohol consumption among states is the percentage of adults who drink excessively – which is defined as those who binge drink or drink heavily (females having two or more drinks on average per day and males having three or more drinks on average per day).

According to this excessive drinking definition, one-fourth of North Dakota adults reported excessive drinking in 2019 (24%) – the fifth highest percentage among states (behind Montana, South Dakota, Iowa, and Wisconsin) (County Health Rankings & Roadmaps, 2022). North Dakota counties with the lowest rates of excessive drinking among adults were reservation areas throughout the state, including Sioux (17%), Benson (19%), McKenzie (21%), and Rolette (21%) (Figure 52).

Figure 52. Adults Who Report Drinking Excessively in North Dakota by County, 2019
Percentage of adults who report binge drinking or drinking heavily



Note: 2020 and 2021 data not currently available.
Source: County Health Rankings & Roadmaps (2022)

Alcohol is a substance that reduces the function of the brain, impairing thinking, reasoning, and muscle coordination, which are essential to operating a vehicle safely (U.S. Department of Transportation, 2022). In 2020, one-third of all traffic fatalities in North Dakota were due to alcohol-impaired driving (35%). Only eight other states had a higher alcohol-impaired-driving fatality rate (Montana, Rhode Island, Connecticut, Maine, Texas, Oregon, Ohio, and New Hampshire) (National Center for Statistics and Analysis, 2022).

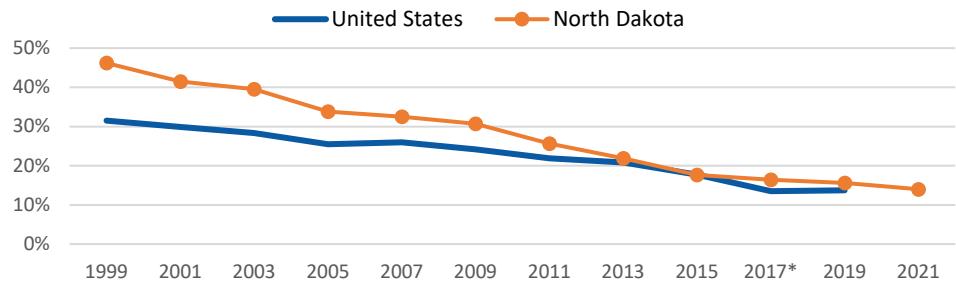
In addition to alcohol-impaired driving deaths, alcohol-induced deaths overall are rising in North Dakota. Deaths due to alcohol poisoning or diseases such as liver diseases and pancreatitis have surpassed the number of suicide deaths in North Dakota. In fact, the number of alcohol-induced deaths has grown an average of 10%

annually from 78 deaths in 2010 to 178 in 2020 (Centers for Disease Control and Prevention, 2021a).

Youth. According to the 2021 YRBS, 14% high school students in North Dakota reported binge drinking in the past month. Binge drinking is defined as the percentage of students who had several drinks in a row within a couple hours in the past month (four or more drinks for female students and five or more for male students) (North Dakota Department of Public Instruction, 2022a). Binge drinking among North Dakota teens has dropped substantially since 1999 when nearly half of all high school students reporting binge drinking (46%) (Figure 53).

When North Dakota high school students were asked if they have ever drunk alcohol in their lifetime, half of them said they had in 2020 (50%) – which is down from 74% in 2007.

Figure 53. High School Students Who Report Binge Drinking in North Dakota and the United States, 1999 to 2021



Notes: Prior to 2017, binge drinking was defined as five or more drinks in a row, within a couple hours, in the past month – for all students. Beginning in 2017, the definition changed to reflect four drinks for female students and five for male students. National data for 2021 not yet available.
 Source: North Dakota Department of Public Instruction (2022a)

Health Outcomes

Overall health outcomes reflect the physical and mental well-being of residents within a community. The measures included in this section represent not only the length of life but quality of life as well. The social determinants and health behaviors presented so far in this report are factors that have an impact on these overall health outcomes. Health factors are influenced by programs and policies in place at the local, state, and federal levels. Understanding the relationship between health factors and health outcomes is an important step in determining if health improvement programs in a particular area are successful.

Physical Health

Adult Obesity

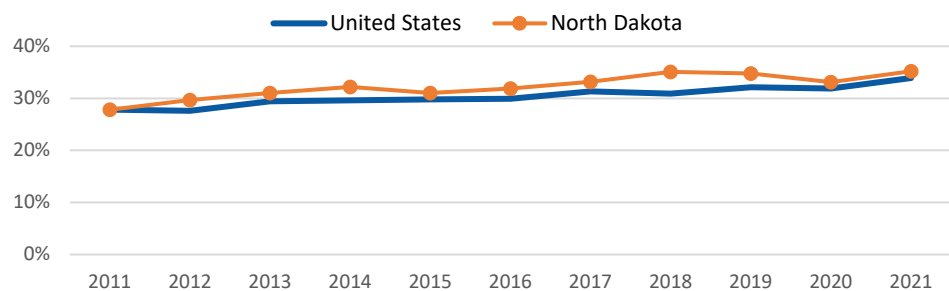
Overweight and obesity are defined as abnormal or excessive fat accumulation that presents a risk to health. A body mass index (BMI), calculated using a person’s height and weight, greater than or equal to 25kg/m² is considered overweight, and greater than or equal to 30 is obese. Obesity is most often the result of poor diet and limited physical activity — and increases the risk for health conditions such as coronary heart disease, type 2 diabetes, cancer, hypertension, dyslipidemia, stroke, liver and gallbladder disease, sleep apnea, and respiratory problems (such as asthma), osteoarthritis, and poor health status overall (County Health Rankings & Roadmaps, 2022).

Adults. The rate of obesity among adults is increasing nationwide. In North Dakota, the percentage of adults with obesity has followed the national trend, rising steadily from 28% in 2011 to 35% in 2021 (Figure 54) (Centers for Disease Control and Prevention, 2022).

When compared to other states, North Dakota ranked 32nd nationwide, meaning that 31 states had a lower rate of adult obesity. Hawaii and Colorado led the nation with the lowest adult obesity rate in 2021 (25% each). States with the highest rate of adult

The rate of obesity among adults is increasing nationwide.

Figure 54. Adult Obesity in North Dakota and the United States, 2011 to 2021
 Percentage of adults with obesity (having a BMI greater than or equal to 30kg/m²)



Source: Centers for Disease Control and Prevention (2022)

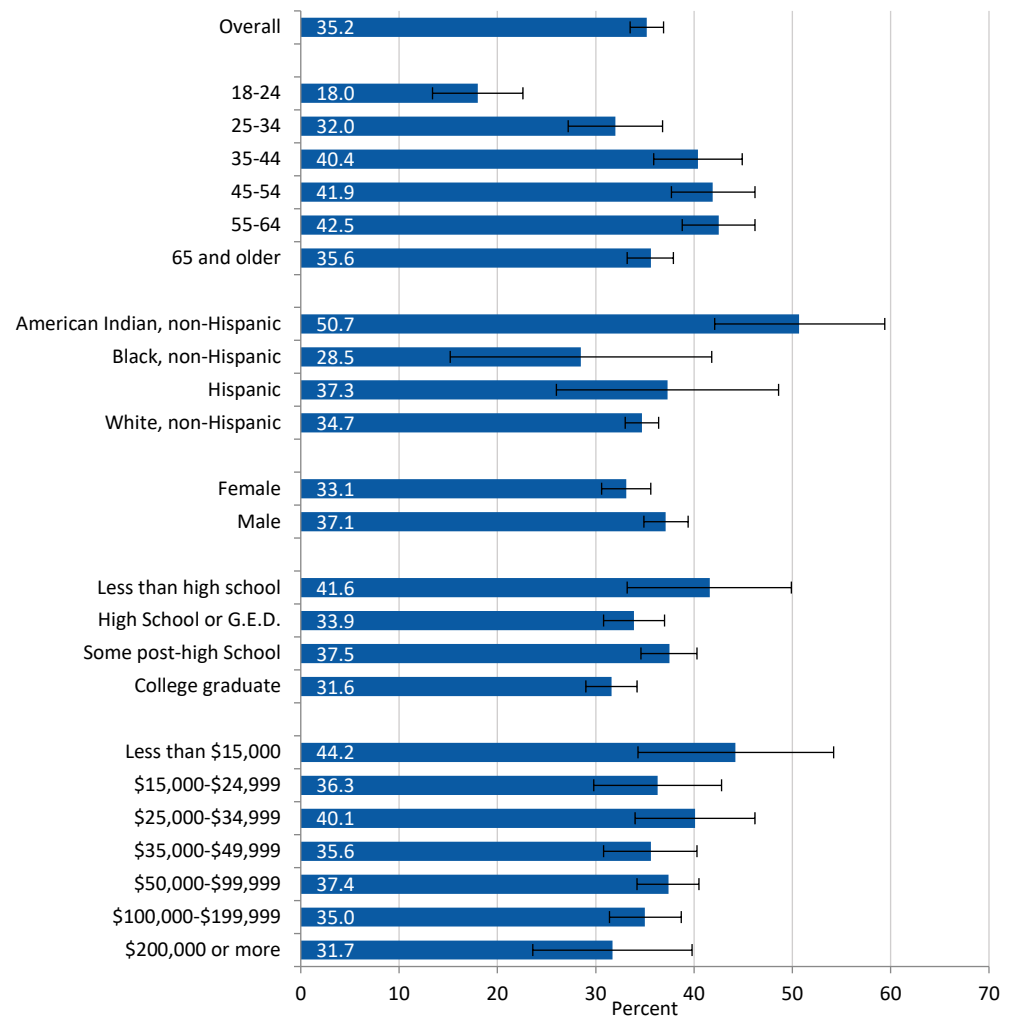
obesity included Mississippi (39%), Oklahoma (39%), Alabama (40%), Kentucky (40%), and West Virginia (41%) (Centers for Disease Control and Prevention, 2022).

Rates of adult obesity are high across North Dakota, regardless of demographic characteristic. The highest rates of adult obesity in the state are among American Indians, for which half were identified with obesity (51%) in 2021. As with the likelihood of smoking and being inactive, those with less education and income are more likely to have obesity than those with higher levels of education and income overall (Figure 55) (Centers for Disease Control and Prevention, 2022).

Figure 55. Adult Obesity in North Dakota by Age, Race and Hispanic Origin, Gender, Educational Attainment, and Household Income, 2021

Percentage of adults with obesity (having a BMI greater than or equal to 30kg/m2)

Rates of adult obesity are high across North Dakota, regardless of demographic characteristic.

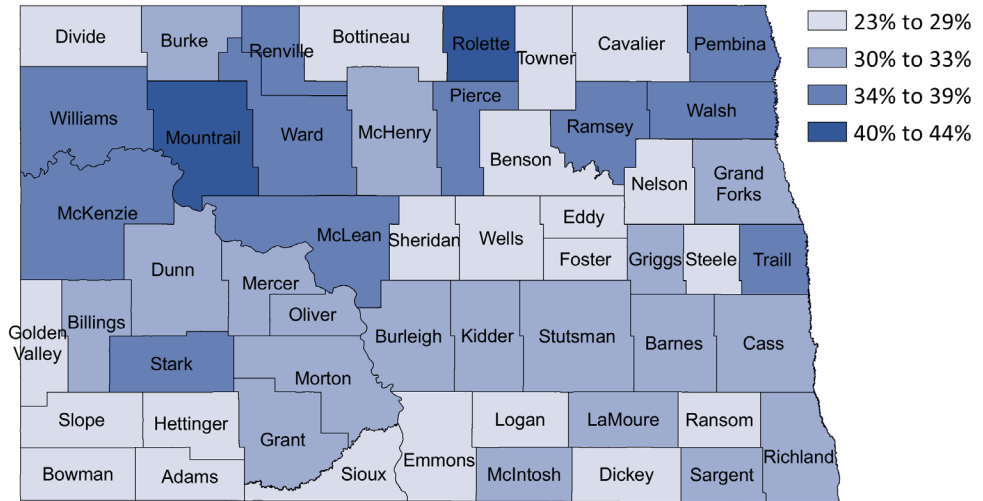


Note: Each estimate is presented with an error bar representing the 95% confidence interval.
Source: Centers for Disease Control and Prevention (2022)

North Dakota counties with the highest rates of adult obesity are in largely northern and northwestern parts of the state. In two North Dakota counties, at least 40% of adults had obesity in 2019 including Rolette (44%) and Mountrail (41%) (Centers for Disease Control and Prevention, 2022a).

Figure 56. Adult Obesity Rates in North Dakota by County, 2019

Percentage of adults with obesity (having a BMI greater than or equal to 30kg/m2)

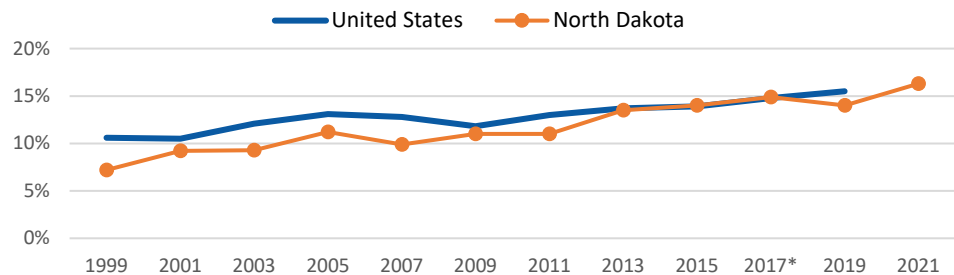


Note: 2020 and 2021 data not currently available.
Source: Centers for Disease Control and Prevention (2022a)

The obesity rate for female high school students in North Dakota has more than tripled over the past 20 years to 14% in 2021.

Youth. Similar to adult obesity, the obesity rate among North Dakota teenagers is continuing to rise. According to the 2021 YRBS, 16% high school students in North Dakota had obesity, an increase from 14% in 2019 – which is double the rate of 7% in 1999 (Figure 57). The highest rates of obesity among high school students are among American Indian, Hispanic, and Black students (30%, 26%, and 23%, respectively in 2021). The most substantial increase in obesity since 1999 is among female students. In 1999, the obesity rate for female high school students in North Dakota was 4%. Since then, the rate has more than tripled to 14% in 2021 (North Dakota Department of Public Instruction, 2022a).

Figure 57. High School Students Who have Obesity in North Dakota and the United States, 1999 to 2021



Note: National data for 2021 not yet available.
Source: North Dakota Department of Public Instruction (2022a)

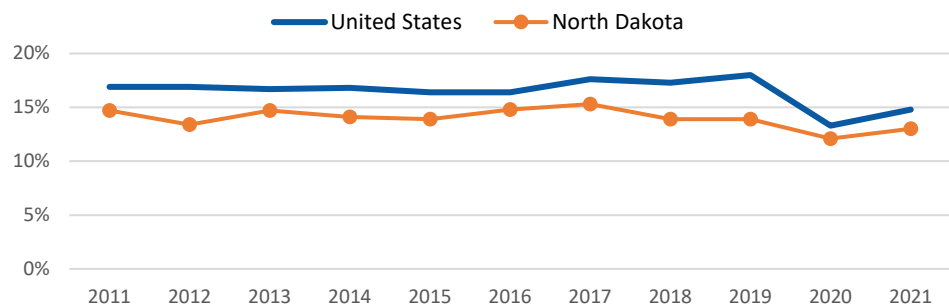
Fair and Poor Health

Examining quality of life provides insight into how people perceive their health – whether they feel healthy and satisfied. Factors such as unemployment, poverty, and education levels can all influence whether a community has higher rates of individuals who do not feel healthy. Understanding the physical health of a community can also reveal inequities and help to identify risk factors and policies to address those risk factors (County Health Rankings & Roadmaps, 2022).

Adults. In general, adults in North Dakota are reporting better overall health than they were four years ago. When asked to rate their overall health on a scale of excellent, very good, good, fair, or poor, the percentage of North Dakota adults who said their general health was fair or poor remained relatively unchanged from 2011 to 2017 around 15%. However, from 2017 to 2020, the rate improved by decreasing to 12% (Figure 58). While the rate has edged up a point to 13% in 2021, most adults in North Dakota, 87%, report being in good, very good, or excellent health.

In general, adults in North Dakota are reporting better overall health than they were four years ago.

Figure 58. Adults Reporting Fair or Poor Health in North Dakota and the U.S., 2011 to 2021
Percentage of adults who are said their general health is fair or poor



Source: Centers for Disease Control and Prevention (2022)

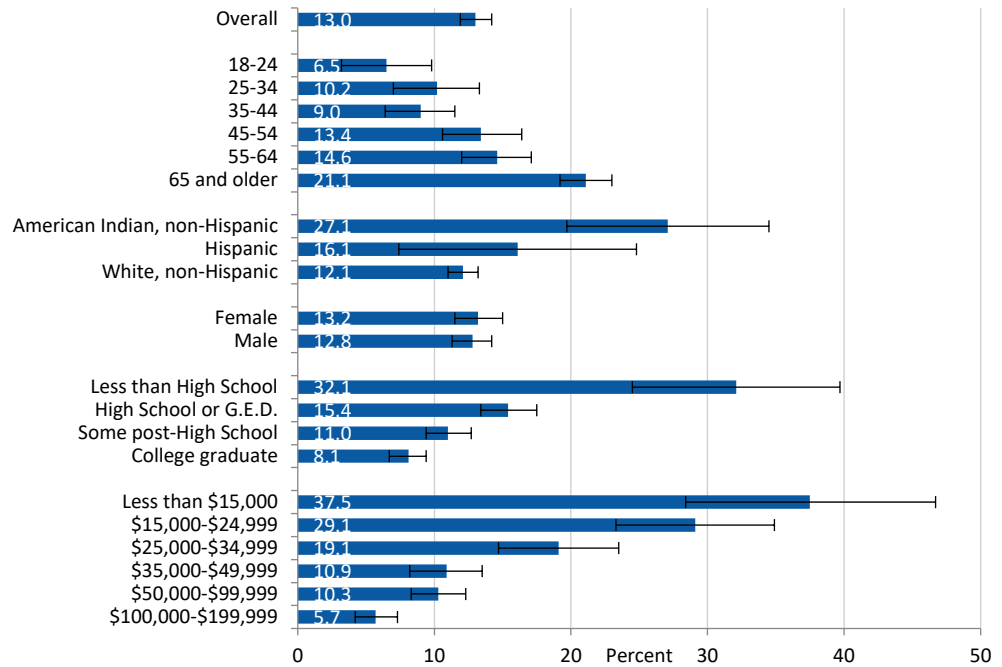
When compared to other states, North Dakota ranked 8th nationwide in 2021, meaning that only seven states had a lower rate of people reporting fair or poor health. Hawaii, Massachusetts, Minnesota, and New Hampshire led the nation with people reporting the best overall health. In five states, at least one in five adults reported being in fair or poor health: Louisiana (20.3%), Arkansas (22.0%), Mississippi (22.5%), Kentucky (22.6%), and West Virginia (22.9%) (Centers for Disease Control and Prevention, 2022).

As might be expected, poor health increases with age. In North Dakota, 21% of adults ages 65 and older reported fair or poor health, which is twice as many as adults ages 18 to 24, 25 to 34, and 35 to 44 in 2021.

Disparities in overall health persist across education, income, and race. North Dakota adults with lower incomes, less education, or who are American Indian are more likely to report being in fair or poor health. Specifically, 38% of adults earning less than \$15,000 annually and 32% of adults with less than a high school education reported being in fair or poor health in 2021 (Figure 59) (Centers for Disease Control and Prevention, 2022).

Disparities in overall health persist across education, income, and race. North Dakota adults with lower incomes, less education, or are American Indian are more likely to report being in fair or poor health.

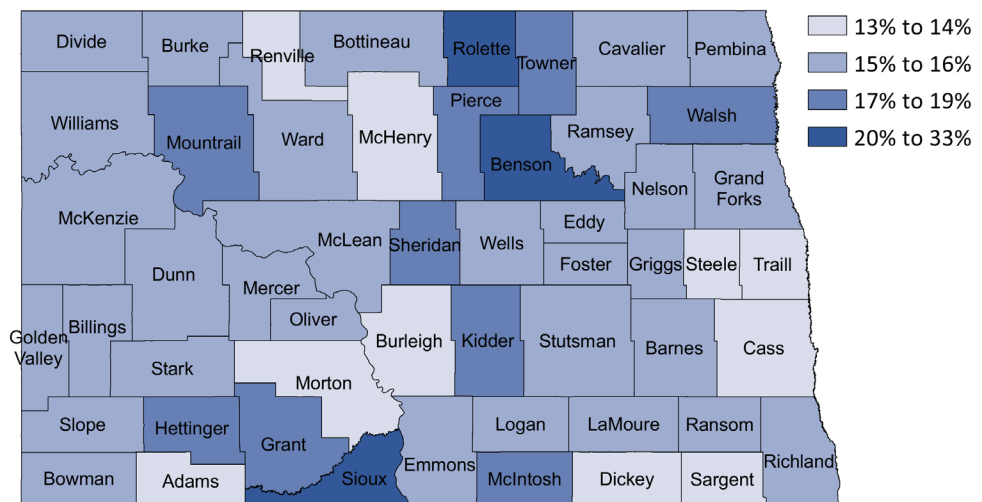
Figure 59. Adults Reporting Fair or Poor Health in North Dakota by Age, Race and Hispanic Origin, Gender, Educational Attainment, and Household Income, 2021
Percentage of adults who said their general health is fair or poor



Note: Each estimate is presented with an error bar representing the 95% confidence interval.
Source: Centers for Disease Control and Prevention (2022)

North Dakota counties with the largest percentage of adults in fair or poor health are in largely rural and reservation areas throughout the state. In three counties, at least one in four adults reported fair or poor health in 2019; Benson (26%), Rolette (28%), and Sioux (33%) (County Health Rankings & Roadmaps, 2022).

Figure 60. Adults Reporting Fair or Poor Health in North Dakota by County, 2019
Percentage of adults who said their general health is fair or poor



Note: 2020 and 2021 data not currently available. Source: County Health Rankings & Roadmaps (2022)

Youth. According to the 2019-2020 National Survey of Children's Health, very few children in North Dakota are considered in fair or poor health – just 1% of all children ages 0 to 17 (Child and Adolescent Health Measurement Initiative, 2022).

Life Expectancy

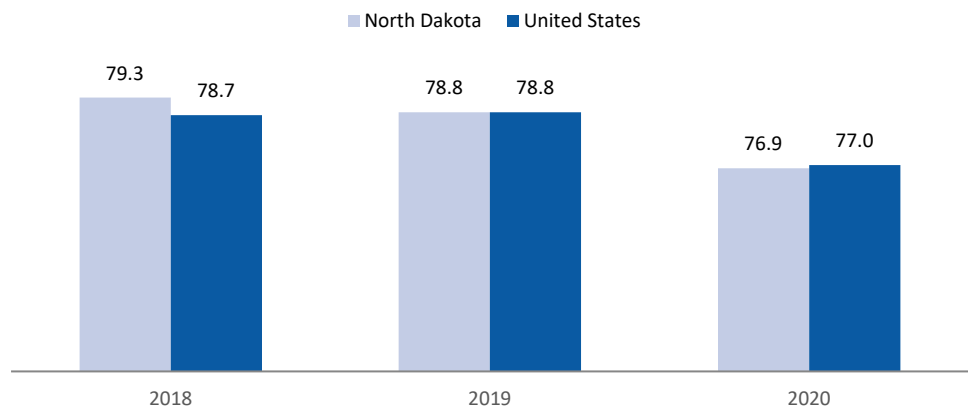
Life expectancy is one of the most commonly used outcome measures to assess the overall health of a population. Life expectancy measures the average number of years a baby born in a given year might expect to live, given age-specific death rates at that time. Thus, examining the life expectancy of a community provides an understanding into whether people are dying earlier than expected – which provides an opportunity to examine more carefully the many factors that influence health, from access to healthy foods and quality of medical care to good jobs and quality education.

While, in general, more North Dakota adults are reporting better health, average life expectancy fell for the second consecutive year in 2020, dropping by two years from 2018. Based on age-specific death rates, it was expected that North Dakotans born in 2018 would live to age 79, on average. By 2020, life expectancy in the state dropped to 77 years, a rate similar to the national average (Figure 61) (Centers for Disease Control and Prevention, 2022c).

While, in general, more North Dakota adults are reporting better health, average life expectancy fell for the second consecutive year in 2020.

Figure 61. Average Life Expectancy at Birth in North Dakota and the United States, 2018 to 2020

The average number of years a person can expect to live from birth



Source: Centers for Disease Control and Prevention (2022c)

Prior to the release of this report, 2021 provisional data for the U.S. was released from the CDC suggesting that average life expectancy in the U.S. overall dropped again to 76.1, almost a full year from 2020. COVID-19 was determined to be the leading cause contributing to the change in life expectancy (Arias, Tejada-Vera, Kochanek, & Ahmad, 2022). While statewide information is not yet available for 2021, it is likely that North Dakota was similarly impacted by the pandemic.

Race. Asian populations in North Dakota have the longest life expectancy from birth at 86.8 years. Hispanic individuals in the state have the second longest life expectancy at 84.3 years followed by white populations at 79.6 years. American Indian populations have the shortest life expectancy in North Dakota at 65.1 years (Figure 62) (County Health Rankings & Roadmaps, 2022).

Figure 62. Average Life Expectancy at Birth in North Dakota by Race and Ethnicity, 2020

The average number of years a person can expect to live from birth (three-year average, 2018-2020)

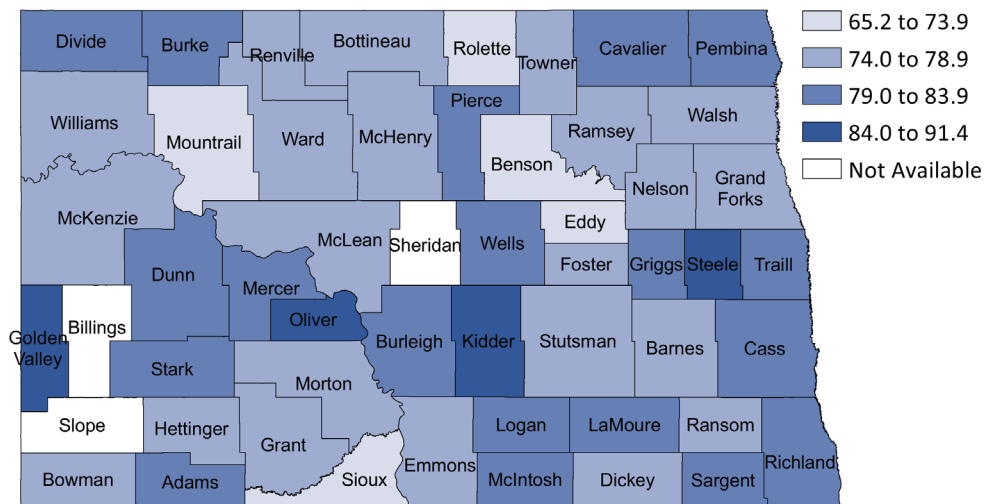


Note: Data for the Black or African American population was unavailable
 Source: County Health Rankings & Roadmaps (2022)

Geography. North Dakota counties with the lowest life expectancy are in largely rural and reservation areas throughout the state. In four counties, babies born from 2018 to 2020 are expected to live at least 84 years on average (Kidder, Steele, Oliver, and Golden Valley) (County Health Rankings & Roadmaps, 2022).

Figure 63. Average Life Expectancy at Birth in North Dakota by County, 2020

The average number of years a person can expect to live from birth (three-year average, 2018-2020)



Source: County Health Rankings & Roadmaps (2022)

Mental Health

Mental health includes our emotional, psychological, and social well-being and affects how we think, feel, and act. It also helps determine how we handle stress, relate to others, and make choices. Mental health is important at every stage of life, from childhood and adolescence through adulthood (U.S. Department of Health & Human Services, 2022a).

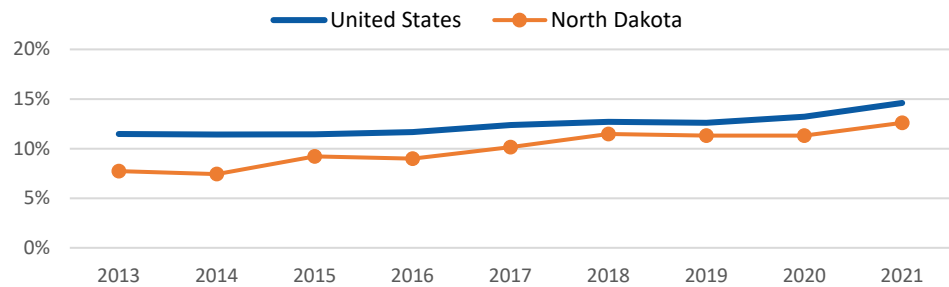
Poor Mental Health Days

Frequent mental distress, defined as 14 or more self-reported mentally unhealthy days in the past month (as least two weeks), is associated with adverse health behaviors, increased use of health services, mental disorders (e.g., diagnosis of major depressive disorder), chronic diseases, and functional limitations (Cree, Okoro, Zack, & Carbone, 2020).

Adults. In 2021, one out of every eight adults in North Dakota reported at least two weeks of mentally unhealthy days in the past month (13%). While lower than the national average of 15%, the percentage of adults in North Dakota reporting at least two weeks of poor mental health each month is up five points from 8% in 2013 – and up two points from 11% in 2020 (Figure 64) (Centers for Disease Control and Prevention, 2022).

In 2021, one out of every eight adults in North Dakota reported at least two weeks of mentally unhealthy days in the past month (13%), which is up five points from 8% in 2013.

Figure 64. Adults Reporting at Least 14 Mentally Unhealthy Days in Past Month in North Dakota and the United States, 2013-2021



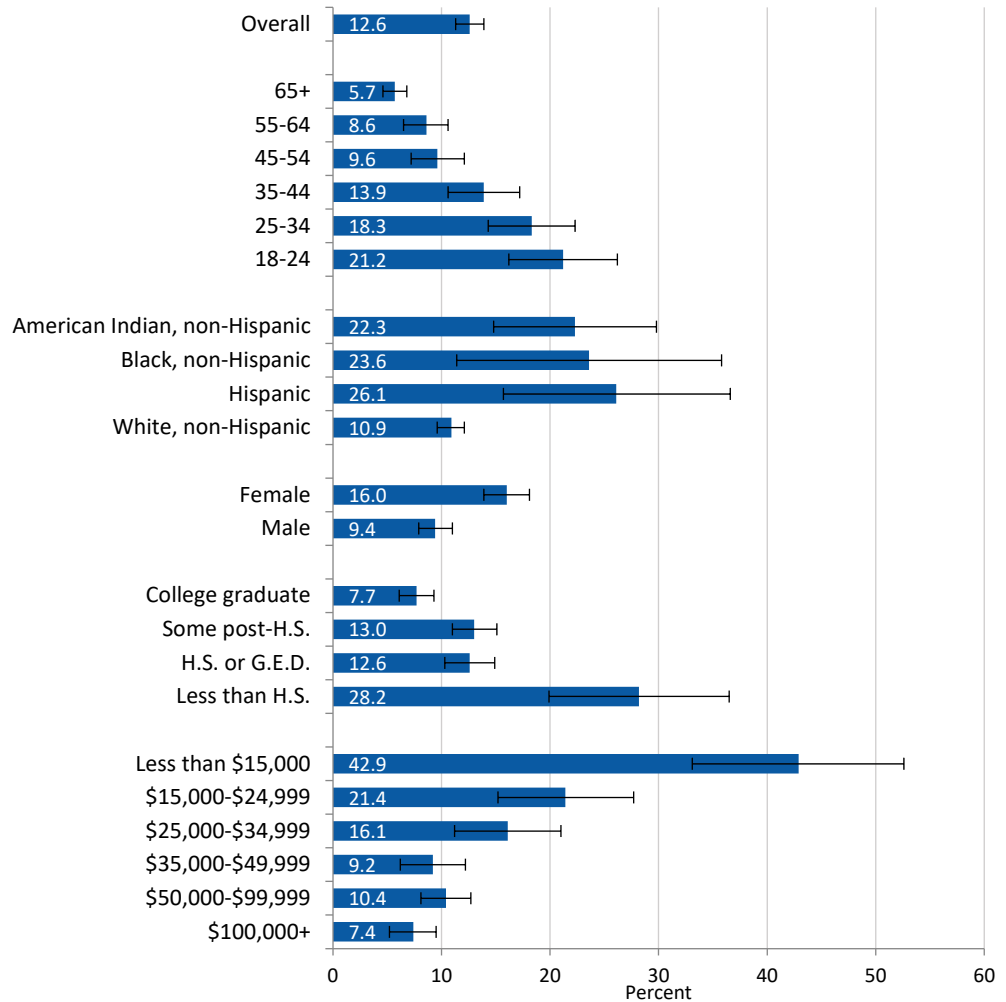
Source: Centers for Disease Control and Prevention (2022)

When compared to other states, North Dakota ranked 4th nationwide in 2021, meaning that only three states had a lower percentage of adults reporting two weeks of mentally unhealthy days: Hawaii (11%), South Dakota (11%), and Minnesota (12%) (Centers for Disease Control and Prevention, 2022).

Disparities in mental health persist across age, gender, education, income, and race. North Dakota adults with lower incomes, less education, and who are younger, female, American Indian, Black, and Hispanic are more likely to report frequent mental distress.

Specifically, 43% of adults earning less than \$15,000 annually reported at least 14 mentally unhealthy days in the past month, six times the rate for adults earning \$100,000 or more (7%) – and twice the rate of those earning just slightly more at \$15,000 to \$24,999 (21%) (Figure 65) (Centers for Disease Control and Prevention, 2022).

Figure 65. Adults Reporting at Least 14 Mentally Unhealthy Days in Past Month in North Dakota by Age, Race and Hispanic Origin, Gender, Educational Attainment, and Household Income, 2021

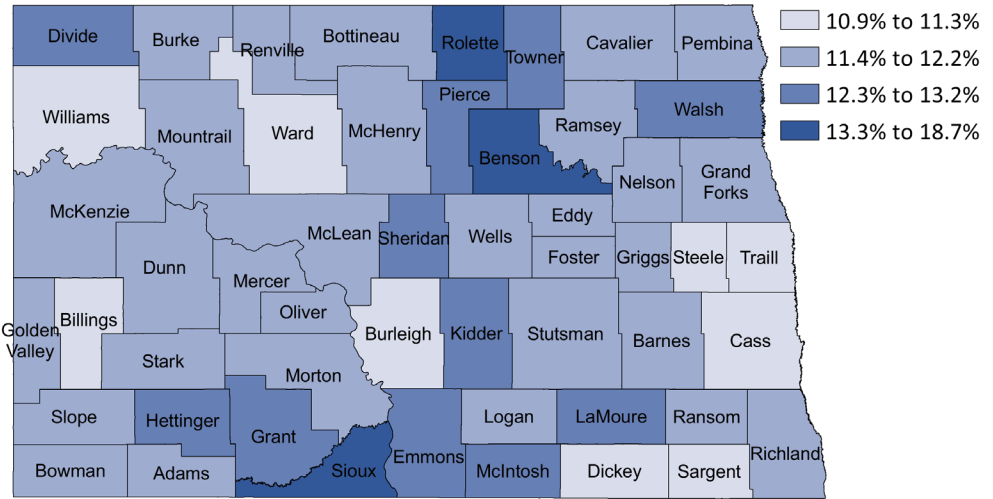


Note: Each estimate is presented with an error bar representing the 95% confidence interval.
 Source: Centers for Disease Control and Prevention (2022)

North Dakota counties with the largest percentage of adults reporting 14 or more days of poor mental health are in largely rural central parts of the state and reservation areas. In three counties, at least one in six adults reported frequent mental distress in 2019; Benson (17%), Rolette (17%), and Sioux (19%) (County Health Rankings & Roadmaps, 2022).

Disparities in mental health persist across age, gender, education, income, and race.

Figure 66. Adults Reporting at Least 14 Mentally Unhealthy Days in Past Month in North Dakota by County, 2019

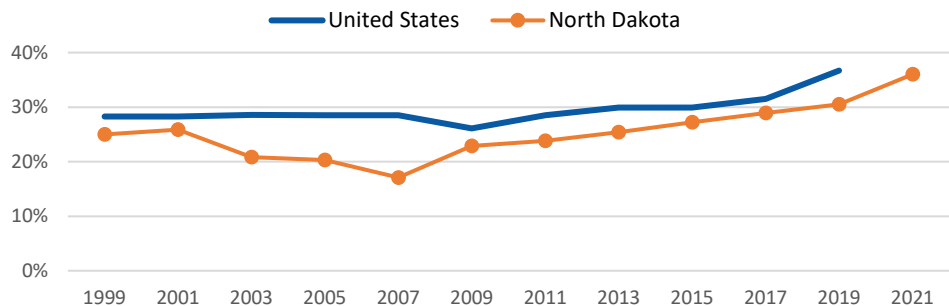


Note: 2020 and 2021 data not currently available.
 Source: County Health Rankings & Roadmaps (2022)

While trending slightly below the national average, the percentage of North Dakota high school students feeling sad and hopeless increased steadily and substantially over the past 15 years – doubling from 17% in 2007 to 36% in 2021.

Youth. According to the 2021 YRBS, approximately one-third of North Dakota high school students reported feeling sad and hopeless nearly every day for two weeks in a row – so much that they stopped engaging in their usual activities (36%). While trending slightly below the national average, the percentage of North Dakota students feeling sad and hopeless increased steadily and substantially over the past 15 years, doubling from 17% in 2007 (Figure 67) (North Dakota Department of Public Instruction, 2022a).

Figure 67. High School Students Who Felt Sad or Hopeless Almost Every Day for Two or More Weeks in a Row So That They Stopped Doing Usual Activities, in North Dakota and the United States, 1999 to 2021



Note: National data for 2021 not currently available
 Source: North Dakota Department of Public Instruction (2022a)

While the percentage of high school students feeling sad and hopeless was similar across age groups, female high school students in the state were nearly twice as likely as male students to feel sad and hopeless (48% and 25%, respectively). American Indian and Hispanic students were much more likely than white students to feel sad

and hopeless (51% and 46%, compared to 33%, respectively) (North Dakota Department of Public Instruction, 2022a).

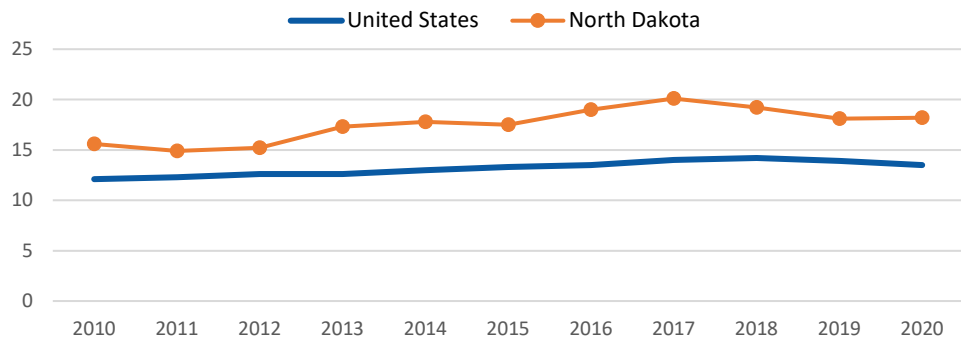
Suicide

In North Dakota, 135 people died by suicide in 2020, which is 29 more than in 2010. When compared to other forms of death in the state, suicide was the 11th leading cause of death for all ages in 2020, changing from the 9th leading cause in 2010 due to the emergence of COVID-19 deaths and increases in deaths from chronic liver disease and cirrhosis. As the second leading cause of death in people ages 15 to 44, suicide is a major contributor to premature mortality in North Dakota (Centers for Disease Control and Prevention, 2021a).

The age-adjusted rate of deaths to suicide in North Dakota grew gradually from 2010 through 2017, from 15.6 deaths per 100,000 people up to 20.1. However, there has been slight improvement since 2017, with the suicide rate decreasing to 18.2 per 100,000 in 2020. Despite this improvement, the suicide rate in North Dakota continues to be several points higher than the national average of 13.5 in 2020 (Figure 68) (Centers for Disease Control and Prevention, 2021a).

As the second leading cause of death in people ages 15 to 44, suicide is a major contributor to premature mortality in North Dakota.

Figure 68. Age-Adjusted Suicide Rate in North Dakota and the United States, 2010 to 2020
Suicide deaths per 100,000 population



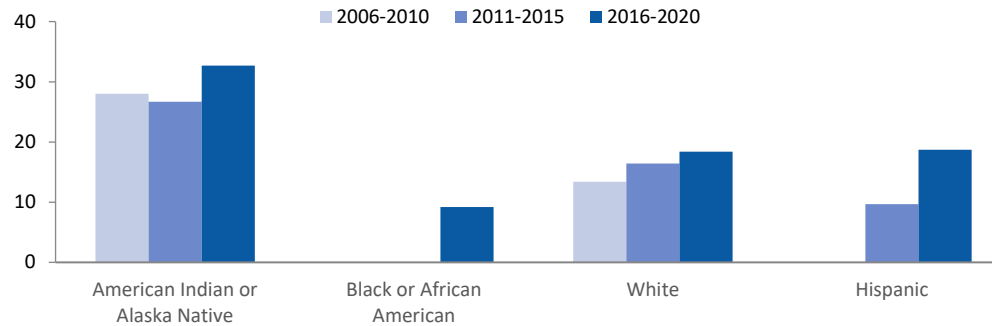
Source: Centers for Disease Control and Prevention (2021a)

People of any age, race, ethnicity, or gender can experience suicide risk, but certain groups have substantially higher rates of suicide than the general population. In order to obtain a more reliable measure for population characteristics, five years of data were combined to calculate rates of suicide for race, age, and gender categories.

The age-adjusted suicide rate for 2016-2020 was highest among the American Indian population (32.1 per 100,000) when compared to other racial and ethnic groups in North Dakota – about twice the rate of white and Hispanic populations (18.6 and 15.4 per 100,000, respectively). The Black or African American population had the lowest rate of suicide in the state at 9.2 per 100,000. With regard to gender and age, males were approximately three times more likely to die by suicide than females — and individuals ages 25 to 34 and 45 to 54 were more likely to die by suicide than younger adults and seniors (Centers for Disease Control and Prevention, 2021a).

With the exception of teenagers (and possibly individuals who are Black or African American for which data in 2010 were unreliable), the suicide rate increased for all ages groups and racial categories over the past 10 years. In contrast, there was slight improvement since 2010 for teenagers ages 15 to 19, with the suicide rate decreasing from 20.1 in 2006-2010 to 18.5 in 2016-2020 (Figures 69 and 70) (Centers for Disease Control and Prevention, 2021a).

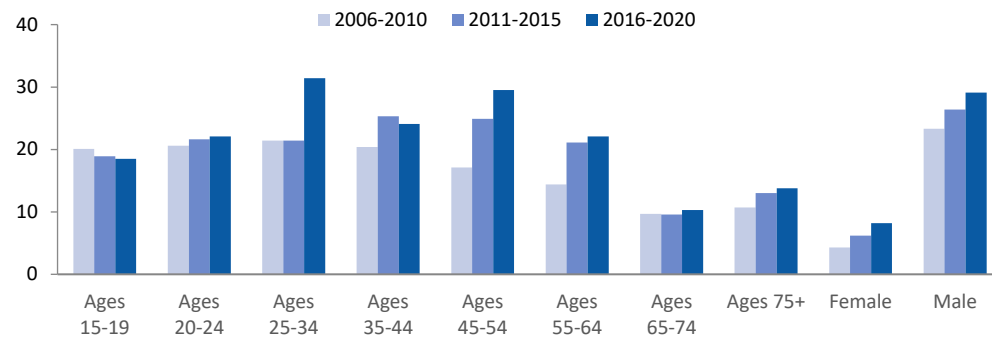
Figure 69. Suicide Rate by Race and Hispanic Origin in North Dakota, 2006-2010 to 2016-2020
Suicide deaths per 100,000 population



Notes: Suicide rates for race and ethnicity are age-adjusted. Missing data for Black and Hispanic populations were unreliable.

Source: Centers for Disease Control and Prevention (2021a)

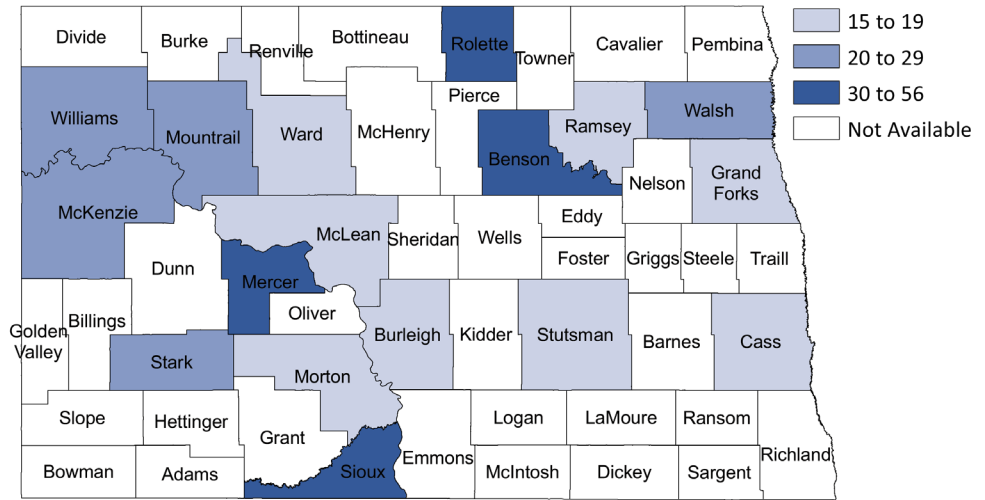
Figure 70. Suicide Rate by Age and Gender in North Dakota, 2006-2010 to 2016-2020
Suicide deaths per 100,000 population



Source: Centers for Disease Control and Prevention (2021a)

Because the actual number of deaths due to suicide is relatively small at sub-state levels of geography in North Dakota, data are available for only a handful of counties. From available data, the age-adjusted suicide rate was highest in reservation areas and the west-central parts of the state for 2016-2020 (County Health Rankings & Roadmaps, 2022).

Figure 71. Age-Adjusted Suicide Rate in North Dakota by County, 2016-2020
Suicide deaths per 100,000 population

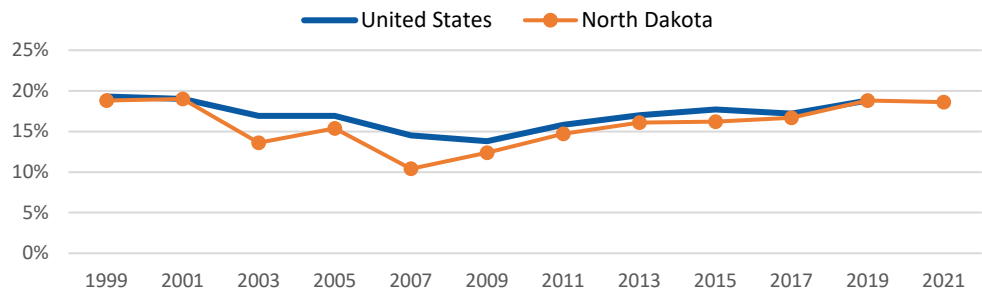


Source: County Health Rankings & Roadmaps (2022)

According to the YRBS, 10% of high school students seriously considered suicide in 2007, a rate that has nearly doubled to 19% in 2021.

Thoughts of Suicide. While fewer teenagers are dying by suicide in North Dakota, an increasing percentage have considered it. According to the YRBS, 10% of high school students seriously considered suicide in 2007, a rate that has nearly doubled to 19% in 2021 (Figure 72) (North Dakota Department of Public Instruction, 2022a).

Figure 72. High School Students Who Seriously Considered Attempting Suicide in the Past Year, in North Dakota and the United States, 1999 to 2021



Note: National data for 2021 not currently available
Source: North Dakota Department of Public Instruction (2022a)

Drug Overdose Deaths

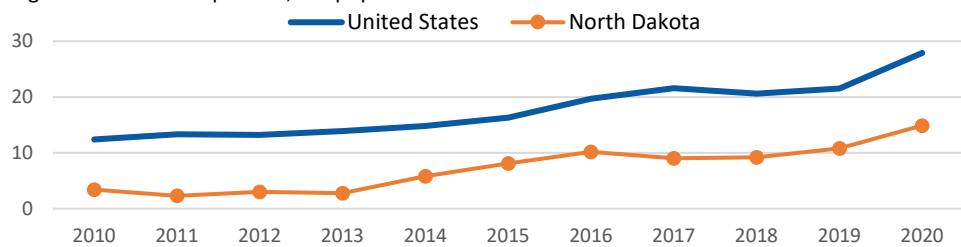
Deaths from drug overdose are an increasing factor in premature death in North Dakota. While deaths due to suicide have slowed in the past few years, drug overdose deaths in North Dakota have continued an upward trend since 2010. Deaths due to a drug overdose increased an average of 23% annually from 23 deaths in 2010 to 114 in 2020 (Centers for Disease Control and Prevention, 2021a).

While following a similar upward trend nationally since 2010, the rate of deaths due to a drug overdose in North Dakota continues to fall below the national average in 2020 (14.9 per 100,000 population compared to 27.9, respectively) (Figure 73) (Centers for Disease Control and Prevention, 2021a).

Deaths due to a drug overdose in North Dakota have increased an average of 23% every year since 2010.

Figure 73. Drug Overdose Death Rate in North Dakota and the United States, 2010 to 2020

Drug overdose deaths per 100,000 population



Source: Centers for Disease Control and Prevention (2021a)

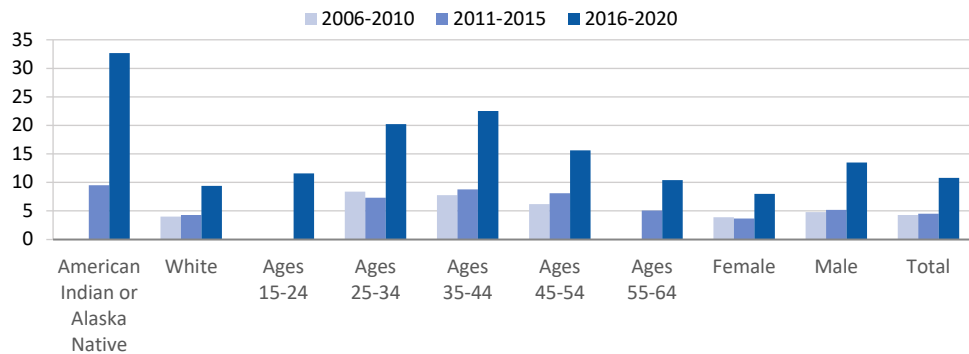
In order to obtain a more reliable measure for population characteristics, five years of data were combined to calculate rates of overdose deaths for race, age, and gender categories.

When 2016-2020 data were compared to 2011-2015 data, the number of overdose deaths in North Dakota increased regardless of race, gender, or age. In fact, the rate of deaths due to overdose in the state is now two to three times higher for each category (Figure 74) (Centers for Disease Control and Prevention, 2021a).

The rate of deaths due to drug overdose is now two to three times higher than it was in 2015, regardless of age, gender, or race.

Figure 74. Drug Overdose Death Rates by Race, Age, and Gender in North Dakota, 2006-2010 to 2016-2020

Drug overdose deaths per 100,000 population



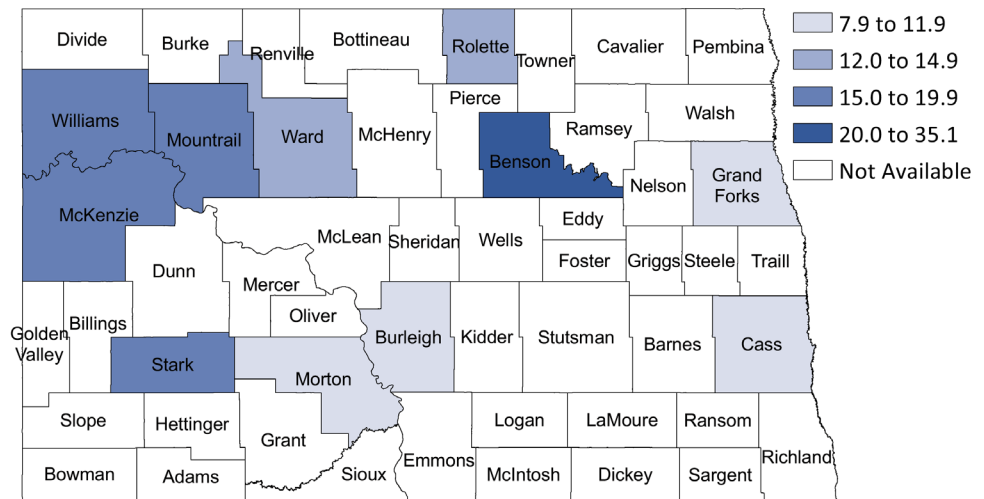
Source: Centers for Disease Control and Prevention (2021a)

While most deaths due to drug overdose in North Dakota are among the white population, American Indians are dying from drug overdose at a much higher rate (32.7 per 100,000 compared to 9.4 for white populations in 2016-2020).

With regard to age, North Dakota adults ages 25 to 34 and 35 to 44 are more likely to die from drug overdose than older and young age groups — regarding gender, males are more likely than females (Centers for Disease Control and Prevention, 2021a).

Due to relatively small numbers at a sub-state level of geography, limited data are available for North Dakota counties. For counties that have reliable data, numbers suggest considerable growth in drug overdose deaths across the state. While most drug overdose deaths occurred in Cass County (101 deaths from 2016-2020), Benson County had the highest rate of drug overdose deaths during that time (35.1 per 100,000 population). McKenzie and Mountrail counties, both located in the upper northwestern part of the state, followed Benson with drug overdose death rates of 19 per 100,000 each for 2016-2020.

Figure 75. Drug Overdose Death Rate in North Dakota by County, 2016-2020
 Drug overdose deaths per 100,000 population



Source: Centers for Disease Control and Prevention (2021a)

Appendix Tables

County-Level Data Measures

Appendix Table 1. Demographic Characteristics in North Dakota by County

County	Population			Median Age (in years), 2020	Race and Hispanic Origin, 2020				
	2010 Census	2020 Census	Percent Change		White alone	Black or African American alone	American Indian alone	Asian or Pacific Islander alone	Hispanic origin of any race
North Dakota	672,591	779,094	15.8%	35.2	645,938	26,783	38,914	14,137	33,412
Adams	2,343	2,200	-6.1%	46.6	2,039	13	14	40	36
Barnes	11,066	10,853	-1.9%	44.4	10,025	186	103	72	185
Benson	6,660	5,964	-10.5%	31.2	2,542	7	3,216	9	89
Billings	783	945	20.7%	43.2	911	4	5	6	22
Bottineau	6,429	6,379	-0.8%	44.3	5,754	31	217	43	141
Bowman	3,151	2,993	-5.0%	41.1	2,793	0	37	20	129
Burke	1,968	2,201	11.8%	41.1	2,082	13	25	12	59
Burleigh	81,308	98,458	21.1%	37.1	85,148	2,283	4,257	1,371	3,084
Cass	149,778	184,525	23.2%	32.6	151,307	12,963	2,614	6,169	6,182
Cavalier	3,993	3,704	-7.2%	49.5	3,504	3	28	16	45
Dickey	5,289	4,999	-5.5%	42.4	4,628	28	28	30	199
Divide	2,071	2,195	6.0%	48.1	2,054	23	19	15	53
Dunn	3,536	4,095	15.8%	40.1	3,277	25	457	33	107
Eddy	2,385	2,347	-1.6%	42.4	2,109	5	65	2	77
Emmons	3,550	3,301	-7.0%	50.7	3,179	0	13	12	35
Foster	3,343	3,397	1.6%	44.3	3,212	8	20	15	66
Golden Valley	1,680	1,736	3.3%	48.1	1,620	5	12	2	48
Grand Forks	66,861	73,170	9.4%	29.9	60,056	3,065	1,810	2,554	3,657
Grant	2,394	2,301	-3.9%	48.2	2,176	10	34	11	26
Griggs	2,420	2,306	-4.7%	54.4	2,205	8	12	7	24
Hettinger	2,477	2,489	0.5%	46.9	2,327	5	45	14	34
Kidder	2,435	2,394	-1.7%	48.6	2,278	3	12	8	52
LaMoure	4,139	4,093	-1.1%	46.8	3,923	14	26	13	88
Logan	1,990	1,876	-5.7%	52.7	1,778	2	14	0	35
McHenry	5,395	5,345	-0.9%	43.0	5,054	11	27	19	98
McIntosh	2,809	2,530	-9.9%	53.9	2,390	7	7	23	53
McKenzie	6,360	14,704	131.2%	30.3	10,638	218	1,894	176	1,532
McLean	8,962	9,771	9.0%	45.8	8,405	32	808	55	148
Mercer	8,424	8,350	-0.9%	45.1	7,622	42	200	45	218
Morton	27,471	33,291	21.2%	37.6	29,150	466	1,323	215	1,312
Mountrail	7,673	9,809	27.8%	33.3	5,706	113	2,840	108	768
Nelson	3,126	3,015	-3.6%	52.2	2,863	6	26	10	69
Oliver	1,846	1,877	1.7%	48.0	1,757	3	24	8	28
Pembina	7,413	6,844	-7.7%	47.6	6,173	29	135	27	243
Pierce	4,357	3,990	-8.4%	45.7	3,637	38	146	22	72
Ramsey	11,451	11,605	1.3%	40.2	9,438	73	1,276	82	274
Ransom	5,457	5,703	4.5%	44.9	5,400	38	18	25	129
Renville	2,470	2,282	-7.6%	38.0	2,161	5	15	1	37
Richland	16,321	16,529	1.3%	37.0	14,874	155	467	151	574
Rolette	13,937	12,187	-12.6%	31.0	2,319	17	9,278	33	137
Sargent	3,829	3,862	0.9%	45.3	3,599	50	13	14	91
Sheridan	1,321	1,265	-4.2%	52.5	1,191	2	11	8	10
Sioux	4,153	3,898	-6.1%	28.6	401	3	3,332	2	63
Slope	727	706	-2.9%	49.6	680	3	2	0	8
Stark	24,199	33,646	39.0%	34.3	28,924	1,050	469	412	2,274
Steele	1,975	1,798	-9.0%	45.9	1,732	3	7	4	36
Stutsman	21,100	21,593	2.3%	40.2	19,722	456	301	141	593
Towner	2,246	2,162	-3.7%	49.2	1,987	2	71	11	34
Trail	8,121	7,997	-1.5%	41.0	7,410	48	74	22	297
Walsh	11,119	10,563	-5.0%	44.3	9,085	71	145	47	1,316
Ward	61,675	69,919	13.4%	31.6	57,038	3,024	1,706	1,253	4,590
Wells	4,207	3,982	-5.3%	52.9	3,801	18	17	12	38
Williams	22,398	40,950	82.8%	31.5	31,854	2,096	1,199	737	3,897

Appendix Table 2. Economic Stability Characteristics in North Dakota by County

County	Persons in Poverty, 2020			
	All Ages		Children Ages 0 to 17	
	Number	Percent	Number	Percent
North Dakota	77,491	10.5%	19,459	11.1%
Adams	289	13.1%	43	8.2%
Barnes	991	9.8%	248	12.0%
Benson	2,206	32.4%	1,089	47.6%
Billings	97	10.9%	19	9.5%
Bottineau	546	9.0%	193	14.7%
Bowman	229	7.6%	48	6.4%
Burke	143	6.7%	55	10.6%
Burleigh	6,913	7.5%	1,462	6.8%
Cass	18,559	10.6%	4,353	10.9%
Cavalier	461	12.6%	119	15.4%
Dickey	257	5.5%	38	3.3%
Divide	163	7.4%	19	3.8%
Dunn	289	6.7%	56	5.4%
Eddy	234	10.7%	62	12.6%
Emmons	276	8.6%	30	4.7%
Foster	247	7.9%	44	6.3%
Golden Valley	87	5.0%	13	3.9%
Grand Forks	10,165	15.4%	1,849	12.8%
Grant	238	10.5%	48	9.4%
Griggs	96	4.3%	4	0.9%
Hettinger	200	8.6%	44	9.3%
Kidder	241	9.9%	49	9.4%
LaMoure	556	13.5%	204	21.6%
Logan	119	7.1%	2	0.6%
McHenry	533	9.3%	102	7.4%
McIntosh	247	10.2%	39	9.2%
McKenzie	1,387	10.2%	650	14.9%
McLean	710	7.5%	144	7.0%
Mercer	702	8.6%	266	14.7%
Morton	2,306	7.6%	464	6.7%
Mountrail	1,098	10.7%	359	12.6%
Nelson	291	10.4%	76	15.0%
Oliver	228	11.6%	92	18.5%
Pembina	478	7.2%	52	3.8%
Pierce	490	12.6%	139	15.5%
Ramsey	1,877	17.0%	697	26.1%
Ransom	487	9.6%	163	15.0%
Renville	93	4.0%	7	1.2%
Richland	1,760	11.6%	333	9.5%
Rolette	3,773	26.7%	1,665	35.3%
Sargent	165	4.3%	15	2.0%
Sheridan	79	6.2%	4	2.2%
Sioux	1,404	32.9%	657	44.3%
Slope	39	4.9%	4	2.3%
Stark	3,222	10.6%	665	8.1%
Steele	174	9.6%	58	14.3%
Stutsman	2,371	12.3%	552	13.5%
Towner	194	9.1%	18	4.1%
Traill	351	4.6%	14	0.8%
Walsh	982	9.4%	137	5.7%
Ward	6,057	9.1%	1,281	8.0%
Wells	327	8.6%	45	5.7%
Williams	2,064	5.8%	670	6.6%

Appendix Table 3. Education Characteristics in North Dakota by County

County	Children 0 to 5 with All Parents in Labor Force, 2020		Ratio of Children 0 to 5 for Every One Licensed Child Care Slot, 2020	Third Graders who Scored at or above Proficient on Statewide Reading Assessment, 2020/21	Four-Year High School Cohort Graduation Rate, 2020/21
	Number	Percent			
North Dakota	45,546	74.3%	-	38%	87.0%
Adams	104	74.3%	1.7	50%	>= 80%
Barnes	526	86.9%	1.1	46%	92.3%
Benson	363	48.5%	4.3	19%	76.3%
Billings	61	75.3%	1.5	56%	-
Bottineau	254	63.8%	1.1	38%	>= 95%
Bowman	217	90.0%	1.6	54%	>= 90%
Burke	132	82.0%	3.3	29%	86.2%
Burleigh	6,128	85.5%	1.6	40%	88.8%
Cass	12,095	81.4%	1.2	39%	85.6%
Cavalier	135	56.0%	1.4	61%	86.0%
Dickey	272	87.7%	1.0	39%	92.3%
Divide	129	97.0%	1.3	42%	>= 90%
Dunn	196	62.0%	4.5	46%	76.5%
Eddy	167	83.5%	3.0	40%	>= 80%
Emmons	212	86.5%	1.4	42%	94.8%
Foster	172	73.5%	2.1	33%	>= 90%
Golden Valley	133	85.3%	1.9	35%	65.4%
Grand Forks	4,409	82.2%	1.5	38%	87.6%
Grant	138	72.3%	2.4	21%	>= 80%
Griggs	171	100.0%	1.6	57%	89.7%
Hettinger	100	60.2%	2.0	35%	>= 90%
Kidder	143	91.7%	2.7	22%	>= 90%
LaMoure	186	65.7%	1.2	40%	>= 90%
Logan	111	82.8%	1.1	48%	>= 90%
McHenry	290	68.7%	1.6	37%	>= 95%
McIntosh	130	94.2%	1.2	48%	>= 90%
McKenzie	872	58.4%	4.1	33%	76.0%
McLean	438	70.1%	3.2	45%	89.7%
Mercer	390	64.9%	3.3	43%	>= 95%
Morton	1,944	88.5%	2.4	32%	85.9%
Mountrail	526	54.1%	6.7	22%	75.6%
Nelson	137	76.1%	1.1	42%	88.0%
Oliver	115	65.7%	4.1	43%	>= 80%
Pembina	299	67.3%	2.0	52%	>= 95%
Pierce	165	56.3%	0.8	50%	>= 90%
Ramsey	715	84.2%	0.9	44%	84.0%
Ransom	198	66.9%	1.4	46%	91.9%
Renville	161	81.3%	3.4	59%	>= 95%
Richland	796	74.8%	1.1	40%	91.5%
Rolette	718	60.3%	5.0	15%	76.5%
Sargent	230	92.0%	1.8	36%	-
Sheridan	26	38.8%	3.9	27%	-
Sioux	249	64.2%	no capacity	-	47.8%
Slope	29	69.0%	no capacity	-	-
Stark	1,985	59.4%	3.0	42%	87.9%
Steele	77	78.6%	1.3	-	-
Stutsman	965	65.7%	1.5	40%	89.4%
Towner	69	55.6%	2.8	44%	>= 90%
Traill	427	71.6%	1.1	50%	94.2%
Walsh	636	74.5%	2.1	31%	90.4%
Ward	3,786	65.5%	2.0	40%	87.6%
Wells	192	69.6%	10.6	35%	87.8%
Williams	2,427	58.7%	3.6	28%	79.0%

Notes: '-' indicates that data are not available. '>=' indicates 'greater than or equal to'.

Appendix Table 4. Social and Community Context Characteristics in North Dakota by County

County	Persons 65 and Older Living Alone, 2020		Persons 16 to 24 who are Employed, 2020	
	Number	Percent	Number	Percent
North Dakota	36,419	31.3%	65,979	64.5%
Adams	195	33.4%	132	59.5%
Barnes	729	30.6%	785	64.3%
Benson	216	22.2%	281	36.4%
Billings	49	26.2%	59	85.5%
Bottineau	425	28.3%	450	59.3%
Bowman	196	29.7%	207	65.9%
Burke	149	35.1%	38	38.0%
Burleigh	4,497	29.1%	6,960	62.4%
Cass	6,442	29.7%	20,645	71.2%
Cavalier	315	30.2%	288	83.5%
Dickey	279	27.8%	402	70.8%
Divide	183	32.3%	159	81.1%
Dunn	241	32.2%	189	51.2%
Eddy	177	32.2%	118	58.4%
Emmons	352	36.2%	158	62.7%
Foster	198	27.0%	245	87.2%
Golden Valley	161	39.2%	63	38.4%
Grand Forks	3,450	38.7%	9,792	63.9%
Grant	213	31.8%	106	62.7%
Griggs	203	27.4%	150	81.5%
Hettinger	226	35.9%	111	74.0%
Kidder	197	36.1%	151	57.6%
LaMoure	332	30.5%	248	69.7%
Logan	104	20.3%	106	63.9%
McHenry	401	33.4%	289	59.7%
McIntosh	265	33.1%	135	78.9%
McKenzie	442	37.1%	1,140	82.4%
McLean	585	26.2%	452	63.3%
Mercer	436	27.0%	522	69.1%
Morton	1,246	24.6%	2,193	71.9%
Mountrail	224	18.8%	681	55.5%
Nelson	301	38.0%	119	58.9%
Oliver	80	16.4%	78	66.7%
Pembina	543	34.3%	313	58.3%
Pierce	386	39.6%	211	65.3%
Ramsey	780	34.1%	918	72.3%
Ransom	378	34.3%	415	77.1%
Renville	111	24.8%	148	63.5%
Richland	867	29.8%	1,468	57.2%
Rolette	430	25.3%	567	32.5%
Sargent	244	27.3%	259	76.6%
Sheridan	170	41.6%	49	59.8%
Sioux	65	17.5%	167	24.7%
Slope	43	20.4%	34	56.7%
Stark	1,368	33.4%	2,192	62.0%
Steele	116	29.2%	95	69.3%
Stutsman	1,350	33.9%	1,857	66.6%
Towner	198	36.9%	94	51.4%
Trail	494	31.5%	610	62.7%
Walsh	660	29.3%	617	62.8%
Ward	2,929	33.7%	5,961	55.0%
Wells	410	38.9%	137	51.7%
Williams	1,368	40.4%	2,415	68.2%

Appendix Table 5. Neighborhood and Built Environment Characteristics in North Dakota by County

County	Householders Burdened by Housing Costs, 2020				Households with a Broadband Internet Connection, 2020		Persons who are Food Insecure, 2020	
	All Householders		Householders Ages 65 and Older		Number	Percent	Number	Percent
	Number	Percent	Number	Percent				
North Dakota	70,445	22.7%	18,725	25.8%	266,498	83.1%	36,130	4.8%
Adams	198	20.2%	49	15.1%	842	79.6%	150	6.4%
Barnes	920	18.8%	264	17.9%	4,033	80.0%	500	4.7%
Benson	353	18.0%	79	13.0%	1,453	64.2%	1,040	15.1%
Billings	34	10.0%	11	10.5%	281	76.8%	50	5.4%
Bottineau	489	17.4%	203	22.5%	2,453	85.3%	370	5.7%
Bowman	143	11.5%	47	11.7%	1,135	85.8%	80	2.6%
Burke	111	12.2%	46	16.5%	788	82.9%	70	3.5%
Burleigh	8,755	22.6%	2,638	27.5%	33,998	85.4%	4,010	4.2%
Cass	19,000	25.0%	3,728	27.2%	67,084	87.1%	9,750	5.4%
Cavalier	363	21.0%	172	26.7%	1,428	80.3%	200	5.2%
Dickey	286	14.5%	129	21.9%	1,642	77.2%	130	2.7%
Divide	170	16.5%	83	24.6%	725	68.4%	90	4.0%
Dunn	281	17.9%	48	10.7%	1,419	83.5%	180	4.2%
Eddy	219	21.5%	78	24.0%	791	75.6%	160	7.3%
Emmons	295	20.7%	151	24.8%	1,032	66.8%	180	5.4%
Foster	242	17.2%	104	23.3%	1,211	81.7%	140	4.5%
Golden Valley	100	12.6%	53	18.5%	644	79.1%	70	3.8%
Grand Forks	9,132	30.5%	1,694	28.7%	25,187	81.8%	4,670	6.6%
Grant	162	16.0%	90	22.6%	829	76.6%	100	4.4%
Griggs	163	17.0%	127	29.5%	857	83.1%	60	2.8%
Hettinger	172	17.0%	87	22.7%	886	81.1%	120	4.8%
Kidder	132	13.0%	71	20.1%	809	72.0%	130	5.3%
LaMoure	213	12.3%	109	16.3%	1,504	80.5%	210	5.0%
Logan	123	16.6%	58	22.8%	639	78.7%	50	3.1%
McHenry	446	18.4%	181	24.2%	2,018	78.8%	290	5.0%
McIntosh	240	19.6%	119	25.6%	903	69.9%	130	5.2%
McKenzie	820	19.2%	200	27.4%	3,881	86.7%	960	7.0%
McLean	715	16.8%	231	17.3%	3,399	77.7%	360	3.7%
Mercer	470	13.2%	145	14.3%	3,060	83.5%	360	4.3%
Morton	2,731	20.7%	866	28.5%	11,621	86.1%	1,240	4.0%
Mountrail	418	12.9%	44	6.3%	2,736	76.6%	690	6.7%
Nelson	225	16.8%	108	21.3%	1,013	70.9%	200	6.8%
Oliver	124	17.5%	62	20.5%	562	75.6%	90	4.8%
Pembina	514	17.3%	262	28.0%	2,340	73.8%	340	5.0%
Pierce	461	26.0%	163	25.4%	1,522	82.6%	210	5.2%
Ramsey	878	18.7%	344	27.0%	3,799	77.5%	1,100	9.6%
Ransom	380	17.4%	167	24.7%	1,816	76.3%	300	5.7%
Renville	126	13.9%	23	8.6%	833	89.5%	80	3.2%
Richland	1,398	21.3%	427	24.0%	5,683	83.5%	870	5.3%
Rolette	736	17.7%	170	15.7%	3,061	69.5%	2,310	16.0%
Sargent	189	10.4%	67	12.2%	1,648	86.9%	130	3.4%
Sheridan	128	19.7%	61	20.5%	430	62.9%	60	4.6%
Sioux	193	19.5%	27	13.9%	737	66.6%	640	14.8%
Slope	57	18.2%	29	23.8%	267	79.5%	30	3.6%
Stark	2,769	22.8%	774	30.1%	10,607	83.9%	1,990	6.4%
Steele	53	7.5%	29	12.9%	641	79.7%	60	3.5%
Stutsman	2,100	23.9%	741	29.5%	7,036	78.4%	1,470	7.1%
Towner	183	18.4%	110	33.3%	754	68.3%	110	4.9%
Traill	600	18.5%	253	26.5%	2,682	79.0%	230	2.8%
Walsh	825	18.2%	358	25.5%	3,593	74.5%	540	5.1%
Ward	7,341	26.4%	1,806	32.7%	24,972	87.8%	3,880	5.6%
Wells	340	18.6%	199	28.6%	1,569	80.8%	200	5.3%
Williams	2,929	20.6%	640	29.2%	11,645	79.5%	2,440	6.8%

Appendix Table 6. Access to Health Care and Health Behavior Characteristics in North Dakota by County

County	Persons without Health Insurance, 2020		Adults Reporting No Leisure-Time Physical Activity County, 2019 and State, 2021	Adult Smokers County, 2019 and State, 2021	Adults Reporting Excessive Drinking, 2019
	Number	Percent	Percent	Percent	Percent
North Dakota	51,605	8.2%	25.5%	15.0%	24.1%
Adams	132	8.5%	28.5%	18.1%	23.1%
Barnes	663	8.7%	28.2%	17.9%	24.2%
Benson	583	10.0%	39.0%	28.9%	19.4%
Billings	68	10.0%	28.1%	17.4%	23.5%
Bottineau	439	9.6%	29.5%	18.2%	24.0%
Bowman	276	12.0%	28.4%	17.8%	24.1%
Burke	150	9.0%	29.4%	17.7%	24.9%
Burleigh	5,132	6.7%	25.5%	16.5%	22.3%
Cass	11,319	7.2%	22.8%	16.1%	21.8%
Cavalier	189	7.1%	27.7%	18.3%	23.6%
Dickey	313	8.7%	25.4%	16.7%	23.1%
Divide	147	8.7%	30.6%	19.6%	21.9%
Dunn	360	9.6%	30.6%	17.7%	23.1%
Eddy	167	10.1%	31.3%	18.3%	23.3%
Emmons	212	9.4%	31.6%	19.4%	23.5%
Foster	248	10.2%	27.7%	17.5%	24.0%
Golden Valley	113	9.4%	28.8%	17.5%	23.4%
Grand Forks	4,188	7.3%	26.7%	15.9%	22.9%
Grant	123	8.1%	32.3%	20.6%	22.7%
Griggs	131	8.7%	29.3%	18.1%	23.2%
Hettinger	195	10.9%	31.5%	20.7%	22.6%
Kidder	134	7.6%	35.3%	19.7%	23.0%
LaMoure	297	10.3%	31.1%	19.4%	21.2%
Logan	84	6.2%	30.6%	20.1%	24.2%
McHenry	310	7.0%	30.0%	18.4%	24.9%
McIntosh	146	8.8%	31.6%	19.8%	21.0%
McKenzie	1,580	11.3%	29.4%	18.5%	20.5%
McLean	647	9.1%	28.9%	18.7%	21.7%
Mercer	446	6.9%	29.8%	18.3%	25.2%
Morton	2,024	7.8%	27.6%	17.6%	23.9%
Mountrail	1,399	14.8%	31.5%	20.8%	24.2%
Nelson	191	9.5%	28.1%	18.0%	24.8%
Oliver	118	8.1%	28.3%	17.8%	24.2%
Pembina	511	10.3%	28.3%	18.8%	25.6%
Pierce	172	6.1%	30.4%	19.8%	24.5%
Ramsey	876	10.0%	28.9%	17.7%	24.4%
Ransom	360	9.0%	29.8%	18.5%	23.0%
Renville	156	8.7%	28.1%	17.3%	24.4%
Richland	1,108	9.0%	28.4%	17.5%	25.7%
Rolette	1,740	13.6%	38.0%	31.1%	20.7%
Sargent	237	7.9%	28.9%	17.5%	26.1%
Sheridan	97	11.6%	32.8%	21.0%	23.3%
Sioux	437	11.3%	43.4%	34.0%	16.9%
Slope	41	7.5%	28.9%	17.5%	24.1%
Stark	2,420	8.7%	29.5%	18.9%	22.3%
Steele	79	5.7%	25.4%	15.5%	25.1%
Stutsman	1,079	7.2%	32.4%	19.3%	23.0%
Towner	186	11.9%	31.5%	19.9%	22.7%
Trail	519	8.4%	27.1%	16.5%	24.3%
Walsh	949	11.7%	32.8%	18.3%	21.8%
Ward	4,415	7.8%	28.0%	17.5%	22.9%
Wells	231	8.8%	28.9%	18.2%	22.8%
Williams	3,468	9.9%	29.5%	18.2%	22.0%

Appendix Table 7. Health Outcomes in North Dakota by County

County	Adults with Obesity County, 2019 and State, 2021	Adults Reporting Fair or Poor Health County, 2019 and State, 2021	Average Life Expectancy at Birth (in years), 2020	Adults Reporting 14+ Mentally Unhealthy Days Per Month County, 2019 and State, 2021	Age-Adjusted Suicide Rate, 2020 - Deaths per 100,000 persons	Drug Overdose Death Rate, 2020 - Deaths per 100,000 persons
	Percent	Percent		Percent		
North Dakota	35.2%	13.0%	76.9	12.6%	18.2	14.9
Adams	24.3%	14.4%	81.1	11.7%	-	-
Barnes	32.7%	14.7%	77.0	11.7%	-	-
Benson	29.4%	26.3%	68.4	16.6%	33.2	35.1
Billings	29.6%	14.5%	-	11.1%	-	-
Bottineau	26.7%	14.8%	77.3	11.8%	-	-
Bowman	26.7%	15.2%	78.8	11.6%	-	-
Burke	31.8%	14.5%	83.3	11.6%	-	-
Burleigh	30.2%	13.3%	80.3	11.0%	15.7	8.0
Cass	32.1%	12.7%	79.9	10.9%	16.9	11.2
Cavalier	26.5%	14.6%	81.0	11.9%	-	-
Dickey	26.4%	14.1%	77.9	11.2%	-	-
Divide	28.1%	16.4%	81.2	12.6%	-	-
Dunn	32.9%	15.6%	80.3	11.5%	-	-
Eddy	24.7%	16.0%	73.4	12.1%	-	-
Emmons	25.9%	16.3%	78.3	12.7%	-	-
Foster	29.4%	14.5%	78.3	11.6%	-	-
Golden Valley	25.5%	14.8%	91.4	11.8%	-	-
Grand Forks	30.8%	15.4%	78.6	12.0%	15.2	10.0
Grant	30.8%	17.3%	75.8	13.2%	-	-
Griggs	31.8%	15.6%	79.4	12.1%	-	-
Hettinger	26.2%	16.8%	77.9	13.1%	-	-
Kidder	33.1%	17.8%	84.4	12.8%	-	-
LaMoure	31.3%	16.4%	80.8	12.5%	-	-
Logan	23.3%	15.6%	80.7	12.2%	-	-
McHenry	30.1%	14.3%	77.5	11.8%	-	-
McIntosh	29.7%	17.9%	79.9	12.9%	-	-
McKenzie	34.3%	16.2%	78.0	11.8%	24.8	18.8
McLean	34.2%	15.2%	78.2	11.9%	18.8	-
Mercer	30.8%	14.7%	81.9	11.6%	32.4	-
Morton	31.3%	14.3%	78.0	11.5%	18.8	10.3
Mountrail	41.0%	17.9%	70.4	12.2%	20.7	19.3
Nelson	28.9%	15.2%	78.5	11.5%	-	-
Oliver	29.6%	14.6%	87.1	11.6%	-	-
Pembina	34.2%	15.1%	79.5	11.9%	-	-
Pierce	34.6%	16.5%	80.9	12.5%	-	-
Ramsey	35.1%	15.5%	76.8	11.7%	17.6	-
Ransom	25.7%	15.3%	76.6	11.9%	-	-
Renville	36.9%	14.1%	78.6	11.6%	-	-
Richland	29.8%	15.4%	80.2	12.0%	-	-
Rolette	44.4%	28.2%	71.4	16.7%	30.9	13.9
Sargent	30.3%	14.1%	80.5	11.3%	-	-
Sheridan	26.2%	17.8%	-	13.2%	-	-
Sioux	25.5%	33.1%	65.2	18.7%	55.8	-
Slope	28.6%	14.9%	-	11.5%	-	-
Stark	36.1%	15.5%	79.8	11.7%	20.1	16.0
Steele	26.4%	12.6%	86.0	10.9%	-	-
Stutsman	31.7%	15.4%	78.9	11.9%	15.4	-
Towner	28.7%	16.8%	77.4	12.7%	-	-
Traill	35.8%	13.7%	79.3	11.1%	-	-
Walsh	34.7%	18.3%	78.4	12.4%	26.0	-
Ward	37.1%	14.5%	78.7	10.9%	19.3	13.4
Wells	28.2%	15.3%	79.4	12.1%	-	-
Williams	36.3%	15.4%	77.9	11.0%	23.9	16.2

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Center for Social Research
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