

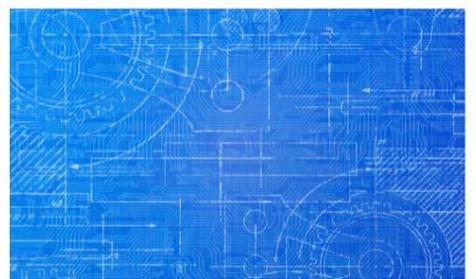
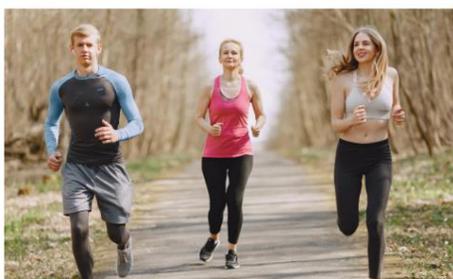
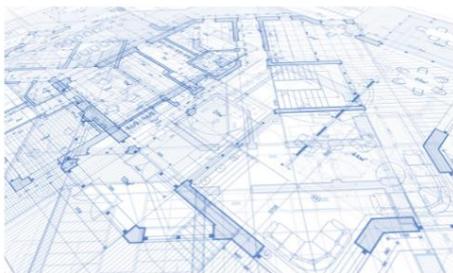


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State Health Assessment

December 2021



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Preface

This report is a compilation of work by individuals from the North Dakota Department of Health, Agency MABU, and the Center for Social Research at North Dakota State University. The section entitled "Overview of North Dakota" and the section on COVID-19 were compiled by staff at the North Dakota Department of Health. Efforts related to the qualitative assessment, focus groups, and online survey were completed by Agency MABU. The remaining quantitative assessment and document preparation of the various components was completed by Dean A. Bangsund, Research Scientist, Department of Agribusiness and Applied Economics, North Dakota State University and Nancy M. Hodur, PhD, Director, Center for Social Research, North Dakota State University.

This report was compiled as one part of a multi-faceted effort to address health needs and health inequities in pre-determined sub-sets of the North Dakota population. As such, this report only provides high-level observations gleaned from select data provided by the ND Department of Health. While the study authors acknowledge the data limitations presented by this approach, readers are likely to observe omissions of subject matter and content regarding health-related issues that would normally be investigated in an assessment of this type. The NDDoH's strategy for this report was not to provide detailed and lengthy quantitative materials, but rather segment the state's population into targeted groups, and provide a brief high-level discussion for each of the target populations. Accordingly, this report serves as just one component of a multi-faceted effort. Much of the quantitative detail from this assessment can be found in a NDDoH health and mortality statistics dashboard. The intent of this particular report was to limit the size of the overall report and direct stakeholders, policy makers, and health officials to use the dashboard to retrieve more granular materials.

Introduction

Periodically, the North Dakota Department of Health (NDDoH) is required to conduct a statewide health needs assessment as part of the accreditation process with the Public Health Accreditation Board (PHAB). The PHAB is a non-profit organization that oversees the national voluntary accreditation program for state and local departments of public health. The needs assessment helps to inform strategic planning and guide program development to address critical public health care needs in North Dakota. The purpose of the state health assessment (SHA) is to examine overall health of the state's population, identify health conditions that cause the greatest challenges in the state and identify factors that contribute to those challenges.

This document represents just one of the deliverables associated with the SHA. In addition to findings associated with this assessment, a quarriable dashboard has been developed on the North Dakota Department of Health website. The health profiles created as part of this assessment will be used to identify priorities for the State Health Improvement plan and guide planning and program development and help with allocating and mobilizing resources to address health needs and improve health and health outcome in North Dakota for each priority demographic. A road map will be created for each priority area depicting the leading causes of death or health issue, contributing factors, and resources and assets to address the health issues.

Overview of North Dakota¹

Geography and Economy

North Dakota is in the midwestern portion of the United States (U.S.) and is bordered by Montana, South Dakota and Minnesota. Identified as the nation's 17th largest state by geographic size, North Dakota spans a significant landmass of 68,982 square miles. The state has a population density of 11 persons per square mile and a population size of 779,094 residents, which makes it the country's fifth-least populated state. As indicated by the 2020 U.S. Census, North Dakota's population is rapidly growing; from 2010-2020, the state grew by 15.8%, making it the fourth-fastest growing state in the nation. North Dakota has 53 counties, of which 36 are classified as "frontier" due to population densities of six residents per square mile or lower. Five North Dakota counties are considered urban (defined for the purposes of this study as having a Zip Code Tabulation Area [ZCTA] of 20,000 people or more) and six counties are semi-urban (counties with the largest ZCTA being between 7,500 and 19,999). Most counties are, therefore, rural.

North Dakota has had one of the fastest-growing economies in the U.S. based on 2000-2020 compound annual growth rates of its Gross Domestic Product (GDP). Within this period, North Dakota's real GDP grew an average of 4.2% annually, which was 2.5% higher than the nation's average annual growth during the same timeframe (North Dakota Compass, 2020). Primary economic contributors for the state

as related to production and exports are oil, gas, energy, and agriculture. Between 2008-2018, North Dakota's oil and gas extraction and its production taxes amassed close to \$18 billion and constituted almost 44% of total tax revenues. According to the U.S. Energy Information Administration (EIA), North Dakota ranked second in the nation for its crude oil production and second for its proved crude oil reserves (2020). The majority of the state's energy (57%) is sourced from coal-fired power plants, whereas wind energy accounts for 31% of the

¹ Staff from the North Dakota Department of Health developed the Overview of North Dakota.

state's energy. Worldwide, North Dakota has the largest known source of lignite, known as brown coal (EIA, 2020). In agriculture, the state remains one of the nation's top producers of crops. The U.S. Department of Agriculture ranks North Dakota at number nine for its value of crops sold (2017).

Top economic sectors for employment, using North American Industrial Classification System, include government (18%), education and health (16%), retail trade (11%), leisure/hospitality (9%), professional/business services (8%) and construction services (7%). According to 2019 data from the U.S. Census Bureau's American Community Survey, North Dakotans aged 16 and older travel an average of 17.3 minutes to get to work. In addition, 93% of residents aged 25 years or older held a high school degree and 30% of residents 25 years and older held a bachelor's degree or higher. North Dakota's homeownership rate rests at 64.2% (FRED, 2021) with peak historic ownership in 2001 at 71%.

Health Care Delivery System

North Dakota's health care delivery system is made up of 52 hospitals, all of which are designated trauma centers except for one Indian Health Service (IHS) hospital. Thirty-six of these hospitals are classified as Critical Access Hospitals (CAHs) due to having 25 acute-care beds or fewer. The six larger general acute-care hospitals titled the "Big Six" are in North Dakota's four largest cities, each with its own Level II trauma center. The remaining hospitals provide varied services, such as psychiatric care (three total), long-term acute care (two), rehabilitation (one) and two that are of the HIS (University of North Dakota, 2019). Statewide, there are around 300 ambulatory care clinics. Federal health centers in North Dakota comprise 54 federally certified rural health clinics and five federally qualified health centers, with 19 various locations between them. The state's behavioral health system includes 34 facilities or programs with mental health services and 96 licensed substance abuse programs. Local public health units (LPHUs) in North Dakota are autonomous and provide varied, valuable health care services. There are 28 single and multi-county LPHUs that span across specific jurisdictions.

As with other U.S. states, North Dakota faces a critical need for health care professionals—a need that will only grow as the state's population increases. Based on prediction modeling, 500 additional physicians will be necessary by 2025 to meet health care needs if the state grows to its predicted population of 796,000 people by 2040 (University of North Dakota, 2021). Beyond physician shortage, North Dakota is also challenged by a maldistribution of providers as most are in larger, urbanized regions. Within emergency medical services, which provide ground-based and air care, dependence on volunteers and funding needs have also arisen as challenges. In addition, electronic health records have not been fully implemented across the state due to financial barriers, among other reasons. Even so, there has been increased expansion and usage of electronic health records (University of North Dakota, 2019).

Health Inequity Indicators

Health equity refers to the process of providing the same opportunity for the highest level of health care to all populations in a manner that meets their needs. Differing from equality, equity incorporates services that are tailored to each population's needs. Conversely, equality focuses on providing everyone with the same resources. This method is not as effective since diverse populations has diverse needs. Health inequities exist across a wide range of indicators that include, but are not limited to, age, race, sex, income, insurance status, and county of residence. In addition, individuals may experience compounded disparities if they identify with multiple groups facing a disproportionate burden or lack of resources. These inequities negatively affect individual health outcomes by influencing the social determinants of health, which are the environmental conditions that play a part in health.

Age

Over the past few years, North Dakota has made the dramatic transition from being an older-population state, with around three-fifths of residents living in the east, to one of the youngest in the U.S. with a greater proportion of the population living in the west. As noted earlier, North Dakota's population has grown by 15.8% between 2010 and 2020 (U.S. Census Bureau). A primary driver for this change is due to younger individuals moving into western North Dakota for employment in the energy sector and related industries. In 2019, North Dakota stood as the fourth-youngest state in the U.S., with a median age of 35.5 years. This transition and record-high population growth have once again revitalized the state's workforce and natural birth rate. According to 2020 National Center for Health Statistics estimates, North Dakota held the U.S.' highest fertility rate: 67.4 per 1,000 women aged 15-44—a rate higher than the national average of 56.0. The state's age distribution leans toward the young adult cohort; based on 2020 U.S. Census five-year age categories, most North Dakotans are ages 25-29 (8.4%), whereas 80–84-year-old residents are fewer in number (1.8%). An estimated 7.1% of North Dakota's population is younger than five years of age, 23.6% is under 18 years, and 15.7% is 65 years or older.

Among North Dakota's population, approximately 7% of persons under 65 years of age have a known disability (ACS, 2019). About 43.9% of persons 75 years and older have a disability. Ambulatory and hearing limitations are the greatest difficulties faced by this age cohort.

According to a 2017 health equity analysis, suicides are more common among younger North Dakotans. Specifically, 56.1% of suicides occurred among those under 40 years old, while 47.3% occurred among those 20-40 years of age. Infectious disease data from this same report highlight disparities in illnesses like syphilis and hepatitis C. A majority of syphilis cases (72.8%) were among the younger population—those 39 years and younger. Within this cohort, 36.4% of syphilis cases were recorded for persons aged 20-29 years. Hepatitis C cases were similarly more frequent among younger North Dakotans: 51.4% between 20–39-year-olds and close to 30% of cases existing among 20–29-year-olds. As of March 2, 2022, older adults (80+ year-olds) led the state in the percentage of primary series COVID-19 vaccinations received (84.9%). The lowest vaccinated group on this date was the 5-11 age cohort (16.4%), although the more recent vaccine Emergency Use Authorization for 5-11-year-olds may influence this statistic.

Race

North Dakota's racial and ethnic diversity has grown exponentially throughout the last decade. From 2010-2020, people of color rose by 92%, an increase nearly four times higher than the national average and the highest in the nation during that period. In 2020, the White non-Hispanic population made up 84% of residents, dropping by 8% from the 2000 percentage (U.S. Census Bureau). In 2018, immigrant communities (foreign-born individuals) in North Dakota comprised 5% of the state's population, with most immigrants coming into the state from the Philippines (American Immigration Council, 2020). About 5% of residents in North Dakota have at least one parent who is an immigrant. Foreign-born residents support North Dakota's labor force in various ways: 13% of production employees and 11% of manufacturing industry workers are immigrants. Still, North Dakota remained less racially diverse than most states, ranking 44 out of the 51 states, including Hawaii (United States Census Bureau, 2020). Between 2010-2020, the Black or African American racial and ethnic group had the largest population increase, moving from 1.2% in 2010 to 3.3% in 2020. Following this rise was the Hispanic population, which grew by 2.3% to a total population percentage of 4.3% in 2020.

The American Indian and Alaska Native (AI/AN) population has consistently remained North Dakota's largest minority population. Although, this cohort dropped by 0.4 percentage points to a total population of 5.0% in 2020 (U.S. Census Bureau and ND Compass, 2020). North Dakota has a total of five federally recognized Tribes and one Indian community partially found within the state. These five Tribes are the Mandan, Hidatsa and Arikara Nation (Three Affiliated Tribes); the Standing Rock Sioux; the Spirit Lake Nation; the Turtle Mountain Band of Chippewa Indians; the Sisseton-Wahpeton Oyate Nation; and the Trenton Indian Service Area. The average age of American Indians in the state is 26.1 (2017), which is 9.2 years lower than the national average (U.S. Census Bureau American Community Survey [ACS], 2015-2019).

Specific disparities in health and socioeconomic status that exist for the American Indian population include unemployment and poverty for those living on reservations, diabetes, cancer, addiction, heart disease, unintentional injuries, and more. Diabetes rates in the American Indian population are disproportionately higher than in other racial and ethnic groups: A 2017 report found that the American Indian population experienced 57.5 cases of diabetes per 100,000 population, while Whites in North Dakota experienced 24.8 cases per 100,000 population. American Indians also have an average age of death of 57, which is 19 years younger than other races. In addition, the percent of American Indians or Alaska Natives with a disability is higher than all other racial/ethnic groups at 16.3% (U.S. Census Bureau ACS, 2015-2019).

Infectious disease rates also vary by race and ethnicity. Based on 2017 reporting, the Black population in North Dakota experienced higher rates of chlamydia than any other cohort at 1,355.3 cases per 100,000 people. Als followed behind at 1,218.9 per 100,000 population, and multi-racial groups experienced 1,136.1 cases per 100,000 population. During this same period, the White population had a rate of 277.6 cases of chlamydia per 100,000 population. Though a novel disease, COVID-19 has already inequitably affected separate racial and ethnic populations across the country and in North Dakota. Hospitalization rates due to the novel coronavirus are substantially higher among the AI population at 4.75%, whereas that of the White population is at 3.66% as of February 25, 2022 (NDDoH, 2022). The number of unclassified death data is worth noting, as 0.69% of COVID-19 fatalities and 2.06% of hospitalizations are of individuals with unknown races or ethnicities.

Data from March 2, 2022, indicates that Black or African American communities have the lowest COVID-19 vaccination rates in the state among those receiving at least one dose (53.4%). Conversely, American Indian or Alaska Native populations have the highest one-dose coverage rate at 67.9% with White communities following close behind (67.7%). The majority (67.2%) of one-dose COVID-19 vaccine coverage also exists among non-Hispanic or Latino ethnic populations.

Gender

According to 2019 American Community Survey data, North Dakota's population is composed of 49% female persons. In the population with disability, civilian, noninstitutionalized males represent a higher frequency, although only by a small margin. Specifically, males of all ages in North Dakota with at least one disability comprised 12% of the North Dakota population in 2019, whereas civilian, noninstitutionalized females comprised 10% of the state's population (U.S. Census Bureau ACS, 2019). These percentages vary depending on age: In the same year, the population of females 65 years and older with at least one disability was 33%, while that of older-adult males was 36%.

Since 2006, the ratio of females aged 25 years and older in North Dakota with a bachelor's degree has been consistently higher than males. The latest data (2019) displays a 0.8 percentage point difference in this educational attainment between the two sexes, with 20.7% of females aged 25 and older holding a bachelor's

degree. (U.S. Census Bureau ACS, 2019). Still, North Dakota females working full-time and year-round in 2014 earned \$13,202 less than males in the same category. Nationally, females earned \$10,313 less median wages than their male counterparts that year.

Suicides and HIV cases are more common in North Dakota among males. According to a 2017 health equity report, 80.4% of suicides in the state were among males, and 72.2% of HIV cases were male. Most COVID-19 cases are among females (52.0%, as of March 2, 2022), while COVID-19 vaccine rates are quite equitable across sexes. As of the same date, females and males respectively made up 61.5% and 61.4% of one-dose vaccinated individuals; females and males also respectively made up 59.0% and 58.7% of vaccinated primary series individuals.

North Dakota has the lowest population percentage of lesbian, gay, bisexual and transgender (LGBT)-identifying adults (at 2.7%) in the U.S. (Williams Institute, 2019). The average age of LGBT-persons in the state is 37.7 years, and the vast majority of this population is White (76%). Due to the low sample size and data suppression guidance, socioeconomic indicators (income status, unemployment, etc.) of this population are unavailable.

Income

As of May 2021, North Dakota's seasonally adjusted unemployment rate was 4.0% (U.S. Bureau of Labor and Statistics), the eleventh lowest unemployment rate in the nation. However, a deeper dive reveals poverty disparities between races and ethnicities. According to the 2019 American Community Survey, the poverty rate among American Indians was 32.2%. Comparably, an estimated 25.4% of American Indians experienced poverty in 2007 and in 2018. In 2019, the U.S. poverty rate was about 12.3% and North Dakota experienced a 10.6% poverty rate, ranking it at 10th for lowest poverty rates in the country. North Dakota's poverty rate has never exceeded 13% since 2007 and has had a general downward trend over the past ten years.

Regional poverty rates are directly correlated to the rate of households receiving public assistance. Public assistance includes programs such as Supplemental Security Income, Temporary Assistance for Needy Families, and Supplemental Nutrition Assistance Program (SNAP) benefits. A 2020 North Dakota Department of Commerce report specifies that between July 2019 to June 2020, state households receiving these forms of public assistance ranged widely depending on the region. Households utilizing public assistance ranged from 21.00% in Cass County, to 0.01% in Oliver County.

Insurance

Based on data from the 2019 ACS, the majority of North Dakotans (92%) have health insurance. Specifically, 65% of the state utilizes private health insurance, and 28% are on public insurance. About 7% of North Dakotans are uninsured and 8% of residents under age 65 are uninsured. Among the uninsured population younger than 65 years of age, 6% of uninsured persons were White and American Indians disproportionately represented a higher uninsured rate at 26% (Kaiser Family Foundation, 2019). Of the state's population, the proportion of uninsured individuals between the ages of 26-34 is 11%, making this age cohort the lowest insured group (U.S. Census Bureau, 2019). Overall, males 19-64 years old in 2019 tended to have lower insurance coverage rates than similarly aged females irrespective of race or ethnicity. About 92% of children 6-18 years old in North Dakota had health insurance, which is comparable to the national rate of 94% (Census Bureau Health Insurance, 2019). White North Dakotans had about the same rate of health insurance coverage as the state's overall average of percent insured (93%). American Indian and Alaska Native residents, however,

were insured at a lower percentage (79.1%) even though this coverage rate has increased by 47.6 percentage points since 2012.

Medicare coverage has enabled almost 100% of residents 65 years and older to have health insurance. Residents in the rural-most parts of North Dakota tend to be older, poorer and less likely to have insurance compared to those in urban or semi-urban areas. This lack of coverage makes access to quality health care challenging. As of September 2021, North Dakota had a total of 111,398 residents enrolled in Medicaid and 2,695 residents enrolled in the Children’s Health Insurance Program, or CHIP. There are 53,068 residents enrolled in the Medicaid Child and CHIP program (Centers for Medicare & Medicaid Services).

County of Residence

According to 2020 County Health Rankings, there are 12 North Dakota counties identified as “least healthy.” All 12 counties are within a tribal reservation or have a rural/frontier designation. State counties with the highest rates of poverty also had the highest rates of public assistance and AI populations. In addition, rural/frontier regions of the state face increased challenges with maintaining an adequate number of health care workers. Reasons for these challenges include better wages and amenities in more urban areas of North Dakota. Communities that do not have adequate staffing tend to be one health care provider away from experiencing shortage (University of North Dakota, 2019).

COVID-19 cases are more commonly observed in urban areas, which may be likely due to the closer proximity of residents. As of March 2, 2022, cumulative COVID-19 cases were highest in Cass County (eastern North Dakota) at 58,565, and cumulative cases were lowest in Slope County at 63 (western North Dakota). Generally, COVID-19 vaccine coverage rates increase toward the eastern half of the state. As of March 2, 2022, Rolette County (located in the north) had the highest one-dose COVID-19 vaccine coverage rate (74.8%), and Golden Valley (located in the west) had the lowest (35.2%). Cavalier County (located in the north-east) had the highest completed primary series coverage rate at 72.2%, and McKenzie County (located in the west) had the lowest at 31.7%.

Purpose and Objectives

The statewide health needs assessment aims to identify health and health care inequities for several targeted populations. Those targeted populations include:

- New American, foreign born and immigrant residents of North Dakota
- LGBTQ2S+2S + BE YOU residents of North Dakota
- Youth residents of North Dakota
- American Indian residents of North Dakota
- Rural residents of North Dakota
- Urban residents of North Dakota

Specific objectives include:

1. Evaluate death and hospital discharge records to gain insights on primary causes of death, characteristically different metrics associated with deaths within targeted populations, and

any insights not generally available from other data sources. The portion of the assessment was done by researchers at North Dakota State University.

2. Using primarily death data, hospital discharge data and other relevant population metrics create brief high-level profiles for the six targeted populations identified by the NDDoH. This portion of the assessment was completed by North Dakota State University.
3. Examine Social Vulnerability Index (SVI) rankings and Behavioral Risk Factors Surveillance Survey (BRFSS) to enable county comparisons and augment to the degree possible findings from death record data. The portion of the assessment was done by researchers at North Dakota State University.
4. Conduct focus group interviews to gather input from target populations living in North Dakota about the impact of various social factors affecting their health, wellbeing, and quality of life. This portion of the assessment was done by Agency MABU. Focus groups examined how social determinants of health (SDH) impact priority population groups. Existing advisory boards will serve as the focus groups for the following three target populations: North Dakota New American/Immigrant/Foreign Born community; North Dakota Lesbian, Gay, Bisexual, Transgender, Queer/Questioning, Two-Spirit Community (LGBTQ2S+) and Youth. American Indian, rural, and urban residents will be recruited to participate in focus group sessions in both eastern and western North Dakota.
5. Develop a public-use dashboard highlighting key descriptors and conditions relating to health care delivery and death statistics. The dashboard was created by analysts at the North Dakota Department of Health. The dashboard has additional data and quantitative evaluations examined as part of this effort but not include in this report. NDDoH dashboard is available at <https://www.health.nd.gov/>.

As part of the statewide health needs assessment, Agency MABU conducted focus groups with selected populations to solicit qualitative data on health needs and concerns in the state. Agency MABU also conducted an online survey to gather input on Social Determinants of Health (SDH). Secondary data was evaluated by the Center for Social Research at NDSU to reveal health care disparities and to create health needs profiles for targeted populations identified by the North Dakota Department of Health. Findings from both the qualitative assessment conducted by Agency MABU and the qualitative assessment completed by North Dakota State University are summarized in this document. Additional quantitative data examined but not reported in this document are available on The North Dakota Department of Health's Health Needs Assessment dashboard <https://www.health.nd.gov/>. The dashboard was designed to provide additional quantitative findings not specifically included in this report. Findings from the focus groups, health needs profiles of targeted populations, and dashboard content will be used by the North Dakota Department of Health to guide program development to address health disparities of targeted populations.

Methods

Both quantitative and qualitative data and methods were used and analyzed. Data sources and analysis methods are detail below.

Evaluation of Secondary Data: Data Sources²

The original strategy was to limit the empirical evaluation to death records and hospital inpatient and outpatient data. However, additional secondary data were added to address data limitations of death records and hospital discharge data.

Data Sources

Data sources used in the assessment are described below.

Death Records

Death records contain information on all deaths in North Dakota, and this assessment used records from 2017 through 2020. Locational information includes city and county of residence and city and county of death. Demographic variables include gender, date of birth, date of death, race, ethnicity, educational attainment, pregnancy status, and marital status. Medical descriptors include tobacco use, presence of diabetes, immediate cause of death, and use of the International Statistical Classification of Diseases and Related Health Problems (ICD) codes for the primary cause and contributing causes of death. Other miscellaneous information includes activity at time of death, locational setting upon death, industry and occupation of deceased, disposition of body upon death, medical certification, and status of autopsy.

County of residence and county of death were used to create a rural and urban designation and ICD codes were aggregated into 20 common death categories. Data from the Behavioral Risk Factor Surveillance System (BRFSS) and Social Vulnerability Index (SVI) (discussed below) were used to create various county rankings.

Hospital Inpatient and Outpatient Data

Hospital Inpatient and Outpatient data contain patient-level information on medical care received, admission and discharge diagnosis, length of stay, and cost of treatment at acute care hospitals (Table 1). North Dakota is one of two states that does not mandate hospitals report patient discharge data. However, North Dakota facilities can voluntarily report hospital discharge data to the Minnesota Hospital Association, which gathers data from 16 of North Dakota's 83 hospitals. The Minnesota Hospital Association performs limited data analysis and basic reporting of the data to the NDDoH. Unfortunately, the data provided by the Minnesota Hospital Association was incomplete and did not inform the development of health profiles for targeted populations. Despite those limitations, it was included in key visualizations on the NDDoH dashboard.

² Secondary data sources were evaluated by researchers at the Center for Social Research, North Dakota State University

Table 1. Data Fields Included in the North Dakota Hospital Discharge Data, 2017-2018	
Inpatient	Outpatient
Data Fields Provided	
Year	Year
Quarter (of year)	Quarter (of year)
Facility	Facility
Age Cohorts	Age Cohorts
3M APR DRG	3M EAPG
Inpatient Admissions	Outpatient Visits
Average Length of Stay	
Expected Average Length of Stay	
Length of Stay, Percentage Different from Expected	
Average Cost	Average Cost
Expected Average Cost	Expected Average Cost
Cost, Percentage Different from Expected	Cost, Percentage Different from Expected
Average Charges	Average Charges
Expected Average Charges	Expected Average Charges
Charges, Percentage Different than Expected	Charges, Percentage Different than Expected
Missing Data Fields	
Service Line	
Severity of Illness	
Gender	Gender
Medical/Surgery (flag)	
Admittance Type	
Line of Business	Line of Business
Payer Group	Payer Group
	Emergency Room (flag)
Source: Unpublished Data, North Dakota Department of Health, 2021.	

Social Vulnerability Index

The Social Vulnerability Index (SVI) was created by the Centers for Disease Control and Prevention (CDC) as a tool to help prepare for and respond to hazardous events, like natural disasters or disease outbreaks (Flanagan, et al., 2011). Various social characteristics, such as prevalence of poverty, age, access to personal transportation, living arrangements, and other related measures may impact communities' ability to respond in the event of a disaster. The SVI comprises 15 social factors and groups those 15 factors into 4 related themes for county-level geographies. Themes include socioeconomic status, household composition and disability, minority status and language, and housing type and transportation (Figure 1). SVI findings and metrics are from the CDC 2018 SVI. (Centers for Disease Control and Prevention, 2020).

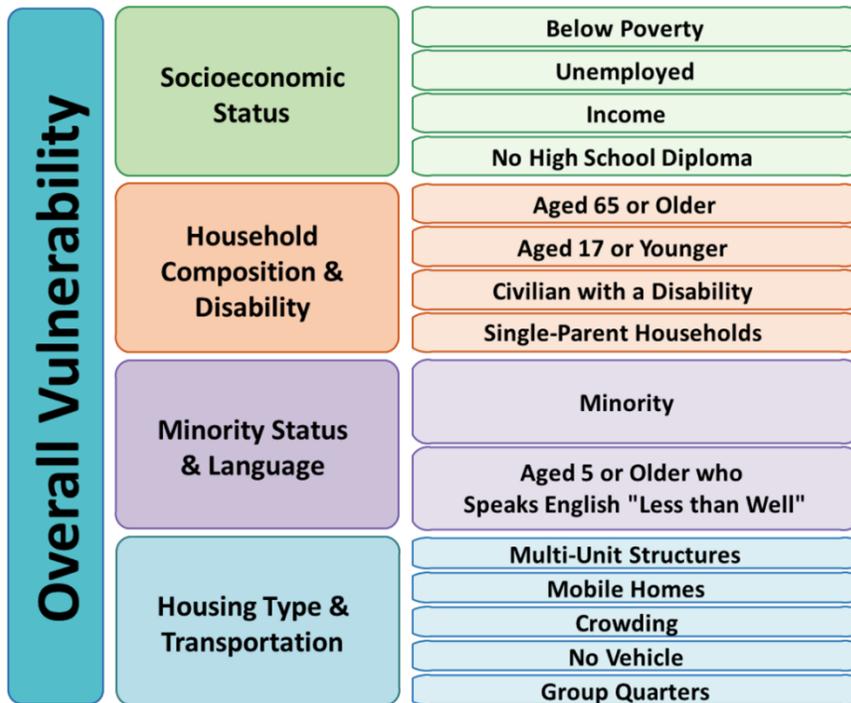


Figure 1. Social Vulnerability Index Framework

Source: Centers for Disease Control and Prevention, 2021 Behavioral Risk Factor Surveillance System (BRFSS)

BRFSS

BRFSS is public health surveillance system administered by the CDC. A survey of a sample of U.S. residents solicits information on health-related risk behaviors, health conditions, and demographic characteristics (Figure 2). Currently, BRFSS represents the most comprehensive health survey system and is weighted by known population distributions (Centers for Disease Control and Prevention, 2021). BRFSS data are available at the county-level. BRFSS data included in this report were obtained from BRFSS Surveys from 2015-2020.

BRFSS Factors	
COPD and related	Cardio Disease
Diabetes	Cancer
Smoker	Mental Health
High Blood Pressure	High Cholesterol
Asthma	Obese

Figure 2. Behavioral Risk Factor Surveillance System Framework

Source: Centers for Disease Control and Prevention, 2021

American Community Survey (ACS)

After the 2000 Census, the long form used in previous decennial censuses became the American Community Survey (ACS). The ACS is an annual nationwide survey conducted by the U.S. Census Bureau that collects information on social, economic, housing, and demographic characteristics. ACS data for geographies with populations of at least 65,000 are available annually, while data for geographies with fewer than 65,000 people are only available every five years. Population data in this assessment are from the 2015-2019 ACS five-year estimates (U.S. Census Bureau, 2021a).

Data Evaluations

The SVI examines social conditions, BRFSS focuses on risk factors and behaviors, and death records provide various descriptive metrics for primary and contributing causes of death. Each of the three datasets was examined and key descriptive statistics from each dataset were reported to the NDDoH as data inputs for an interactive data visualization dashboard <https://app.powerbigov.us/groups/d0896e08-4eda-4ae6-87cb-4ffd63d8fb29/reports/07d17d6d-80a4-4e35-9d51-a88ea79d3eeb/ReportSection57ce5183157fe4aa24f8?bookmarkGuid=Bookmark5c6681c98d90a76793fe> each dataset provided a different perspective into various elements and dimensions of health of North Dakota residents.

Descriptive Statistics

Means and frequencies were computed for select variables in the death, BRFSS, and SVI data for stand-alone descriptors.

Cross-tabulations

Cross tabulations examined relationships that may not be apparent by examining only descriptive statistics. To facilitate a broader portfolio of cross tabulations, several variables were constructed from raw death records (e.g., converting a continuous age variable into discrete cohorts). Cross tabulations of primary causes of death by age, race, residence, gender, marital status, education, tobacco use, and diabetes were analyzed.

Tests of Correlation

Death data were aggregated by county to enable correlation testing with BRFSS and SVI data. Correlation analysis was used to identify potential statistical relationships between behavior and risk factors, social vulnerability, and frequency and occurrence of primary causes of death.

Percentage and Percentile Ranking

Percentage ranking is a statistical procedure that sorts data observations from low/high or high/low based on the relative position of an observation within the distribution of all observations. Percentile ranks show how a particular value compares to other values in a distribution of values, and where along a scale from 1 to 100 that value falls. Both statistical procedures were used to show rankings among the state's 53 counties and distributions among the state's counties based on relative measures.

Per-capita Analysis and Comparative Rankings

Various metrics in the death data were normalized to population to allow for comparison among counties. Individual county's share of deaths in the state were compared to per capita rankings of county population (i.e., total population, selected cohorts) to identify unique differences among counties. The per-capita analyses were performed on the 20 primary causes of death.

Time-series Statistics

Traditional time-series evaluations (e.g., regression) could not be applied since death data only contained four years of records. The BRFSS and SVI data consisted of observations for one year.

Focus Groups and Online Survey

In the spring of 2021, the NDDoH commissioned Agency MABU to conduct qualitative market research assessment for the targeted populations. Efforts included focus groups and the use of an online survey to gather input on Social Determinants of Health (SDH) from North Dakota residents (Figure 3). The topics discussed during each focus group session centered around the following five domains which were identified by the NDDoH:

- Economic stability
- Education
- Health and Healthcare
- Neighborhood and Built Environment
- Social and Community Context

These categories of Social Determinants of Health (SDH) are generally described as “circumstances in which people are born, grow up, live, work, and age, and the systems put into place to deal with illness.” These circumstances have a significant effect on one’s health and wellbeing.

WHAT ARE SOCIAL DETERMINANTS OF HEALTH?

Your health is determined in great part by social factors such as where you were born, as well as where you now live, learn, work, play and worship. These factors are called “social determinants of health.

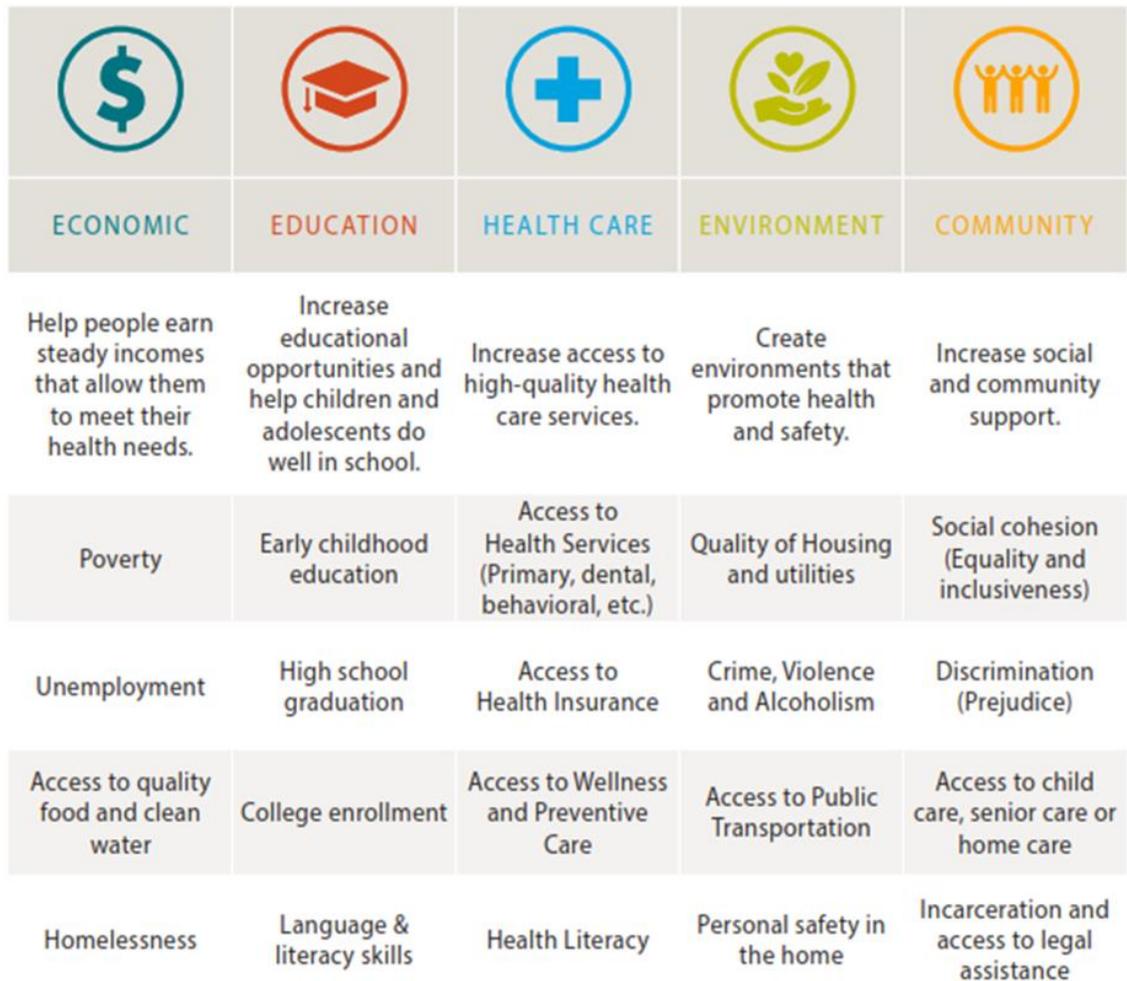


Figure 3. Social Determinants of Health Framework
Source: Centers for Disease Control and Prevention, 2021

The NDDoH produced a first draft of questions to be discussed at the focus group sessions. The questions were then refined as part of the research planning and development process.

An assessment into perceptions of the SDH used qualitative and quantitative approaches. Qualitatively, 10 focus group sessions, held in-person and virtually through video conferencing, were conducted by Agency

MABU. Quantitatively, an online survey of North Dakota residents was conducted using panel sampling and convenience sampling.

Non-randomized and small sample sizes associated with the focus groups and online survey suggest findings are unlikely to be representative of the state's general population. Therefore, the findings should not be used to predict the likelihood that all the responses will match those of the overall population. Instead, the findings simply provide general themes and thoughts relating to common problems and potential actions to address the various SDH.



Figure 4. Opportunities for Improvement in Public Health of North Dakota Residents
Source: Centers for Disease Control and Prevention, 2021

The five domains of the social determinants of health were useful in identifying subject matter and opportunities for potential improvement in the well-being of North Dakota residents (Figure 3).

Focus Group Implementation

Agency MABU worked in collaboration with the NDDoH to develop and deploy a detailed plan of action that included (1) planning and logistics, (2) facilitation and documentation, and (3) analysis and reporting.

1. Planning and Logistics
 - a. The team developed a research plan including action steps, timelines, and assigned responsibilities.
 - b. The team developed a discussion guide and online survey to gather input from the panel and other respondents.
 - c. The team developed a demographic profile of each target population.
 - d. The team determined the time/date/location/method for each focus group session.
 - e. The team arranged for sites where facilitators conducted the “in person” focus group sessions.
 - f. The team arranged for the teleconferencing systems for conducting “virtual focus group sessions.

2. Facilitation and Documentation:
 - a. The team developed and implemented a staffing plan for conducting the focus group sessions.
 - b. The team coordinated meeting room arrangements, including refreshments and audiovisual needs.
 - c. The team planned and coordinated the recruitment of focus group participants.
 - d. The team prepared copies of the discussion guide, questionnaires, and handouts.
 - e. The team gathered collateral materials to be shared and/or discussed at each session.
 - f. The team identified team roles, tested equipment, and conducted two (2) practice sessions.
 - g. The team prepared for and facilitated the discussions at each focus group session.
 - h. The team documented each focus group session in writing and/or audio recordings.
 - i. The team issued incentives to participants following completion of post-meeting surveys.

3. Analysis and Reporting:
 - a. The team transcribed the meeting notes and/or recordings from each session.
 - b. The team documented a comprehensive record of each session including staff, location, time, participants, etc.
 - c. The team reviewed the feedback from participants and organized the findings into key topics and relevant responses from each session.
 - d. The team reviewed and combined the findings from each session and identified common themes.
 - e. The team compiled a written report, which included an executive summary, along with a narrative description of the key findings from each target population.

Focus Group Participant Recruitment

Multiple methods and means were deployed to recruit participants for each focus group session. Recruitment efforts were customized to each community and/or target population. The efforts involved a combination of outreach efforts including flyers being sent to community organizations (e.g., chambers, schools, churches, hospitals, non-profit associations, and human service center), social media posts, paid advertising on Facebook,

and direct e-mails and phone calls. Additionally, the NDDoH distributed flyers to their public health partners across the state.

The following methods highlight recruitment approaches:

- Facebook: The research team used Agency MABU's Facebook account to post social media messages informing people about the sessions. The NDDoH assisted in creating messages and supporting graphics to promote the research project and encourage interested individuals to pre-register. Agency MABU also conducted a paid campaign by boosting the posts using Facebook's plethora of fine-tuned targeting options to expand the reach of the messaging beyond Agency MABU's organic Facebook following.
- Community Involvement: Agency MABU researched the target populations and communities and made direct contact with multiple organizations to recruit participants. Organizations that were contacted included schools, hospitals, health and human service centers, local chambers of commerce, tribal colleges, and other large employers in the various communities where the focus group sessions were held. The research team worked with these community organizations to build awareness of the sessions and extend invitations to participate.
- E-mail marketing: Agency MABU used e-mail marketing to distribute e-mail messages and flyers based on geographic and demographic characteristics for the target populations. Examples of the various recruitment materials are included in Appendix E titled "Participant Recruitment Materials."

Qualitative Assessment: Focus Groups

From mid-July to mid-August 2021, Agency MABU coordinated and conducted 10 focus group sessions. Three sessions were conducted virtually. The other seven focus group sessions were conducted with the target populations (e.g., American Indian, rural, and urban residents). One session for each target population was conducted with representatives from the western part of the state and one session for each target population was conducted with representatives from the eastern part of the state.

Each focus group session had 6-12 participants. Filling the various sessions with an adequate number of participants proved to be challenging due to the unpredictable and ongoing nature of the COVID-19 pandemic. In addition to COVID-19-related sensitivities, attracting focus group participants also dealt with individuals expressing concerns over discussing sensitive topics, general distrust of the government, and questioning the use of the information.

Two in-person sessions were rescheduled as virtual sessions due to a low turnout of participants. One session was repeated a second time due to a low initial turnout. In this particular case, 12 RSVP's were received, however, only three individuals showed up for the session. The rescheduled session had eight RSVP's but only four attendees.

Of the seven target population sessions conducted, five were held in-person, and two were held virtually. Each meeting had a lead facilitator and a recorder taking notes and operating an audio recording. A sign-in sheet was used to document the participants. Additionally, a post-meeting survey was completed by each participant. An hour and a half (1.5 hours) was set aside for each focus group session.

Qualitative Assessment: Online Survey

In addition to conducting the series of focus group sessions, an online questionnaire was developed and implemented in the fall of 2021. The survey was designed to secure additional feedback from a broader sample of North Dakota residents relative to social determinants of health. The survey instrument included similar questions to those addressed as part of the focus group study. The results of the online survey therefore can be contrasted and compared to the focus group findings.

Quantitative Assessment: Target Population Profiles³

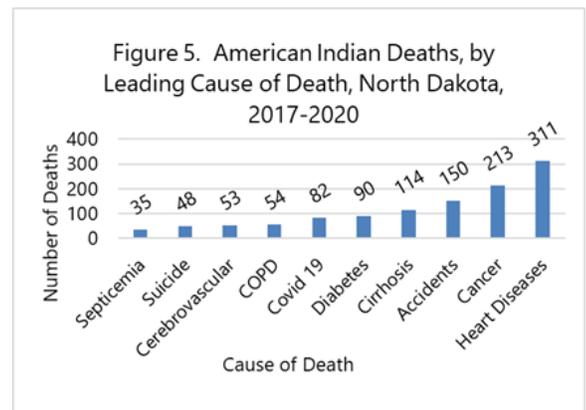
Key findings were reported for each of the target populations: American Indian, rural/urban, premature deaths, infants, youth, age 65 and over, COVID-19, and LGBTQ2S+. Profiles for LGBTQ2S+ and New Americans were limited to themes identified in the focus groups. The quantitative datasets used for this assessment lacked metrics to identify LGBTQ2S+ and New Americans. Therefore, the profiles for LGBTQ2S+ and new immigrants are limited to findings from the qualitative assessment only. The quantitative assessment of target populations was completed by researchers at North Dakota State University.

American Indians

American Indians are the largest minority in North Dakota and represent 5.3 percent of the state's population. The majority of the state's American Indians live on five reservations the Standing Rock Reservation in Sioux County; the Spirit Lake Reservation in Benson and Ramsey counties; the Turtle Mountain Reservation in Rolette County; the Fort Berthold Reservation in parts of Dunn, McLean, Mercer, McKenzie, Mountrail, and Ward counties; and the Lake Traverse Reservation in Sargent and Richland counties.

Primary Causes of Death

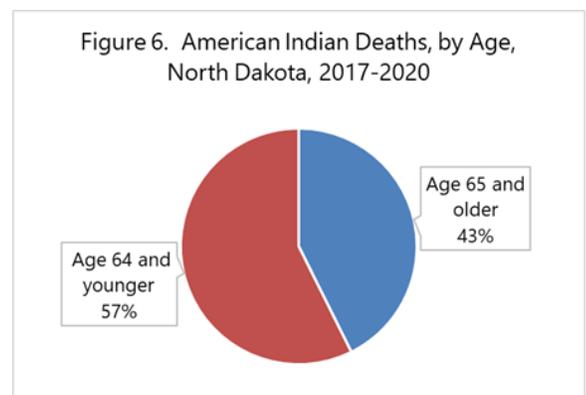
The five leading causes of death for American Indians from 2017 through 2020 were heart diseases, cancer, accidents, cirrhosis, and diabetes. COVID-19 deaths were the sixth highest cause of death, which is substantial considering those deaths are only present in 2020. Other leading causes of death include cerebrovascular, suicide, and septicemia.



Premature Deaths

Premature deaths from 2017-2020 (i.e., deaths prior to the age of 65) accounted for 57 percent of American Indian deaths in North Dakota. The prevalence of premature deaths among American Indians is in stark contrast with premature deaths in all other races in the state. Premature deaths in all other races were 21 percent.

The average age of death for American Indians in North Dakota, from 2017-2020, was 57.2 years. Reflective of the large number of deaths occurring prematurely among American Indians, the average age of death for American Indians in North Dakota is 57.2 years. This is in stark contrast to the average age of death for all other races combined (76.3 years (Table 2)).



³ Quantitative assessments were done by researchers from the Center for Social Research, North Dakota State University

All deaths were evaluated by 10-year age cohorts for American Indian and all other races, and the percentage of deaths for each racial group was estimated for each cohort.

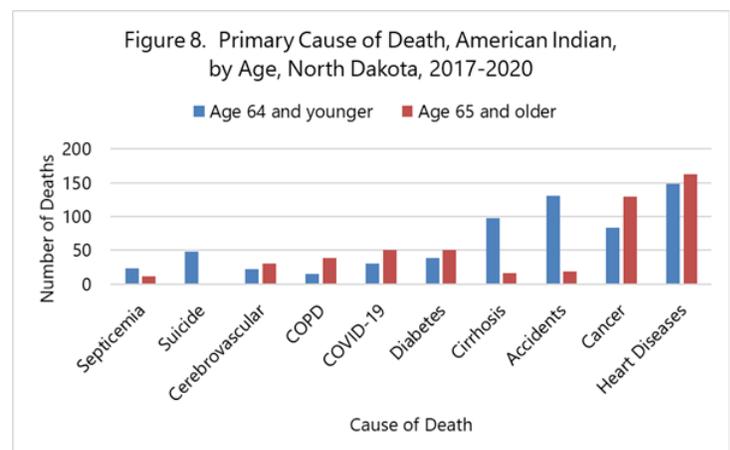
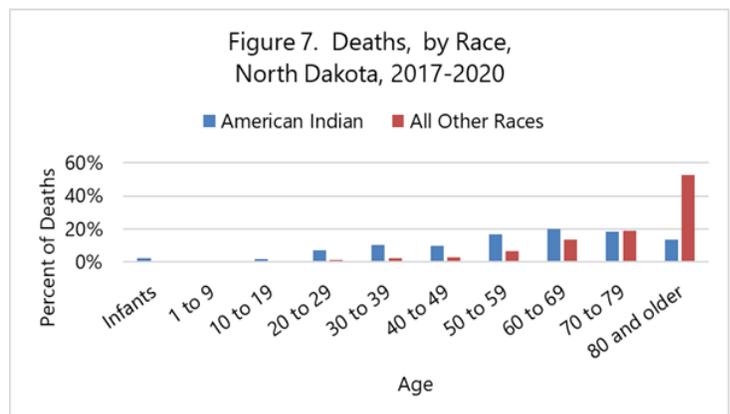
Deaths for all other races ages 80 and older represented 53 percent of all deaths. By contrast, American Indian deaths in the same age group represented only 14 percent of all American Indian deaths. Examining the death data for age cohorts 20-29, 30-39, 40-49, and 50-59 revealed striking differences in the rate of deaths among the two racial groups. Across those age cohorts, American Indian deaths, as a percentage of their total deaths, were nearly five times higher than rates found in all other races.

Heart disease, accidents, and cirrhosis were the leading causes of premature deaths among American Indians while cancer and heart disease deaths were the leading causes of death for American Indians ages 65 and older.

Table 2. Average Age at Death, American Indian and All Other Races, North Dakota, 2017 through 2020

Age Statistics for Deaths (Years)	American Indian	All Other Races
Mean	57.2	76.3
Standard Deviation	21.1	17.9
Minimum*	0.0027	0.0
Maximum	108	110
Median	60	81
Mode	66	90
Observations (N)	1,504	25,647

*Deaths for ages less than 1 year were expressed in months, days, or hours in the death records. All deaths less than 24 hours of age were treated as 1 day of age.



Rural and Urban

While 71 percent of American Indians live in rural counties, 77 percent of American Indian deaths were those that lived in rural counties from 2017-2020.

COVID-19

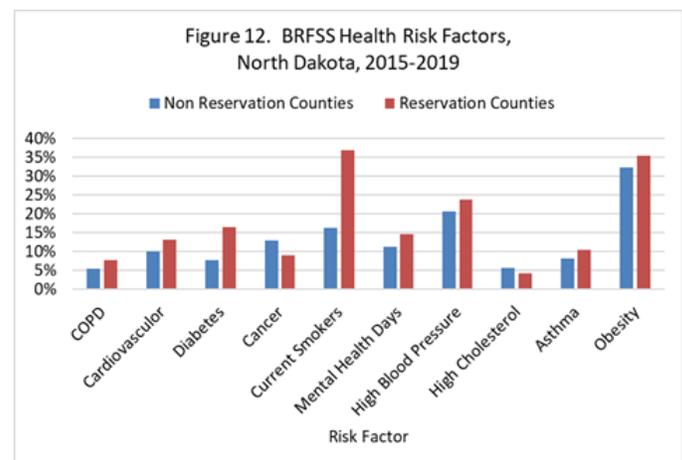
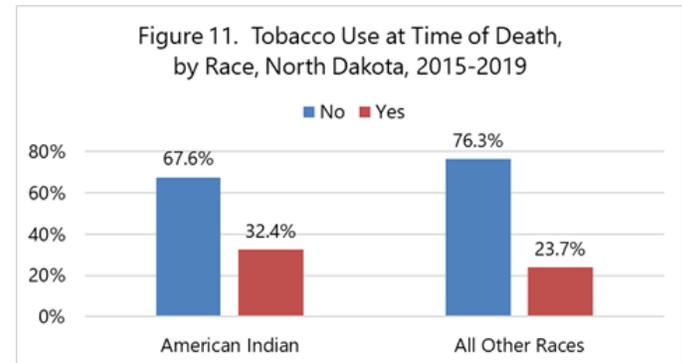
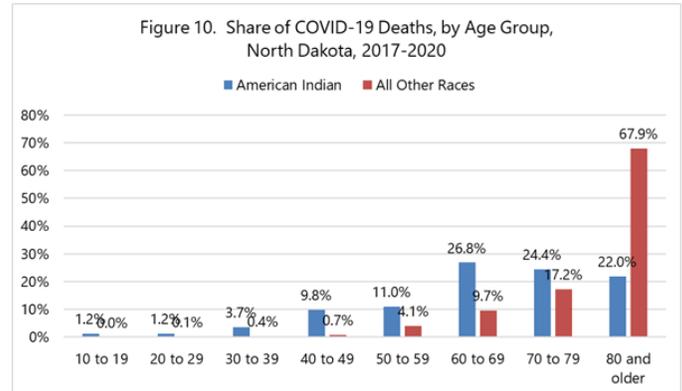
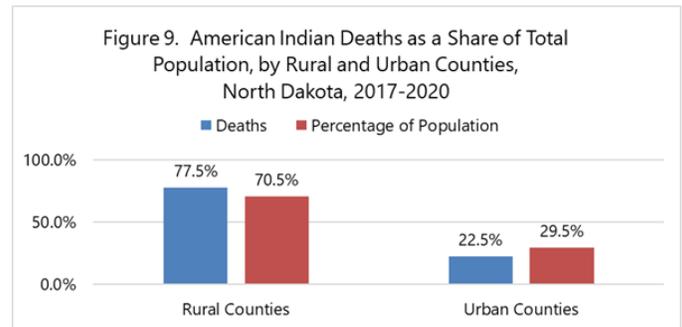
American Indians experienced deaths from COVID-19 at higher rates than non-American Indians in 2020. COVID-19 as primary cause of death represented 15.6 percent of all deaths for American Indians compared to 14.5 percent for all other races. COVID-19 represented a larger share of deaths for younger age cohorts for American Indians than in all other races. Fifty-four percent of all COVID-19 deaths for American Indians were age 69 or younger compared to only 15 percent for all other races. For all other races, 68 percent of all COVID-19 deaths were aged 80 and older, compared to 22 percent for American Indian.

Other Concerns

Tobacco use is more prevalent among American Indians, 32 percent compared to 24 percent for all other races.

The rate of diabetes among American Indians is four times higher than the rate of diabetes for all other races in North Dakota. Prevalence of diabetes in American Indians averaged 8.1 percent from 2017 through 2020 compared to 1.9 percent for all other races (data not shown).

The prevalence for nearly every BRFSS risk factor was higher in American Indian reservation counties than for non-reservation counties. The exceptions were cancer and cholesterol, for which non-reservation counties had a higher risk.



For More Information

Additional quantitative data, analysis and other health related metrics for American Indian in North Dakota can be found at <https://www.health.nd.gov/>.

Focus Group Themes: American Indians⁴

Agency MABU identified the following themes related to American Indian health needs from focus groups conducted with American Indian participants and stakeholders.

Greatest Threats to Optimal Health:

- Affordable access to healthcare
- High cost of health insurance
- Lack of knowledge on what to eat or where to find quality, healthy foods
- Lack of access to dental care
- Lack of access to long-term preventative health services
- Cyclical nature of criminal justice system
- Homelessness
- Lack of teaching real world experience in schools
- Unemployment/lack of job training
- Lack of access to affordable childcare
- Increased drug use and crime, especially on reservations
- Lack of access to mental health services
- Lack of behavioral health providers on the reservation – including licensed addiction counselors, trauma informed care and adolescent psychiatry
- Users experience discrimination when they try to access services like Medicaid and SNAP
- Hard to acclimate from living on the reservation to off

What North Dakota Does Well:

- The Governor and First Lady and their commitment to ending the stigma around addiction
- Human service zones are streamlining processes for people
- Good people who truly want to help
- Strong economic health of state
- Available jobs and low unemployment rate

North Dakota's Greatest Weaknesses:

- Indian Health Service is not accessible to those living outside of the reservation
- Barriers and discrimination in applying for social services at human service centers
- Negative misconceptions and assumptions about American Indians
- Lack of understanding about the problems faced for those living on reservations
- Lack of accurate/complete history about American Indians being taught in schools
- Poverty and food insecurity

Changes for the Biggest Impact:

- More prevention activities (e.g., drugs, alcohol, physical health, mental health, etc.)
- Improve access to doctors, dentists, and mental health professionals
- Teaching youth about importance of diet and exercise
- Long term addiction prevention and treatment services
- More behavioral health providers available on the reservations

⁴ Focus group themes were developed by Agency MABU.

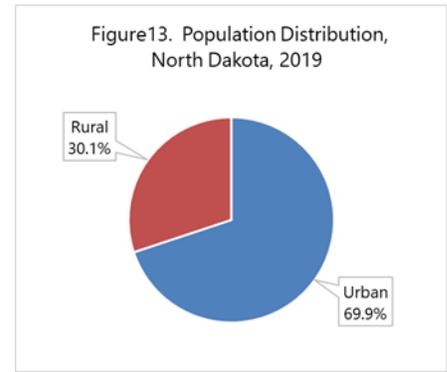
- Teach kids life skills in school and college (e.g., how to budget, balance a checkbook, financial management, planning for retirement, how to apply for a job, etc.)
- Increase access to more low-income housing
- Increase public transportation from reservations into urban communities.

Rural versus Urban

Urban counties were Burleigh, Cass, Grand Forks, Ward, Morton, Stark Stutsman, and Williams. All other counties were defined as rural counties.

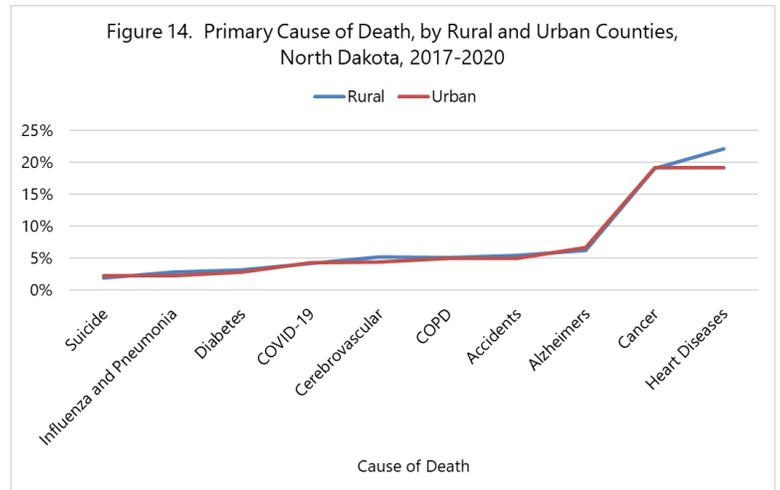
Population

While 85 percent of North Dakota’s 53 counties are rural, they are home only 30 percent of the state’s population. Seventy percent of the state’s population lives in the state’s eight urban counties.



Cause of Death

The top ten primary causes of death were the same for rural and urban counties in North Dakota from 2017 through 2020. The percentage of deaths by primary cause were also nearly identical between rural and urban counties with the exception of deaths from heart disease which was more prevalent in rural counties.

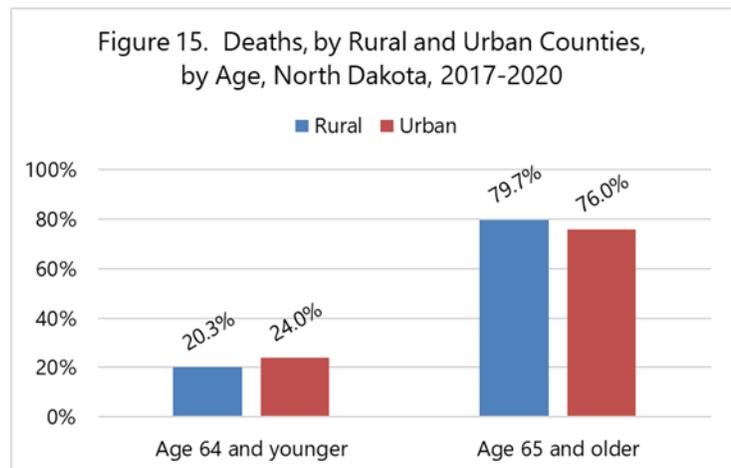


Premature Deaths

Premature deaths (i.e., deaths prior to reaching age 65) are slightly more prevalent in urban counties than in rural counties. In rural counties, premature deaths represented 20 percent of all deaths from 2017 to 2020, compared to 24 percent of all deaths in urban counties.

Average age at death was nearly identical between rural and urban counties, 75.4 years in rural counties and 75.0 years in urban counties (data not shown).

Premature deaths as a share of all deaths were 10 percent or higher for septicemia, cirrhosis, influenza, pneumonia, and cerebrovascular in urban counties. Deaths due to accidents were 10 percent higher in rural counties (data not shown).



Contributing Causes of Death

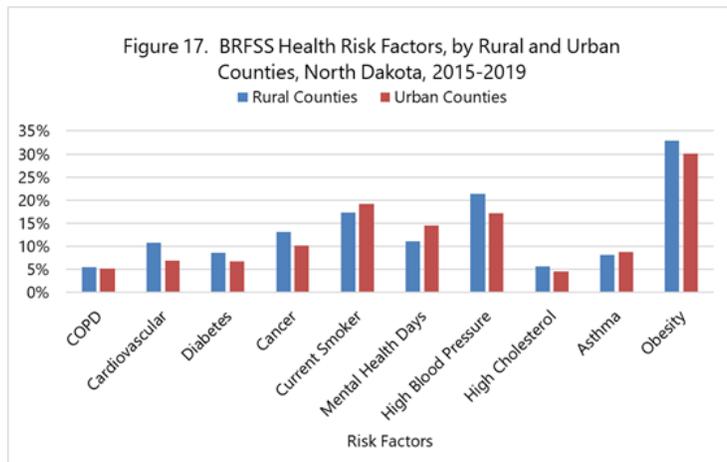
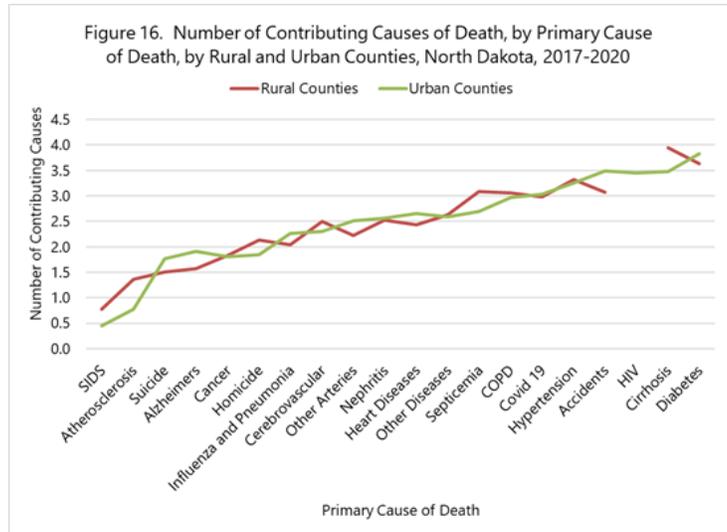
The average number of contributing causes of death for each primary cause of death was similar between rural and urban counties. Diabetes was the primary cause of death that had the highest number of contributing causes in both rural and urban counties.

Tobacco and Diabetes

Tobacco use was similar in rural and urban counties, 23.4 percent in rural counties and 24.6 percent in urban counties. The prevalence of diabetes as a contributing cause of death also was similar, 28.2 percent in rural counties and 26.8 percent in urban counties.

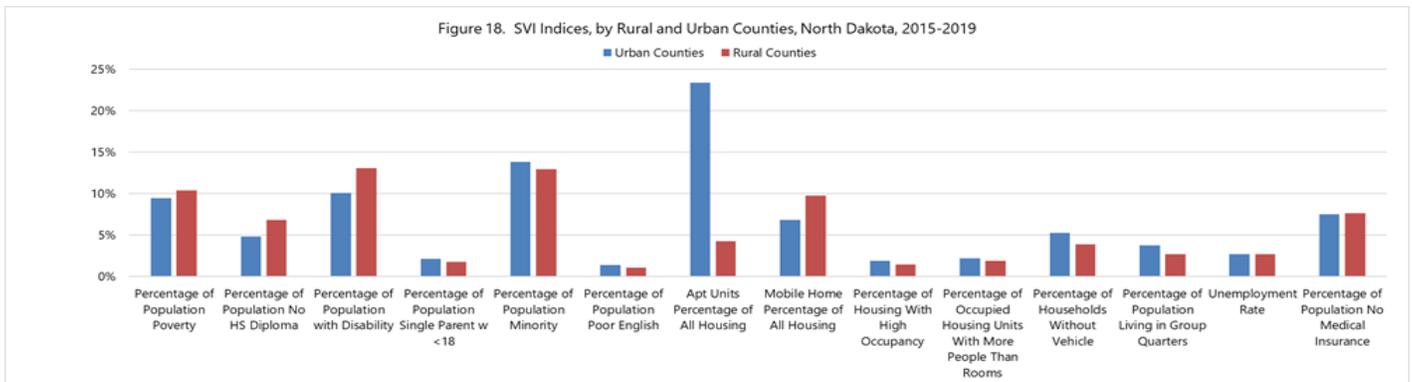
BRFSS

The prevalence for 7 of the 10 BRFSS health risk factors was slightly higher in rural counties than for urban counties. The exceptions were smoking, mental health, and asthma, for which urban counties had a slightly higher risk. Even so, differences in prevalence between rural and urban counties were relatively small.



Social Vulnerability

Rural and urban counties were similar in their average scores for social vulnerability measures. The only metric with a notable difference was the prevalence of apartment units. Apartment units as a percentage of all housing were substantially higher in urban counties.



For More Information

Additional quantitative data, analysis and other health related metrics related to rural communities can be found at <https://www.health.nd.gov/>.

Focus Group Themes: Rural Residents⁵

Agency MABU identified the following themes related to health needs from focus groups conducted with rural residents and stakeholders.

Greatest Threats to Optimal Health:

- Lack of access to healthcare services ranging from primary to specialty to wellness care
- High cost of health care and insurance
- Homelessness
- Limited access to mental health services and/or behavioral health counseling
- Increasing suicide rates among people of all ages
- Long distances to travel to receive care

What North Dakota Does Well:

- Medicaid expansion program
- Supportive neighbors and communities
- North Dakota has a strong veteran's service network
- Community churches play a large role in supporting the social, environmental, health, and wellness needs of North Dakota citizens

North Dakota's Greatest Weaknesses:

- Access to early childhood education

⁵ Focus group themes were developed by Agency MABU.

- Drugs and alcohol addiction
- Lack of first responders and emergency services professionals (e.g., ambulance services, hospital staffing, law enforcement, etc.)
- Retention and recruitment of rural healthcare providers, especially for hospitals and clinics

Changes for the Biggest Impact:

- Public transportation/medical transportation to larger cities
- Community health and wellness centers
- Behavioral health and suicide prevention information and services
- Increase provision and utilization of telemedicine
- Creative partnerships and solutions to bring greater access to health services in rural areas
- Find innovative ways to deliver care where people reside, especially mental health and women's and children's services
- Create a state-sponsored, low cost, program for providing mental health screenings

Focus Group Themes-Urban Residents

Greatest Threats to Optimal Health:

- Health insurance is not easily available
- Limited insurance providers in the state
- Homelessness
- Access to quality and affordable housing
- Lack of addiction services and mental health resources

What North Dakota Does Well:

- Having these conversations, being proactive, asking questions on how to make things better
- Supportive Governor and Department of Health and Human Services
- Open communication
- Transparent state government
- North Dakotans are innovative – high number of entrepreneurs in the state

North Dakota's Greatest Weaknesses:

- High cost of living, especially in western North Dakota and urban areas
- Affordability and access to childcare
- Lack of behavioral health care and mental health resources in our school systems

Changes for the Biggest Impact:

- More diversity in all areas, including education
- Ombudsman – through the state for Medicare, Medicaid, or state agencies
- Better use of technology in creating efficiencies
- Affordable, quality childcare
- Social emotional learning woven into early childhood learning
- Affordability of health insurance – subsidies from the state
- Create more education and awareness of available services from the state and its partners

Premature Deaths

Deaths of individuals 64 or younger are defined as premature deaths and represented 23 percent of all deaths in North Dakota from 2017 through 2020. Population ages 64 and younger represents 85 percent of the state’s population.

Of the 6,206 premature deaths from 2017 through 2020, nearly 50 percent were to individuals ages 55 through 64. Infant deaths (i.e., ages less than one year) exceeded the number of premature deaths for any individual age up to age 55. Only at age 55 are the number of deaths greater than the total number of infant deaths.

For deaths among those ages 50 through 64, cancer (33%), heart disease (23%), and accidents (8%) were the most frequent primary causes of death (data not shown).

For deaths among those ages 40 through 49, cancer and heart disease combined for 38 percent of all deaths; 29 percent were due to accidents and suicide. (data not shown).

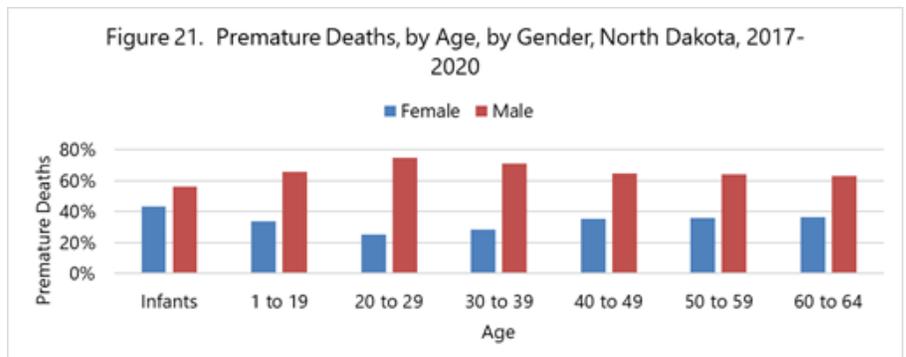
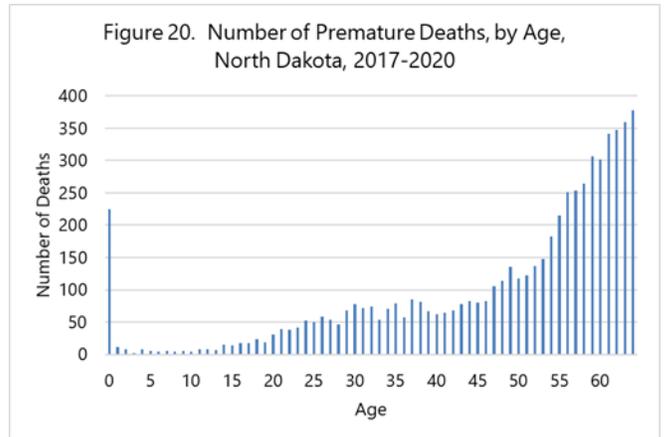
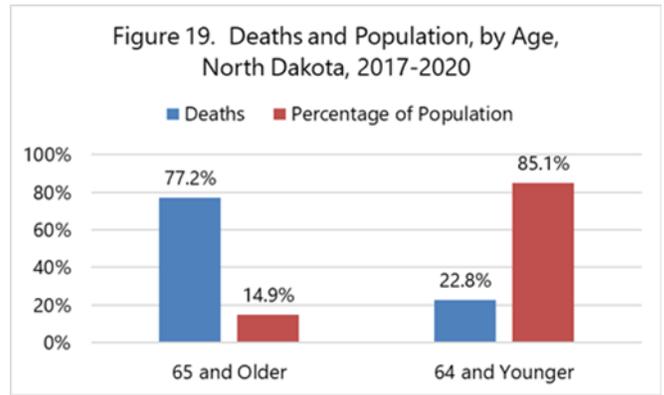
For deaths among those ages 20 through 39, 64 percent of deaths were due to accidents and suicide (data not shown).

For deaths among those ages 1 through 19, accidents accounted for 46 percent of deaths and suicide accounted for 30 percent of deaths. Combined, accidents and suicide accounted for three-fourths of all deaths to children and teenagers from 2017 through 2020.

SIDS was the most prevalent primary cause of infant death, excluding ‘other diseases.’ Diseases not specifically classified in the dataset accounted for 76 percent of all infant deaths (data not shown).

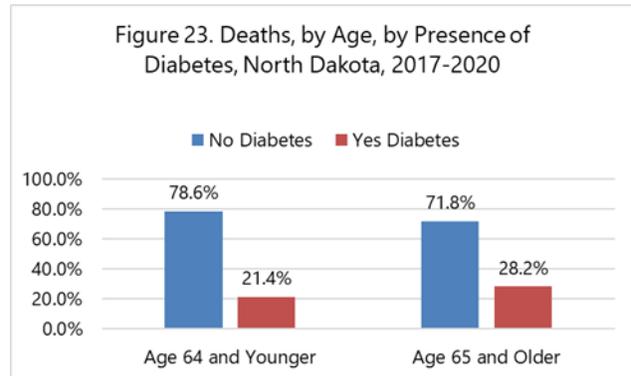
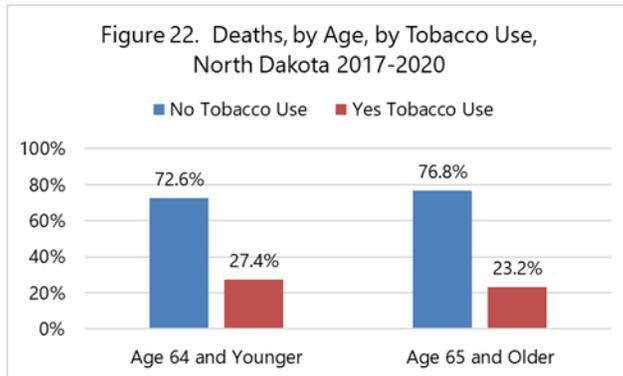
Gender

From 2017 through 2020, males comprised the majority of premature deaths in North Dakota. The gender difference was most apparent among young adults. Males comprised nearly three-fourths of deaths among those ages 20 through 39.



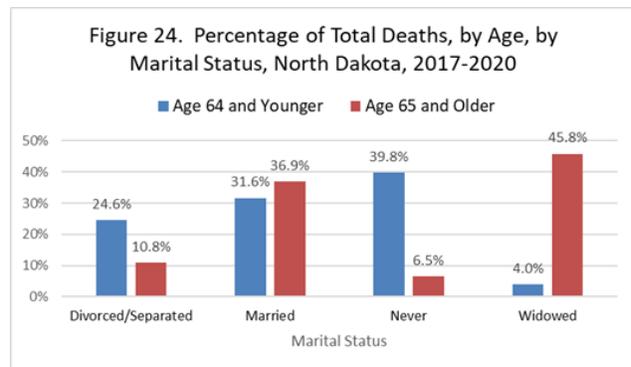
Tobacco and Diabetes

Tobacco use was slightly higher among premature deaths than non-premature deaths from 2017 through 2020. In contrast, the rate of diabetes was lower in premature deaths than in non-premature deaths.



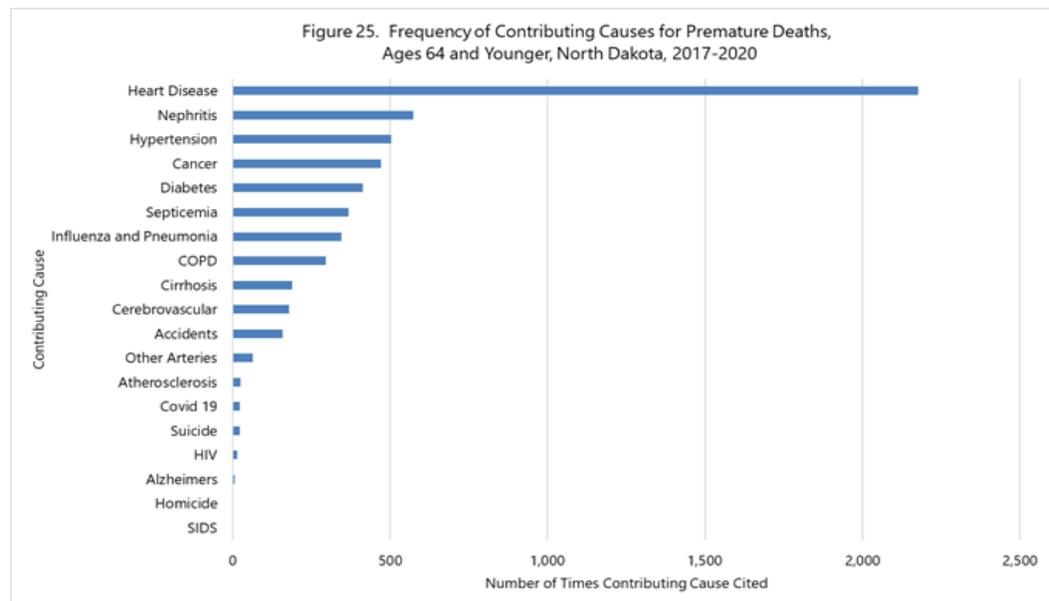
Marriage Status

Premature deaths varied based on marriage status when compared to non-premature deaths. Premature deaths for those never married include deaths of infants and children which would explain the difference in premature death by those age 64 and younger.



Contributing Causes

Heart disease was the predominant contributing cause of death for premature deaths in North Dakota from 2017 through 2020.



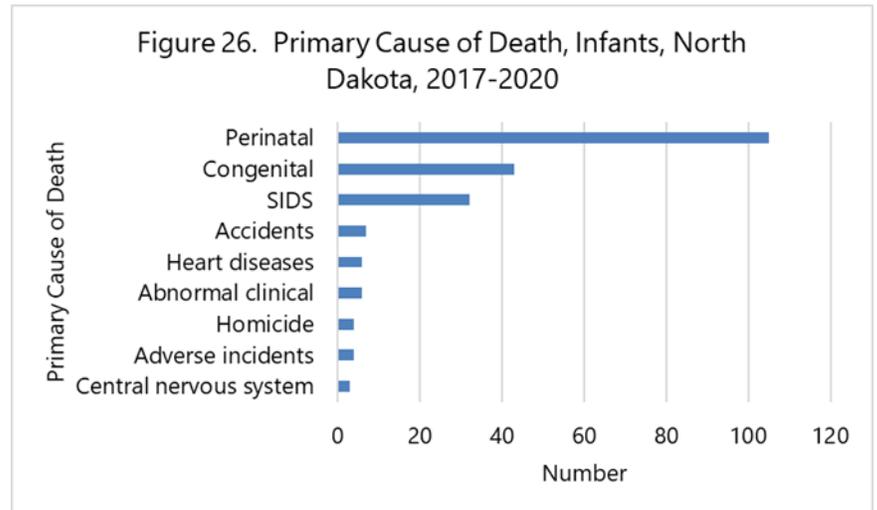
For More Information

Additional quantitative data, analysis and other health related metrics related to Premature Deaths can be found at <https://www.health.nd.gov/>.

Infant Deaths

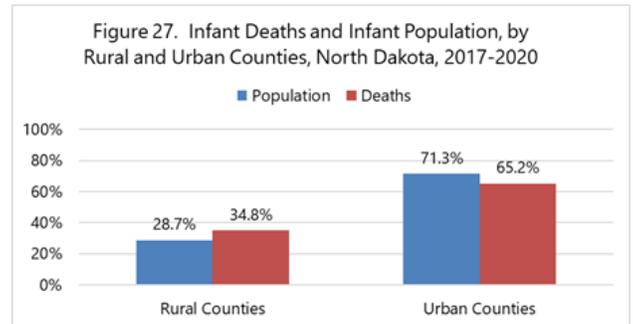
Primary Causes of Death

The top three primary causes of death for infants from 2017 through 2020 were perinatal, congenital, and SIDS, collectively representing 80 percent of all causes of death among infants.



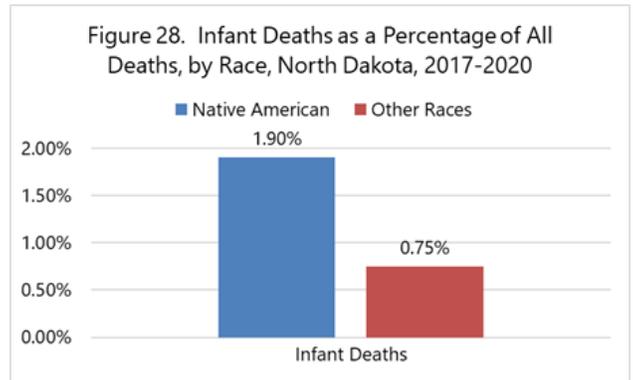
Rural versus Urban

From 2017 through 2019, 29 percent of North Dakota infants lived in rural counties. A slightly higher percentage of infant deaths occurred in rural counties (35 percent).



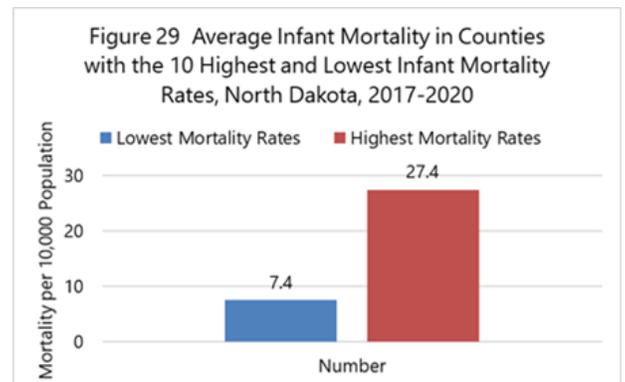
American Indians

Infant deaths accounted for 1.9 percent of all American Indian deaths in North Dakota from 2017 through 2020. For all other races in North Dakota, infants comprised 0.75 percent of all deaths.



County Rankings

From 2017 through 2020, 32 out of North Dakota's 53 counties had an infant death. When the 10 counties with the highest infant mortality rates were combined, the average rate was nearly four times higher than the average for the 10 counties with the lowest infant mortality rates.



For More Information:

Additional quantitative data, analysis and other health related metrics related to Infant Deaths can be found at <https://www.health.nd.gov/>.

Youth

In the following section, youth are defined as persons age 1 through 19.

Primary Causes of Death

When excluding 'Other Causes', accidents and suicide accounted for 71 and 48 percent, respectively of all youth deaths from 2017 through 2020. The prevalence of youth deaths caused by disease were much lower than accidents and suicide.

Accidental Deaths

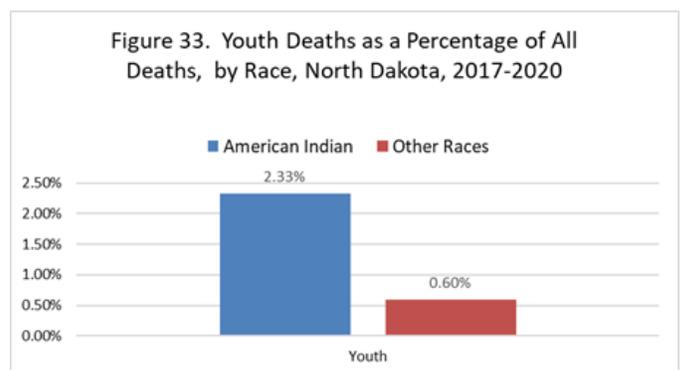
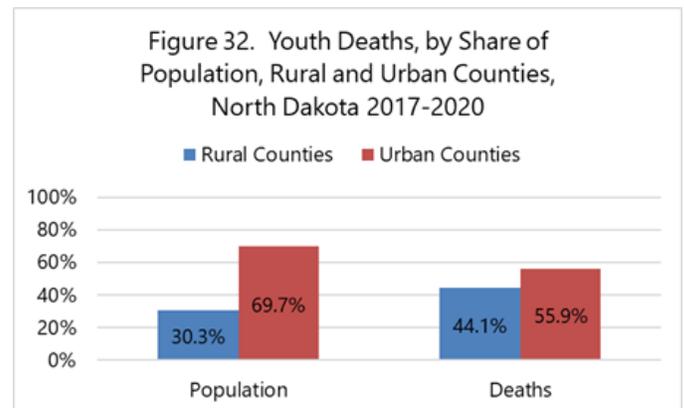
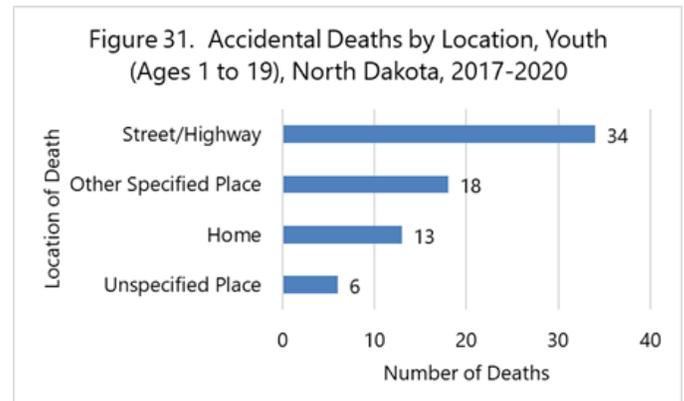
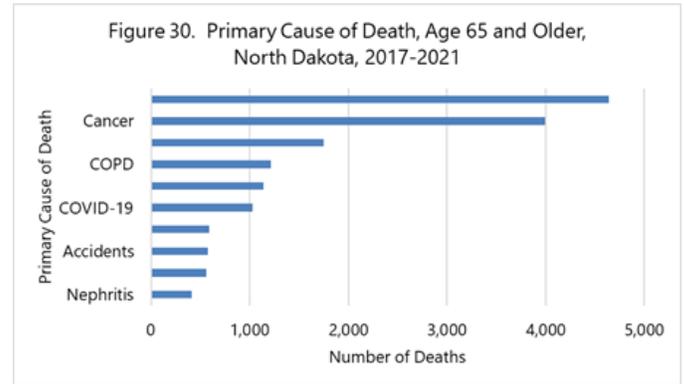
Nearly 50 percent of accidental deaths among North Dakota youth were traffic related from 2017 through 2020.

Rural versus Urban

Rural counties accounted for 30 percent of the state's youth population but had 44 percent of youth deaths in the state.

American Indian

Youth deaths accounted for 2.3 percent of all American Indian deaths from 2017 to 2020. By contrast, youth deaths for all other races in North Dakota comprised 0.6 percent of all deaths.



For More Information:

Additional quantitative data, analysis and other health related metrics related to Youth can be found at

<https://www.health.nd.gov/>.

Focus Group Themes: Youth⁶

Agency MABU identified the following themes related to youth health needs from focus groups conducted with rural residents and stakeholders.

Greatest Threats to Optimal Health:

- Lack of money
- Alcohol and drug use
- Unemployment and poverty
- Cost of health insurance and health care
- Access to mental health care
- Not enough time spent on wellness and preventive care

What North Dakota Does Well:

- Scholarships for high school seniors, encouraging higher education

North Dakota's Greatest Weaknesses:

- Discrimination, lack of diversity
- Improvements needed to mental health services and addiction treatment
- Better access to quality and healthy food
- High cost of higher education

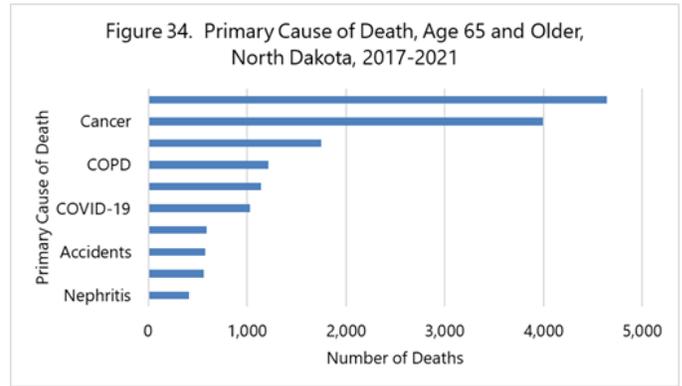
Changes for the Biggest Impact:

- Focus on improving mental health, such as addressing social/emotional needs in schools
- Wellness screenings
- Basic life skills for K-12 students (e.g., when to book appointments, how to buy healthy groceries, how to apply for jobs, pay bills etc.)

⁶ Focus group themes were developed by Agency MABU.

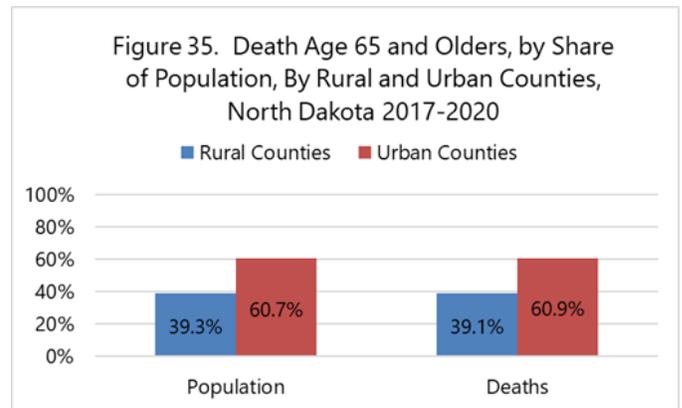
Age 65 and Older

Excluding 'other diseases' for ages 65 and older, the predominate primary causes of death are heart diseases (27 percent), cancer (24 percent), Alzheimer's (10 percent), and COPD (7 percent).



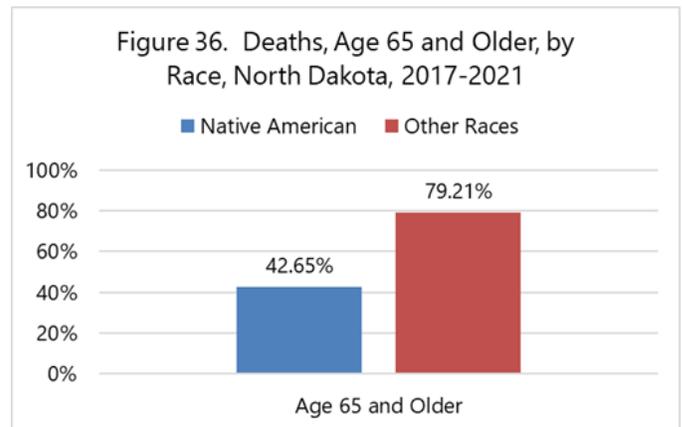
Rural versus Urban

The share of deaths between rural counties and urban counties was nearly identical to the share of population between the two geographies.



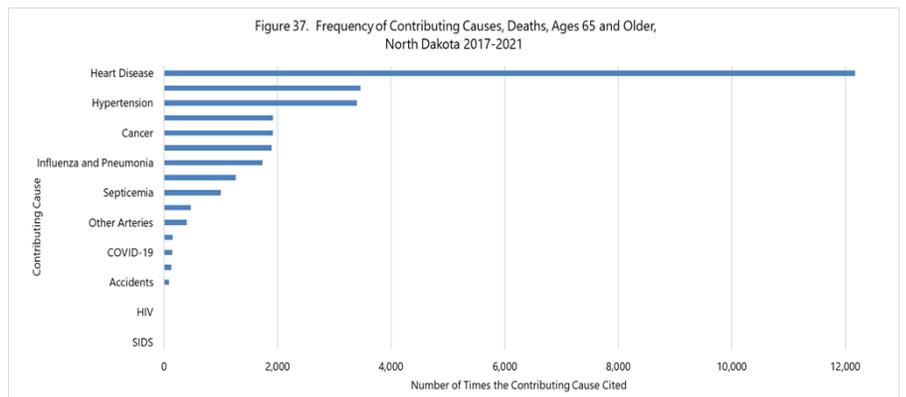
American Indians

Due to the high proportion of premature deaths among American Indians, the percentage of deaths for American Indians aged 65 and older is much lower than the percentage of deaths aged 65 and older for all other races.



Contributing Causes of Death

Heart disease was the main contributing cause of death for people ages 65 and older, representing 40 percent of all contributing causes (data not shown). Following heart disease, nephritis and hypertension were the next two most frequently listed contributing causes of death for people ages 65 and older at 11 percent each. Diabetes, cancer, and COPD were ranked as the 4th, 5th, and 6th most frequently listed contributing causes of death.

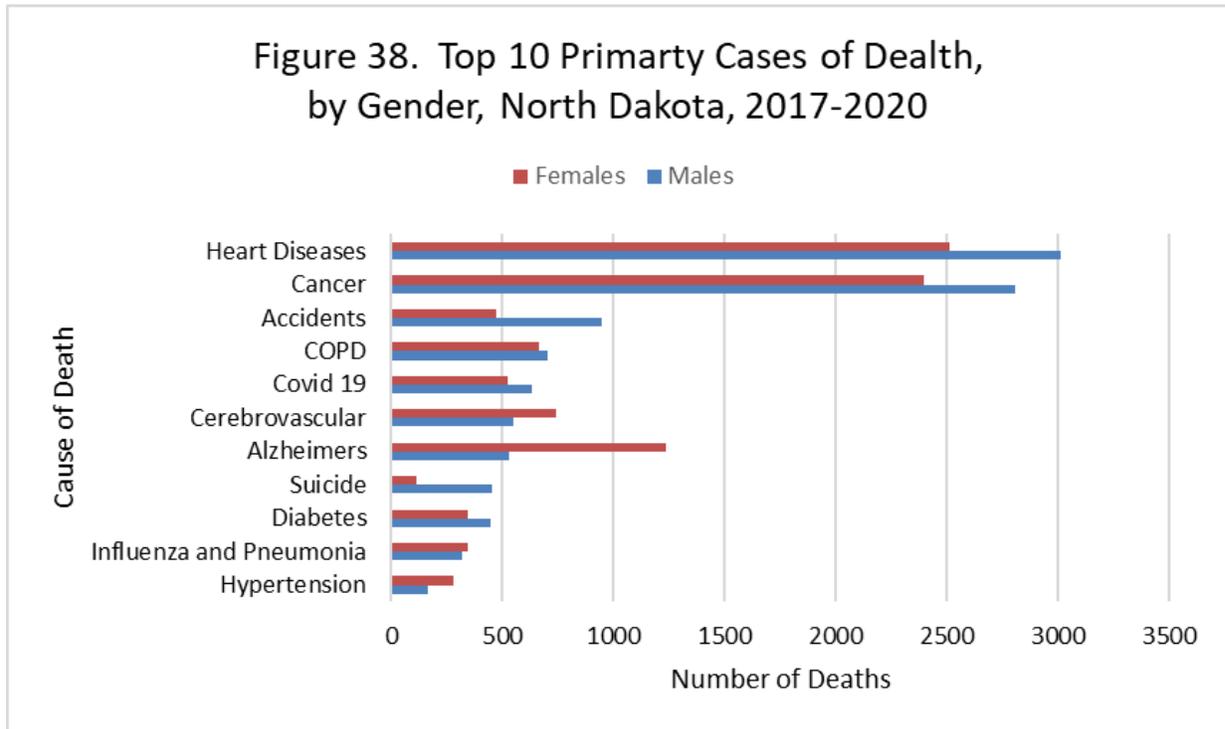


For More Information:

Additional quantitative data, analysis and other health related metrics related to Age 65 and Older can be found at <https://www.health.nd.gov/>.

Gender

The two most frequently listed primary causes of death in North Dakota, heart disease and cancer, were nearly identical for males and females. Alzheimer's was the third most frequently listed primary cause of death for females, while accidents were the third most frequently listed primary cause for males. Suicide was a top ten primary cause of death among males, but not a top ten cause of death for females.



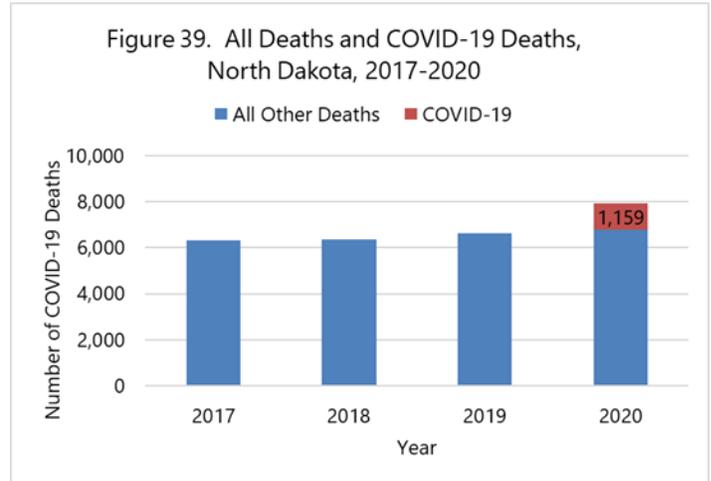
For More Information

Additional quantitative data, analysis and other health related metrics related to Gender can be found at <https://www.health.nd.gov/>.

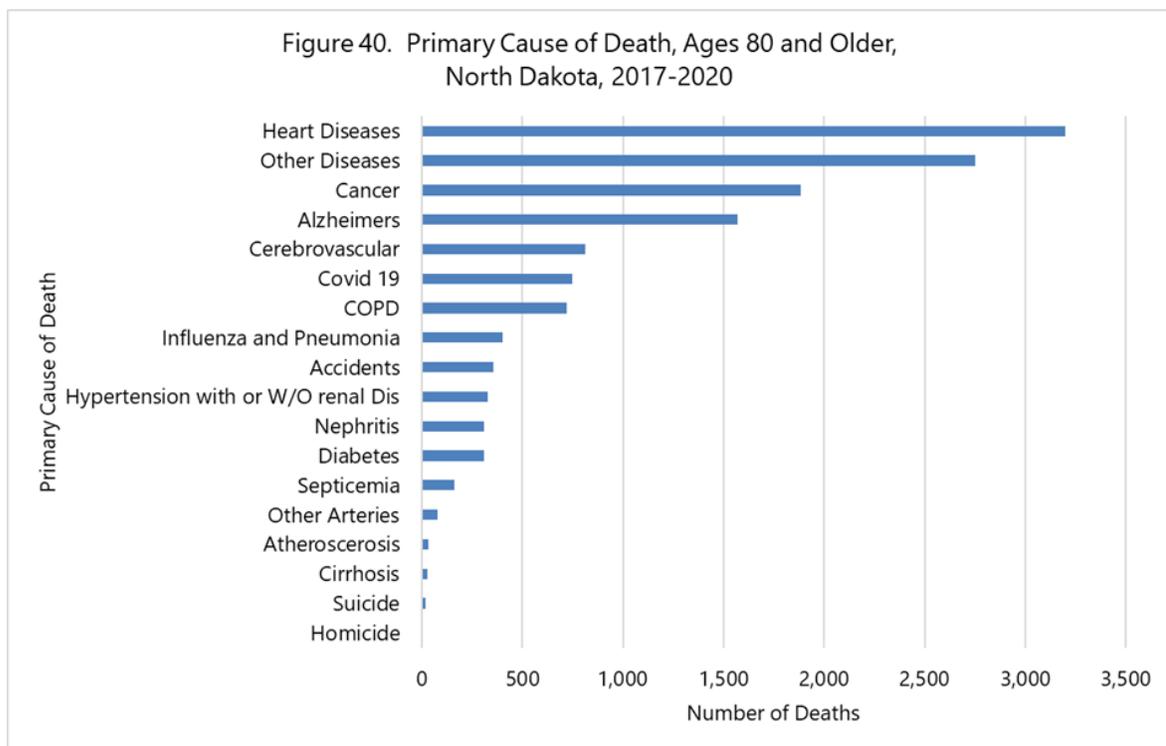
COVID-19

COVID-19 had a separate classification in the list of primary causes of death for North Dakota in 2020. Comparing the rate of deaths from 2017 and 2020 and examining the number of deaths attributed to COVID-19, revealed the influence of the pandemic on mortality rates.

The total number of deaths has been relatively consistent from 2017-2019. A spike in deaths in 2020, as a result from COVID-19, is apparent. COVID-19 represented 14.6 percent of all primary causes of death in 2020.



As an indicator of the significant impact that COVID-19 has had on the elderly population, COVID-19 was the second most frequently listed primary cause of death for people ages 80 and older in 2020. COVID-19 deaths by age clearly illustrated the burden of death on older individuals.



Cases of COVID-19 have been reported in North Dakota every day since April 2020. Disease burden of COVID-19 peaked in November 2020 with 10,419 active cases and 332 active hospitalizations (Figures 41 and 42). Substantial incidence has been observed throughout 2021, with cases and hospitalizations surging in the fall months.

Figure 41. 7-Day Rolling Average COVID-19 Cases in North Dakota

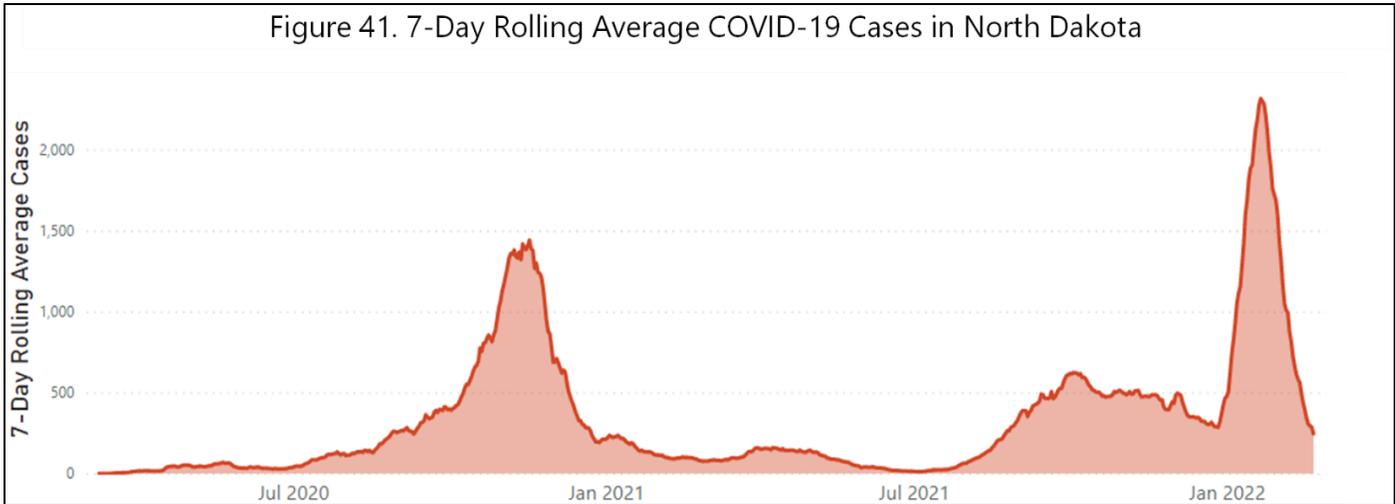
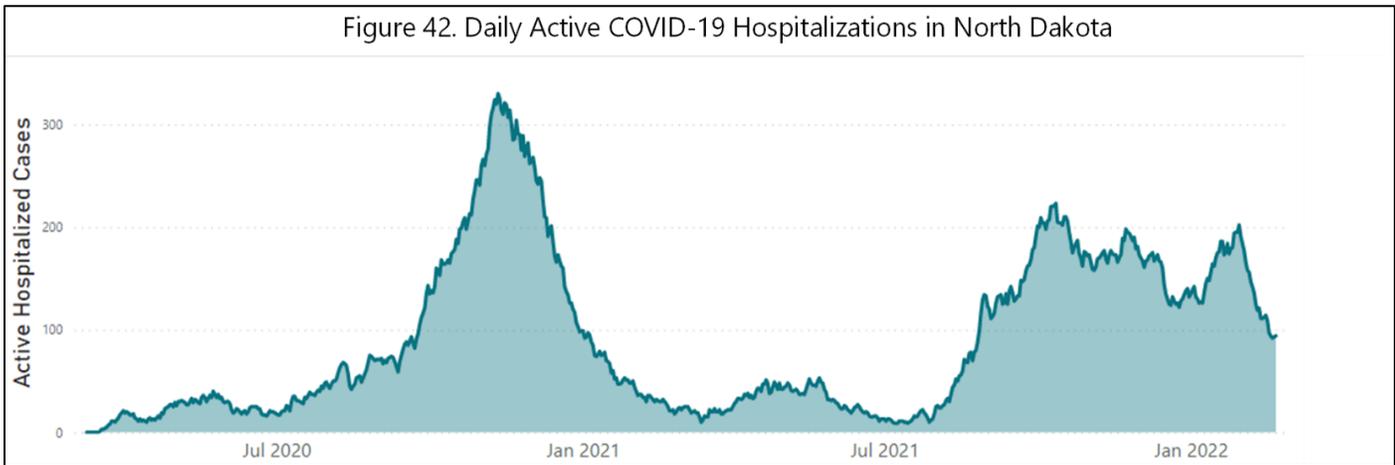


Figure 42. Daily Active COVID-19 Hospitalizations in North Dakota



The data presented below pertain only to confirmed cases of COVID-19 (178,936 as of February 28, 2022). Race has been recorded for 78.4 percent (n=140,321) of COVID-19 cases reported in North Dakota (Table 3). The American Indian population in North Dakota has been disproportionately impacted by the COVID-19 pandemic with a 5.68 percent hospitalization rate as of February 28th, 2022 (Table 3).

Table 3. North Dakota COVID-19 Data by Race (as of February 28th, 2022)

Race	Positive Cases	Deaths	Hospitalized	Fatality Rate (%)	Hospitalization Rate (%)
American Indian	10,199	118	579	1.16%	5.68%
Asian	2,247	6	61	0.27%	2.71%
Black	5,420	12	178	0.22%	3.28%
White	118,379	1,494	5,047	1.26%	4.26%
2 or More	3,999	17	111	0.43%	2.78%
Other	77	*	*	1.30%	3.90%
Unknown	38,615	357	1,019	0.92%	2.64%

*Numbers less than 5 are not publicly reported and have been suppressed accordingly

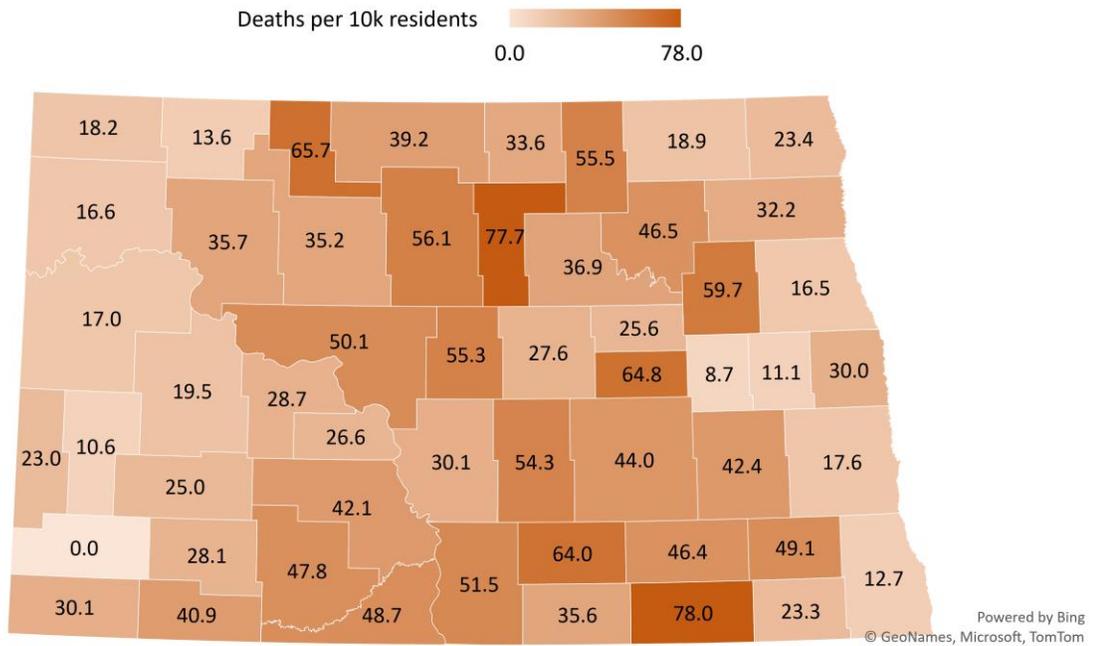
Young adults in North Dakota have the highest reported incidence of COVID-19 throughout the pandemic (Table 4). As of February 28th, 2022, 35,550 cases had been reported in the 20-29 age group. COVID-19 hospitalization and fatality rates are highest among North Dakota’s older age groups. Among all ages there have been 2,005 deaths attributed to COVID-19 (only confirmed cases) as of February 28, 2022.

Table 4. North Dakota COVID-19 Data by Age Group (as of February 28th, 2022)

Age Group	Positive Cases	Deaths	Hospitalized	Fatality Rate (%)	Hospitalization Rate (%)
0-9	13,112	*	119	0.00%	0.91%
10-19	21,473	*	74	0.01%	0.34%
20-29	35,550	10	236	0.03%	0.66%
30-39	31,554	21	512	0.07%	1.62%
40-49	23,260	47	651	0.20%	2.80%
50-59	21,163	128	1,047	0.60%	4.95%
60-69	17,339	269	1,521	1.55%	8.77%
70-79	8,817	420	1,453	4.76%	16.48%
80+	6,668	1,108	1,385	16.62%	20.77%

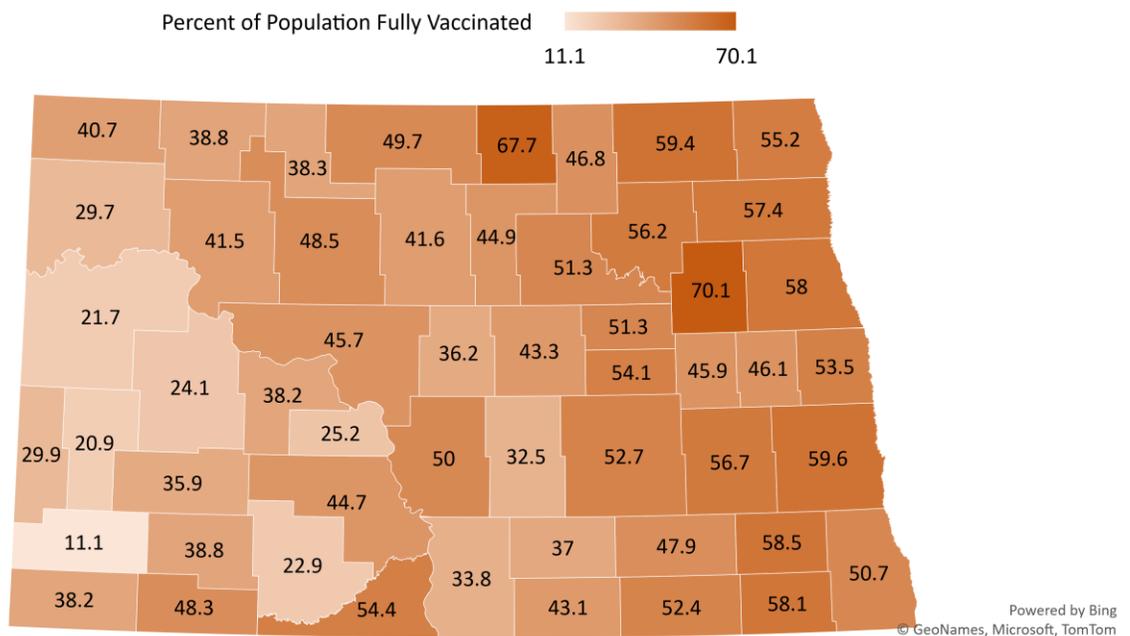
*Numbers less than 5 are not publicly reported and have been omitted accordingly

Figure 43. Cumulative COVID-19 Mortality Rate per 10,000 Residents, by County, North Dakota (as of 2/22/2022)



As of February 27th, 2022, approximately 58.7 percent of North Dakota’s total population is estimated to have received at least two doses of a COVID-19 vaccine. Vaccination rates vary across the state with the highest vaccination rates in the state’s eastern counties (Figure 44).

Figure 44. Percent of Residents Fully Vaccinated, by County, North Dakota (as of 2/22/2022)



Lesbian, Gay, Bisexual, Transgender, Queer

Quantitative Assessment

Death records, BRFSS data, and SVI information did not contain identifiers for sexual orientation or gender identity. Accordingly, only focus group themes are reported.

Focus Group Themes: Lesbian, Gay, Bisexual, Transgender, Queer⁷

Agency MABU identified the following themes related to health needs from focus groups conducted with LGBTQ2S+ community.

Greatest Threats to Optimal Health:

- Access to wellness and preventive care
- Bullying, substance abuse, and lack of health support
- Lack of data capture on LGBTQ2S+ populations. (e.g., not including sexual orientation on BRFSS, YRBS, etc.)
- Discrimination when receiving services, even healthcare

What North Dakota Does Well:

- Proactive HIV prevention program at State Health Department
- Local public health agencies and units

North Dakota's Greatest Weaknesses:

- Lack of equity work for LGBTQ2S+I community
- Lack of awareness of marginalized groups
- Lack of understanding of LGBTQ2S+I issues and needs
- High percentage of youth suicides compared to other states

Changes for the Biggest Impact:

- More resources for women's health
- More data gathering on the queer communities in North Dakota
- Funding for an ombudsman for LGBTQ2S+I workers/services/issues

⁷ Focus group themes were developed by Agency MABU.

New American/Foreign Born/Immigrant (NFI)

Death records, BRFSS data, and SVI information did not contain identifiers for New American, foreign-born, or immigrant status. Accordingly, only qualitative themes are reported.

Focus Group Themes: New American/Foreign Born/Immigrant (NFI)⁸

Agency MABU identified the following themes related to health needs from focus groups conducted with NFI community.

Greatest Threats to Optimal Health:

- Unemployment
 - o Not having the proper paperwork
 - o Language is a barrier to apply
 - o Barriers to professional certifications in the U.S. with foreign degrees and certifications
 - o Lack of good paying jobs
- The education is lacking for immigrant children and often the students are left out/outcasted.
- Lack of health literacy (understanding the health system)
- There exists a general lack of translators and translation services, especially in the western part of the state
- Lack of access to wellness and preventive care services
- Lack of access to public services such as Medicaid for refugees

What North Dakota Does Well:

- Quality education system for elementary and secondary grade levels
- Non-profit organizations work with government agencies to address immigrant needs

North Dakota's Greatest Weaknesses:

- Discrimination against immigrants (foreign born and new Americans)
- Health insurance and deductibles are too high
- Extracurricular activities for kids are too costly
- Lack of public transportation to the larger areas (i.e. Bismarck to Minot)

Changes for the Biggest Impact:

- More diversity, inclusion, and representation for refugees and immigrants is needed, especially in developing policies and laws at the state level
- Increased access to health care services (e.g., free clinics and women's health)

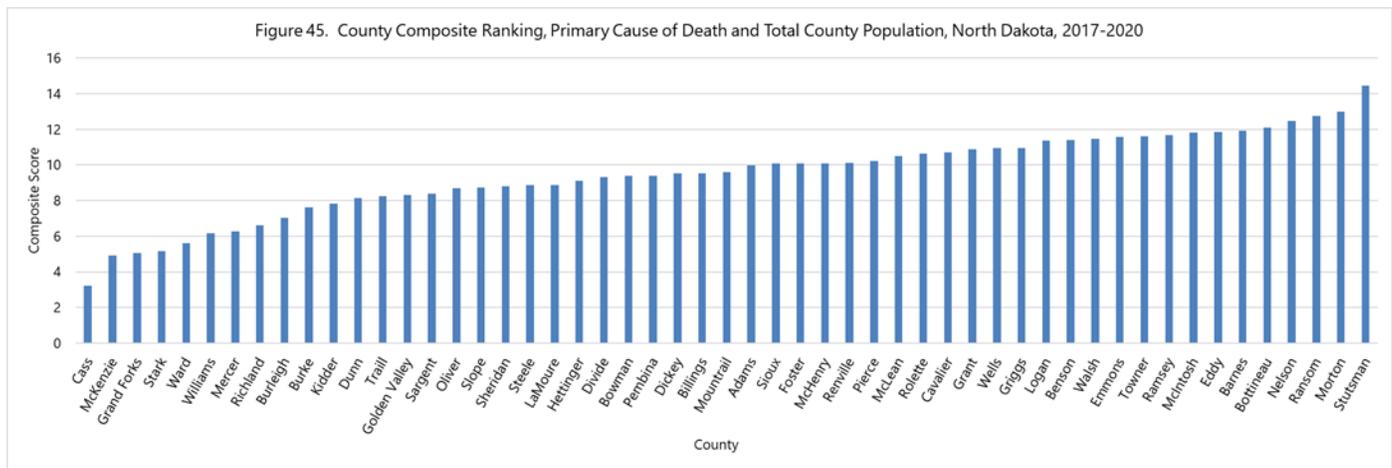
⁸ Focus group themes were developed by Agency MABU.

County Rankings of Behavioral Risk and Social Vulnerability Data⁹

As part of the effort to examine disparities relating to health care in North Dakota, several assessments were performed to evaluate the range and consistency of county-level data. The development of counties rankings was completed by researchers at North Dakota State University.

Per-capita Analysis

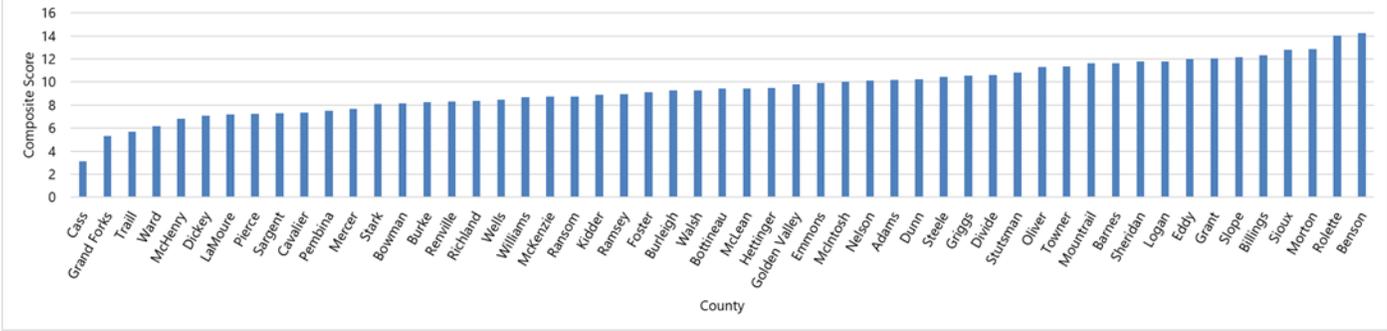
For each county, the primary cause of death as a percentage of total statewide deaths was calculated. County population as a percentage of overall statewide population was also calculated. For each primary cause of death, the percentage of the state's share of deaths was subtracted from the percentage of each county's share of the state population. The difference between the percentages resulted in a composite score for each primary cause of death. Because the assessment of the composite scores by each primary cause of death revealed no substantial differences across counties for each cause of death, the composite scores were summed across all primary causes of death to calculate a percentage ranking of deaths by all causes per-capita. The composite score ranks counties from the lowest to highest death per capita for all causes of death (Figure 45.)



The same analysis was repeated for premature deaths aged 64 and younger and populations aged 64 and younger. County premature deaths as a percentage of statewide premature death was calculated. County population as a percentage of overall population was calculated. The differences in the two percentages resulted in a composite score. Like the county composite ranking for all causes of death, counties with a higher composite score had greater number of premature deaths per capita than counties with a lower composite score (Figure 46).

⁹ County rankings of behavioral risk and social vulnerability were developed by researchers at the Center for Social Research at North Dakota State University.

Figure 46. Composite Ranking, Primary Cause of Death, Premature Deaths and Total County Populations, North Dakota, 2017-2020



The per-capita ranking analysis produced additional evidence of disparities observed among North Dakota’s counties. While it may be possible that the per-capita rankings and percentage differences could be combined with other county-level data to bolster insights on what may be causing the range of differences, those additional investigations were not pursued due to resource constraints (Figure 43).

BRFSS and SVI

The BRFSS data set contained percentage rankings for each risk factor and SVI datasets contained percentage rankings for each SVI metric (e.g., rate of COPD). For each county, a composite index representing the sum of the percentage ranks for the individual BRFSS and SVI metrics was compiled. The composite index was then used to identify the top (most healthy) and bottom (least healthy) counties using select BRFSS risk factors and data and SVI metrics (Figures 47 and 48). Like the per-capita rankings, the BRFSS and SVI rank indexes reveal disparities between counties, however data used in this assessment provides little insight into what may be influencing differences. Additional analysis was beyond the scope of study.

Figure 47. Rank Index, BRFSS Risk Factors, by County, North Dakota, 2015-2019

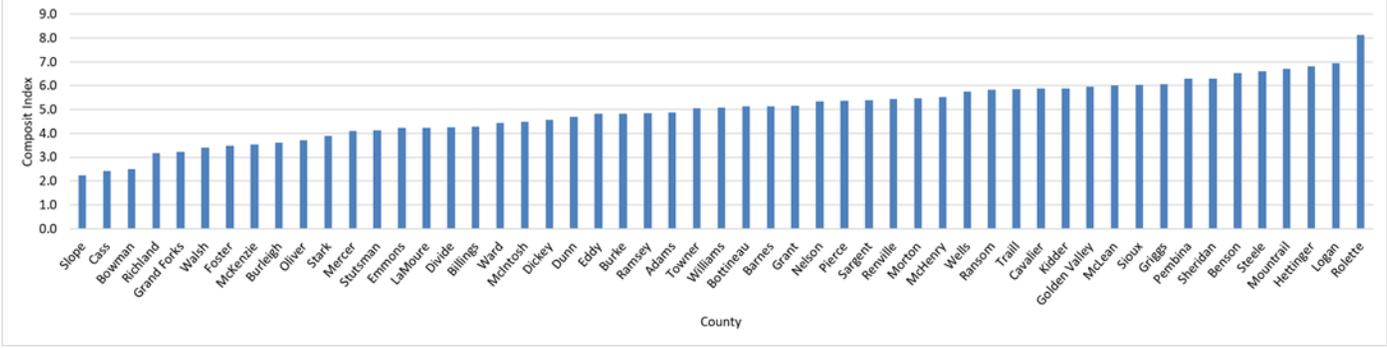
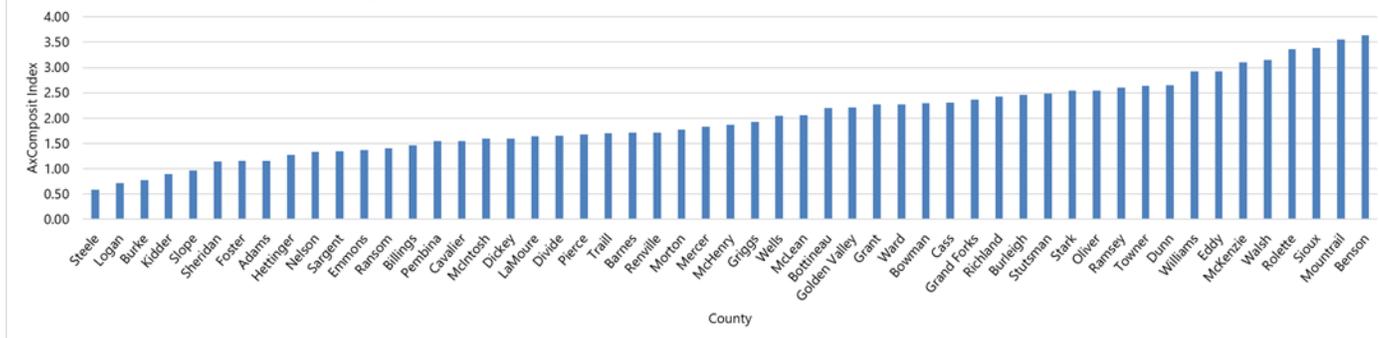


Figure 48. Social Vulnerability Index, Composite Ranking, by County, North Dakota, 2017-2020



An average of the composite index for BRFSS risk factors for the 10 healthiest and 10 least healthy counties was calculated (Note: the averages were of the metrics and not the percentage ranks) (Figure 49). The greatest differences between the most healthy and least healthy counties were observed in counties with higher prevalence of current smokers and high blood pressure. For the rest of the risk factors the differences between the 10 highest ranking counties and the 10 lowest ranking counties was approximately 5 percent or less (Figure 50).

Figure 49. Average Percentage Rank, BRFSS Risk Factors, 10 Most Healthy and 10 Least Healthy Counties, North Dakota, 2015-2019

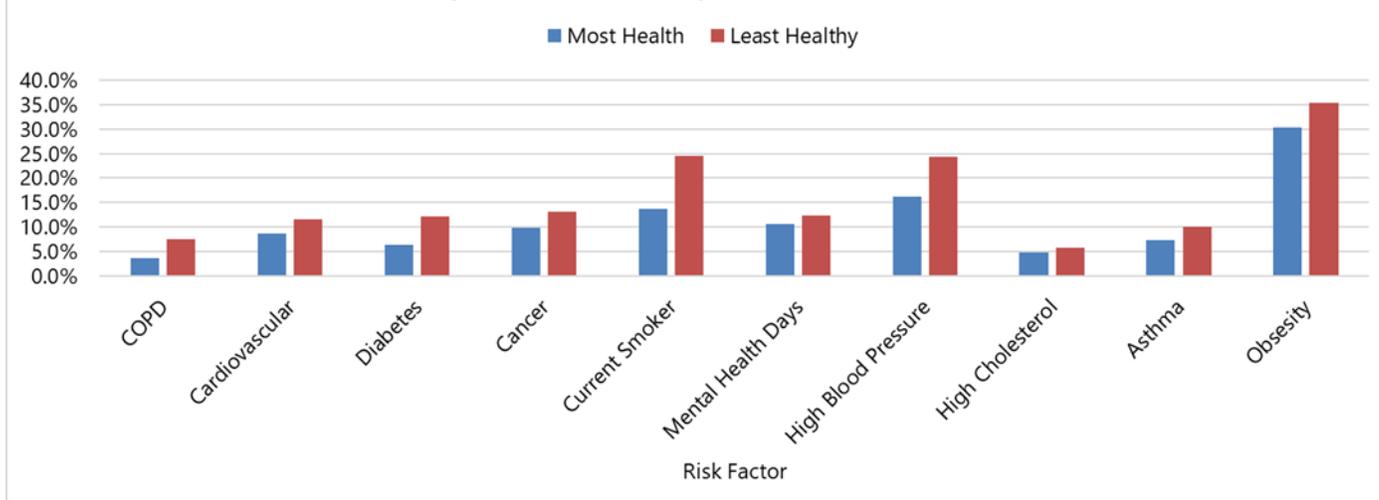
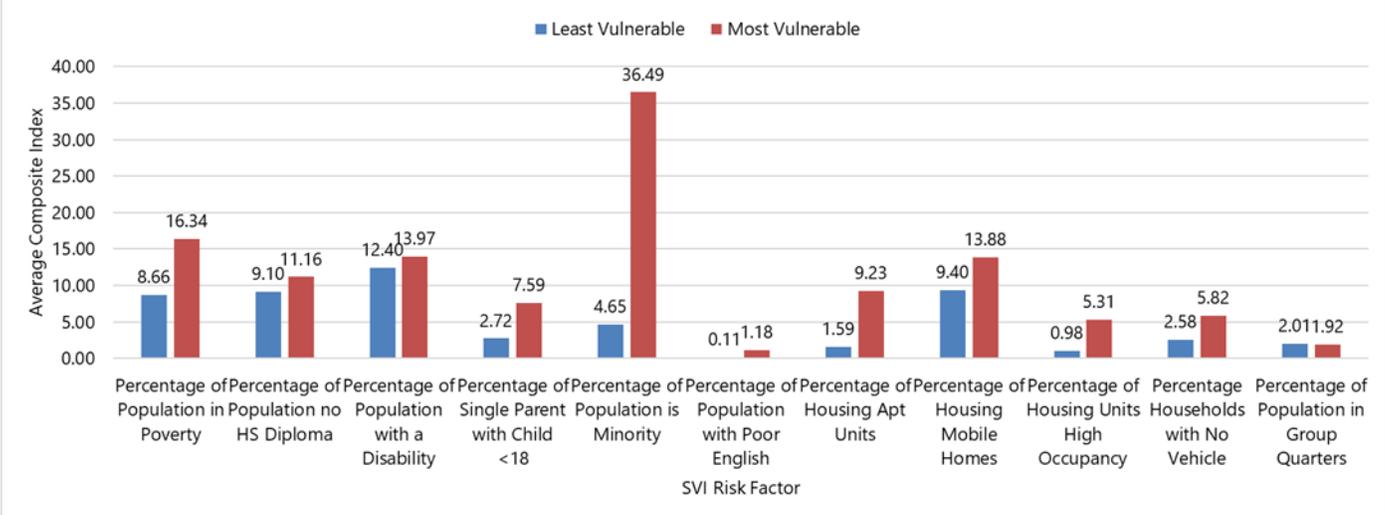


Figure 50. Average Composite Index, SVI Risk Factors, by 10 Least Vulnerable and 10 Most Vulnerable Counties, North Dakota, 2019



An average composite index of SVI risk factors for the 10 most vulnerable and least vulnerable counties was calculated. Like the BRFSS average composite index of the 10 most vulnerable and 10 least vulnerable counties there were substantial differences for a few indicators while other indicators varied by substantially smaller margin. The biggest difference between the least vulnerable and most vulnerable counties was the composite index for minority population. The 10 most vulnerable counties had an average minority population of 36 percent compared to 5 percent for the 10 least vulnerable populations. The percentage of population in poverty also was substantially different between the 10 most vulnerable counties and the 10 least vulnerable counties. The 10 most vulnerable counties had average poverty rate of 16 percent compared to about half that (9 percent) of the 10 least vulnerable counties. With the exception of the percentage of apartment housing units, the average difference between the 10 most vulnerable and 10 least vulnerable was 5 percent or less. The difference in the 10 most vulnerable and 10 least vulnerable counties for percentage of apartment housing units was 7 percent.

Finally, the top 10 highest and lowest counties for the BRFSS composite rankings were compared to the listing of the top 10 highest and lowest counties for the SVI composite rankings. The analysis produced very inconsistent results. Several counties were in the top (best) counties for BRFSS metrics but were among the bottom (worst) counties for the SVI (and vice-versa) (Figure 51). Further, the transposition from best to worst was not consistent for all counties. Some counties were in either the "best" or "worst" groups for both BRFSS and SVI indices. Additional data was not available to garner greater insights on how the two datasets were producing completely opposite conclusions on the relative strength or weakness found among North Dakota counties.

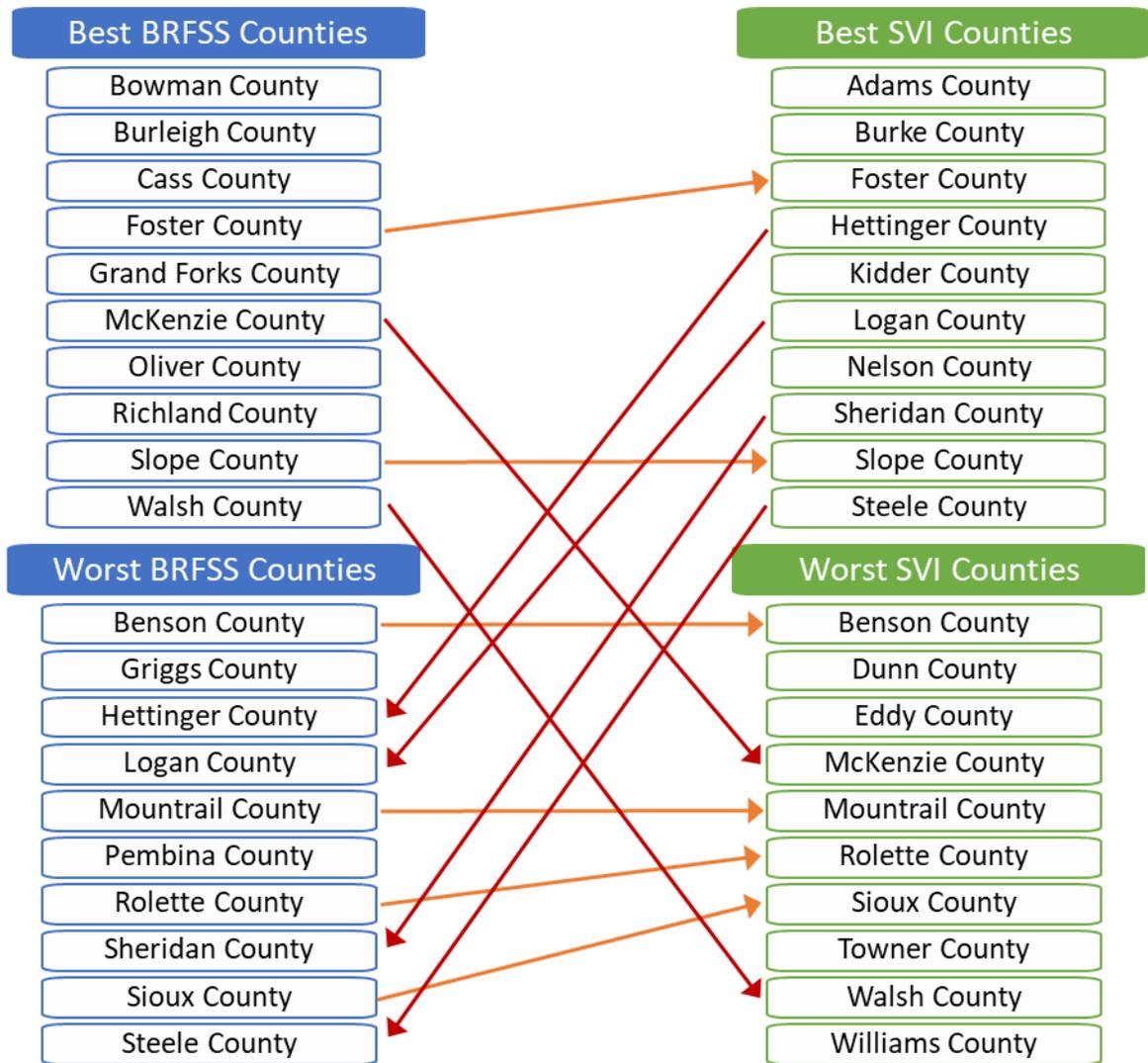


Figure 51. Top and Bottom Ranked Counties, Behavioral Risk Factor Surveillance System and Social Vulnerability Index

Results of Social Determinants of Health Online Survey¹⁰

Following is a summary of the salient findings from the online survey conducted in September 2021 on the social determinants of health in North Dakota. Detailed results of the survey are presented in Appendix F. Agency MABU conducted the online survey.

- A total of 293 North Dakota residents completed the online survey. The online survey was designed to secure additional feedback from a broader sample of North Dakota residents than the 80+ residents who participated in the 10 focus group sessions on social determinants of health.
- When asked to rank a set of factors on a scale of 1 to 5, with 1 being defined as an “extremely low threat,” and 5 being defined as an “extremely high threat,” to their overall health and well-being, the respondents ranked **access to quality education** is the highest threat (3.49), followed by **poverty, unemployment and homelessness** (3.10), **access to social and community supports** (2.98), **access to high quality health care services** (2.96) and **access to affordable housing, issues of crime and violence or alcoholism** (2.82).
- When asked to identify serious issues in their community, the top seven most selected issues included **affordability of housing** (177 times chosen), **affordability of childcare** (168), **prevalence of drug use, alcoholism, and other addictions** (158), **affordability of health insurance** (155), **affordability of healthy foods** (143), **affordability of primary healthcare** (141), and **access to behavioral healthcare** (135).
- When asked to identify the most significant actions that the State of North Dakota could take to positively impact their personal health, wellness, and quality of life, the top five selections included affordable and easily accessible **healthcare** (31.96%), affordable and easily accessible **housing** (21.65%), access to **social service programs** such as child protection, mental health professionals and services for the elderly (14.43%), affordable and easily accessible **healthy food options** (12.71%) and affordable and easily accessible **childcare** (7.22%).
- The following demographic characteristics of the focus group sessions are compared to those of the online survey respondents. A more complete demographic profile of the online survey respondents is included in Appendix F.

¹⁰ Agency MABU administered the online survey and analyzed results.

RESPONSES	FOCUS GROUP PERCENTAGE	ONLINE SURVEY PERCENTAGE
I am male and was assigned at birth	37.50%	22.22%
I am male and I was assigned female at birth	0.00%	0.00%
I am female and I was assigned female at birth	60.00%	75.00%
I am female and I was assigned male at birth	1.25%	0.00%
I am non-binary or gender, queer	1.25%	0.00%
Prefer not to answer	0.00%	2.78%
TOTAL	100%	100%

RESPONSES	FOCUS GROUP PERCENTAGE	ONLINE SURVEY PERCENTAGE
Less than high school	1.25%	3.77%
Some high school	11.25%	11.64%
Some college	16.25%	11.99%
Associates degree	11.25%	12.67%
Bachelor's degree	32.50%	30.48%
Graduate degree	18.75%	14.38%
Postgraduate	8.75%	3.42%
Prefer not to answer	0.0%	1.37%
Other (please specify)	0.0%	10.27%
TOTAL	100%	100%

RESPONSES	FOCUS GROUP PERCENTAGE	ONLINE SURVEY PERCENTAGE
Asian	0.00%	1.37%
Black or African American	8.75%	3.41%
American Indian or Alaska Native	13.75%	5.46%
Native Hawaiian or Pacific Islander	0.00%	0.34%
White	73.75%	89.08%
More than one race	3.75%	0.34%
Prefer not to answer	0.00%	1.71%
Other (please specify)	0.00%	0.00%
TOTAL	100%	100%

RESPONSES	FOCUS GROUP PERCENTAGE	ONLINE SURVEY PERCENTAGE
Private (health insurance plans marketed by private health insurers)	73.75%	56.66%
Medicaid	6.25%	13.31%
Medicare	12.50%	9.56%
Other Public Insurance (Indian Health Service, Veterans Administration, Military, etc.)	10.00%	4.10%
No Insurance	6.25%	7.51%
Prefer not to answer	0.00%	5.12%
Other (please specify)	0.00%	3.75%
TOTAL	100%	100%

Qualitative Themes: All Focus Groups

Agency MABU identified the following themes related to health needs from all focus groups.

The most common theme to emerge from the focus group research is that the social safety net needs to be protected and strengthened for the vulnerable populations among us. Focus group participants from the various sessions stated that far too many people in North Dakota are blind to the serious problems faced by marginalized groups.

Lack of Awareness to the Problems Faced by Vulnerable Populations

Because of North Dakota's strong economy, high employment rate, and relatively homogenous population, the focus group participants believe that many of our state's residents think that poverty, homelessness, discrimination, unemployment, and other social issues are serious issues elsewhere, but not in North Dakota. Consequently, those who are most in need of support often find themselves living in the shadows without adequate public attention or community supports. Thus, the focus group participants believe there is a need for increased public awareness, advocacy, inclusion efforts to shine light on the serious plight, as well as the untapped potential, of disadvantaged populations including youth, minorities, seniors, immigrants, LGBTQ2S+ and rural residents.

Lack of Affordability and Access to Health-Related Services

The lack of affordability and access to health-related services emerged as another top issue during the focus group discussions. Although the respondents believe that North Dakota generally offers a high level and high quality of such services, there are major barriers relating to affordability and access for the target populations surveyed.

While many North Dakota residents can readily access and afford the myriad of health-related services available to the public at large, serious barriers exist for those who are disadvantaged due to their circumstances and/or environments in which they live. For example, accessing quality healthcare is generally more difficult for rural residents than for urban residents due to geographic and economic barriers. Another example relates to the high cost of private health insurance. People living in poverty, homelessness, addiction, discrimination, or low-income situations often lack the financial resources to obtain adequate health insurance. The focus group participants encourage State leaders to expand access to free clinics, with special attention on prevention and wellness services.

Hidden Homelessness, Hunger and Poverty

Unlike other states with warmer climates, North Dakota's unpredictable and unforgiving weather hides the degree to which homelessness, hunger and poverty exist. Many of the focus group participants stated that homelessness, hunger, and poverty are major problems in our state, with an ever-growing number of people living in their cars, older buildings, or "couch surfing" with family and friends. Additionally, children are increasingly affected by these issues, a situation exacerbated by the pandemic which decreased access to meal

programs provided by daycares and schools. The focus group participants recommended continued development and support of homeless shelters, food assistance, and low-income housing programs.

Lack of Behavioral Health and Addiction Treatment Services

Many of the focus group participants also spoke to the need for increased behavioral health services, including addiction treatment centers, for both youth and adults. They believe there exists a serious shortage of mental health providers and facilities, thus causing extreme delays in getting appointments and receiving services. Consequently, many people are going without care and attention, resulting in deeper anxieties, depression, and suicidal thoughts and actions. Additionally, drugs are becoming far too accessible, especially for youth. In terms of geographic related needs, adequate inpatient behavioral health services were identified as lacking in the western part of the state. The participants encourage the state to continue making a concerted effort to increase the number of behavioral health providers and addiction treatment services, including the use of telemedicine to minimize the costs and risks associated with travel.

Affordable Housing, Healthy Foods and Youth Services

Other common themes that emerged during the focus group sessions included the need for affordable housing, access to healthy foods, and more attention toward youth services. Throughout the state, there exists a need for improved access to affordable and quality housing. The costs of renting, let alone owning a place to live, are out of the reach of many vulnerable populations. According to the participants, even the housing that is affordable and available often lacks healthy living conditions due to old pipes, leaky roofs, and outdated utilities.

As for the need for healthy foods, the focus group participants stated that there are an abundant number of fast-food chains, however, there exists a lack of options to buy fresh food with healthy ingredients. Thus, people are making unhealthy dietary choices that increase the incidence of heart disease, cancer, diabetes and other chronic conditions and ailments. Furthermore, the research revealed that rural residents must travel long distances to access food supplies due to the trend toward closure of many local community grocery stores.

Lastly, many of the focus group participants discussed the ever-growing number of needs associated with our youth. This included equipping children with basic knowledge and skills needed for healthy living, including building a strong sense of self-worth, eating healthy foods, exercising regularly, managing money and respecting others. Other recommendations included providing increased support for affordable daycare options, as well as low-cost or no-cost options for going to college.

On-line Survey Conclusion

Many of the comments shared during the focus group sessions centered around the high cost of living, whether it be for healthcare, insurance, housing, transportation, childcare, eldercare, clothing, or food. The participants stated that those who are gainfully employed can typically afford to access such services; however, those of lesser financial means often struggle to make ends meet. This causes a diminished quality of life, decreased sense of wellbeing, and limited pathways to optimal health.

Finally, many of the focus group participants talked about discrimination. Whether overt or subtle, there was an overwhelming belief that discriminatory thoughts, words, and actions occur regularly in North Dakota, especially in relation to the vulnerable populations that were surveyed. This feeling was shared by participants from each of the focus groups, including rural and urban residents, American Indians, immigrants, LGBTQ2S+ and youth. Thus, there exists a need and opportunity to communicate messages of unity, empathy, compassion, understanding and inclusion among the residents of our state.

Focus Group Main Themes

- Access to healthcare and insurance- Many participants felt that access to health insurance and healthcare are the largest barriers to optimal health. Participants who are eligible for Medicaid, (specifically in the Bismarck area) said the human service center makes the enrollment process very difficult for applicants. Many participants reported feeling discriminated against when making appointments to utilize Medicaid as well.
- The cost of health insurance, deductibles, medication, and health care is also a barrier for those utilizing private health insurance.
- Many of the issues came back to affordability, whether it is healthcare, childcare, education, or insurance, so many of the discussions came back to cost.
- High levels of poverty were identified by many as the most prevalent or problematic of the issues.
- Lack of behavioral health providers came up several times.
- Issues of addiction and drug use were also mentioned by several people throughout.
- Rural nature of our state can make services difficult to access needed care.
- Affordability of housing is a barrier that holds people back.
- Medicaid expansion is an asset, but some people still can't afford the premiums.
- Cost of healthier groceries and food is prohibitive for some.
 - o Distance to nearest grocery store is often too far.
- Lack of access to childcare and the expense of childcare.

Key Findings Quantitative Assessment¹¹

This study attempted to use death records and hospital discharge data to provide insight into health needs in North Dakota. Due to data limitations of primarily the hospital discharge data, BRFSS and SVI data were used to supplement the data from death records. The analysis provided a useful assessment of primary cause of death, identified some clear disparities, and used SVI and BRFSS data to create a metric for ranked comparisons between North Dakota counties. While informative, the study also revealed some data limitations and provides some insights into potential considerations and modifications to future study efforts. Key study findings:

1. Heart disease, cancer, and Alzheimer's, respectively, are the top three primary causes of death for residents aged 65 and older and accounted for 61 percent of all deaths in that age cohort from 2017 through 2020.
2. Cases of premature deaths vary by age. The younger the age the greater the likelihood of accidents or suicide as the cause of death. Suicide and accidents are the leading causes of mortality among youth. Eight percent of deaths for those age 55-64 were the result of accidents or suicide, compared to 64 and 76 percent for those ages 20-39 and 1-19, respectively.
3. Heart disease is the most serious medical issue in the state. It accounts for 20 percent of all deaths and is the most frequently listed contributing cause of death.
4. Infant mortality (age 1 year or less) was higher than deaths for any single age between 2 and 55. Infant deaths from 2017 through 2020 totaled 225. Perinatal deaths outnumber the next most frequent cause of death by more than double.
5. COVID-19 represented 14.6 percent of all primary causes of death in 2020. COVID-19 was the second leading cause of death for those ages 80 and older in 2020. Nearly as many deaths were attributed to COVID-19 as heart disease, the leading cause for those ages 80 and older in 2020.
6. American Indians are substantially more likely to die prematurely than other racial groups in North Dakota. The average age of death for American Indians is 57 years compared to 76 years all other races.
7. BRFSS, SVI, and death statistics are not statistically correlated. In an attempt to draw insights into the explanatory capacity of the data without using timeseries regression, correlation analysis was used to identify if the data between various death statistics, reported at the county level, were correlated with health-related measures also reported at the county level.
8. BRFSS and SVI identified substantial disparities in general health-related metrics among the state's counties.

¹¹ Center for Social Research, North Dakota State University

9. Mortality by primary cause of death, are not entirely explained by measures of population, That is larger population centers don't necessarily mean more deaths, as per-capita mortality rates among counties varied considerably.
10. Differences were observed in primary cause of death, and risk factors between rural and urban counties, but not consistently enough to make inferences on cause of death or characteristics such as age.

Data Shortcomings and Limitations: Quantitative Assessment¹²

The initial scope of study was to limit data sources by using death data and hospital discharge data in an attempt to develop a less data-dense assessment of health needs in the state. Unfortunately, this approach proved to have some limitations.

The hospital discharge data received by the NDDoH was incomplete, and as such, provided little useful information to inform health needs in North Dakota. Hospital inpatient and outpatient data obtained from NDDoH contained only a subset of information North Dakota hospitals reported to the Minnesota Hospital Association. While reported admittance and discharge data can provide some insight into the frequency of medical conditions that result in hospitalization, additional information on characteristics of patients was missing. Without any demographic information there was no way to compare hospital discharge data with death records or other secondary data. As a result, the hospital data was not incorporated into the quantitative evaluations. A more complete and robust dataset may provide insights into health needs in North Dakota. It was unclear why the NDDoH received incomplete data from the Minnesota Hospital Association.

Vital records death data were used to examine and describe causes of death and other demographic characteristics. In addition to cause of death, additional information, such as age, sex, education, race, gender, marriage status, county of residence, tobacco use, diabetes, and rural/urban data designations were useful in examining cause of death among key constituent groups. Descriptive statistics from the death data are relatively straightforward and provided an excellent snapshot of several meaningful metrics describing current conditions in North Dakota. Additional years of data would have been helpful to inform a more dynamic evaluation and would provide insight into whether various metrics in the death data remain constant, increase, or decrease over time.

Because of the data limitations associated with the hospital discharge data and to augment death records, BRFSS and SVI data were used to supplement the assessment of the frequency and primary cause of death. Unfortunately, BRFSS and SVI data were generally not useful in explaining the frequency and occurrence of primary causes of death.

Why BRFSS data and SVI data had such low correlations with observable deaths was outside the scope of this assessment. Deaths are highly skewed toward individuals in their elderly years. More than 50 percent of deaths are persons aged 80 or older, which is when deaths are largely expected, and therefore may not necessarily be correlated with other medical, social, or socio-economic metrics found in either the BRFSS or SVI data.

Rankings were useful in identifying the degree of similarity or difference among the state's counties. BRFSS and SVI can be used as a direct measure of a given condition (e.g., percentage of population in poverty) or

¹² Researchers from the Center for Social Research identified data shortcomings and limitations.

used as a rank indicator showing relative standing of counties within the state. BRFSS data were placed into ranked indicators, and the percentage ranking of BRFSS metrics also revealed noticeable differences among the state's counties.

Recommendations¹³

Complete hospital discharge data can be very insightful and informative. However, North Dakota is one of only two states that does not require hospitals to report standardized discharge data. Furthermore, the data that are voluntarily reported by some North Dakota hospitals to the Minnesota Hospital Association is incomplete to the point of being of little value to the quantitative assessment. Complete and standardized hospital discharge data would provide valuable insight into health needs in North Dakota.

Assessment of death data should include more than four years of information to identify emerging trends and changes over time.

The assessment of health needs should be updated on a regular basis. Without regular updates, data can become stale and outdated. Regular updates would also enable timely and regular review of assessment metrics to facilitate modifications of methods, evaluation metrics and bridge data gaps. Regular updates can also address data and study limitations in a timely matter rather than a "start from scratch" approach which occurs quite frequently with irregularly-timed assessments. Regular updates and review of metrics, data sources, and methods would result in a more fluid and dynamic assessment of health needs.

For additional insights, please visit the NDDoH dashboard at <https://app.powerbigov.us/groups/d0896e08-4eda-4ae6-87cb-4ffd63d8fb29/reports/07d17d6d-80a4-4e35-9d51-a88ea79d3eeb/ReportSection57ce5183157fe4aa24f8?bookmarkGuid=Bookmark5c6681c98d90a76793fe> .

The dashboard was designed to provide substantial detail into many of the health-related statistics discussed in this document. Further, this document contains a delivery of information that is fixed for 2017 through 2020, but the dashboard is designed to incorporate updates as new death data, BRFSS, SVI, and population figures become available.

¹³ Researchers from the Center for Social Research at North Dakota State University developed recommendations.

References

- American Community Survey. (2015-2019). "Explore census data." *U.S. Department of Commerce*.
<https://data.census.gov/cedsci/>
- American Immigration Council. (2020, Aug 6). "Immigrants in North Dakota." *The American Immigration Council*. <https://www.americanimmigrationcouncil.org/research/immigrants-in-north-dakota>
- Census Bureau Health Insurance. (2019). "North Dakota insurance." *United States Department of Commerce*.
<https://data.census.gov/cedsci/all?q=north%20dakota%20insurance>
- Centers for Disease Control and Prevention. (2021). *CDC SVI Documentation: 2018*.
https://www.atsdr.cdc.gov/placeandhealth/svi/documentation/SVI_documentation_2018.html
(accessed September 2021). Centers for Disease Control and Prevention, U.S. Department of Health and Human Services, Washington, D.C.
- Centers for Disease Control and Prevention. (2021). *Behavioral Risk Factor Surveillance System*.
<https://www.cdc.gov/brfss/index.html> (accessed August 2021). Centers for Disease Control and Prevention, U.S. Department of Health and Human Services, Washington, D.C.
- County Health Rankings & Roadmaps. (2020). "North Dakota." *University of Wisconsin Population Health Institute*. <https://www.countyhealthrankings.org/app/north-dakota/2021/overview>
- Energy Information Administration. (2020). "North Dakota." *EIA*. <https://www.eia.gov/state/?sid=NID>
- FRED. (2021, May 9). "Homeownership rate for North Dakota." *FRED Newsletter*.
<https://fred.stlouisfed.org/series/NDHOWN>
- Kaiser Family Foundation. (2019). "Uninsured rates for the nonelderly by race/ethnicity." *Kaiser Family Foundation*. <https://www.kff.org/uninsured/state-indicator/nonelderly-uninsured-rate-by-raceethnicity/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D>
- Medicaid.gov. (2021, Sept). "September 2021 Medicaid & CHIP enrollment data highlights." *Centers for Medicare & Medicaid Services*. <https://www.medicaid.gov/medicaid/program-information/medicaid-and-chip-enrollment-data/report-highlights/index.html>
- North Dakota Compass. (2020). "Race." *North Dakota State University*.
<https://ndcompass.org/demographics/key-measures.php?km=race#0-7342-g>
- North Dakota Department of Commerce. (2020). "Unduplicated counts of cases and recipients by county of physical residence." *North Dakota Department of Human Services*.
<https://www.nd.gov/dhs/info/pubs/docs/eap-unduplicated-count-report-sfy2020.pdf>
- North Dakota Department of Health. (2017). "North Dakota 2017 health disparities report." *North Dakota Department of Health*. <https://www.ndhealth.gov/publications/HealthDisparitiesReport-2017.pdf>
- North Dakota Department of Health. (2022). "Health equity." *North Dakota State Government*.
<https://www.health.nd.gov/health-equity>

- U.S. Bureau of Labor and Statistics. (2021). *United States Department of Labor*.
<https://www.bls.gov/opub/mlr/2021/home.htm>
- U.S. Census Bureau. (2010). "Explore census data." *U.S. Department of Commerce*.
<https://data.census.gov/cedsci/>
- U.S. Census Bureau. (2020). "Explore census data." *U.S. Department of Commerce*.
<https://data.census.gov/cedsci/>
- United States Census Bureau. (2020). "North Dakota: 2020 census." *U.S. Department of Commerce*.
<https://www.census.gov/library/stories/state-by-state/north-dakota-population-change-between-census-decade.html>
- U.S. Census Bureau. (2021a). American Community Survey Documentation. <https://www.census.gov/programs-surveys/acs/guidance/estimates.html>
- U.S. Census Bureau. (2021b). *ZIP Code Tabulation Areas (ZCTAs)* <https://www.census.gov/programs-surveys/geography/guidance/geo-areas/zctas.html> (accessed October 2021). U.S. Census Bureau, Washington, D.C.
- United States Department of Agriculture. (2017). "North Dakota 2017 Census of Agriculture." *NASS*.
https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_1_State_Level/North_Dakota/st38_1_0061_0061.pdf
- University of North Dakota School of Medicine and Health Sciences Advisory Council. (2019). "Health issues for the state of North Dakota." *UND*. <https://med.und.edu/publications/biennial-report/files/docs/fifth-biennial-report-interactive.pdf>
- University of North Dakota School of Medicine and Health Sciences Advisory Council. (2021). "Health issues for the state of North Dakota." *UND*. <https://med.und.edu/publications/biennial-report/files/docs/sixth-biennial-report.pdf>
- Williams Institute. (2019, Jan). "LGBT proportion of population: North Dakota." *University of California Los Angeles*. <https://williamsinstitute.law.ucla.edu/visualization/lgbt-stats/?topic=LGBT&area=38&compare=percentage#comparison>

APPENDIX A
URBAN AND RURAL STRATIFICATION

Urban-Rural Stratification

Two classification systems were applied to the death records, BRFSS, and SVI datasets. The first classification scheme uses only rural and urban designations, and the second scheme uses rural, semi-urban, and urban classifications.

Scheme 1: Two Classifications (Rural and Urban)

City Designations:

- a. Urban: Any named city with one or more zip code tabulation areas (ZCTA)* with a population of 15,000 or greater included zip codes with that name (Table 1)
- b. Rural: All ZCTAs not included under urban

County Designations:

- a. Urban: Any county having a ZCTA with a population of 15,000 or greater (Table III)
- b. Rural: All counties not included under urban

Scheme 2: Three Classifications (Rural, Semi-urban, and Urban)

City Designations:

- a. Urban: Any named city with one or more ZCTA with a population of 20,000 or greater (Table II)
- b. Semi-urban: Any named city with the largest ZCTA area having a population of 7,500 to 19,999 (Table II)
- c. Rural: All ZCTAs not included under urban or semi-urban

County Designations:

- a. Urban: Any county having a ZCTA with a population of 20,000 or greater (Table IV)
- b. Semi-urban: Any county with the largest ZCTA having a population of 7,500 to 19,999 (Table IV)
- c. Rural: All counties not included under urban or semi-urban

* Please refer to the U.S. Census Bureau (2021b) for additional information on ZCTAs.

Table I. Zip Code, Two Category: Urban, Rural	
Urban	
Zip Code	Description
58501	Bismarck
58504	Bismarck
58505	Bismarck
58502	Bismarck
58503	Bismarck
58506	Bismarck
58507	Bismarck
58103	Fargo
58102	Fargo
58104	Fargo
58105	Fargo
58106	Fargo
58107	Fargo
58108	Fargo
58109	Fargo
58121	Fargo
58122	Fargo
58123	Fargo
58124	Fargo
58125	Fargo
58126	Fargo
58078	Fargo, West
58201	Grand Forks
58203	Grand Forks
58202	Grand Forks
58206	Grand Forks
58207	Grand Forks
58208	Grand Forks
58204	GF AFB
58205	GF AFB
58554	Mandan
58701	Minot
58703	Minot
58707	Minot
58702	Minot
58704	Minot AFB
58705	Minot AFB
58601	Dickinson
58602	Dickinson
58401	Jamestown
58402	Jamestown
58405	Jamestown
58801	Williston
58802	Williston

Table II. Zip Code, Three Category: Urban, Semi-Urban, Rural			
Urban		Semi-Urban	
Zip Code	Description	Zip Code	Description
58501	Bismarck	58601	Dickinson
58504	Bismarck	58602	Dickinson
58505	Bismarck	58401	Jamestown
58502	Bismarck	58402	Jamestown
58503	Bismarck	58405	Jamestown
58506	Bismarck	58075	Wahpeton
58507	Bismarck	58074	Wahpeton
58103	Fargo	58076	Wahpeton
58102	Fargo	58801	Williston
58104	Fargo	58802	Williston
58105	Fargo	58301	Devils Lake
58106	Fargo	58072	Valley City
58107	Fargo		
58108	Fargo		
58109	Fargo		
58121	Fargo		
58122	Fargo		
58123	Fargo		
58124	Fargo		
58125	Fargo		
58126	Fargo		
58078	West Fargo		
58201	Grand Forks		
58203	Grand Forks		
58202	Grand Forks		
58206	Grand Forks		
58207	Grand Forks		
58208	Grand Forks		
58204	Grand Forks		
58205	GF AFB		
58554	GF AFB		
58701	Mandan		
58703	Minot		
58707	Minot		
58702	Minot		
58704	Minot		
58705	Minot		
58705	Minot AFB		
58705	Minot AFB		

Table III. County, Two Categories: Urban and Rural	
Urban	
Burleigh	
Cass	
Grand Forks	
Ward	
Morton	
Stark	
Williams	
Stutsman	

Table IV. County, Three Categories: Urban, Semi-Urban, and Rural	
Urban	Semi-Urban
Burleigh	Stark
Cass	Williams
Grand Forks	Stutsman
Ward	Richland
Morton	Barnes
	Ramsey

APPENDIX B
AMERICAN COMMUNITY SURVEY VARIABLES EXAMINED

2015-2019 American Community Survey 5-Year Estimates

The following outline provides general guidance on the topics and evaluations of the data used in the assessment of ASC data. For practical considerations, all materials generated in the analysis were not included in the assessment. Many of the evaluations were conducted to find unique or previously unknown conditions, inequities, or descriptions that could be included as recommendations.

Social Variables

- Ancestry
- Citizen Voting-Age Population
- Citizenship Status
- Disability Status
- Educational Attainment
- Fertility
- Grandparents as Caregivers
- Language Spoken at Home
- Marital History
- Marital Status
- Migration/Residence 1 Year Ago
- Place of Birth
- School Enrollment
- Undergraduate Field of Degree
- Veteran Status; Period of Military Service
- Year of Entry

Economic Variables

- Class of Worker
- Commuting (Journey to Work) and Place of Work
- Employment Status
- Food Stamps/Supplemental Nutrition Assistance Program (SNAP)
- Health Insurance Coverage
- Income and Earnings
- Industry
- Occupation
- Poverty Status
- Work Status Last Year

Housing Variables

- Bedrooms
- Computer and Internet Use
- House Heating Fuel
- Kitchen Facilities
- Occupancy/Vacancy Status
- Occupants per Room

Housing Variables (continued)

Plumbing Facilities

Rent

Rooms

Selected Monthly Owner Costs

Telephone Service Available

Tenure (Owner/Renter)

Units in Structure

Value of Home

Vehicles Available

Year Householder Moved into Unit

Year Structure Built

Demographic Variables

Age and Sex

Group Quarters Population

Hispanic or Latino Origin

Race

Relationship to Householder

Total Population

APPENDIX C

ASSESSMENT OF DEATH RECORDS, BRFSS DATA AND SVI DATA

Assessment of Death Records, BRFSS, and SVI Data

The following outline provides general guidance on the topics and evaluations of the data used in the assessment. For practical considerations, all materials generated in the analysis were not included in the assessment. Many of the evaluations were conducted to find unique or previously unknown conditions, inequities, or descriptions that could be included as recommendations.

All Deaths

- By year
- By year, w/wo COVID-19
- By age, continuous
- By age, 10-yr segments
- By white and American Indian race
- By rural/urban
- By gender
- By rural/urban and gender
- By race (white and American Indian)
- By Hispanic/not Hispanic
- By tobacco use
- By educational attainment
- By presence of diabetes/no diabetes

Primary Cause of Death

- By age, continuous
- By age, 10-year segments
- Ranked by frequency, most common to least common, all ages, entire state
- By year
- By rural and urban residence
- By race
- By gender
 - By age 64 and under, all races
 - By rural/urban
 - By only top 10 causes
 - By all years
 - By cause by year
 - By gender
 - By year (all deaths)
 - By year (all deaths w/wo COVID-19)

Primary Cause of Death (continued)

By American Indian

By age 64 and under

By rural/urban

By only top 10 causes

By all years

By cause by year

By gender

By tobacco use

By diabetes/no diabetes

By year (all deaths)

By year (all deaths w/wo COVID-19)

Contributing Causes of Death

Overall frequency of each contributing cause, without ranking

All population

For pop <=64

Overall frequency of each contributing cause, with ranking for first five contributors

Overall frequency of most important contributing causes, by primary cause

Total count of contributing causes for each primary cause

By all residences

By rural/urban

Average number of contributing causes per primary cause

For all residences

By rural/urban

For all ages

For pop <=64

Presence/absence of Diabetes

All deaths

All ages

By 10-year age cohorts

By children

By educational attainment

By rural/urban

All deaths

By gender

By race (including Hispanic)

All deaths

By 10-year age cohorts

All ages (continuous)

Using/not using Tobacco

All deaths

- All ages

- By 10-year age cohorts

- By children

- By educational attainment

- By rural/urban

 - All deaths

 - By gender

- By race (including Hispanic)

 - All deaths

 - By 10-year age cohorts

 - All ages (continuous)

Women of Childbearing Age

All deaths

- By year

- By white and American Indian race

- By rural/urban

- By gender

- By race (white and American Indian)

- By marital status

- By Hispanic/not Hispanic

- By educational attainment

- By presence of diabetes/no diabetes

- By tobacco use

Evaluation of Correlation, Age ≥ 18

- Number of deaths for each primary cause by county

- Number of deaths divided by population for each primary cause by county
correlated to

- BRFSS risk factors by county

- Number of deaths for each primary cause by county

- Number of deaths divided by population for each primary cause by county
correlated to

- Social vulnerability factors by county

- BRFSS risk factors by county

 - correlated to

- Social vulnerability factors by county

Evaluation of Percentage Rank

- Create percentage rank for each county for each BRFSS risk factor
- Create percentage rank for each county by combining BRFSS percentage rank by factor
- Use composite index to determine top 10 counties and bottom 10 counties
- Average the BRFSS factors by county for top 10 and bottom 10 counties
- Estimate difference for BFRSS risk factors (averaged) for top 10 and bottom 10 counties

- Create percentage rank for each county for each Social Vulnerability Index factor
- Create percentage rank for each county by combining SVI percentage rank by factor
- Use composite index to determine top 10 counties and bottom 10 counties
- Average the SVI factors by county for top 10 and bottom 10 counties
- Estimate difference for SVI risk factors (averaged) for top 10 and bottom 10 counties

Listing of top 10 and bottom 10 counties for BFRSS and SVI rankings

Top 10 and Bottom 10 Counties

For total deaths

- Primary cause of death for least-death counties

 - All ages

 - By 10-year age cohorts

- Primary cause of death for most-death counties

 - All ages

 - By 10-year age cohorts

- By gender

- By selected age cohorts

For total deaths/population (per capita values)

- Primary cause of death for least-death counties

 - All ages

 - By 10-year age cohorts

- Primary cause of death for most-death counties

 - All ages

 - By 10-year age cohorts

- By gender

- By selected age cohorts

County Listings

Total deaths

- By selected age cohorts

 - By race

Deaths by primary cause

- By selected age cohorts

 - By race

Per-capita Analysis

Total population

- For each county, computed state share for each primary cause of death

For each county, computed state share for total population
Difference in percentages were estimated and ranked by county
County ranks plotted low-to-high for each primary cause of death

Population age <=64
For each county, computed state share for each primary cause of death
For each county, computed state share for population age <=64
Difference in percentages were estimated and ranked by county
County ranks plotted low-to-high
County ranks plotted low-to-high for each primary cause of death

Estimated annual death rates per capita per county by primary cause of death
All population and all deaths
 All gender
 Male
 Female

Population <=64 and deaths age <=64
 All gender
 Male
 Female

For More Information:

Additional quantitative data, analysis and other health related metrics related to a variety of health-related metrics can be found at <https://www.health.nd.gov/>.

APPENDIX D
ASSESSMENT OF SOCIAL VUNERLABILITY INDEX

Social Vulnerability Index

The data points below are used to create the social vulnerability index. SVI variables are combined to create four themes and an overall index is created by combining all four themes into a single index:

- Socioeconomic
- Household Composition and Disability
- Minority Status and Language
- Housing Type a Transportation

- Overall Ranking, combination of the four themes.

For a detailed description of SVI variable selection rationale and methods, refer to:

A Social Vulnerability Index for Disaster Management

https://www.atsdr.cdc.gov/placeandhealth/svi/img/pdf/Flanagan_2011_SVIforDisasterManagement-508.pdf

Population estimate, 2014-2018 ACS

Population estimate MOE, 2014-2018 ACS

Housing units estimate, 2014-2018 ACS

Housing units estimate MOE, 2014-2018 ACS

Households estimate, 2014-2018 ACS

Households estimate MOE, 2014-2018 ACS

Persons below poverty estimate, 2014-2018 ACS

Persons below poverty estimate MOE, 2014-2018 ACS

Civilian (age 16+) unemployed estimate, 2014-2018 ACS

Civilian (age 16+) unemployed estimate MOE, 2014-2018 ACS

Per capita income estimate, 2014-2018 ACS

Per capita income estimate, MOE, 2014-2018 ACS

Persons (age 25+) with no high school diploma estimate, 2014-2018 ACS

Persons (age 25+) with no high school diploma estimate MOE, 2014-2018 ACS

Persons aged 65 and older estimate, 2014-2018 ACS

Persons aged 65 and older estimate MOE, 2014-2018 ACS

Persons aged 17 and younger estimate, 2014-2018 ACS

Persons aged 17 and younger estimate MOE, 2014-2018 ACS

Civilian noninstitutionalized population with a disability estimate, 2014-2018 ACS

Civilian noninstitutionalized population with a disability estimate MOE, 2014-2018 ACS

Single parent household with children under 18 estimate, 2014-2018 ACS

Single parent household with children under 18 estimate MOE, 2014-2018 ACS

Minority (all persons except white, non-Hispanic) estimate, 2014-2018 ACS

Minority (all persons except white, non-Hispanic) estimate MOE, 2014-2018 ACS

Persons (age 5+) who speak English "less than well" estimate, 2014-2018 ACS

Persons (age 5+) who speak English "less than well" estimate MOE, 2014-2018 ACS

Housing in structures with 10 or more units estimate, 2014-2018 ACS

Housing in structures with 10 or more units estimate MOE, 2014-2018 ACS

Mobile homes estimate, 2014-2018 ACS

Mobile homes estimate MOE, 2014-2018 ACS
 At household level (occupied housing units), more people than rooms estimate, 2014-2018 ACS
 At household level (occupied housing units), more people than rooms estimate MOE, 2014-2018 ACS
 Households with no vehicle available estimate, 2014-2018 ACS
 Households with no vehicle available estimate MOE, 2014-2018 ACS
 Persons in group quarters estimate, 2014-2018 ACS
 Persons in group quarters estimate MOE, 2014-2018 ACS
 Percentage of persons below poverty estimate
 Percentage of persons below poverty estimate MOE
 Unemployment Rate estimate
 Unemployment Rate estimate MOE
 Per capita income estimate, 2014-2018 ACS
 Per capita income estimate, MOE, 2014-2018 ACS
 Percentile Percentage of persons with no high school diploma (age 25+) estimate
 Persons (age 25+) with no high school diploma estimate MOE, 2014-2018 ACS
 Percentage of persons aged 65 and older estimate, 2014-2018 ACS
 Percentage of persons aged 65 and older estimate MOE, 2014-2018 ACS
 Percentage of persons aged 17 and younger estimate, 2014-2018 ACS
 Percentage of persons aged 17 and younger estimate MOE, 2014-2018 ACS
 Percentage of civilian noninstitutionalized population with a disability estimate, 2014-2018 ACS
 Percentage of civilian noninstitutionalized population with a disability estimate MOE, 2014-2018 ACS
 Percentage of single parent households with children under 18 estimate, 2014-2018 ACS
 Percentage of single parent households with children under 18 estimate MOE, 2014-2018 ACS
 Percentile percentage minority (all persons except white, non-Hispanic) estimate
 Percentage minority (all persons except white, non-Hispanic) estimate MOE, 2014-2018 ACS
 Percentage of persons (age 5+) who speak English "less than well" estimate, 2014-2018 ACS
 Percentage of persons (age 5+) who speak English "less than well" estimate MOE, 2014-2018 ACS
 Percentage of housing in structures with 10 or more units estimate
 Percentage of housing in structures with 10 or more units estimate MOE
 Percentage of mobile homes estimate
 Percentage of mobile homes estimate MOE
 Percentile percentage households with more people than rooms estimate
 Percentage of occupied housing units with more people than rooms estimate MOE
 Percentile percentage households with no vehicle available estimate
 Percentage of households with no vehicle available estimate MOE
 Percentile percentage of persons in group quarters estimate
 Percentage of persons in group quarters estimate MOE, 2014-2018 ACS
 Percentage of persons below poverty estimate
 Percentile Percentage of civilian (age 16+) unemployed estimate
 Per capita income estimate, 2014-2018 ACS
 Percentile Percentage of persons with no high school diploma (age 25+) estimate
 Sum of series for Socioeconomic theme
 Percentile ranking for Socioeconomic theme summary
 Percentile percentage of persons aged 65 and older estimate
 Percentile percentage of persons aged 17 and younger estimate
 Percentile percentage of civilian noninstitutionalized population with a disability estimate
 Percentage of single parent households with children under 18 estimate, 2014-2018 ACS

Sum of series for Household Composition theme
 Percentile ranking for Household Composition theme summary
 Percentile percentage minority (all persons except white, non-Hispanic) estimate
 Percentile percentage of persons (age 5+) who speak English "less than well" estimate
 Sum of series for Minority Status/Language theme
 Overall percentile ranking
 Percentile percentage housing in structures with 10 or more units estimate
 Percentile percentage mobile homes estimate
 Percentile percentage households with more people than rooms estimate
 Percentile percentage households with no vehicle available estimate
 Percentile percentage of persons in group quarters estimate
 Sum of series for Housing Type/
 Percentile ranking for Housing Type/
 Sum of series themes
 Overall percentile ranking
 Flag - the percentage of persons in poverty is in the 90th percentile (1 = yes, 0 = no)
 Flag - the percentage of civilian unemployed is in the 90th percentile (1 = yes, 0 = no)
 Flag - per capita income is in the 90th percentile (1 = yes, 0 = no)
 Flag - the percentage of persons with no high school diploma is in the 90th percentile (1 = yes, 0 = no)
 Sum of flags for Socioeconomic Status theme
 Flag - the percentage of persons aged 65 and older is in the 90th percentile (1 = yes, 0 = no)
 Flag - the percentage of persons aged 17 and younger is in the 90th percentile (1 = yes, 0 = no)
 Flag - the percentage of persons with a disability is in the 90th percentile (1 = yes, 0 = no)
 Flag - the percentage of single parent households is in the 90th percentile (1 = yes, 0 = no)
 Sum of flags for Household Composition theme
 Flag - the percentage of minority is in the 90th percentile (1 = yes, 0 = no)
 Flag - the percentage those with limited English is in the 90th percentile (1 = yes, 0 = no)
 Sum of flags for Minority Status/Language theme
 Flag - the percentage of households in multi-unit housing is in the 90th percentile (1 = yes, 0 = no)
 Flag - the percentage of mobile homes is in the 90th percentile (1 = yes, 0 = no)
 Flag - the percentage of crowded households is in the 90th percentile (1 = yes, 0 = no)
 Flag - the percentage of households with no vehicles is in the 90th percentile (1 = yes, 0 = no)
 Flag - the percentage of persons in institutionalized group quarters is in the 90th percentile (1 = yes, 0 = no)
 Sum of flags for Housing Type/
 Sum of flags for the four themes
 Adjunct variable - Uninsured in the total civilian noninstitutionalized population estimate, 2014-2018 ACS
 Adjunct variable - Uninsured in the total civilian noninstitutionalized population estimate MOE, 2014-2018 ACS
 Adjunct variable - Percentage uninsured in the total civilian noninstitutionalized population estimate, 2014-2018 ACS
 Adjunct variable - Percentage uninsured in the total civilian noninstitutionalized population estimate MOE, 2014-2018 ACS

APPENDIX E
FOCUS GROUP DISCUSSION GUIDE

Attachment A – Discussion Guide Handout

The following 4-page handout was used as the general discussion guide at each of the nine focus group sessions conducted as part of this research study.

WHAT SOCIAL FACTORS AFFECT YOUR HEALTH & WELL-BEING?

Focus Group Discussion Guide



NORTH
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Be Legendary.™

Sponsored and funded by the

North Dakota Department of Health

Meeting Purpose: To gather feedback regarding the impact of various social factors affecting health, well-being, and quality of life. Your input will influence policies and programs designed to improve the overall health and wellness of North Dakota citizens.

Your Role: To actively participate by sharing your opinions, insights, and experiences.



Guidelines:
right or wrong answers.
Up to 1.5 hours



Everyone's feedback matters. There are **Timeframe:** no
React to one another's
opinions in a polite and respectful manner.

WHAT ARE SOCIAL DETERMINANTS OF HEALTH?

Your health is determined in great part by social factors such as where you were born, as well as where you now live, learn, work, play and worship. These factors are called “social determinants of health.

				
ECONOMIC	EDUCATION	HEALTH CARE	ENVIRONMENT	COMMUNITY

Help people earn steady incomes that allow them to meet their health needs.	Increase educational opportunities and help children and adolescents do well in school.	Increase access to high-quality health care services.	Create environments that promote health and safety.	Increase social and community support.
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Poverty	Early childhood education	Access to Health Services	Quality of Housing	Social cohesion (Equality)
Unemployment	High school graduation	Access to Primary Care	Crime & Violence	Discrimination (Prejudice)
Hunger	College enrollment	Access to Wellness and Preventive Care	Public transportation	Civic Participation (Community)

Homelessness	Language & Literacy Skills	Health Literacy	Environmental Conditions	Incarceration
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GENERAL DISCUSSION:

For each of the 5 categories listed above, we will be discussing the following questions.

1. Which of these issues present the greatest threat or barrier to optimal health?
2. Which of these issues is the most prevalent or problematic?
3. Which of these issues is the least prevalent or problematic?

CLOSING DISCUSSION:

Following discussion of each of the 5 main categories, we will be discussing the following questions and opportunities for improvement.

1. Based on everything we have discussed, what is our State's greatest strength relating to social determinants?
2. On the flipside, what is our State's greatest weakness or barrier relating to social determinants?
3. If our State were to make one or two changes to significantly improve the health, wellness, and quality of life for you and other citizens, what would it be?



OPPORTUNITIES FOR IMPROVEMENT

- Employment programs
- Career counseling
- Affordable childcare
- Food assistance
- Low-income housing
- Public transportation
- Access to healthcare
- Tuition assistance
- Affordable health insurance
- Wellness screenings
- Walking/biking trails
- Clean water/air
- Neighborhood crime watch

ANONYMOUS PARTICIPANT SURVEY

Please complete the following anonymous survey to provide our research team with valuable demographic information for analysis and reporting purposes.

In which county do you currently reside? _____ Do you currently reside on a reservation? _____

How old are you? _____ How many years have you lived in the United States? _____ How many years have you lived in North Dakota? _____

How would you describe your gender?

- a. I'm male and I was assigned male at birth
- b. I'm male and I was assigned female at birth
- c. I'm non-binary or genderqueer
- d. I'm female and I was assigned male at birth
- e. I'm female and I was assigned female at birth
- f. Self-describe _____

What is your highest level of education?

- a. Less than high school
- b. Some high school
- c. Some college
- d. Associates Degree
- e. Bachelor's degree
- f. Graduate Degree
- g. Postgraduate
- h. Prefer not to answer

What is your approximate household income?

- a. Less than \$10,000
- b. \$10,000 to \$29,000
- c. \$30,000 to \$49,000
- d. \$50,000 to \$69,000
- e. \$70,000 to \$89,000
- f. Over \$90,000
- g. Unemployed
- h. Prefer not to answer

How many individuals live in your household? _____

What language do you primarily speak at home? _____

What is your race? (check all that apply)

- a. Asian
- b. Black or African American
- c. American Indian or Alaskan Native
- d. Native Hawaiian or Pacific Islander
- e. White
- f. More than one race

What is your ethnicity?

- a. Hispanic
- b. Non-Hispanic

Do you have tribal affiliation? _____ If yes, to which tribe do you belong? _____

What type of medical insurance do you have?

- a. Private (health insurance plans marketed by private health insurers)
- b. Medicare
- c. Medicaid
- d. Other Public Insurance
- e. No Insurance
- f. _____

Attachment B - Participant Recruitment Materials

The following messages and artwork are examples of recruitment materials used to source participants for the nine (9) focus group sessions conducted as part of this research study.

Recruitment (American Indian) – Facebook





Seeking Focus Group Participants
FREE Lunch + \$35 Visa Gift Card

Recruitment E-mail Template

Hello!

Agency MABU, a marketing and communications firm in Bismarck, will be hosting several one-hour focus groups across the state on behalf of the ND Department of Health. The topic of the focus groups are the social determinants of health.

The sessions will take place on July 13th in Grand Forks, July 14th in Fargo, July 15th in Bismarck, July 20th in Williston, July 27th in Beulah and July 29th in Rugby, North Dakota.

The purpose of the focus group is to seek input regarding the impact of various social factors affecting health, well-being, and quality of life. Your input will influence policies and programs designed to improve the overall health and wellness of North Dakota citizens. This focus group is strictly for area research and is not a recruitment event or sales pitch for any products.

Agency MABU is seeking participants from across the state for the focus groups. As thanks for participant's time and feedback, lunch and a \$35 Visa gift card will be provided.

Seating for the focus group is limited and there are now only a few spaces left! Please respond as soon as possible if you are interested by contacting Mac Houston at mac.houston@agencymabu.com to RSVP.

Recruitment Flyer – American Indian

FOCUS GROUP

Eat, Share, and Discuss

We are seeking focus group participants to gain further input regarding various social factors affecting health, well-being and quality of life in North Dakota, during an hour-long focus group!

As a token of appreciation for your feedback, a \$35 Visa gift card will be provided to all participants.

Focus group sessions will be conducted by Agency MABU. Space is limited. If you're interested in participating, please email trish@agencymabu.com, to reserve your spot.

WHAT: Market research study on social determinants of health

WHO: North Dakota's American Indian population

WHEN: August 10 | 12:00 - 1:30 PM | In-Person - Bismarck
August 12 | 6:00 - 7:30 PM | Virtual



The purpose of the focus group is to seek input on ways to improve policies and programs designed for the overall health and wellness of North Dakotans. This focus group is strictly for area research and is not a recruitment event or sales pitch for any products. We are interested in collecting opinions from North Dakotans.

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Recruitment Flyer – Rural Residents

FOCUS GROUP

Eat, Share, and Discuss

We are seeking focus group participants to gain further input regarding various social factors affecting health, well-being and quality of life in North Dakota, during an hour-long focus group!

As a token of appreciation for your feedback, a \$35 Visa gift card will be provided to all participants.

Focus group sessions will be conducted by Agency MABU. Space is limited. If you're interested in participating, please email trish@agencymabu.com, to reserve your spot.

WHAT: Market research study on social determinants of health

WHO: North Dakota's rural population

WHEN: August 12 | 6:00 PM - 7:30 PM
WHERE: Virtual focus group



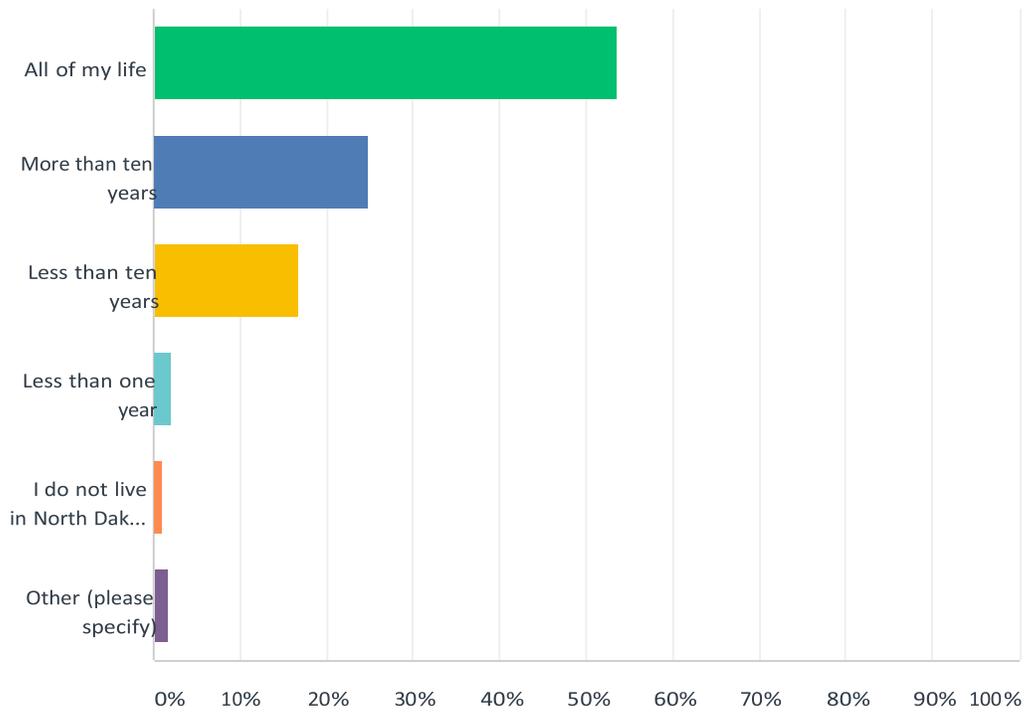
The purpose of the focus group is to seek input on ways to improve policies and programs designed for the overall health and wellness of North Dakotans. This focus group is strictly for area research and is not a recruitment event or sales pitch for any products. We are interested in collecting opinions from North Dakotans.

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APPENDIX F
SOCIAL DETERMINANTS OF HEALTH SURVEY RESULTS

Q1 How long have you lived in North Dakota?

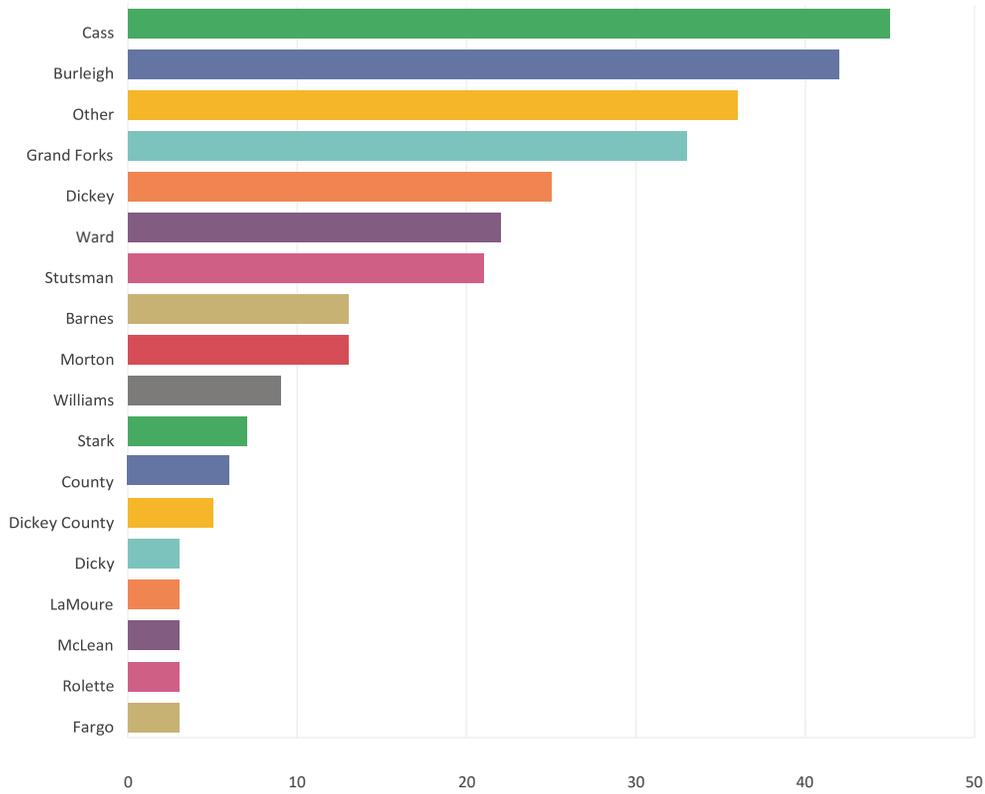
Answered: 293 Skipped: 0



ANSWER CHOICES	RESPONSES	
All of my life	53.58%	157
More than ten years	24.91%	73
Less than ten years	16.72%	49
Less than one year	2.05%	6
I do not live in North Dakota	1.02%	3
Other (please specify)	1.71%	5
TOTAL		293

Q2 In which county in North Dakota do you currently live?

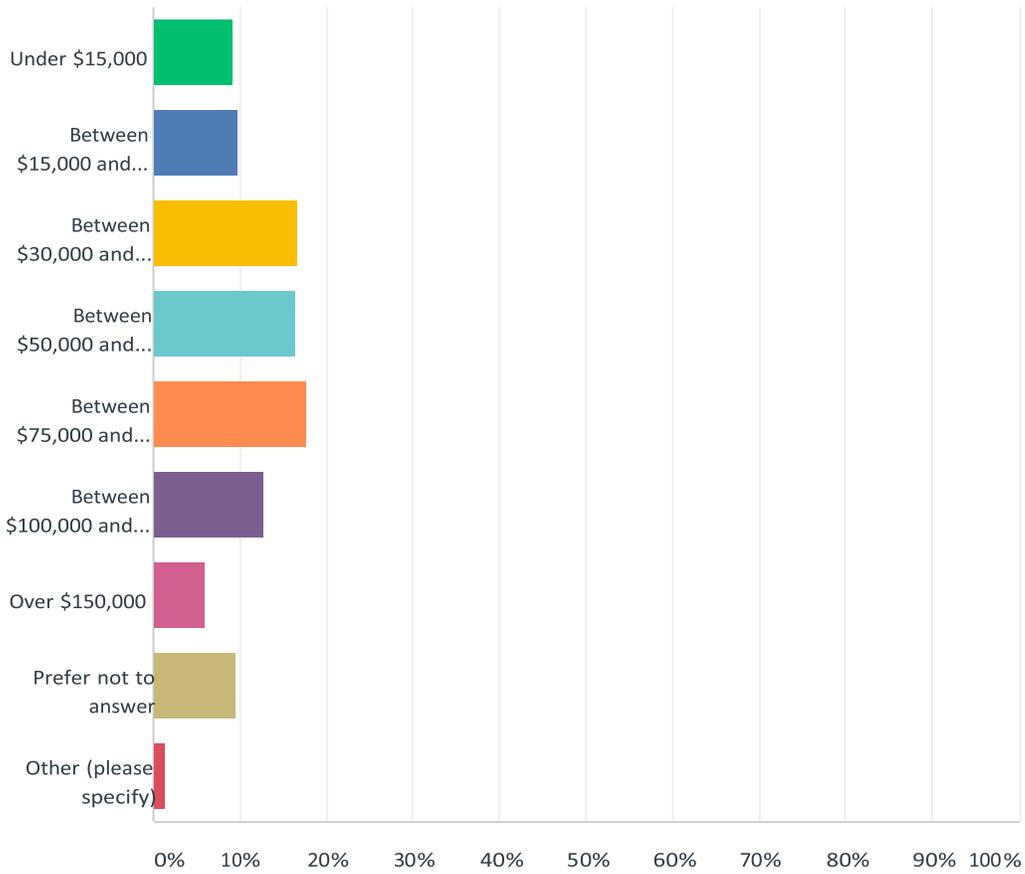
Answered: 292 Skipped: 1



ANSWER CHOICES	RESPONSES
Cass	(15.41%) 45
Burleigh	(14.38%) 42
Other	(12.3%) 36
Grand Forks	(11.3%) 33
Dickey	(8.56%) 25
Ward	(7.53%) 22
Stutsman	(7.19%) 21
Barnes	(4.45%) 13
Morton	(4.45%) 13
Williams	(3.08%) 9
Stark	(2.4%) 7
County	(2.05%) 6
Dickey County	(1.71%) 5
Dicky	(1.03%) 3
LaMoure	(1.03%) 3
McLean	(1.03%) 3
Rolette	(1.03%) 3
Fargo	(1.03%) 3
TOTAL	292

Q3 What is your approximate household income?

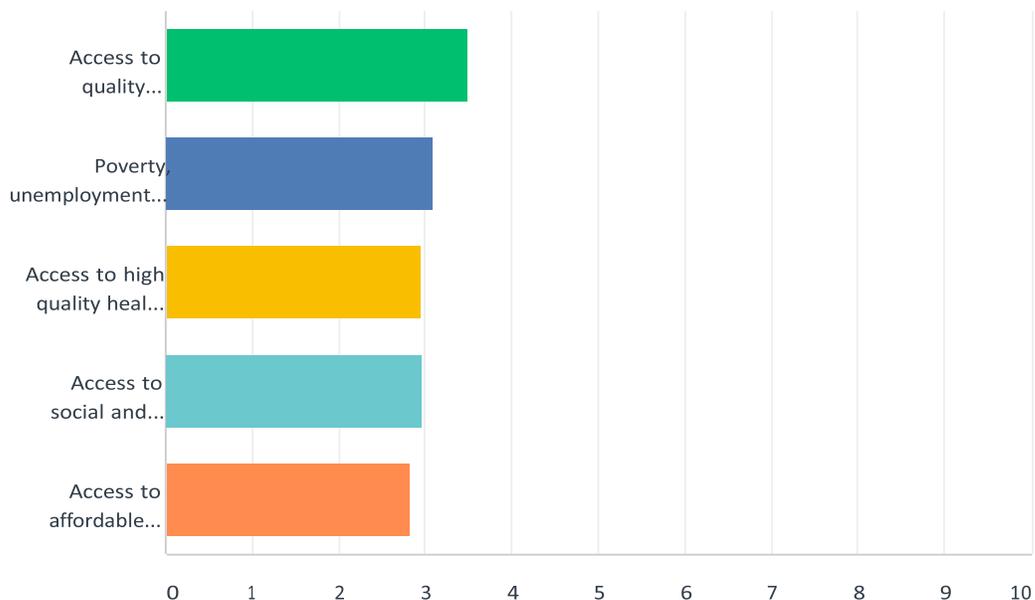
Answered: 292 Skipped: 1



ANSWER CHOICES	RESPONSES
Under \$15,000	9.25% 27
Between \$15,000 and \$29,999	9.93% 29
Between \$30,000 and \$49,999	16.78% 49
Between \$50,000 and \$74,999	16.44% 48
Between \$75,000 and \$99,999	17.81% 52
Between \$100,000 and \$150,000	12.67% 37
Over \$150,000	6.16% 18
Prefer not to answer	9.59% 28
Other (please specify)	1.37% 4
TOTAL	292

Q4 Please rank the following factors on a scale from 1 to 5, with 1 being defined as an "extremely low threat" and 5 being defined as an "extremely high threat" to your overall health and well-being.

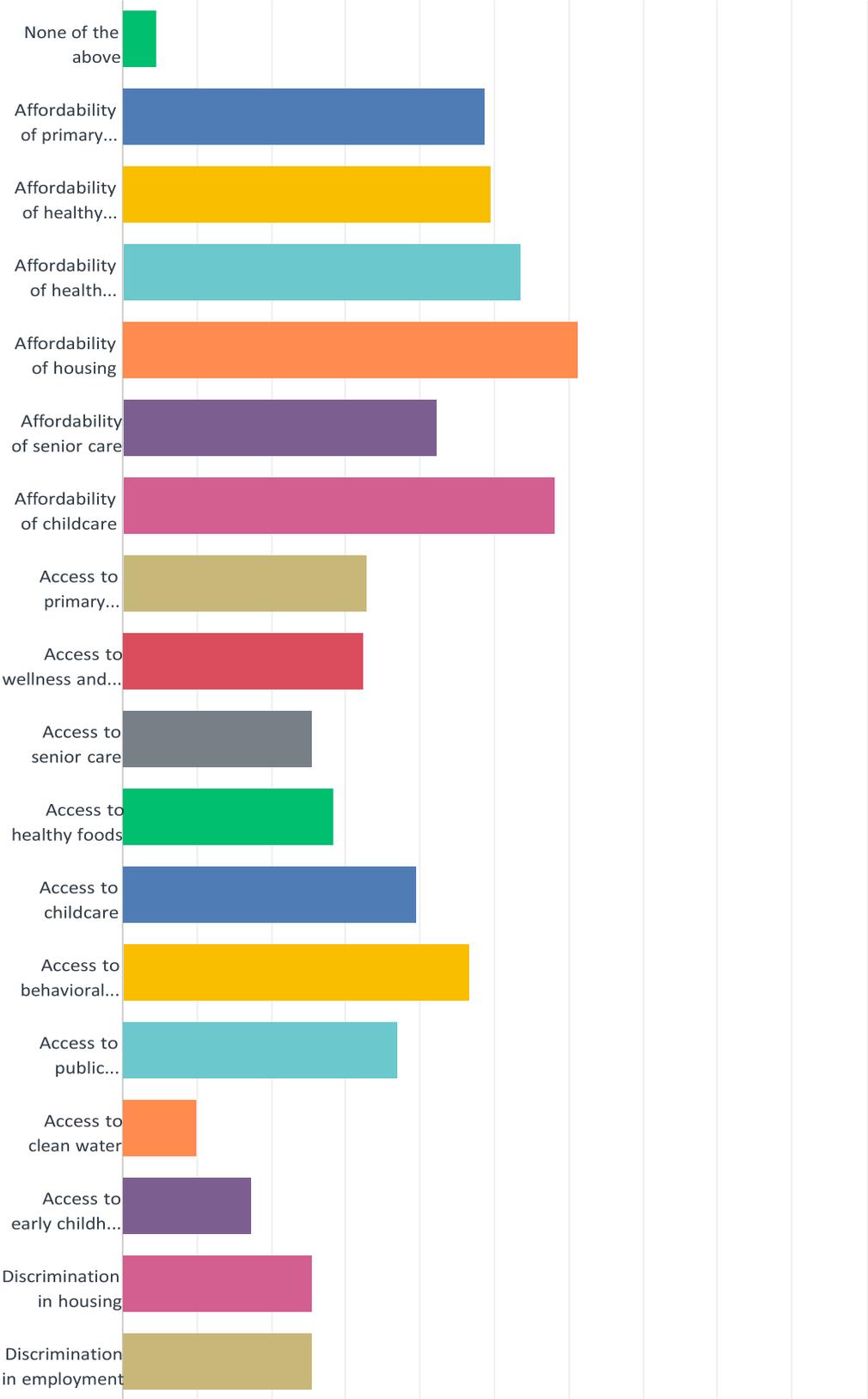
Answered: 288 Skipped: 5

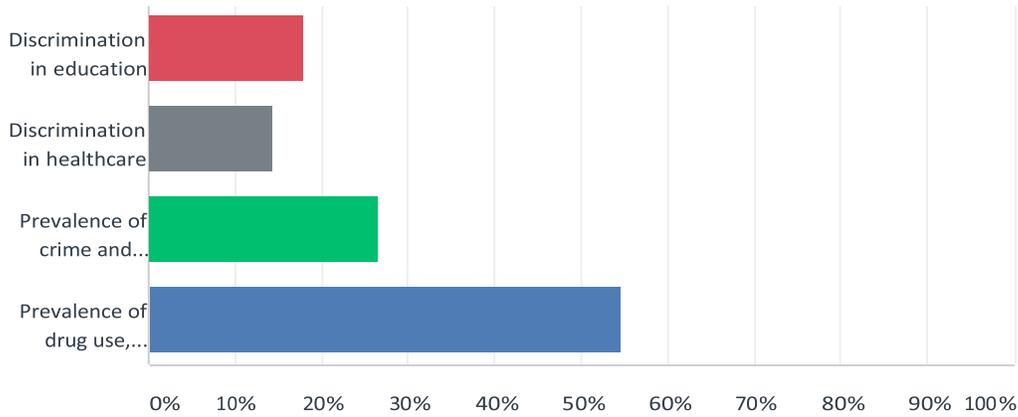


	1	2	3	4	5	TOTAL	SCORE
Access to quality education	37.23% 86	19.05% 44	13.85% 32	15.58% 36	14.29% 33	231	3.49
Poverty, unemployment, and homelessness	24.48% 59	19.92% 48	18.26% 44	16.18% 39	21.16% 51	241	3.10
Access to high quality health care services	10.79% 26	27.39% 66	25.31% 61	20.33% 49	16.18% 39	241	2.96
Access to social and community supports	15.87% 40	21.03% 53	23.81% 60	23.81% 60	15.48% 39	252	2.98
Access to affordable housing, issues of crime and violence or alcoholism	19.29% 54	14.29% 40	20.71% 58	20.36% 57	25.36% 71	280	2.82

Q5 Please check the boxes that you believe are serious issues in your community. (Check as many as apply):

Answered: 289 Skipped: 4

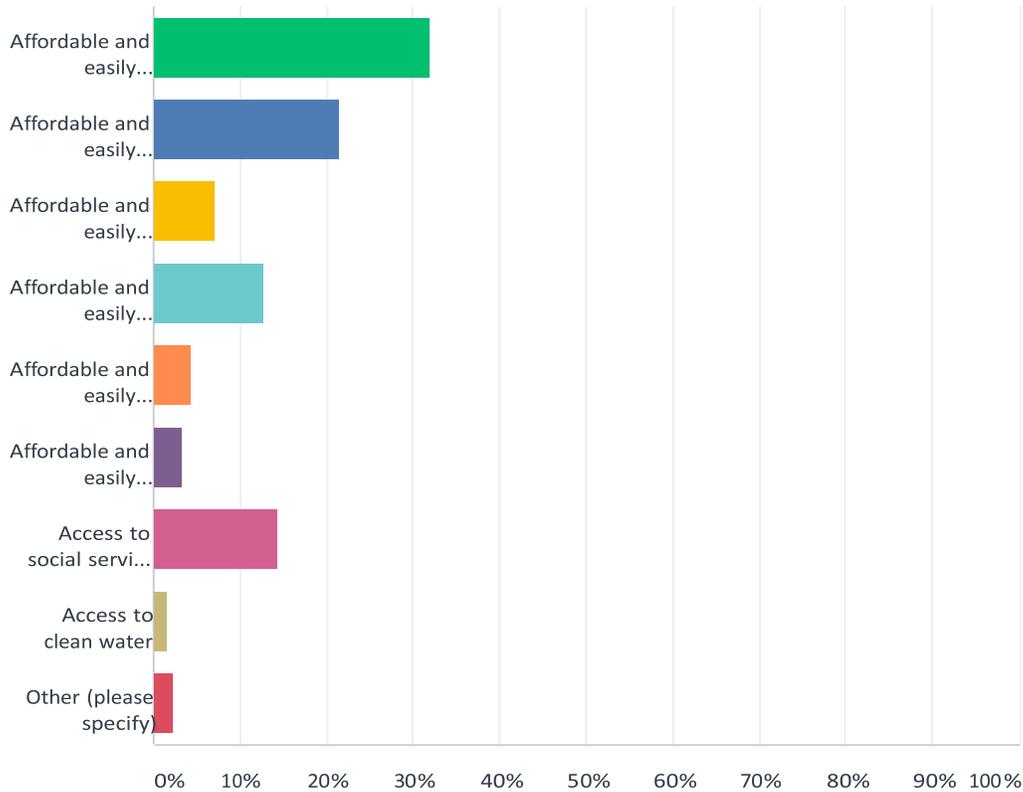




ANSWER CHOICES	RESPONSES
None of the above	4.50% 13
Affordability of primary healthcare	48.79% 141
Affordability of healthy foods	49.48% 143
Affordability of health insurance	53.63% 155
Affordability of housing	61.25% 177
Affordability of senior care	42.21% 122
Affordability of childcare	58.13% 168
Access to primary healthcare	32.87% 95
Access to wellness and preventive healthcare services	32.53% 94
Access to senior care	25.61% 74
Access to healthy foods	28.37% 82
Access to childcare	39.45% 114
Access to behavioral healthcare	46.71% 135
Access to public transportation	37.02% 107
Access to clean water	10.03% 29
Access to early childhood education	17.30% 50
Discrimination in housing	25.61% 74
Discrimination in employment	25.61% 74
Discrimination in education	17.99% 52
Discrimination in healthcare	14.53% 42
Prevalence of crime and violence	26.64% 77
Prevalence of drug use, alcoholism and other addictions	54.67% 158
Total Respondents: 289	

Q6 If the State of North Dakota were to improve one of the following, which would make the MOST positive impact to your personal health, wellness, and quality of life? (Check one)

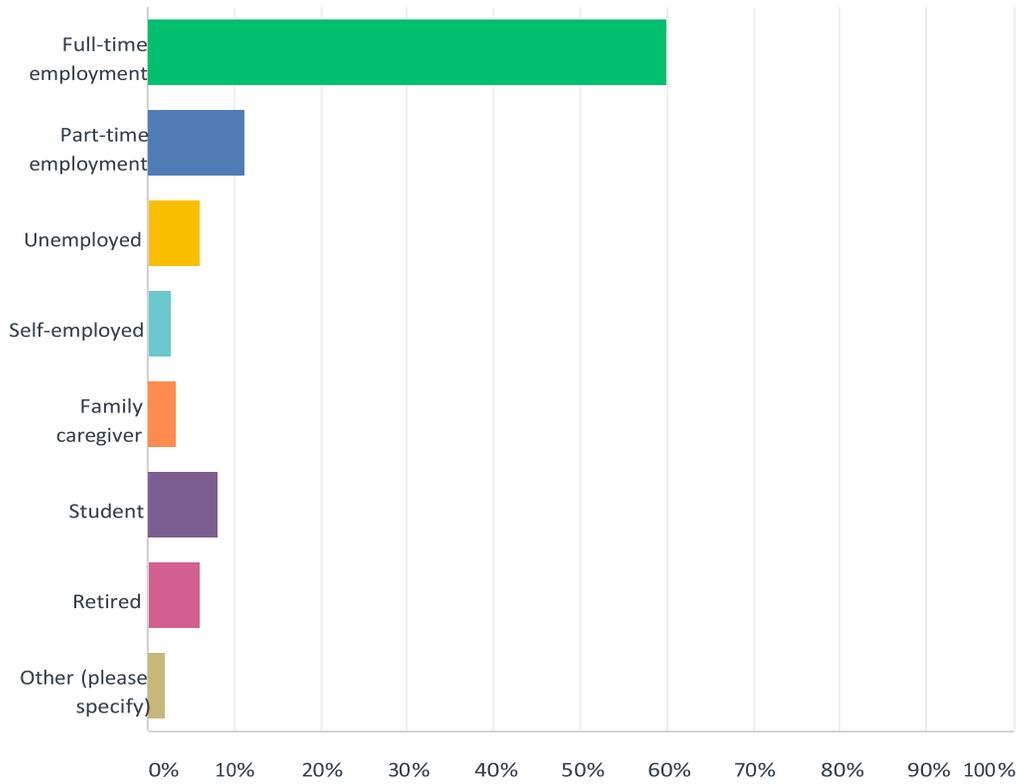
Answered: 291 Skipped: 2



ANSWER CHOICES	RESPONSES	
Affordable and easily accessible healthcare	31.96%	93
Affordable and easily accessible housing	21.65%	63
Affordable and easily accessible childcare	7.22%	21
Affordable and easily accessible healthy food options	12.71%	37
Affordable and easily accessible transportation	4.47%	13
Affordable and easily accessible education	3.44%	10
Access to social services programs (child protection, mental health professionals, services for elderly)	14.43%	42
Access to clean water	1.72%	5
Other (please specify)	2.41%	7
TOTAL		291

Q7 What is your current employment status?

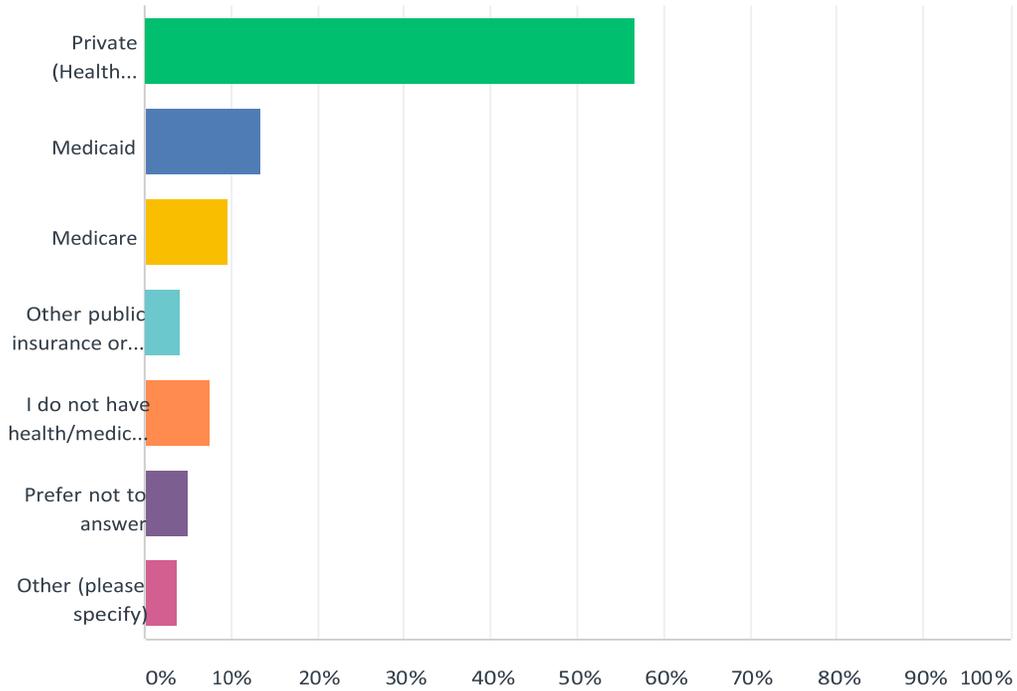
Answered: 293 Skipped: 0



ANSWER CHOICES	RESPONSES	
Full-time employment	60.07%	176
Part-time employment	11.26%	33
Unemployed	6.14%	18
Self-employed	2.73%	8
Family caregiver	3.41%	10
Student	8.19%	24
Retired	6.14%	18
Other (please specify)	2.05%	6
TOTAL		293

Q8 Which type of medical insurance do you have?

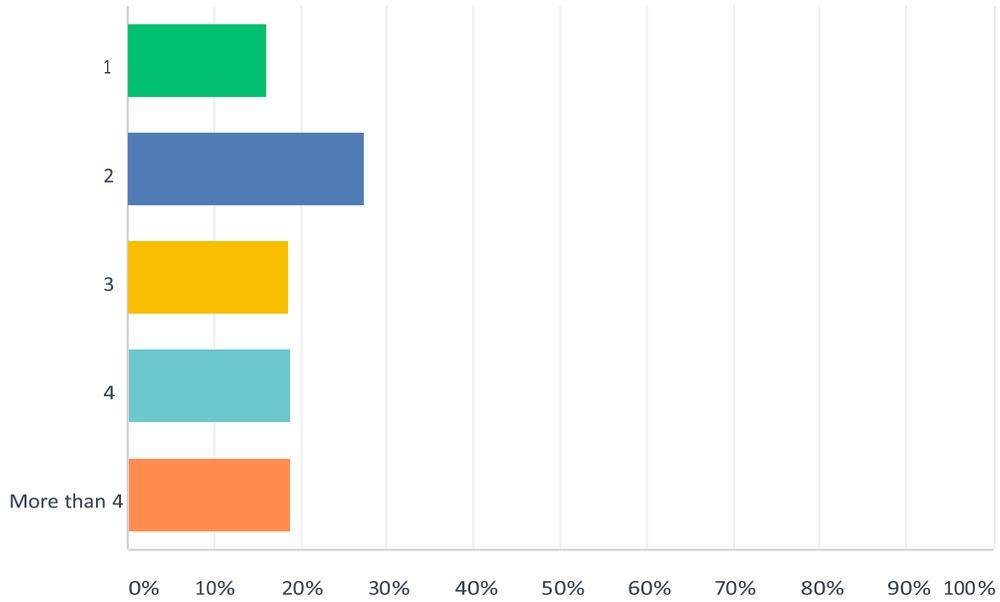
Answered: 293 Skipped: 0



ANSWER CHOICES	RESPONSES	
Private (Health insurance plans marketed by private health insurers)	56.66%	166
Medicaid	13.31%	39
Medicare	9.56%	28
Other public insurance or health care (Indian Health Service, Veterans Administration, Military, etc.)	4.10%	12
I do not have health/medical insurance	7.51%	22
Prefer not to answer	5.12%	15
Other (please specify)	3.75%	11
TOTAL		293

Q9 Including yourself, how many individuals (including yourself) live in your household?

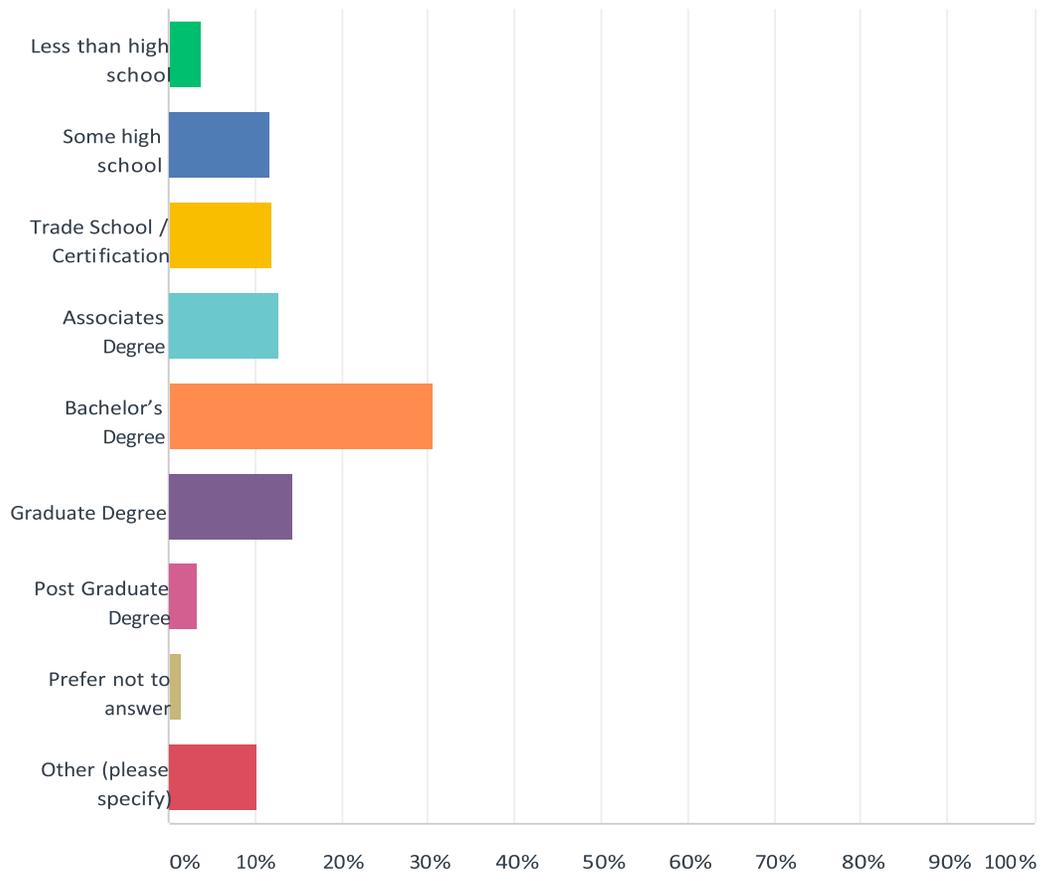
Answered: 291 Skipped: 2



ANSWER CHOICES	RESPONSES
1	16.15% 47
2	27.49% 80
3	18.56% 54
4	18.90% 55
More than 4	18.90% 55
TOTAL	291

Q10 What is your highest level of education?

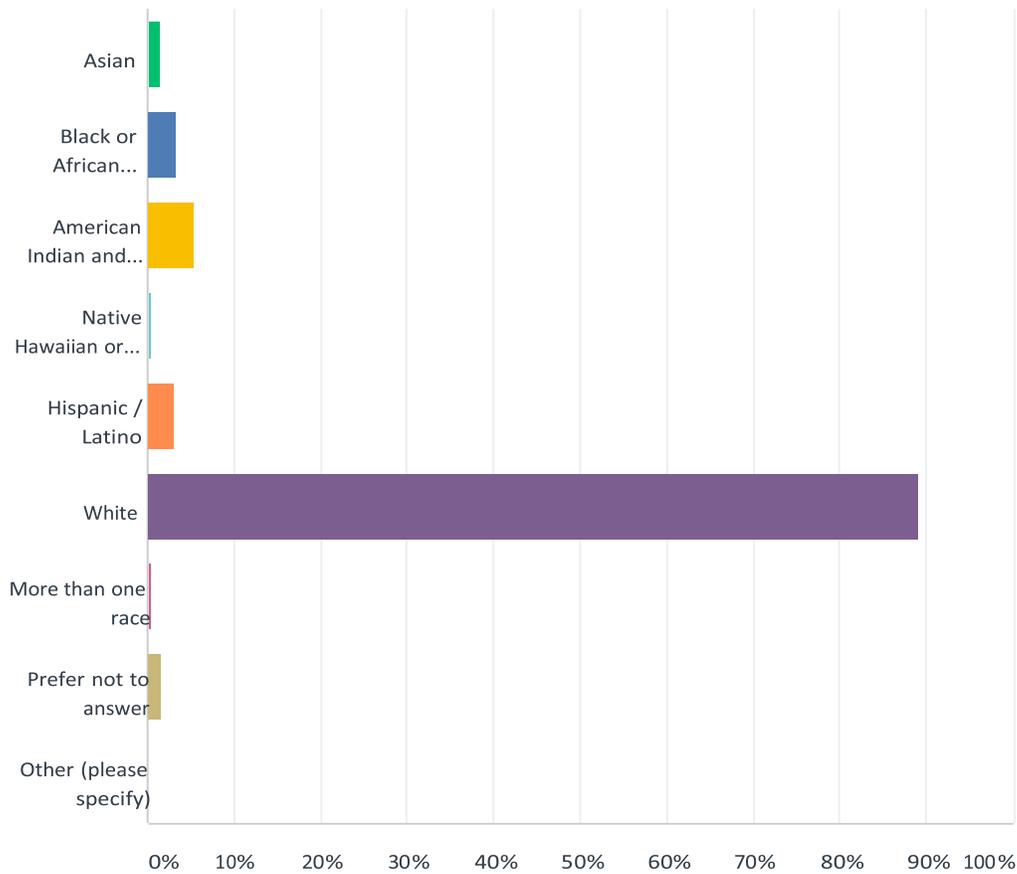
Answered: 292 Skipped: 1



ANSWER CHOICES	RESPONSES	
Less than high school	3.77%	11
Some high school	11.64%	34
Trade School / Certification	11.99%	35
Associates Degree	12.67%	37
Bachelor's Degree	30.48%	89
Graduate Degree	14.38%	42
Post Graduate Degree	3.42%	10
Prefer not to answer	1.37%	4
Other (please specify)	10.27%	30
TOTAL		292

Q11 What is your race/ethnicity? Check all that apply.

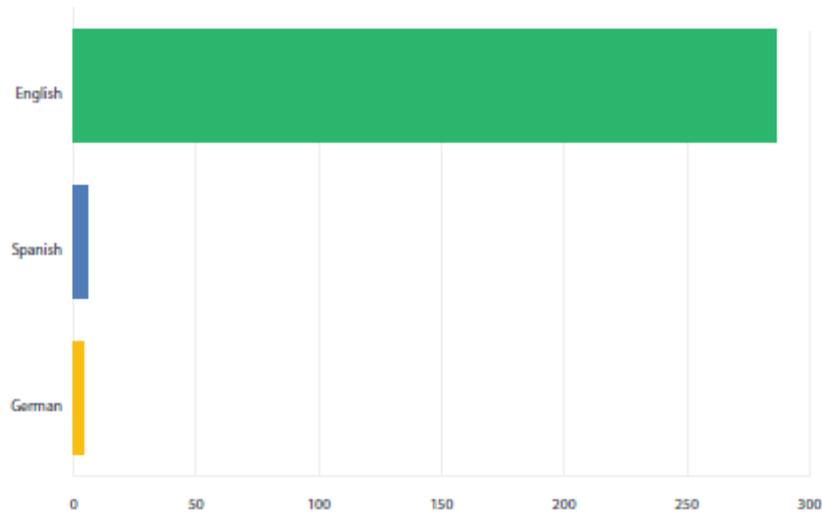
Answered: 293 Skipped: 0



ANSWER CHOICES	RESPONSES	
Asian	1.37%	4
Black or African American	3.41%	10
American Indian and Alaska Native	5.46%	16
Native Hawaiian or Pacific Islander	0.34%	1
Hispanic / Latino	3.07%	9
White	89.08%	261
More than one race	0.34%	1
Prefer not to answer	1.71%	5
Other (please specify)	0.00%	0
Total Respondents: 293		

Q12 What language(s) do you speak at home?

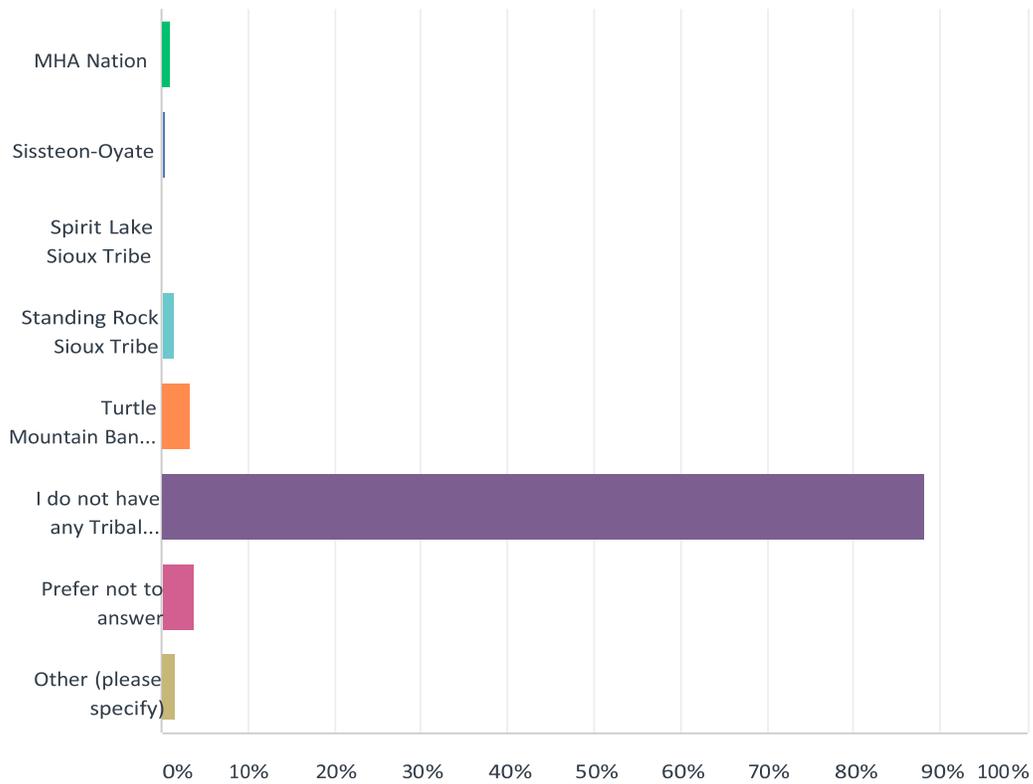
Answered: 291 Skipped: 2



ANSWER CHOICES	RESPONSES
English	(98.29%) 286
Spanish	(2.06%) 6
German	(1.37%) 4
TOTAL	296

Q13 Are you affiliated with an American Indian Tribe within North Dakota?

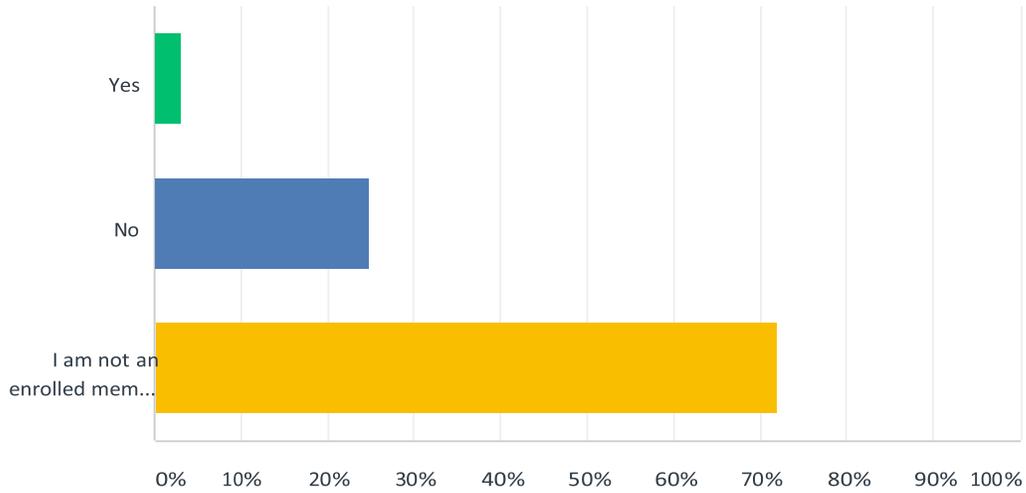
Answered: 291 Skipped: 2



ANSWER CHOICES	RESPONSES
MHA Nation	1.03% 3
Sisteon-Oyate	0.34% 1
Spirit Lake Sioux Tribe	0.00% 0
Standing Rock Sioux Tribe	1.37% 4
Turtle Mountain Band of Chippewa	3.44% 10
I do not have any Tribal affiliation	88.32% 257
Prefer not to answer	3.78% 11
Other (please specify)	1.72% 5
TOTAL	291

Q14 If you are a member of an American Indian Tribe, do you currently reside in a reservation area within North Dakota's borders?

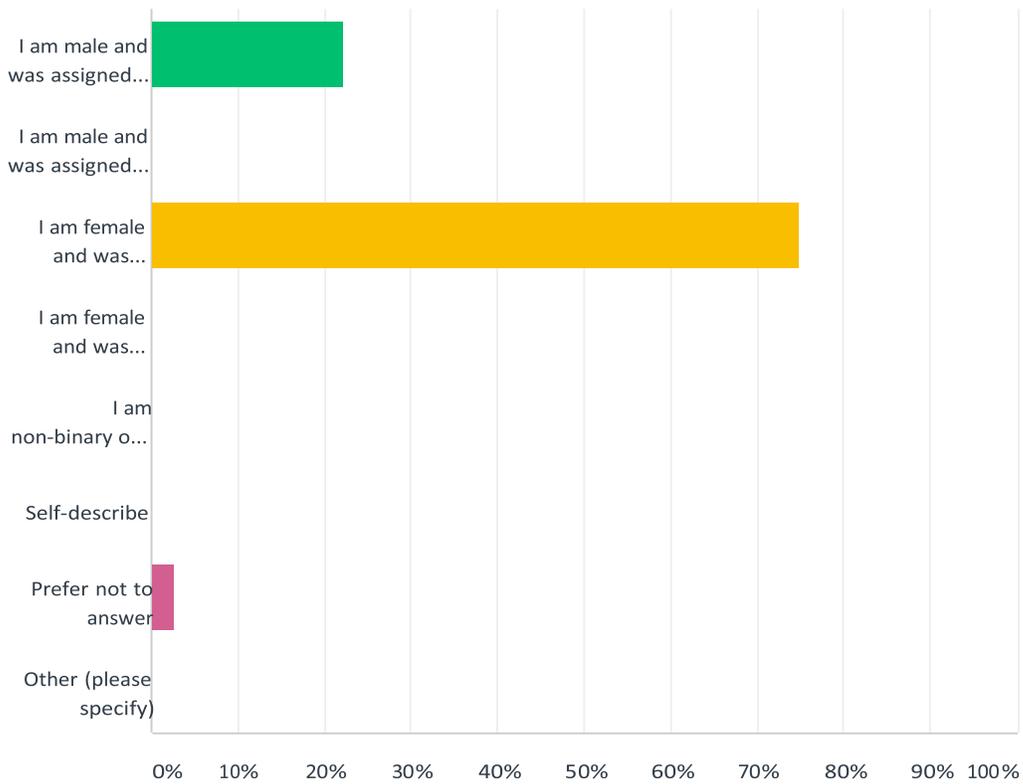
Answered: 293 Skipped: 0



ANSWER CHOICES	RESPONSES
Yes	3.07% 9
No	24.91% 73
I am not an enrolled member of a Tribe within North Dakota	72.01% 211
TOTAL	293

Q15 How would you describe your gender?

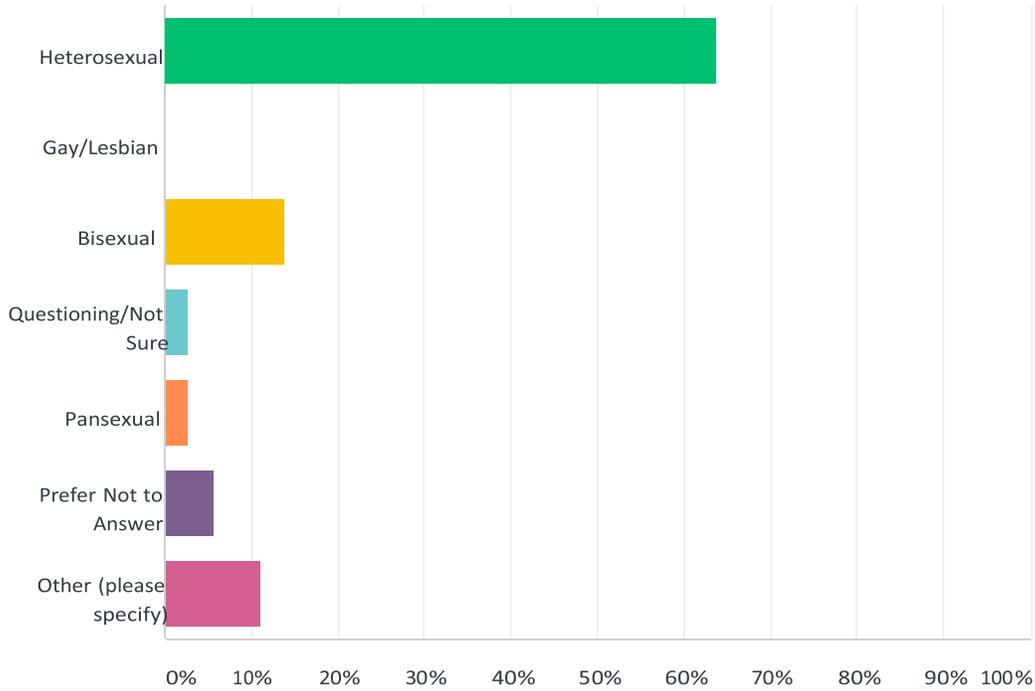
Answered: 36 Skipped: 257



ANSWER CHOICES	RESPONSES	
I am male and was assigned male at birth	22.22%	8
I am male and was assigned female at birth	0.00%	0
I am female and was assigned female at birth	75.00%	27
I am female and was assigned male at birth	0.00%	0
I am non-binary or gender queer	0.00%	0
Self-describe	0.00%	0
Prefer not to answer	2.78%	1
Other (please specify)	0.00%	0
TOTAL		36

Q16 How do you describe yourself?

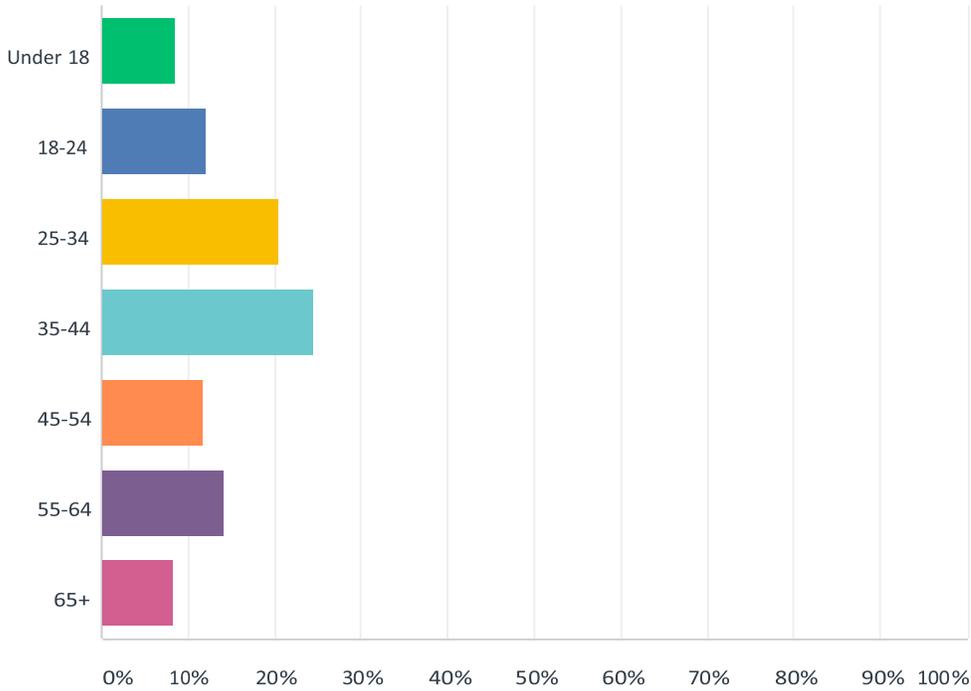
Answered: 36 Skipped: 257



ANSWER CHOICES	RESPONSES	
Heterosexual	63.89%	23
Gay/Lesbian	0.00%	0
Bisexual	13.89%	5
Questioning/Not Sure	2.78%	1
Pansexual	2.78%	1
Prefer Not to Answer	5.56%	2
Other (please specify)	11.11%	4
TOTAL		36

Q17 What is your age?

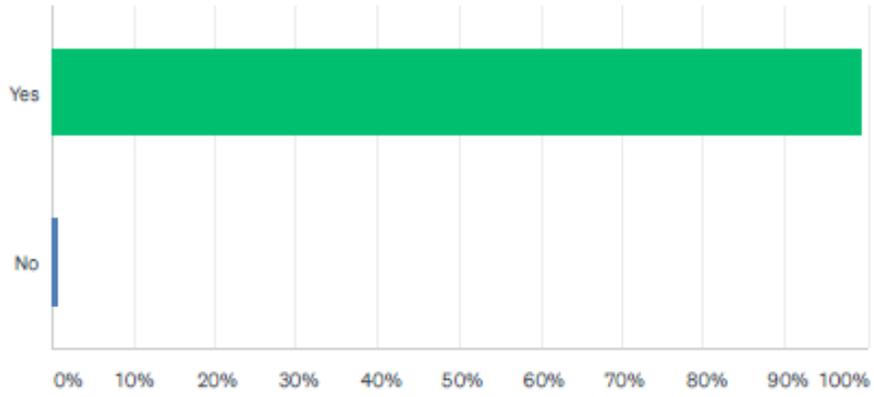
Answered: 289 Skipped: 4



ANSWER CHOICES	RESPONSES	
Under 18	8.65%	25
18-24	12.11%	35
25-34	20.42%	59
35-44	24.57%	71
45-54	11.76%	34
55-64	14.19%	41
65+	8.30%	24
TOTAL		289

Q18 Are you a North Dakota resident

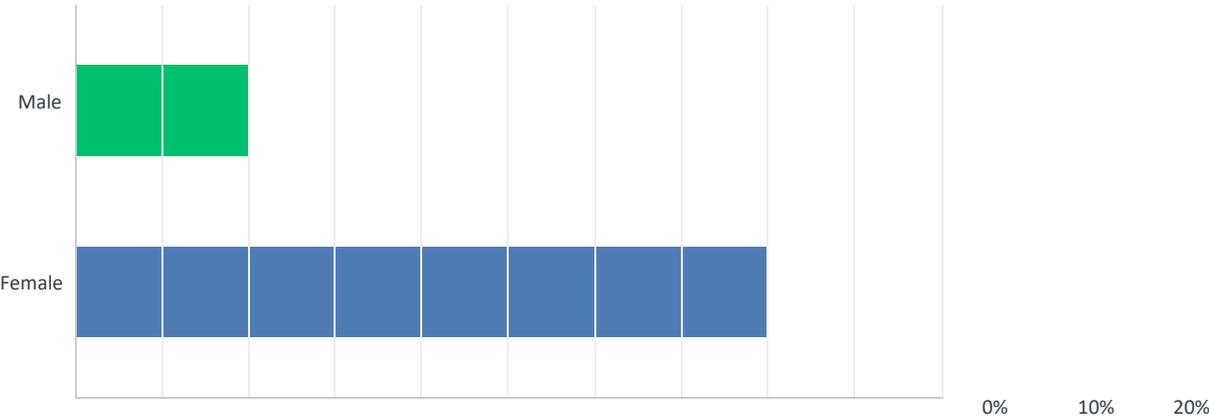
Answered: 289 Skipped: 4



ANSWER CHOICES	RESPONSES	
Yes	99.31%	287
No	0.69%	2
TOTAL		289

Q19 Gender

Answered: 125 Skipped: 168



ANSWER CHOICES	RESPONSES
Male	20.00% 25
Female	80.00% 100
TOTAL	125

30% 40% 50% 60% 70% 80% 90% 100%

Q20 Household Income

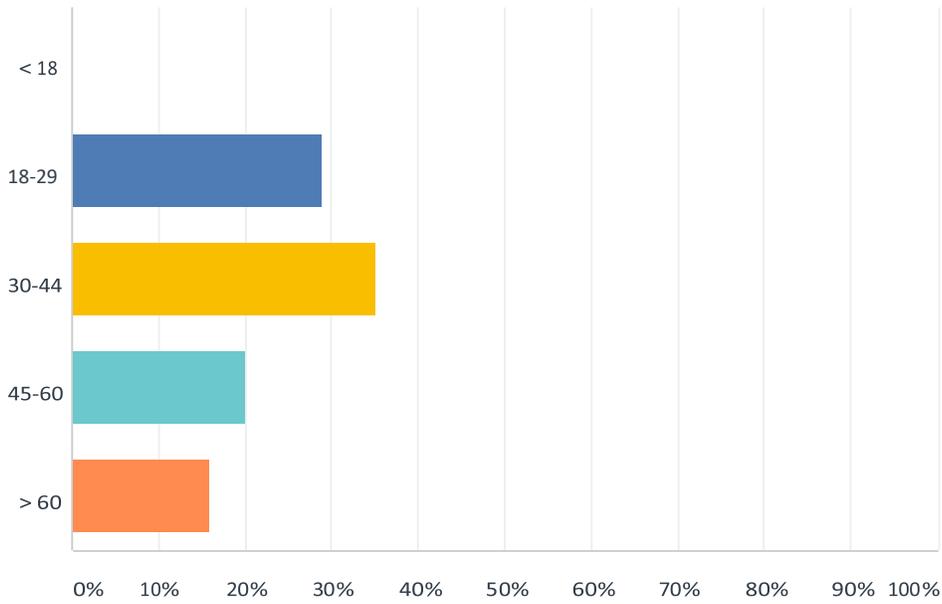
Answered: 0 Skipped: 293

! No matching responses.

ANSWER CHOICES	RESPONSES
\$0-\$9,999	0.00% 0
\$10,000-\$24,999	0.00% 0
\$25,000-\$49,999	0.00% 0
\$50,000-\$74,999	0.00% 0
\$75,000-\$99,999	0.00% 0
\$100,000-\$124,999	0.00% 0
\$125,000-\$149,999	0.00% 0
\$150,000-\$174,999	0.00% 0
\$175,000-\$199,999	0.00% 0
\$200,000+	0.00% 0
Prefer not to answer	0.00% 0
TOTAL	0

Q21 Age

Answered: 125 Skipped: 168



ANSWER CHOICES	RESPONSES
< 18	0.00% 0
18-29	28.80% 36
30-44	35.20% 44
45-60	20.00% 25
> 60	16.00% 20
TOTAL	125

Q22 Region

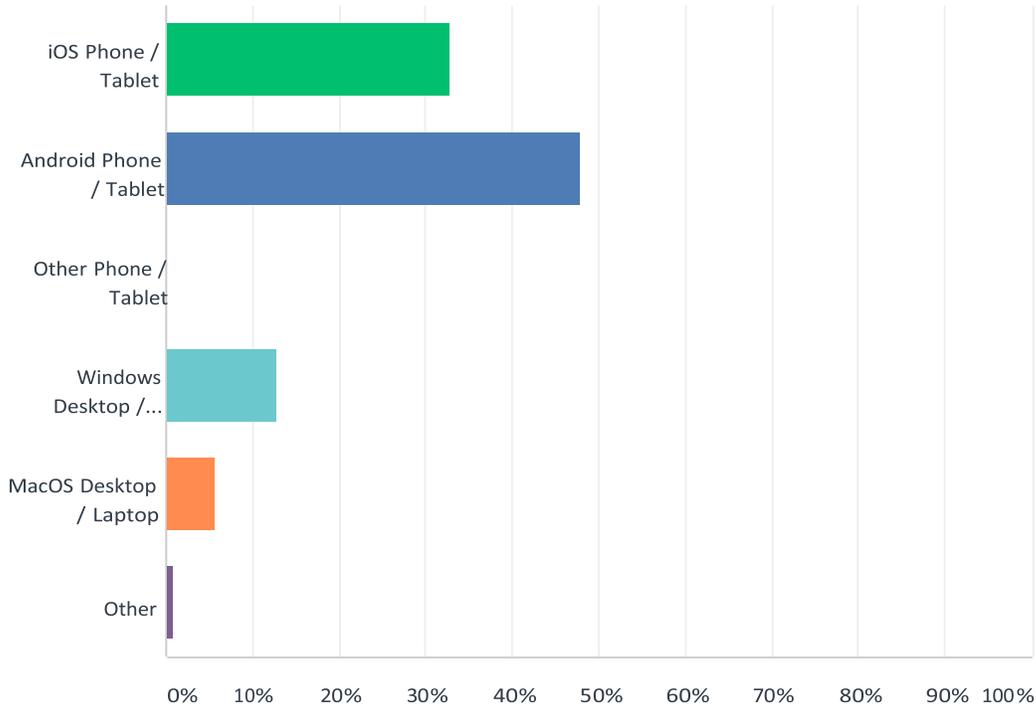
Answered: 0 Skipped: 293

! No matching responses.

ANSWER CHOICES	RESPONSES
East North Central	0.00% 0
East South Central	0.00% 0
Middle Atlantic	0.00% 0
Mountain	0.00% 0
New England	0.00% 0
Pacific	0.00% 0
South Atlantic	0.00% 0
West North Central	0.00% 0
West South Central	0.00% 0
TOTAL	0

Q23 Device Type

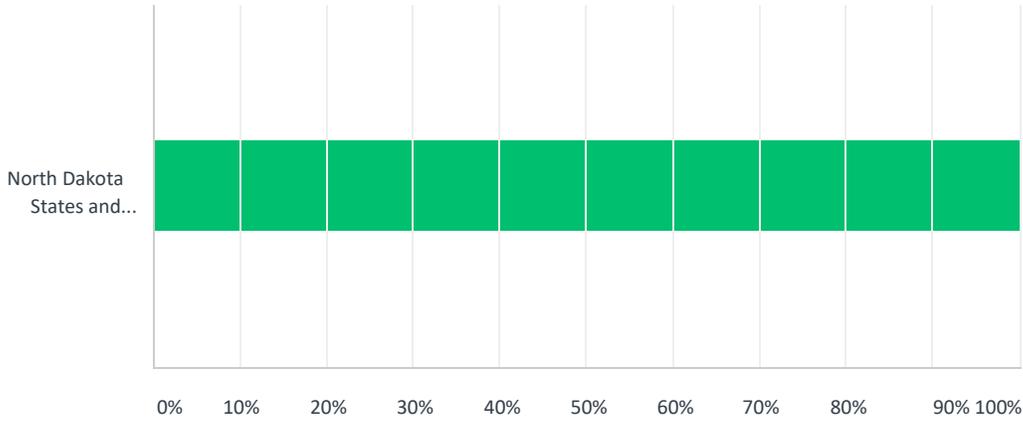
Answered: 125 Skipped: 168



ANSWER CHOICES	RESPONSES	
iOS Phone / Tablet	32.80%	41
Android Phone / Tablet	48.00%	60
Other Phone / Tablet	0.00%	0
Windows Desktop / Laptop	12.80%	16
MacOS Desktop / Laptop	5.60%	7
Other	0.80%	1
TOTAL		125

Q24 United States Region

Answered: 125 Skipped: 168



ANSWER CHOICES	RESPONSES
North Dakota - States and Territories	100.00% 125
TOTAL	125