

**Health Risks of Adults with Disabilities in the  
State of Delaware: A Retrospective Analysis of  
Data from the Behavioral Risk Factor  
Surveillance System**

**Prepared for**

**Delaware Health and Social Services  
Division of Developmental Disabilities Services**

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## Acknowledgements

Healthy Delawareans with Disabilities 2010 is a health and wellness initiative in the state Delaware. It is coordinated and managed by the Division of Developmental Disabilities Services of Delaware Health and Social Services. Its mission is to improve the lives of Delawareans with disabilities through an emphasis on health promotion and wellness. The initiative aims to accomplish its mission by (1) developing increased disability-related epidemiologic capacity, (2) producing disability-specific health promotion and awareness programs, and (3) by providing technical assistance to interested partners. In order to learn more about Healthy Delawareans with Disabilities 2010 contact Dr. Thomas F. Kelly at 302-744-9600 or Alisha Raiford-Hall at 302-369-2180.

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## EXECUTIVE SUMMARY

In an effort to better understand the demographic characteristics and health status among the adult population of persons with disabilities in the State of Delaware, a retrospective analysis of data from the Centers for Disease Control and Prevention's (CDC) Behavioral Risk Factor Surveillance (BRFSS) Survey was undertaken. This study provides important baseline information necessary for developing public policy and identifying service needs intended to improve the quality of life among adults with disabilities in the State of Delaware. The following provides an overview of the findings.

In the State of Delaware...

- 16.4% of the adult population has one or more physical, mental or emotional problems that limit their activities and 5.7% need to use special equipment as a result of one or more health problems.
- The majority of adults with disabilities reside in New Castle County.
- Sussex County has the greatest proportion of adults with disabilities as a percentage of the total population within a county.
- Adults with disabilities are less likely to have graduated high school than those adults without disabilities.
- The unemployment rate among adults with disabilities is higher than state and national averages for the general adult population.
- Approximately 20% of adults with disabilities are unable to work as a result of their physical, mental or emotional health problems.
- Adults with disabilities have significantly less income than those adults without disabilities.

- In general, adults with disabilities have reported that they have fair to poor health.
- Adults with disabilities are far more likely to be overweight or obese than the proportion of the population of adults who do not experience some form of disability.
- The percentage of adults with disabilities unable to see a doctor because of cost is substantially higher than the percentage of the adult population who do not experience some form of disability.
- Those adults experiencing some form of disability are equally as likely to have some form of health care coverage (i.e., private insurance, Medicaid, Medicare) and have a personal doctor as adults without disabilities.
- Adults with disabilities are more likely to have had a checkup in the past year than adults without disabilities.
- The prevalence of coronary heart disease, high blood pressure, high cholesterol, diabetes, arthritis and asthma is significantly higher among adults with disabilities than among adults without disabilities.
- Adults with disabilities are more likely to have had a heart attack or a stroke than adults without disabilities.
- Those adults with disabilities are less likely to engage in either moderate or vigorous physical activities as compared to adults without disabilities.
- Cigarette smoking is higher among adults with disabilities than adults without disabilities.
- The use of alcohol and heavy drinking is lower among adults with some form of disability than those adults who do not have some form of disability.

- Women who live with some form of disability are just as likely as women who do not have a disability to seek out preventative health care services.
- Men who have a disability are slightly more likely to receive preventative health care services than men who are not living with a disability.
- Individuals 50 years of age or older who also have some form of disability are slightly more likely than their non-disabled counterparts to have been screened for colorectal-cancer.

In conclusion, adults with disabilities in the State of Delaware have a higher probability of reporting that they have poor health and have a much greater risk of having various other chronic health conditions, such as coronary heart disease and diabetes, than individuals who do not have a disability. However, in general, adult Delawareans living with disabilities are seeing a doctor at about the same frequency, if not slightly more, for regularly scheduled checkups and preventative care services than adult Delawareans who are not living with some form of disability. Further research needs to be conducted to examine the types of disabilities in relation to chronic diseases and to assess the need for services to improve the health status and quality of life among adults with disabilities in the State of Delaware. Further research is also needed to seek out disability-specific epidemiologic capacity for those adults with disabilities for whom, in all probability, the BRFSS methodology does not capture.

## INTRODUCTION

Little is known about the specific health risks and prevalence of health problems among adults with disabilities in Delaware. To better understand the health risk factors and health conditions of the adult population living with a disability in Delaware, data from the Centers for Disease Control and Prevention's (CDC) Behavioral Risk Factor Surveillance System (BRFSS) Survey were compiled for the years 2001, 2003, 2004 and 2005 (years in which disability related data were available for the State of Delaware). The BRFSS is administered to adults 18 years of age and older by telephone utilizing random digit dialing in all 50 states in collaboration with local health and social service agencies to track health risks and disease prevalence in the United States. It should be noted that the BRFSS does not include children with special health care needs, those persons living in an institutional setting, or those individuals who use assistive telecommunication devices. Therefore, a significant proportion of the disability community may be underrepresented in this study.

Although the BRFSS does not collect information on the nature of respondents' disabilities, two questions are included in the questionnaire to assess disability status and provide the impetus for this study:

- "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, or a special telephone?"

The data suggest that 16.4% of Delaware's adult population have one or more physical, mental or emotional problems that limit their activities and 5.7% need to use special equipment as a result of one or more health problems. However, these two questions are not mutually exclusive. Approximately 26% of adults who indicated that their activities are limited also said that they needed to use special equipment for a health problem. By comparison, approximately

74% of adults who have health problems that requires the use of special equipment report that their activities are limited by their specific health problem(s). In other words, those individuals for whom activities are limited do not necessarily need special equipment. However, individuals who use special equipment are likely to experience activity limitations. Due to the statistically significant relationship ( $p < .001$ ) between having a health problem that limits activities and having a health problem which requires the use of special equipment, they are combined for purposes of analysis and defined as ‘adults with disabilities’ for purposes of this study. An adult is considered to have a disability if he or she responds by saying “yes” to either question. And consequently, an adult is considered not have a disability if he or she responds by saying “no” to both questions. By combining these variables it can be estimated that approximately 18% of Delaware’s adult population experiences some form of disability which either limits activity or requires the use of special equipment.

In order to gauge the types of disabilities of adult Delawareans, **Healthy Delawareans with Disabilities 2010** requested that a question be included in the 2005 Delaware BRFSS which asked those respondents who reported that their activities were limited as a result of a physical, mental or emotional problem to identify their primary impairment or health problem. *See Appendix A for exact question.* This question was introduced in July 2005. The results are compiled from the inception of the added question through December 2005. Table 1 shows the distribution of the types of disabilities reported. Approximately 8.5% of the respondents

**Table 1. Type of Disability as Reported by BRFSS Respondents Who Disclosed That They Had a Disability**

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Visual Impairment	8.5%
Hearing Impairment	4.4%
Physical Impairment	89.0%
Emotional/Psychological Impairment	11.3%

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Source: 2005 CDC BRFSS; Center for Applied Demography & Survey Research, University of Delaware

reported having a visual impairment; 4.4% reported having a hearing impairment; almost 89% reported a physical impairment; and about 11% reported an emotional or psychological problem which limits their activities. Note that these data are not mutually exclusive, about 12% reported having multiple disabilities, and of those individuals about one-percent report three or more disabilities.

## DEMOGRAPHICS

**Table 2. County by Disability Status**

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	Has a Disability	
	<u>Yes (%)</u>	<u>No (%)</u>
Kent County	17.4	82.6
New Castle County	17.4	82.6
Sussex County	19.8	80.2

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Source: 2001, 2003 – 2005 CDC BRFSS; Center for Applied Demography & Survey Research, University of Delaware

The State of Delaware is comprised of three counties with the majority of the population residing in Delaware’s northernmost county, New Castle County. Approximately 61% of adults who have some form of disability in the State of Delaware live in New Castle County. As shown in Table 1, Kent and New Castle counties have the same proportion of adults with disabilities (17.4%). Sussex County, the most southern county in Delaware, has the highest proportion of adults with disabilities; almost 20% of the county’s adult population have some form of disability. The greater proportion of adults with disabilities in Sussex County may be a result of the higher proportion of elderly persons in the population in Sussex County, compared to Kent and New Castle Counties.<sup>1</sup>

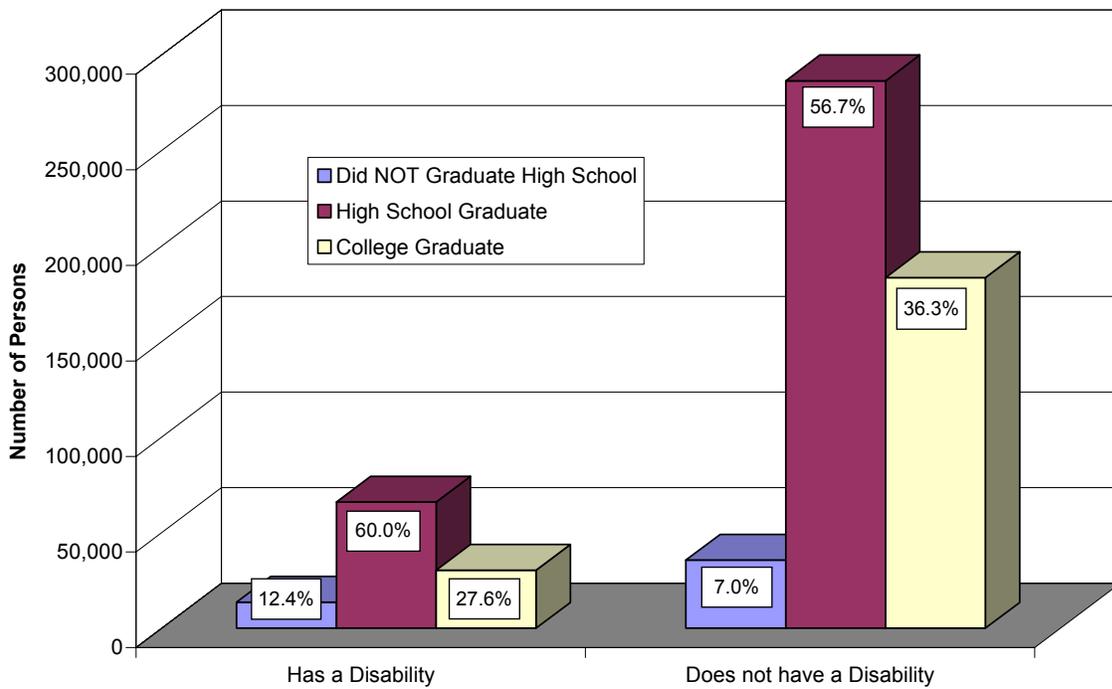
Other considerations which may reveal a distinct need for services include levels of education, employment, and income. As shown in Figure 1, below, the data reveal that there are

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<sup>1</sup> Percentage of the population 65 years of age and older: Kent County 12%; New Castle County 11.4%; Sussex County 19.2%. Source: US Census Bureau. (2006). State and County Quickfacts. <http://quickfacts.uscensus.gov>.

differences in high school or college graduation rates based on disability status. Just over 12% (n=13,635) of Delaware’s adults with disabilities did not graduate high school, compared to about 7% (n=35,640) of adults without some form of disability. Similarly, adults with disabilities are less likely to have graduated college; approximately 28% of adults with disabilities in the State of Delaware have a college degree compared to about 36% of adults who do not have a disability.

**Figure 1. Education Level by Disability Status**



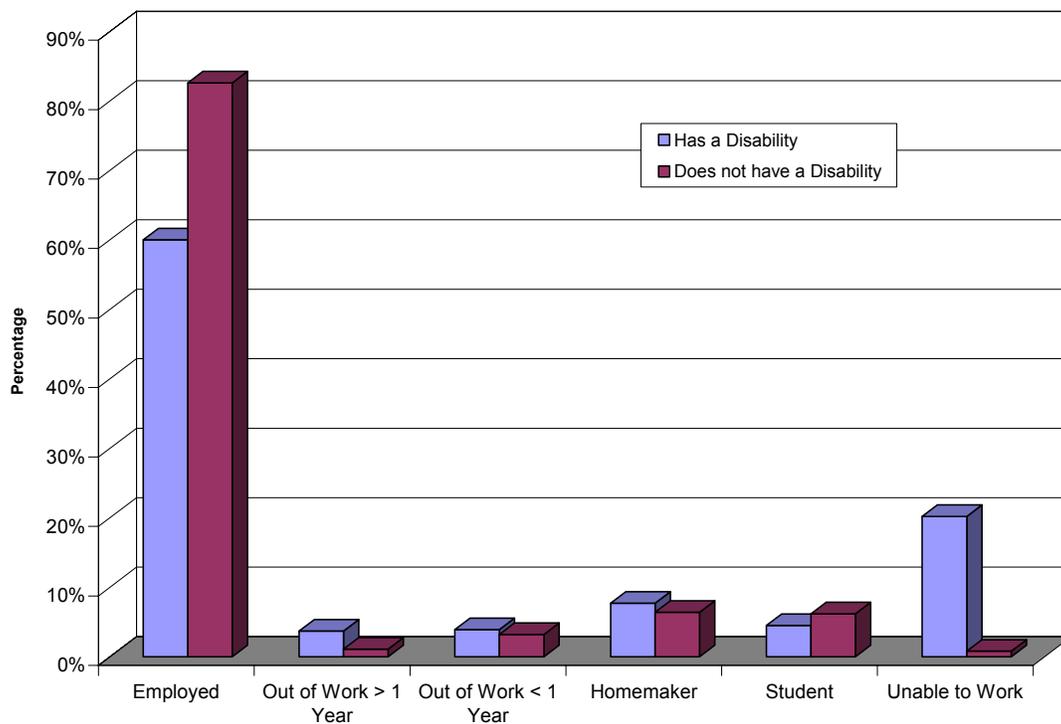
Source: 2001, 2003 – 2005 CDC BRFSS; Center for Applied Demography & Survey Research  
University of Delaware

When examining the employment situation of adults with disabilities, it is apparent that the employment status of those adults with and without a disability is dramatically different. As shown in Figure 2, below, about 60% of Delaware’s adult population who have a disability are employed, compared to almost 83% of the adult population without a disability. In addition, over 7% of adult Delawareans living with disabilities are unemployed (‘out of work’ > 1 year or ‘out

of work' < 1 year), compared to just over 4% of the adult population without disabilities.

Approximately 20% of the adult population with disabilities is unable to work, compared to less than 1% of the adult population without disabilities.

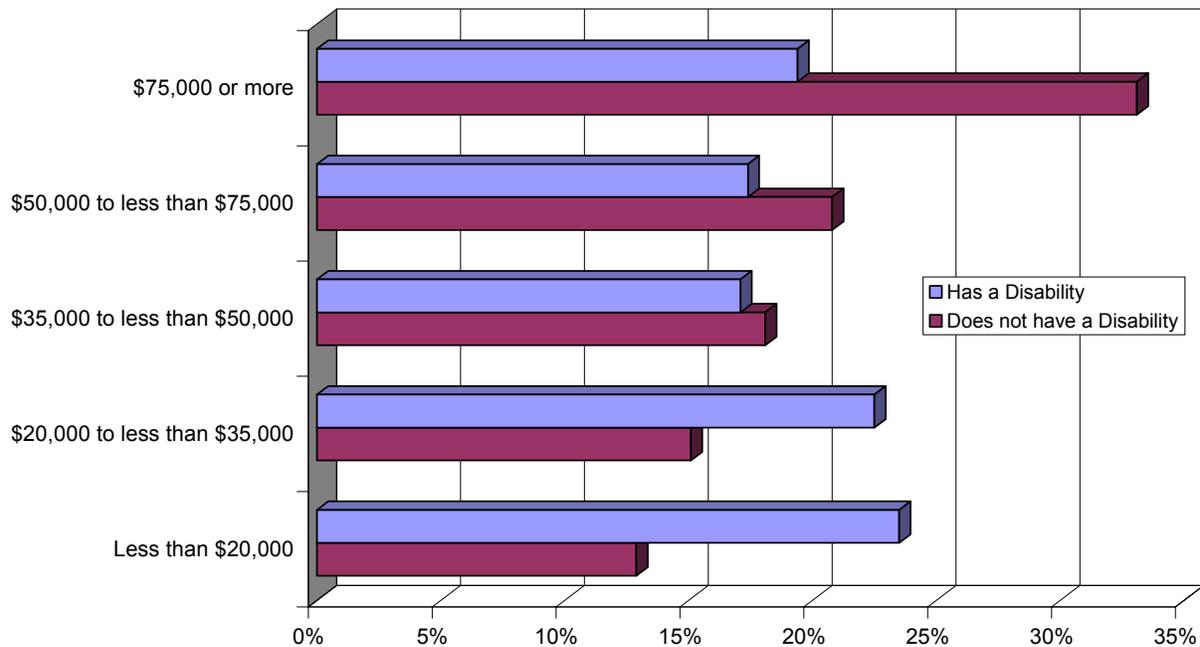
**Figure 2. Employment Status by Disability Status**



Source: 2001, 2003 – 2005 CDC BRFSS; Center for Applied Demography & Survey Research, University of Delaware

Given that those adults who have a disability are less likely to have graduated high school or college and are more likely to be unable to work, it is not surprising that the data reveals these individuals make considerably less money than their counterparts living without a disability. As shown in Figure 3, on the following page, over 23% of adults who have a disability earn less than \$20,000 per year compared to only about 13% of adults who do not have a disability. As a result, low levels of income may factor into ability to seek health care and other necessary services.

**Figure 3. Income by Disability Status**



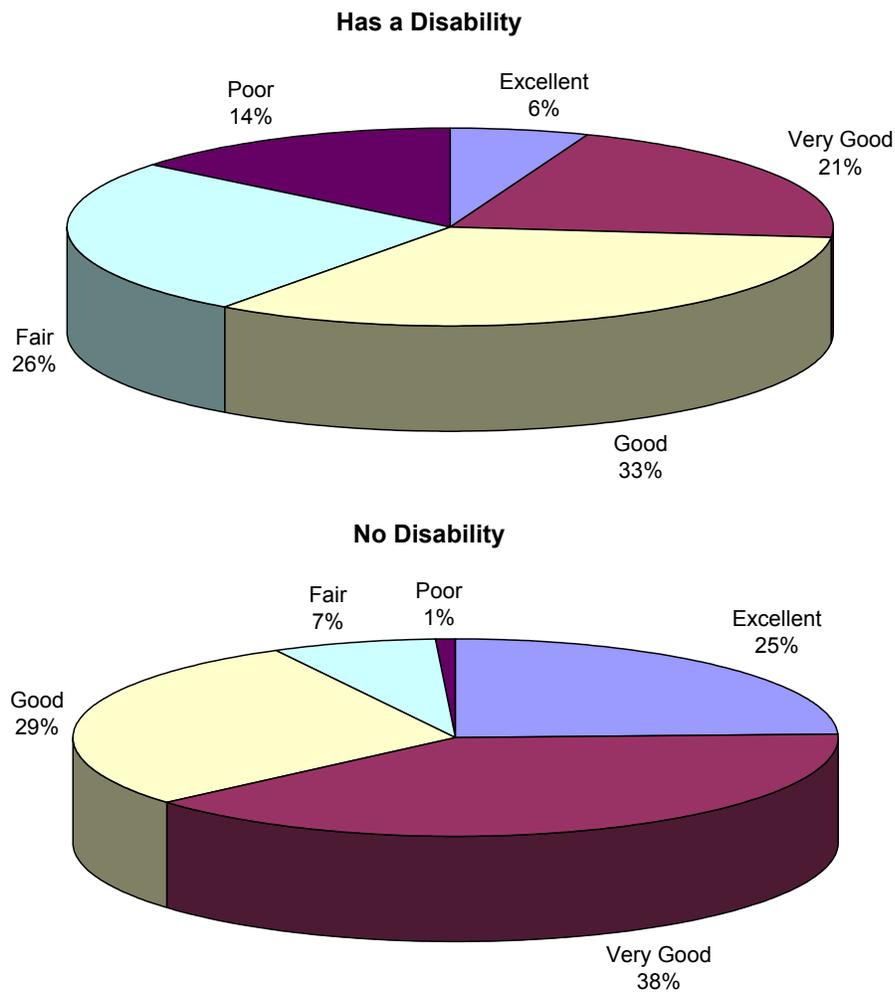
	Less than \$20,000	\$20,000 to less than \$35,000	\$35,000 to less than \$50,000	\$50,000 to less than \$75,000	\$75,000 or more
Has a Disability	23.5%	22.5%	17.1%	17.4%	19.4%
Does not have a Disability	12.9%	15.1%	18.1%	20.8%	33.1%

Source: 2001, 2003 – 2005 CDC BRFSS; Center for Applied Demography & Survey Research, University of Delaware

### HEALTH STATUS

In addition to exploring specific health problems and disease prevalence among adult Delawareans with disabilities, it is also important to understand their health status and ability to obtain medical care. Each survey respondent was asked to (1) give a general assessment of their personal health status, (2) indicate whether or not they had health insurance, and (3) indicate whether or not they had a personal doctor. The following section describes the health status and ability to seek medical care among the population of adults with disabilities in Delaware. The results of the analysis indicate that adults experiencing some form of disability do not consider themselves as healthy as adults who do not have any type of disability. Figure 4, above, highlights the dramatic difference in the perceived health status of those respondents with

**Figure 4. Health Status by Disability Status**

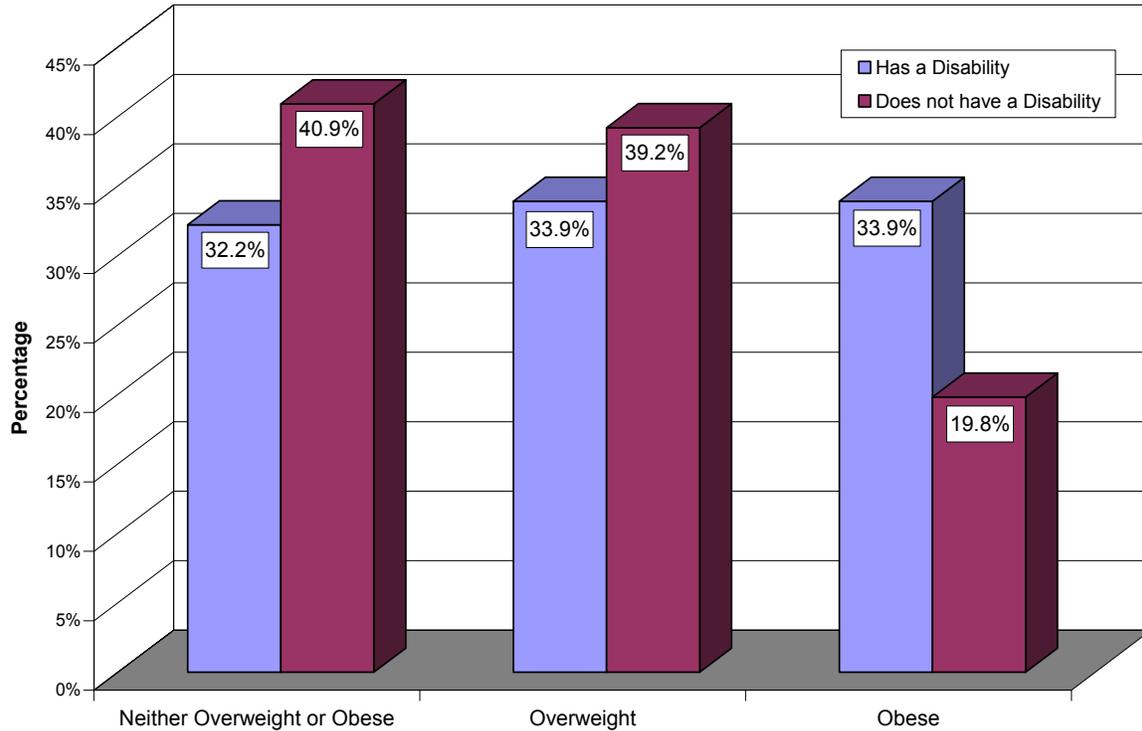


Source: 2001, 2003 – 2005 CDC BRFSS; Center for Applied Demography & Survey Research, University of Delaware

and without a disability. Forty-four percent of adults who have a disability consider themselves to have ‘fair’ or ‘poor’ health compared to less than 8% of adults who do not have a disability. These findings may be the result of adults with disabilities viewing their disabilities as diminishing their health status or an increased existence of a chronic disease or other possible explanations.

In addition to adults with disabilities’ ‘poorer’ level of general health status, they also appear to have a higher risk for and incidence of obesity than adults without a disability. As

**Figure 5. Body Mass Index (BMI) by Disability Status**



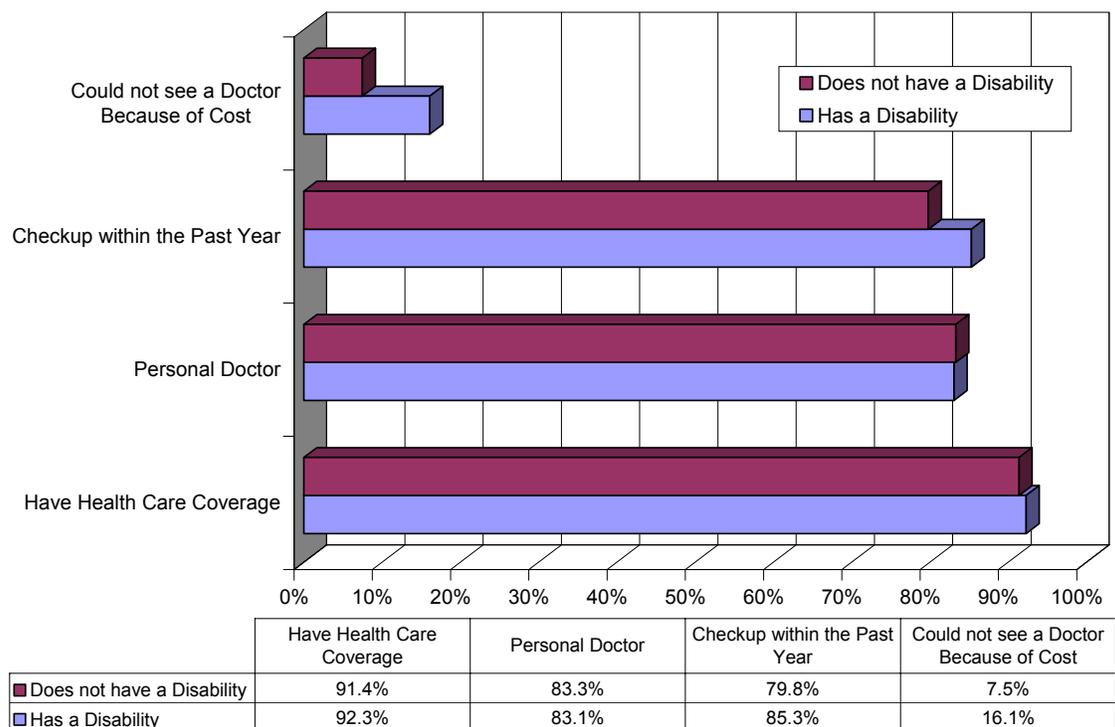
Source: 2001, 2003 – 2005 CDC BRFSS; Center for Applied Demography & Survey Research, University of Delaware

shown in Figure 5, above, the body mass index (calculated based on height and weight by the CDC) in approximately 68% of adults with disabilities is either overweight or obese, as compared to 59% of adults without some type of disability. This difference in weight status is particularly important because of the well known health risks associated with weight status, such as type 2 diabetes, cardiovascular disease, and musculoskeletal problems. This is also important because obesity and tobacco use are the two greatest causes of preventable deaths in the U.S.

Although adults with disabilities consider themselves to have ‘poorer’ general health as compared to adults who do not have disabilities, Figure 6, below, shows that adults with disabilities and adults without disabilities in the State of Delaware are equally as likely to have health insurance (~ 92%) as well as have someone they consider to be their primary care

physician (~ 83%). However, adults with disabilities are more likely to have a routine checkup (~ 85%) than adults without disabilities (~ 80%). One notable difference between the two groups is the percentage of the population unable to seek health care because of not being able to afford it. About 16.1% of adult Delawareans with disabilities are unable to see a doctor because of the cost compared to only 7.5% of adults who do not have a disability. The comparison of these two percentages is interesting in that it is the only data in this figure with such a large disparity. Possible explanations could be the cumulative costs of various co-pays or other associated appointment costs such as travel expenses.

**Figure 6. Health Care Access and Availability by Disability Status**



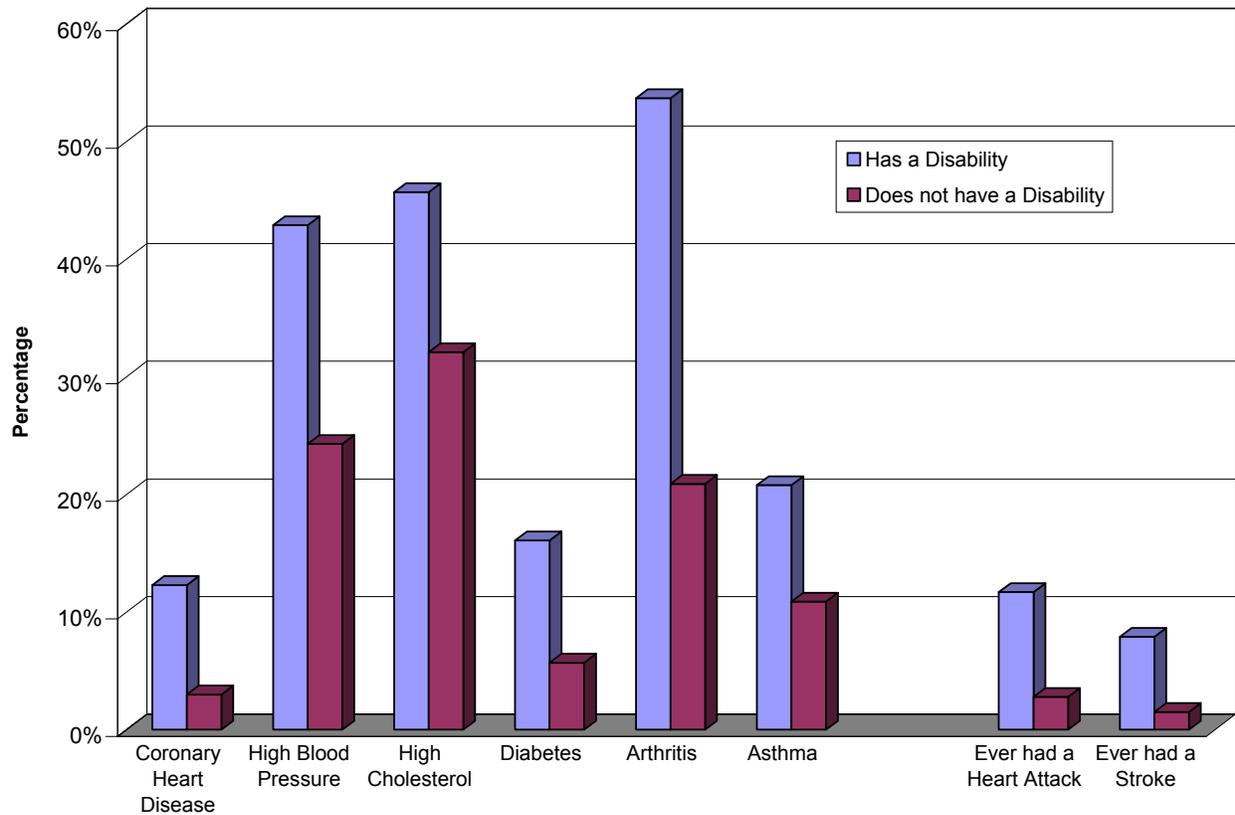
Source: 2001, 2003 – 2005 CDC BRFSS; Center for Applied Demography & Survey Research, University of Delaware

### OTHER HEALTH CONDITIONS

Respondents were also asked about the types of medical conditions or diseases with which they have been diagnosed by a physician. The results indicate that disease prevalence is

much higher among adults with disabilities than those adults who do not have a disability. The leading health problem among adults with disabilities was arthritis. Almost 54% of adults with disabilities have arthritis compared to only about 21% of adults without a disability. This could be a secondary result, at least in part, of the previously noted disparity in weight status. High cholesterol levels (~ 46%) and high blood pressure (~ 43%) were also dramatically higher among adults with disabilities as shown in Figure 7, below. In addition, about 21% of the adult Delaware population with disabilities has been diagnosed with asthma, 16% has been diagnosed with diabetes and approximately 12% has been diagnosed with coronary heart disease, all well above that of the adult population without disabilities. In addition, adults with disabilities are more likely to have had a heart attack (~ 12%) and/or a stroke (~ 8%).

**Figure 7. Disease Prevalence by Disability Status**



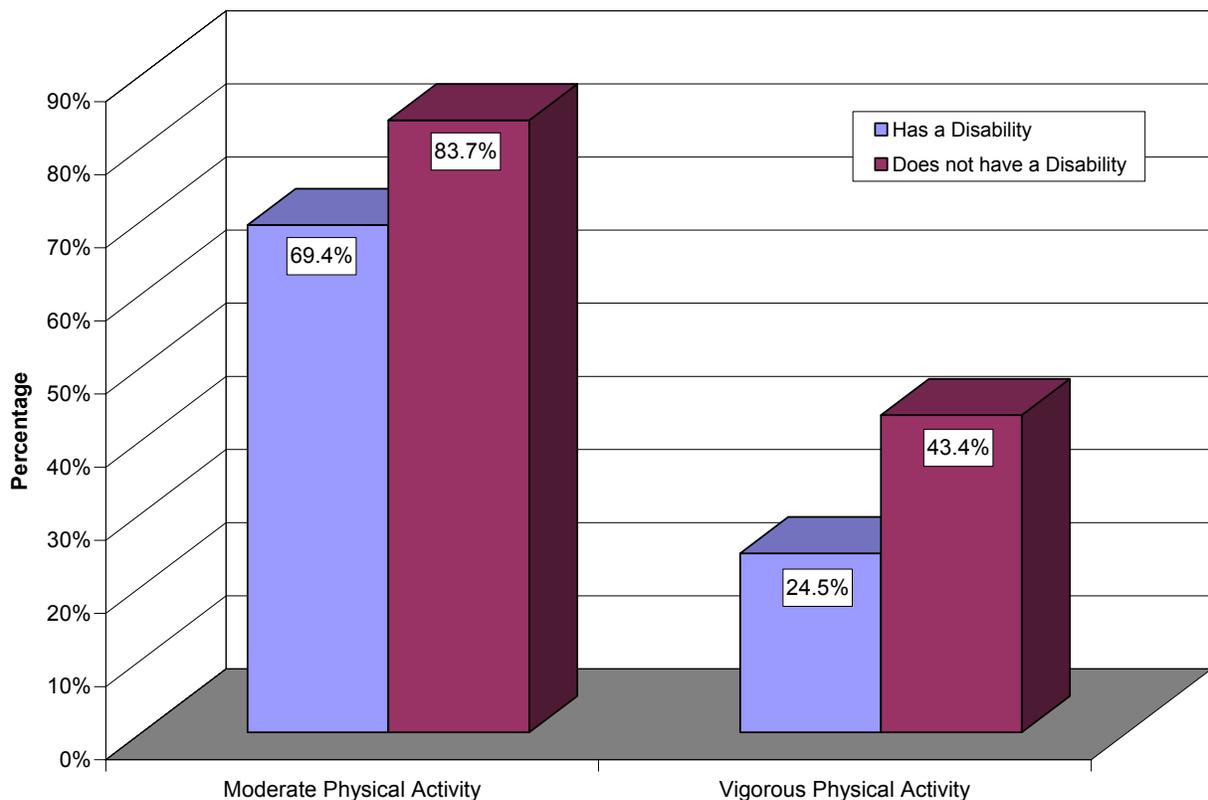
Source: 2001, 2003 – 2005 CDC BRFSS; Center for Applied Demography & Survey Research, University of Delaware

### HEALTHY CHOICES

Examination of the extent to which adults with disabilities report that they engage in healthy activities can provide insight into why chronic health conditions, discussed above, are more prevalent within Delaware’s adult disability population. The BRFSS asks questions about the amount of exercise in which individuals engage in, tobacco use, alcohol consumption, and risky behaviors. The following section describes the healthy choices of Delaware’s adult population.

The BRFSS asks questions regarding two types of physical activities: (1) moderate physical activity, defined as an activity that causes small increases in breathing or heart rate, and (2) vigorous physical activity, defined as an activity that causes large increases in breathing or

**Figure 8. Moderate and Vigorous Activities by Disability Status**

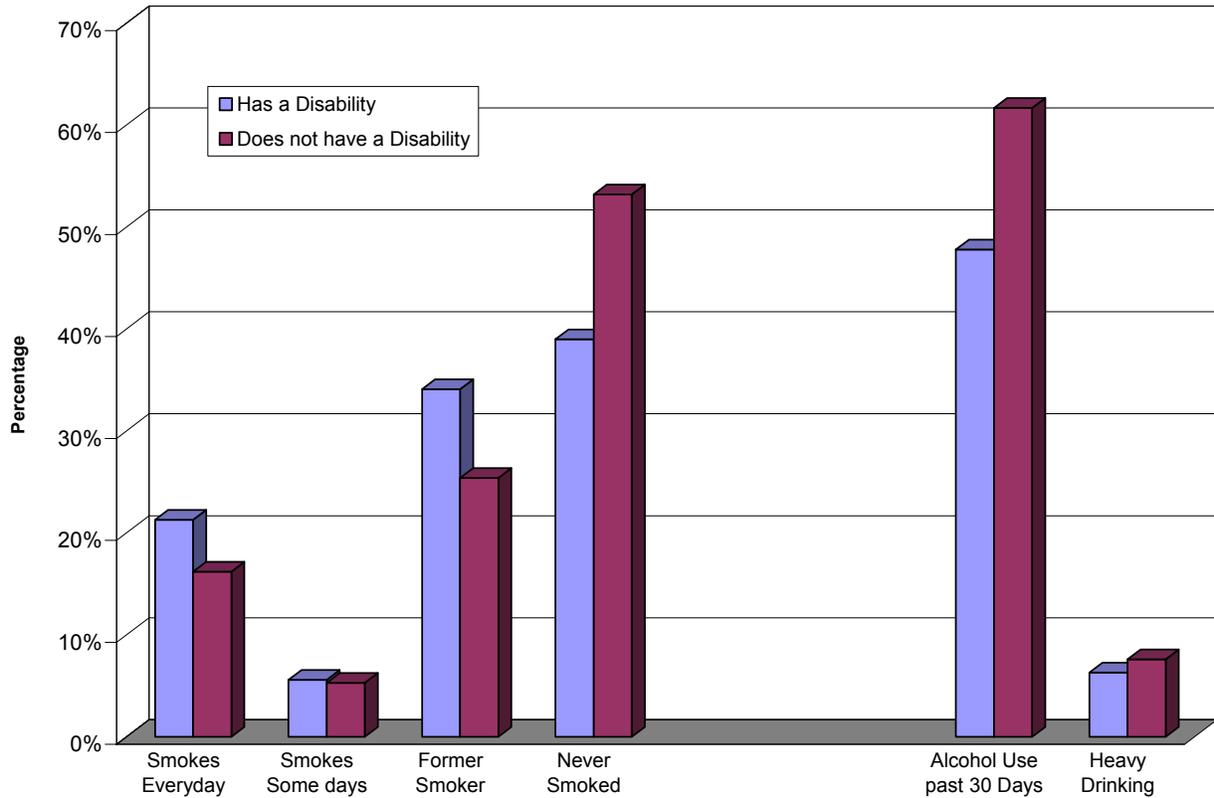


Source: 2001, 2003 – 2005 CDC BRFSS; Center for Applied Demography & Survey Research, University of Delaware

heart rate. The analysis shows that a substantial proportion, approximately 69%, of Delaware's adult population with disabilities engages in moderate physical activities. However, this is still significantly lower than the adult population without disabilities (~ 84%). Keep in mind that these are self-reported figures which could be overstated and that moderate physical activity is defined as only causing small increases in breathing or heart rate. When considering vigorous physical activity, only a small proportion, just over 24%, of adults with disabilities engage in vigorous physical activities. This decreased percentage from adults who participate in moderate activity (from 69% to just over 24%), however, is comparable to the decreased amount seen in the population of adults who do not have disabilities. From a percentage of 84%, only about 43% of the adult population without a disability engages in vigorous physical activities.

Tobacco use and alcohol consumption are related to high blood pressure and cardiovascular health. Given that the prevalence of high blood pressure and coronary heart disease is substantially higher among adults with disabilities than those without disabilities, as discussed above, it might be postulated that these risky behaviors are more prevalent among the population of adults with disabilities. As shown in Figure 9, adults with disabilities are slightly more likely to be current smokers; approximately 27% of adults with disabilities smoke either every day or some days, compared to just over 21% of adults without a disability. Adults with disabilities also are more likely to be former smokers; approximately 34% of adults with disabilities are former cigarette smokers compared to about 24% of adults without disabilities. Yet, adults with disabilities are less likely to have never smoked at all compared to adults without disabilities, approximately 38% versus 53% respectively. Lastly, approximately 25% of the non-smokers from the adults with a disability group are former smokers. To some that would imply a significant amount of successful smoking cessations efforts.

**Figure 9. Tobacco Use and Alcohol Consumption by Disability Status**



Source: 2001, 2003 – 2005 CDC BRFSS; Center for Applied Demography & Survey Research University of Delaware

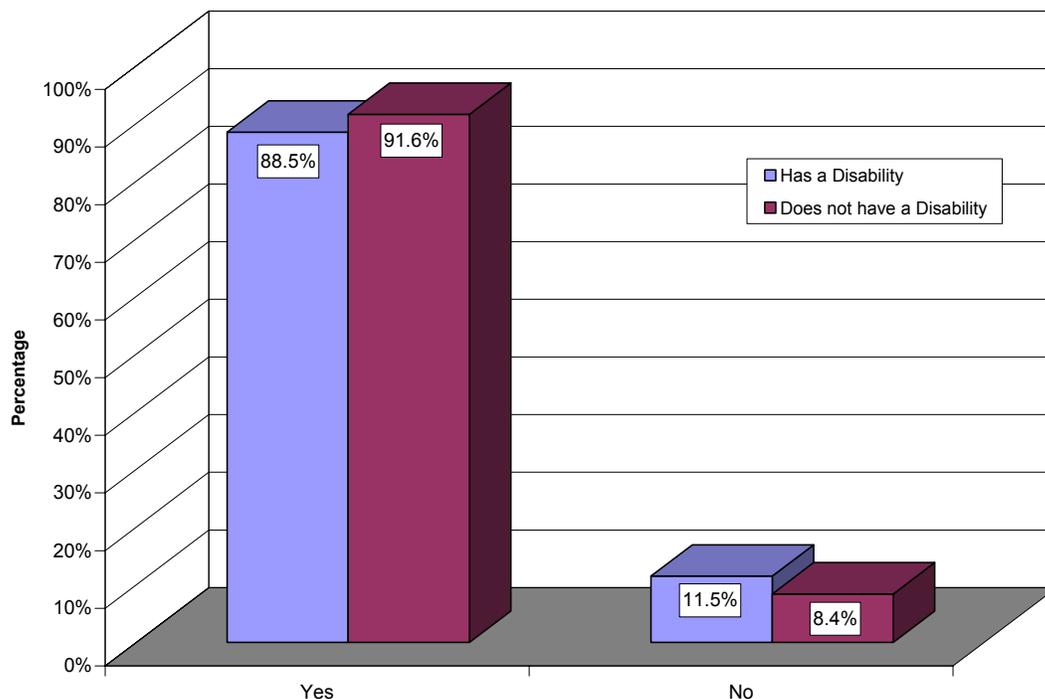
In contrast to the higher rate of smoking among adults with disabilities compared to adults without a disability, alcohol consumption is much lower. In fact, less than 50% of adults with disabilities in Delaware consumed alcohol in the past 30 days during the study period. Almost 62% of adults without a disability had consumed alcohol in the previous 30 days. Also of interest is the rate of heavy drinking among those who do drink, particularly since the amount one drinks appears to have an effect on the likelihood of developing high blood pressure or coronary heart disease. Heavy drinking is defined by the CDC as having more than two drinks per day for men and more than one drink per day for women. The results indicate that the proportion of adults with disabilities who are heavy drinkers (~ 6%) is slightly lower than the proportion of adults without some type of disability who are heavy drinkers (~ 8%).

### PREVENTATIVE HEALTH CARE

Preventative medical care is an important step in maintaining good health. The extent to which adults in Delaware living with disabilities can obtain preventative medical care may provide important information about the opportunities for those adults to maintain good health. The following graphs pertain to (1) women’s preventative health care, (2) men’s preventative health care, and (3) colorectal cancer screening.

One form of preventative medical care for women entails having a doctor or other medical professional perform a breast exam. A breast exam is one means of early identification of breast cancer or other abnormalities of the breast. All female respondents were asked if they had ever had a breast exam. As shown below in Figure 10, just over 88% of women with disabilities report ever having had a breast exam, compared to over 91% of women who do not have a disability.

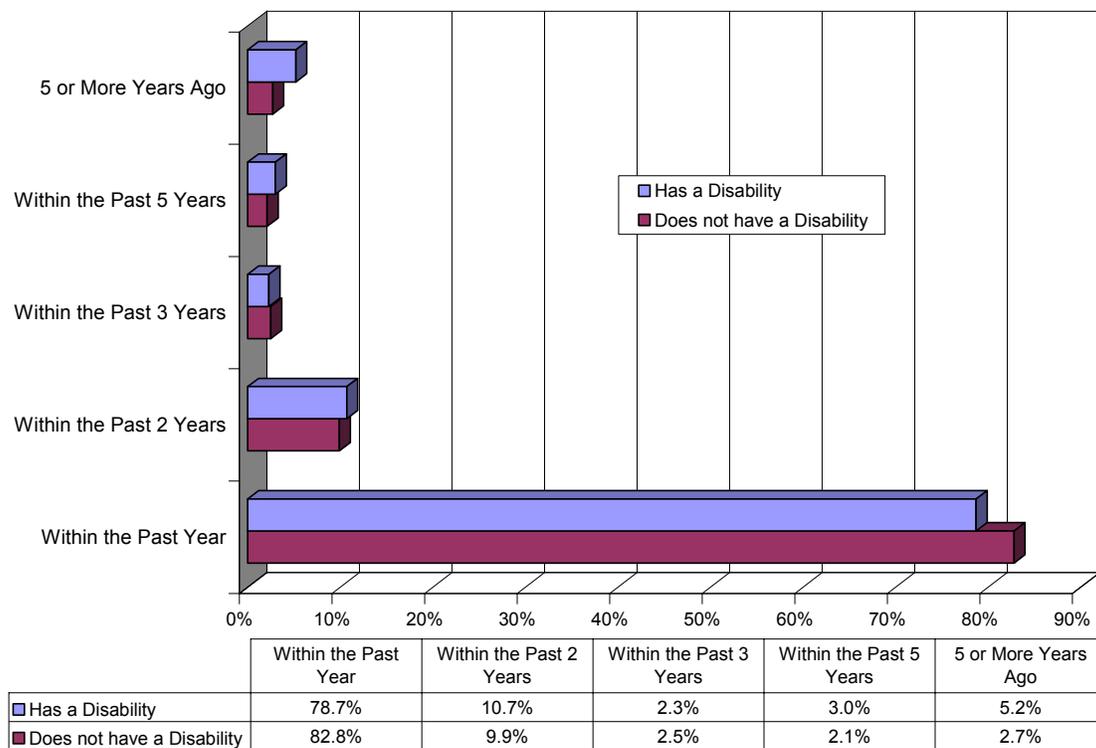
**Figure 10. Ever had a Breast Exam by Disability Status**



Source: 2002 and 2004 CDC BRFSS; Center for Applied Demography & Survey Research  
University of Delaware

As shown in Figure 11, below, of the proportion of women with disabilities who have reported that they have had a breast exam, about 79% of them had their exam within the past 12 month, and almost 90% within the past two years. This data is comparable to the proportion of the adult female population who do not have a disability (~ 93%). Roughly 5% of women with disabilities have not had a breast exam in five years or more, compared to only about 3% of the female population not living with a disability.

**Figure 11. Time Since Last Breast Exam by Disability Status**

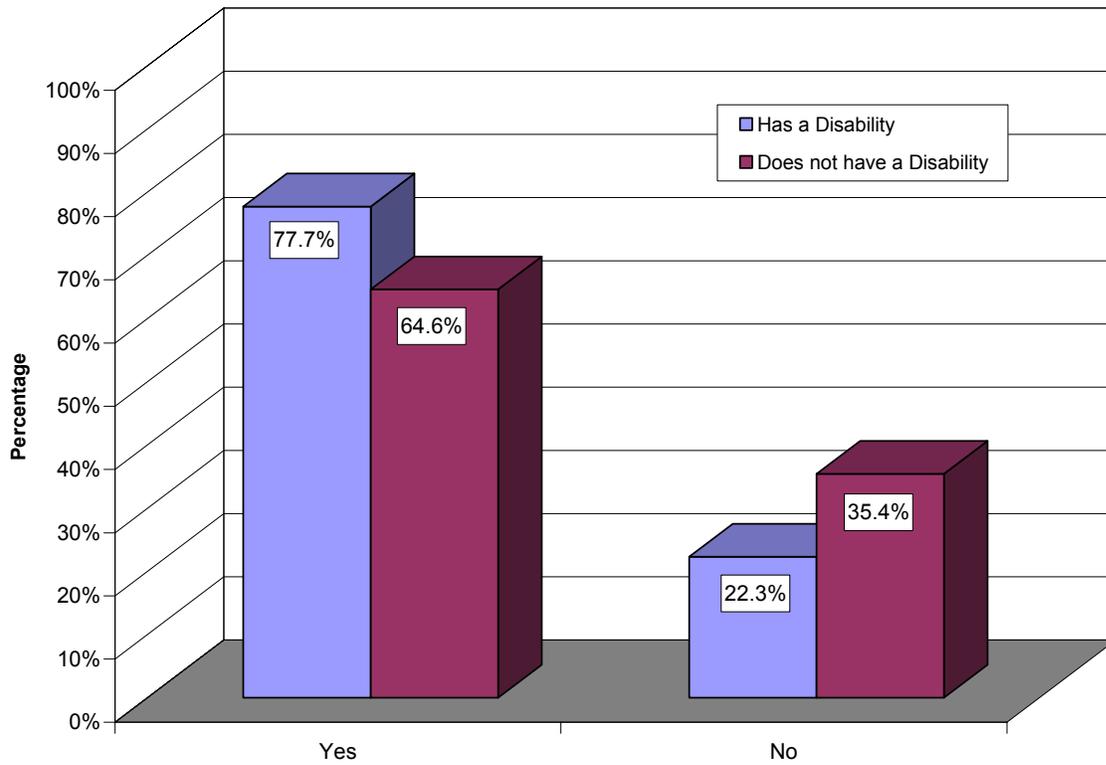


Source: 2002 and 2004 CDC BRFSS; Center for Applied Demography & Survey Research University of Delaware

Another means of early identification of breast cancer is a mammogram. A mammogram takes a picture of the tissue inside the breast to identify small masses not detectable through traditional, manual breast exams. Mammograms are typically conducted on women over the age of 40 and individuals who are considered at high risk for breast cancer due to familial history or

genetic marker identification. The proportion of women with disabilities who have had a mammogram at some point in their lifetime is considerably greater (~ 78%) than the proportion of female Delawareans who do not have a disability (~ 65%).

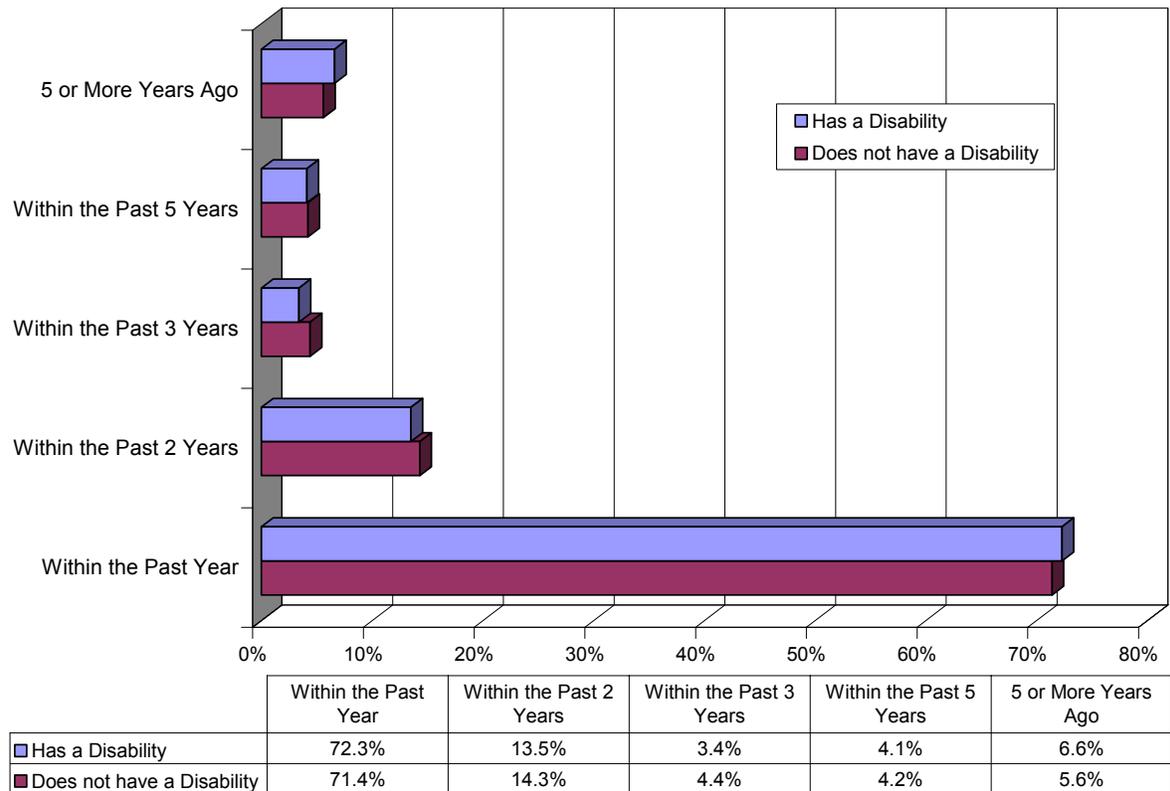
**Figure 12. Ever had a Mammogram by Disability Status**



Source: 2002 and 2004 CDC BRFSS; Center for Applied Demography & Survey Research  
University of Delaware

The American Cancer Society recommends that women over 40 obtain a mammogram annually. As shown in Figure 13, on the following page, the data indicate that of those women with a disability who have had a mammogram, only about 72% of them have received the test within the past year. This is almost identical to the proportion of women without a disability (~71%). The proportion of the women with a disability and the proportion of the women who do not have a disability are equally as likely to have had a mammogram within the past two years (~86%). However, roughly 6% of both groups have not had a mammogram in five years or more.

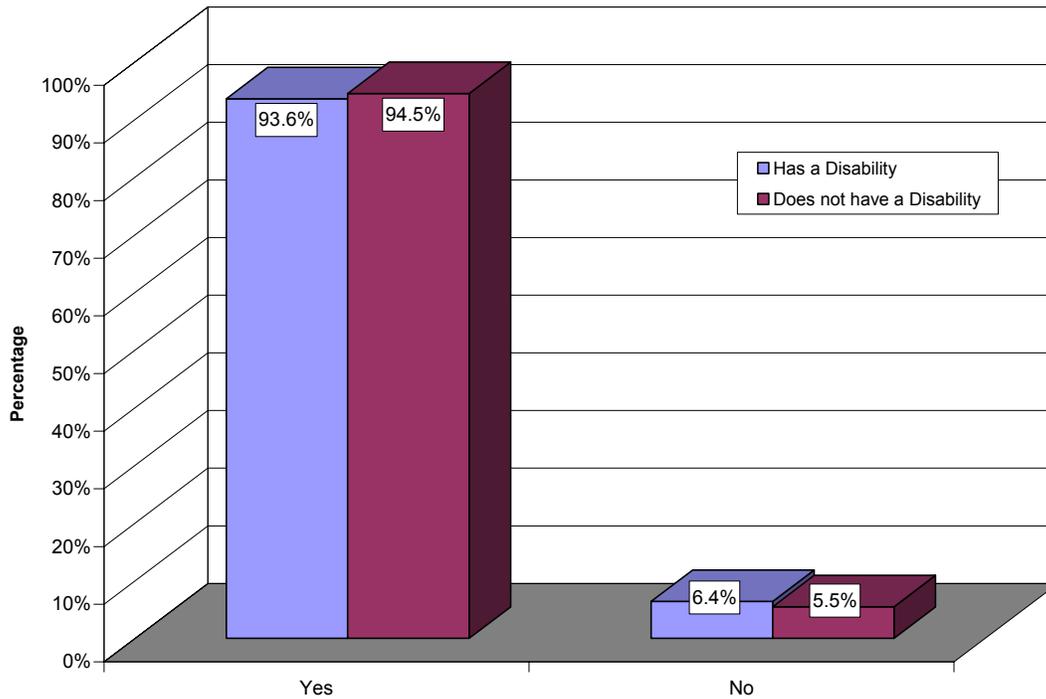
**Figure 13. Time Since Last Mammogram by Disability Status**



Source: 2002 and 2004 CDC BRFS; Center for Applied Demography & Survey Research  
University of Delaware

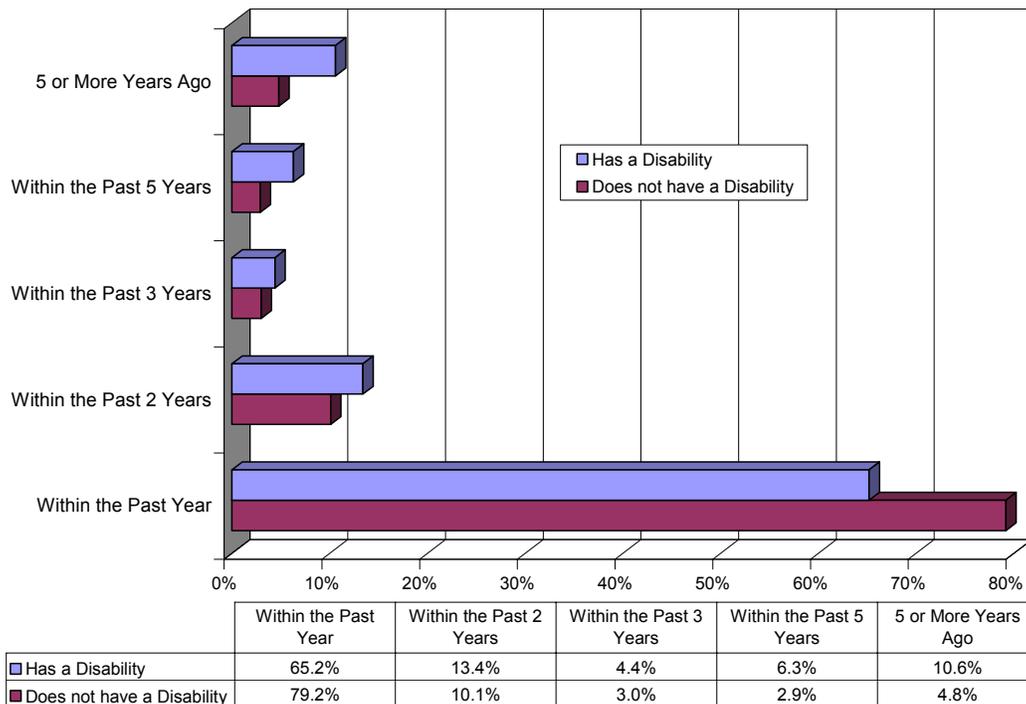
Another preventative health care screening test is a pap test. This test can identify abnormal cellular changes within a woman’s cervix which can be an indication of cancer. As shown in Figure 14, on the following page, adult females living with disabilities and those who do not have a disability are equally as likely to have obtained a pap test (~ 95%). However, the proportion of the female, adult population without disabilities who had a pap test within the past year (~ 79%) is considerably greater than the proportion of the same population who has a disability (~ 65%). Figure 16, on the following page, reflects that the proportion of women with disabilities who have not had a pap test in five or more year is also significantly greater, with over 10% not receiving the test within that timeframe compared to only about 5% of the female, adult population who do not have a disability.

**Figure 14. Ever had a Pap Exam by Disability Status**



Source: 2002 and 2004 CDC BRFSS; Center for Applied Demography & Survey Research University of Delaware

**Figure 15. Time Since Last Pap Exam by Disability Status**



Source: 2002 and 2004 2005 CDC BRFSS; Center for Applied Demography & Survey Research University of Delaware

Preventative health care is as important for men as it is for women. According to the American Medical Association, “prostate cancer is the most common type of cancer among men and the second leading cause of cancer deaths in males”.<sup>2</sup> To better understand who is and who is not being screened for prostate cancer, all male respondents over the age of 39 were asked a series of questions related to prostate cancer screening during the administration of the BRFSS.

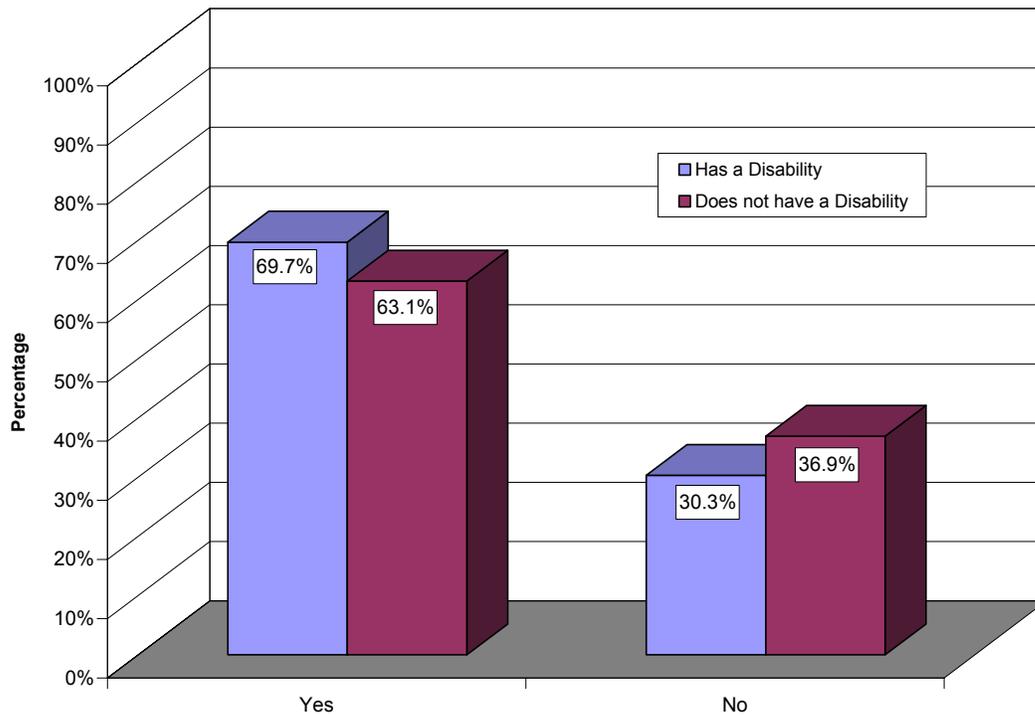
One of the primary means for early identification of prostate cancer is through a Prostate-Specific Antigen (PSA) test. Accordingly, respondents were asked if they had ever had a PSA test and the length of time that had past since their last PSA test. As shown in Figure 16, on the following page, the results suggest that men who are living with disabilities in the State of Delaware are more likely than men who do not have a disability to have had a PSA test; approximately 70% of men with disabilities have had a PSA test in their lifetime, compared to only about 63% of men who do not have a disability. This may be due to the relative age of persons with disabilities in the State of Delaware coupled with the greater frequency in routine checkups as discussed previously.

In examining those individuals who had a PSA test, about 75% of men with disabilities had a PSA test within the past year as shown in Figure 17 on the following page. Similarly, about 73% of men who do not have some form of disability had a PSA test in the past year. This slight difference drops out when examining the percentage who have received a PSA test within the past two years; results show that about 80% of individuals in both groups have had a PSA test within the past two years. In addition, those who have not had a PSA test in three years or more is about the same for men who have a disability and men who do not have a disability.

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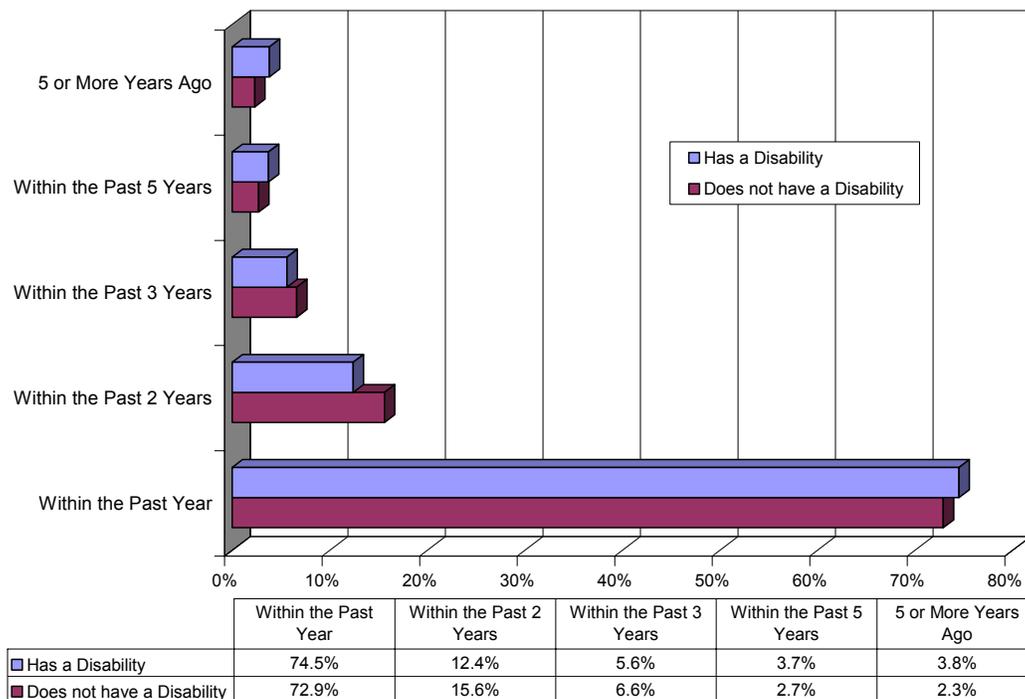
<sup>2</sup> American Medical Association. (2000). Feature Report: Screening and Early Detection of Prostate Cancer. <http://www.ama-assn.org/ama/pub/category/13604.html>.

**Figure 16. Ever had a PSA Test by Disability Status**



Source: 2002 and 2004 CDC BRFSS; Center for Applied Demography & Survey Research University of Delaware

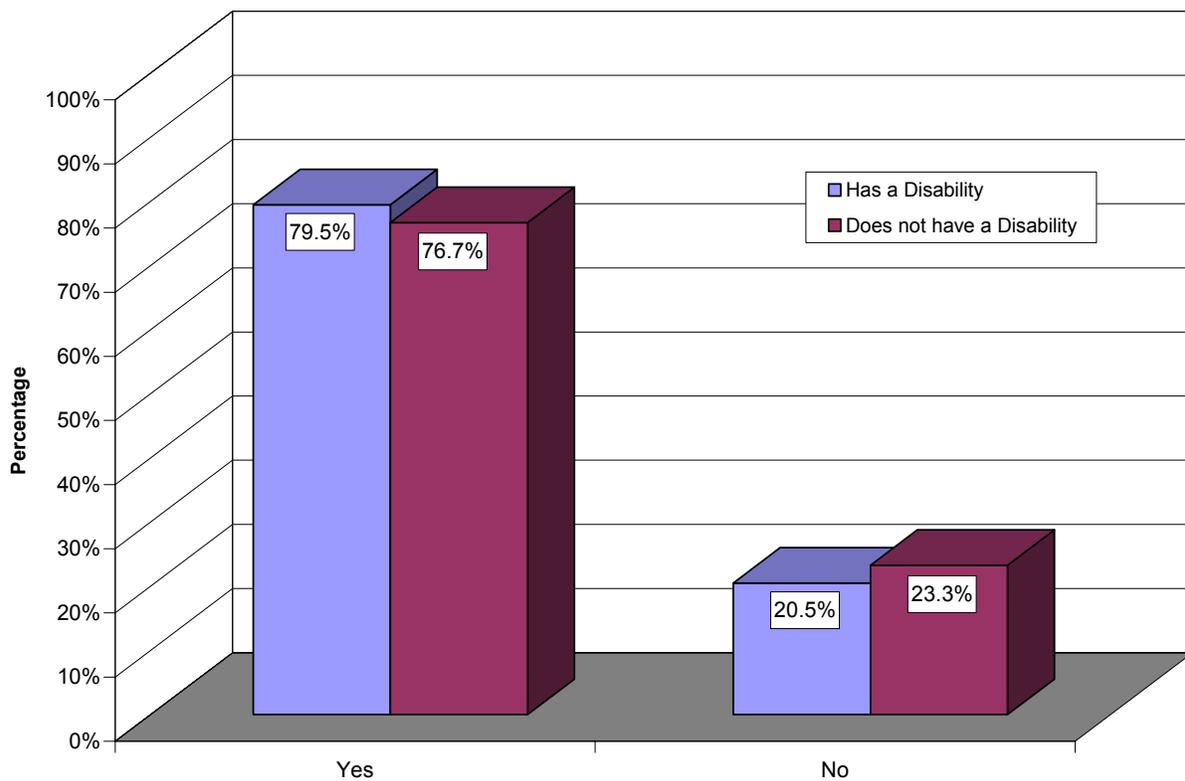
**Figure 17. Time Since Last PSA Test by Disability Status**



Source: 2002 and 2004 CDC BRFSS; Center for Applied Demography & Survey Research University of Delaware

In addition to a PSA test, male patients are often given a digital rectal exam, which enables a doctor to physically feel the prostate, to determine if there are any bumps or other abnormalities with the prostate. Similar to the differences between men living with a disability who have had a PSA test and men who do not have a disability, men who have a disability are more likely than men who do not have a disability to have had a digital rectal exam. Almost 80% of men living with a disability in the State of Delaware have had a digital rectal exam, compared to about 77% of men who do not have a disability.

**Figure 18. Ever had a Digital Rectal Exam by Disability Status**

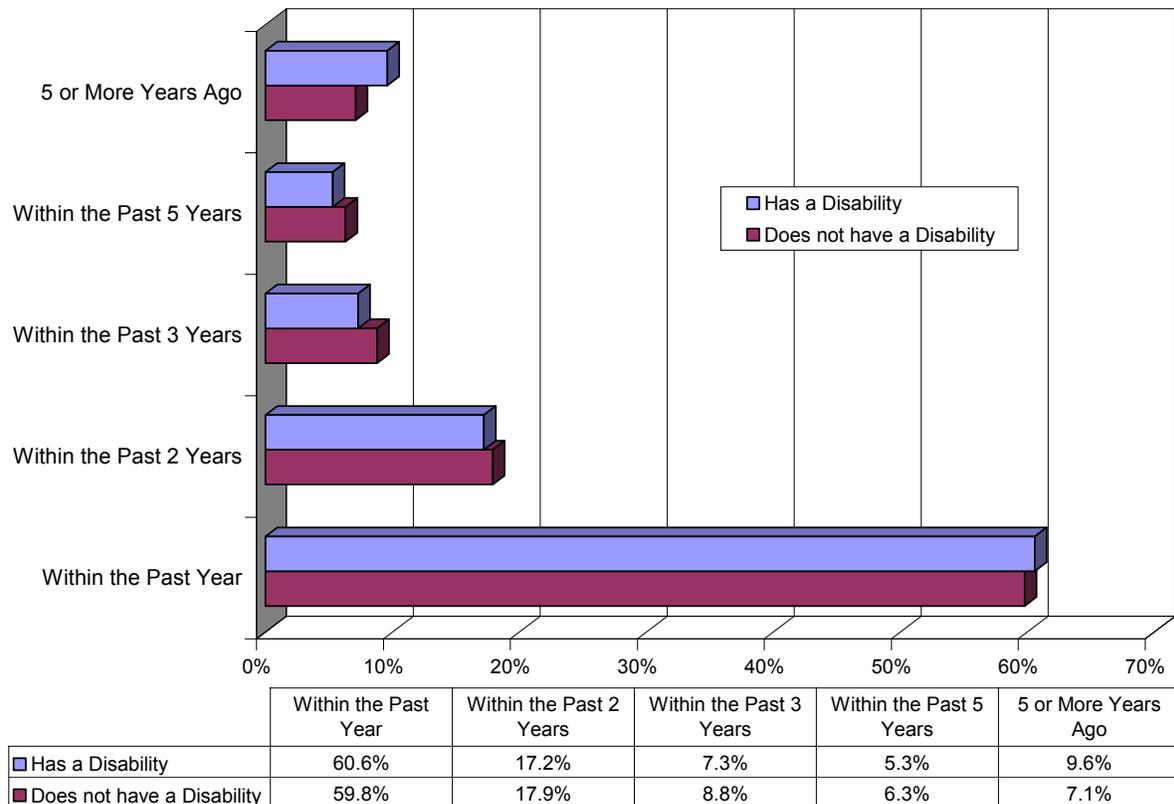


Source: 2002 and 2004 CDC BRFSS; Center for Applied Demography & Survey Research  
University of Delaware

As shown in Figure 19, below, of those men who have had a digital rectal exam in their lifetimes, approximately 60% have had a digital rectal exam within the past year, regardless of disability status. The greatest variability in time since last digital rectal exam is seen in those

individuals who had their last digital rectal exam five or more years ago; almost 10% of men with disabilities had not had such an exam in five or more years, compared to only 7% of men who do not have a disability.

**Figure 19. Time Since Last Digital Rectal Exam by Disability Status**

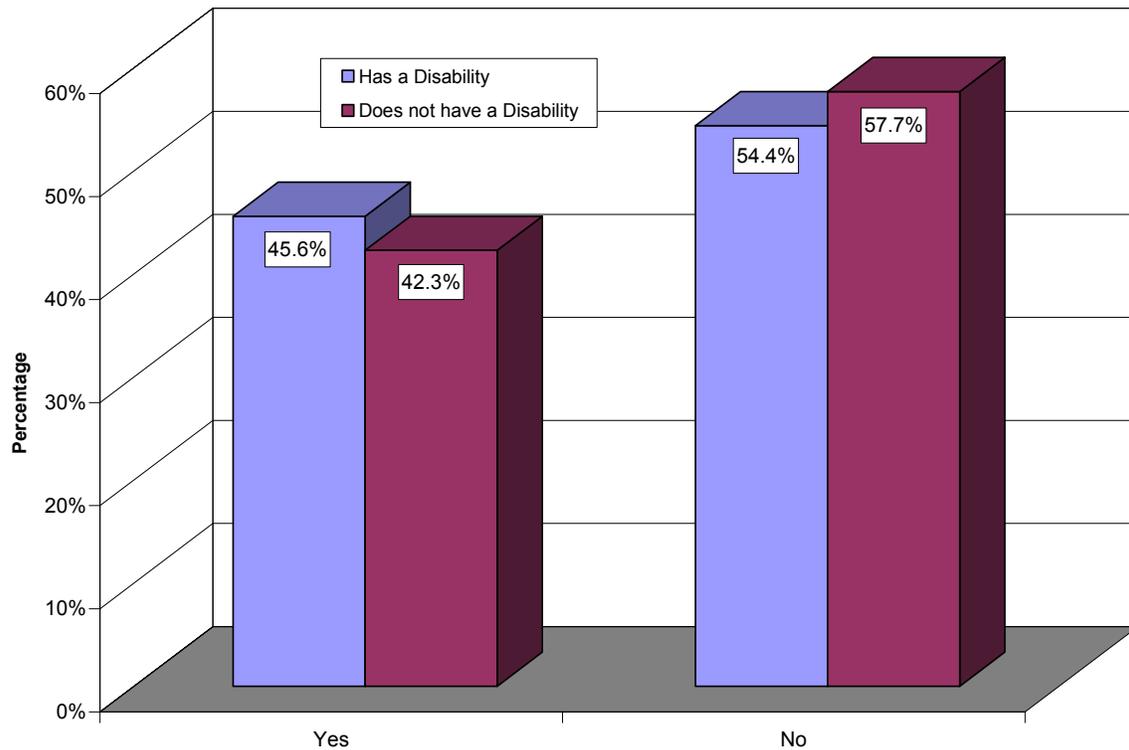


Source: 2002 and 2004 CDC BRFSS; Center for Applied Demography & Survey Research  
University of Delaware

As the population ages, the incidence of serious illnesses, such as colorectal cancer, increases. To identify the proportion of the adult population who has received preventative screening for colorectal cancer, all respondents 50 years of age and older were asked a series of questions regarding the frequent colorectal cancer screening tests used. The first question asked of respondents pertained to a home blood-stool test kit. The results indicate that there is only a slight difference in the proportion of Delawareans living with a disability who have used a home

blood-stool test kit (~ 46%) and the proportion of Delawareans who do not have disability who have used a home blood-stool test kit (~ 42%).

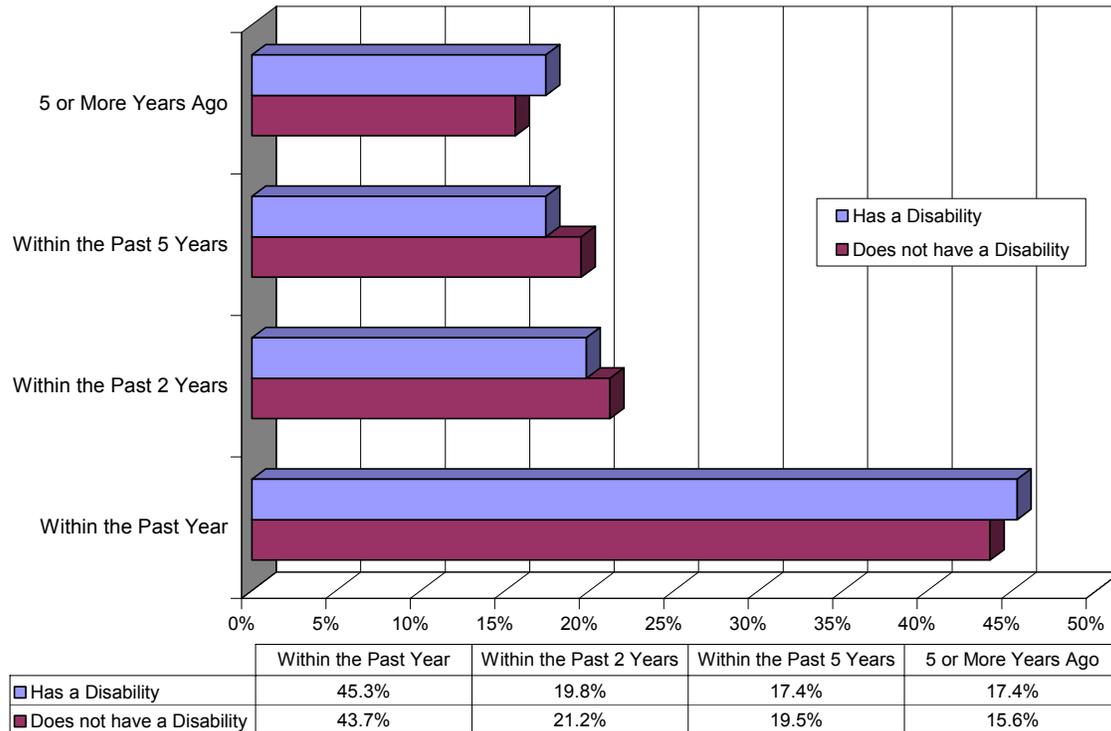
**Figure 20. Ever Used a Home Blood Stool Kit by Disability Status**



Source: 2001, 2003 – 2005 CDC BRFSS; Center for Applied Demography & Survey Research  
University of Delaware

The length of time that has passed since last using a home blood-stool kit was fairly similar among those who have a disability and those who do not have a disability. As shown in Figure 21, on the following page, approximately 45% of Delawareans living with disabilities that have used a home blood-stool test kit utilized the test kit within the past year. Similarly, 44% of the adult population who do not have a disability has used a home blood stool test kit within the past year. However, a greater proportion of adults with disabilities than adults without disabilities have not used a home blood-stool kit in five years or more.

**Figure 21. Time Since Last Used a Home Blood Stool Kit by Disability Status**



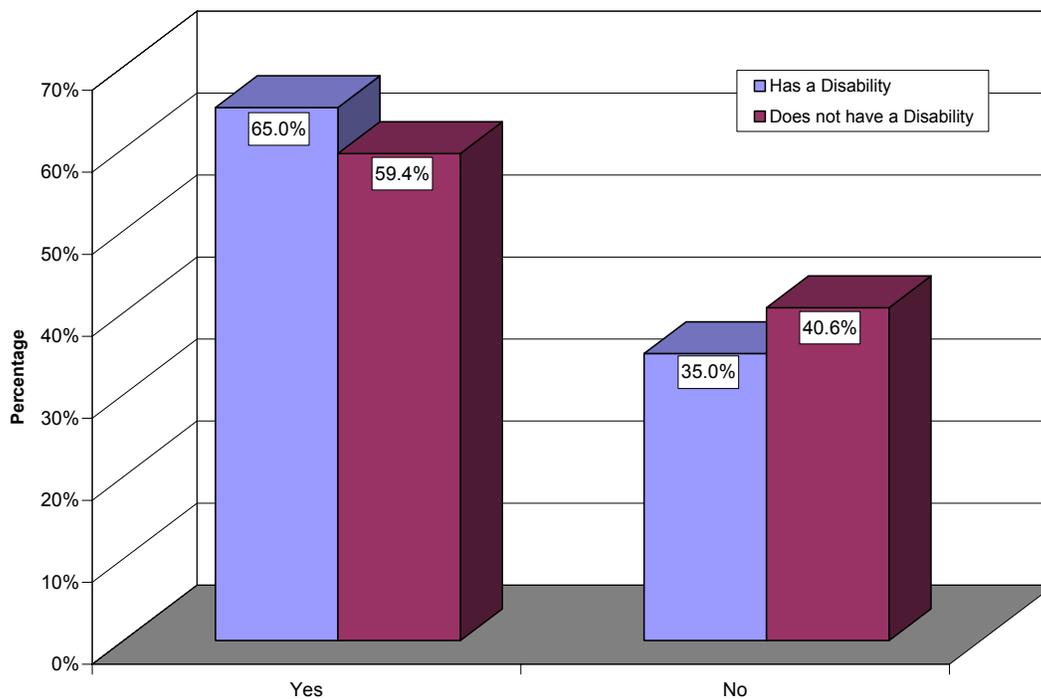
Source: 2001, 2003 – 2005 CDC BRFSS; Center for Applied Demography & Survey Research University of Delaware

In addition to being asked if they ever used a home blood-stool test kit, respondents were asked if they had ever had a sigmoidoscopy or colonoscopy. These tests allow for a visual view of the health of the colon. As shown in Figure 22, on the following page, the results indicate that 65% of respondents living with disabilities have had a sigmoidoscopy or colonoscopy at some point in their lives. This is somewhat higher than the percentage of respondents who do not experience some form of disability who have had a sigmoidoscopy or colonoscopy at some point in their lifetimes (~ 59%).

When exploring how recent individuals received their sigmoidoscopy or colonoscopy, respondents were asked how much time had passed since their last sigmoidoscopy or colonoscopy. The results indicate that just over a third of individuals 50 years of age and older

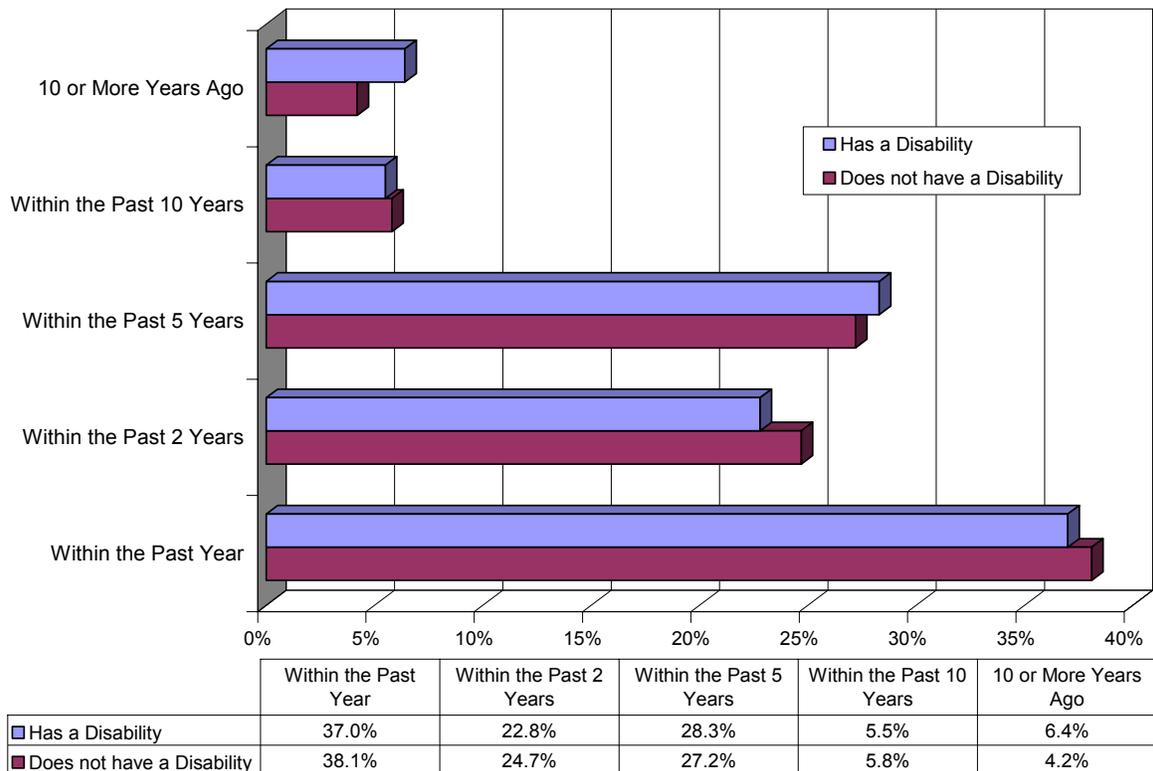
who have a disability (~ 37%) and just over a third of individuals 50 years of age and older who do not have a disability (~ 38%) in the State of Delaware have had a sigmoidoscopy or colonoscopy within the past year as shown in Figure 23, on the following page. When examining whether or not Delawareans had a sigmoidoscopy or colonoscopy within the past two years, this figure jumps to about 60% of Delawareans with disabilities and about 63% of Delawareans without disabilities. Approximately 12% of individuals with disabilities, and about 11% of individuals without disabilities have not had a sigmoidoscopy or colonoscopy in 5 years or more in the State of Delaware.

**Figure 22. Ever had a Sigmoidoscopy or Colonoscopy by Disability Status**



Source: 2001, 2003 – 2005 CDC BRFSS; Center for Applied Demography & Survey Research  
University of Delaware

**Figure 23. Time Since Last Sigmoidoscopy or Colonoscopy by Disability Status**



Source: 2001, 2003 – 2005 CDC BRFSS; Center for Applied Demography & Survey Research  
University of Delaware

### CONCLUSIONS

This study explores the demographic characteristics, health status and chronic health conditions among the population of adults with disabilities within the State of Delaware. It utilizes data from the Centers for Disease Control and Prevention’s (CDC) Behavioral Risk Factor Surveillance System (BRFSS) Survey. The results indicate that Delaware’s population of persons living with a disability have a higher probability of reporting poor health and have a significantly greater risk for some noted chronic health conditions.

It is estimated that approximately 18% of Delaware’s adult population experience some form of disability which either limits their activity or requires the use of special equipment. Although the majority of Delaware’s population of adults with disabilities resides in New Castle County, Sussex County has the greatest proportion of persons living with a disability within a

County. The fact that Sussex County has the largest aging population in terms of percent of the population may explain this demographic trend.

Adult Delawareans with disabilities are less likely to have graduated high school and college and also have a higher rate of unemployment than those who are without a disability. Furthermore, 20% of the adult disability community in Delaware is considered unable to work as a result of their physical, mental or emotional health problems. In addition to (1) lower educational attainment, (2) higher rates of unemployment, and (3) a higher proportion of this population being unable to work, adults with disabilities also make significantly less income than those without a disability.

Adults with a disability also fare worse than those without a disability when it comes to their general health; about 40% of the population living with a disability report having ‘fair’ to ‘poor’ health, compared to roughly 8% of adults living without a disability. Similarly, adults with a disability are far more likely to be overweight or obese than those who do not have a disability. Importantly, obesity places individuals at a higher risk for a number of poor health outcomes including diabetes type 2, heart disease, arthritis, and other conditions.

Despite the reported poorer general health status of the adult population living with a disability, the data show that adults with disabilities are more likely to have had a routine checkup in the past year than adults not living with a disability. It could be that being having poorer health may lead the adult individuals with disabilities to seek out medical care more readily. And yet, in looking at health care access, it was most notable that the percentage of the adult population living with a disability reporting that they were “unable to go to a doctor because of the cost” was substantially higher than the percentage of the population who do not experience some form of disability. But, interestingly enough, the two groups are equally as

likely to have some form of health care coverage (i.e., private insurance, Medicaid, Medicare) and equally as likely to have a personal care doctor. These data require some informed analysis. One possible explanation might be the influence of associated costs, such as transportation or appointment co-pays.

When examining disease prevalence, the proportion of the adult population who have a disability experience a much higher rate of coronary heart disease, high blood pressure, high cholesterol, diabetes, arthritis, and asthma than the proportion of the adult population who do not have a disability. According to the data presented, it can be postulated that due to the high rate of coronary heart disease, high blood pressure, and high cholesterol, it is not surprising that persons with disabilities are more likely to have had a heart attack or stroke than individuals who do not have a disability. It should be noted that because the BRFSS does not ask the nature of respondents' disabilities, it is possible that the correlation between having a disability and high rates of chronic health conditions is the result of activities being limited or need to use special equipment being due to one or more of these health conditions. This implied unanswered question lies at the heart of much of this data. When are disability and chronic illness the same and when are they different? When are they separate and when do they overlap? And, lastly, does the BRFSS data help sort out these two entities?

Three health-associated, lifestyle and behavioral factors were found in different rates between adults with and without disabilities: obesity, smoking, and vigorous activity rates. Exercise is an important part of maintaining one's health. When examining the types of physical activities people engage in, it is apparent that many adult Delawareans with disabilities do not engage in physical activities that lead to large increases in their heart and breathing rates. The BRFSS does not ask why a respondent does not engage in such activities, and therefore it is

impossible to determine if this is the result of an inability to engage in moderate or vigorous activities or lifestyle choice. Cigarette smoking and alcohol consumption were examined to explore high risk behaviors that could be correlated with high rates of chronic diseases and other health problems. Although cigarette smoking is higher among the adult disability population, the use of alcohol and the rate of heavy drinking by adults with disabilities are lower than among adults who do not have a disability. Obesity and tobacco use are the two largest causes of preventable deaths in the U.S. according to recent health statistics, thusly any health promotion program geared towards adults with disabilities should entail wellness initiatives that address these issues.

To examine the extent to which adult Delawareans living with disabilities were obtaining preventative medical care services, this study also examined women's preventative health care, men's preventative health care, and colorectal cancer screening. For women's preventative health care services, data presented included the proportion of the female population who had a breast exam, a mammogram, and a pap test, in addition to how recently these preventative screening tests were conducted. The results indicate that in Delaware, women with disabilities are about as likely as women without disabilities to obtain preventative medical care services with the majority of both groups obtaining screening tests within the past two years.

When examining men's preventative health care services, the presented data addressed whether or not a Prostate-Specific Antigen (PSA) test had been conducted, whether or not a digital rectal exam had been conducted, and the time that had lapsed since these screening tests were last performed. The results show that although there is little difference between men living with disabilities and men who do not have a disability in the State of Delaware, men with a disability are slightly more likely to have received both a PSA test and digital rectal exam with

the majority of both groups receiving these screening tests within the past two years. However, men with disabilities are more likely than women with disabilities to have had preventative health care screening tests completed. Also, amongst those adults who have received a preventative health care test men with disabilities had such screening tests conducted more recently when compared to women with disabilities.

Finally, all respondents over the age of 49 were asked about colorectal cancer screening. These questions asked whether the respondent had ever used a home blood-stool test kit and whether the respondent had ever had a sigmoidoscopy or colonoscopy. Adult Delawareans living with disabilities were slightly more likely than those living without disabilities to have had either screening tests conducted, with the majority of both groups having had completed these tests within the past two years. One confounding issue with the preventative screening data presented is that it did not distinguish whether the tests were performed for screening purposes alone. For instance many times a PSA test is used to follow the progress of a patient's therapeutic status.

This study reveals some information about the health status of adults with disabilities in Delaware. In order to continue to better understand the relationship between health and disability status it is important that additional epidemiologic capacity is obtained. This is the purpose of the disability-focused, modified adult survey currently being conducted by the **Healthy Delawareans with Disabilities 2010** initiative. It is hoped that this survey will examine the relationship between different types of disabilities and chronic health problems. Additionally, it is hoped that this research effort will assist Delaware in identifying the need for services among its disability population. Particularly, it is anticipated that the research will identify service opportunities in the area of health promotion and wellness that will improve the health status and quality of life of individuals with disabilities in Delaware and their families.

**APPENDIX A**

**Disability question added to the 2005 CDC BRFSS in Delaware**

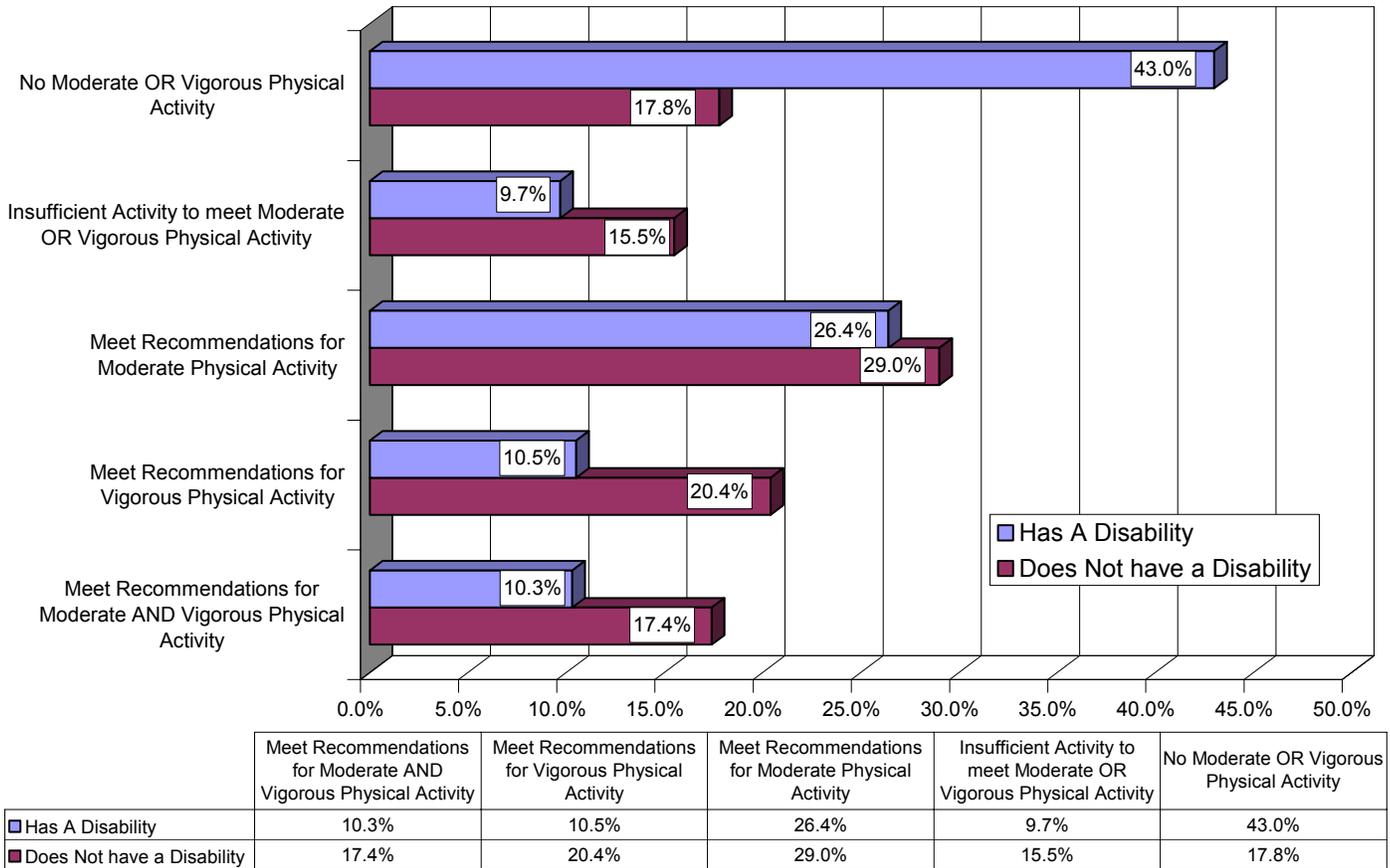
You indicated that you have a health problem or impairment that limits your activities. How would you generally describe this disability? Is it...

- A visual problem
- A hearing problem
- Other physical problem (due to chronic illness, accident, etc.)
- An emotional problem (such as depression, anxiety or a psychiatric illness)
- Or other type of disability

**ADDENDUM**  
**(9/6/2006)**

In order to better understand the amount of physical activity adults with disabilities in Delaware are engaging in, it is important to examine whether or not that activity meets the Centers for Disease Control and Prevention's (CDC's) recommended levels of duration, intensity and frequency. Such recommended levels are said to convey a 'health benefit' while activity which does not meet these levels is said to not convey such a benefit. It is likely that such recommended levels do not consider the prevention of disability-related secondary conditions but rather some measurement of cardiovascular health and fitness. As indicated previously, in Figure 8, just over 69% of adults with disabilities in Delaware engage in 'some' moderate physical activity and just over 25% of them engage in 'some' vigorous physical activity. However, as shown in Figure 8.1, below, only 26.4% of this adult population actually meets the CDC's recommended levels of moderate physical activity and only 10.5% of them meet the CDC's recommended levels for vigorous physical activity. Additionally, 10.3% of the adult population with disabilities in Delaware meets the CDC's recommended levels for both moderate and vigorous physical activity. The remaining 9.7% of this adult population who did, indeed, report engaging in 'some' moderate and/or vigorous physical activity engaged in insufficient levels of physical activity according to the CDC's threshold criteria. Lastly, a total of 43.0% of adults with disabilities in Delaware engaged in neither moderate nor vigorous physical activity. By comparison, only 17.4% of the adult population without disabilities in Delaware engages in neither moderate nor vigorous physical activity.

**Figure 8.1. Meets Recommended Levels of Moderate and Vigorous Physical Activities by Disability Status**



Source: 2001, 2003-2005 CDC BRFSS; Center for Applied Demography & Survey Research, University of Delaware