Center *for* Rural Health

Chronic Disease Assessment Report for North Dakota

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INTRODUCTION

The North Dakota Community Transformation Grant Leadership Team (CTG Leadership Team) is working to improve population health in the state through partnerships, collaborations with tribal governments, and community members and stakeholders. To accomplish this, the CTG Leadership team had conducted a statewide health assessment planning process. This assessment provides an overview of a state's population characteristics, social and economic factors, and health outcomes. The purpose of a statewide health assessment is to collect and analyze data in a way that educates and mobilizes communities to develop health priorities, leverage resources, and plan actions to improve population health. This is accomplished through the systematic collection and analysis of data from a wide range of sources to provide a thorough basis for decision-making, and with the active involvement of partners throughout each step in the proposed activities.

NORTH DAKOTA'S PARTNERSHIPS

North Dakota's Community Transformation Grant Leadership Team consists of three main partner organizations; namely, the North Dakota Department of Health, North Dakota State University Master of Public Health Program, and the University of North Dakota Center for Rural Health. Members of the CTG Leadership Team each serve a defined purpose and bring their own expertise to the table. Each member serves on multiple state-level health committees in order to reduce duplication of efforts across all chronic disease efforts in the state. The relatively small health community within the state lends itself to the ease of collaboration with which this report was developed.

METHODOLOGY

This report provides an overview of the existing framework for prevention efforts in North Dakota. A scan was conducted beginning in April of 2012 that inventoried these efforts in selected prevention areas, namely: tobacco prevention and control, healthy living with a focus on nutrition and physical activity, and chronic disease clinical prevention services. Additionally, many data sources were collected and analyzed to indicate the health status of North Dakotans, with additional focus on American Indian data. The health issues facing the state's citizens are numerous, and many of them are preventable. These health issues are presented throughout the pages that follow. This report highlights some of the key programs and organizations involved in addressing these health issues.

The approach used to create this report follows recommendations from the Centers for Disease Control and Prevention's Community Transformation Grant program. The Centers for Disease Control and Prevention (CDC)'s Community Transformation Grant (CTG) program provides

grant dollars to communities to assess their capacity and need for services and interventions in three main areas – tobacco prevention and control, healthy living with a focus on nutrition and physical activity, and chronic disease prevention services. The program's overarching goal is to improve the health of Americans through prevention and wellness. According to the CDC, efforts of the CTG are expected to improve the health of more than 130 million citizens nationwide.

The report is also structured with input from key stakeholders and experts in the health areas discussed. Information gathered from the collection of health data sets, state and local forums on health topics, and collaborative agencies all provide valuable information to the state health assessment report. Selection of the data sets used for purposes of this report is based on their relevance to CTG focus areas, methodology used to compile the data, availability of the data, and the date the data was collected. Current, comprehensive, and complementary data sets were selected for use in this report. Regarding North Dakota's relatively small population, special consideration was taken in the selection of data sets that are statistically relevant.

PURPOSE

A variety of stakeholders can use this report to support efforts on collaboration to improve the health status of a community. Suggested uses for this report and its appendices include health fair material and grant development. This assessment is a first step and crucial component in the state health improvement planning process. It is expected that these findings will be used to identify key strategic issues and priorities for community action and to develop a state health improvement plan.

DEFINITIONS

Several phrases that describe key concepts are used throughout this report.

- Health status – defined by population mortality, chronic disease prevalence, and behavioral risk factors.
- Healthcare infrastructure – includes locations of key health-related institutions such as hospitals, clinics, public health units, and pharmacies.
- Metropolitan – describes areas with a population of 50,000 or greater.
- Micropolitan/Large Rural – describes areas with a population of 10,000 to 49,999.
- Rural – describes areas with a population of less than 10,000.
- Frontier – a county with a population density of six or less people per square mile.

DEMOGRAPHICS

POPULATION CHARACTERISTICS

North Dakota is composed of a mixture of several larger cities and clusters of population, many smaller towns, and large areas of low population density. The state has a low population density overall, ranking 49th when compared nationally. (U.S. Census Bureau, 2011) North Dakota averaged 9.7 persons per square mile compared to 87.4 persons per square mile for the U.S. as a whole. The county population density range was between 0.6 persons per square mile in Slope County up to 84.9 persons per square mile in Cass County. A total of 36 counties in North Dakota had less than 6 persons per square mile. (U.S. Census Bureau, 2009) The following map shows this geographical characterization of each county.

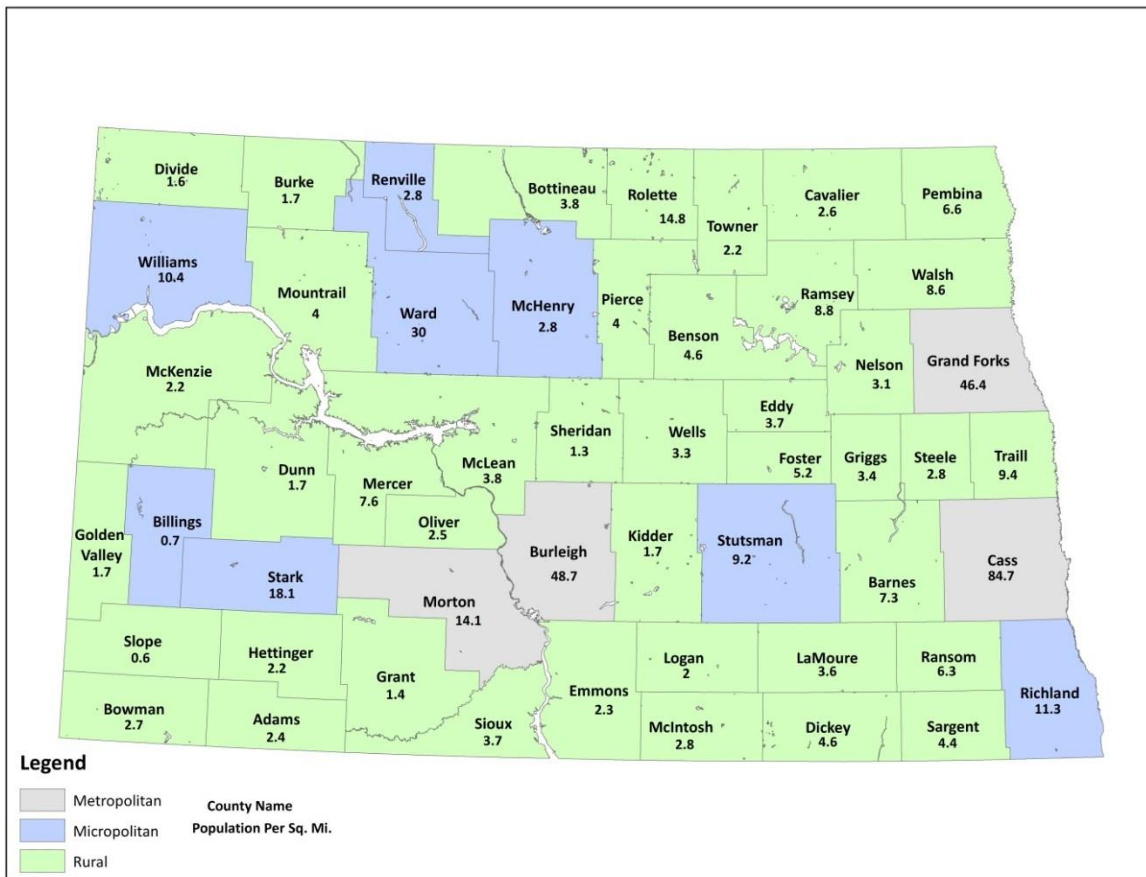


Figure 1. Metropolitan, micropolitan, and rural counties in North Dakota. (U.S. Census Bureau, 2011) (U.S. Census Bureau, 2011)

The historical population of North Dakota has remained relatively stable when the years 1930 to 2010 were examined (average 645,000 persons). The lowest population in that time range was in 1970 (617,761) with the highest population in 1930 (680,845). The 2010 Census found the population of North Dakota to be 672,591 (0.2% of the total U.S.population). The Census Bureau has estimated the population as of July 1, 2013 to be 723,393 which would be the highest recorded population in North Dakota's history. The historical overall population change is illustrated in the graph below.

Figure 2. Population of North Dakota from 1910 to 2010. (U.S. Census Bureau, 2011)

When broken down by geographic definition (metro, micro, or rural), it can be seen that since 1930, the rural population of North Dakota has been on the decline, the micropolitan population has remained relatively stable, and the metropolitan population has steadily increased. This can be attributed to a number of factors, including outmigration to different states and rural citizens moving to metropolitan or micropolitan areas.

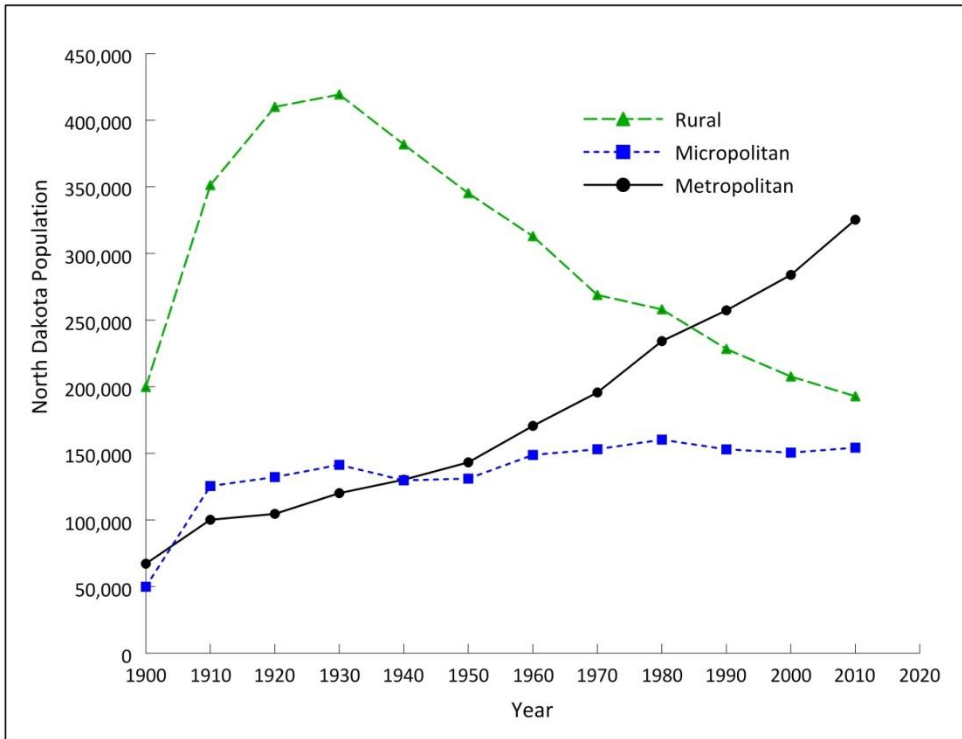


Figure 3. Population in North Dakota from 1900 to 2010 by metropolitan, micropolitan, and rural counties. (U.S. Census Bureau, 2011) (U.S. Census Bureau, 2009)

GENDER

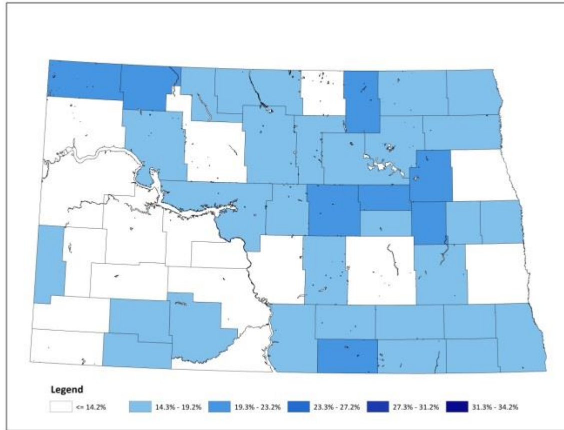
The gender breakdown for North Dakota includes 50.5% male compared to 49.2% male for the U.S. as a whole. The gender proportion range in North Dakota was between 47.6% male in Hettinger County to 54.5% male in Slope County. A total of 31 counties had a higher proportion of male residents than the state as a whole. (U.S. Census Bureau, 2011)

AGE

The population of North Dakota has shown steady increases in age with each census, especially in the rural counties. This is due to a number of factors, including the migration of younger aged people to other states and to metropolitan counties within North Dakota. People are also generally living longer now than in the past. However, there remains a notable disparity in the life expectancy of American Indians. The life expectancy of men in the United States is 75.1 years on average, while the life expectancy of American Indian men in the United States is 63.5 years, which is a difference of 10.6 years. (Heron, Hoyert, Murphy, Xu, Kochanek, & Tejada-Vera, 2009) The average age at death in North Dakota is 75.7 years in the white population, but 54.7 years in the American Indian population. The median age in North Dakota was 37 years of age compared to 37.2 for the U.S.as a whole. The median age range was between 26.3 in Sioux County (population is largely American Indian) to 53.4 in Sheridan County. A total of 46 counties had a median age greater than the statewide median age. North Dakota had slightly more young (under age 18) and old (age 65 and greater) population proportions than the U.S.. North Dakota had 25.6% of population under age 18 compared to 24% for the U.S.as a whole, and 14.5% of the population age 65 and greater compared to 13% for the U.S.as a whole. The proportion of very old (age 85 and greater) population in North Dakota has increased from 1.25% in 1980 to 2.5% in 2010 compared to 1.8% for the U.S. as a whole. (U.S. Census Bureau, 2011)

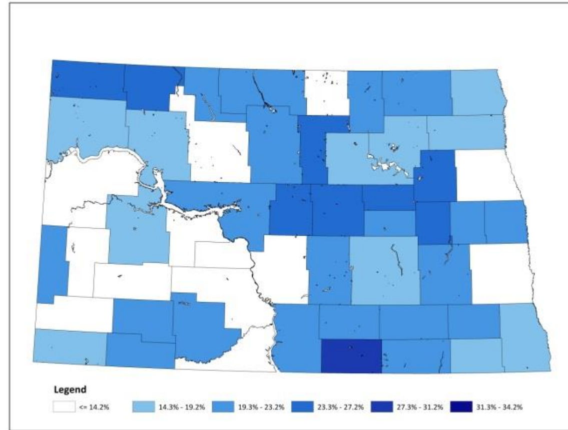
The following series of maps highlights the percentage of the population that elderly (over the age of 65) in each county, beginning with 1980 and ending with 2010 census data.

1980



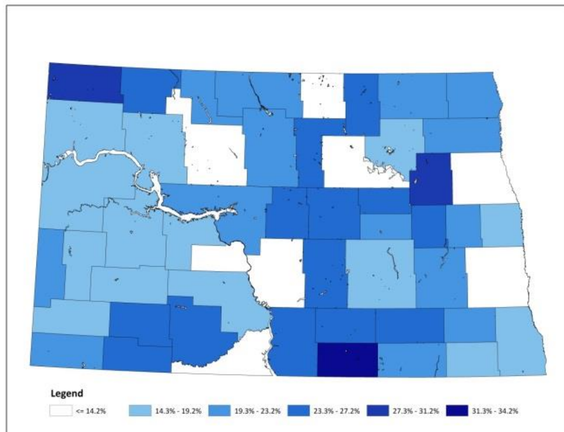
In 1980, all of North Dakota's 53 counties had an elderly (age 65+) population of 23.2% or less.

1990



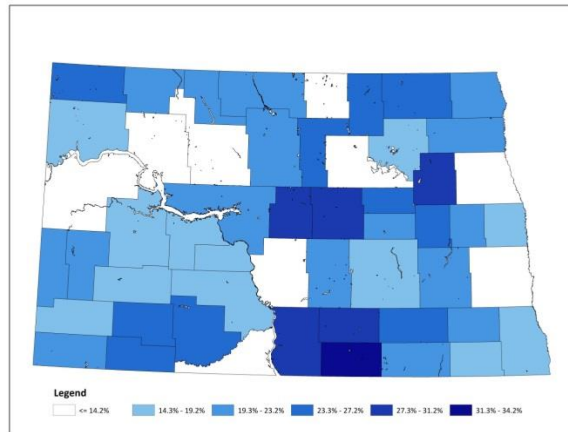
By 1990, 9 of North Dakota's 53 counties had an elderly (65+) population of 23.3% or greater.

2000



In 2000, 17 of North Dakota's counties had an elderly (65+) population of 23.3% or greater

2010



In 2010, 16 of North Dakota's 53 counties had an elderly (65+) population of 23.3% or greater.

Figure 4. Elderly population in North Dakota from 1980 to 2010 by county. (U.S. Census Bureau, 2011) (U.S. Census Bureau, 2009)

RACE

A majority of North Dakota reported being of one race, which was similar to the U.S. as a whole (98.2% compared to 97.1%). Where North Dakota varied was the percent of population reporting to be white only with 90%, compared to 72.4% for the U.S. as a whole. The second most frequently reported single race in North Dakota was American Indian or Alaska Native with 5.4%, which was much higher than the U.S. as a whole with 0.9%. A majority of American Indian and Alaska Native populations were attributed to tribal lands which follow different geographical boundaries than counties. Those counties that were found to be covered fully or partially by tribal lands had much higher reported American Indian or Alaska Native populations due to the overlap of the differing geographies. (U.S. Census Bureau, 2011)

POVERTY

North Dakota's population in poverty was less than the U.S. as a whole (12.5% compared to 15.3%). While the United States' population in poverty is 15.3%, the percentage of American Indians at or below the federal poverty level is nearly 30%. (U.S. Census Bureau, 2010). The range of population in poverty was between 7.2% in Steele County to 41.3% in Sioux County. A total of 14 counties had a higher proportion of population in poverty than the state as a whole. People in poverty tend to have a lower health status. Poor housing, sanitation, and water supply can contribute to disease and ill health. Access to adequate and quality food sources is limited. Poverty is associated with greater rates of illness and shorter life spans. People at 200% or less of the federal poverty level are more likely to have only fair or poor health status and to have sought care through the emergency room as opposed to a clinic setting, which is more costly. (IOM Committee on the Future of Rural Health Care, Board on Health Care Services, 2005) The population in poverty per county is illustrated below.

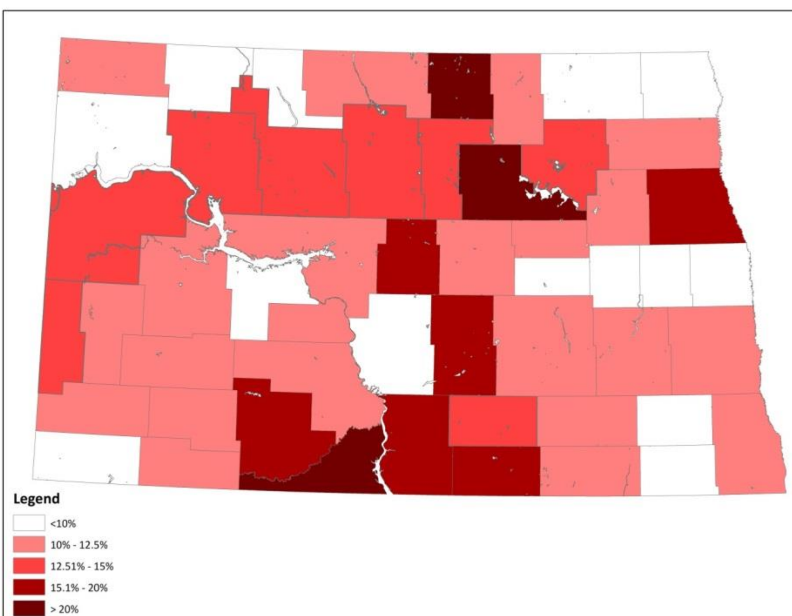


Figure 5. Poverty in North Dakota by counties. (U.S. Census Bureau, 2010)

UNINSURED

A lack of health insurance or inadequate coverage (e.g., high deductibles and copayments or service limitations) lessens access to care for the individual or family. Rural areas have a significantly higher level of uninsured population compared with micro- or metropolitan areas, illustrated in the map below.

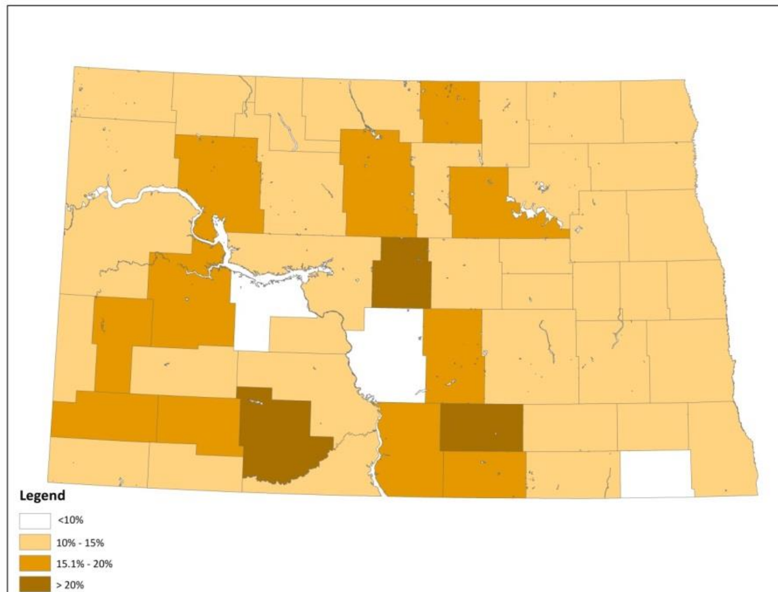


Figure 6. Percentage of uninsured by North Dakota counties. (U.S. Census Bureau, 2010)

The Institute of Medicine estimated that a lack of health insurance accounted for about 18,000 deaths per year in the United States. Less medical care and less timely care are received by the uninsured. Overall, the uninsured get about half as much care as those privately insured and receive fewer preventive services and screening, an on a less timely basis. This includes lower numbers of the uninsured receiving blood pressure and cholesterol checks, which can manifest in higher rates of heart disease, cancer, and diabetes. The uninsured have worse health outcomes; conversely, those with health insurance have better health outcomes. The death risk for certain chronic diseases is estimated to be about 25% higher for those without insurance. (Bovbjerg & Hadley, 2007) North Dakota's uninsured population under age 65 was less than the U.S. as a whole (11.4% compared to 17.7%). The range of uninsured population was between 8.3% in Sargent County to 25.4% in Grant County. A total of 40 counties had a higher proportion of uninsured population than the state as a whole. (U.S. Census Bureau, 2011)

DEMOGRAPHICS SUMMARY

Demographic characteristics contribute to rural health disparities and highlight the access to care and health status issues found in rural North Dakota. In general, the most rural areas in North Dakota are older, poorer, and have less insurance coverage. Each of these factors has been shown to influence the ability of a person to seek care when it is necessary, better manage health conditions, and ultimately realize a higher status of health.

HEALTH OF THE POPULATION

Many factors influence the health of communities and their citizens, including health-related behavior, an aging population, and chronic disease prevalence. Health related behavior accounts for 40% of deaths in the U.S. (Institute of Medicine, 2009) Tobacco use, physical activity levels, alcohol consumption, and dietary choices greatly influence the overall health of the population. These behaviors contribute to several chronic diseases, and can be influenced through avenues such as individual responsibility, increased education, environmental conditions, and public policy changes.

This section discusses disease prevalence as it relates to the focus areas of the report (tobacco use, nutrition and physical activity, and prevention services), and highlights programs and policies that North Dakota has in place to address these issues.

CHRONIC DISEASE

Some of the most common and costly health issues in the United States are chronic diseases. Seven out of ten deaths among Americans each year are from chronic diseases. Heart disease, cancer, and stroke account for more than 50% of all deaths each year. In 2005, 133 million Americans – almost one out of every two adults – had at least one chronic illness. (Centers for Disease Control and Prevention) Most chronic diseases are preventable through healthy behavior and lifestyle choices; others can be effectively managed in much the same way. There are many definitions of chronic disease across different health experts. For purposes of this report, guidelines from the Centers for Disease Control and Prevention and the main health areas of the Community Transformation Grant were used to guide the topics covered regarding chronic disease. The following diseases are discussed within this report:

- Arthritis
- Asthma
- Cardiovascular disease
- Certain cancers (determined by the types that can be largely preventable)
- Diabetes

Risk factors and health conditions that contribute to these diseases are also discussed.

Arthritis

Arthritis is a category of chronic diseases that involves inflammation of the joints. The most common types of arthritis are rheumatoid arthritis and osteoarthritis. It can affect people of all ages, but is most prevalent in adults aged 65 and older. It is a leading cause of disability and is associated with substantial activity limitation, work disability, reduced quality of life, and high health care costs. (National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health, 2013) The following map shows the incidence of arthritis among adults in North Dakota.

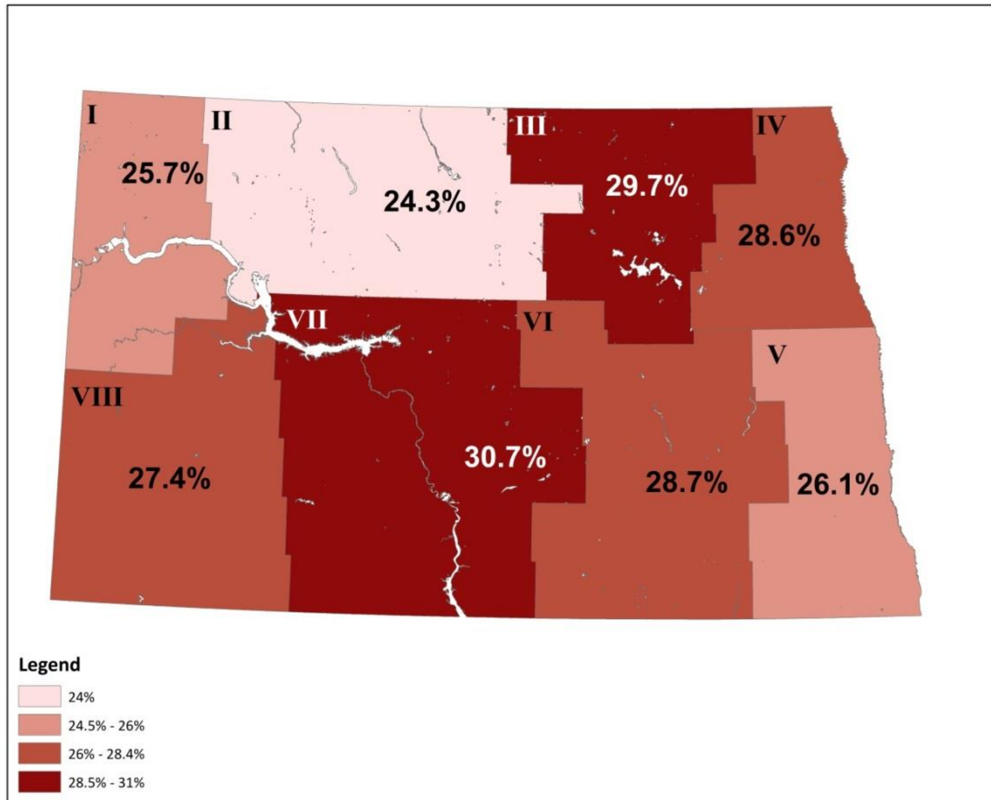


Figure 7. Percent of North Dakota adults with arthritis, shown by region. (U.S. Census Bureau, 2009) (Centers for Disease Control and Prevention, 2010)

Arthritis can usually be effectively managed through a combination of regular exercise, diet, medication, and care through a physician. North Dakota does not have a funded program to address arthritis, although risk factors for the disease are addressed through several programs. The Arthritis Foundation's Upper Midwest Region, of which North Dakota is a part, provides online resources and funding to local programs that are designed to help arthritis sufferers. These programs are detailed in the "Existing Policies and Programs" section of this report.

Asthma

Asthma is a chronic disease involving the lungs, and affects people of all ages. It is always present for a sufferer, but acute asthma attacks are triggered by different environmental causes. Common environmental triggers for asthma attacks are tobacco smoke, dust mites, outdoor air pollution, pets, mold, and smoke from burning wood or grass. Other health conditions or acute illnesses can also contribute to an asthma attack, including viral colds, sinus infections, allergies, and acid reflux. Some asthma sufferers will have attacks triggered by medication, physical exercise, high humidity, dry air, food additives, strong emotions, and hyperventilation. (National Center for Environmental Health, 2013) The percentage of North Dakota adults diagnosed with asthma is shown in the graph below, broken down by age group, gender, and geographic characteristic (metro, micro, rural).

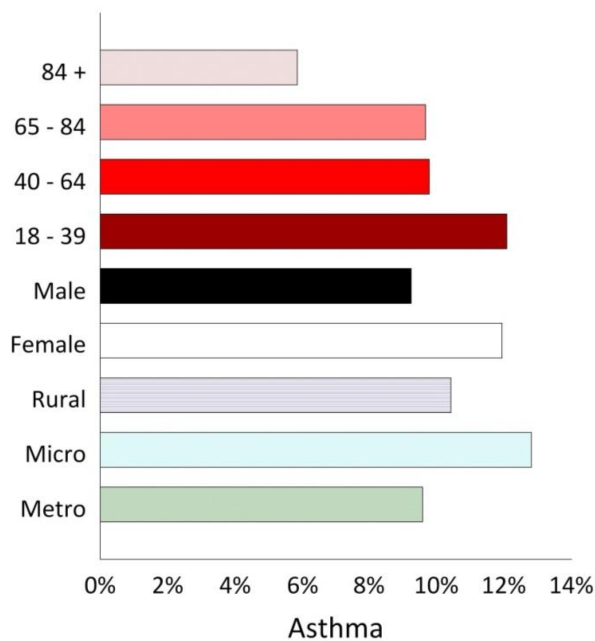


Figure 8. Prevalence of Asthma. (U.S. Census Bureau, 2009) (Centers for Disease Control and Prevention, 2010)

In the United States, 4,000 people die each year from asthma-related causes, and asthma is a contributing factor in another 7,000 deaths every year. (National Asthma Control Program, 2012) Asthma is typically treated with a combination of medication and the elimination of environmental triggers. However, an individual cannot completely and effectively control their entire environment alone. Since 1999, there have been great strides in national public health efforts for asthma control. The Centers for Disease Control and Prevention states that asthma control is now being integrated and coordinated into public health plans, and a network of asthma control programs have been implemented across the country. (National Asthma Control Program, 2012)

Unfortunately, North Dakota is not one of the states that are funded by this effort, so addressing environmental factors that trigger acute asthma attacks falls to the state and its citizens. North Dakota does not have a state program that addresses asthma exclusively; however many of the environmental triggers for acute asthma attacks are addressed through other coordinated programs and policies. State and local efforts to control one of the biggest triggers of asthma attacks, second-hand smoke, have been successful in North Dakota in recent years. The coordinated efforts of state and local health departments, tobacco coalitions, and health advocates resulted in a statewide tobacco law that bans smoking in all workplaces within the state, including bars and restaurants, which was implemented in 2012. Prior to this, many local cities and counties within North Dakota had ordinances in place to address second hand smoke. These state and local laws and ordinances are detailed in the "Existing Policies and Programs" section.

Cardiovascular Disease

Cardiovascular disease (generally referred to as "heart disease") refers to any abnormal condition of the heart or blood vessels. Conditions in this category include heart attacks, stroke, and angina. High blood pressure, physical inactivity, diabetes, obesity, family history, and high cholesterol are among the risk factors.

Heart disease is the leading cause of death in the United States with about 600,000 people dying of heart disease in the United States every year, or 1 in every 4 deaths. Nationally, more than half of the deaths due to heart disease in 2009 were in men. (Kochanek, Xu, Murphy, Minino, & Kung, 2011) Coronary heart disease alone costs the United States $108.9 billion each year; this includes the cost of health care services, medications, and lost productivity. (Heidenreich, Trogdon, Khavjou, & et.al, 2011)

Although heart disease is the leading cause of death for people of most ethnicities in the United States, some races see a higher prevalence than others. The following table shows the percentage of deaths that were attributed to heart disease in 2008, listed by ethnicity. (Heron, Hoyert, Murphy, Xu, Kochanek, & Tejada-Vera, 2009)

Race of Ethnic Group	% of Deaths
African Americans	24.5
American Indians or Alaska Natives	18.0
Asians or Pacific Islanders	23.2
Hispanics	20.8
Whites	25.1
All	25.0

In 2006, 1,527 North Dakotans died from heart disease. (Kochanek, Xu, Murphy, Minino, & Kung, 2011) According to the 2007 Behavioral Risk Factor Surveillance System (BRFSS) survey results, adults in North Dakota reported having the following risk factors for heart disease and stroke:

- 26.0% had high blood pressure
- 37.1% of those screened reported having high cholesterol
- 6.3% had diabetes
- 20.9 were current smokers
- 64.9% were overweight or obese (Body Mass Index greater than or equal to 25.0)
- 47.3% reported no exercise in the prior 30 days
- 78.1% ate fruit and vegetables less than 5 times per day

In North Dakota, the rates of cardiovascular disease vary slightly by region, as illustrated in the map below.

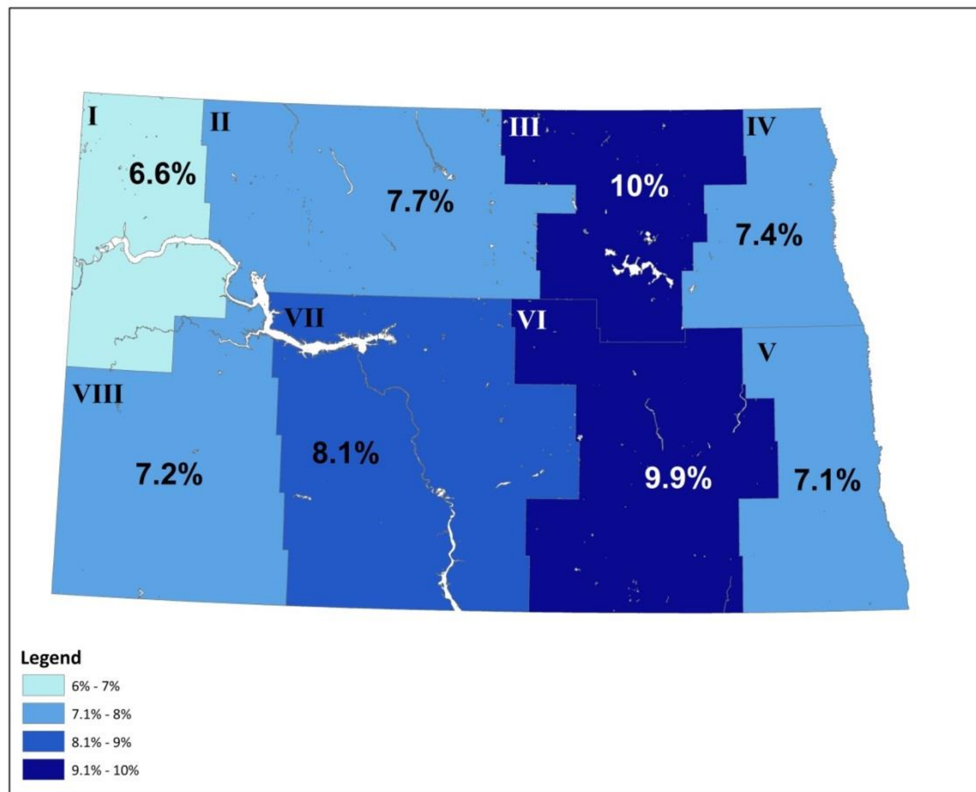


Figure 9. Percent of North Dakota adults with cardiovascular disease, shown by region. (U.S. Census Bureau, 2009) (Centers for Disease Control and Prevention, 2010)

Two of the largest risk factors for cardiovascular disease are high blood pressure and high cholesterol. The percentage of the adult population in North Dakota that reported having these risk factors are illustrated below, separated by region of the state.

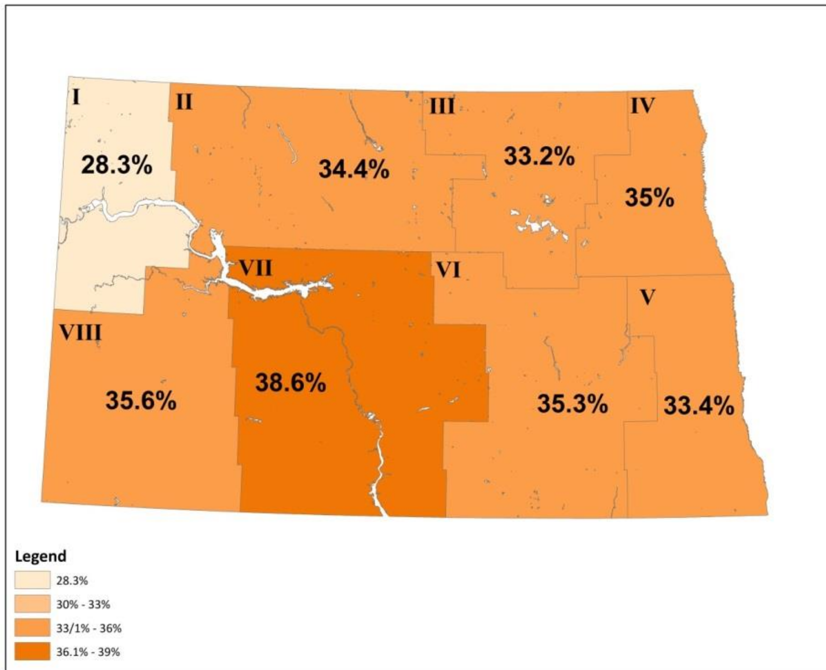


Figure 10. Percent of North Dakota adults with high cholesterol, shown by region. (U.S. Census Bureau, 2009) (Centers for Disease Control and Prevention, 2010)

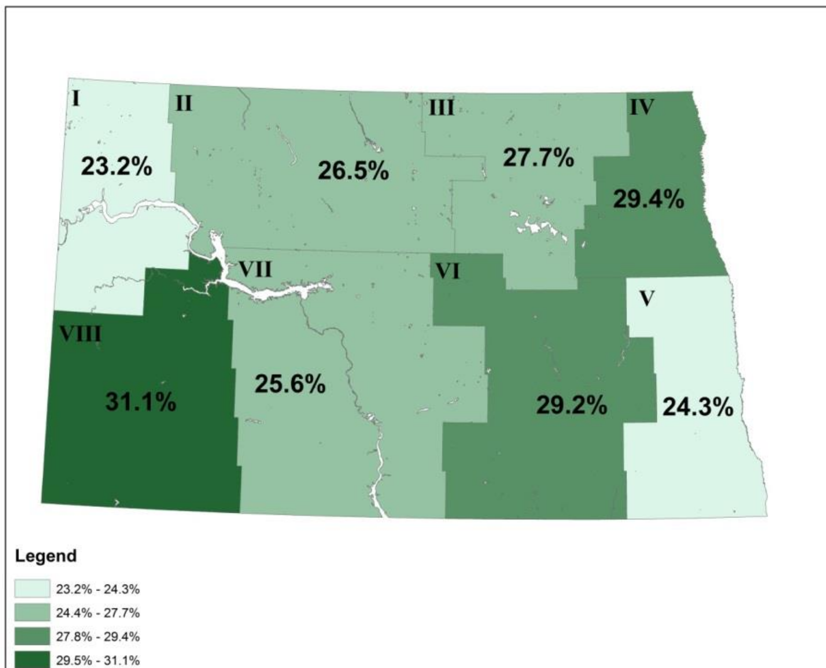


Figure 11. Percent of North Dakota adults with blood pressure, shown by region. (U.S. Census Bureau, 2009) (Centers for Disease Control and Prevention, 2010)

Most of the risk factors and indicators for cardiovascular disease are preventable. High blood pressure and high cholesterol can be attributed to poor diet and genetic factors, and can be managed with dietary changes, education, and increased physical activity. Genetically attributable high blood pressure and cholesterol can be controlled through a physician's care, typically with a combination of dietary changes and medication.

North Dakota has several state programs at work that address cardiovascular disease and its risk factors. The North Dakota Heart Disease and Stroke Prevention Program works with the North Dakota Diabetes Prevention and Control Program and BlueCross BlueShield of North Dakota to implement MediQHome (MQH). MQH is a web-based clinical information system that health care providers can use to address hypertension, coronary artery disease, chronic heart failure, diabetes, and other conditions for their patients. The Heart Disease and Stroke Prevention Program provides some financial support for the project, which allows providers to deliver personalized care and offers patients a way to participate in managing their care. This disease management aims to improve quality of life and medical costs.

In 2009, the North Dakota state legislature appropriated $472,000 to the Heart Disease and Stroke Prevention Program to implement a stroke registry program. The funding allows hospitals to purchase a web-based registry to track how they respond to acute stroke patients entering their emergency rooms. The registry provides hospitals with benchmarks for certain critical time points in acute stroke care and helps them use the information for quality improvement initiatives. The funding also supports a public education campaign to increase awareness of signs and symptoms of stroke, and the importance of timely care in strokes. As of October 2013, just over 75% of the hospitals in the state were enrolled in the stroke registry program. (Ward, 2013) These hospitals are working together regionally to analyze and improve standard protocols for acute stroke patients, and simplify the likely transfer from rural hospitals to urban ones for these patients. Through this appropriation, the North Dakota State Department of Health established a stroke system of care task force. This group was charged with creating and maintaining an inclusive and coordinated statewide system of care and education that continuously improves the knowledge, diagnosis, treatment, and rehabilitation of stroke patients and reduces the overall stroke risk for all North Dakotans. (North Dakota Department of Health, 2011) The task force works on developing recommendations for protocols on the triage, stabilization, and appropriate routing of stroke patients by emergency medical services in rural areas.

The Heart Disease and Stroke Prevention Program continues to work collaboratively with state stakeholder groups on efforts around cardiovascular health. Through offering training courses to health workers and providing leadership in public health, the program aims to improve the cardiovascular health outcomes of North Dakotans.

Cancer

Cancer is a general term used to refer to diseases in which abnormal cells divide without control. It is not just one disease; there are more than 100 different types of cancer. Most cancers are named for the organ or type of cell in which they start - for example, cancer that begins in the colon is called colon cancer. (National Institutes of Health, 2013)

Cancer types can be grouped into broader categories. The National Cancer Institute of the National Institutes of Health describes these categories as follows:

- **Carcinoma** - cancer that begins in the skin or in tissues that line or cover internal organs. There are a number of subtypes of carcinoma, including adenocarcinoma, basal cell carcinoma, squamous cell carcinoma, and transitional cell carcinoma.
- **Sarcoma** - cancer that begins in bone, cartilage, fat, muscle, blood vessels, or other connective or supportive tissue.
- **Leukemia** - cancer that starts in blood-forming tissue such as the bone marrow and causes large numbers of abnormal blood cells to be produced and enter the blood.
- **Lymphoma and myeloma** - cancers that begin in the cells of the immune system.
- **Central nervous system cancers** - cancers that begin in the tissues of the brain and spinal cord.

All cancers begin in cells in the body. Cells are continually dividing and growing to replace aged or damaged cells. Cancer occurs when this normally controlled process wrong. Cancerous tumors form when mutated cells are affecting normal cell replacement. These mutated cells sometimes don’t die when they should, or they keep forming when they are not needed. (National Institutes of Health, 2013)

Tumors are not necessarily cancerous. The National Cancer Institute describes two different types of tumors as follows:

- **Benign tumors** aren't cancerous. They can often be removed, and, in most cases, they do not come back. Cells in benign tumors do not spread to other parts of the body.
- **Malignant tumors** are cancerous. Cells in these tumors can invade nearby tissues and spread to other parts of the body. The spread of cancer from one part of the body to another is called metastasis.

It is also important to remember that because cancer is not one disease, not all types of cancer manifest as tumors. For example, leukemia is a cancer of the bone marrow and blood. (National Institutes of Health, 2013)

Some cancers are diagnosed more frequently than others, and different cancers have different risk factors. Not all types of cancer are preventable, and some are preventable only to a certain extent. Some cancers also have higher death rates than others, and these factors typically depend on the stage of cancer at the time of diagnosis. Because of all these variables, this section of the report focuses on general preventable cancers and steps that can be taken to reduce risk factors

for types of cancers that have been identified as priorities in the North Dakota Cancer Control Plan by the North Dakota Cancer Coalition.

According to the North Dakota Statewide Cancer Registry (program that tracks cancer information in North Dakota) from 2005-2009, there was an average of 3,377 new cases of cancer diagnosed each year in the state. In the same time period there was an average of 1,310 deaths per year. The most commonly diagnosed cancers in North Dakota for the years 2006-2010 were prostate cancer for men and breast cancer for women. Lung and colorectal cancers came in as the second and third most common for both men and women. Coming in fourth was urinary bladder cancer for men and uterine cancer for women. Lymphoma (cancer of the lymph cells) was the fifth most common cancer for both men and women. (North Dakota Cancer Coalition, North Dakota Department of Health, 2013) Overall, cancer is the second leading cause of death in North Dakota. It is estimated that one out of two men and one out of three women will develop cancer during the course of their lives. (North Dakota Cancer Coalition, North Dakota Department of Health, 2013)

The graph below illustrates cancer rates in North Dakota for the years 2006-2010 for these most commonly diagnosed types, compared to the rates in the United States.

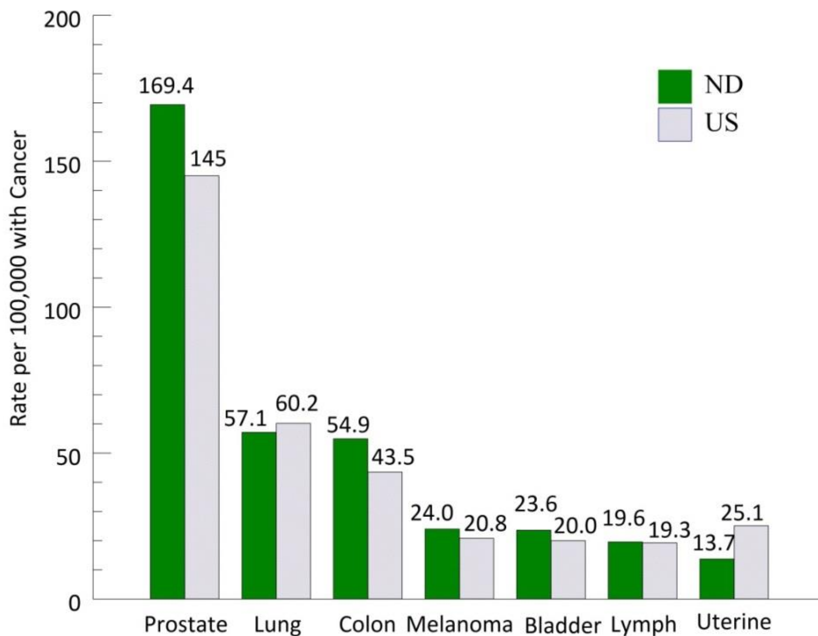


Figure 12. Rate of all cancers in North Dakota by cancer type. (North Dakota Department of Health, 2010) (U.S. Census Bureau, 2011)

For overall cancer (all types) North Dakota has slightly higher incidence rates than the United States as a whole, as illustrated below.

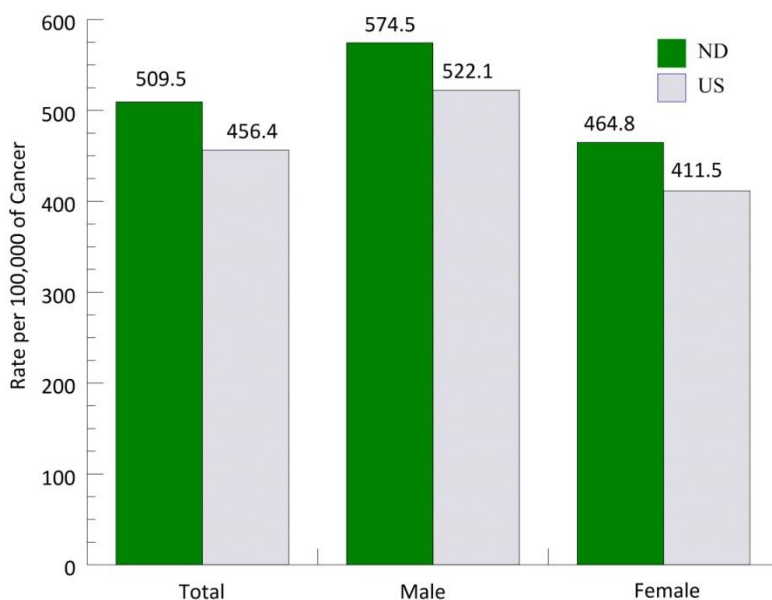


Figure 13. Rate of all cancers in North Dakota and the United States by gender. (North Dakota Department of Health, 2010) (U.S. Census Bureau, 2011) (U.S. National Cancer Institute, 2010)

There are several risk factors that are applicable to most types of cancer. Genetics can play a role in certain types, but others are largely preventable through behavior and lifestyle choices. These risk factors include obesity, tobacco use and exposure, insufficient physical activity, and poor diet. Many of these behavioral risk factors are also risk factors for chronic diseases, and are discussed at length in the next section of this report, Behavioral Risks and Trends.

North Dakota has several statewide programs at work to address cancer. The North Dakota Department of Health has a Comprehensive Cancer Prevention and Control program that works with partners to assess cancer issues in the state. The program has developed a coordinated statewide cancer control plan and provides resources to implement the plan through established communication channels and a network of partner groups. This program also uses data from the North Dakota Cancer Registry to identify gaps in cancer data and evaluates program effectiveness.

Women's Way is an early detection program for breast and cervical cancer. North Dakota is one of 68 funded states, tribes, and territories that have a Women's Way program, which is funded by the Centers for Disease Control and Prevention through the Breast and Cervical Cancer Mortality Prevention Act of 1990. (North Dakota Department of Health, 2013) In North Dakota, Women's Way provides funds for eligible women for breast and cervical cancer screenings. Through the North Dakota Department of Health and local public health units, women in North Dakota have an additional means of accessing essential screening services, and in 2001 the North

Dakota state legislature passed legislation allowing uninsured Women's Way clients who are diagnosed with breast or cervical cancer to access treatment coverage through the Medicaid Women's Way Treatment program. (North Dakota Department of Health, 2013) The program estimates that they screen approximately 15% of potentially eligible women for breast and cervical cancer.

The North Dakota Cancer Coalition (NDCC) holds membership from over 100 partner organizations across the state. These members represent many different sectors, including community-based organizations, public health units, universities, clinics, hospitals, school districts, research organizations, volunteer coalitions, cancer survivors, and family members. All of these members work together, both as a large group and through smaller committees, to address the burden of cancer for North Dakotans. The NDCC has been working in North Dakota in some form since 1989. The coalition developed North Dakota's Cancer Control Plan, which is a strategic five-year plan to lift the burden of cancer in the state. The plan has been developed using guidelines from the National Center for Chronic Disease Prevention and Health Promotion, which has identified six priorities that should be included in state plans to address cancer. These priorities are: (North Dakota Cancer Coalition, 2011)

- Emphasize primary prevention of cancer
- Coordinate early detection and treatment of services
- Address public health needs of cancer survivors
- Use policy, systems, and environmental changes to guide sustainable cancer control
- Promote health equity as it relates to cancer control
- Demonstrate outcomes through evaluation

The North Dakota Cancer Coalition also has an established grant program to fund cancer-related projects within communities in the state that address the six priorities of the cancer plan. Funded programs typically include collaborations among local stakeholders to complete the goals of the project. Examples of past funded projects include initiatives to decrease obesity, increase breastfeeding rates, and to educate citizens on colorectal cancer screenings. In addition to the cancer control plan and the community grant opportunities, the North Dakota Cancer Coalition provides materials on cancer education and awareness to community groups, providers, and other stakeholders. They also provide leadership in the state on both statewide and local cancer initiatives and programs. The North Dakota Cancer Coalition's longstanding history of successful collaboration, engaged members, and communication among partners contributes to the accomplishments of the program.

Diabetes

Diabetes is a disease caused by excess glucose (sugar) in the bloodstream. This is due to the body's inability to produce or utilize sufficient levels of insulin. It is a burdensome and costly condition that can result in severe complications, even death. Associated medical problems include hypoglycemia (low blood sugar), hyperglycemia (high blood sugar), cardiovascular (heart) disease, kidney disease, stroke, eye complications, neuropathy (nerve damage), amputation and ketoacidosis (buildup of fat by-products in the blood). (North Dakota Diabetes Prevention and Control Program, 2011) There are two main types of diabetes and a few other types as well. Type 1 diabetes, which was previously called insulin-dependent diabetes mellitus (IDDM) or juvenile-onset diabetes, may account for about 5% of all diagnosed cases of diabetes. Type 2 diabetes, which was previously called non-insulin-dependent diabetes mellitus (NIDDM) or adult-onset diabetes, may account for about 90% to 95% of all diagnosed cases of diabetes. Gestational diabetes is a type of diabetes that only pregnant women get. If not treated, it can cause problems for mothers and babies. Gestational diabetes develops in 2% to 10% of all pregnancies but usually disappears when a pregnancy is over. Other specific types of diabetes resulting from specific genetic syndromes, surgery, drugs, malnutrition, infections, and other illnesses may account for 1% to 5% of all diagnosed cases of diabetes. (National Center for Chronic Disease Prevention and Health Promotion, 2012)

Risk factors for diabetes are similar to other chronic diseases: advanced age, family history, obesity, physical inactivity, and race/ethnicity. African Americans, Hispanic/Latino Americans, American Indians, and some Asian Americans and Pacific Islanders are at particularly high risk for type 2 diabetes. Diabetes can cause serious health complications including heart disease, blindness, kidney failure, and lower-extremity amputations. It is the seventh leading cause of death in the United States. (National Center for Chronic Disease Prevention and Health Promotion, 2012)

In 2009, 7.5% of adults in North Dakota reported that they had been diagnosed with diabetes. (Centers for Disease Control and Prevention, 2010) In addition, another estimated 2.8% have diabetes but have not been diagnosed. Adults 65 and older have a higher prevalence rate than younger adults. American Indian adults have a prevalence rate that is nearly twice as high as that of white adults. According to the 2009 BRFSS, the prevalence rate of diabetes among white adults in North Dakota was 6.6%, while the prevalence rate among American Indian adults in North Dakota was 12.7%. (Centers for Disease Control and Prevention, 2010)

The following map illustrates the rates of diagnosed diabetes among all North Dakota adults in 2011, separated by region.

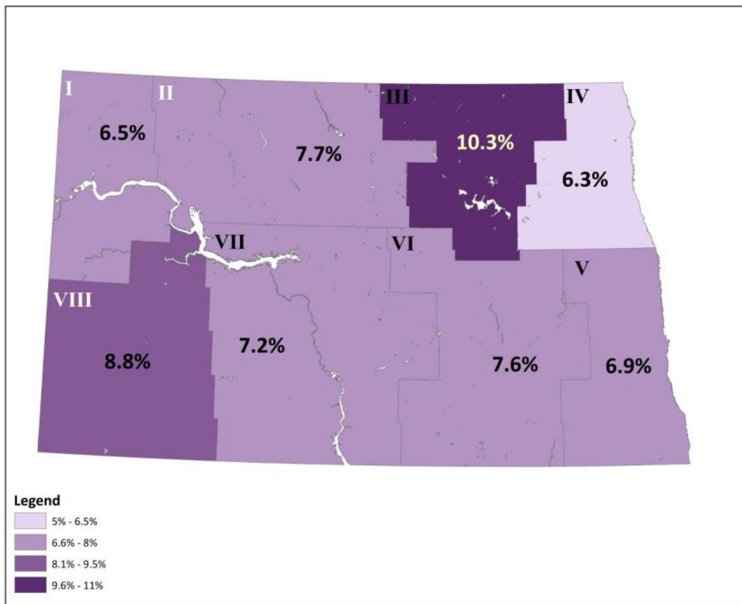


Figure 14. Percent of North Dakota adults with diabetes, shown by region. (U.S. Census Bureau, 2009) (Centers for Disease Control and Prevention, 2010)

North Dakota is fortunate to have a funded program to address diabetes risk factors, patient care, and education needs. The North Dakota Diabetes Prevention and Control Program is funded through the Centers for Disease Control and Prevention to support diabetes prevention, early diagnosis, and disease management by working with communities, health professionals, and health systems in the areas of policy, disease management, quality improvement, and education. This is accomplished primarily through collaboration with other disease programs and statewide partners to develop and coordinate joint efforts. (North Dakota Diabetes Coalition, 2013) The program works closely with the Dakota Diabetes Coalition. This coalition is made up of volunteers representing several aspects of diabetes care and awareness, including nurses, physicians, epidemiologists, and public health professionals. The goals of the coalition and program change as necessary to meet the challenges of diabetes. Some of the program's efforts include public awareness on preventing diabetes and complications, professional education programs, data collection/analysis/distribution, support of quality improvement initiatives for health providers, community based interventions, and improved access to care and education.

OIL IMPACT

There is an “oil boom” taking place in North Dakota that has had a significant impact on health and the population in those areas affected. In 2006, North Dakota was the ninth largest oil producing state, and it is currently the second largest. This oil boom has produced an economic impact of over $13 billion and has produced roughly 30,000 jobs with expectations of adding 7,000 to 10,000 a year for about five years. (Kansas Corporation Commission, 2011) The counties in the western part of the state are mainly affected, as shown below.

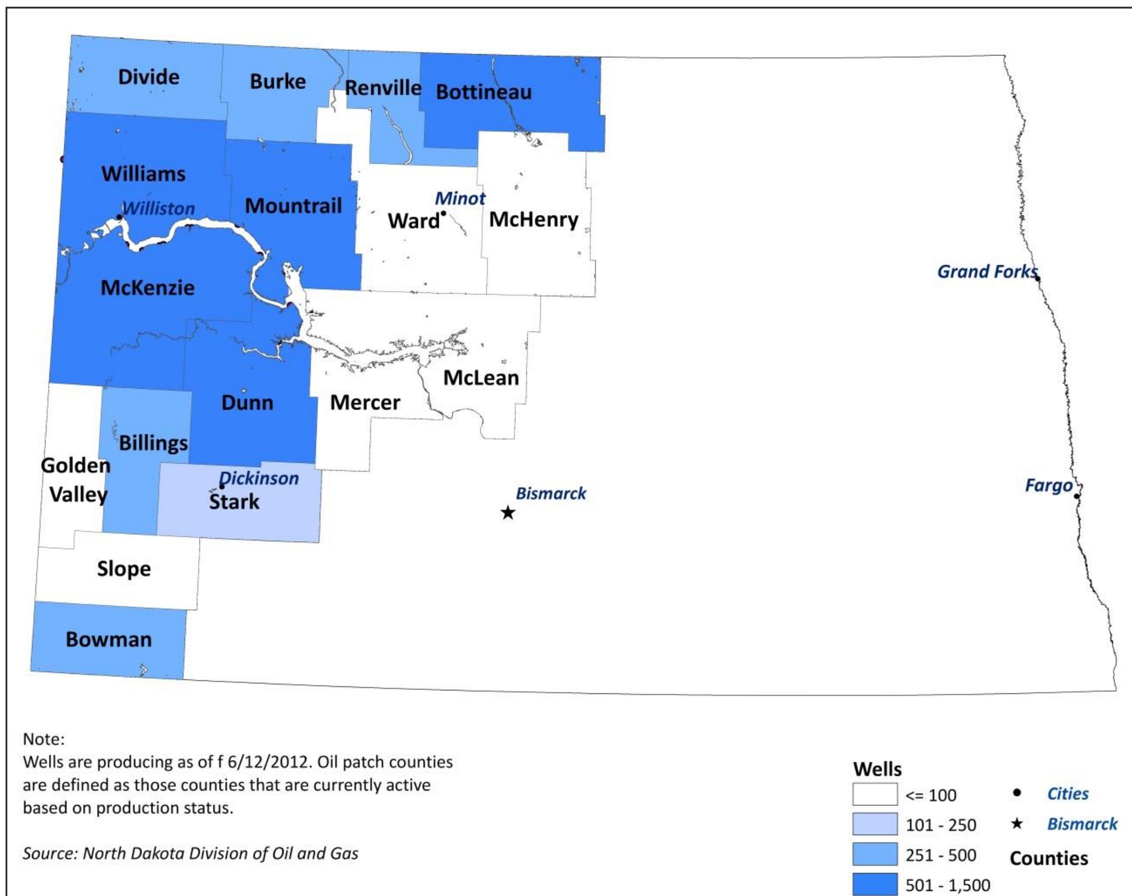


Figure 15. Oil patch counties by number of active rigs. (North Dakota Department of Mineral Resources, 2012)

The economy and population of the oil patch counties has shown a roller coaster pattern in the past. Figure 16 shows the boom and bust pattern in the past several decades. The current growth, however, dwarfs prior boom cycles, shown in Figure 17. The increase in population in the oil counties since 2000 is impressive, especially since about 2006. There has been an increase of about 15,000 people. The projection for oil production is at least 15 to 20 years using current technologies with anticipation for many years after that as new extraction technologies are introduced. (Kringstad, 2012) Thus, the population growth and the corresponding effect on the area infrastructure, including health systems, will continue for many years. The natural challenge affords not only local health systems, but also state government and academic health centers the opportunity to plan and develop functional policy actions.

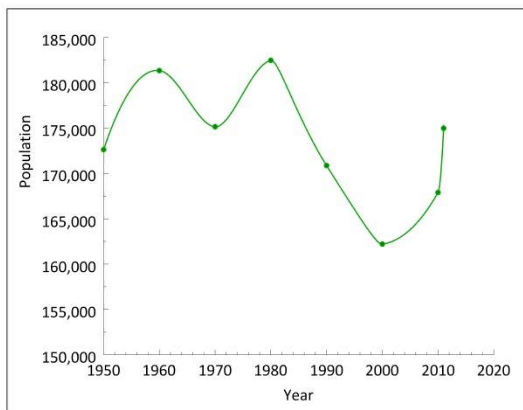


Figure 16. Change in population from 1951 to 2011. (U.S. Census Bureau, 2010)

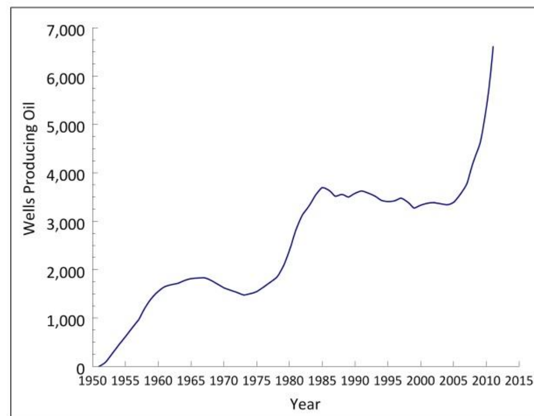


Figure 17. Number of wells producing oil in the Oil Patch since 1951. (North Dakota Department of Mineral Resources, 2012)

Figure 18 shows the oil production and population follow nearly identical patterns. This reinforces how closely intertwined economic activity and demographic characteristics correlate. As oil production is forecast to continue to grow over a number of years, it is expected that population will follow accordingly.

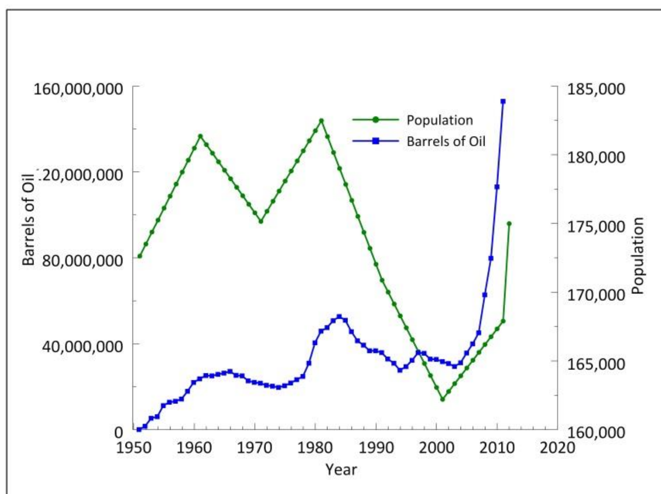


Figure 18. Barrels of oil produced and population from 1951 to 2011 for all counties in the Oil Patch. (North Dakota Department of Mineral Resources, 2012)

There are regions, however, where the tight relationship between oil production and population is not found. Counties such as Ward have seen a high increase in population without a high increase in oil production. This suggests the county supports oil production from nearby counties. Counties such as Divide and McLean have dramatic increases in oil and moderate increases in population, suggesting the population is living in nearby counties.

From a health care and policy perspective, population increases such as these can be used to assist in planning for future changes in needed health infrastructure. The increased population is affecting service demand, with implications for hospitals, clinics, EMS, public health, long-term care, and other health and medical providers. The health care workforce implications of population growth are enormous. But to outline the scale of provider resources required to service a significant population growth, a convenient rule of thumb is to remember that every 100,000 person population uptick will require about 219 more physicians, not to mention the multiple other required members of the health care team such as nurses, nurse practitioners, occupational therapists, etc.

To some extent one of the demographic changes at play is that for a number of decades there has been a fairly uniform depopulation of rural North Dakota (with the exception of counties with a significant American Indian population). In general, rural eastern, central, and western counties faced some degree of continual population loss and it was essentially uniform across the state. Today, and for the foreseeable future, there are not two rural North Dakotas. One North Dakota, because of the changes in technology that have driven oil expansion (and also the resultant natural gas development); will feel the effect of the population gain, both the good and the bad. The second North Dakota, based more on traditional economic structures will likely experience the continuation of population loss. Each demographic scenario will have a lingering and profound effect on the rural communities that must content with either of these new or established forces. For some, it will be the pressure of incorporating hundreds and even thousands of new people; for others, it will be the pressure to contend with a gradual decline in population. Both scenarios place stress and pressure on housing, schools, churches, health care systems, and the physical and cultural infrastructure.

HEALTH OF THE POPULATION SUMMARY

North Dakota’s prevalence’s of chronic diseases and their risk factors are similar to those of the nation. Disparities are seen for certain populations (i.e. American Indian communities) and in certain geographic areas. Prevention of these diseases and managing them once they exist are priorities for health stakeholders in North Dakota, and many efforts are at work to coordinate these initiatives among the health community, including public health, hospitals, clinics, and coalitions. Special consideration has to be taken as it pertains to the Oil Patch counties. Anecdotal evidence is that hospitals, public health, and all other health care entities are finding it difficult to accomplish what is required to meet the health needs of their communities due to a system that isn’t meant to serve the large population that is now living there.

BEHAVIORAL FACTORS

Research has shown that personal health behaviors play a major role in premature morbidity and mortality. According to the World Health Organization, the ten leading behavioral causes of death worldwide (e.g., tobacco use, alcohol use, high cholesterol) account for 40% of all deaths, and global healthy life expectancy would be extended by five to ten years if individuals, communities, health providers and health systems, and the private and public sectors initiated processes to better address, influence, and control such actions. (Murphy, 2005)

Behavioral risks and trends that contribute to North Dakota's health status as it relates to chronic disease are discussed in this section.

TOBACCO USE

Smoking is a major contributor to a plethora of diseases. According to the Centers for Disease Control, cigarette smoking harms nearly every organ of the body and causes more than 440,000 deaths each year (approximately one in five deaths) in the United States. It causes more deaths each year than illegal drug use, alcohol use, motor vehicle injuries, firearm-related incidents, and human immunodeficiency virus (HIV) combined. (Mokdad, Marks, Stroup, & Gerberding, 2004) Additionally, smoking causes about 90% of all lung cancer deaths in men and 80% of all lung cancer deaths in women. More women die each year from lung cancer than from breast cancer, and about 90% of all deaths from chronic obstructive pulmonary disease (COPD) are caused by smoking. (U.S. Department of Health and Human Services, 2004)

In the United States, 21.2% of all adults smoke cigarettes. (Centers for Disease Control and Prevention, 2010) North Dakota's rate of adult smokers is about the same at 21.9%. Among the American Indian population in the state, the smoking rate is more than twice that of the general population at 47.9%. (Centers for Disease Control and Prevention, 2010) Medical claims and lost productivity costs due to smoking in North Dakota amount to $442 million per year, and Medicaid costs due to smoking in North Dakota are $47 million per year. (Centers for Disease Control and Prevention, 2009)

In North Dakota, smoking rates have decreased over the last ten years in metropolitan areas, but have remained relatively the same in rural areas. This trend is illustrated in the graph below.

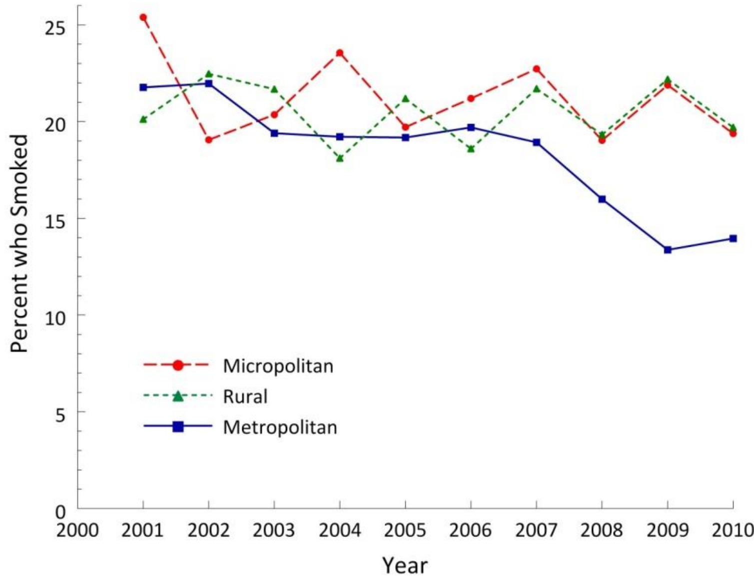


Figure 19. Prevalence of smoking by metropolitan, micropolitan, and rural areas. (Centers for Disease Control and Prevention, 2010) (U.S. Census Bureau, 2009)

Additionally, certain age groups have higher percentages of people who smoke than others. North Dakota's citizens in the 18-39 age group have the highest percentage, while the 84+ age category has the lowest (Figure 20). Females in general smoke less than males do; and the rural and micropolitan areas have more smokers than the metropolitan areas.

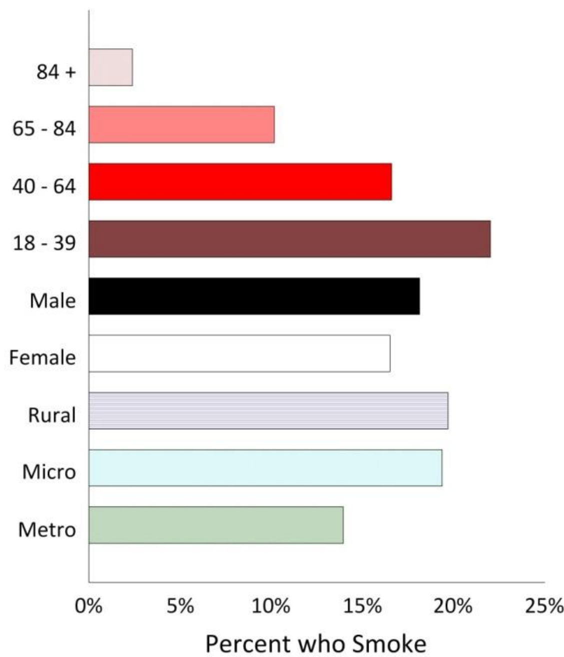


Figure 20. Smoking in North Dakota (Centers for Disease Control and Prevention, 2010)

Because most adult smokers begin the habit before they are adults, it is important to consider youth smoking rates. According to the Centers for Disease Control and Prevention's Youth Risk Behavior Surveillance System (YRBS), dramatic decreases have been seen in the number of high school students who have ever tried cigarettes in the last two decades in the United States. In 1991, the percentage of students in 9th through 12th grade who had tried smoking was 70.1%, compared to 44.7% in 2011. However, in the last ten years, the decrease isn't that impressive. From 2009 to 2011, the percentage of high school students who had ever tried a cigarette remained virtually unchanged. (Centers for Disease Control Division of Adolescent and School Health, 2011) North Dakota's rate of students who have tried smoking in the last 30 days is 44%, which is the same as the national average. (Centers for Disease Control Division of Adolescent and School Health, 2011) North Dakota high school students reporting being current, habitual smokers in 2011 ranged from 3.5% of 7th graders to 26.6% of 12th graders. A steady increase is seen from 7th to 12th grade. (North Dakota Department of Health, 2011)

North Dakota has a robust infrastructure for addressing smoking in adults and youth alike. The North Dakota Department of Health's Tobacco Prevention and Control Program has had great success with the NDQuits program. NDQuits is a comprehensive program to reduce disease, disability, and death related to tobacco use. It is funded by the state's legislature through funds received in the Master Settlement Agreement with the tobacco industry. The program provides individualized tobacco cessation counseling and nicotine replacement therapy (patches, gum, etc.) to eligible enrollees. Health care providers can receive education and training on how to coach patients to quit tobacco through this program as well. NDQuits members can receive counseling through telephone, online access, and mobile phones via text messaging. More than 4,000 North Dakotans use NDQuits services annually, with an extremely high success rate. Seven months after enrolling, 31.2% of former tobacco users report continuing to be smoke-free. (North Dakota Department of Health, 2013)

North Dakota has a Tobacco Prevention and Control Policy known as BreatheND. Formed in 2008, this committee is a result of a statewide vote requiring that a portion of the funds the state receives from tobacco settlement dollars is to be used for tobacco prevention and control programs. The advisory committee consists of nine North Dakota residents appointed by the governor for three year terms, and is made up of a respiratory therapist, non-state employees with expertise in tobacco prevention and control, a medical doctor, a nurse, a youth between the ages of 14 and 21, and a member of the public with a demonstrated interest in fostering tobacco prevention and control. (BreatheND, 2013) This committee works collaboratively to reduce the burden of tobacco use and exposure in North Dakota. Their five-year plan, titled "Saving Lives, Saving Money," is a comprehensive state plan to prevent and reduce tobacco use. Outcomes of the implementation of this plan have been the successful passing of a statewide tobacco-free workplaces law – one in 2005 that included workplaces with a few exceptions such as bars, and a more comprehensive law in 2011 banning smoking in all workplaces in the state. (North Dakota Department of Health, 2013) Other goals of the five-year comprehensive plan include preventing the initiation of tobacco use among youth and young adults, increase the number of school districts that have a defined tobacco-free school policy, and to increase the number of public and private colleges and universities with tobacco free campuses. (North Dakota Tobacco Prevention and Control Advisory Committee, 2012) The group plans to accomplish some of these goals

through detailed activity plans, including increasing the cigarette excise tax and collaborating with school districts to develop smoke-free policies.

Even with these efforts, smoking continues to be the number one cause of preventable death in North Dakota. North Dakota has strong and well-established groups with many past successes to indicate that they will continue to be successful in reducing these statistics. State-wide groups serve as successful models for local coalitions to reduce the burden of smoking in their communities as well.

NUTRITION AND PHYSICAL ACTIVITY

Key factors in overall health are balanced nutrition and regular physical activity. A lack of one or both of these contributes to many costly and serious health conditions, including obesity, which is a contributor for a plethora of chronic diseases. Tracking measures of physical activity (e.g., *percentage of adults meeting the recommendation for moderate physical activity—at least five days per week for 30 minutes per day of moderate intensity activity*) and healthful nutrition (e.g., *percentage of adults eating the recommended five or more fruits and vegetables a day*) are important given their association with decreased risk for diabetes, high blood pressure, depression and colon cancer as well as maintaining healthy bones and joints.

Unfortunately, North Dakotans are part of the national trend toward a decrease in healthful eating and an increase in sedentary lifestyles. According to the CDC, the national average percentage of adults who report consuming fruits less than one time daily is 37.7%, for vegetables it is 22.6%. In North Dakota, the percentage of adults who report consuming fruits and vegetables less than one time daily is even higher, at 39.1% for fruits and 27.1% for vegetables. For adolescents, the numbers are similar to adult consumption with 36.0% of adolescents reporting eating fruits less than one time per day nationally (36.4% in North Dakota), and 37.7% eating vegetables less than one time per day nationally (39.4 in North Dakota. (National Center for Chronic Disease Prevention and Health Promotion, 2013) Recommended amounts of fruit and vegetables consumption daily varies by age, gender, and overall calorie consumption, but the general guideline from the United States Department of Agriculture is to fill half the plate of each meal with fruits and vegetables. Many factors contribute to these numbers in North Dakota, from a lack of availability of fresh fruits and vegetables due to distance to grocery stores carrying them (rural areas often times only have a small gas station locally with larger grocery stores being some distance from their towns) to fewer policies in place to make healthy foods the default choices in schools.

Regular physical activity helps improve overall health and reduces the risk for many chronic diseases. It is defined as anything that gets a body moving. Guidelines from the 2008 Physical Activity Guidelines for Americans from the CDC recommend at least 150 minutes of moderate-intensity aerobic activity (i.e., brisk walking) every week for adults, in addition to muscle-strengthening activities on two or more days per week. These recommendations for adults vary depending on the intensity of the activity. It is recommended that children under the age of 18 participate in 60 minutes or more of physical activity each day. In the United States, less than half (48%) of all adults meet the 2008 Physical Activity Guidelines, and less than 3 in 10 high school students get at least 60 minutes of physical activity per day. (Division of Nutrition,

Physical Activity, and Obesity, National Center for Chronic Disease Prevention and Health Promotion, 2012)

In 2010, 25.4% of adults in the United States reported that they had not engaged in any physical activity at all during the past month, compared to 26.8% of North Dakota adults. (Centers for Disease Control and Prevention, 2010) For the youth in North Dakota, physical activity is just as difficult to come by. Only 22.3% of adolescents reported being physically active for 60 minutes per day on each of the seven days prior to being surveyed, yet 25.6% watched television for three or more hours per day on the average school day. (Centers for Disease Control Division of Adolescent and School Health, 2011)

Healthful nutrition and physical activity can be particularly difficult to engage in given the expense of healthful foods, time demands on individuals, weather during winter months, and lack of wellness facilities in small towns. However, many efforts (e.g., school, workplace) are underway to encourage healthful eating and exercise. North Dakota Department of Health's Division of Nutrition and Physical Activity has made great strides in recent years at promoting not only education on healthy living, but also creating environments that are supportive of these healthy behaviors. The division has developed a state action plan creating a framework for improving policies and programs related to healthful food and physical activity. This framework is designed to help communities work together to create environments that support individuals ability to make healthful food choices and increase overall physical activity by increasing access to good nutrition and places for physical activities, and was developed using CDC recommendations. (Askew, 2012) The Division of Nutrition and Physical Activity has also sponsored trainings on policy and systems change in order to build capacity for the state's health work force to support and implement changes to improve health. Other programs and efforts of this division are detailed in the "Existing Policies and Programs" section of this report.

BEHAVIORAL FACTORS SUMMARY

The effect of personal choices on health is increasingly important. At the national level, many efforts to create policy and increase knowledge for Americans regarding their health choices are at work. North Dakotans' health choices are largely similar to those of the United States. Infrastructure for addressing these health issues and risk factors in the state has been bolstered in recent years by the national attention this information garners. While great strides have been made in decreasing the rates of unhealthy behaviors, much work is left to be done to make North Dakotans the healthiest Americans.

ACCESS AND INFRASTRUCTURE

Health care infrastructure describes a network of services, settings, and providers. North Dakota's health care infrastructure consists of more than 300 ambulatory care clinics, 52 hospitals, and 28 public health units; all supported by an array of EMS providers, long-term care facilities, pharmacies, and dental clinics. As a general rule, the more remote the facility is from a metropolitan area, the more its operation is threatened by financial and other pressures (including staff recruitment and retention). Access to health care is an issue for many North Dakota residents, whether it is due to financial barriers (poverty and/or lack of insurance) or geographic barriers (distance to needed services). Delaying needed health care for whatever reason can lead to worsening health problems that are more difficult and expensive to treat than those that are avoided completely or treated earlier.

HOSPITALS

North Dakota has six general acute care hospitals located in the four largest cities (Bismarck, Fargo, Grand Forks, and Minot) and 36 critical access hospitals (CAHs). All of the critical access hospitals have a network relationship with a regional larger hospital forming a tertiary care region for patient referral and transfer, communication, and emergency and non-emergency patient transportation. North Dakota also has three psychiatric hospitals, two long-term acute care hospitals and two Indian Health Service hospitals. North Dakota's CAHs tend to operate as "hub" systems of care as they are heavily networked either formally or informally with other health provider organizations. Thus, acute care hospital services are linked with a wide range of other important health services. For example, 33 of the 36 CAHs (92%) own and/or operate another health related facility. (Center for Rural Health, 2012) Most of these are clinics but also includes nursing homes, assisted living, basic care, senior apartments, ambulance units, and others.

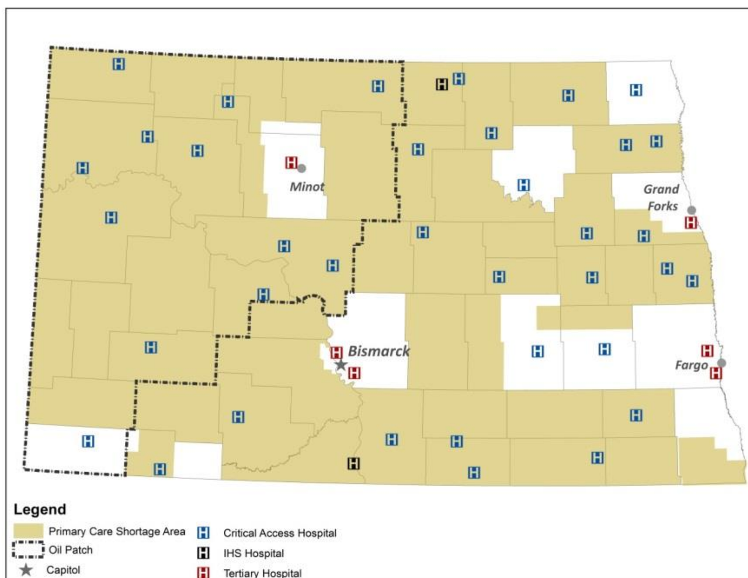


Figure 21. Hospitals in North Dakota

North Dakota has 50 hospitals including the following:

- Thirty-six critical access hospitals
- Six general acute hospitals
- Three psychiatric hospitals
- Two long-term acute care hospitals
- Two Indian Health Service hospitals
- One rehabilitation hospital

There are six tertiary acute care hospitals, known as the "Big Six." There is one each in Minot and Grand Forks, and two each in Bismarck and Fargo. The thirty-six CAHs work with these six through network agreements covering patient referral and transfer, communication, and emergency and non-emergency patient transportation. (Bureau of Primary Health Care, 2012)

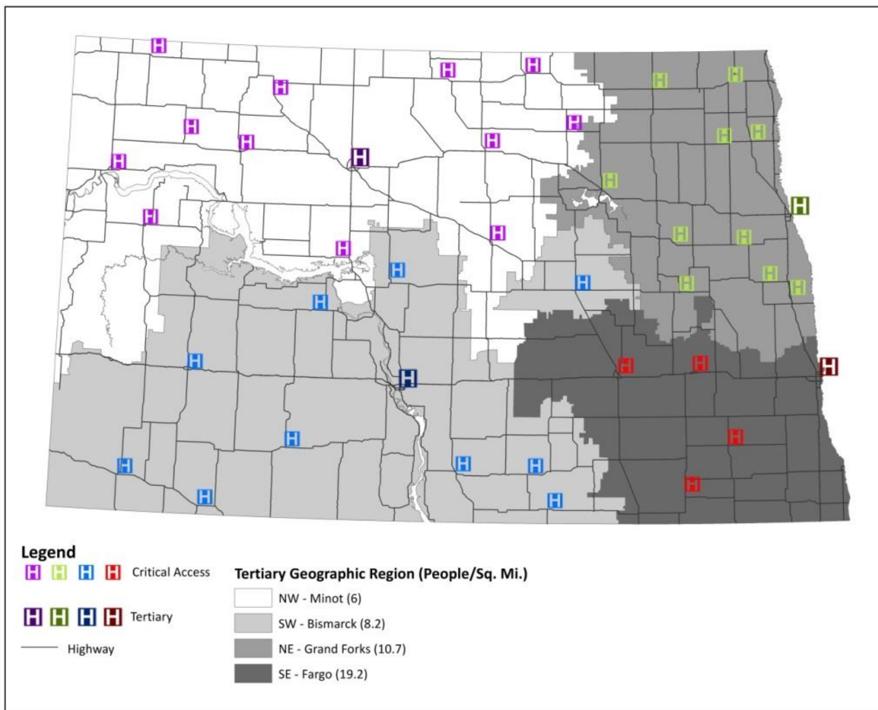


Figure 22. Critical Access and tertiary hospitals by region in North Dakota. (Bureau of Primary Health Care, 2012) (North Dakota Department of Transportation, 2012)

AMBULATORY CARE

There are approximately 300 ambulatory care centers in North Dakota including those that provide primary care and specialty care. Several are classified as Rural Health clinics and there are also five Federally Qualified Health Centers operating in North Dakota. In rural North Dakota there is a close organizational relationship between the Critical Access Hospitals and the primary care clinics as 80% of the CAHs own and operate a primary care clinic and CAHs operate 45 of the state's 59 federally certified Rural Health Clinics. (Center for Rural Health, 2012) Both Rural Health Clinics and Federally Qualified Health Centers are considered to be part of the federal government's "safety net" of provider organizations to maintain access to essential, quality health care services.

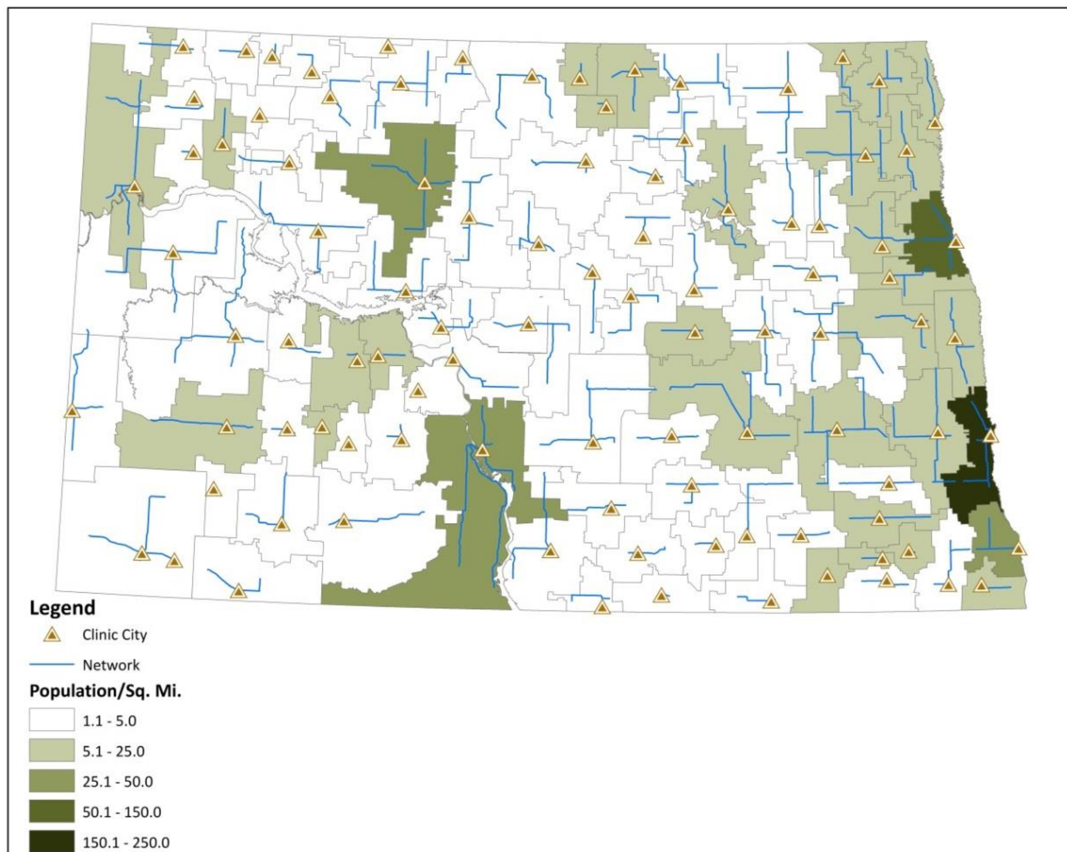


Figure 23. Service areas and networks for clinics in North Dakota (North Dakota Department of Transportation, 2012)

PUBLIC HEALTH

Public health is an important and fundamental set of health services that has made significant contributions to improving the health status of most Americans, rural and urban. At the same time, it remains unheralded and misunderstood. A rural North Dakota public health director once remarked, "If I am doing my job well, you don't even know I'm here." Some of the accomplishments associated with public health include (but are not limited to) the following: development and widespread access to vaccinations, control of infectious disease (e.g., through emphasis on clean water and improved sanitation), fluoridation of drinking water, provision of safer and more healthful foods, access to family planning, increased motor vehicle safety, and tobacco control. Disease prevention and health promotion are highly associated with public health.

Local public health in North Dakota is provided through 28 single and multi-county local public health units. All 53 counties are covered through this arrangement.

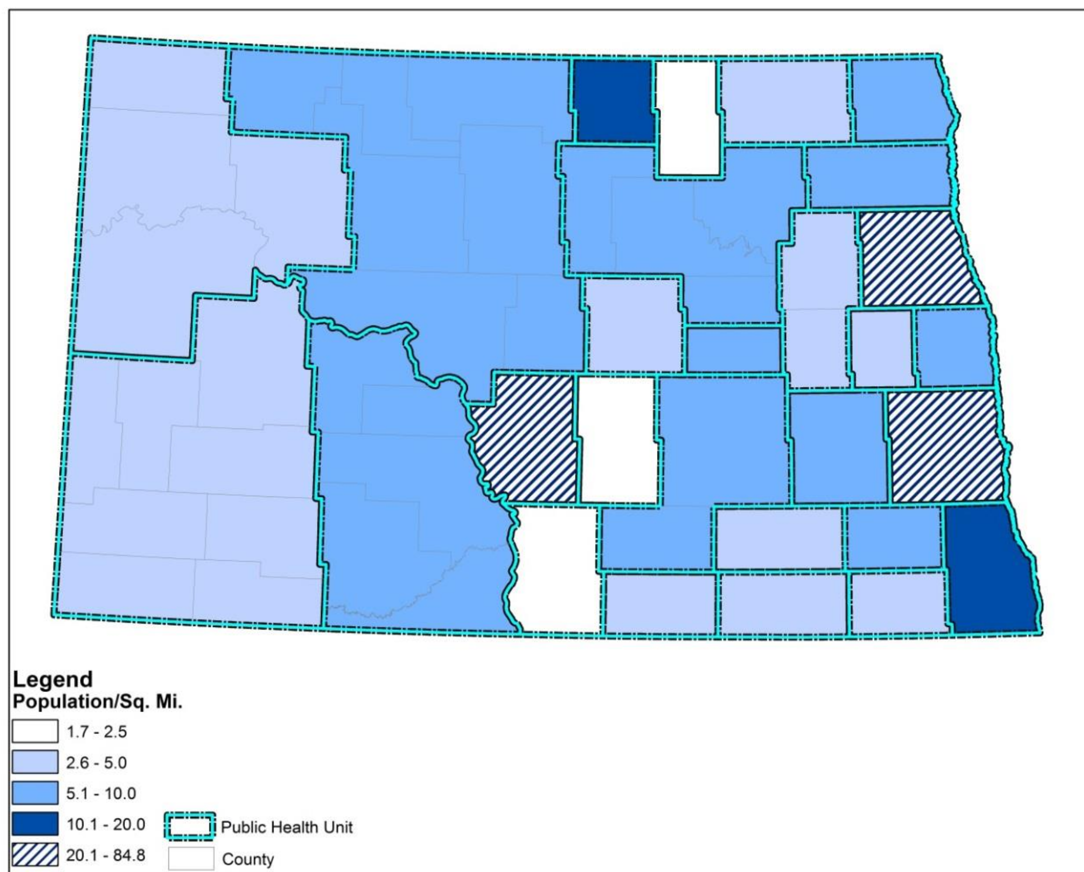


Figure 24. Location of public health units in North Dakota (North Dakota Department of Health, 2012)

While each public health unit can organizationally determine its own mission and primary focus, there are some common services provided. All North Dakota public health districts provide immunizations, blood pressure screening, scoliosis screening, vision screening, high risk infant follow-up, and vitamin B12 injections. In addition, most but not all units provide the following services: maternal and child health (e.g., home visits, sudden infant death syndrome follow-up visits, and child health services); health promotion (e.g., diabetes, foot care, and community wellness programs); communicable disease management (e.g., tuberculosis, and skin and scalp conditions); school health (e.g. hearing screenings and AIDS education); environmental health (e.g. public water system inspection, environmental sanitation services, and water pollution control); occupational health nurse activities; mental health; skilled nursing activities; and maternal and child health initiative grants.

North Dakota's public health system is decentralized with 28 independent local public health units working in partnership with the North Dakota Department of Health. The 28 units are organized into single or multicounty health districts, city/county health departments, or city/county health districts. Seventy-five percent of the local health units serve single county, city or combined city/county jurisdictions, whit the other 25% serve multicounty jurisdictions. In this decentralized approach, the units are required to meet state standards and follow state laws and regulations, but they can exercise their own powers and have administrative authority to make decisions to meet their unique local needs.

EMERGENCY MEDICAL SERVICES

Emergency medical services (EMS) are an essential and fundamental service or health delivery function in the overall health care infrastructure. EMS commonly refers to out-of-hospital acute medical care or transport to definitive care, for patients with illnesses and injuries that the patient, or the medical practitioner, believes constitutes a medical emergency. (The Free Dictionary) EMS can be viewed as a pre-hospital service, but as EMS continues to develop, it is also seen as a vital element in an overall integrated health delivery system where even the role and function of emergency care personnel (generally emergency medical technicians who can be licensed at a basic, intermediate, or paramedic level) are expanding to include more and different skill sets. An example is the community paramedic model, where a licensed paramedic is used in an integrated way with an expanded scope of services to address health or medical functions beyond traditional paramedic levels.

Each of the North Dakota's 53 counties are served by at least one ambulance service; however there are still areas of the state with response times over 30 minutes. There are 5,627 licensed EMS providers in the state, over 90% of which are volunteers. (Center for Rural Health, 2012) Different levels of EMS are basic and advanced life support capabilities. Advanced life support (ALS) systems must be staffed by paramedics, and 12 of the state's ALS units are in rural areas.

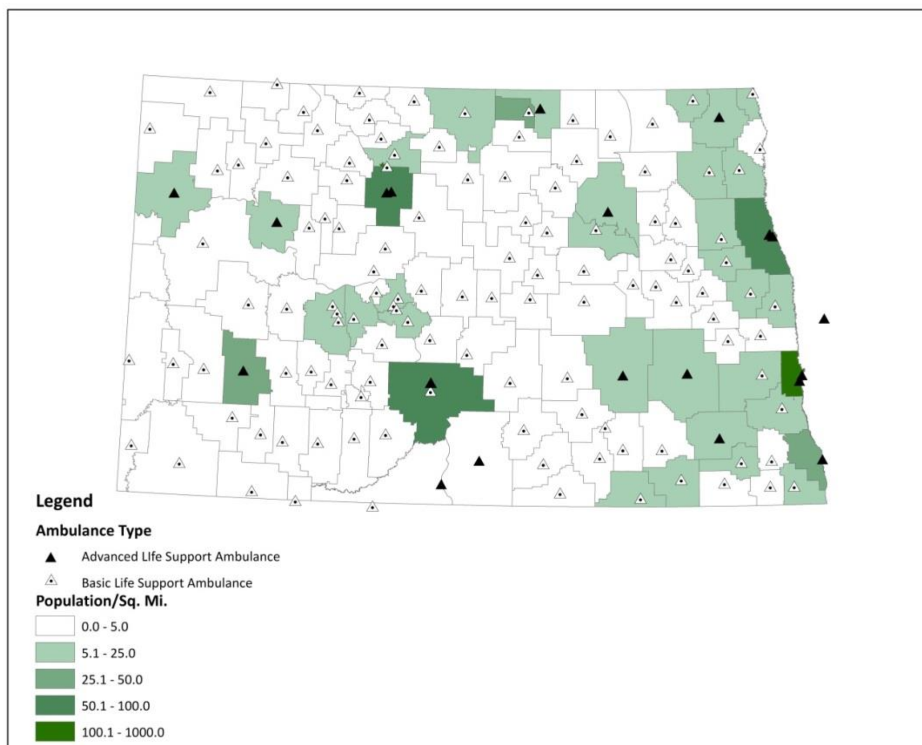


Figure 25. Areas served by EMS units in North Dakota. (North Dakota Department of Health, Emergency Services, 2012)

There are 130 EMS areas in North Dakota – 16 areas (12%) are advanced life support, 110 areas (85%) are basic life support, and four areas (3%) are undefined or unspecified.

HEALTH INSURANCE

The Institute of Medicine estimated that a lack of health insurance accounted for about 18,000 deaths per year in the United States. Less medical care and less timely care are received by the uninsured. Overall, the uninsured get about half as much care as those privately insured and receive fewer preventive services and screening, and on a less timely basis. This includes lower numbers of the uninsured receiving blood pressure and cholesterol checks, which can manifest in higher rates of heart disease, cancer, and diabetes. Pregnant women who are uninsured have fewer prenatal checks. The uninsured have worse health outcomes; conversely, those with health insurance have better health outcomes. The death risk for certain chronic diseases is estimated to be about 25% higher for those without insurance. (The Urban Institute, 2007)

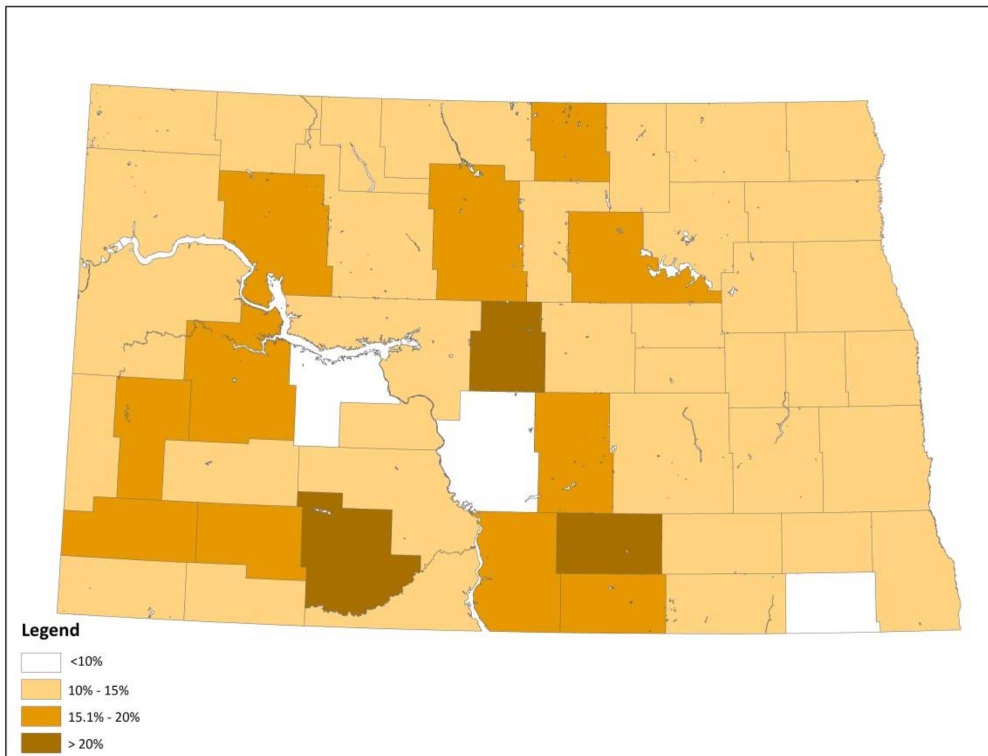


Figure 26. Percentage of uninsured by North Dakota counties. (U.S. Census Bureau, 2010)

- ***Three counties have more than 20% uninsured (Grant 25%, Logan 21%, and Sheridan 20%) and 14 counties have more than 15% uninsured. All 17 counties are rural.***
- ***Only three counties have fewer than 10% uninsured (Sargent 8%, Mercer 9%, and Burleigh 9.7%). Two of these counties are rural and one is metropolitan.***

EXISTING POLICIES AND PROGRAMS

In recent years, efforts within North Dakota and the nation have been successful in illustrating the importance of healthy choices in all aspects of life, specifically within the focus areas of this report (chronic disease, healthy living, and tobacco prevention). There are several state and national policies at work within North Dakota that aim to improve the health of the state's citizens and reduce the burden of chronic disease by supporting education for prevention and making default choices healthy. Some of these programs have been established for years; others are newer. Many of the existing programs were built using past programs as models and by tapping into the existing framework and health community that exists as a result of these collaborative efforts. The following tables outline current policies and programs and how they support healthy living and encourage prevention.

Chronic Disease Clinical Prevention Services		
Title	**Description**	**Source**
North Dakota Cancer Registry funding	North Dakota Century Code provides for the maintenance of a statewide population-based cancer-registry system. http://www.legis.nd.gov/assembly/59-2005/bill-text/FQVN0200.pdf	North Dakota Century Code
North Dakota Cancer Control Plan	Plan written by the North Dakota Cancer Coalition that provides the state with an integrated plan of action for the CDC's six priorities for cancer plans: emphasize primary prevention of cancer, coordinate early detection and treatment activities, address public health needs of cancer survivors, use policy, systems, and environmental changes to guide sustainable cancer control, promote health equity as it relates to cancer control, and demonstrates outcome through evaluation. www.ndcancercoalition.org	North Dakota Cancer Coalition
North Dakota Statewide Cancer Registry	The North Dakota Statewide Cancer Registry collects information about new cancer cases, cancer treatment, and cancer deaths. All hospital, laboratories, physicians, and other health care provides are required by state law to report all newly diagnosed or treated cancer patients, identify areas in need of public health interventions, and evaluate the effectiveness of public health programs. http://www.ndhealth.gov/cancerregistry/	North Dakota Statewide Cancer Registry

Chronic Disease Clinical Prevention Services (Continued)		
Title	**Description**	**Source**
North Dakota Comprehensive Cancer Prevention and Control Program	Works with stakeholders and partners to develop a common vision for comprehensive cancer control, create a coordinated statewide cancer control plan, and assemble available resources to carry out the plan. http://www.ndhealth.gov/compcancer/index.htm	North Dakota Comprehensive Cancer Prevention and Control Program
Woman's Way	Breast and Cervical cancer screening program for eligible North Dakota women. National Program that is funded by the CDC. https://www.ndhealth.gov/womensway/	Woman's Way
North Dakota Heart Disease and Stroke Prevention Program	North Dakota program that works to improve cardiovascular health through public health strategies and policies that promote healthy lifestyles and behaviors, healthy environments and communities, control of blood pressure and cholesterol levels, reduction of sodium intake, integrated systems of care, and access to evidence-based preventative care and treatment for cardiovascular disease management. http://www.ndhealth.gov/heartstroke/	NDDOH Division of Chronic Disease
North Dakota Stroke System of Care	North Dakota program that works with partners to oversee the development and implementation of a State Stroke Registry, designates hospitals as primary stroke canters, implements a statewide health communication program, and provides training and technical assistance to local hospitals, health care providers, and pre-hospital personnel on acute stroke care. http://www.ndhealth.gov/heartstroke/	NDDOH Division of Chronic Disease
Arthritis Foundation	National non-profit program that provides resources to patients and families for management, treatment, and living with arthritis. North Dakota is part of the Arthritis Foundation Upper Midwest Region. http://www.arthritis.org/north-dakota/	Arthritis Foundation
Asthma law	North Dakota law allows students to possess and self-administer their own emergency asthma inhalers and medication. Schools work with students, parents, and healthcare providers to create action plans for students with asthma. http://www.ndhealth.gov/asthma/asthma%20law.pdf	NDDOH/ND Century Code

Healthy Living		
Title	**Description**	**Source**
ND Healthy Eating and Physical Activity: A Plan for Action	Healthy North Dakota's plan for providing framework for working together to educate, avocation for policies, and build and support environments that make it easier for ND residents to choose healthy foods and be physically active. http://www.ndhealth.gov/physicalactivity/	Healthy North Dakota
Chronic Disease State Plan	North Dakota's plan for managing chronic disease in the state. Developed by the Coordinated Chronic Disease Prevention Program, this plan identifies goals for managing chronic disease and outcomes. Collaborative effort included all divisions of the North Dakota Department of Health and several state stakeholder organizations. http://www.ndhealth.gov/chronicdisease/CCDPP/StatePlanAnnualReport2013_Final.pdf	Coordinated Chronic Disease Partnership
State Breastfeeding Law	ND legislation to protect a woman's rights to breastfeed her child in any location, public or private where the woman and child are otherwise authorized to be. Also established "infant-friendly" designations for workplaces that adopt breastfeeding support policies. http://www.ndhealth.gov/breastfeeding/?id=64&page=State+Laws	North Dakota Century Code
Healthy North Dakota	Statewide initiative that focuses on wellness in our homes, schools, communities, and workplaces. Serves as the framework for a statewide comprehensive wellness plan http://home.healthynd.org/	Healthy North Dakota
NDDOH Community Health Section-Division of Family Health	Administers state and federal programs designed to improve the health of North Dakota families. Provides funding, technical assistance, training, needs assessment, educational materials, and other resource to local public health units, schools, and other public and private entities that offer health services in ND communities. http://www.ndhealth.gov/familyhealth/	NDDOH Community Health Section
Worksite Wellness	North Dakota program that provides training to interested worksite to assist in implementing wellness programs. http://www.healthynd.org/Resources.html	Healthy North Dakota/Worksite Wellness

Healthy Living (Continued)		
Title	**Description**	**Source**
Health Guidelines for North Dakota Schools	Guidelines for the school health caregiver that includes general information and resources and meeting the basic health-care needs of students in schools. http://www.ndhealth.gov/csh/publications/School_Health_Guidelines_Final.pdf	ND Department of Public Instruction
Coordinated School Health	Joint effort of NDDOH and DPI that provide resources on health education, physical education, health services, nutrition services, counseling and psychological services, healthy school environment, health promotion, and family/ community involvement for ND schools. http://www.ndhealth.gov/csh/	ND Coordinated School Health
Hunger Coalition	North Dakota program that provides a platform for shared communication, education, and support regarding hunger issues. Includes a strategic long-term plan for action in four main areas: recovering food that may have otherwise gone to waste, distributing the food where it is needed, building capacity of food pantry providers to accept and distribute food, and ensuring that those who don't have enough to eat can access food. http://home.healthynd.org/?id=53	Healthy North Dakota
Blue Cross Blue Shield Rural Health Grants	Blue Cross Blue Shield of North Dakota provides grants to communities that support projects that demonstrate collaborative efforts involving rural providers and their communities to support physical activity for all ages. These are known as the "Official Sponsor of Recess" grants and are administered through the Center for Rural Health http://ruralhealth.und.edu/projects/bcbs-grant-program	Blue Cross Blue Shield of North Dakota and the Center for Rural Health
Moving More, Eating Smarter	Program that helps provide technical assistance and funding to communities to establish and maintain a health coalition. These coalitions must include physical activity and nutrition goals and activities for their communities. http://www.healthynd.org/MMES.html	NDDOH Community Health Section, Division of Nutrition and Physical Activity

Healthy Living (Continued)		
Title	**Description**	**Source**
Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)	Federal nutrition program for pregnant and breastfeeding women, infants, and children younger than age five. Provides nutrition and breastfeeding information, counseling, and support. Also provides health screenings and nutritious foods at low or no cost to participants. http://www.ndhealth.gov/wic/	NDDOH Community Health Section, Division of Nutrition and Physical Activity
Maternal and Child Health Nutrition	State program that promotes nutritional wellbeing across the lifespan for women, infants, and children. The program provides technical assistance to state and local partners to address women's and children's nutrition needs, facilitate healthy and active living information sharing among state and local partners, and provide leadership and consultation to public health nutritionists. http://www.ndhealth.gov/familyhealth/	NDDOH Community Health Section, Division of Nutrition and Physical Activity
Diabetes Prevention and Control Program	State program that supports diabetes prevention, early diagnosis, and disease management by working with communities, health professionals, and health systems in the areas of environmental change, disease management, quality improvement, and education. Includes the statewide Dakota Diabetes Coalition, which serves a conduit for information on diabetes in North Dakota. http://www.diabetesnd.org/	NDDOH Community Health Section, Division of Nutrition and Physical Activity
Healthy People 2020	Program that provides science-based, 10-year national objectives for improving the health of all Americans. North Dakota Department of Health divisions utilize Healthy People objectives for tracking program specific indicators, program evaluation, demonstration of need within the state, and demonstration of trends within program areas. https://www.ndhealth.gov/healthypeople2010/	NDDOH Community Health Section, Division of Nutrition and Physical Activity
Healthy Communities	State program that assists partners in schools, worksites, and other community settings to build and support environments that make it easier for North Dakota residents to choose healthy foods and be physically active. Provides technical training to state and local partners on policy, systems, and environmental change strategies in the areas of healthy eating and active living. http://www.ndhealth.gov/nutrphyact/HealthyWeight.htm	NDDOH Community Health Section, Division of Nutrition and Physical Activity

Tobacco Prevention and Control		
Title	**Description**	**Source**
Smoke-Free Air	Smoking is prohibited in public places of employment, and within several feet of entrances. http://www.ndhealth.gov/tobacco/laws.htm	ND Tobacco Control Laws
Smoke-Free Childcare facilities	Smoking is prohibited in private homes that are licensed to run daycare. http://www.ndhealth.gov/tobacco/laws.htm	ND Tobacco Control Laws
Tobacco Excise Taxes	Tobacco products tax and licensing laws. http://www.legis.nd.gov/cencode/t57c36.pdf?20140409105542	ND Century Code
Tobacco Settlement	Community Health Grant Program- The NDDOH has established a community health grant program to prevent and reduce tobacco usage in the state. http://www.legis.nd.gov/cencode/t23c38.pdf?20140409105622	ND Century Code
Tobacco Settlement	Tobacco Settlement Trust Fund- Established funds to support a comprehensive plan for tobacco prevention and control. http://www.legis.nd.gov/cencode/t54c27.pdf?20140409105637	ND Century Code
Youth Access to Tobacco Laws	Laws regarding sale of tobacco to minors, law enforcement agencies duty to inform team, and peace officers to report violations. http://www.ndhealth.gov/tobacco/laws.htm	ND Century Code
Baby and Me	Tobacco cessation grants for local health units to implement cessation programs for pregnant women. http://www.ndhealth.gov/tobacco/cessation/GrantAnnouncement_2013-2015.pdf	NDDOH Tobacco Prevention and Control
ND Quits	Tobacco program for North Dakotas that focuses on reducing the negative health and economic consequences of tobacco use. Covers prevention, cessation, exposure to second-hand smoke, and tobacco-related disparities among specific population groups. http://www.ndhealth.gov/ndquits/	NDDOH Division of Chronic Disease
NDPERS Tobacco Cessation	State employees and their dependents 18+ have cessation support through NDPERS, through a grant from NDDOH. https://www.bcbsnd.com/ehealth/ndpersquit	NDDOH

Tobacco Prevention and Control (Continued)		
Title	**Description**	**Source**
Tobacco Cessation for city and county employees	Grants for tobacco cessation programs for city and county employees (and their dependents). These grants have 3 to 1 match requirement. http://www.ndhealth.gov/tobacco/cessation/CityCountyGrantsAvailable_2013-2015.pdf	NDDOH Tobacco Prevention and Control
Center for Tobacco Prevention and Control Policy (BreatheND)	Division of the Tobacco Prevention and Control Executive Committee focuses on comprehensive tobacco prevention goals of reducing tobacco use, programs proven to keep kids from starting to use tobacco, help tobacco users quit, and protect everyone from secondhand smoke. http://www.breathend.com/default.asp	BreatheND
Saving Lives, Saving Money	North Dakota Tobacco Prevention and Control Advisory Committee's comprehensive state plan to prevent and reduce tobacco use in the state. http://www.breathend.com/about/state-plan/	BreatheND
Coordinated School Health Tobacco Resource	Strategies provided for schools to help implement tobacco policies, checklist for comprehensive tobacco-free school polies, models for comprehensive tobacco-free school policies, ND Tobacco Quitline information for school counselors, and tobacco-free school sign templates. http://www.ndhealth.gov/tobacco/Schools/School%20Policy%20Tool%20Kit.pdf	NDDOH Coordinated School Health

These policies and programs can provide the framework necessary for further implementation at the local level. Programs being applied statewide frequently need to provide technical assistance and guidance to the people responsible for their implementation and success. State level policies can offer the initiative necessary for communities to take action at the local level, and in some cases the local communities take the state policies even further.

SUPPORTING ORGANIZATIONS AND COLLABORATION

Sustained prevention and wellness efforts owe their success in part to the organizations that support them. North Dakota has a strong history of collaboration among various state, local, and national organizations. This section highlights North Dakota's collaborating agencies and their historical and recent efforts to address issues surrounding chronic disease, tobacco, and overall healthy living.

HEALTHY NORTH DAKOTA

Healthy North Dakota is a group that supports North Dakotans to improve physical, mental, and emotional health through statewide partnerships. The group holds membership from over 400 members that focus on making North Dakota a healthier population and improving quality of life through efforts to promote healthy choices and prevention. Healthy North Dakota began in 2002 by defining wellness and identifying health priorities for North Dakota. The coalition works to promote and implement national health programs from several organizations, including Let's Move (First Lady Michelle Obama's campaign to end childhood obesity), Go Red For Women (American Heart Association), Million Hearts (Department of Health and Human Services), and Choose My Plate (United States Department of Agriculture) in communities. They work to bring people together to find solutions for healthy living that are relevant to North Dakota, taking into consideration North Dakota's health rankings and specific population issues (rurality, health disparities, etc.). Healthy North Dakota has a long list of associated committees and work groups that focus on specific tasks and health priorities, all of which are coordinated through the overarching Healthy North Dakota structure.

STATEWIDE VISION AND STRATEGY GROUP

The Statewide Vision and Strategy Group (SVS) is a group of health leaders in the state that was convened through Healthy North Dakota. The SVS has grown into its own entity that works with Healthy North Dakota as well as many other statewide stakeholders. The group is made of volunteers who are tasked with providing leadership and direction to the overall health goals of the state. The North Dakota Chamber of Commerce houses the SVS, in an effort to engage the business community in health care issues as they relate to businesses in North Dakota. This group is also working with several others to develop a statewide health improvement plan for North Dakota.

COORDINATED CHRONIC DISEASE PARTNERSHIP

The Coordinated Chronic Disease Partnership is designed to build capacity to address chronic disease prevention and health promotion in a coordinated, collaborative approach to change policies, practices, and environments. The group is part of the North Dakota Department of Health and works collaboratively with state partners from many areas of expertise in health. Together, this group has developed a Chronic Disease Status Report (issued in 2012) and is

currently working on a comprehensive state plan to prevent and manage chronic disease. This plan will help delineate activities that will prevent chronic diseases, related risk factors, and promote health. It aims to identify measurable outcomes and strategies to accomplish these goals.

NORTH DAKOTA DEPARTMENT OF HEALTH – HEALTH EQUITY OFFICE

North Dakota's Health Equity Office was established in 2007 within the North Dakota Department of Health. Its purpose is to lead statewide efforts to address health disparities. This office houses the Health Disparities Work Group, which is a collaborative effort between the North Dakota Department of Health, the Office of Indian Affairs Commission, and the North Dakota Department of Human Services. The work group's mission is to provide leadership to raise the awareness of and to eliminate health disparities affecting North Dakota citizens. (North Dakota Department of Health, 2013) This group defined health disparities as "inequalities in health status, utilization, or access due to structural, financial, personal, or cultural barriers" and works with state stakeholder groups to improve these disparities.

NORTH DAKOTA COMPASS

North Dakota Compass is a social indicators project that measures progress by tracking trends in topic areas such as youth, economy, health, housing, and workforce. (North Dakota Compass, 2013) This project provides data regarding key measures for health indicators and ideas to address these issues within communities. It is designed to be a common foundation to identify, understand, and act on community issues that affect North Dakota's communities. The steering committee for this project consists of 11 members from all different facets of the health community, including rural health, extension offices, business leaders, and local community organizations. There are several working groups as part of the North Dakota Compass project, including ones focused on aging, children and youth, civic engagement, disparities, economy and workforce, early childhood, education, housing, public safety, and transportation. North Dakota Compass is funded through grants from the Bush Foundation, the Otto Bremer Foundation, Dakota Medical Foundation, and is supported through North Dakota State University's Center for Social Research.

COMMUNITY TRANSFORMATION GRANT LEADERSHIP TEAM

The Community Transformation Grant Leadership Team is a formalized group established in 2012 as a result of Centers for Disease Control and Prevention's Community Transformation Grant funding. Its purpose is to gather data and inform state health entities of the issues specific to North Dakotans in a coordinated manner. The group has collaborated on this report, and has expertise in community engagement techniques for rural and American Indian communities. The group's individuals are also members of several national, state, and local organizations, and bring that expertise and input to the group's efforts. Member organizations in this group include the North Dakota Department of Health, North Dakota State University's Master of Public

Health Program, and the University of North Dakota's Center for Rural Health. Outcomes of this group's efforts include:

Capacity Building Efforts

The Community Transformation Grant Leadership Team has worked on building capacity in North Dakota for a sustainable prevention infrastructure. This report was a collaborative effort of the Leadership Team, led by the University of North Dakota Center for Rural Health. In gathering and assessing the information contained within, the team identified areas of strength and areas of need in addressing chronic disease and its causes. The Leadership Team has worked toward increasing the state's ability to engage communities in owning their unique health problems and providing technical assistance to these communities to address these identified issues. In order to increase capacity for this, a need for training health leaders in community engagement techniques and concepts was identified. Several plans to address this have been discussed by the Leadership Team, and those plans are detailed in the sections that follow.

Local Public Health Unit Survey

An area identified as an information gap was the public health environment. Surveys have been conducted with hospitals in North Dakota regarding their accomplishments and barriers to achieving goals, but little had been done on a statewide scale to gather this information from local public health unit administrators. Recognizing this need for information, the Leadership Team developed a survey and conducted key informant interviews with the local public health unit administrators in the state. This information will be used to help individual communities identify their existing infrastructure for collaboration around health issues and use that infrastructure to establish new coalitions, programs, and policies, or to strengthen existing ones.

American Indian Health Summit

North Dakota State University's Master of Public Health Program holds expertise in American Indian Health issues. They worked with United Tribes Technical College in the summer of 2013 to convene a summit of tribal health leaders in North Dakota to discuss the health disparities that affect American Indians. The summit provided a way to identify gaps in American Indian health data and developed a data sharing agreement models so that American Indian communities in North Dakota can gather and own their own health data. The ownership of this information and the technical assistance to analyze it will help these communities make changes from within in a culturally appropriate manner.

State Health Data Roundtable Session

The North Dakota Department of Health convened a group of state stakeholders in September of 2012. Experts in several aspects of state health issues (rural health, public health, chronic disease, children's health, injury prevention, transportation, American Indian health, health disparities, wellness coalitions, safety, etc.) met to discuss state health data and rankings and help identify priority areas that need addressing. There were 38 individuals in attendance representing 12 different state agencies and organizations.

This group ranked health priorities based on what was most concerning from the health data they were presented as well as what they felt North Dakotans cared the most about. Through consensus, the group identified health status areas for improvement, the top ten being obesity, poverty, diabetes, binge drinking, cardiovascular disease, lack of physical activity, suicide rates, distracted driving, drinking and driving, and American Indian health disparities. Members of the Community Transformation Grant Leadership Team presented information on health concerns and the programs and policies in place to address them. The group provided input on other efforts within the state in order to develop a comprehensive list of programs and policies, which is included in this report.

Community Engagement Curriculum

North Dakota State University's Master of Public Health Program, through efforts of the Community Transformation Grant, has developed a community engagement curriculum that is being used in training public health professionals. The curriculum has an emphasis on engaging American Indian communities and how public health graduates can incorporate this knowledge into helping improve health outcomes. Through this curriculum, North Dakota is expanding on its infrastructure of trained professionals to assist all types of communities in identifying and taking action on the health issues that affect them.

Public Health Accreditation

The Community Transformation Grant Leadership Team has worked collaboratively with the North Dakota Department of Health in order to assist in fulfilling the requirements of accreditation. An accredited state health department would be able to provide leadership to local public health units in their efforts of accreditation. The Public Health Accreditation Board works to promote and protect the health of the public by advancing the quality and performance of all public health departments in the United States through their accreditation process. (Public Health Accreditation Board, 2013) This accreditation aims to strengthen public health efforts in North Dakota by providing a means for public health departments to identify performance improvement opportunities, enhance management, develop leadership, and strengthen relationships with partners and the community. The effort is supported by North Dakota's State Health Officer through the coordination and management of the department's accreditation and performance improvement efforts.

Community Engagement Toolkit

To complement the community engagement efforts (curriculum, MAPP training), the Center for Rural Health is currently developing a toolkit for community leaders that are interested in addressing health concerns through collaboration and community engagement. The toolkit will be available online and features practical ideas and successful examples for strengthening collaboration and engaging community members to own their own health problems, with special consideration given to the common concerns of rural communities.

MAPP Training

The Community Transformation Grant Leadership Team plans to use a framework called Mobilizing for Action through Planning and Partnerships (MAPP) for assisting communities in improving their health. MAPP is a community-driven strategic planning process facilitated by public health leaders. It helps communities apply strategic thinking to prioritize public health issues and identify resources to address them. It is not an agency-focused assessment process; rather, it is an interactive process that is designed to improve the efficiency, effectiveness, and the performance of local public health systems. (National Association of City and County Health Officials, 2014) The MAPP training will serve as a "train the trainer" model, where trained members of the Leadership Team will in turn be able to train community members in MAPP concepts and use them to address community health concerns in a strategic manner.

SUPPORTING ORGANIZATIONS AND COLLABORATIONS SUMMARY

North Dakota's existing framework of state-level organizations provides a strong foundation for the implementation of prevention and wellness programs and policies. These organizations work together to promote health, particularly within the focus areas of the CTG. They provide education to the public and support the development and implementation of policies to make healthy living the easy choice for North Dakotans. This framework is being further strengthened by the CTG through its goal of building capacity to sustain successful programs.

In addition to the organizations previously profiled, there are many organizations (particularly hospitals, local public health units, wellness coalitions, school districts, clinics, etc.) within the state that support the coordination of all aspects of healthcare and wellness. Their work should not go without consideration; however many of their efforts involve local-level programs and are not a part of any central repository for this type of information. Further information on local level programs is available on a community-by-community basis through individual community health needs assessments, which are posted on individual hospitals' websites and available through the Center for Rural Health at the University of North Dakota School of Medicine and Health Sciences.

COMMUNITY EFFORTS TO ADDRESS HEALTH ISSUES

Throughout North Dakota towns, efforts to address health issues are taking place. The amount and extent of programs varies from city to city and depends on many variables such as population, rurality, existing infrastructure, and funding. A central repository for all local efforts within the state does not exist, but several initiatives are working toward synchronizing this information as best as is possible.

The Center for Rural Health has conducted Community Health Needs Assessments (CHNAs) for hospitals throughout the state. Each Critical Access Hospital is required to conduct this assessment every three years, as mandated by the Patient Protection and Affordable Care Act. Center for Rural Health staff has developed a model for conducting these assessments that is useful and takes North Dakota's rurality into consideration. Through this process, which includes a series of focus groups, key informant interviews, and community-wide surveys, community members rank the most pressing community health needs. Critical Access Hospitals then must take these results and incorporate ways to address them in their strategic plans. Top needs identified across the state during this initial round of CHNAs were: 1 – limited number of health care providers; 2 – financial viability of the hospital; 3 – higher costs of health care for consumers. Additionally, many communities identified obesity and physical activity and chronic disease management as top priorities for their towns. (Becker, 2013)

North Dakota State University (NDSU) has been working to identify current data sets that are inclusive of specific American Indian health data. A summary has been completed for available data for North Dakota American Indians, and a designated data coordinator is working on analyzing this information. Overall, evaluation of the available data for North Dakota American Indians is quite limited, despite the fact that American Indians represent the second most common race in the state. One limiting component of gathering this data is ownership and ethical use of race-specific or tribal government data. North Dakota State University has worked directly with four tribes in North Dakota (formally referred to as Tribal Consultation), to address data concerns, as well as the importance of accuracy of data for informed decision-making regarding health issues. Several meetings have been held and various samples of data sharing agreements exist to produce a comprehensive sample Data Sharing Agreement document. The objective of this product is to provide a comprehensive set of components within a formal document format, that a tribal government could review and choose their own structure for a Data Sharing Agreement that would be legally binding on the tribe's collaborators. Additional information has been developed through collaboration and discussions to provide an understanding of the unique legal relationship tribal governments have with the federal government and arrangements with state governments for the state's health stakeholders. Experts in American Indian health issues at NDSU have established relationships with tribes in the state, which is a crucial step in community engagement and helping the tribes assess and address their unique health concerns in a culturally appropriate manner.

The North Dakota Department of Health has conducted meetings, known as data roundtable sessions, with local public health units to assess the health data that represents their jurisdictions. The purpose of these roundtables was to identify health priorities for the public health unit and other local community groups. Beginning in February 2012, the North Dakota Department of Health worked with the North Dakota State Association of City and County Health Officials (ND

SACCHO) to complete these roundtables. Similarly to the state data roundtable session, attendees reviewed and discussed health data specific to their jurisdictions or counties, and indicated whether these items were concerning or not with regard to their community. Different geographic areas prioritized a few of the same health status areas for improvement, but most of them were different based on several factors including current population trends, distance from the community to healthcare services (access), rurality, and health disparities. Through this process, many of the same health concerns were identified as priorities as through the Community Health Needs Assessment process. An effort is currently under way to compare the findings from these two processes to use as the basis for community engagement around top health issues. The information learned during these local roundtables is being used as part of community health assessments and community health improvement plans – two essential pre-requisites for local public health accreditation. These meetings helped strengthen partnerships and open dialogue among health entities in the communities, which will lend itself to collaboration to work toward improving health outcomes.

CONCLUSION

North Dakota's health statistics and concerns are much like the nation's. Preventable chronic diseases are causing premature deaths, and health behaviors and environments not conducive to making healthy choices are contributing factors. North Dakota's relatively small community of state health leaders is both positive and negative. The small community where "everyone knows everyone else" lends itself to ease of collaboration, but it also frequently means that the same people are tapped to do a fair amount of the work toward several health concerns. The notion that these health leaders "wear many different hats" proves true in North Dakota.

On a state-level, North Dakota has a robust set of policies, programs, and support in place for implementing changes toward health improvement. Using this existing health and organizational infrastructure will help the state achieve its goals for health outcomes. National support and promotion of the value of healthy environments is contributing to a public that is more aware of the effects of their behaviors on their health. This awareness, combined with state support for programs and policies conducive to healthy choices, will continue to help North Dakota make strides toward improving the health of its citizens.

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APPENDIX

IMPORTANT MEASURES, RANKINGS, AND RATES

This Appendix was first published in 2009 as part of the Center for Rural Health's "An Environmental Scan of Health and Health Care in North Dakota." It has been updated to the most recent rankings and measures available at the time of this publication. This Appendix provides a comprehensive list of health-related measures, rankings, rates, and comparisons associated with the state of North Dakota. The information includes measures of health status, (e.g., morbidity, mortality statistics, data on health status) as well as measures of health care (e.g., access, quality, health expenditures). While this is now the most comprehensive set of relevant measures, rankings and rates for North Dakota, it should be noted that it does not reflect all possible factors that are important to health or health care.

This information presented in this Appendix is useful to: 1) ascertain how well North Dakota is currently doing on certain important health and health care indicators, and 2) serve as a universe of potential indicators from which a sub-set of measures could be selected to track the progress of health and health care in North Dakota, on-going basis. If developed, the latter would allow health care providers, consumers, policymakers, funders, and others to determine trends related to key issues in a quick and simple fashion.

Where information is available, the measures are accompanied by state rank, value, the year the data was collected, and the source of the data. For user convenience (and where appropriate), the listings under each of the categories are alphabetized. All data selected for inclusion in this document are relevant to the environmental scan's focus areas and derive from high-quality databases developed and maintained by a number of organizations. The following are examples of some of the sources:

- American Cancer Society
- The Henry J. Kaiser Family Foundation
- Robert Wood Johnson Foundation
- State Health Access Data Assistance Center, University of Minnesota
- Trust for America's Health
- U.S. Department of Health and Human Services' National Center for Chronic Disease Prevention and Public Health Promotion
- U.S. Department of Health and Human Services' Agency for Healthcare Research and Quality
- U.S. Department of Health and Human Services' Centers for Medicare and Medicaid Services

North Dakota's Health Rankings					
Category	Indicator	Rank (1 = best or most # of)	Value (if available)	Year data collected	Source
Environmental context					
	Percentage of population at or above 200% of the federal poverty level (FPL)	24	65.3%	2010	State Health Access Data Assistance Center, University of Minnesota
	Total Hispanic population	47	2 %(14,700)	2011	The Henry J. Kaiser Family Foundation
	Total population of Native Americans/Aleutians/Eskimos	3	7.80%(41,535)	2011	U.S. Census Bureau
	Total population	48	672,591	2010	U.S. Census Bureau
Health of North Dakota's population					
Leading health indicators					
AIDS					
	AIDS cumulative cases, aged 13 and older	51	118	2011	North Dakota Department of Health
	Reported number of AIDS cases, all ages, cumulative	48	118	2011	North Dakota Department of Health
Alzheimer's disease					
	Alzheimer's estimated cases	46	18,000	2011	Trust for America's Health
Arthritis					
	Arthritis	33	27.50%	2008	U.S. Department of Health and Human Services' National Center for Chronic Disease Prevention and Public Health Promotion (NCCDPHP)
Asthma					
	Asthma rates, percentage of adults	50	10.60%	2010	Trust for America's Health
Diabetes					
	Diabetes	42	8.2%	2011	The Henry J. Kaiser Family Foundation
Disabilities					
	Percentage who reported a disability (adult population aged 21–64 years)	36	9.2%	2009	The Henry J. Kaiser Family Foundation

North Dakota's Health Rankings					
Category	Indicator	Rank (1 = best or most # of)	Value (if available)	Year data collected	Source
Infectious Diseases					
	Infectious disease	12	7.8	2012	United Health Foundation
	Tuberculosis (number of cases)	49	12	2010	North Dakota Department of Health
	Human West Nile virus (new cases)	3	89	2012	North Dakota Department of Health
Mental Health					
	Poor mental health (percentage of adults reporting)	39	32.9%	2011	The Henry J. Kaiser Family Foundation
	Mental health spending (per capita)	25	$81.06	2006	National Alliance on Mental Illness
	Total mental health spending (in millions)	49	64,300,000	2010	The Henry J. Kaiser Family Foundation
	Suicide rank	14	106	2010	American Foundation for Suicide Prevention
Oral Health					
	Dentist or dental clinic visit within the past year (percentage of adults)	16	72.6%	2010	The Henry J. Kaiser Family Foundation
	Percentage of adults (aged 18 and above) who had their teeth cleaned	20	70.1%	2010	The Henry J. Kaiser Family Foundation
	Percentage of adults (aged 65 and above) who have had all of their natural teeth extracted	16	18.8%	2010	The Henry J. Kaiser Family Foundation
Obesity and Physical Activity					
	Percentage of adults who are overweight or obese	27	63.8%	2011	The Henry J. Kaiser Family Foundation
	Hypertension rates (percentage of adults)	11	29.1%	2012	United Health Foundation
	Obesity rates (percentage of children age 10–17)	6	25.7%	2007	The Henry J. Kaiser Family Foundation
	Percentage of adults who participated in moderate or vigorous physical activities	38	47.5%	2011	The Henry J. Kaiser Family Foundation

North Dakota's Health Rankings					
Category	Indicator	Rank (1 = best or most # of)	Value (if available)	Year data collected	Source
Sexually transmitted diseases					
	Chlamydia cases	48	2,404	2010	The Henry J. Kaiser Family Foundation
	Gonorrhea cases	44	204	2010	The Henry J. Kaiser Family Foundation
	Syphilis cases	48	6	2010	The Henry J. Kaiser Family Foundation
Smoking/Tobacco					
	Prevalence of smoking (percentage of population)	22	21.9%	2011	The Henry J. Kaiser Family Foundation
	High school students used any type of tobacco in the last 30 days	16	28%	2011	Youth Risk Behavior Survey
Causes of death					
Leading causes of death					
	Cardiovascular deaths (per 100,000 population)	14	235.6	2012	United Health Foundation
	Deaths due to Diseases of the Heart (per 100,000 population, age-adjusted)	30	166.2	2009	The Henry J. Kaiser Family Foundation
	Stroke deaths (per 100,000 population, age-adjusted)	16	38.0	2009	The Henry J. Kaiser Family Foundation
	Number of deaths due to Alzheimer's disease (per 100,000 population)	6	31.6	2008	The Henry J. Kaiser Family Foundation
Cancer deaths					
	Number of cancer deaths	43	1,280	2011	American Cancer Society
Death rates					
	Number of deaths (per 100,000 population)	19	719.4	2009	The Henry J. Kaiser Family Foundation
	Rate of child deaths (ages 1–14, per 100,000 children)	26	18	2009	The Henry J. Kaiser Family Foundation
	Rate of teen deaths (per 100,000 population)	43	77	2009	The Henry J. Kaiser Family Foundation

North Dakota's Health Rankings					
Category	Indicator	Rank (1 = best or most # of)	Value (if available)	Year data collected	Source
Firearms deaths					
	Number of deaths due to injury by firearms (per 100,000 population)	19	9.2	2009	The Henry J. Kaiser Family Foundation
Motor vehicle deaths					
	Number of deaths due to motor vehicle accidents (per 100,000 population)	43	19.3	2009	The Henry J. Kaiser Family Foundation
Occupational fatalities					
	Number of occupational fatalities	17	44	2011	The Henry J. Kaiser Family Foundation
Health care in North Dakota					
Quality					
	Overall health system performance	9	N/A	2009	The Commonwealth Fund
	Avoidable hospital use and costs	4	N/A	2009	The Commonwealth Fund
	Equity	13	N/A	2009	The Commonwealth Fund
	Healthy lives	10	N/A	2009	The Commonwealth Fund
	Adults aged 50 and older who received recommended screening and preventive care	33	40.6%	2006	The Commonwealth Fund
	Adult diabetics who received recommended preventive care	5	54.2%	2007	The Commonwealth Fund
	Children ages 19–35 months who received all recommended doses of five key vaccines	13	77.8%	2011	The Commonwealth Fund
	Children with emotional, behavioral, or developmental problems who received some mental health care in the past year	7	72.4%	2011	The Commonwealth Fund
	Children with a medical home	10	64.0%	2011	The Commonwealth Fund

North Dakota's Health Rankings					
Category	Indicator	Rank (1 = best or most # of)	Value (if available)	Year data collected	Source
Access					
	Population with health insurance coverage	8	89%	2011	The Henry J. Kaiser Family Foundation
	Employers offering health insurance to employees	7	55%	2011	The Henry J. Kaiser Family Foundation
	Employees enrolling in health insurance offered by employers	N/A	79.0%	2011	State Health Access Data Assistance Center, University of Minnesota
	Percentage of premiums contributed by employees enrolled in employer-sponsored coverage They have family and single	N/A	28.7%	2011	State Health Access Data Assistance Center, University of Minnesota
	Medicaid enrollment as a percentage of population under 200% of the federal poverty level	N/A	29.8%	2010	State Health Access Data Assistance Center, University of Minnesota
Finance					
General finance					
	Per capita health spending	9	$7,749	2009	The Henry J. Kaiser Family Foundation
	Average annual percentage growth in health care expenditures per capita	10	6.1%	1991-2009	The Henry J. Kaiser Family Foundation
Medicare and Medicaid					
	Uninsured children	15	17%	2011	The Henry J. Kaiser Family Foundation
	Medicare spending per enrollee	47	$7.,958	2009	The Henry J. Kaiser Family Foundation
	Medicare spending per enrollee—hospital care	22	$34,774	2009	The Henry J. Kaiser Family Foundation
	Medicare spending per enrollee—physician and clinical services	49	$1,236	2009	The Henry J. Kaiser Family Foundation
	Medicare spending per enrollee—nursing home care	49	$201	2009	The Henry J. Kaiser Family Foundation

North Dakota's Health Rankings					
Category	Indicator	Rank (1 = best or most # of)	Value (if available)	Year data collected	Source
	Medicare spending per enrollee—drugs and other medical non-durables	26	$1,214	2009	The Henry J. Kaiser Family Foundation
	Medicare length of stay	6	6.6 days	2005	North Dakota Healthcare Association
	Medicaid spending per dual eligible	5	$25,661	2009	The Henry J. Kaiser Family Foundation
	Dual eligible spending as a percentage of total Medicaid	4	20%	2009	The Henry J. Kaiser Family Foundation
	Medicare beneficiaries aged 65 and older living below 150% of FPL	36	23%	2011	The Henry J. Kaiser Family Foundation
	Medicare Advantage plan penetration	42	11.4%	2012	The Henry J. Kaiser Family Foundation
Hospital					
	Hospital admissions	N/A	94,436	2010	North Dakota Healthcare Association
	Inpatient days	4	718,950	2010	North Dakota Healthcare Association
	Outpatient visits	2	3,075,737	2010	North Dakota Healthcare Association
	Emergency room visits (per 1,000 population)	9	540.8	2010	North Dakota Healthcare Association
	Hospital inpatient charges (per day)	48	$2,910	2010	North Dakota Healthcare Association
	Hospital outpatient charges (per day)	44	$829	2010	North Dakota Healthcare Association
	Hospital adjusted expenses (per inpatient day)	42	$1,342	2010	The Henry J. Kaiser Family Foundation
	Total hospital margins	N/A	1.3%	2010	North Dakota Hospital Association

North Dakota's Health Rankings					
Category	Indicator	Rank (1 = best or most # of)	Value (if available)	Year data collected	Source
Public health					
	Federal funding (per capita) from U.S. Centers for Disease Control (CDC) FY 2007	8	$29.90	2011	Trust for America's Health
	Federal funding (per capita) from Health Resources and Services Administration (HRSA) FY 2007	29	$22.26	2011	Trust for America's Health
	State funding for Public Health FY	N/A	$16,939,076	2011	Trust for America's Health
Health status					
Births					
	Number of births	48	9,104	2010	The Henry J. Kaiser Family Foundation
	Teen birth rate (per 1,000 population, ages 15–19)	44	26.5	2010	The Henry J. Kaiser Family Foundation
	Preterm births (percentage of all births)	33	28.8%	2006	The Henry J. Kaiser Family Foundation
	Number of births of low birth weight	49	607	2010	The Henry J. Kaiser Family Foundation
Prenatal care					
	Infant mortality (per 1,000 live births)	19	6	2012	United Health Foundation
Childhood immunizations					
	Immunization coverage (percentage of children aged 19–35 months)	5	93.3%	2012	United Health Foundation
	Immunization gap, children aged 19–35 months without all immunizations	17	24%	2010	The Henry J. Kaiser Family Foundation
Child and adolescent health					
	Children in poverty	4	11.1%	2012	America’s Health Rankings
	Percentage of persons under age 18	39	25%	2011	United Health Foundation
Adult immunizations					
	Adults aged 65 and over who had a flu shot within the past year	33	58%	2011	The Henry J. Kaiser Family Foundation
	Adults aged 65 and over who have ever had a pneumonia vaccine	25	70.1%	2011	The Henry J. Kaiser Family Foundation

North Dakota's Health Rankings					
Category	Indicator	Rank (1 = best or most # of)	Value (if available)	Year data collected	Source
Provider and service use					
Hospitals					
	Total hospitals	38	41	2010	The Henry J. Kaiser Family Foundation
	Hospital beds (per 1,000 population)	2	5	2010	The Henry J. Kaiser Family Foundation
	Hospital admissions (per 1,000 population)	3	140	2010	The Henry J. Kaiser Family Foundation
	Hospital emergency room visits (per 1,000 population)	8	524	2010	The Henry J. Kaiser Family Foundation
	Hospital inpatient days (per 1,000 population)	2	1,066	2010	The Henry J. Kaiser Family Foundation
	Hospital outpatient visits (per 1,000 population)	1	4,560	2010	The Henry J. Kaiser Family Foundation
Nursing homes					
	Total number of residents in certified nursing facilities	40	5,689	2010	The Henry J. Kaiser Family Foundation
	Total number of certified nursing facilities	38	86	2010	The Henry J. Kaiser Family Foundation
	Certified nursing facility beds	43	6,491	2010	The Henry J. Kaiser Family Foundation