

A Picture of Health



Chronic Disease in North Dakota *A Status Report for 2012*



This publication was supported with funding from Cooperative Agreement DP09-90104CONT12 from the U.S. Centers for Disease Control and Prevention.

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Chronic Disease in North Dakota

A Status Report for 2012

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NORTH DAKOTA
DEPARTMENT *of* HEALTH

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Working Together to Control and Reduce Chronic Disease

North Dakota is a robust and growing state – a state rich with economic growth and full of lifestyle and recreational opportunities. Many of our residents enjoy a healthy life. Some, though, face the challenges of dealing with health problems and chronic disease.



Chronic diseases are defined as illnesses that last a long time, do not go away on their own, are rarely cured, and often result in disability later in life. Nearly every North Dakotan is touched either personally or through someone they know by the diseases and risk factors detailed in this report – cancer, heart disease, stroke, diabetes, asthma, arthritis, oral disease, the effects of tobacco use and secondhand smoke, and poor lifestyle choices.

The diseases and risk factors detailed in this report often are intertwined, with those suffering from one disease at higher risk for another; and those with risky lifestyles at higher risk as well. Exciting news that will help us address the overlap of diseases and risk factors is the development of the Coordinated Chronic Disease Prevention Program, that aligns the programs in the North Dakota Department of Health (NDDoH) to work together to

address health issues and chronic disease. Our NDDoH programs always have shared resources and worked together in a spirit of cooperation, but with direction from the U.S. Centers for Disease Control and Prevention to collaborate, our programs are challenged to come up with unique and cost-effective ways to reach people with combined messages whenever possible.

We must celebrate our successes. Youth tobacco use saw a sharp decline from 40.6 percent in 1999 to 19.4 percent in 2011; our NDQuits services are very successful at helping people quit using tobacco; and there are fewer people dying from heart disease and stroke.

And yet, the challenges we face are still on our radar – identifying and helping disparate populations find the help they need to deal with health issues; dealing with a rising prevalence of people who are overweight or obese and those with diabetes; creating sustainable, effective programs with limited funding; and finding the most effective ways to educate people about the consequences of unhealthy lifestyle choices in this age of new communication styles.

To build on our successes and attack our challenges, our programs will continue to use the best science and resources available to prevent, detect and treat diseases and health issues regardless of gender, disability, race, ethnicity, age or socioeconomic status. We will work to inform people about the dangers of unhealthy life choices and encourage lifestyle changes such as stopping tobacco use, continuing regular physical activity and eating healthy diets filled with fruits and vegetables.

We will strive to help people make life changes and effectively deal with chronic disease so they can live healthier and happier and achieve the goals they set. Ensuring fewer medical and lost productivity costs for our state and taxpayers, and most importantly boosting the health of our citizens – now that's a picture of health we would all like to see.

Terry Dwelle, M.D., M.P.H.T.M.
State Health Officer

INTRODUCTION

INTRODUCTION

The risk factors and chronic diseases highlighted in this report are managed by four divisions within the North Dakota Department of Health (NDDoH) – the Division of Cancer Prevention and Control, the Division of Chronic Disease, the Division of Family Health and the Division of Nutrition and Physical Activity. All are part of the NDDoH Community Health Section.

The **Division of Cancer Prevention and Control** has a mission to increase cancer prevention and awareness by engaging in partnerships, collecting and reporting data, assuring quality data, providing public and professional education, and assuring availability of quality services for screening, treatment, rehabilitation and palliative care (care that relieves the pain, suffering and stress of chronic disease).

The division accomplishes its mission through utilization of evidence-based strategies to carry out the North Dakota Cancer Control Plan, which is designed to decrease the burden of cancer in the state.

The Division of Cancer Prevention and Control programs highlighted in this report include:

- ◆ Comprehensive Cancer Control Program.
- ◆ *Women's Way* (the North Dakota Breast and Cervical Cancer Early Detection Program).
- ◆ North Dakota Statewide Cancer Registry.

The **Division of Chronic Disease** has a mission to improve the health and quality of life for North Dakotans who have chronic diseases by promoting healthy behaviors, supporting health-care improvement measures, developing community policies and practices, and increasing disease risk awareness.

The division accomplishes its mission by providing grants, training, education and technical assistance to communities and health-care providers.

The Division of Chronic Disease programs highlighted in this report include:

- ◆ Heart Disease and Stroke Prevention Program.
- ◆ Tobacco Prevention and Control Program.

The **Division of Family Health** administers state and federal programs designed to improve the health of North Dakota families.

The division accomplishes its mission by providing funding, technical assistance, training, needs assessment, educational materials and other resources to local public health units, schools and other public and private entities that offer health services in North Dakota communities.

The Division of Family Health programs highlighted in this report include:

- ◆ Oral Health Program.

The **Division of Nutrition and Physical Activity** has a mission to support growth and development; prevent overweight and obesity; and prevent and control diabetes through programs designed to improve healthful eating and physical activity.

The division accomplishes its goals through monitoring the nutrition and health status of North Dakotans; providing education and training; facilitating environmental changes; advocating for nutrition and physical activity issues; promoting partnerships to plan, implement and evaluate community-based interventions; providing technical assistance; and supporting Healthy North Dakota nutrition and physical activity components.

The Division of Nutrition and Physical Activity programs highlighted in this report include:

- ◆ Diabetes Prevention and Control Program.
- ◆ Healthy People 2020.

Two diseases that are included in this document, but that have no funded programs in North Dakota, are arthritis and asthma. By addressing risk factors that contribute to the diseases with active programs, risk factors for arthritis and asthma also are addressed.

This report provides information about what each division and program does for the citizens of North Dakota and presents data about the various diseases and risk factors highlighted. Data presented here is used to guide program activities and to measure progress over time.

NOTE: Due to changes in the Behavioral Risk Factor Surveillance System (BRFSS) survey sampling methodology (the addition of cell phone-only users and a new method of weighting data), data collected prior to 2011 cannot be compared to data collected in 2011 and moving forward. Information in this report gathered from the BRFSS will not compare 2011 data to previous years. For comparisons of data prior to 2011, please refer to previous reports.



COORDINATION

COORDINATED CHRONIC DISEASE PREVENTION PROGRAM

Coordinating Chronic Disease Efforts

The Coordinated Chronic Disease Prevention Program (CCDPP) is an effort by the North Dakota Department of Health (NDDoH) to build capacity to address chronic disease prevention and health promotion in a coordinated, collaborative approach to change policies, practices and environments. This will lead to improved quality of life and health outcomes and promote education and management skills for those diagnosed with, or at risk for, chronic diseases.

This comprehensive approach to chronic disease prevention and control will:

- ◆ Address the leading causes of death and disability (heart disease and stroke, diabetes, cancer and arthritis).
- ◆ Address the major risk factors (poor nutrition, obesity, physical inactivity and tobacco use).
- ◆ Take into account health disparities in populations.
- ◆ Teach the general population, as well as targeted high-risk and priority populations, in the places where members of the communities are found.
- ◆ Provide greater opportunities for state health department chronic disease programs and their partners to work together.
- ◆ Promote collective thinking and problem solving.
- ◆ Support working together in new ways so that the impact of all programming is improved.

The disease programs highlighted in this report have begun to work together to accomplish this coordinated approach. As the NDDoH works towards chronic disease program integration, the following strategies will be used:

- ◆ Strategically align chronic disease program resources to increase the effectiveness and efficiency of each program in a partnership without compromising the integrity of the disease program(s).
- ◆ Engage state health agency leadership to secure organizational endorsement and broad-based buy-in of program integration efforts.
- ◆ Crosscut epidemiology and surveillance programs as a foundation on which to build the case for action and to frame problems to be addressed.
- ◆ Use information technology for effective communication and data management.
- ◆ Build state and local partnerships that focus on mutual benefits and coordinated approaches to planning, implementing and evaluating of integration efforts.
- ◆ Plan with partners for the implementation of integrated interventions that focus on benefits and results.
- ◆ Evaluate chronic disease program integration initiatives.



Programs Working Together

Programs within the NDDoH have completed the following collaborations, combining resources to produce effective efforts at education, leading to disease reduction and management.

- ◆ The Division of Cancer Prevention and Control, Oral Health Program and Tobacco Prevention and Control Program worked together to develop an educational piece about how tobacco use affects oral health and can cause cancer.
- ◆ The Division of Cancer Prevention and Control and the Tobacco Prevention and Control Program worked together to promote the NDQuits tobacco cessation program in the *Women's Way* Health-Care Provider Examiner newsletter that is sent to health-care providers.
- ◆ The Heart Disease and Stroke Prevention Program and the Tobacco Prevention and Control Program worked together to produce palm cards and posters that highlighted what to do in the case of a heart or stroke emergency, encouraged people to quit tobacco and offered information about NDQuits.
- ◆ The Tobacco Prevention and Control Program partnered with the Heart Disease and Stroke Prevention Program and the American Heart Association in granting Million Hearts Community Action Grant "S" (Smoking Cessation). The Million Hearts "S" Grant program provides funding to the major health-care systems in North Dakota to establish "cessation centers." The cessation centers are working to provide cessation education and counseling to patients in the health-care system by certified staff, incorporate Ask/Advise/Refer in the health-care system's electronic medical records, and expand these services systemwide into rural communities.
- ◆ The Division of Cancer Prevention and Control and the Coordinated School Health Program worked together to educate school officials and teachers about the importance of UV protection measures and encourage them to implement practices that reduce UV exposure for students.
- ◆ The Division of Cancer Prevention and Control and the Maternal and Child Health Nutrition Program worked together to promote the benefits of breastfeeding for both moms and babies and recruit North Dakota employers to meet requirements to become designated as "infant-friendly" worksites.
- ◆ The Division of Cancer Prevention and Control and the Tobacco Prevention and Control Program worked together to educate pharmacists about the benefits provided through NDQuits and how to directly refer their clients to NDQuits.
- ◆ The Division of Cancer Prevention and Control and the Department of Health's Office for the Elimination of Health Disparities worked together to plan a bone marrow donor drive to recruit American Indian people to join the donor registry to address the need for more American Indian potential donors.
- ◆ The Tobacco Prevention and Control Program partnered with the Oral Health Program to provide funds for cessation grants for the four dental safety-net clinics in North Dakota. The Oral Health Cessation Grant program provides funding to these facilities to strengthen tobacco cessation education in dental settings. The Oral Health grantees provide cessation education and counseling to patients in the facility and incorporate Ask/Advise/Refer in the facility's electronic medical records. Plans are to expand this partnership and encourage Ask/Advise/Refer in private dental clinics throughout the state.

RISK FACTORS

RISK FACTORS AND HEALTHY PEOPLE 2020

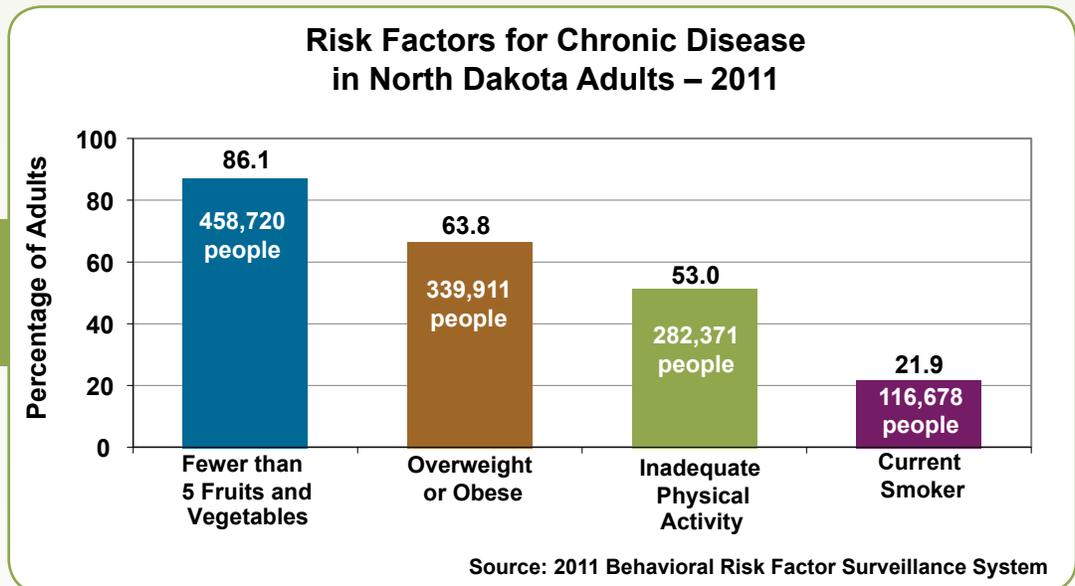
Chronic Disease and Risk Factors

Certain health behaviors and conditions known as risk factors are associated with increased chances of developing chronic disease. “Non-modifiable” risk factors are those that people are not able to change, such as age, gender and heredity/family history.

There are also “modifiable” risk factors – those factors that people can modify or control through lifestyle changes. These preventable risk factors include poor dietary habits, overweight and obesity, physical inactivity and smoking/tobacco use.

Healthy People 2020 (HP2020) is a set of health objectives that the nation and states should strive to achieve in regards to risk factors and chronic diseases. There are nearly 600 objectives in Healthy People 2020, with more than 1,300 measures. Each Healthy People 2020 objective has a reliable data source for national data, a baseline measure and a target for specific improvements to be achieved by the year 2020.

Many programs within the North Dakota Department of Health use Healthy People 2020 to track program specific indicators and to plan program activities. Trends in modifiable risk factors help assess the health of North Dakotans and areas where improvement is needed.



NUTRITION RISK FACTORS

An unhealthy diet is associated with an increased risk for heart disease and stroke, type 2 diabetes, cancer, oral diseases and obesity.

Fruits and Vegetables

The number of servings of fruits and vegetables eaten is used as a measure of dietary habits. Compared with people who consume a diet with fewer fruits and vegetables, those who eat more are likely to have reduced risk of chronic diseases.

- ◆ The percentage of those who ate fewer than five servings of fruits and vegetables per day:
 - Adults = 86.1 percent (2011 BRFSS)
 - High school students = 82.6 percent (2011 Youth Risk Behavior Survey [YRBS])

Sugar-Sweetened Beverages

Sugar-sweetened beverages are the largest source of added sugars in the diet of U.S. youth. Consuming these beverages increases the intake of calories – a factor potentially contributing to obesity among youth nationwide.

- ◆ The percentage of high school students who drank sugar-containing beverages one or more times per day during the past seven days:
 - 37.6 percent (2011 YRBS)

Breastfeeding

Research indicates that women who breastfeed may have lower rates of certain breast and ovarian cancers. It is also recognized by the U.S. Centers for Disease Control and Prevention (CDC) as a primary strategy to reduce childhood obesity.

The American Academy of Pediatrics (AAP) recommends exclusive breastfeeding for about the first six months of a baby's life, followed by breastfeeding in combination with the introduction of complementary foods until at least 12 months of age, and continuation of breastfeeding for as long as mutually desired by mother and baby.

- ◆ In 2012, 72.9 percent of North Dakota mothers reported that they started breastfeeding.
 - By six months, 45 percent were still breastfeeding.
 - By 12 months, 21 percent were still breastfeeding.



Ways To Improve Diets for North Dakotans

In schools and child care:

- ◆ Ensure that students have only appealing, healthy choices in foods and beverages offered outside of the school meals program (ex: concession stands).
- ◆ Establish policies to incorporate fruit and vegetable activities in school curricula.
- ◆ Expand curriculum-based strategies that support nutrition standards.
- ◆ Ensure that regulations and policies promote healthier foods in child-care settings.

In worksites:

- ◆ Promote healthier foods at workplace cafeterias, in workplace vending machines, and at meetings and conferences.
- ◆ Support breastfeeding in the workplace.

In health-care settings:

- ◆ Encourage maternity care practices that support and promote breastfeeding.
- ◆ Expand the knowledge and skills of health-care providers to conduct nutrition screening and counseling on sugar-sweetened beverage consumption, sodium consumption and other aspects of a healthy diet.
- ◆ Promote and offer healthier food for staff, patients and visitors.

In communities:

- ◆ Include or expand farm-to-where-you-are programs.
- ◆ Support and promote community and home gardens.
- ◆ Promote menu labeling in restaurants.



OVERWEIGHT/OBESITY

OVERWEIGHT AND OBESITY RISK FACTORS

Weight

Adults who are overweight or obese are at increased risk for diabetes, as well as for high blood pressure, high cholesterol, coronary heart disease, stroke and other diseases such as osteoarthritis, sleep apnea, respiratory problems, and endometrial, breast, prostate and colon cancers.

- ◆ In North Dakota, 63.8 percent of adults are overweight or obese. (2011 BRFSS)
 - Overweight refers to those with a body mass index (BMI) greater than or equal to 25.
- ◆ In North Dakota, 27.8 percent of adults are obese. (2011 BRFSS)
 - Obese refers to those with a BMI greater than or equal to 30.

The number of obese adults, along with related disease rates and health-care costs, is on course to increase dramatically in North Dakota over the next 20 years, according to *F as in Fat: How Obesity Threatens America's Future 2012*, a report by Trust for America's Health (TFAH) and the Robert Wood Johnson Foundation (RWJF).

Projected Increases in Obesity Rates

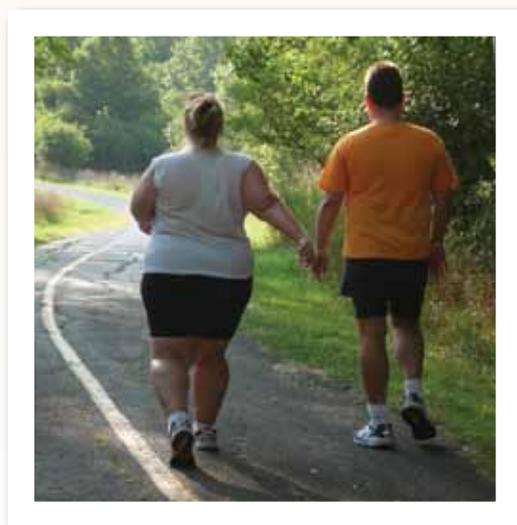
If obesity rates continue on their current trajectories, the obesity rate in North Dakota could reach 57.1 percent by 2030.

Projected Increases in Disease Rates

Over the next 20 years, obesity could contribute to 79,617 new cases of type 2 diabetes; 190,379 new cases of coronary heart disease and stroke; 170,470 new cases of hypertension; 110,099 new cases of arthritis; and 26,762 new cases of obesity-related cancer in North Dakota.

How Reducing Obesity Could Lower Health-Care Costs

If body mass indexes (BMIs) were lowered by 5 percent, North Dakota could save 7.2 percent in health-care costs, which would equate to savings of \$1,177,000,000 by 2030.



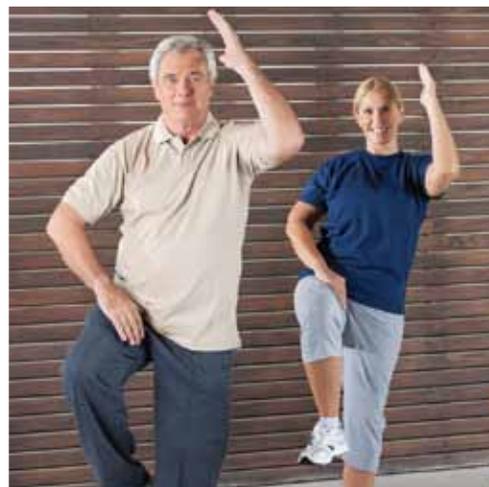
PHYSICAL ACTIVITY

PHYSICAL ACTIVITY RISK FACTORS

Physical Activity

Insufficient physical activity is associated with an increased risk for heart disease and stroke, type 2 diabetes, cancer and obesity. In adults, the recommended level of physical activity is to engage in at least 150 minutes of moderate-intensity physical activity or 75 minutes of vigorous-intensity physical activity per week, as well as muscle strengthening on two or more days per week. Children and adolescents should engage in at least 60 minutes of moderate- or vigorous-intensity activity each day.

- ◆ In North Dakota, 53 percent of adults get inadequate physical activity.



DIVISION OF NUTRITION AND PHYSICAL ACTIVITY

The North Dakota Division of Nutrition and Physical Activity has a mission to support growth and development; prevent overweight and obesity; and prevent and control diabetes through programs designed to improve healthful eating and physical activity. North Dakota does not get funding for obesity prevention; however, through the following programs, limited education and resources are available.

Healthy Communities

This program provides training, guidance and expertise to chronic disease programs and partnerships on environmental approaches that promote health and support and reinforce healthful behaviors. This in turn builds capacity for state and local partners to provide technical assistance to their own 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.

Maternal and Child Health (MCH) Nutrition

This program promotes nutritional well-being across the lifespan for women, infants and children. Technical assistance is provided to state and local partners, specifically those working with the MCH population to facilitate healthy eating and active living in schools, early childhood, worksites and community settings.



Special Supplemental Nutrition Program for Women, Infants and Children (WIC)

WIC offers eligible pregnant, breastfeeding and postpartum women, infants and children younger than 5 years a carefully defined package of supplemental nutritious foods, nutrition education and counseling to improve dietary practices, breastfeeding promotion and support, and referrals that link participants to vital health care and social services.

Breastfeeding Promotion and Support

Breastfeeding is recognized by the U.S. Centers for Disease Control and Prevention (CDC) as a primary strategy to reduce childhood obesity. The WIC, Healthy Communities, and Maternal and Child Health Nutrition Programs work together to promote breastfeeding and

improve support for breastfeeding in all settings. Some activities include providing leadership for the statewide breastfeeding coalition, providing technical assistance to the local breastfeeding coalitions and coordinating the infant-friendly workplace designation program.

TOBACCO PREVENTION AND CONTROL PROGRAM

The North Dakota Tobacco Prevention and Control Program has a mission to improve and protect the health of North Dakotans by reducing the negative health and economic consequences of the state's number-one cause of preventable disease and death – tobacco use.

The goal of the program is to reduce disease, disability and death related to tobacco use by:

- ◆ Preventing initiation among youth and young adults.
- ◆ Promoting quitting among adults and youth.
- ◆ Eliminating exposure to secondhand smoke.
- ◆ Identifying and eliminating tobacco-related disparities among specific population groups.



Services provided by the Tobacco Prevention and Control Program include:

- ◆ **NDQuits** – Free telephone, online and mobile service to help North Dakotans quit tobacco.
- ◆ **Baby and Me Tobacco Free** – Free service to help pregnant women and new moms quit tobacco.
- ◆ **City/County Cessation Program** – Free service to help city and county employees quit tobacco.
- ◆ **State Employees Cessation Program (NDPERS)** – Free service to help North Dakota state employees and their dependents quit tobacco.
- ◆ **Public Health Service (PHS) Guidelines Initiative** – Free service to help health-care providers implement the Ask/Advise/Refer (AAR) strategy with their patients and clients.
- ◆ **Tribal tobacco programs** – Tribal tobacco programs are granted funds and provided with technical assistance. The grants fund a local Tribal Tobacco Prevention Coordinator on each reservation to work with the community regarding environmental approaches, educate on the differences between commercial tobacco and traditional tobacco, and provide resources to help tribal members quit commercial tobacco.
- ◆ **Emerging tobacco products – monitoring of and education** – Research about and preparation of educational materials regarding new tobacco products like electronic cigarettes, hookahs, dissolvable sticks, strips and orbs and snus, among others.
- ◆ **FDA Family Smoking Prevention and Tobacco Control Act – monitoring and education** – Staying in touch with national partners and relaying information about current activities and deadlines related to this new federal law.
- ◆ **Educational services** – Production of fact sheets, brochures, posters and reports about the effects of smoking, tobacco and secondhand smoke.
- ◆ **Tobacco surveillance** – Conducting surveys to measure the adult and youth smoking and tobacco usage rates in North Dakota. Surveys include Behavioral Risk Factor Surveillance System (BRFSS), Adult Tobacco Survey (ATS), Youth Tobacco Survey (YTS), Youth Risk Behavior Survey (YRBS) and North Dakota Secondhand Smoke Study.
- ◆ **Million Hearts Community Action Grant “S” (Smoking Cessation)** – The Million Hearts “S” Grant program provides funding to the major health-care systems in North Dakota to establish “cessation centers.” The cessation centers are working to provide cessation education and counseling to patients in the health-care system by certified staff, incorporate Ask/Advise/Refer in the system’s electronic medical records and expand these services systemwide into rural communities.



The Effects of Tobacco

The U.S. Surgeon General has consistently documented the harmful effects that smoking, tobacco use and secondhand smoke can have on the human body.

- ◆ 2004 U.S. Surgeon General’s Report – *The Health Consequences of Smoking* – “Smoking harms nearly every organ in your body. The toxins from cigarette smoke go everywhere the blood flows.”
- ◆ 2006 U.S. Surgeon General’s Report – *The Health Consequences of Involuntary Exposure to Tobacco Smoke* – “The scientific evidence is now indisputable: secondhand smoke is not a mere annoyance. It is a serious health hazard that can lead to disease and premature death in children and nonsmoking adults.”
- ◆ 2010 U.S. Surgeon General’s Report – *How Tobacco Smoke Causes Disease: The Biology and Behavioral Basis for Smoking-Attributable Disease* – “Cigarette smoke contains more than 7,000 chemicals and compounds. Hundreds are toxic and at least 69 cause cancer. Tobacco smoke itself is a known human carcinogen.”
- ◆ 2012 U.S. Surgeon General’s Report – *Preventing Tobacco Use Among Youth and Young Adults* – “Nearly all tobacco use begins during youth and young adulthood. Each day across the United States, more than 3,800 youth under age 18 smoke their first cigarette.”



Smoking and Spit Tobacco Can Cause:

Heart Disease
 Stroke
 Lung Cancer and Emphysema
 Mouth and Throat Cancer
 Stomach and Pancreatic Cancer
 Kidney and Bladder Cancer
 Cervix Cancer
 Gum Disease
 Cataracts
 Pneumonia
 Hip Fractures
 Reproductive Complications

Exposure to Secondhand Smoke in Infants and Children Can Cause:

Asthma Attacks
 Pneumonia
 Bronchitis
 Ear Infections
 Weaker Lungs
 Sudden Infant Death Syndrome

Exposure to Secondhand Smoke in Adults Can Cause:

Stroke
 Heart Disease
 Lung Cancer
 Asthma Attacks
 Nasal Irritation
 Low Birthweight Babies

Adult Tobacco Use Rates

According to the 2011 Behavioral Risk Factor Surveillance System (BRFSS):

- ◆ North Dakota adults smoke at a rate of 21.9 percent (116,678 people). The national average is 21.2 percent.
 - In 2011 in North Dakota, 53.1 percent of adult smokers tried to quit.
- ◆ North Dakota adults use smokeless tobacco at a rate of 8.2 percent (43,688 people). The national average is 3.7 percent.
 - Males use smokeless tobacco at a rate of 14.8 percent (78,851 people) in North Dakota.

According to the CDC's Smoking Attributable Mortality, Morbidity and Economic Costs report, each year in North Dakota, 877 adults die prematurely from illnesses caused by smoking and about 110 people die from the effects of secondhand smoke.

Although, due to the change in BRFSS sampling methodology, data from 2011 can no longer be compared to previous years, North Dakota adult smoking rates dropped only slightly between 2000 and 2009, going from 23.3 percent in 2000 to 18.6 in 2009.

Healthy People 2020 North Dakota Objective for Adult Smoking Rates

- **The HP2020 goal is to reduce adult smoking rates in North Dakota to 18 percent by 2020.**

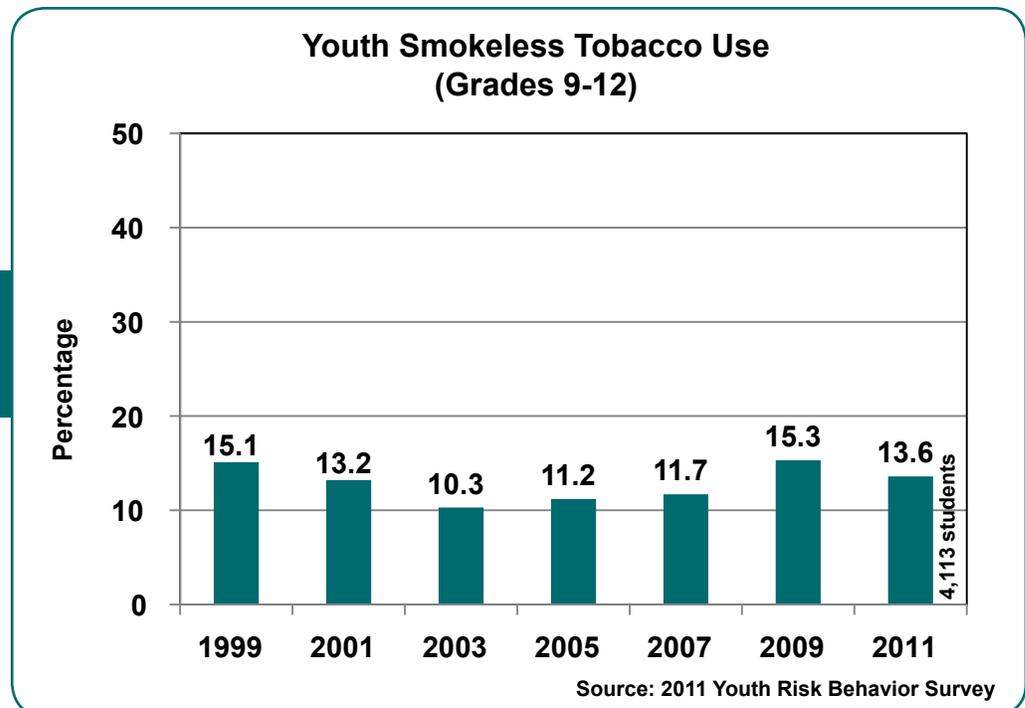
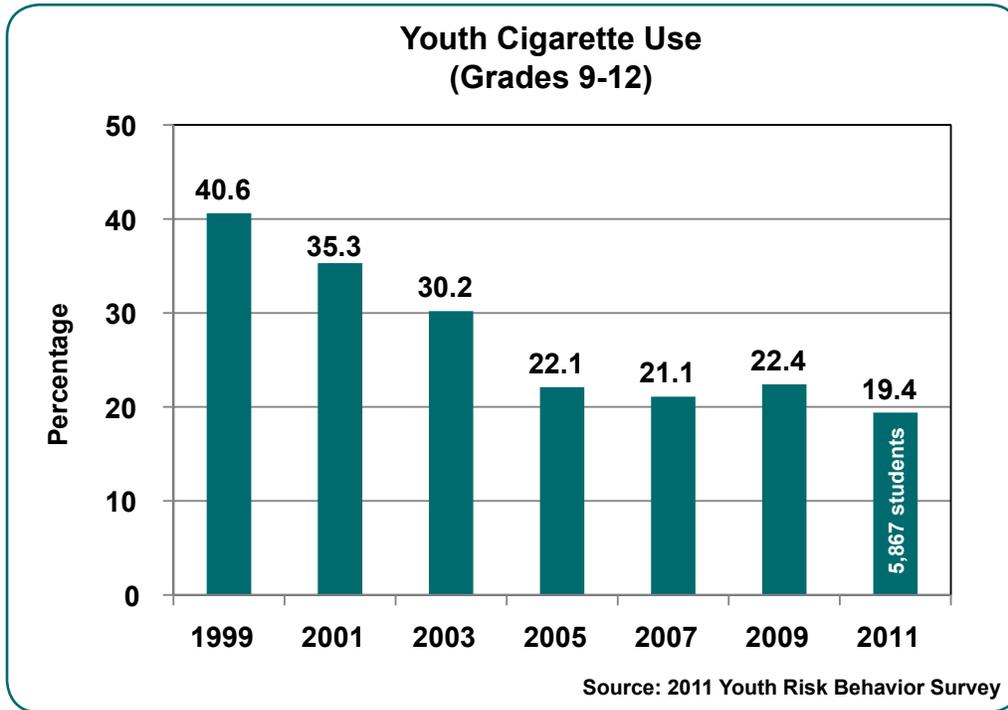
Spit tobacco is not a safe alternative to smoking.



Youth Tobacco Use Rates

According to the 2011 Youth Risk Behavior Survey (YRBS):

- ◆ North Dakota youth in grades nine through 12 smoke at a rate of 19.4 percent.
- ◆ North Dakota youth in grades nine through 12 use smokeless tobacco at a rate of 13.6 percent.
- ◆ The rate of current cigarette smoking more than triples between the time students are in grades seven and eight (3.5 percent) and the time they are in grades nine through 12 (26.6 percent).



Successful Cessation Programs

- ◆ **NDQuits** – This free cessation service can be accessed via telephone, Internet and mobile device.
- ◆ **NDPERS Cessation Program** – A tobacco cessation service provided to state employees and their eligible family members that are at least 18 years old. The program is a combination of counseling, a physician's office visit, nicotine replacement therapy and prescription medication.
- ◆ **City/County Cessation Programs** – A cessation service provided to city and county employees and their eligible family members. The program is a combination of counseling, nicotine replacement therapy and prescription medication.
- ◆ **Baby and Me Tobacco Free** – A cessation program created to reduce the burden of tobacco use on pregnant woman and new mothers. See more information in the Disparities section of this report.
- ◆ **Public Health Service (PHS) Guidelines Initiative** – North Dakota's health-care providers and health-care settings are being helped to ensure they are following the PHS guidelines put in place by the U.S. Department of Health and Human Services. The program ensures that patients are asked about tobacco use, advised to quit and referred to a state or local cessation program at every health visit. This method is called Ask/Advise/Refer (AAR). The Tobacco Prevention and Control Program is training health-care staff about why tobacco is such a concern in regards to health-related issues and offering technical assistance as health-care providers set up their own PHS guidelines system.

IF AT FIRST
YOU DON'T SUCCEED,
QUIT, QUIT AGAIN.

YOU CAN
DO IT.

TRY
AGAIN

It takes most smokers five to seven attempts to quit for good. Those who get help with quitting find it easier to succeed. Enroll in the **FREE** NDPERS Tobacco Cessation Program. Counseling provided by NDQuits. Free medications available.

To enroll, contact:
www.bcbsnd.com/ehealth/ndpersquit
Or call:
1.800.223.1704

NDPERS
TOBACCO
CESSATION
PROGRAM

BlueCross
BlueShield
of North Dakota
An Independent Member of the
Blue Cross & Blue Shield Association

Successful Tobacco Programs

- ◆ **Tribal tobacco programs** – Four tribal tobacco programs are using grant funds provided by the Tobacco Prevention and Control Program in order to help their tribal members quit tobacco and to educate about the difference between traditional tobacco use and commercial tobacco use.
- ◆ **Emerging tobacco products – monitoring and education** – Many new tobacco products are now emerging as tobacco companies try to replace lost cigarette sales as smoke-free laws become stronger. Some of these products include electronic cigarettes, hookahs, dissolvable sticks, strips and orbs and snus, among others. In an effort to educate the public and partners about the dangers and realities of these new products, resources are being developed. These products are advertised as safe alternatives to smoking, but they still contain nicotine and other chemicals that are not safe.
- ◆ **FDA Family Smoking Prevention and Tobacco Control Act – monitoring and education** – This Tobacco Control Act was passed in June 2009. Tobacco Prevention and Control Program staff stay attuned to the new phases of the law as it evolves and provide education to local partners, citizens and businesses throughout the state on how to deal with the differing aspects and deadlines of the law.

NDQUITS

FREE help for North Dakotans who want to quit tobacco

NDQuits provides free, confidential cessation assistance to any North Dakota resident interested in quitting tobacco via several options – telephone (North Dakota Tobacco Quitline), online (North Dakota QuitNet) and mobile (North Dakota QuitNet Mobile). For more information, smokers, spit-tobacco users, family members of tobacco users and health-care professionals can visit www.ndhealth.gov/ndquits or call 1.800.QUIT.NOW (1.800.784.8669).

The North Dakota Tobacco Quitline was launched in September 2004 and North Dakota QuitNet came online in February 2010. Mobile service was added in 2012.

NDQuits users receive:

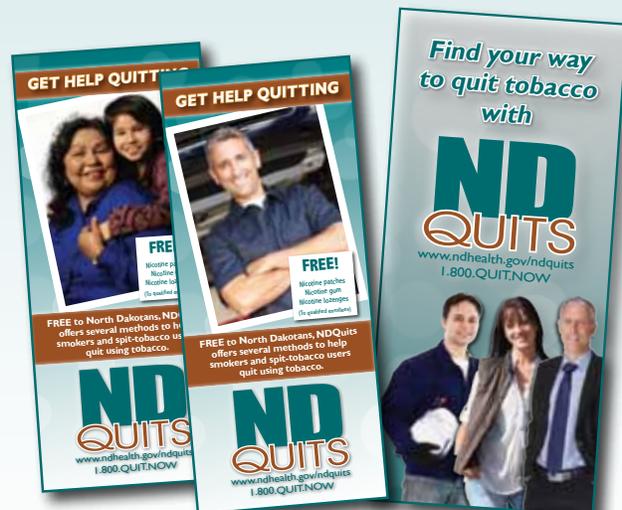
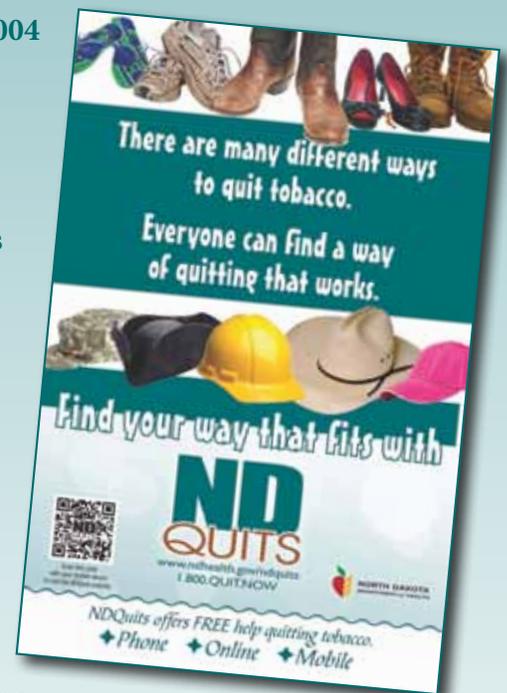
- ◆ A FREE two-month supply of nicotine patches, gum or lozenges to help with the quitting process (for eligible enrollees).
- ◆ Access to professional counselors.
- ◆ Assistance in designing a quit plan.
- ◆ Online support from other quitters 24 hours a day, seven days a week, every day of the year.
- ◆ QuitTips e-mail messages that offer tips about staying quit.
- ◆ Online calculators that let you figure how many days you've extended your life or how much money you've saved.

During 2011, the NDQuits Quitline phone service received 8,098 calls, an average of 675 calls per month. Of the 8,098 people who called the Quitline in 2011, 3,278 enrolled in counseling.

NDQuits = Success

Six months after counseling, 36.1 percent of former tobacco users are not using tobacco.

**ND
QUITS**
www.ndhealth.gov/ndquits
1.800.QUIT.NOW



DISEASES

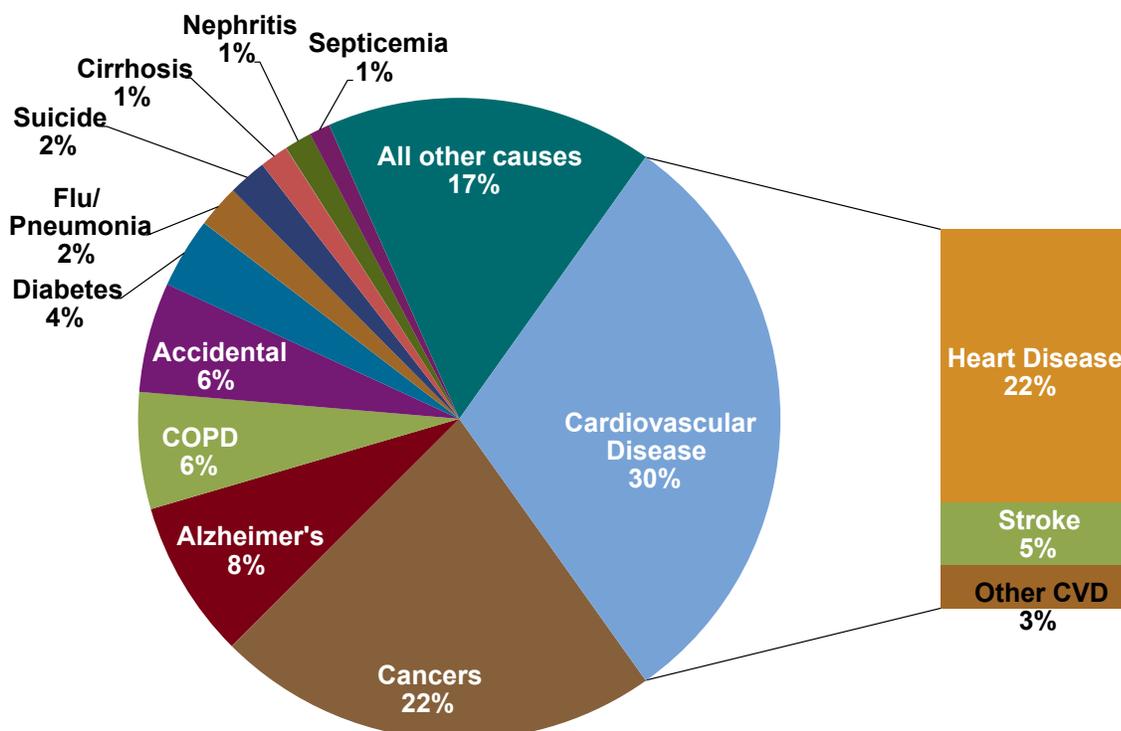
Chronic diseases in North Dakota are affected greatly by the risk factors that have been highlighted (poor nutrition, overweight/obesity, lack of physical activity and tobacco use). Information about diseases that are caused/affected by the risk factors are detailed on the following pages. Information also is provided about the North Dakota programs that are working to help reduce and eliminate these diseases.

Diseases highlighted include:

- ◆ Cancers.
- ◆ Heart disease and stroke.
- ◆ Diabetes.
- ◆ Oral disease.
- ◆ Arthritis.
- ◆ Asthma.



North Dakota Leading Causes of Death – 2011



The leading causes of death in North Dakota in 2011 were cancers and cardiovascular diseases (CVD).

CANCER

DIVISION OF CANCER PREVENTION AND CONTROL

The North Dakota Division of Cancer Prevention and Control has a mission to increase cancer prevention and awareness by engaging in partnerships, collecting and reporting data, assuring quality data, providing public and professional education, and assuring availability of quality services for screening, treatment, rehabilitation and palliative care (care that relieves the pain, suffering and stress of chronic disease).

What is Cancer?

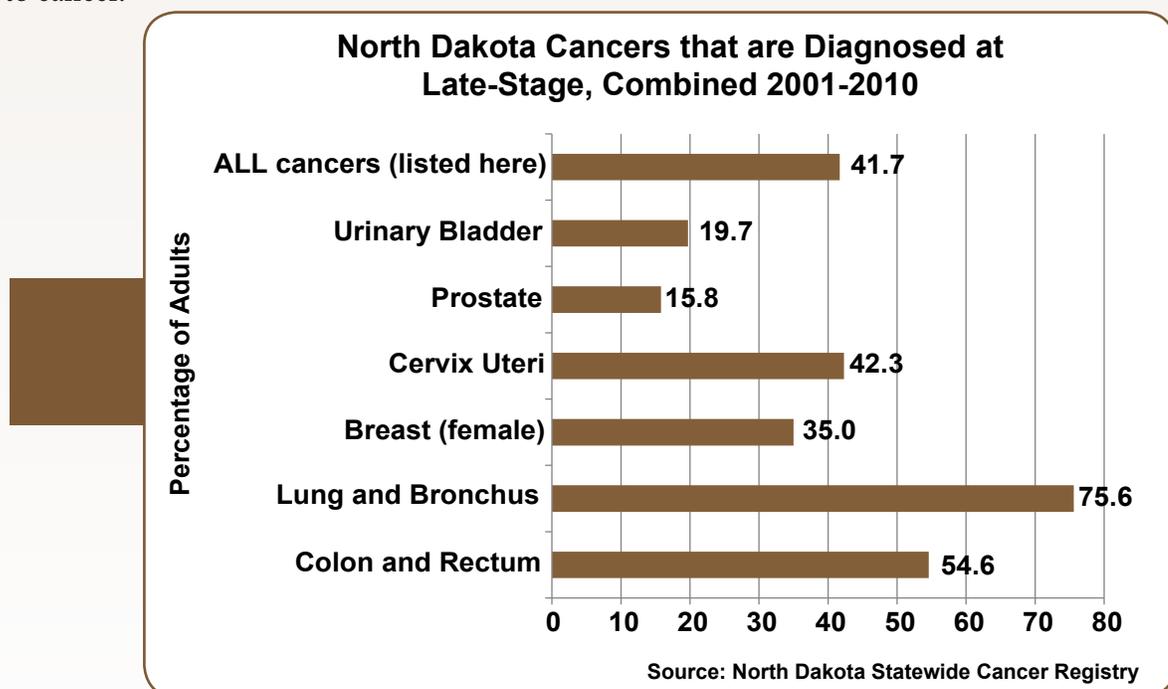
Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade other tissues. Cancer cells can spread to other parts of the body through the blood and lymph systems. Cancer is not just one disease, but many diseases. There are more than 100 different types of 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; cancer that begins in basal cells of the skin is called basal cell carcinoma.

Cancer types can be grouped into broader categories. The main categories of cancer include:

- ◆ **Carcinoma** – cancer that begins in the skin or in tissues that line or cover internal organs.
- ◆ **Central nervous system cancers** – cancers that begin in the tissues of the brain and spinal cord.
- ◆ **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.
- ◆ **Sarcoma** – cancer that begins in bone, cartilage, fat, muscle, blood vessels, or other connective or supportive tissue.

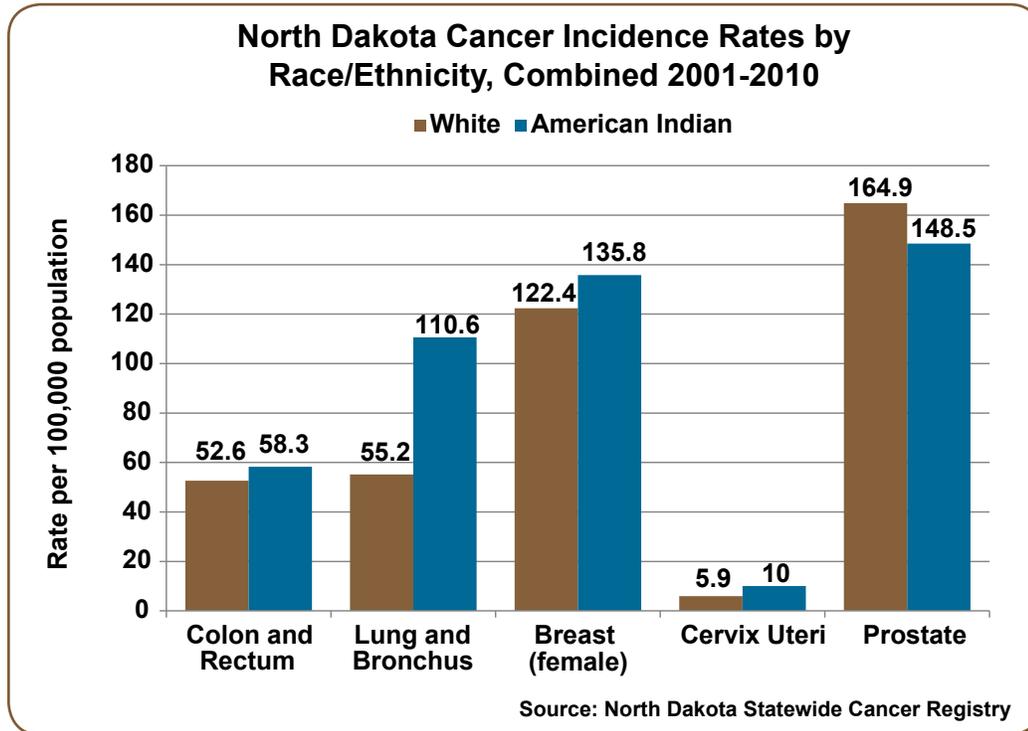
Prevalence of Cancer in North Dakota

Cancer is the number one cause of death in North Dakota. In 2011, 1,316 North Dakota residents lost their battle to cancer.



Cancer's Impact on Disparate Populations

American Indians generally have a higher incidence of cancer than Whites. Refer to the Disparities section of this report to find out what efforts are being made to change this disparity.



North Dakota Cancer Survivors

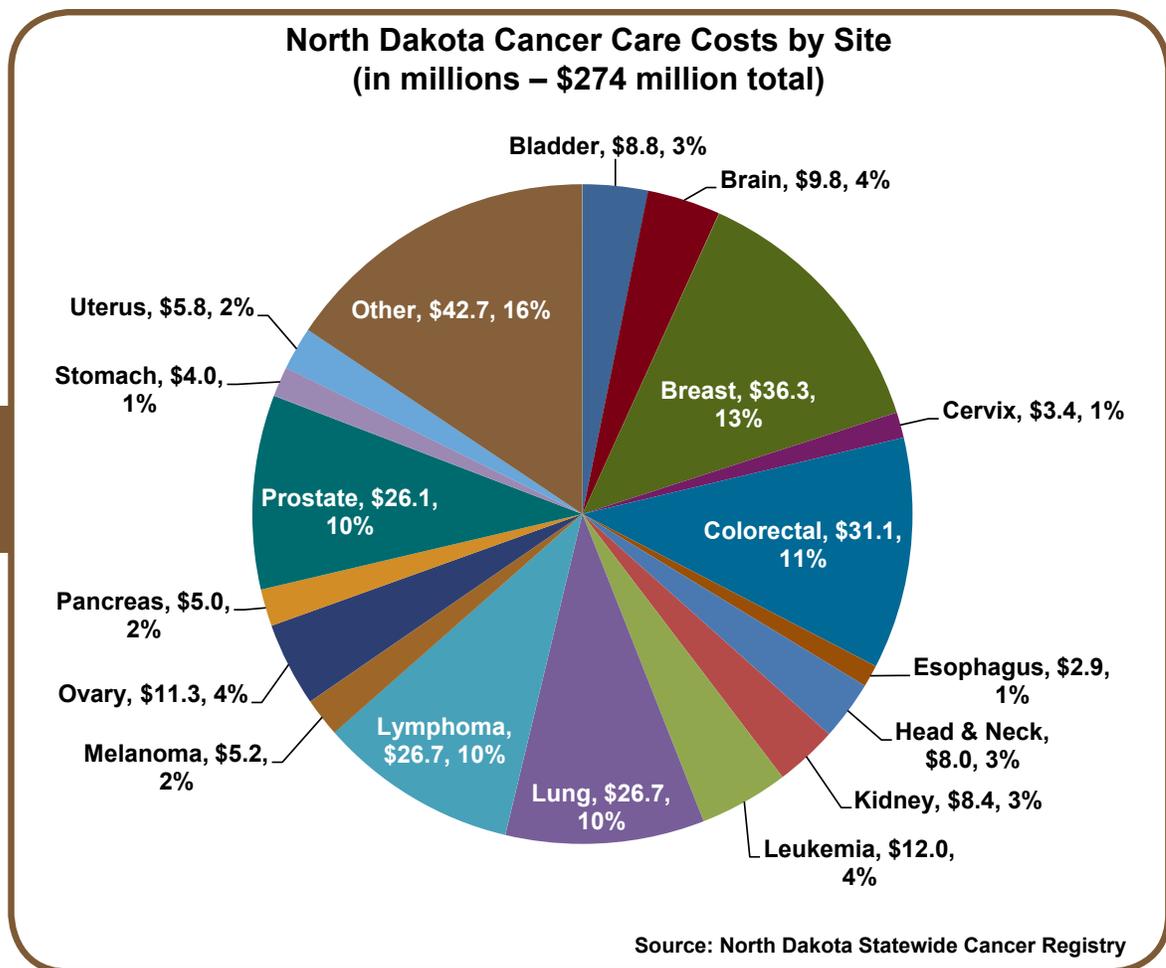
As of 2012, there were an estimated 33,260 cancer survivors living in North Dakota. Improvements in the early detection and treatment of cancer have resulted in more people living longer after being diagnosed with the disease. A cancer diagnosis remains a life-changing event for individuals and their family members, friends and caregivers. People who have been diagnosed with cancer are faced with a host of short- and long-term issues affecting their quality of life.



Economic Costs of Cancer

The financial costs of cancer are high for both the person with cancer and for society as a whole.

One of the major costs of cancer is cancer treatment. Lack of health insurance and other barriers prevent many Americans from even getting good, basic health care. According to the American Cancer Society's Cancer Facts & Figures 2012, "Uninsured patients and those from ethnic minorities are substantially more likely to be diagnosed with cancer at a later stage, when treatment can be more extensive and more costly." In fact, this leads not only to higher medical costs, but also poorer outcomes and higher cancer death rates.



Cancer is the leading cause of death for people ages 20 to 65, the prime working ages. Not surprisingly, medical expenditures for people with cancer are high on an individual and aggregate basis. Employers bear additional costs through lost productivity, short- and long-term disability and life insurance. It makes financial sense for employers to invest in prevention and early detection benefits for their employees.

Cancer costs billions of dollars. It also costs us the people we love. Reducing barriers to cancer care is critical in the fight to eliminate suffering and death due to cancer.

Risk Factors for Cancer

Doctors often cannot explain why one person develops cancer and another does not. But research shows that certain risk factors increase the chance that a person will develop cancer. The most common risk factors for cancer include:

- ◆ Growing older.
- ◆ Tobacco use.
- ◆ Ultraviolet exposure (both from sunlight and indoor tanning beds).
- ◆ Some viruses (Hepatitis B and Human Papillomavirus [HPV]).
- ◆ Family history of cancer.
- ◆ Alcohol abuse.
- ◆ Poor diet, lack of physical activity, or being overweight.

Many of these risk factors can be avoided. Others, such as family history, cannot be avoided. If you think you may be at risk for cancer, you should discuss this concern with your doctor. You may want to ask about reducing your risk and about a schedule for checkups, including preventative screenings.

Over time, several factors may act together to cause normal cells to become cancerous. When thinking about your risk of getting cancer, these are some things to keep in mind:

- ◆ Not everything causes cancer.
- ◆ Cancer is not caused by an injury, such as a bump or bruise.
- ◆ Cancer is not contagious. Although being infected with certain viruses or bacteria may increase the risk of some types of cancer, no one can “catch” cancer from another person.
- ◆ Having one or more risk factors does not mean that you will get cancer. Most people who have risk factors never develop cancer.
- ◆ Some people are more sensitive than others to the known risk factors.

Ways to Take Action

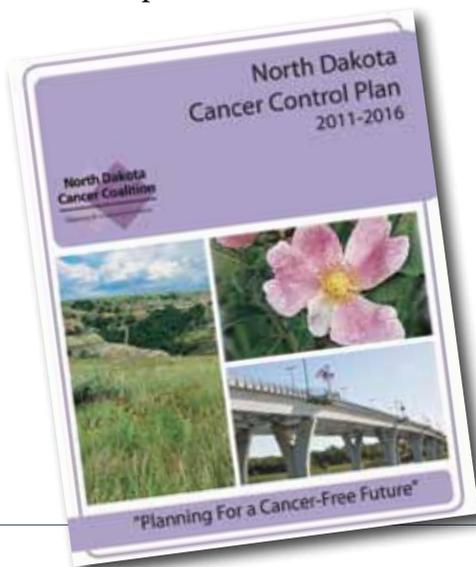
- ◆ Know your risk factors and reduce the risks you can control.
- ◆ Get tested for the screenable cancers (breast, prostate, colorectal, cervical and skin).



Working To Reduce the Burden

Programs provided by the Division of Cancer Prevention and Control include:

- ◆ **Comprehensive Cancer Control Program** – Works with the North Dakota Cancer Coalition to reduce the incidence and impact of cancer for all North Dakotans using the North Dakota Cancer Control Plan as a guide. Areas addressed include cancer prevention by implementing strategies that encourage healthy behaviors, increasing cancer screening, addressing needs for access to cancer treatment and improving quality of life for cancer survivors.
- ◆ **Women’s Way** (the North Dakota Breast and Cervical Cancer Early Detection Program) – Provides breast and cervical cancer screening services to North Dakota program-eligible women. The program supports collaborations with community-based organizations – including health-care providers and public health to increase public and health-care provider education and access to care and screening services. Since the program’s inception in 1997, 12,613 women have been screened, 243 women have been diagnosed with breast cancer and 306 women have been diagnosed with cervical dysplasias and cancer.
 - **Women’s Way Treatment Program** – 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. Currently there are 36 women enrolled in the *Women’s Way* Treatment Program; 247 women have been served by the treatment program since it began.
- ◆ **North Dakota Statewide Cancer Registry (NDSCR)** – The NDSCR is a collaborative partnership between the North Dakota Department of Health (NDDoH) and the University of North Dakota (UND). Data provided by NDSCR is used to guide decisions for the NDDoH cancer programs. NDSCR is housed within the Department of Pathology in the School of Medicine and Health Sciences at UND. The purpose of the NDSCR, established in 1997, is to collect cancer incidence, survival and mortality data to monitor cancer trends, promote research, increase survival, develop cancer education, guide policy planning for cancer prevention and screening programs and respond to cancer concerns from patients or the public.



HEART DISEASE & STROKE

HEART DISEASE AND STROKE PREVENTION PROGRAM

The North Dakota Heart Disease and Stroke Prevention Program has a mission to provide public health leadership to improve cardiovascular health for all, reduce the burden and eliminate disparities associated with heart disease and stroke. It seeks to improve cardiovascular health of North Dakotans by facilitating partnerships and coordination among concerned parties, monitoring critical aspects of cardiovascular disease (CVD) and developing effective strategies to reduce CVD and related risk factors. The overarching statewide emphasis is on education, environmental and systems change.

The goal of the program is to reduce disease, disability and death related to heart disease, stroke and related risk factors by:

- ◆ Increasing public awareness of the preventability of heart disease and stroke risk factors.
- ◆ Preventing risk factors for heart disease and stroke.
- ◆ Increasing detection and treatment of risk factors.
- ◆ Increasing early detection and treatment of heart disease and stroke.
- ◆ Increasing awareness of the signs and symptoms for heart attacks and strokes and the urgency to seek immediate medical care by calling 9-1-1.
- ◆ Decreasing recurrences of heart attacks and strokes.
- ◆ Identifying and eliminating cardiovascular-related disparities among specific population groups.

Core functions of the Heart Disease and Stroke Prevention Program are:

- ◆ **Programs** – Funding, technical support and resources are provided to local health systems, local health departments, tribes, communities, work places and other partners to increase their capacity to eliminate health disparities and prevent heart disease and stroke throughout the lifespan.
- ◆ **Partnerships** – Partnerships are formed with government agencies and public and private organizations to allow for maximization of resources in promoting heart-healthy and stroke-free communities.
- ◆ **Resources** – Educational materials, fact sheets, brochures and posters about heart disease, stroke, related risk factors and signs and symptoms of heart attack and stroke and the need to take immediate action are produced and disseminated.
- ◆ **Surveillance** – Trends in cardiovascular risk factors and diseases are tracked and differences in their distribution by age, gender, race/ethnicity, socioeconomic status and geographic location are documented. Data patterns are analyzed to identify groups of people most at risk of cardiovascular disease and those findings are shared with partners.
- ◆ **Evaluation** – Programs, policies and interventions are evaluated regularly to ensure they are working as planned and producing the intended results.



What Is Cardiovascular Disease?

Cardiovascular disease (CVD) is any abnormal condition of the heart or blood vessels. Cardiovascular disease includes coronary heart disease, stroke, congestive heart failure, peripheral vascular disease, congenital heart disease, endocarditis and many other conditions.

- ◆ **Atherosclerosis** – A complex process of thickening and narrowing of the arterial walls caused by the accumulation of lipids, primarily cholesterol, in the inner layer of an artery. With the addition of other debris and connective tissue, blood flow is restricted and can lead to a heart attack or a stroke.
- ◆ **Congenital Heart Defects** – A congenital heart defect (CHD) is a defect in the structure of the heart and great vessels, which is present at birth. Many types of heart defects exist, most of which either obstruct blood flow in the heart or vessels near it, or cause blood to flow through the heart in an abnormal pattern. Other defects affect the heart's rhythm. Heart defects are among the most common birth defects and are the leading cause of birth defect-related deaths.
- ◆ **Congestive Heart Failure (CHF)** – The inability of the heart to deliver an adequate blood flow, due to heart disease or hypertension. CHF is associated with breathlessness, salt and water retention, and edema.
- ◆ **Coronary Heart Disease** – The most common form of heart disease, which involves a reduction in the blood supply to the heart muscle by narrowing or blockage of the coronary arteries. It is often characterized by chest pain (angina pectoris), heart attack (myocardial infarction) and atherosclerosis in the coronary arteries.



- ◆ **Endocarditis** – An inflammation of the inner layer of the heart, the endocardium. It usually involves the heart valves.
- ◆ **Heart Attack** – Refers to death of, or death to, part of the heart muscle (myocardium) due to an insufficient blood supply, caused by blockage of one or more of the coronary arteries (infarction).
- ◆ **Heart Disease** – Refers to any disease or condition of the heart, including coronary heart disease, heart failure, hypertensive heart disease, congenital heart disease, disorders of the heart valves, infections of the heart, cardiomyopathy, conduction disorders and rhythm disorders.
- ◆ **Peripheral Arterial Disease (PAD)** – A condition that causes poor circulation in the legs. PAD affects millions of people in the U.S., most of whom are not aware that they have the disease. Left untreated, PAD increases the risk of heart attack, stroke, amputation or death. PAD is characterized by pain, aching or fatigue in the leg muscles.
- ◆ **Stroke or brain attack** – Refers to loss of

muscle function, vision, sensation or speech resulting from brain cell damage caused by either an insufficient supply of blood to part of the brain (often due to blockage or narrowing of the arteries supplying blood to the brain), or a hemorrhage. The hemorrhage may involve bleeding into the brain itself or the space around the brain.

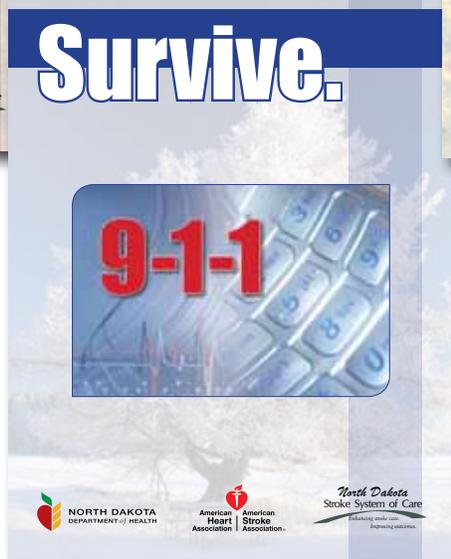
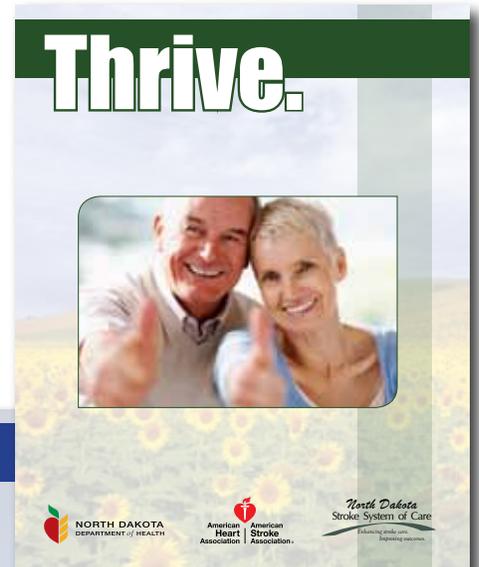
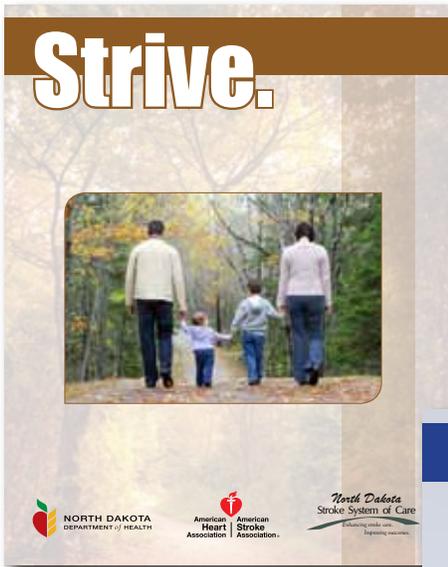
Prevalence of Cardiovascular Disease in North Dakota

In 2011, the prevalence of cardiovascular disease among North Dakota adults ages 18 and older was 7.1 percent. Cardiovascular disease prevalence reflects the percentage of adults who responded yes to at least one of three questions in the Behavioral Risk Factor Surveillance Survey (BRFSS) asking about a history of heart attack, angina or coronary heart disease, or stroke.

Sixty-two percent of North Dakotans with a history of stroke are 65 and older (2011), with stroke being the leading admission cause for long-term health care. Nearly half (46.7 percent) of North Dakotans with a history of heart attack are between age 45 and 64.

Economic Costs of Cardiovascular Disease

- ◆ According to the American Heart Association, cardiovascular diseases cost North Dakota \$1.1 billion in 2010. This includes the cost of health expenditures (physicians and other professionals, hospital and nursing home services, medications, home health care and other medical items) and lost productivity.
- ◆ In 2008, North Dakota Medicare (ages 65 and older) charges reached \$167 million for heart disease and stroke hospital discharges, equaling more than \$22,000 per hospitalization.
- ◆ As the state's population ages, the economic impact of cardiovascular diseases on North Dakota's health-care system will become even greater.



Risk Factors for Cardiovascular Disease

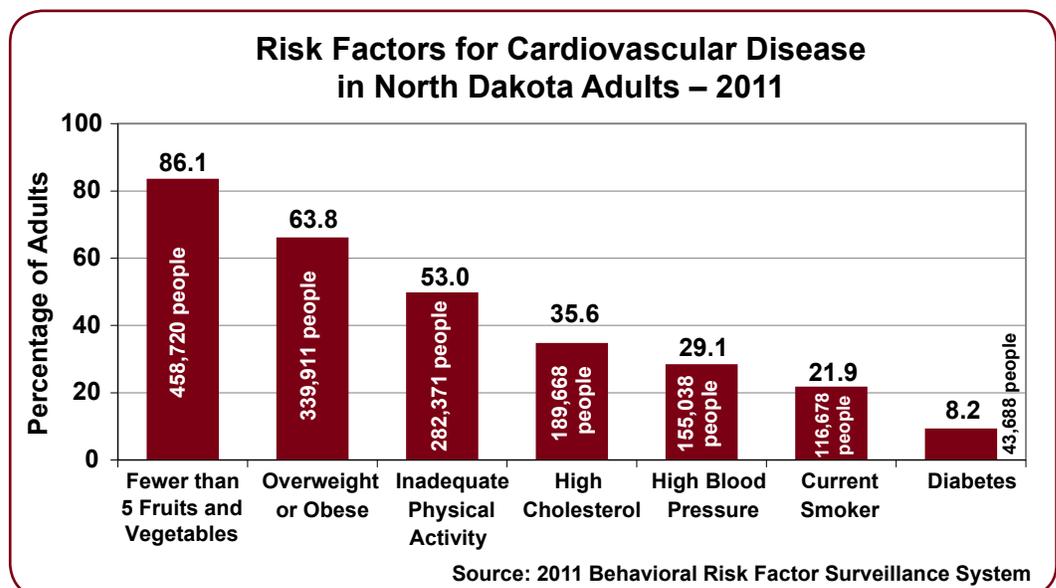
Although most of the major risk factors for heart disease and stroke are modifiable or preventable, more than 97 percent of North Dakotans report having at least one major risk factor or related condition (according to the 2011 BRFSS). In addition, more than one-half of adults in North Dakota (56 percent) are living with three or more of the seven primary risk factors for cardiovascular disease.

The presence of more than one risk factor can speed up the progression of heart disease and the more risk factors a person has, the higher his or her chance of having a major heart event such as a heart attack or stroke.

Risk factors affecting the development of cardiovascular disease include:

- ◆ **High blood pressure** – A major risk factor for both heart disease and stroke. Currently, about one out of every four adults in North Dakota has been told by a health-care professional that they have high blood pressure. Normal blood pressure is less than 120 mm Hg systolic and less than 80 mm Hg diastolic.
- ◆ **High blood cholesterol** – Contributes to atherosclerosis (hardening of the arteries), the gradual buildup of fatty deposits in the arteries that may lead to heart attack and stroke. One in three North Dakota adults has been told by a health professional that they have high cholesterol.
- ◆ **Diabetes** – Seriously increases the risk of developing cardiovascular disease. The percentage of people with diabetes in North Dakota nearly doubled from 1998, when 4.2 percent of the adult population reported being diagnosed with diabetes; until 2010, when 7.4 percent reported this diagnosis. The current rate stands at 8.2 percent, according to the 2011 BRFSS.
- ◆ **Tobacco Use** – Cigarette smoking is the biggest risk factor for sudden cardiac arrest. Research shows that people who quit smoking before age 50 have half the risk of dying in the next 15 years compared to those who continue to smoke.
- ◆ **Obesity and Overweight** – North Dakota has seen the rates for obesity more than double from 1990 when 12 percent reported they were obese, to 28 percent in 2009. However, the combination of obesity and overweight is a bigger problem in North Dakota, currently standing at 63.8 percent in 2011.
- ◆ **Physical Inactivity** – In North Dakota, 53 percent of adults do not participate in enough aerobic and muscle strengthening exercise to meet the physical activity guidelines.
- ◆ **Inadequate Fruits and Vegetables** – Compared with people who consume a diet with only small amounts of fruits and vegetables, those who eat more generous amounts as part of a healthful diet are likely

to have reduced risk of chronic diseases, including stroke and other cardiovascular diseases.



Signs and Symptoms of Heart Attack and Stroke

The promptness of treatment directly affects survival of a heart attack or stroke. Most heart attack deaths happen within the first two hours after the symptoms begin. Recognizing and responding promptly to heart attack symptoms and receiving the appropriate artery opening treatment within one hour of symptom onset can prevent or limit heart damage.

Know the Warning Signs of a Heart Attack

- ◆ **Chest discomfort** – Most heart attacks involve discomfort in the center of the chest that lasts more than a few minutes, or that goes away and comes back. It can feel like uncomfortable pressure, squeezing, fullness or pain.
- ◆ **Discomfort in other areas of the upper body** – Symptoms can include pain or discomfort in one or both arms, the back, neck, jaw or stomach.
- ◆ **Shortness of breath** – This feeling often comes along with chest discomfort, but it can occur before the chest discomfort.
- ◆ **Other signs** – These may include breaking out in a cold sweat, nausea or lightheadedness.

Substantial advances have been made in the diagnosis and treatment of ischemic stroke during the 1990s. However, nearly half of all stroke deaths occur before patients are transported to hospitals. Education efforts to increase public recognition of stroke warning signs can reduce delays in arriving at an emergency department.

Know the Warning Signs of Stroke

Stroke is highly treatable in the first 3 to 4½ hours. Every second counts. Every minute matters. **If you suspect a stroke, think F-A-S-T.**

- ◆ **F** is for Facial Weakness.
- ◆ **A** is for Arm and Leg Weakness.
- ◆ **S** is for Speech Problems.
- ◆ **T** is for Time. Call 9-1-1 immediately!

If you feel that you or someone you are with is suffering a heart attack or stroke, call 9-1-1 immediately!

Working To Reduce the Burden

Services provided by the Heart Disease and Stroke Prevention Program include:

- ◆ **Administration and Management of the National Heart Disease & Stroke Prevention Grant from the CDC.**
 - **Heart Disease and Stroke Prevention Program** – Maintains and manages the infrastructure for a state-level program. Provides leadership in cardiovascular health promotion and cardiovascular disease prevention and control.
 - **MediQHome** – Collaborates with other state programs and private partners to implement a large-scale primary care intervention to address the detection, treatment and management of cardiovascular risk factors such as high blood pressure, high blood cholesterol and diabetes.
 - **Million Hearts™ Community Grant Program** – Provides funding to local communities to address hypertension and reduce sodium intake within a variety of settings through policy, systems and environmental supports.
 - **Technical support and resources** – Disseminates information to grantees, local agencies and organizations, partners and the general public relating to heart disease, stroke, related risk factors and signs and symptoms of heart disease, heart attack and stroke.
- ◆ **North Dakota Stroke System of Care.**
 - Provides grants to local hospitals to improve acute stroke care through adherence to evidence-based guidelines, quality improvement activities, training, technical assistance and community education/awareness.
 - Designates hospitals as Primary Stroke Centers.
 - Implements a statewide health communication program to increase the awareness of the signs and symptoms of stroke and urgency to seek immediate medical care by calling 9-1-1.
 - Provides training and technical assistance to local hospitals, health-care providers and pre-hospital personnel on acute stroke care.
- ◆ **Stroke System of Care Task Force.**
 - Facilitates the sharing of best and promising practices to reduce duplication, identify gaps and advocate for positive environmental and systems change. Provides leadership for the development of a statewide stroke system of care and serves on the task force as the state health officer designee.
 - Works closely with the STEMI (ST-Elevation Myocardial Infarction) project (ND Mission: Lifeline) to assure coordination of system implementation and pre-hospital/hospital personnel training.



Be **SALT SMART** for a healthy heart!

- Too much salt (sodium) can raise your blood pressure and lead to heart attack or stroke.
- Most people should have no more than 1,500 mg of sodium per day.
- Compare food labels and choose foods with less sodium.
- Choose foods with less than 400 mg of sodium per serving.

Choose less sodium and SAVE A HEART.

Amount Per Serving	Calories 120	Calories from Fat 25
	% Daily Value*	
Total Fat 3g	5%	
Saturated Fat 1g	2%	
Trans Fat 0g		
Polyunsaturated Fat 0.5g		
Monounsaturated Fat 1.5g		
Cholesterol 0g	0%	
Sodium 790mg	33%	
Total Crap 14g	5%	
Dietary Fiber 2g	8%	
Sugars 2g		
Protein 7g	11%	
Vitamin A 25%	• Vitamin C 2%	
Calcium 2%	• Iron 6%	

*Percent Daily Values are based on a diet of 2,000 to 2,500 calories. Your daily values may vary depending on your diet.

NORTH DAKOTA
DEPARTMENT OF HEALTH

For more information about reducing your salt intake, visit the North Dakota Heart Disease and Stroke Prevention Program website at www.ndhealth.gov/heartstroke.

American Heart Association

American Stroke Association

North Dakota
Stroke System of Care
Enhancing stroke care.
Improving outcomes.

DIABETES PREVENTION AND CONTROL PROGRAM

The **North Dakota Diabetes Prevention and Control Program (NDDPCP)** 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. This is accomplished primarily through collaboration with other disease programs and statewide partners to develop and coordinate joint efforts.

Some highlights of the NDDPCP include:

- ◆ **Building partnerships** – The NDDPCP works with public and private partners to improve diabetes knowledge and care.
- ◆ **MediQHome** – Collaborates with other state programs and private partners to implement a large-scale primary care intervention to address the detection, treatment and management of cardiovascular risk factors such as diabetes, high blood pressure, high blood cholesterol and tobacco use.
- ◆ **Diabetes Care Provider Report** – In partnership with Blue Cross Blue Shield of North Dakota (BCBSND), diabetes care is tracked through patient insurance claims. The NDDPCP funds a disease management coordinator at BCBSND to manage the project and share information with care providers.
- ◆ **Surveillance and evaluation** – The NDDPCP collects and analyzes data to measure diabetes incidence, prevalence and impact, and evaluate program effectiveness.
- ◆ **Public awareness** – The NDDPCP collaborates with state partners to develop and deliver diabetes education campaigns; distributes materials that include messages on diabetes prevention and control; and maintains a website with relevant information about diabetes prevention and control.

What Is Diabetes?

Insulin is needed to move sugar from our blood to our cells. People with diabetes either do not produce insulin or their bodies cannot effectively use insulin. In both cases, sugar builds up in the blood and if not managed, can cause major complications that greatly reduce the quality of life for those living with diabetes.

Types of Diabetes

- ◆ **Type 1** is an autoimmune disorder and affects 5 to 10 percent of all people with the disease. It is characterized by the loss of insulin-producing cells and requires insulin delivered by injection or through a pump.
- ◆ **Type 2** is more common and affects 90 to 95 percent of people with diabetes. It develops gradually and is characterized by insulin deficiency and resistance. Treatment can include medical nutrition therapy, oral medications and injections.
- ◆ **Gestational diabetes** occurs in 2 to 5 percent of all pregnancies and causes complications for both mother and child. Normal glucose tolerance usually returns after pregnancy.

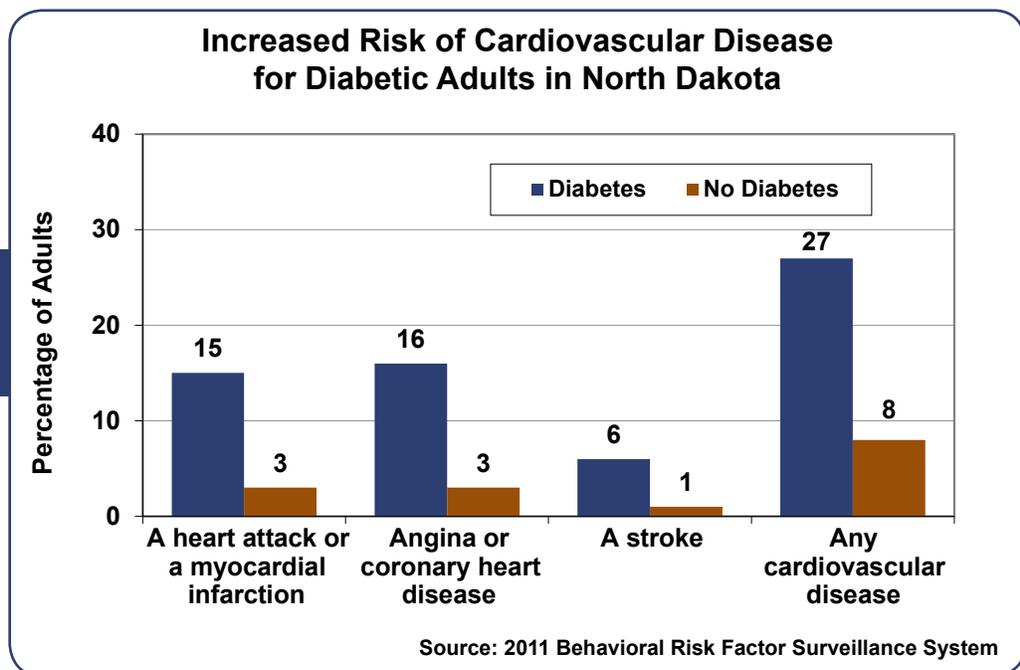
Economic and Health-Related Cost of Diabetes

- ◆ Diabetes was the seventh leading cause of death in North Dakota in 2011.
- ◆ In 2007, diabetes cost North Dakotans \$400 million in direct and indirect costs. Direct costs include the cost of physicians and other professionals, hospital and nursing home services, the cost of medications, home health care, and other medical durables. Indirect costs include the lost productivity that results from illness and death.
- ◆ Diabetes costs the average North Dakota patient more than \$10,000 per year in direct and indirect costs.

Complications of Diabetes

Major complications of diabetes include the following:

- ◆ **Diabetic neuropathy** is a disease of the nervous system which can lead to amputations. The most common form affects the feet and legs. Research shows the incidence of a lower-limb amputation is eight times higher in people with diabetes ages 45 and older than people without diabetes ages 45 and older.
- ◆ **Diabetic nephropathy** occurs when the kidneys are no longer able to function on their own from kidney damage that can result in end-stage renal disease (ESRD). Diabetes is the leading cause of ESRD. Patients with ESRD must receive dialysis regularly, which is costly and decreases the quality of life. Treating a single patient with ESRD in North Dakota costs more than \$43,000 per year.
- ◆ **Diabetic retinopathy** affects up to 80 percent of patients with diabetes for over 10 years and can result in blindness. Research shows that 90 percent of new cases could be reduced with proper treatment and monitoring of their diabetes.
- ◆ People with diabetes are at increased risk of **cardiovascular diseases** such as heart disease, heart attack and stroke (see chart below). Approximately three-quarters of people with diabetes die of some form of heart or blood vessel disease. Having diabetes increases an elderly person's likelihood of experiencing cardiovascular disease to more than one-and-a-half times what it would be if they did not have diabetes.



Who Is Affected by Diabetes?

American Indians

- ◆ American Indians experience death from diabetes at more than five times the rate of Whites.
- ◆ American Indians are nearly twice as likely to get diabetes as Whites.

North Dakotans 65 and Older

- ◆ The aging population has a diabetes prevalence rate of 18 percent, more than twice the rate of those ages 45 through 64.

Youth

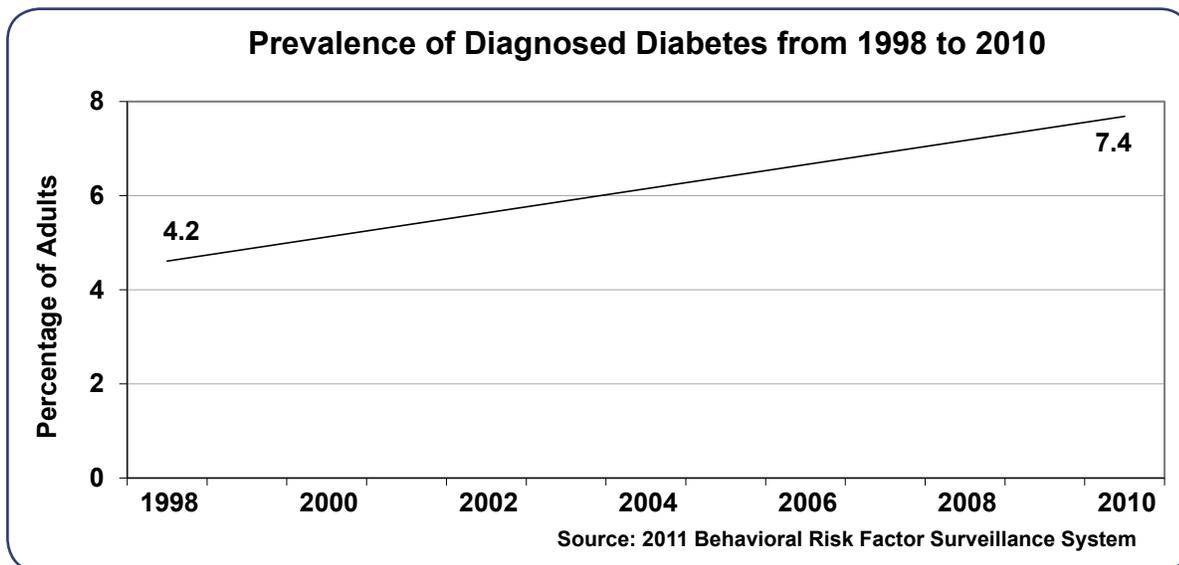
- ◆ There has been a dramatic rise in children suffering from type 2 diabetes. It has been linked to the rise in children being overweight due to lack of physical activity and unhealthy eating habits.

Pregnant Women

- ◆ Women with gestational diabetes have a 20 to 50 percent chance of developing type 2 diabetes within five to 10 years.

Prevalence of Diabetes in North Dakota

From 1998 through 2010, the prevalence of diabetes in North Dakota nearly doubled.



Challenges in Reducing the Prevalence of Diabetes

- ◆ Multiple factors causing an increase in new diabetes diagnoses.
- ◆ Increased obesity due to lack of physical activity and proper nutrition.
- ◆ Low income individuals are less likely to receive the care needed to manage diabetes.
- ◆ American Indian population experiences higher prevalences and diabetes death rates.
- ◆ Rural residents lack access to care for their diabetes.

Because of the great impact of diabetes on our elderly and American Indian populations and due to the limited health-care services available to these populations, it will take a focused effort to overcome this disease in North Dakota.

Working To Reduce the Burden

Reducing a pre-diabetic person's weight by 5 to 7 percent can reduce his or her risk of diabetes by 60 percent. A 200-pound person only needs to lose 10 to 15 pounds, which can be done through small behavior modifications. Modifiable risk factors that greatly reduce the risk of diabetes include:

- ◆ Eating more fruits and vegetables.
- ◆ Cutting fat and calories.
- ◆ Increasing physical activity to at least 30 minutes a day, five days a week.
- ◆ Lowering cholesterol.
- ◆ Lowering blood pressure to a normal reading.
- ◆ Quitting smoking or tobacco use.

Working on these modifiable risk factors is easier said than done. It is essential to provide educational training for people diagnosed with pre-diabetes to ensure that it doesn't progress to diabetes. Considering the personal and economic impact of diabetes on North Dakota citizens, prevention seems like the ethical and financial choice.



ORAL HEALTH PROGRAM

The North Dakota Oral Health Program has a mission of improving the oral health of North Dakotans through prevention and education. The program works in conjunction with other NDDoH programs, external partners, grantors, individuals and organizations to accomplish its goals.

This goal of the program is to prevent and reduce oral diseases by:

- ◆ Promoting the use of innovative and cost-effective approaches to oral health promotion and disease prevention.
- ◆ Fostering community and statewide partnerships to promote oral health and improve access to dental care.
- ◆ Increasing awareness of the importance of preventive oral health care.
- ◆ Identifying and reducing oral health disparities among specific population groups.
- ◆ Facilitating the transfer of new research into practice.

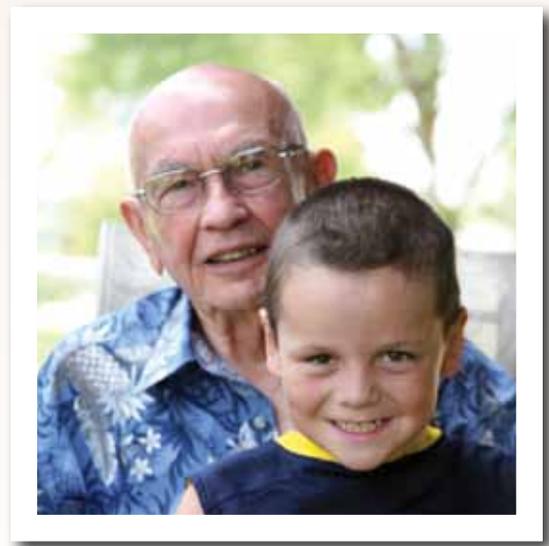
Oral Health Mirrors Overall Health

Good oral health is a part of good overall health. Oral diseases such as tooth decay and periodontitis (gum disease) affect North Dakotans of all backgrounds and are associated with many serious chronic health problems including diabetes, heart disease, strokes, and premature or low-birthweight infants. Changes in the mouth often are the first signs of problems elsewhere in the body, such as infectious diseases, immune disorders, nutritional deficiencies and cancer. Oral health influences a person's physical, mental and social health.

Working To Reduce the Burden

Services provided by the Oral Health Program include:

- ◆ **Healthy Smiles Fluoride Varnish Program** – The NDDoH public health hygienists apply fluoride varnish to pre-kindergarten through sixth-grade children in a school-based setting. The program is an effort to assess oral health through screening and fluoride varnish application to help prevent tooth decay to high-risk children.
- ◆ **Seal! ND Dental Sealant Program** – NDDoH public health hygienists visit qualifying schools, perform dental screenings and apply dental sealants to children as needed in the pre-kindergarten through sixth grade in an effort to prevent dental decay in molars.
- ◆ **Smiles for Life Training** – With funding provided by the DentaQuest 2014 Oral Health Initiative, online training is available to health-care professionals in the areas of Caries Risk Assessment, Fluoride Varnish and Counseling, and Geriatric Oral Health. The goal of the Smiles for Life Program is to allow health-care professionals to apply fluoride varnish in a health-care setting.
- ◆ **Education** – The Oral Health Program works to educate people about the reasons for good oral health, the importance of brushing and flossing and the connection between good oral health and good overall health.



ARTHRITIS

North Dakota does not have a funded program to address arthritis. Arthritis risk factors are addressed by other NDDoH programs through the Coordinated Chronic Disease Prevention Program. North Dakota also has a partnership with the Arthritis Foundation, Upper Midwest Region.

What Is Arthritis?

Arthritis literally means joint inflammation. But the term is often used to refer to any of the more than 100 diseases that affect the joints – where two or more bones meet to allow movement. The most common types of arthritis are:

- ◆ **Osteoarthritis (OA)** – a condition in which the joint cartilage – the tough, smooth shock-absorbing tissue that covers the ends of the bones where they meet – breaks down, causing pain and stiffness. Osteoarthritis pain, stiffness or inflammation most frequently appears in the hips, knees and hands.
- ◆ **Rheumatoid arthritis (RA)** – a condition in which the body’s immune system attacks the thin membrane (synovium) that lines the joints, causing pain, swelling, inflammation, redness, heat and, if not stopped, joint destruction. Rheumatoid arthritis commonly affects the hands and wrists but can also affect areas of the body other than the joints.

Arthritis can affect people differently. It’s common in adults 65 and older, but it can affect people of all ages, races and ethnic groups. In fact, one out of every five adults in the United States – more than 46 million people – has reported being diagnosed with some form of arthritis.

The Connection with Other Diseases

- ◆ **Arthritis and Heart Disease** – Arthritis and heart diseases often occur simultaneously. In fact, a recent study found that arthritis affects 57 percent of adults with heart disease. Maintaining a healthy lifestyle is important for people with arthritis and heart disease. In particular, physical activity is recommended for people with both diseases. Being overweight and obese are major risk factors for hip and knee osteoarthritis and heart disease.
- ◆ **Arthritis and Diabetes** – Arthritis and diabetes are not directly related, but the diseases often overlap. In fact, recent reports from the CDC found that more than half (52 percent) of people with diabetes also have arthritis. Type 1 diabetes is an autoimmune disease as is rheumatoid arthritis (RA). In people with type 1 diabetes, the body’s immune system attacks the pancreas, the organ where insulin is made, much in the same way it attacks the synovial lining of the joints in RA. Osteoarthritis (OA) and type 2 diabetes are likely to occur together by coincidence. The two disease share at least two major risk factors: age and weight.



North Dakota adults diagnosed with some form of arthritis = 24.1 percent (2011 BRFSS)

(Source: Arthritis Foundation)

ASTHMA

North Dakota does not have a funded program to address asthma. Asthma risk factors are addressed by other NDDoH programs through the Coordinated Chronic Disease Prevention Program.

What Is Asthma?

Asthma is a disease that affects the lungs. It is one of the most common long-term diseases of children, but adults can have asthma, too. Asthma causes wheezing, breathlessness, chest tightness and coughing, especially at night or early in the morning. If a person has asthma, they have it all the time, but will have asthma attacks only when something bothers his or her lungs.

What Are Asthma Triggers?

Triggers are things that cause an asthma attack. Some common triggers are tobacco smoke, dust mites, outdoor air pollution, pets, mold and smoke from burning wood or grass. Other triggers include the flu, colds, respiratory viruses, sinus infections, allergies, breathing in certain chemicals, breathing in cold air, high humidity, certain foods or food additives, and certain fragrances.

How is Asthma Controlled?

A person can control his or her asthma by taking medications exactly as directed by a health-care provider, knowing the warning signs and avoiding triggers. Everyone with asthma does not take the same medicine. Some medicines can be breathed in, and some can be taken as a pill. Asthma medicines come in two types – quick-relief and long-term control. Quick-relief medicines control the symptoms of an asthma attack. Long-term control medicines help asthma sufferers have fewer and milder attacks, but they don't help a person while having an asthma attack.

Asthma in North Dakota Schools

North Dakota law allows students to possess and self-administer their own emergency asthma inhalers and medication. Schools work with students, parents and health-care providers to create action plans for students with asthma.

(Source: U.S. Centers for Disease Control and Prevention)

**North Dakota adults
ever told they have
asthma = 11.5 percent
(2011 BRFSS)**



DISPARITIES

DISPARITIES IN CHRONIC DISEASE

The chronic diseases and health conditions highlighted in this report affect many North Dakotans, but some population groups are more susceptible to certain diseases or risk factors and/or have a harder time finding help to overcome their illnesses or risk factors. These high-risk groups are said to have a health disparity. These disparities often occur within racial, ethnic, sexual orientation and socioeconomic groups.

Some of the disparities affecting individuals in North Dakota include:

Cancer

- ◆ **American Indians** – American Indians in the Northern Plains region, which includes North Dakota, experience one of the highest incidence and mortality rates within the American Indian (Alaska Native/American Indian) population. Northern Plains American Indians are at a higher risk of developing certain diseases such as lung, cervical, colorectal and liver cancers compared to Whites in the same region.
- ◆ **Age** – Three out of four cancers occur in people 55 and older.
- ◆ **Males** – In the U.S., males have a one in two lifetime chance of developing cancer; for females it is a one in three chance.
- ◆ **Rural residence** – North Dakotans living in rural areas experience barriers to accessing cancer screening and treatment services due to travel time and cost.

Heart Disease and Stroke

- ◆ **Adults older than 45 with cardiovascular risk factors.**
- ◆ **Adults older than 65** – Older adults are more likely to experience a heart attack or stroke than young or middle-aged adults.
- ◆ **American Indians** – American Indians living in North Dakota experience death due to cardiovascular disease at twice the rate of Whites.
- ◆ **Lower education status** – North Dakotans with less than a high school education are almost three times more likely to experience cardiovascular disease than individuals who have some post high school and/or are a college graduate.
- ◆ **Lower economic earnings** – Those earning less than \$25,000 a year have a prevalence rate of cardiovascular disease that is at least one-and-a-half times higher than those earning between \$25,000 and \$49,000 and three times greater than those earning \$50,000 or more.

Diabetes

- ◆ **American Indians** – American Indians are nearly twice as likely to get diabetes as Whites.
- ◆ **Adults older than 65** – The aging population has a diabetes prevalence rate of 18 percent, more than twice the rate of those ages 45 through 64.
- ◆ **Youth** – There has been an increase in youth suffering from type 2 diabetes. It has been linked to overweight children who lack appropriate amounts of exercise and have unhealthy eating habits.
- ◆ **Pregnant women** – Women with gestational diabetes have a 20 to 50 percent chance of developing type 2 diabetes within five to 10 years after giving birth.
- ◆ **Adults with lack of exercise and unhealthy eating habits.**

Nutrition and Physical Activity

- ◆ **American Indians** – According to the 2006-2010 BRFSS, 75.7 percent of American Indians were overweight or obese, compared to 64.1 percent of total North Dakota adults.

Tobacco Use

- ◆ **American Indians** – According to the BRFSS, tobacco use among American Indians is more than twice as high as the state average, at more than 50 percent.
- ◆ **18- to 24-year-old adults** – According to the BRFSS, people in this age group smoke at a higher rate than the general adult population (21.9 percent), at approximately 29.8 percent.
- ◆ **Pregnant women** – According to NDDoH's Division of Vital Records, pregnant women in North Dakota smoke at a rate of 16 percent. According to national vital statistics reports, the national average is 10.7 percent.
- ◆ **Lower education status.**
- ◆ **Lower economic earnings.**
- ◆ **Other groups** – Members of the military; members of the lesbian/gay/bisexual/transgender (LGBT) communities; homeless people; bar and casino workers; new Americans (i.e., refugees, immigrants); rural residents; and people with mental or physical disabilities.

Working to Solve Health Disparities

In an effort to help solve the chronic disease health disparities in North Dakota, the following steps are being taken.

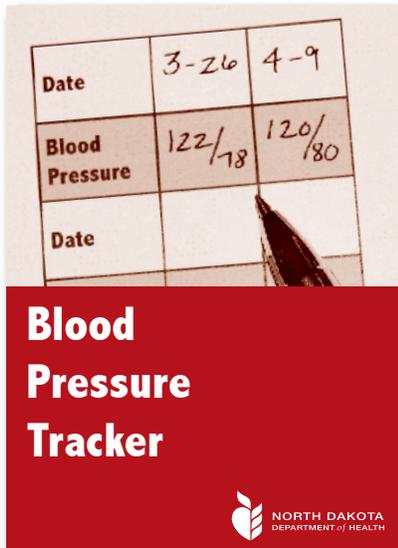
Cancer

- ◆ **North Dakota Cancer Coalition (NDCC)** – All North Dakota tribes have representatives who are actively engaged in comprehensive cancer control interventions such as facilitating cancer screening, increasing access to physical activity and healthy foods, working on cultural competency with health-care providers, tobacco prevention and cessation, increasing HPV vaccination rates and implementing UV protection measures.
- ◆ **Bone marrow donor recruitment** – Because of the need for more diverse bone marrow donors, bone marrow donor drives have been conducted on tribal land to address this need.
- ◆ **North Dakota Cancer Coalition (NDCC) Community Grant Program** – Since the grant program's inception in 2007, each year one or more of the grants has been awarded to cancer prevention and control efforts for American Indians.
- ◆ **Women's Way** – North Dakota's Breast and Cervical Cancer Early Detection Program focuses on targeted outreach to inform and recruit more American Indian women.
- ◆ **Colorectal Cancer Screening Initiative** – Funded by the North Dakota legislature for the first time in 2009, the program provides colorectal cancer screening services to eligible men and women.
- ◆ **Great Plains Tribal Chairman's Health Board and the Northern Plains Comprehensive Cancer Control Program** – Cancer prevention and early detection messages have been developed and tailored to better reach American Indians.



Heart Disease and Stroke

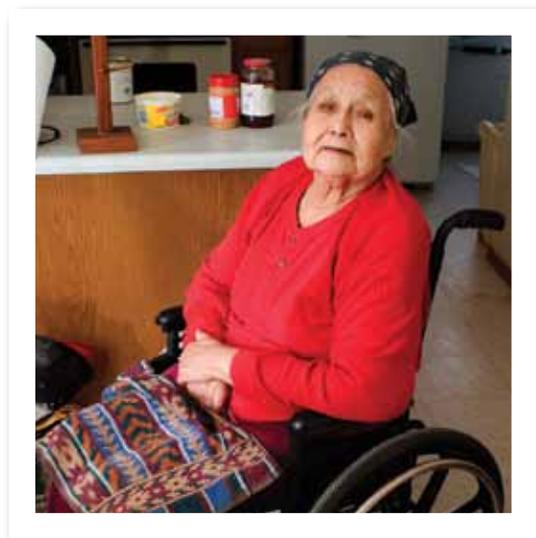
- ◆ **Portraits of Health and community meetings** – Individual stories and images were collected from each of the four American Indian reservations located within the state's borders. In addition, community meetings were held on two reservations with community members and health-care workers to listen and learn about personal health and access to care issues and potential ways to address these issues. These findings are influencing the way the program develops interventions and resources.



- ◆ **Health communications and resources** – Messages are created for priority populations and presented in health communication venues used by these groups.
- ◆ **Blood pressure management and reduction of sodium consumption** –
 - Participating in the National Sodium Reduction Initiative.
 - Exploring population-based strategies that can reach large numbers of people and improve the well-being of entire communities, such as sodium reduction, within the state procurement process.
 - Exploring the use of community paramedics to improve management of blood pressure.
 - Improving physician adherence to high blood pressure treatment guidelines.

Diabetes

- ◆ **Dakota Diabetes Coalition (DDC)** – The DDC is a statewide organization working in partnership with the North Dakota Department of Health Diabetes Prevention and Control Program. DDC members share resources and tools proven to be effective. Most importantly, members share time and ideas. The DDC is working to increase tribal membership to identify ways to partner and further its reach.
- ◆ **Diabetes resources** – The North Dakota Diabetes Prevention and Control Program (NDDPCP) identifies and/or develops resources that resonate with target populations, including culturally designed resources from the National Diabetes Education Program.
- ◆ **Diabetes health communication** – The program continues to explore methods to best engage targeted populations. Both the NDDPCP and the DDC websites have been redesigned to make them more user-friendly and make information more readily available for all consumers.
- ◆ **Tribal partnership** – NDDPCP staff partnered with the staff from one tribal diabetes team and have agreed to meet monthly to stay informed about projects and to share information and resources.

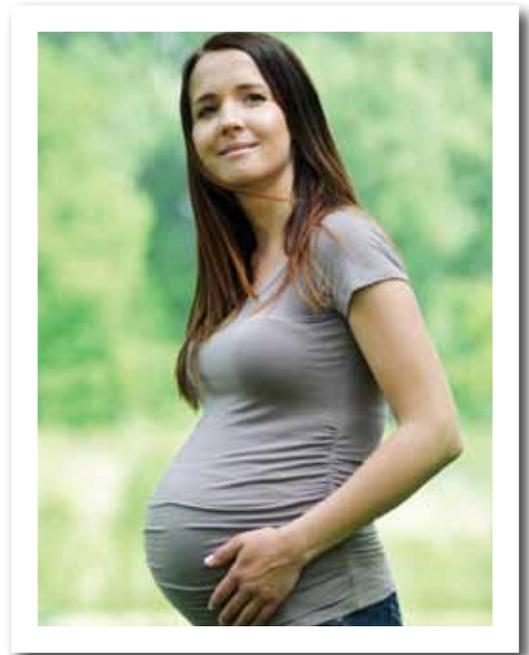


Nutrition and Physical Activity

- ◆ **North Dakota Cancer Coalition Community Grant Program** – Since the grant program's inception in 2007, each year one or more of the grants has been dedicated to activities that support increasing physical activity and improving nutrition.
- ◆ **Tribal Walking Program** – The Comprehensive Cancer Control Program, in collaboration with the Heart Disease and Stroke Prevention Program, has developed a walking program toolkit that is available to local communities and worksites. This toolkit provides information about what steps to take to implement a walking program, recruit and engage participants, track steps and evaluate program effectiveness. Tribal walking programs are supported on the four American Indian reservations.

Tobacco Use

- ◆ **Baby and Me Tobacco Free** – This is a tobacco cessation program created to reduce the burden of tobacco use on pregnant women and new moms. Women who quit tobacco are less likely to have low-birthweight babies and can reduce the damaging effects of secondhand smoke on their children, including a higher risk of sudden infant death syndrome (SIDS). The program combines cessation support specific to pregnant women, offers practical incentives, targets low-income women (the largest group of tobacco users during pregnancy), and monitors success. The program collaborates with local agencies that already provide prenatal services. Each participant receives at least four sessions of cessation counseling, support and carbon monoxide (CO) monitoring, usually during a regular prenatal visit. After the birth of the baby, the mother returns monthly to continue CO monitoring and, if tobacco-free, she receives a \$25 voucher for diapers each month for up to 12 months after delivery.
- ◆ **Tribal tobacco programs** – Tribal tobacco programs are grant programs that provide funds, along with guidance and technical assistance. The grant funds a local Tribal Tobacco Prevention Coordinator on each reservation to work with the community on systems changes, educate on the differences between commercial tobacco and traditional tobacco, and provide resources to help tribal members quit commercial tobacco.
- ◆ **GoodHealthTV** – American Indian specific ads were created to promote NDQuits cessation services. The ads are played on large screen monitors placed in hospital and clinic waiting areas and community commons on the reservations.
- ◆ **LGBT/Fargo-Moorhead Pride** – Information was provided in partnership with Fargo-Moorhead Pride Collective about disparate tobacco use among LGBT populations and about quitting tobacco use through NDQuits.



CONCLUSION

CONCLUSION

This report provides a snapshot of the prevalence of chronic diseases in North Dakota, the causes of those diseases, the impact they have on people and the work being done by the North Dakota Department of Health (NDDoH) chronic disease programs to help people in their efforts to overcome and avoid the health problems associated with disease.

The chronic disease programs of the NDDoH have done great work in educating about healthier lifestyles and helping people manage diseases and conditions. Even with the successes, the programs are still faced with challenges. Challenges include continued high-budget advertising from tobacco companies, limited funding for prevention of cardiovascular risk factors, rising prevalence of those diagnosed with diabetes, rising numbers of people who are overweight or obese and increasing medical costs.

The NDDoH programs are moving ahead in a collaborative effort. The Coordinated Chronic Disease Prevention Program is being developed, allowing programs to combine resources and share information to better address chronic disease prevention and health promotion.

Program staff continue their efforts to engage partners, eliminate barriers to quality health care and identify local champions to assist in developing culturally competent strategies. They involve communities to find solutions to problems, monitor and evaluate the effects of the programs offered and adjust strategies as needed to provide the most appropriate and effective services.

The Division of Cancer Prevention and Control is increasing cancer prevention and awareness by engaging in partnerships, collecting and reporting quality data, providing public and professional education, and assuring availability of quality services for screening, treatment, rehabilitation and palliative care (care that relieves the pain, suffering and stress of chronic disease).

The Diabetes Prevention and Control Program is working to educate people about diabetes and health habits that may lead to an increased risk of getting the disease, and helping people with diabetes manage the disease so they can live healthy, quality lives.

The Heart Disease and Stroke Prevention Program is working to reduce the burden and eliminate disparities associated with heart disease and stroke, educating people about the symptoms of heart attack and stroke and the importance of calling for help immediately, and striving to help people reduce risk factors associated with heart disease and stroke.

The Division of Nutrition and Physical Activity is supporting growth and development, preventing overweight and obesity, and working to encourage healthful eating and physical activity.

The Tobacco Prevention and Control Program is helping people quit using tobacco through the successful NDQuits program and other programs and implementing strategies to help disparate populations reduce tobacco use.

Picture this – healthy North Dakota citizens enjoy fulfilling lives free of health problems and chronic diseases and pursuing all that our great state has to offer. With that visual in mind, the chronic disease programs of the NDDoH will push forward, building on the progress made and striving for more success in education, prevention and management of chronic diseases – reaching for the goal of allowing all North Dakotans to leave a legacy of good health and happiness.

ACKNOWLEDGMENTS

ACKNOWLEDGMENTS

Thank you to those individuals who helped create this status report and to those who work to make the programs highlighted successful.

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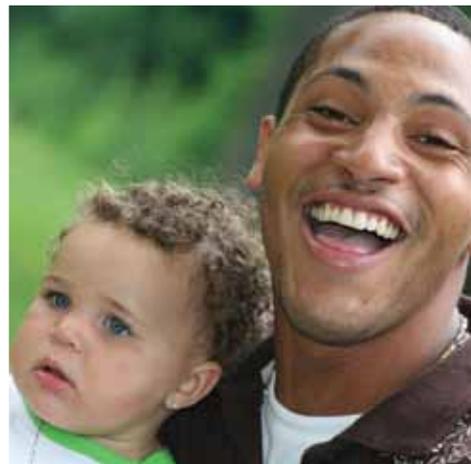
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Thank you to all of our state and national partners who help us create successful strategies, overcome challenges and provide services to the citizens of North Dakota.



DATA SOURCES

DATA SOURCES

Behavioral Risk Factor Surveillance System (BRFSS)

The Behavioral Risk Factor Surveillance System (BRFSS) is the world's largest telephone survey. The BRFSS is a state-based, random-digit-dialed telephone survey of the noninstitutionalized civilian population 18 and older. It is designed to monitor the prevalence of the major behavioral risks among adults associated with premature morbidity and mortality. Information from the survey is used to improve the health of the American people.

North Dakota Department of Health, Division of Vital Records

The Division of Vital Records provides information about vital events that occur in North Dakota, including births. Statistics about pregnant women who smoke are based on information provided by the mother during recording of the birth.

North Dakota Statewide Cancer Registry (NDSCR)

The NDSCR is a collaborative partnership between the North Dakota Department of Health and the University of North Dakota. The purpose of the NDSCR, established in 1997, is to collect cancer incidence, survival and mortality data to monitor cancer trends, promote research, increase survival, develop cancer education, guide policy planning for cancer prevention and screening programs and respond to cancer concerns from patients or the public.

NDQuits Quitline Phone Services Reports

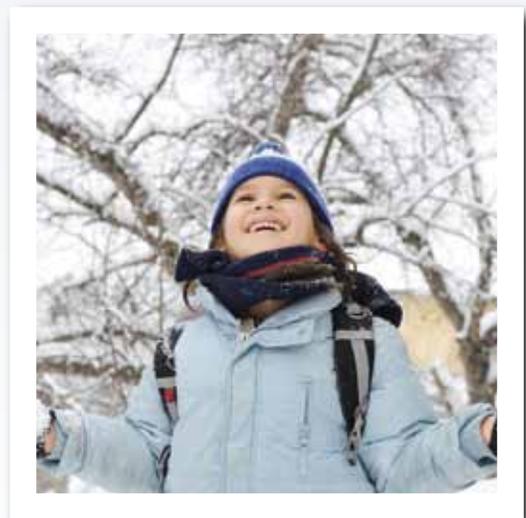
The NDQuits Quitline vendor regularly provides reports of the number of people using the Quitline, how they found out about the service, what the quit rate is and what the satisfaction rate is.

Smoking-Attributable Mortality, Morbidity and Economic Costs (SAMMEC)

SAMMEC provides an online database that allows users to estimate the adverse health outcomes and disease impact of smoking on adults and children. The adult SAMMEC application provides users the ability to estimate the number of annual deaths, years of potential life lost, medical expenditures and productivity losses among adults due to smoking.

Youth Risk Behavior Survey (YRBS)

The YRBS, developed in 1990, monitors priority health risk behaviors that contribute markedly to the leading causes of death, disability and social problems among youth and adults in the United States. The survey is administered to students in grades seven through 12 every other year in a random sample of North Dakota schools. Statistics used in this report are based on survey results from grades nine through 12.





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