

Health Disparities and Impact of Disability on Health Status in North Dakota

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May 2015



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This report is supported by a cooperative agreement (5U59DD000950-03) to The North Dakota Center for Persons with Disabilities at Minot State University from the Centers for Disease Control and Prevention (CDC). Opinions expressed are those of the authors and do not necessarily reflect the official policy of the CDC.

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Executive Summary

This report will profile the demographics, health care access, health status, and health risk behaviors of North Dakota adults (aged 18 and older) and adolescents (i.e., middle and high school student) with disabilities using 2013 Behavioral Risk Factor Surveillance System data (adults) and Youth Risk Behavior Survey data (adolescents). We found that 18.1 percent of North Dakota adults, or one in five and half persons, had a disability (ND BRFSS, 2013). North Dakotans with disabilities, compared to North Dakotans without disabilities, were more likely to be female, older, possess lower levels of education, earn lower incomes, and be unable to work.

Findings on health care access for North Dakota adults with disabilities were mixed. On a positive note, persons with disabilities were more likely than persons without disabilities to have had a pneumonia vaccine in their lifetime, a flu shot in the past year and indicate they currently had a regular health care provider. Alternatively, North Dakotans with disabilities were substantially more likely to indicate they had foregone needed health care in the past year due to costs. North Dakotans with and without disabilities were equally likely to have health insurance for all ages combined; however, among those aged 18-64 years, persons with disabilities were slightly less likely to have health insurance.

Regarding health-related measures, North Dakotans with disabilities were more likely than persons without disabilities to have arthritis, coronary heart disease, asthma, and diabetes. Also, North Dakota adults with disabilities were more likely than North Dakotans without disabilities to be overweight/obese and smoke cigarettes, and were less likely to be physically active. Finally, persons with disabilities were less likely to be binge or heavy drinkers.

Among North Dakota adolescents, we found that 27.5 percent of middle school students and 27.9 percent of high school students had a disability. Also, middle/high school students with disabilities were more likely than middle/high school students without disabilities to have: had feelings of sadness or hopelessness; had recently considered suicide; had recently made a suicide plan; attempted suicide; been bullied by other students; recently smoked cigarettes; and characterized their body weight as being too high or too low.

Introduction

This report was prepared for use by staff of the North Dakota Disability Health II Project. The North Dakota Disability Health II Project is funded by the Centers for Disease Control and Prevention for a three-year period (2012-2015). North Dakota is one of 18 states to increase capacity and action in health promotion, access to health care and emergency preparedness activities for people with disabilities.

The purpose of this report is to profile the demographics, health care access, health status, and health risk behaviors of North Dakota adults and adolescents with disabilities. This profile was conducted via a data comparison of selected Behavioral Risk Factor Surveillance System (BRFSS) attributes between adult (i.e., ages 18 years and older) North Dakotans with and without disabilities. In this report, “disability,” is defined as a “Yes” response to either of the following questions in the BRFSS surveys:

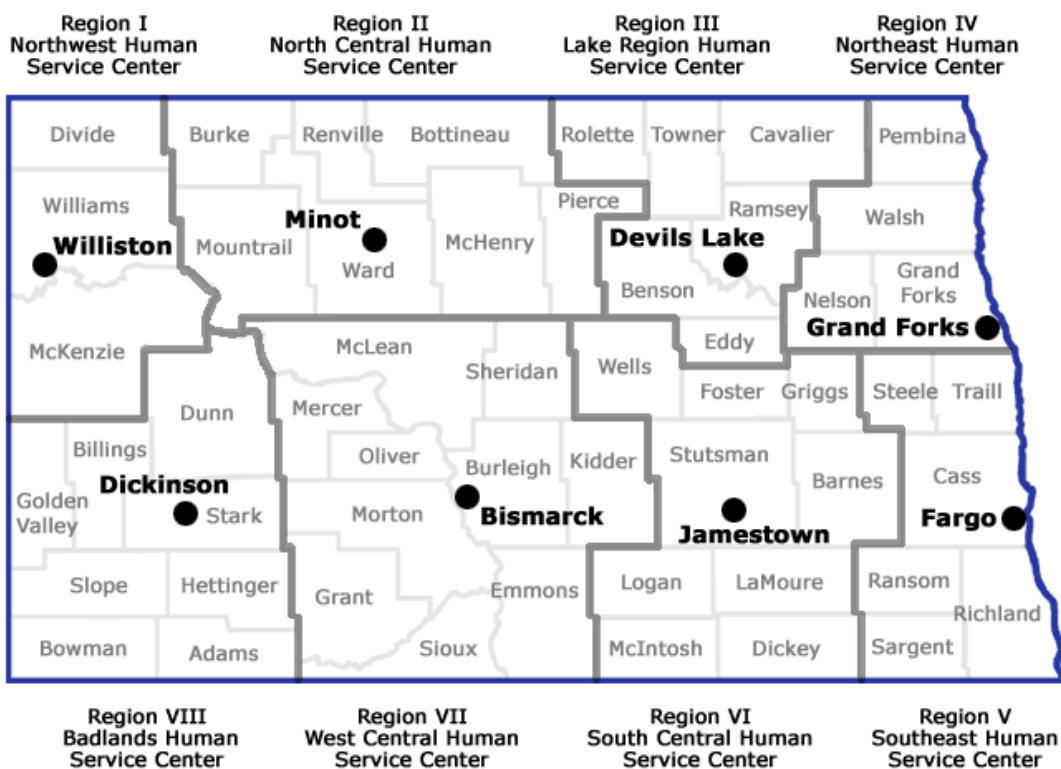
- “Are you limited in any way in any activities because of physical, mental or emotional problems?”
- “Do you now have any health problem that requires you to use special equipment, such as a cane, a wheelchair, a special bed or a special telephone?”

These questions, used in North Dakota’s BRFSS surveys since 2001, were developed by the Centers for Disease Control and Prevention (CDC) to define disability and are frequently used by various U.S. states. The BRFSS is conducted in all 50 states with the assistance of the CDC. Since 1984, North Dakota has been collecting BRFSS data which is used to develop health policy, design and evaluate public health programs, monitor behavioral health risks and health status, assess attitudes/beliefs about important health issues, and

conduct research at the state and national levels (NDDoH, 2008). Each year, thousands of North Dakotans are interviewed by telephone and anonymously provide this important information about their health. Each month throughout the year, telephone calls are made to randomly selected North Dakota households, and a single adult respondent is asked if he or she will participate. Although some North Dakotans choose not to participate, North Dakota has one of the highest response rates in the United States (NDDoH, 2008).

North Dakota BRFSS data was further broken down into regional data to attempt to identify particular regions within the state that were performing better or worse on these health related measures than the state as a whole. For this section, we chose to divide the state along the boundaries of the eight regions of the North Dakota Department of Human services. Each human service center region represents a multi-county area that includes at least one city in the top 11 in population (Figure 1).

Figure 1. North Dakota Department of Human Service Regions



Additionally, the health of North Dakota's people with disabilities was compared to neighboring states using 2012 BRFSS data. Comparisons between North Dakota data and data from Minnesota, South Dakota, and Montana will be included where appropriate.

For assessing disability and health issues among North Dakota adolescents, 2013 Youth Risk Behavior Survey (YRBS) data for North Dakota middle school and high school students were obtained and analyzed. Using the YRBS data, having a "disability" was defined as a yes response to either of the following two questions:

- Do you have any physical disabilities or long-term health problems? (Long-term means 6 months or more)
- During the past 12 months, did you receive help from a resource teacher, speech therapist, or other special education teacher at school?

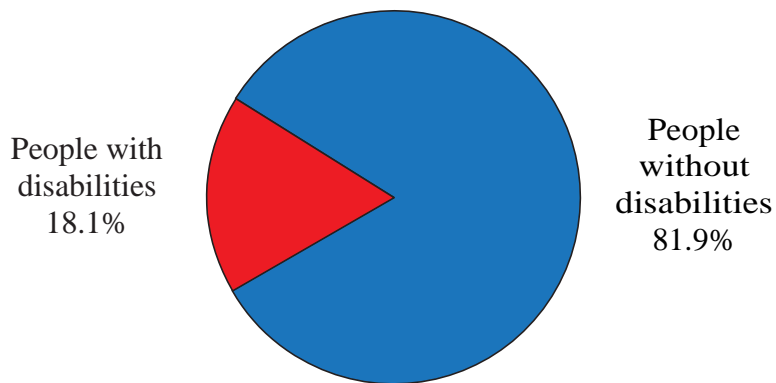
This definition of disability is considered to be suboptimal in that there are many long-term health problems that do not necessarily lead to a true disability. Therefore, YRBS results entailed in this report should be considered in light of this definitional issue.

BRFSS Results -- Adults

Disability Prevalence

Based on the BRFSS data for years 2013, 18.1 percent of North Dakota adults (about one in five and a half persons) were defined as having a disability. See Figure 2 below.

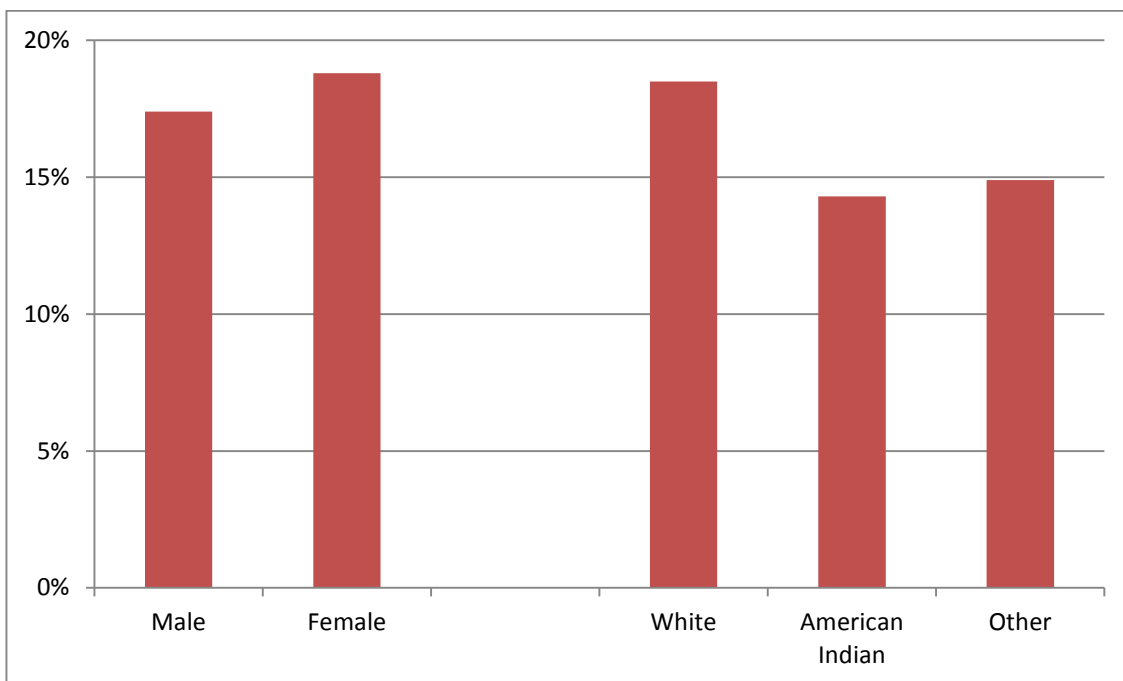
Figure 2. Disability prevalence among North Dakota adults



Source: ND BRFSS, 2013
*Ages 18 and older

Figure 3 shows disability prevalence by gender and race. By gender, females (18.8%) were more likely than males (17.4%) to have reported a disability. By race, whites (18.5%) were more likely than American Indians (14.3%) and persons of other races (14.9%) to have reported a disability (BRFSS, 2013).

Figure 3. Disability prevalence among North Dakota adults, by gender and race



Source: ND BRFSS 2013.
*Ages 18 and older

Demographics

North Dakota adults with disabilities tended to be older than North Dakota adults without disabilities. That is, an increase in age of the respondent corresponded with an increase in the likelihood of having a disability. To illustrate, over one-third (34.7%) of persons with disabilities and about one-sixth (16.2%) of persons without disabilities were aged 65 years and older. The youngest respondents, aged 18 to 24 years, comprised 3.5 percent of persons with disabilities and 17.7 percent of persons without disabilities.

Lower levels of education and annual income were more common among persons with disabilities in North Dakota. Two-thirds (64.8%) of persons without disabilities had some post-high school education/training versus only 56.6 percent of persons with disabilities. Regarding annual income, persons with disabilities were much more likely than persons without disabilities to be earning less than \$15,000 per year (18.1% versus 7.6%). Regarding employment status, 72.2 and 38.0 percent of North Dakota adults with and without a disability were currently employed. Further, persons with a disability were much more likely to report they were unable to work (22.3% versus 0.7 %). See Table 1 below.

Table 1. Demographic characteristics of North Dakota adults with and without disabilities, BRFSS 2013.

	With Disability		Without Disability	
	N	(%)	N	(%)
Age				
18 to 24	3,510	(3.5)	80,972	(17.7)
25 to 34	8,360	(8.3)	90,297	(19.7)
35 to 44	11,274	(11.1)	67,450	(14.7)
45 to 54	19,055	(18.8)	72,887	(15.9)
55 to 64	23,109	(22.8)	67,977	(14.9)
65 and Older	35,141	(34.7)	73,996	(16.2)
Education				
1 to 8 Yrs.	5,865	(5.8)	11,987	(2.6)
9 to 11 Yrs.	10,007	(9.9)	25,439	(5.6)
HS Grad	28,115	(27.8)	123,580	(27.0)
Some College	38,928	(38.4)	177,780	(38.8)
College Grad	18,359	(18.1)	118,905	(26.0)
Income				
<= \$15k	15,605	(18.1)	30,380	(7.6)
> \$15k to \$25k	20,969	(24.4)	49,177	(12.3)
> \$25k to \$35k	11,366	(13.2)	38,324	(9.6)
> \$35k to \$45k	9,232	(10.7)	63,025	(15.7)
> \$50k	28,934	(33.6)	220,558	(54.9)
Employment				
Employed	38,181	(38.0)	328,530	(72.2)
Unable to Work	22,352	(22.3)	2,949	(0.7)
Other	39,935	(39.7)	123,495	(27.1)

Health Care Access

Health Insurance

Having health insurance coverage is an important determinant of health care access and utilization (Hoffman & Paradise, 2008). North Dakota BRFSS respondents were asked, “Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?” Overall, persons with and without disabilities were equally likely to have health insurance (i.e., 89.4% and 89.2%, respectively). However, among persons aged 18-64 years, those with disabilities were

slightly less likely (85.4%) to possess health insurance compared to person without disabilities (87.6%). Among those aged 65 years and older, few differences were noted between persons with and without disabilities, with each group having health coverage at 96.7 and 97.6 percent, respectively. The absence of disparities within this age group may be due to all persons (regardless of disability status) being eligible for Medicare coverage starting at age 65 (Table 2).

Among the eight North Dakota regions the percentage of people with disabilities that had healthcare varied from 83.8% in the Northwest Region to 93.9% in the South Central Region and 86.6% in the Northwest Region to 91.2% in the Lake Region for those without disabilities. Compared to neighboring states, North Dakota adults with disabilities were as likely to have insurance (82.7%) as people with disabilities in Minnesota (89.1%), South Dakota (84.4%), and Montana (76.4%).

Regular Health Care Provider

Having a regular care health provider is another important indicator of access to and utilization of preventive health care services (Fryer et al., 2000). North Dakota BRFSS respondents were asked, “Do you have one person you think of as your personal doctor or health care provider?” Results indicated that North Dakota adults with disabilities were more likely (84.0%) than those without disabilities (70.3%) to have regular health care provider (Table 2). This finding may be due in part to greater health challenges among persons with disabilities which increase the need for having a regular health provider who is familiar with their conditions and can manage the primary and specialty care needed and received by the patient.

Among the eight North Dakota regions the percentage of people with disabilities that a regular healthcare provider varied from 73.0% in the Northwest Region to 91.0% in the West Central Region and 61.1% in the Northwest Region to 78.2% in the South Central Region for those without disabilities. Compared to neighboring states North Dakota adults with disabilities were as likely to have a regular healthcare provider (78.7%) as people with disabilities in Minnesota (80.7%), South Dakota (76.7%), and Montana (76.2%).

Cost as a Barrier to Health Care

North Dakota BRFSS respondents were asked, “Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?” Results indicated that North Dakotans with disabilities were more likely (14.4%) than those without disabilities (5.6%) to have foregone needed health care due to high costs (Table 2). This disability-related disparity in health care access was more noticeable among those aged 18-64 (19.3% versus 6.4%), but was also present in those age 65 years or older (5.0% versus 1.5%).

Among the eight North Dakota regions the percentage of people with disabilities that couldn't see a doctor because of cost varied from 11.4% in the Badlands Region to 19.8% in the Lake Region and 2.1% in the Lake Region to 8.3% in the Northeast Region for those without disabilities. Compared to neighboring states, North Dakota adults with disabilities were about as likely to not be able to see a doctor because of cost (20.6%) when compared to people with disabilities in Minnesota (19.5%), South Dakota (25.9%) and Montana (29.6%).

Flu Vaccine

Influenza (“the flu”) is a contagious respiratory disease attributable to influenza

viruses. Between five to twenty percent of the U.S. population contract the flu each year. Also, 200,000 people are hospitalized and 36,000 people die from the flu in the U.S. each year. The best way to prevent contracting the flu is via an annual flu vaccination (CDC, 2009). North Dakota BRFSS respondents were given the following information: “There are two ways to get the flu vaccine, one is a shot in the arm and the other is a spray, mist, or drop in the nose called FluMist.” Respondents were then asked, “During the past 12 months, have you had either a flu shot or a flu vaccine that was sprayed in your nose? (A new flu shot came out in 2011 that injects vaccine into the skin with a very small needle. It is called Fluzone Intradermal vaccine. This is also considered a flu shot.)” Results indicated that North Dakota adults with disabilities were more likely (48.3%) than those without disabilities (39.7%) to have had a flu vaccine in the past year (Table 2).

Among the eight North Dakota regions the percentage of people with disabilities that had a flu vaccine in the past 12 months varied from 36.3% in the Northwest Region to 62.1% in the Lake Region and 31.6% in the Northwest Region to 44.1% in the Northeast Region for those without disabilities. North Dakota adults with disabilities were as likely to get a flu vaccine (39.8%) as people with disabilities in Minnesota (46.4%) and were more likely than those in Montana (36.5%) and less likely than those in South Dakota (44.2%).

Pneumonia Vaccine

Bacterial pneumonia, or inflammation and consolidation of the lung tissue due to an infectious bacterial agent, has a significant health and economic impact among U.S. residents (American Lung Association, 2007). In 2003, approximately 65,000 people died of pneumonia in the United States (Hoyert et al., 2005). Bacterial pneumonia, in many cases, can be prevented through regular use of primary and preventive health care, including pneumococcal vaccine. North Dakota BRFSS respondents were asked, “A pneumonia shot

or pneumococcal vaccine is usually given only once or twice in a person's lifetime and is different from the flu shot. Have you ever had a pneumonia shot?" North Dakota adults with a disability were found to be more likely (47.6% versus 23.9%) than persons without disabilities to have ever had a pneumonia vaccine (Table 2). Also, persons with disabilities were more likely to have had a pneumonia vaccine within each of the age cohorts of 18-64 years and aged 65 years or older.

Among the eight North Dakota regions the percentage of people with disabilities that had a pneumonia vaccine in their lifetime varied from 45.1% in the West Central Region to 59.4% in the Lake Region and 21.0% in the Badlands Region to 29.9% in the Northeast Region for those without disabilities. North Dakota adults with disabilities were about as likely to get a pneumonia vaccine (38.6%) as people with disabilities in Minnesota (36.6%), Montana (38.9%) and South Dakota (33.5%).

Table 2. Health care access measures among North Dakota adults with and without disabilities, by age group, BRFSS 2013.

	Total		Age 18-64		Age 65 or Older	
	N	(%)	N	(%)	N	(%)
Has Health Insurance						
With Disability	90,551	(89.4)	55,765	(85.4)	33,963	(96.7)
Without Disability	408,422	(89.2)	332,413	(87.6)	72,223	(97.6)
Has Regular Health Care Provider						
With Disability	85,040	(84.0)	52,131	(79.8)	32,177	(91.6)
Without Disability	321,839	(70.3)	252,426	(66.5)	66,401	(89.7)
Cost Prohibitive of Seeing a Physician						
With Disability	14,590	(14.4)	12,612	(19.3)	1,743	(5.0)
Without Disability	25,385	(5.6)	24,112	(6.4)	1,111	(1.5)
Flu Vaccination (past year)						
With Disability	45,925	(48.3)	24,281	(39.9)	21,173	(63.5)
Without Disability	167,869	(39.7)	129,230	(36.6)	38,604	(56.6)
Pneumonia Vaccination (lifetime)						
With Disability	45,242	(47.6)	19,888	(32.7)	25,179	(75.5)
Without Disability	100,802	(23.9)	56,173	(16.0)	43,350	(63.7)

Health Status

Overall Health

How do North Dakotans with disabilities perceive their own health status? North Dakota BRFSS respondents were asked to respond to the statement, “Would you say that in general your health is...” The possible responses were excellent, very good, good, fair or poor. Findings from analyses of the combined North Dakota BRFSS data for 2013 indicated that North Dakota adults with disabilities (44.4%) were over five times more likely than those without disabilities (8.1%) to characterize their own health as ‘fair’ or ‘poor’ (Table 3). When results were assessed within age group, similar conclusions were drawn. For the age group 18 to 64 years, 42.6 percent of persons with disabilities and only 6.4 percent of persons without disabilities said their health was fair or poor. Among persons aged 65 years

and older, 47.5 percent of persons with disabilities and 16.4 percent of persons without disabilities indicated their general health was fair or poor in 2013.

Among the eight North Dakota regions the percentage of people with disabilities that characterized their own health as ‘fair’ or ‘poor’ varied from 37.3% in the Northwest Region to 52.7% in the South Central Region and 7.0% in the North Central Region to 11.0% in the Lake Region for those without disabilities. North Dakota adults with disabilities were about as likely to characterize their own health as fair or poor (36.3%) as people with disabilities in Minnesota (33.3%), Montana (38.1%) and South Dakota (34.8%).

Physical Health

North Dakota BRFSS respondents were asked, “Now thinking about your *physical* health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good?” Valid responses ranged from 0 to 30 days. Regarding responses reflecting excellent physical health, 29.1% of persons with disabilities and 71.0% of persons without disabilities indicated having zero poor physical health days in the past month. Conversely, 33.9% of persons with disabilities and only 3.2% of persons without disabilities indicated having 15-30 days of poor physical health in the past month. Among persons aged 65 and older, similar disability-related disparities were noted (Table 3).

Mental Health

North Dakota BRFSS respondents were asked, “Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?” Regarding responses reflecting

excellent mental health, 51.3 percent of persons with disabilities and 71.1 percent of persons without disabilities indicated having zero poor mental health days in the past month. Conversely, among those responses reflecting poor mental health, 18.6 percent of persons with disabilities and only 4.7 percent of persons without disabilities indicated having 15-30 days of poor mental health in the past month. Among persons aged 65 and older, similar disability-related disparities were noted (Table 3).

Physical/Mental Health

North Dakota BRFSS respondents were asked, “During the past 30 days, for about how many days did poor physical *or* mental health keep you from doing your usual activities, such as self-care, work, or recreation?” Valid responses ranged from 0 to 30 days. Regarding responses reflecting excellent overall health, 36.1 percent of persons with disabilities and 72.6 percent of persons without disabilities indicated having zero poor health days that kept them from their usual activities in the past month. Among those responses reflecting poor health, 32.2 percent of persons with disabilities and only 2.9 percent of persons without disabilities indicated having 15-30 days of poor health that kept them from their usual activities in the past month. Among persons aged 65 and older, similar disability-related disparities were noted on these health indicators (Table 3); to illustrate, among this older cohort 25.2% of persons with disabilities and 4.7% of persons without disabilities indicated having poor health for at least two weeks within the past month.

Table 3. Health status measures among North Dakota adults with and without disabilities, by age group, BRFSS 2013.

	Total		Age 18-64		Age 65 or Older	
	N	(%)	N	(%)	N	(%)
General Health is Fair/Poor						
With Disability	45,009	(44.4)	27,787	(42.6)	16,677	(47.5)
Without Disability	36,938	(8.1)	24,244	(6.4)	12,109	(16.4)
Physical Health Not Good - # Days in Past Month						
<i>0 Days</i>						
With Disability	29,446	(29.1)	18,337	(28.1)	11,005	(31.3)
Without Disability	324,733	(71.0)	271,732	(71.6)	50,164	(67.8)
<i>15-30 Days</i>						
With Disability	34,358	(33.9)	23,368	(35.8)	10,972	(31.2)
Without Disability	14,989	(3.3)	10,099	(2.7)	4,826	(6.5)
Mental Health Not Good - # Days in Past Month						
<i>0 Days</i>						
With Disability	51,937	(51.3)	28,844	(44.2)	22,513	(64.1)
Without Disability	325,224	(71.1)	262,932	(69.3)	58,792	(79.5)
<i>15-30 Days</i>						
With Disability	18,813	(18.6)	16,283	(24.9)	2,386	(6.8)
Without Disability	21,400	(4.7)	19,214	(6.9)	2,172	(2.9)
Poor Health Prevented Usual Activities - # Days in Past Month						
<i>0 Days</i>						
With Disability	28,742	(36.1)	16,357	(31.0)	12,293	(46.7)
Without Disability	152,646	(72.6)	129,281	(72.7)	21,967	(71.2)
<i>15-30 Days</i>						
With Disability	25,652	(32.2)	18,478	(35.1)	6,639	(25.2)
Without Disability	6,192	(2.9)	4,721	(2.7)	1,438	(4.7)

Chronic/Acute Health Conditions

The prevalence of a variety of chronic and acute health conditions was assessed through the question, “Have you ever been told by a doctor that you have (disease or health condition)?” The specific diseases or health conditions included coronary heart disease, asthma, arthritis (encompassing rheumatoid arthritis, gout, lupus, fibromyalgia, polymyalgia rheumatica, osteoarthritis, tendonitis, bursitis, bunion, tennis elbow, carpal tunnel syndrome, tarsal tunnel syndrome, joint infection and others), and diabetes.

Results indicated that persons with disabilities were substantially more likely than persons without disabilities to have arthritis (60.5% versus 18.3%), coronary heart disease (11.3% versus 2.4%), high blood pressure (49.8% versus 25.2%), high cholesterol (52.5% versus 31.8%), asthma (20.9% versus 10.4%) and diabetes (17.1% versus 7.1%). When health condition prevalence was examined within the age cohorts of 18-64 years and 65 years and older, prominent disparities between those with and without disabilities were noted across all health conditions under study (Table 4).

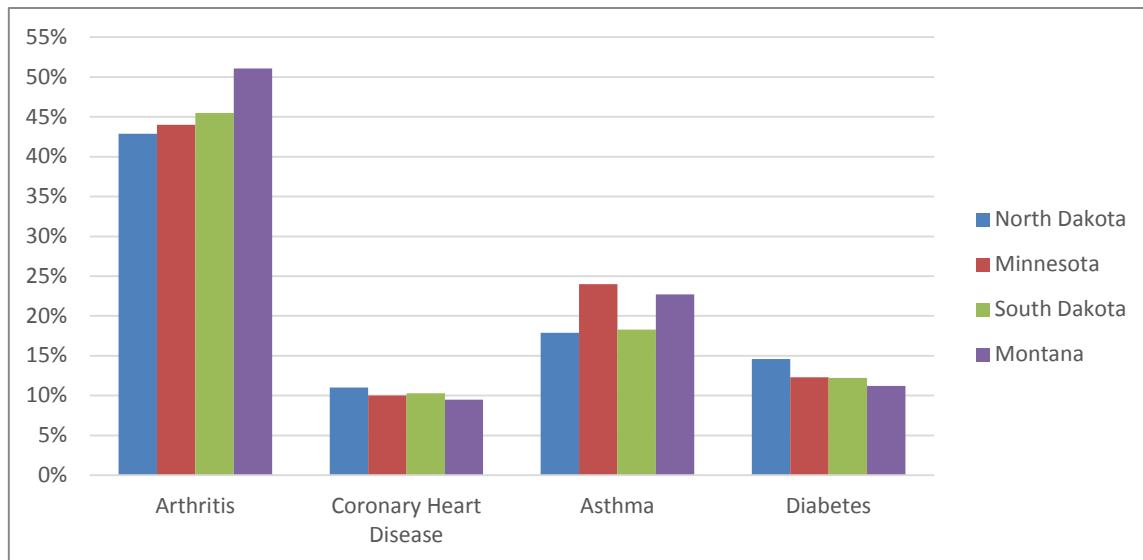
Table 4. Health conditions among North Dakota adults with and without disabilities, by age group, BRFSS 2013.

	Total		Age 18-64		Age 65 or Older	
	N	(%)	N	(%)	N	(%)
Arthritis						
With Disability	61,221	(60.5)	34,511	(52.8)	26,137	(73.8)
Without Disability	83,752	(18.3)	49,503	(13.0)	32,830	(44.4)
Coronary Heart Disease						
With Disability	11,458	(11.3)	3,872	(5.9)	7,565	(21.5)
Without Disability	11,104	(2.4)	4,321	(1.1)	6,588	(8.9)
High Blood Pressure						
With Disability	50,464	(49.8)	25,903	(39.7)	24,002	(68.3)
Without Disability	115,260	(25.2)	72,189	(19.0)	41,935	(56.7)
High Cholesterol						
With Disability	46,293	(52.5)	25,353	(47.1)	20,291	(60.4)
Without Disability	106,008	(31.8)	68,823	(26.5)	36,059	(51.4)
Asthma						
With Disability	21,154	(20.9)	15,892	(24.3)	5,063	(14.4)
Without Disability	47,419	(10.4)	41,941	(11.1)	5,294	(7.2)
Diabetes						
With Disability	17,333	(17.1)	8,734	(13.4)	8,311	(23.7)
Without Disability	32,451	(7.1)	19,105	(5.0)	12,974	(17.5)

Note: Diabetes defined as type I or II only, not pregnancy diabetes or pre-diabetes.

Analysis of 2012 BRFSS data showed that North Dakota adults with disabilities had slightly lower rates of being diagnosed with Arthritis (42.9%) than those in Minnesota (44.0%), Montana (51.1%) and South Dakota (45.5%). Coronary Heart Disease rates for North Dakota adults with disabilities were slightly higher (11.0%) than in Minnesota (10.0%), Montana (9.5%) and South Dakota (10.3%). Asthma rates for North Dakota adults with disabilities were lower (13.4%) than those in Minnesota (19.3%), Montana (19.4%) and South Dakota (13.9%). Lastly, Diabetes rates for North Dakota adults with disabilities were higher (14.6%) than those in Minnesota (12.3%), Montana (11.2%) and South Dakota (12.2%). See Figure 4 below.

Figure 4. Health conditions among adults with disabilities by state, BRFSS 2012.



Health Risk Behaviors

Overweight/Obesity

North Dakotans with and without disabilities were compared in terms of their prevalence of overweight or obesity. The North Dakota BRFSS survey solicits respondents' height and weight information which is used to calculate body mass index scores.

Overweight/obesity was defined as body mass index scores of 25 or higher (National Heart, Lung, and Blood Institute, 1998). Results indicated that in 2013, North Dakota adults with

disabilities (72.6%) were more likely to be overweight or obese, compared to North Dakota adults without disabilities (62.4%). When results were examined for the age groups of 18-64 years and 65 year or older, it was clear that persons with disabilities were more likely than persons without disabilities to be overweight or obese for both age groups.

Among the eight North Dakota regions the percentage of people with disabilities that were overweight or obese varied from 70.0% in the North Central Region to 88.4% in the Lake Region and 64.5% in the South Central Region to 70.2% in the Lake Region for those without disabilities. North Dakota adults with disabilities were about as likely to be overweight or obese (69.6%) as people with disabilities in Minnesota (71.8%), Montana (66.7%) and South Dakota (72.1%).

Physical Activity

North Dakota BRFSS respondents were asked a series of questions regarding the extent to which they engage in physical activity. Specifically, North Dakota BRFSS respondents were asked, “During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?” Engaging in these types of activities will produce small increases in breathing or heart rate which is beneficial to one’s overall health. Persons with disabilities were less likely (58.3%) than persons without disabilities (69.6%) to have engaged in moderate activities in the past month. Among those aged 65 or older, a similar disability-related disparity was noted on this health indicator (Table 5).

Among the eight North Dakota regions the percentage of people with disabilities that were likely to engage in moderate activity varied from 49.9% in the Lake Region to 61.6% in the West Central Region and 60.2% in the Lake Region to 75.3% in the Southeast

Region for those without disabilities.

Alcohol/Tobacco Use

The North Dakota BRFSS survey contains some questions about alcohol use. Binge alcohol use is defined by the BRFSS as consuming five or more alcoholic beverages in a row (among men; for women, it is defined as four or more) on one or more occasions in the past 30 days. Persons with disabilities were far less likely (13.8%) than persons without disabilities (24.8%) to have engaged in binge drinking in the past month. Heavy alcohol use is defined by the BRFSS as consuming more than two alcoholic beverages per day every day for men and consuming more than one alcoholic beverage per day every day for women. Persons with disabilities were slightly less likely (4.5%) than persons without disabilities (7.4%) to be heavy drinkers. See Table 5 below.

Among the eight North Dakota regions the percentage of people with disabilities that engaged in binge drinking varied from 5.0% in the South Central Region to 21.2% in the North Central Region and 20.4% in the South Central Region to 28.2% in the Southeast Region for those without disabilities. North Dakota adults with disabilities were about as likely to binge drink (17.9%) as people with disabilities in Minnesota (18.4%), Montana (21.6%) and South Dakota (17.4%).

North Dakota BRFSS respondents were asked some questions regarding cigarette smoking. One question was, “Have you smoked at least 100 cigarettes in your entire life?” Another question entailed the following: “Do you now smoke cigarettes every day, some days, or not at all?” CDC defines ‘current smokers’ as persons that have smoked 100 cigarettes in their lifetime and are smoking cigarettes every day or some days. Overall, persons with disabilities were more likely (25.6% versus 19.7%, respectively) to

be current smokers. However, for those aged 18-64 years, persons with disabilities were substantially more likely (34.2%) than persons without disabilities (21.6%) to smoke cigarettes.

Among the eight North Dakota regions the percentage of people with disabilities that were current smokers varied from 12.1% in the South Central Region to 31.3% in the North Central Region and 16.9% in the Southeast Region to 26.4% in the Lake Region for those without disabilities. North Dakota adults with disabilities were more likely to be current smokers (34.0%) as people with disabilities in Minnesota (31.1%), Montana (31.3%) and South Dakota (33.0%).

Table 5. Health risk behaviors among North Dakota adults with and without disabilities, by age group, BRFSS 2013.

	Total		Age 18-64		Age 65 or Older	
	N	(%)	N	(%)	N	(%)
Overweight/Obese						
With Disability	73,502	(72.6)	48,305	(74.0)	24,874	(70.8)
Without Disability	285,683	(62.4)	235,125	(61.9)	49,046	(66.3)
Obese						
With Disability	44,212	(43.7)	30,803	(47.2)	13,086	(37.2)
Without Disability	120,494	(26.3)	101,813	(26.8)	17,819	(21.2)
Moderate Activity						
With Disability	58,997	(58.3)	39,600	(60.6)	18,937	(53.9)
Without Disability	318,717	(69.4)	267,244	(70.4)	48,610	(65.7)
Smokes						
With Disability	25,872	(25.6)	22,314	(34.2)	3,363	(9.6)
Without Disability	89,944	(19.7)	81,786	(21.6)	7,363	(10.0)
Binge Drinks						
With Disability	13,967	(13.8)	12,809	(19.6)	1,110	(3.2)
Without Disability	113,357	(24.8)	109,470	(28.8)	3,530	(4.8)
Drinks Heavily						
With Disability	4,567	(4.5)	4,030	(6.2)	537	(1.5)
Without Disability	33,701	(7.4)	31,757	(8.4)	1,887	(2.6)

Survey Results of Emergency Management Workers and Healthcare Facilities

Emergency Management Workers

Surveys for emergency workers were mailed to 36 county emergency managers and coordinators and local Red Cross chapters. 11 surveys were returned. Table 6 indicates which needs respondents felt could be accommodated at the emergency shelter(s) in their area.

Fifty-five percent of respondents indicated people with disabilities or their caregivers are included in emergency preparedness training, while only 2 respondents (18%) indicated people with disabilities are included in their advisory committees or planning meetings. Forty-five percent of respondents indicated they are aware of resources that can assist with accommodations for people with disabilities. When asked if they would like more information about accessibility guidelines, 35% indicated no, while 35% indicated they would like written information. Information packets were sent to those requesting it.

Table 6. Accessibility needs that can be accommodated by North Dakota emergency shelter(s).

Accommodation	Percent of respondents
Service animal	35%
Wheelchair accessibility for eating area, shower, toilet, sleeping	64%
Large print materials	9%
Braille materials	9%
Sign language interpreter	9%

Accessible parking spaces	91%
Automatic door openers	36%
Dietary needs (diabetes, low sodium, etc.)	18%

Clinics and Public Health Units

Surveys were also mailed to 308 clinics and public health units in ND, with 63 returned. Areas of these facilities indicated as accessible to a person with a physical disability are listed in Table 7.

When asked whether or not their facility has equipment that is accessible to people with disabilities, 52% indicated they have an adjustable exam table, 33% have an accessible weight scale, while only 15% indicated they have accessible mammography equipment. The majority of facilities (75%) have wheelchairs available to patients, 37% have an elevator, and 29% have transfer devices, such as a sliding board or Hoyer lift, available.

Thirty eight percent of the health care facility respondents do not have written guidelines for office staff to assist them in working effectively with people who have disabilities. When appointments are made, 81% of the schedulers for the health care respondents do not ask if the patient will need any specific accommodations during the appointment. Only 6% of respondents indicated they have people with disabilities, a family member of a person with a disability, or a disability advocate serving on a board or committee that addresses accessibility to health care. Seventy three percent answered no and 14% answered not sure to this question.

Table 7. Accessibility of clinics and public health units (by area).

Facility Area	Yes	No	Not Sure
Parking lot	95%	2%	2%
Sidewalk cuts	81%	6%	2%
Entrance to facility	89%	6%	0%
Desk/counters	75%	19%	3%
Waiting room	98%	2%	0%
Hallway width	97%	0%	5%
Examination room	95%	2%	8%
Lab	87%	5%	3%
Restroom	86%	5%	6%
x-ray	41%	3%	8%

When asked if preventative health care screenings are provided to people with disabilities, 71% of respondents indicated yes. In response to having any specific methods for including people with disabilities in health promotion events, 5% of respondents answered yes, 44% answered no, and 37% were not sure.

Health care facilities that received surveys were asked if they would like more information about accessibility guidelines or disability awareness information. Forty nine percent indicated no and 30% indicated they wanted written information sent to them. Information packets were sent to the requesting clinics. Four respondents indicated they would like on-site evaluation and training, and those have been completed or are scheduled to be completed by Disability Health project staff.

Results -- Adolescents

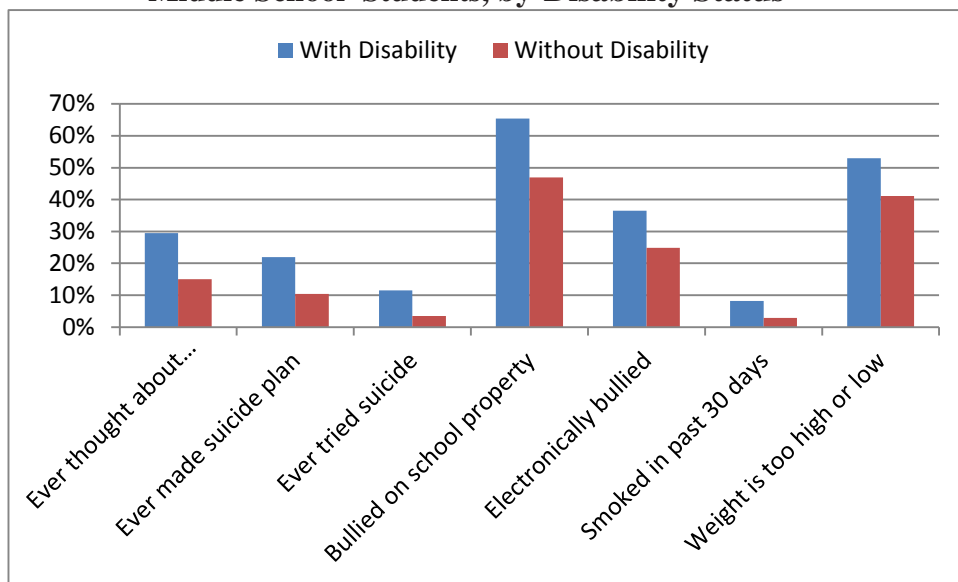
Among North Dakota adolescents, we found that 27.5 percent of middle school students and 27.9 percent of high school students had a disability. Disability was defined within the 2013 middle and high school Youth Risk Behavior Surveys (YRBS) as a yes response to either of these questions: (1) Do you have any long-term health problems? (Long-term means 6 months or more); (2) During the past 12 months, did you receive help from a resource teacher, speech therapist, or other special education teacher at school? It should be noted this definition of disability is considered suboptimal in that there are many long-term health problems that do not necessarily lead to a true disability.

Disability and Mental Health (Middle/High School Students)

The 2013 YRBS data were analyzed to examine the relationship between disability and mental health among North Dakota's middle and high school students. On the middle school YRBS survey, mental health-related items included those addressing bullying and suicide. Being bullied is linked to psychological distress, depression and thoughts of suicide (Van der Wal et al., 2003). Middle school students taking the YRBS were provided the following instruction regarding the definition of bullying: "Bullying is when one or more students tease, threaten, spread rumors about, hit, shove, or hurt another student over and over again. It is not bullying when two students of about the same strength or power argue or fight or tease each other in a friendly way." Following this description, student respondents were asked, "Have you ever been bullied on school property?" Middle school students with a disability reported a higher lifetime prevalence of having been bullied at school, compared to students without a disability (65.4% versus 46.9%). Similarly, middle school students were also more likely than their counterparts

without a disability to have been electronically bullied in the past 12 months (36.5% versus 24.9%), see Figure 5. Regarding high school students, those with a disability were more likely than those without a disability to report being bullied in the past 12 months (33.8% versus 21.8%) and electronically bullied in the past 12 months (24.4% versus 14.1%), see Figure 6.

Figure 5. Mental Health, Smoking and Body Weight, North Dakota Middle School Students, by Disability Status

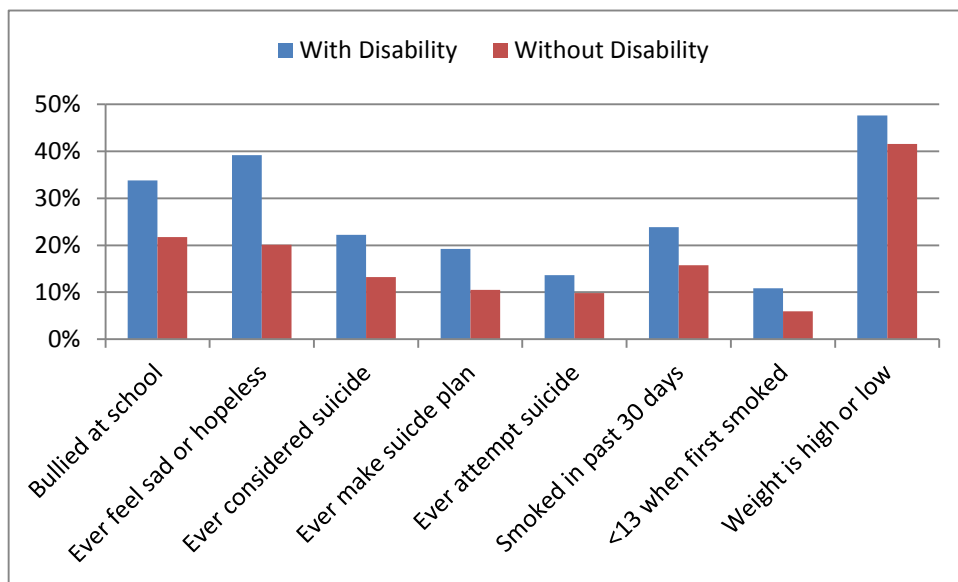


Source: YRBS, 2013

In 2007, suicide was the fourth-leading cause of death among those aged 10 to 14 years and the third-leading cause of death among those aged 15 to 19 years in the United States (WISQARS, 2007). North Dakota middle school students were asked in the 2013 YRBS survey if they had ever seriously thought about killing themselves. Among students with a disability, 29.5 percent indicated a yes response to this question, compared to 15.0 percent of students without a disability. Similarly, middle school students with a disability, compared to those without a disability, had a higher prevalence of ever making a suicide plan (21.9% versus 10.4%) and ever attempting suicide (11.5% versus 3.5%), see Figure 5. Regarding high school students, those with a disability were

more likely than those without a disability to report having considered suicide in the past 12 months (22.2% versus 13.2%), making a suicide plan in the past 12 months (19.3% versus 10.5%), ever attempting suicide (13.6% versus 9.8%), and ever feeling sad or hopeless (39.2% versus 20.1%). See Figure 6 below.

Figure 6. Mental Health, Smoking and Body Weight, North Dakota High School Students, by Disability Status



Source: YRBS, 2013

Disability and Smoking (Middle/High School Students)

The 2013 North Dakota YRBS data were analyzed to examine the relationship between disability and smoking among North Dakota’s middle and high school students. On both the middle and high school questionnaires, students were asked on how many days during the past 30 days they smoked cigarettes. Prevalence of smoking cigarettes on at least one day in the past month included the following: middle school students with a disability, 8.2 percent; middle school students without a disability, 2.9 percent; high school students with a disability, 23.9 percent; high school students without a disability, 15.7 percent (Figures 5 and 6). Thus, students with a disability were more likely than their peers without a disability to have recently smoked cigarettes. Further, high school

students with disabilities were more likely than their counterparts without disabilities to have indicated that they had first tried smoking before age 13 (10.9% versus 6.0%), see Figure 6.

Disability and Body Weight (Middle/High School Students)

The 2013 North Dakota YRBS data were analyzed to examine the relationship between disability and body weight among North Dakota's middle and high school students. On the middle school YRBS questionnaire, students were asked to describe their body weight using the following response choices: very underweight; slightly underweight; about the right weight; slightly overweight; and very overweight. Middle school students with a disability had a higher percent than students without a disability who indicated their body weight was too high or low (53.0% versus 41.1%), see Figure 5. Almost one-third (32.4%) of middle school students with a disability characterized themselves as being overweight; among middle school students without a disability, about one-quarter (25.2%) indicated they were overweight. Consistent with these findings, middle school student with a disability were more apt than students without disabilities to indicate they were currently trying either to lose or gain weight (66.9% versus 51.8%). Among high school students, a similar pattern of responses was noted; to illustrate, 47.7 percent of students with a disability and 41.6 percent of students without a disability indicated their body weight was too high or low, see Figure 6.

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